

Golden Gate Bridge Physical Suicide Deterrent System Project

04-MRN-101-GGHT
Federal Project #: STPL-6003(030)

Final Environmental Impact Report and Environmental Assessment and Section 4(f) Evaluation with Finding of No Significant Impact



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

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



January 2010

GENERAL INFORMATION ABOUT THIS DOCUMENT

The Golden Gate Bridge, Highway and Transportation District (District), in cooperation with the California Department of Transportation (Department), as assigned by the Federal Highway Administration (FHWA), have prepared this Environmental Impact Report/Environmental Assessment (EIR/EA), which examines the potential environmental impacts of the alternatives being considered for the proposed project located in the City and County of San Francisco and Marin County, California. The Final EIR/EA contains a summary of substantive comments related to environmental issues in the Draft EIR/EA and responses to those comments. Where modifications to the Draft EIR/EA were made in response to comments, the location of these changes is identified by the placement of a vertical line in the margin.

At a future date, FHWA or other federal agencies may publish a notice in the Federal Register, pursuant to 23 USC Section 139(1), indicating that a final action has been taken on this project by the FHWA or another federal agency. If such notice is published, a lawsuit or other legal claim will be barred unless it is filed within 180 days from the date of publication of the notice (or within such shorter time period as is specified in the federal laws pursuant to which jurisdictional review of the federal agency action is allowed). If no notice is published, then the lawsuit can be filed as long as the periods of time provided by other federal laws that govern claims are met.

You can view the project document by visiting the project website @www.ggbsuicidebarrier.org.

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

Jeffrey Lee, PE, Project Manager
Golden Gate Bridge, Highway and Transportation District
Administration Building, Bridge Toll Plaza
P.O. Box 9000, Presidio Station
San Francisco, CA 94129-0601

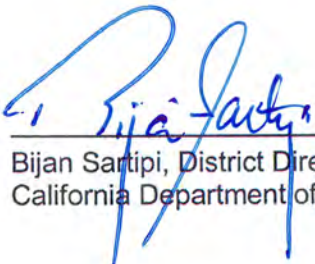
The project proposes to construct a physical suicide deterrent system
along both sides of the Golden Gate Bridge.

**FINAL ENVIRONMENTAL IMPACT REPORT AND ENVIRONMENTAL ASSESSMENT
AND SECTION 4(f) EVALUATION WITH FINDING OF NO SIGNIFICANT IMPACT**

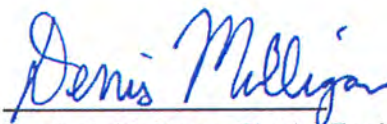
Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C) and 49 U.S.C. 303

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

January 19, 2010
Date of Approval


Bijan Sartipi, District Director, District 4
California Department of Transportation

January 15, 2010
Date of Approval


Denis J. Mulligan, District Engineer
Golden Gate Bridge, Highway and
Transportation District

This page intentionally left blank.

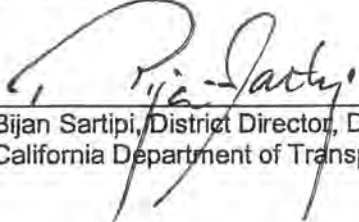
CALIFORNIA DEPARTMENT OF TRANSPORTATION
FINDING OF NO SIGNIFICANT IMPACT (FONSI)

FOR THE
GOLDEN GATE BRIDGE PHYSICAL SUICIDE
DETERRENT SYSTEM PROJECT

The California Department of Transportation (Department) has determined that Alternative 3, the Net System, will have no significant impact on the human environment. This FONSI is based on the attached Environmental Assessment (EA), which has been independently evaluated by the Department and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. The Department takes full responsibility for the accuracy, scope, and content of the attached EA.

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

January 19, 2010
Date


Bijan Sartipi, District Director, District 4
California Department of Transportation

This page intentionally left blank.

Table of Contents

SUMMARY	S-1
S.1 Joint CEQA/NEPA Document.....	S-1
S.2 Overview of Project Area.....	S-2
S.3 Purpose and Need	S-6
S.4 Proposed Action	S-6
S.5 Project Impacts	S-11
S.6 Coordination with Public and Other Agencies.....	S-20
CHAPTER 1 - PROPOSED PROJECT.....	1-1
1.1 Introduction	1-1
1.2 Purpose and Need	1-6
1.3 Project Description.....	1-8
1.4 Project Costs and Funding.....	1-9
1.5 Project Alternatives.....	1-10
1.6 Comparison of Alternatives	1-49
1.7 Identification of a Preferred Alternative	1-53
1.8 Alternatives Considered But Eliminated From Further Discussion Prior to the Draft EIR/EA.....	1-54
1.9 Permits and Approvals Needed	1-59
CHAPTER 2 - AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES.....	2-1
2.1 Land Use.....	2-1
2.2 Visual / Aesthetics.....	2-16
2.3 Cultural Resources	2-112
2.4 Biological Environment	2-130
2.5 Non-Relevant Topics.....	2-148
2.6 Construction Impacts.....	2-152
2.7 Cumulative Impacts	2-161
CHAPTER 3 - CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) EVALUATION.....	3-1
3.1 Determining Significance Under CEQA	3-1
3.2 Discussion of Significance of Impacts	3-2
3.3 Mitigation Measures for Significant Impacts under CEQA.....	3-19
CHAPTER 4 - COMMENTS AND COORDINATION.....	4-1
4.1 Introduction	4-1
4.2 Comments and Responding to Comments.....	4-9
CHAPTER 5 - LIST OF PREPARERS	5-1

CHAPTER 6 - DISTRIBUTION LIST.....	6-1
CHAPTER 7 - REFERENCES AND TECHNICAL STUDIES	7-1

List of Figures

Figure 1-1	Project Location	1-2
Figure 1-2a	Main Elements of the Golden Gate Bridge.....	1-3
Figure 1-2b	Plan View of Bridge.....	1-5
Figure 1-3	Alternative 1A: Illustrations.....	1-12
Figure 1-4	Alternative 1A: Illustrations.....	1-13
Figure 1-5	Alternative 1A: Elevation at Access Gates	1-14
Figure 1-6	Alternative 1A: Cross Section.....	1-15
Figure 1-7	Alternative 1A: Elevation at Belvedere	1-16
Figure 1-8	Alternative 1B: Illustrations.....	1-18
Figure 1-9	Alternative 1B: Illustrations.....	1-19
Figure 1-10	Alternative 1B: Elevation at Access Gates	1-20
Figure 1-11	Alternative 1B: Cross Section.....	1-21
Figure 1-12	Alternative 1B: Elevation at Belvedere	1-22
Figure 1-13	Alternative 2A: Illustrations	1-24
Figure 1-14	Alternative 2A: Illustrations	1-25
Figure 1-15	Alternative 2A: Elevation at Access Gates.....	1-26
Figure 1-16	Alternative 2A: Section	1-27
Figure 1-17	Alternative 2A: Elevation at Belvedere	1-28
Figure 1-18	Alternative 2B: Illustrations	1-30
Figure 1-19	Alternative 2B: Illustrations	1-31
Figure 1-20	Alternative 2B: Elevation at Access Gates.....	1-32
Figure 1-21	Alternative 2B: Cross Section	1-33
Figure 1-22	Alternative 2B: Elevation at Belvedere.....	1-34
Figure 1-23	Elevation of Transparent Panels at Mid-Span.....	1-35
Figure 1-24	Plan at Mid-Span	1-36
Figure 1-25	Mid-Span Cross Section.....	1-37
Figure 1-26	Alternative 3: Illustrations.....	1-40
Figure 1-27	Alternative 3: Illustrations.....	1-41
Figure 1-28	Alternative 3: Cross Section.....	1-42
Figure 1-29	Alternative 3: Vertical Barrier at North Anchorage Housing (Plan Overview)	1-43
Figure 1-30	Alternative 3: Vertical Barrier at North Anchorage Housing (View from Below).....	1-44
Figure 1-31	Alternative 3: Detail of Vertical Barrier at North Anchorage Housing	1-45
Figure 2.1-1	Existing and Future Land Uses: San Francisco Approach	2-3
Figure 2.1-2	Existing and Future Land Uses: Marin Approach	2-4
Figure 2.2-1	Assessment of Existing Visual Conditions	2-18

Figure 2.2-2	Assessment of Visual Impacts Effects on Viewers	2-19
Figure 2.2-3	Landscape Unit Location	2-22
Figure 2.2-4	Key to Viewpoints of the Golden Gate Bridge	2-26
Figure 2.2-5	Key to Viewpoints from the Golden Gate Bridge	2-27
Figure 2.2-6	Viewpoint 1: Fort Point – Alternative 1A	2-36
Figure 2.2-7	Viewpoint 2: Baker Beach – Alternative 1A	2-37
Figure 2.2-8	Viewpoint 3: North Fishing Pier – Alternative 1A	2-38
Figure 2.2-9	Viewpoint 4: Vista Point – Alternative 1A.....	2-39
Figure 2.2-10	Viewpoint 5: Marin Headlands – Alternative 1A	2-40
Figure 2.2-11	Viewpoint 6: Boat View West – Alternative 1A.....	2-41
Figure 2.2-12	Viewpoint 8: Car View West – Alternative 1A	2-44
Figure 2.2-13	Viewpoint 9: Car View Center – Alternative 1A.....	2-45
Figure 2.2-14	Viewpoint 11: Car View East – Alternative 1A.....	2-46
Figure 2.2-15	Viewpoint 12: Sidewalk View North – Alternative 1A	2-47
Figure 2.2-16	Viewpoint 13: Sidewalk View South – Alternative 1A.....	2-48
Figure 2.2-17	Viewpoint 1: Fort Point – Alternative 1B	2-51
Figure 2.2-18	Viewpoint 2: Baker Beach – Alternative 1B	2-52
Figure 2.2-19	Viewpoint 3: North Fishing Pier – Alternative 1B	2-53
Figure 2.2-20	Viewpoint 4: Vista Point – Alternative 1B.....	2-54
Figure 2.2-21	Viewpoint 5: Marin Headlands – Alternative 1B.....	2-55
Figure 2.2-22	Viewpoint 6: Boat View West – Alternative 1B.....	2-56
Figure 2.2-23	Viewpoint 8: Car View West – Alternative 1B.....	2-59
Figure 2.2-24	Viewpoint 9: Car View Center – Alternative 1B.....	2-60
Figure 2.2-25	Viewpoint 11: Car View East – Alternative 1B.....	2-61
Figure 2.2-26	Viewpoint 12: Sidewalk View North – Alternative 1B.....	2-62
Figure 2.2-27	Viewpoint 13: Sidewalk View South – Alternative 1B.....	2-63
Figure 2.2-28	Viewpoint 1: Fort Point – Alternative 2A.....	2-66
Figure 2.2-29	Viewpoint 2: Baker Beach – Alternative 2A.....	2-67
Figure 2.2-30	Viewpoint 3: North Fishing Pier – Alternative 2A.....	2-68
Figure 2.2-31	Viewpoint 4: Vista Point – Alternative 2A	2-69
Figure 2.2-32	Viewpoint 5: Marin Headlands – Alternative 2A	2-70
Figure 2.2-33	Viewpoint 6: Boat View West – Alternative 2A	2-71
Figure 2.2-34	Viewpoint 8: Car View West – Alternative 2A	2-74
Figure 2.2-35	Viewpoint 9: Car View Center – Alternative 2A	2-75
Figure 2.2-36	Viewpoint 11: Car View East – Alternative 2A	2-76
Figure 2.2-37	Viewpoint 12: Sidewalk View North – Alternative 2A.....	2-77
Figure 2.2-38	Viewpoint 13: Sidewalk View South – Alternative 2A.....	2-78
Figure 2.2-39	Viewpoint 1: Fort Point – Alternative 2B	2-81
Figure 2.2-40	Viewpoint 2: Baker Beach – Alternative 2B.....	2-82
Figure 2.2-41	Viewpoint 3: North Fishing Pier – Alternative 2B.....	2-83
Figure 2.2-42	Viewpoint 4: Vista Point – Alternative 2B	2-84
Figure 2.2-43	Viewpoint 5: Marin Headlands – Alternative 2B.....	2-85

Figure 2.2-44	Viewpoint 6: Boat View West – Alternative 2B	2-86
Figure 2.2-45	Viewpoint 8: Car View West – Alternative 2B	2-89
Figure 2.2-46	Viewpoint 9: Car View Center – Alternative 2B	2-90
Figure 2.2-47	Viewpoint 11: Car View East – Alternative 2B	2-91
Figure 2.2-48	Viewpoint 12: Sidewalk View North – Alternative 2B	2-92
Figure 2.2-49	Viewpoint 13: Sidewalk View South – Alternative 2B	2-93
Figure 2.2-50a	Viewpoint 1: Fort Point – Alternative 3	2-96
Figure 2.250b	Viewpoint 1: Fort Point – Refinements to Alternative 3	2-97
Figure 2.2-51	Viewpoint 2: Baker Beach – Alternative 3	2-98
Figure 2.2-52a	Viewpoint 3: North Fishing Pier – Alternative 3	2-99
Figure 2.2-52b	Viewpoint 3: North Fishing Pier – Refinements to Alternative 3 ...	2-100
Figure 2.2-53a	Viewpoint 4: Vista Point – Alternative 3.....	2-101
Figure 2.2-53b	Viewpoint 4: Vista Point – Refinements to Alternative 3.....	2-102
Figure 2.2-54	Viewpoint 5: Marin Headlands – Alternative 3	2-103
Figure 2.2-55a	Viewpoint 6: Boat View West – Alternative 3.....	2-104
Figure 2.2-55b	Viewpoint 6: Boat View West – Refinements to Alternative 3.....	2-105
Figure 2.2-56	Viewpoint 8: Car View West – Alternative 3.....	2-108
Figure 2.2-57a	Viewpoint 14: Bridge Tower – Alternative 3.....	2-109
Figure 2.2-57b	Viewpoint 14: Bridge Tower – Refinements to Alternative 3.....	2-110
Figure 2.3-1	General and Focused Areas of Potential Effect for Historic Architectural Resources.....	2-117
Figure 4-1	Characterization of Comments.....	4-8

List of Tables

Table 1-1	Comparison of Alternatives	1-51
Table 2.1-1	Existing Land Uses.....	2-5
Table 2.1-2	Future Development in Project Vicinity.....	2-5
Table 2.1-3	Parks and Recreational Facilities in Project Vicinity.....	2-14
Table 2.2-1	Landscape Units.....	2-21
Table 2.2-2	Overall Visual Quality	2-30
Table 2.2-3	Overall Viewer Exposure	2-32
Table 2.2-4	Alternative 1A: Overall Visual Impact to Views of the Bridge	2-35
Table 2.2-5	Alternative 1A: Overall Visual Impact to Views from the Bridge	2-43
Table 2.2-6	Alternative 1B: Overall Visual Impact to Views of the Bridge	2-50
Table 2.2-7	Alternative 1B: Overall Visual Impact to Views from the Bridge	2-58
Table 2.2-8	Alternative 2A: Overall Visual Impact to Views of the Bridge	2-65
Table 2.2-9	Alternative 2A: Overall Visual Impact to Views from the Bridge	2-73
Table 2.2-10	Alternative 2B: Overall Visual Impact to Views of the Bridge.....	2-80
Table 2.2-11	Alternative 2B: Overall Visual Impact to Views from the Bridge	2-88

Table 2.2-12	Alternative 3 (Preferred Alternative): Overall Visual Impact to Views of the Bridge	2-95
Table 2.2-13	Alternative 3 (Preferred Alternative): Overall Visual Impact to Views from the Bridge	2-107
Table 2.7-1	Visual Quality Change from Presidio Landscape Unit	2-166
Table 2.7-2	Visual Quality Change from Toll Plaza Landscape Unit.....	2-167
Table 2.7-3	Visual Quality Change from Marin Headlands Landscape Unit	2-168
Table 2.7-4	Visual Quality Change from San Francisco Bay Landscape Unit	2-169
Table 2.7-5	Visual Quality Change from Fort Baker Bay Landscape Unit	2-170
Table 4-1	Comments Received During 45 – Day Review Period.....	4-6
Table 4-2	Commenters and Location of Responses	4-11

Appendices

Appendix A:	CEQA Checklist
Appendix B:	Section 4(f) Evaluation
Appendix C:	Title VI Policy Statement
Appendix D:	Avoidance, Minimization and/or Mitigation Summary
Appendix E:	Letters and Correspondence
Appendix F:	U. S. Fish and Wildlife Service Species List
Appendix G:	Memorandum of Agreement
Appendix H:	Comments on Draft EIR/EA

This page intentionally left blank.

SUMMARY

S.1 JOINT CEQA/NEPA DOCUMENT

The project is subject to federal and state environmental review requirements because the Golden Gate Bridge, Highway and Transportation District (District) proposes the use of federal funds from the Federal Highway Administration (FHWA) and/or the project requires a FHWA approval action. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The District is the project proponent and the lead agency under CEQA. FHWA's responsibility for environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by the California State Department of Transportation (Department) under its assumption of responsibility pursuant to Section 6005 of SAFETEA-LU codified at 23 U.S.C. 327(a)(2)(A). Effective July 1, 2007, FHWA has assigned, and the Department has assumed, all the projects on the State Highway System (SHS) and all Local Assistance Projects off the SHS within the State of California, with the exception of the responsibilities concerning certain categorical exclusions, which were assigned to the Department under the June 7, 2007 Memorandum of Understanding (MOU), projects excluded by definition and specific project exclusions.

Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA. Because NEPA is concerned with the significance of the project as a whole, it is quite often the case that a less extensive document is prepared for NEPA. One of the most commonly seen joint document types is an Environmental Impact Report/-Environmental Assessment (EIR/EA).

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

S.1.1 PROJECT COSTS AND FUNDING

The cost estimate for the Preferred Alternative, Alternative 3 (Net System), is \$50 million (escalated to year 2013). This cost includes the cost of final design; construction of the net, including replacing the rolling maintenance scaffolds on the Bridge in order to accommodate the net; construction engineering; environmental monitoring during construction; the purchase of a large snooper truck for retrieving individuals from the net; and the purchase of a small, sidewalk-sized snooper truck to remove litter and debris from the net. As the estimated cost of all build alternatives is comparable, cost was not a factor in the selection of the Preferred Alternative.

This project is included in the Metropolitan Transportation Commission's (MTC) Transportation Improvement Program (TIP) for \$50 million in donations and non-profit funds for design and construction in fiscal years 2011 and 2013 respectively. The TIP ID is MRN050019. No federal funds are currently programmed for this project; however, federal funds may become available at a future date.

S.2 OVERVIEW OF PROJECT AREA

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

S.2.1 MAJOR ACTIONS IN SAME GEOGRAPHIC AREA

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

Projects on the Bridge

Seismic Retrofit Project (FHWA is lead agency under NEPA, District is lead agency under CEQA)

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

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

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

An Environmental Assessment/Initial Study prepared in November 1995 and a Finding of No Adverse Effect prepared in January 1995 for the Seismic Retrofit Project documented that the project would have no impacts, no adverse effects, and no cumulative effects.

Moveable Median Barrier (Department is lead agency under NEPA, District is lead agency under CEQA)

In order to provide a physical barrier between opposing directions of traffic while still permitting the number of lanes in a particular direction to vary in accordance with peak traffic demands, the District has studied the potential installation of a moveable median barrier system on the Bridge. The system consists of concrete-filled steel segments that are

linked together to form a continuous barrier across the length of the Bridge. The barrier can be moved transversely over the width of a lane by driving a barrier transfer vehicle across the Bridge.

Golden Gate Bridge Main Cable Restoration Project (District is lead agency)

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

Bridge Security Enhancements (District is lead agency)

Construction began in May 2006 on the Bridge North Approach Physical Security Improvements Project. The security enhancements include new gates, fencing, and lighting, as well as the installation of automated vehicle barriers and new equipment such as sensors and cameras. Construction was completed in 2006. It is anticipated that construction of the South Approach Physical Security Improvements Project will commence in late 2009. The improvements contemplated for the South Approach are similar to the improvements constructed at the North Approach.

Other Projects in Geographic Area

South Access to the Bridge: Doyle Drive Project (San Francisco County Transportation Authority is lead agency)

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

The Doyle Drive Project considered several alternatives to improve the seismic, structural, and traffic safety of Doyle Drive within the setting and context of the Presidio of San Francisco and its purpose as a National Park. The Draft Environmental Impact Statement/Environmental Impact

Report (DEIS/R) Section 4(f) Evaluation was released on December 30, 2005 and considered a No-Build Alternative, Replace and Widen Alternative, and Presidio Parkway Alternative.

Based on consultation with agencies, interested parties, and the citizen's advisory group, the San Francisco County Transportation Authority Board selected the Presidio Parkway as the Preferred Alternative, which was identified in the Final Environmental Impact Statement/Environmental Impact Report (FEIS/R) Section 4(f) Evaluation released in September 2008. The Presidio Parkway design replaces the existing structures with a new parkway-type roadway that includes short tunnels, new access, and improved views from within the Presidio.

Fort Baker Reuse Plan (GGNRA is lead agency)

A comprehensive reuse concept, the Fort Baker Reuse Plan, is currently being implemented with a goal of enhancing the recreational opportunities available to the public and adding additional visitor serving resources. The reuse plan was developed following the transfer of Fort Baker from the Army to the National Park Service (NPS).

NPS coordinated with private, public and non-profit organizations to develop the plan and contracted with a development firm to create a 142-room retreat and conference center called "Cavallo Point, The Lodge at the Golden Gate," which opened to the public in 2008.

As part of the reuse of the site, historic buildings are being rehabilitated to national historic preservation standards to ensure that the significant historic features are maintained. Landscape improvements, such as the restoration of the main parade ground to its historic period, are also part of the project.

The centerpiece of the Fort Baker Reuse Plan is the Institute at the Golden Gate, which hosts lectures and provides a forum for environmentalists, researchers and policymakers to address environmental issues. The Golden Gate National Parks Conservancy develops and manages the institute. Cars will be largely banished from the area and guests urged to walk, ride bikes or take a shuttle.

The Fort Baker Reuse Plan also calls for the creation of a waterfront park that will provide panoramic views of the Bridge, San Francisco Bay, San Francisco skyline and Alcatraz. Under the proposed plan, Fort Baker's waterfront and other open space will be transformed to create a multitude of opportunities for visitors to enjoy the area's scenic beauty, hike, bike, sail, kayak, picnic and explore. The U.S. Coast Guard Station and the Bay Area Discovery Museum will remain at Fort Baker.

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

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

S.3 PURPOSE AND NEED

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

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

A complete discussion of the purpose and need for the project is provided in Chapter 1, Proposed Project, of this Final EIR/EA.

S.4 PROPOSED ACTION

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

S.4.1 ALTERNATIVES UNDER CONSIDERATION

Several build alternatives have been developed that meet the purpose and need for the project and additional criteria established by the District. The alternatives were developed after the first phase of the project, wind

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

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

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

Build Alternatives

Alternative 1A – Add Vertical System to Outside Handrail

Alternative 1A would construct a new barrier on top of the outside handrail (and concrete rail at north anchorage housing and north pylon). The barrier, which would consist of ½-inch diameter vertical rods spaced at 6 ½ –inch intervals, would extend 8 feet vertically from the top of the 4-foot-high outside handrail for a total height of 12 feet. The entire system would be constructed of steel that would be painted International Orange to match the material and color of the outside handrail.

Transparent panels would be installed at the belvederes (widened areas located on both the east and west sidewalks) and towers on both sides of the Bridge. The modification to the outside handrail on the west side of the Bridge between the two main towers and the installation of the wind fairing would be completed as part of the previously approved Seismic Retrofit Project, prior to installation of Alternative 1A.

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

Alternative 1B – Add Horizontal System to Outside Handrail

Alternative 1B would construct a new barrier on top of the outside handrail (and concrete rail at north anchorage housing and north pylon). The new barrier, which would consist of 3/8-inch horizontal cables at 6-inch intervals, would extend 8 feet above the top of the 4-foot-high outside handrail for a total height of 12 feet. The entire system would be constructed of steel that would be painted International Orange to match the material and color of the outside handrail. Transparent panels would be installed at the belvederes and towers on both sides of the Bridge. A transparent winglet would be placed on top of the outside rail posts to ensure aerodynamic stability and impede climbing over the barrier. The modification to the outside handrail on the west side of the Bridge between the two main towers and the installation of the wind fairings would be completed as part of the previously approved Seismic Retrofit Project, prior to installation of Alternative 1B.

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

Alternative 2A – Replace Outside Handrail with Vertical System

Alternative 2A would replace the existing outside handrail with a new vertical 12-foot-high barrier, consisting of 1/2-inch diameter steel rods spaced at 4 1/2-inch intervals. A rub rail would be installed at the same height as the public safety railing (4 feet 6 inches). The entire system would be constructed of steel that is painted International Orange to match the material and color of the outside handrail. Transparent panels would be installed along the upper 8 feet at the belvederes and towers on both sides of the Bridge. The installation of the wind fairings would be completed as part of the previously approved Seismic Retrofit Project, prior to installation of Alternative 2A. The modification to the outside handrail on the west side of the Bridge would not occur, as the outside handrail would be replaced with a new vertical barrier.

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

Alternative 2B – Replace Outside Handrail with Horizontal System

Alternative 2B would replace the existing outside handrail with a new 10-foot-high barrier, consisting of 3/8-inch horizontal steel cables. The entire system would be constructed of steel that would be painted International Orange to match the material and color of the outside handrail. Transparent panels would be installed along the upper 6½-foot portion at the belvederes and towers on both sides of the Bridge. A transparent winglet would be placed on top of the rail posts to ensure aerodynamic stability and impede climbing over the barrier. The installation of the wind fairings would be completed as part of the previously approved Seismic Retrofit Project, prior to installation of Alternative 2B. The modification to the outside handrail on the west side of the Bridge would not occur, as the outside handrail would be replaced with a new horizontal barrier.

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

Alternative 3 – Add Net System that Extends Horizontally from Bridge (Preferred Alternative)

Alternative 3 would construct a horizontal net approximately 20 feet below the sidewalk and approximately 5 feet above the bottom chord of the exterior main truss. The net would extend horizontally approximately 20 feet from the Bridge. The support system for the netting would include cables that would pre-stress the netting to help keep it taut and not allow the wind to whip the netting. While the support system would be International Orange to match the existing Bridge structure, the net material would be unpainted and uncoated stainless steel. Alternative 3 would not include the use of transparent panels. The modification to the outside handrail on the west side of the Bridge between the two main towers and the installation of the wind fairings would be completed as part of the previously approved Seismic Retrofit Project, prior to installation of Alternative 3.

Refinements to Alternative 3

In response to comments received on the Draft EIR/EA and through consultation with the State Historic Preservation Officer (SHPO) and other interested parties, including the Advisory Council on Historic Preservation (ACHP), the Golden Gate National Recreation Area (GGNRA), the National Trust for Historic Preservation, Docomomo, and San Francisco Architectural Heritage, following the close of the public comment period, Alternative 3 was refined to modify the color of the net material from International Orange to unpainted and uncoated stainless

steel. It was determined that the stainless steel net material would have the least effect or minimize effects of the proposed project on cultural resources. The steel horizontal support system for the net would be painted International Orange to match the color of the Bridge.

Through consultation with the SHPO and ACHP, it was also determined that the net should be replaced by a vertical barrier along the North Anchorage Housing. A vertical barrier painted International Orange would be installed along the 300-foot length of the North Anchorage Housing, representing approximately 3 percent of the 1.7-mile Bridge span. It would extend 8 feet vertically from the top of the 4-foot-high concrete wall of the North Anchorage Housing for a total height of 12 feet, similar to the 8-foot vertical barrier under Alternative 1A. The barrier's vertical members would be comprised of 1/2-inch thick diameter vertical rods spaced at 6 1/2 inches on center. Alternative 3 was therefore refined to replace the extension of the net around the North Anchorage Housing with the vertical barrier. This design refinement minimizes the adverse effects of the alternative by using a much less visually intrusive vertical barrier for this portion of the project, leaving the solid surface of the housing wall unchanged.

No-Build Alternative

The No-Build Alternative represents an alternative and a baseline for future year conditions if no other actions are taken in the study area beyond what is already in place. Under this alternative, the Bridge's sidewalks would remain open to the public, with the existing outside railing remaining 4 feet high. The No-Build Alternative would continue the existing non-physical suicide deterrent programs at the Bridge, as well as implement Bridge modifications approved as part of the seismic upgrade project.

Individuals of varying heights, weights, ages, and sexes, not using the Bridge sidewalks for their intended purpose, could climb over the existing railing and jump to their death. There would be no other physical barrier preventing an individual from jumping, if the railing were to be scaled.

S.4.2 IDENTIFICATION OF A PREFERRED ALTERNATIVE

Following the close of the formal comment period, the District compiled and reviewed the multitude of comments received on the Draft EIR/EA. The District's Board discussed the selection of the Preferred Alternative at its October 10, 2008 Board Meeting. At the meeting, District staff gave presentations regarding the comments received on the Draft EIR/EA and the operation maintenance, and emergency response impacts of the alternatives. Public comment was also heard during the meeting.

Following the presentations and comments, the Board discussed the selection of a Preferred Alternative, noting that the selection was part of

the on-going environmental process and was not a definitive final approval of the project. Directors commented that Alternative 3 was the most humane, aesthetic and visionary approach and an “elegant solution,” and recalled that in other locations where a suicide deterrent net system has been installed, there was a marked decrease in suicides and suicide attempts. The Board concluded that Alternative 3 was the Preferred Alternative to be further evaluated in the Final EIR/EA document. In a letter dated July 29, 2009, the Department concurred with the identification of Alternative 3 as the Preferred Alternative. Alternative 3 meets the Purpose and Need for a physical suicide deterrent system and has fewer environmental impacts as compared to the other build alternatives.

The Board selection of the Preferred Alternative provided direction for the preparation of responses to comments and continuation of Section 106 consultation for the Preferred Alternative. For a description of the Section 106 process, refer to Section 2.3.1. Some of the public comments received on the Draft EIR/EA suggested that the District consider other colors for the net material. In response to those comments, the District prepared renderings depicting different colors of netting material, including black and unpainted and uncoated stainless steel. Alternative 3 has been refined to modify the color of the net materials from International Orange to unpainted and uncoated stainless steel and it was determined that the stainless steel materials would have the least affect or minimize affects of the proposed project on cultural resources.

Through consultation with SHPO and the ACHP, it was also determined that at the North Anchorage Housing, the net should be replaced by a vertical barrier along the approximately 300-foot length of the North Anchorage Housing. This design detail is illustrated on Figures 1-29 through 1-31.

S.5 PROJECT IMPACTS

The project would be constructed on the Bridge. There would be no changes to the existing uses of the Bridge or land uses surrounding the Bridge. As part of the Final EIR/EA analysis, the following environmental issues were considered but no adverse impacts were identified. There is no detailed discussion regarding these issues in this document.

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

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

S.5.1 LAND USE AND RECREATION

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

S.5.2 VISUAL/AESTHETICS

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

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

Visual Impacts by Alternative

Generally, views towards the Bridge would not be substantially affected by installation of the physical suicide deterrent system, with visual impacts ranging from negligible to minimally adverse. Views from the Bridge would be most noticeably impacted, with visual impacts ranging from adverse to strongly adverse. Alternative 3, the Preferred Alternative, would have the least impact to views from the Bridge.

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

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

Visual impacts associated with Alternative 3 (Preferred Alternative) to views of the Bridge would generally be minimally adverse, with negligible visual impacts from Viewpoints 2 (Baker Beach) and 3 (North Fishing Pier). The primary visual change associated with Alternative 3 would be the introduction of a strong horizontal element to the outside of the Bridge in contrast to the existing verticality of the Bridge. From the majority of viewpoints towards the Bridge, Alternative 3 would be a subordinate visual feature with low to moderate visual compatibility and moderate and low view blockage, representing minimally adverse visual impacts. Visual impacts associated with Alternative 3 would be negligible from Viewpoints 2 (Baker Beach) and 3 (North Fishing Pier) due to the distant viewer location and upward viewing angle, respectively. The use of vertical barrier along the North Anchorage Housing would reduce the visual intrusion of the net across the North Anchorage Housing and maintain the vertical plane of the concrete pylon and continuous line form of the Bridge.

Alternatives 1A, 1B, 2A, and 2B would have adverse to strongly adverse visual impacts to views from the Bridge, in particular, the sidewalk and car views. Primary visual changes associated with these alternatives to views from the Bridge include raising the height of the outside Bridge railing such that it would extend across a viewer's total field of view. These alternatives would be dominant visual features, with moderate to low visual compatibility with the existing landscape features and moderate view blockage.

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

S.5.3 CULTURAL RESOURCES

In general, construction of project Alternatives 1A, 1B, 2A, 2B, or 3 (Preferred Alternative) would cause direct adverse effects to the Bridge historic property, which has been determined eligible for listing in the National Register of Historic Places (NRHP). The addition of any of these barrier systems would cause an adverse effect to the historic property. In general, these physical, or direct, adverse effects include complete or partial removal of character-defining features of the Bridge (railings), and/or alteration of character-defining features of the Bridge (railings and stiffening truss). The alternatives would also cause indirect adverse effects, including introduction of visual elements out of character with the property, change in the character of its use as a historic property, addition of barrier systems where none were originally, use of non-historic material (transparent panels, transparent winglets, metal rods, and cable netting), as well as alteration of the pedestrian experience on the Bridge.

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

Summary of Effects on the Bridge

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

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

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

S.5.4 BIOLOGICAL ENVIRONMENT

The proposed project would not result in a direct disturbance of plant communities or aquatic habitats. The Bridge is in a developed area and the proposed staging areas are denuded of vegetation and are covered by gravel and compacted dirt, or paved. However, given the proximity of the proposed staging areas within GGNRA lands to large expanses of coastal scrub habitat, and the known presence of Mission blue butterfly and the potential presence of special-status plant species within adjacent and nearby areas, the use of the staging areas with the avoidance measures

identified in Section 2.4, Biological Environment, would not result in the loss of special-status species and the degradation of adjacent habitats. Implementation of Alternatives 1A, 1B, 2A, and 2B, however, would introduce transparent panels at the belvederes on both sides of the Bridge. Alternative 3 (Preferred Alternative) would also introduce a new horizontal net to the Bridge. This could create the potential for bird collisions and hazards for bird nesting. However, following the public circulation of the Draft EIR/EA, an Avian Impact Study was prepared in April 2009 and revised in November 2009 to further evaluate the potential adverse effects to avian (bird) species. The Avian Impact Study, further discussed in Section 2.4, Biological Environment, identified several mitigation measures to reduce potentially adverse effects related to bird collision and nesting. A Natural Environmental Study (NES) was also prepared. Appendix E includes the Department's informal consultation with the United States Fish and Wildlife Service (USFWS), indicating that the project, including implementation of the avoidance, minimization, and mitigation measures included in Section 2.4, Biological Environment, and Section 3.3, Mitigation Measures for Significant Impacts Under CEQA, would not affect listed species. Appendix E also includes a letter from the District documenting that the project would not result in the take of a special-status species and Appendix F provides a list of special-status species documented in the project area for which the project would have no effect.

The five 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 in October 1995 (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) in August 1995 and revised in April 1996. These documents addressed potential impacts from construction activities and use of staging areas within GGNRA lands on federally-listed species and other sensitive biological resources.

S.5.5 CONSTRUCTION IMPACTS

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

vehicles and other users of the Bridge. Lane closures would only be permitted during non-peak hours. It is anticipated that it would take 12 to 18 months per side to complete construction.

Five potential staging areas have been identified. The proposed construction staging areas are all within GGNRA lands. Four of the staging areas are located on the north side of the Bridge. One of the staging areas on the north side of the Bridge is an existing gravel area located in a switchback of Conzelman Road. The other three on the north side are gravel areas located under the northern span of the Bridge, which are currently being used for similar staging and maintenance activities. There is one proposed construction staging area on the south side of the Bridge. This area is currently a District parking lot with some stalls available to the public, located just west of the Toll Plaza off Merchant Road. These staging areas would be occupied temporarily during installation of the physical suicide deterrent system. Construction equipment and materials would be located within one or more of these construction staging areas.

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

S.5.6 CUMULATIVE IMPACTS

Land Use

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

Recreation

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

Visual/Aesthetics

The proposed project would not contribute to cumulative visual impacts at the landscape units, individually or collectively. Landscape units include the Presidio, the Toll Plaza, the San Francisco Bay, the Marin Headlands, and Fort Baker. For each landscape unit, the permanent visual changes that would result from the project were evaluated. The cumulative analysis considers the cumulative effects of the project on views as documented for particular viewpoints from each of the landscape units. The No-Build Alternative would have no impact on visual quality since it would not change the existing visual environment. As Alternatives 1A, 1B, 2A, 2B, and 3 (Preferred Alternative) would be located on the Bridge, visual changes by landscape unit would be limited to the views of the Bridge from each respective landscape unit. All of the build alternatives would cause a minimally adverse change to the existing visual quality at the San Francisco Bay and Fort Baker landscape units. Alternatives 1A, 1B, 2A, and 2B would cause a minimally adverse change to the existing visual quality at the Toll Plaza and Marin Headlands landscape units. Alternative 3 would cause a negligible change to the existing visual quality at the Toll Plaza and Marin Headlands landscape units. These minor changes to visual resources, in light of the other projects in the vicinity (see Section 2.1.1, Land Use), would not result in cumulative adverse visual impacts.

Cultural Resources

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

concluded with these findings, and the previous determination that the Bridge is eligible for listing in the NRHP remains valid.

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

Biological Environment

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

The proposed project would also not contribute to cumulative bird impacts. Based on response to comments on the Draft EIR/EA, an Avian Impact Study was prepared to further evaluate the potential adverse effect to avian (bird) species from installation of Alternative 3 (Preferred Alternative). In addition to the avoidance measures from the Golden Gate Bridge Seismic and Wind Retrofit Project that would continue to be implemented as part of the proposed project, the Avian Impact Study identified additional avoidance measures to further reduce potentially adverse effects related to bird nesting hazards associated with Alternative 3. Thus, the implementation of these avoidance measures for this project would not contribute to cumulative impacts to birds.

Appendix E includes the Department's consultation with the USFWS indicating that the project, including implementation of the avoidance, minimization, and mitigation measures, would not affect listed species. Appendix E also includes a letter from the District documenting that the project would not result in the take of a special-status species and Appendix F provides a list of special-status species documented in the project area for which the project would have no effect.

S.6 COORDINATION WITH PUBLIC AND OTHER AGENCIES

A public involvement program has been developed that provides a variety of communication methods to educate the public on the current scope of the study, including its impacts and benefits. For more detail concerning this program, see Chapter 4, Comments and Coordination, of this Final EIR/EA. Key elements to the public involvement plan include:

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

S.6.1 AGENCY COORDINATION

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

A Notice of Completion (NOC) was filed with the State Clearinghouse on July 8, 2008 pursuant to CEQA Section 21161. The NOC indicated that the Draft EIR/EA had been prepared for the project and included a brief project description, information on where copies of the document were available for public comment, and stated the public comment period dates.

At least ten days after the release of the Final EIR/EA, the District and Department will make a decision regarding the certification of the Final EIR/EA and project approval. After a decision has been made, a Notice of Determination (NOD) will be filed with the State Clearinghouse within five working days. The NOD will include a brief description of the project, a summary of the CEQA process carried out, and the location of where copies of the document are available for review.

The Department, in consultation and coordination with the ACHP, Office of Historic Preservation (OHP), the District, and other consulting parties, has developed a Memorandum of Agreement (MOA) for the project. The Department, in accordance with Stipulation XI of the Section 106 Programmatic Agreement (PA), has prepared an MOA to memorialize measures that would mitigate the adverse effects that the project would have on the historic property.

S.6.2 RELEASE OF THE FINAL EIR/EA

The Draft EIR/EA was released for public and agency comment on July 7, 2008. The release of the Draft EIR/EA was an opportunity for public involvement and education. With the release of the document, the environmental impacts, including visual and historic, were disclosed. Two public open houses were held on July 22, 2008 and July 23, 2008 to provide information about the project alternatives and to allow the public, agencies, and organizations to provide comments. Informational materials were also developed to help the public digest the complex technical data contained in the environmental document. These tools served to aid the public in understanding the study and helped solicit focused comments on the facts of the environmental document. The Draft EIR/EA was posted on the project website (www.ggbsuicidebarrier.org) and people/public were able to provide comments directly on the website.

This Final EIR/EA incorporates the responses to public comments on the Draft EIR/EA. Prior to project approval, the District and the Department must certify that the Final EIR/EA adequately discloses the environmental effects of the proposed project, that the Final EIR/EA has been completed in conformance with CEQA and NEPA, and that the decision-making body of the District independently reviewed and considered the information contained in the Final EIR/EA. Certification of the Final EIR/EA would not mean that the District is approving the project or any of the alternatives described in the Final EIR/EA. Rather, certification of the Final EIR/EA would indicate the District's determination that the Final EIR/EA adequately evaluates the environmental impacts that could be associated with the project. The Final EIR/EA will be circulated to all responsible agencies that commented on the Draft EIR/EA at least ten days prior to certification.

S.6.3 HISTORIC RESOURCES COORDINATION

The District, in conjunction with the Department, has consulted with the State Historic Preservation Officer (SHPO), following 36 CRF 800.6, to arrive at a resolution of the adverse effect. The Department, in accordance with its Programmatic Agreement with FHWA, the Advisory Council on Historic Preservation (ACHP) and the SHPO, has executed an MOA to memorialize measures that would mitigate the adverse effect this undertaking will have on the historic property. The MOA signatory parties are the Department, SHPO, and ACHP. The District is a concurring party. The MOA is included as Appendix G to this Final EIR/EA.

S.6.4 PERMITS AND APPROVALS

The Bridge and staging areas are located on land owned by the Federal Government and currently administered by the National Park Service (NPS)/GGNRA. Installation of the proposed physical suicide deterrent system may need a permit from the U.S. Coast Guard for construction activities over navigable waters and the San Francisco Bay Conservation and Development Commission. As part of the final design process, further coordination and submittal of permit applications will occur prior to construction commencement.

Based on the findings of the Revised Natural Environment Study, no "take" of endangered species would occur. Therefore, no permits would be required under the California Endangered Species Act. Appendix E includes a letter from the District documenting a finding of no effect in regards to special-status species and Appendix F provides a list of special-status species documented in the project area for which the project would have no effect. Additionally, the project will have "no effect" pursuant to Section 7 of the Federal Endangered Species Act. Further, no other permits for the loss or alteration of biological resources would be required. Appendix E includes the Department's informal consultation with the USFWS, indicating that the project would not affect listed species.

As part of the Section 106 process, concurrence from the SHPO on the Finding of Effect and approval of the MOA was obtained in June 2009. The District, as the CEQA Lead Agency, would certify the EIR and the Department, as the NEPA lead agency, would approve the EA and issue the FONSI or require an EIS.

CHAPTER 1 - PROPOSED PROJECT

This Final Environmental Impact Report/Environmental Assessment (Final EIR/EA) incorporates the entire Golden Gate Bridge Physical Suicide Deterrent System Project Draft Environmental Impact Report/Environmental Assessment (Draft EIR/EA), which was released for public review in July 2008. In addition, this document includes the agency and public comments and the project team's responses to these comments, as well as new research, which was performed since the release of the Draft EIR/EA.

Following release of the Draft EIR/EA, review of comments, and public open-houses, Alternative 3 (Net System) was selected as the Preferred Alternative. This Final EIR/EA discusses the selection and description of the Preferred Alternative. In addition, potential impacts and mitigations related to the Preferred Alternative are discussed. Chapter 4, Comments and Coordination, summarizes substantive comments on the Draft EIR/EA and provides the project team responses. The full text of comment letters from elected officials, federal, state, and local agencies and planning groups, as well as substantive comments from individuals or other organizations are provided in Appendix H.

1.1 INTRODUCTION

The Golden Gate Bridge (Bridge) is owned and operated by the Golden Gate Bridge, Highway and Transportation District (District). The project considers the construction of a physical suicide deterrent system along both sides of the Bridge. As shown in Figure 1-1, the project limits are from the Marin abutment (north viaduct) to the San Francisco abutment (south viaduct). The total length of the project would be 1.7 miles.

The illustration of the Bridge provided in Figure 1-2a identifies the various structural elements of the Bridge.

The Golden Gate Bridge Suicide Deterrent System is included in the Metropolitan Transportation Commission's (MTC) Transportation Improvement Program (TIP) for \$50 million in donations and non-profit funds for design and construction in fiscal years 2011 and 2013 respectively. The TIP ID is MRN050019. No federal funds are currently

Golden Gate Bridge Physical Suicide Deterrent System

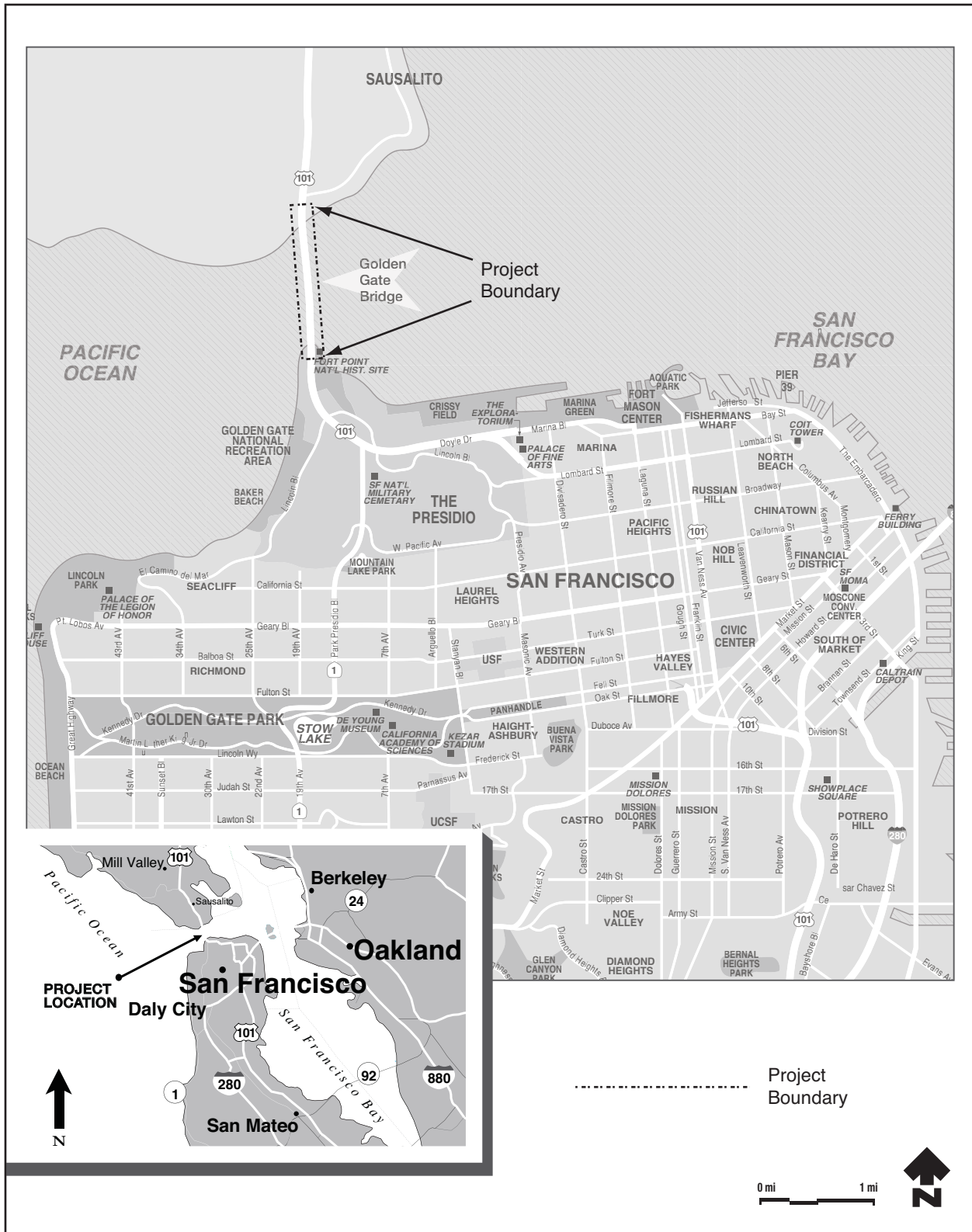


FIGURE 1-1
PROJECT LOCATION

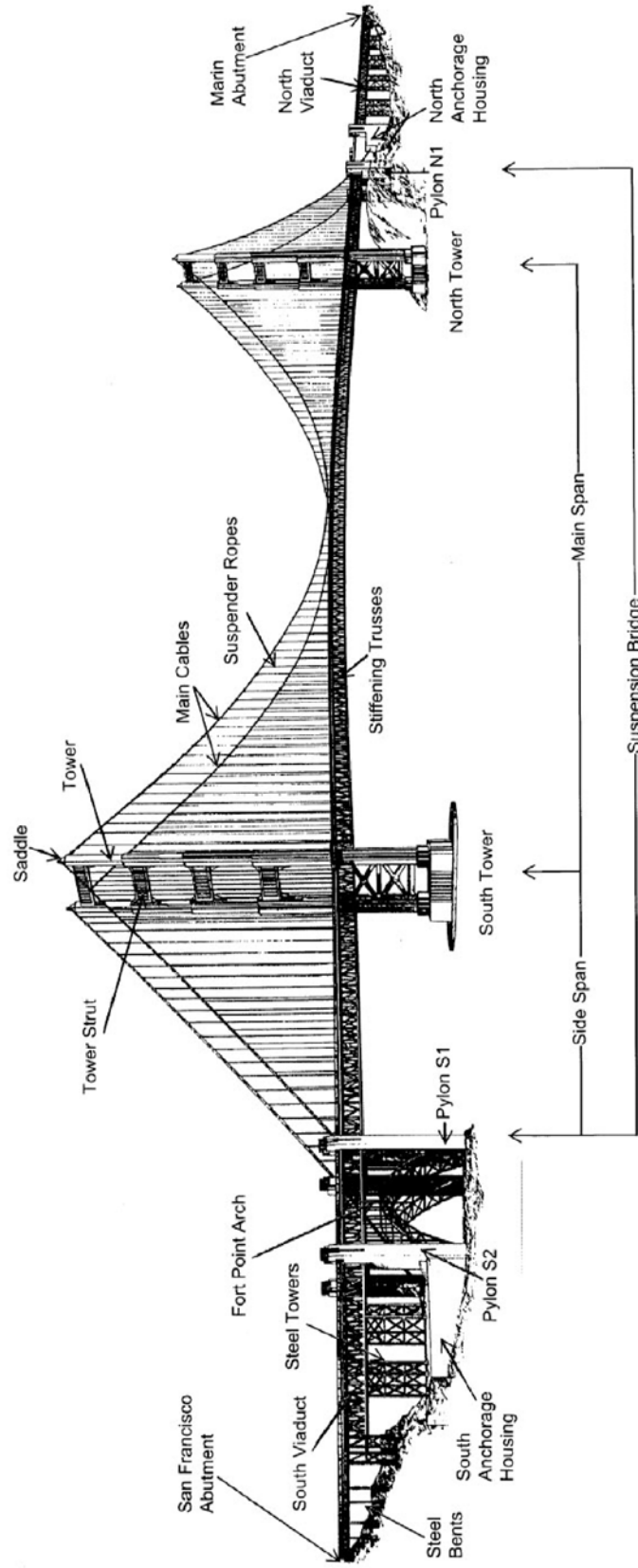


FIGURE 1-2a
MAIN ELEMENTS OF THE GOLDEN GATE BRIDGE

Source: macdonald architects, 1995

Environmental Impact Report / Environmental Assessment

programmed for this project; however, federal funds may become available at a future date.

The Bridge has a symmetrical design. Vertical bridge elements on the horizontal plane are generally based on increments of 12 1/2 feet. For example, the outside handrail posts and the public safety rail posts are aligned at a spacing of 12 1/2 feet. Additionally, light posts are 150 feet apart (12 x 12 1/2 feet), and the suspender ropes are 50 feet apart (4 x 12 1/2 feet). Belvederes (24 widened areas located on both the east and west sidewalks) are 12 1/2 feet long and centered between two suspender ropes.

Maintenance gates on the public safety railing are spaced at 150 feet (12 x 12 1/2 feet) and are aligned with the light posts.

Vertical members of the stiffening truss are spaced at 25 feet and the suspender ropes are aligned with every other vertical member of the stiffening truss. Figure 1-2b shows a plan view of a section of the Bridge illustrating the relationship of these bridge elements.

1.1.1 PROJECT HISTORY

Over the years, the Golden Gate Bridge, Highway and Transportation District's (District) Board of Directors (Board) has considered numerous approaches to reduce the number of persons jumping from the Bridge. The District has investigated a variety of possible measures, both physical and non-physical in nature, and ultimately implemented several non-physical suicide deterrent systems, which are currently in operation on the Bridge.

On October 30, 1970, by Board Resolution #7140, the Board hired a consultant firm to proceed with *Suicide Prevention Study, Phase 1*, which was limited to the conceptual development of physical suicide deterrent alternatives. The Phase 1 report dated January 1971 identified 18 alternatives that were evaluated against criteria established by the Board and outlined below. Alternative 16 was selected for further analysis. On October 10, 1975, the Board, by Resolution #8701, accepted the *Report of Suicide Deterrent Test Model*, which included the first step (additional design work) of three additional steps required for further evaluation of Alternative 16. In November 1978, the Board decided not to proceed further.

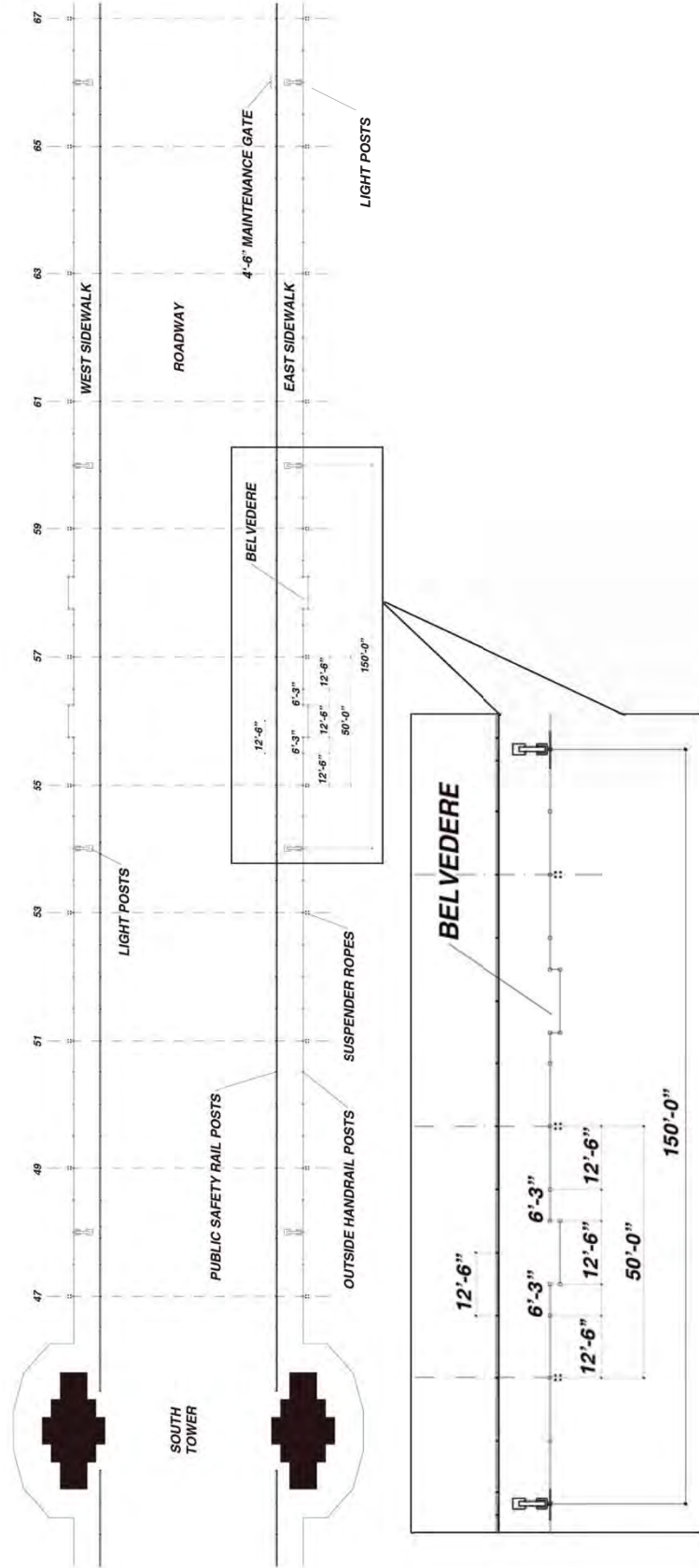


FIGURE 1-2b
PLAN VIEW OF BRIDGE

During the studies in the 1970s, the Board adopted criteria for use in evaluating physical suicide deterrent systems that included:

- Cannot cause safety or nuisance hazards to pedestrian or Bridge personnel
- Must be totally effective as a barrier
- Cannot bar pedestrian traffic
- Weight cannot be beyond established allowable limits
- Cannot cause excessive maintenance problems
- Aerodynamics cannot be beyond established allowable limits

In light of the environmental laws passed in 1969 and 1970, these criteria were expanded to require a consideration of the following criteria:

- Historical and architectural considerations
- Visual and aesthetic impacts
- Cost effectiveness

On April 11, 1997, the Board, by Resolution #97-106, authorized a fencing company to design and develop a prototype for a physical suicide deterrent system.

After thorough review of the prototype the Board rejected the proprietary fence system because it did not meet the criteria for total effectiveness, visual impact, and cost.

The current project, including the engineering design work and environmental evaluation associated with development of a physical suicide deterrent system, was initially authorized by Resolution #2005-15, adopted by the District's Board at its March 11, 2005 meeting.

1.2 PURPOSE AND NEED

NEPA analyses require that a proposed project's alternatives be developed based on the project's purpose and need. The purpose and need statement should clearly and succinctly explain why the project is needed and the project's intended purpose. The purpose and need is considered the cornerstone of NEPA environmental documents. The following purpose and need was prepared in accordance with FHWA Technical Advisory T 6640.8 and reflects the determinations of the District as described below.

1.2.1 PURPOSE OF THE PROPOSED PROJECT

The purpose of the Golden Gate Bridge Physical Suicide Deterrent Project is to consider a physical suicide deterrent system that reduces the number of injuries and deaths associated with individuals jumping off the Bridge. The proposed physical suicide deterrent system must meet the revised criteria as set forth by the District, by Resolution 2005-033, adopted on April 22, 2005, as identified below.

1. Must impede the ability of an individual to jump off the Bridge
2. Must not cause safety or nuisance hazards to sidewalk users including pedestrians, bicyclists, District staff, and District contractors or security partners
3. Must be able to be maintained as a routine part of the District's ongoing Bridge maintenance program and without undue risk of injury to District employees
4. Must not diminish ability to provide adequate security of the Bridge
5. Must continue to allow access to the underside of the Bridge for emergency response and maintenance activities
6. Must not have a negative impact on the wind stability of the Bridge
7. Must satisfy requirements of state and federal historic preservation laws
8. Must have minimal visual and aesthetic impacts on the Bridge
9. Must be cost effective to construct and maintain
10. Must not in and of itself create undue risk of injury to anyone who comes in contact with the suicide deterrent system
11. Must not prevent construction of a moveable median barrier on the Bridge

1.2.2 NEED FOR THE PROPOSED PROJECT

The specific need for the proposed physical suicide deterrent system on the Bridge stems from the following:

- The Bridge's sidewalks are open to the public, and the existing outside railing along the sidewalks is four (4) feet high. Individuals of varying

heights, weights, ages, and sexes, who were not using the Bridge sidewalks for their intended purpose, have climbed over the existing railing and jumped to their death. There is no other physical barrier preventing an individual from jumping, once the railing has been scaled.

- In 2005, there were 622 known suicides in the nine Bay Area counties, of which 23 were estimated to occur at the Bridge. Further, in that same year, 58 persons contemplating suicide were successfully stopped. In 2006, 31 suicides are known to have occurred at the Bridge, while 57 individuals were stopped. Similarly, in 2007, 39 suicides occurred and 90 were stopped. The individuals taken off of the Bridge are transported to a local hospital for a psychiatric evaluation pursuant to Section 5150 of the California Welfare and Institutions Code.
- As described in Section 1.5.2, a variety of non-physical measures to deter suicides on the Bridge have been in place for many years. However, there are still approximately two dozen deaths that occur each year as a result of individuals jumping off the Bridge. The non-physical measures have stopped approximately two-thirds of those individuals with the intent to commit suicide at the Bridge; despite these measures one-third are not prevented.
- Although official figures have not been maintained through the years, since 1937 it is estimated that approximately 1,300 individuals have committed suicide by jumping off of the Bridge.

1.2.3 INDEPENDENT UTILITY/PROJECT TERMINI

In accordance with 23 CFR 771.111(f), it has been determined that the Golden Gate Bridge Physical Suicide Deterrent System has independent utility because it would serve as a stand-alone system to substantially reduce the occurrence of suicides on the Bridge structure. It would serve as a stand-alone system; no other improvements would be required to supplement its function or be required in addition. The project also has logical termini. The project area selected in the environmental analysis was of sufficient size so as to allow environmental issues to be addressed broadly. The project area utilized for the environmental analysis was defined sufficiently large so as to allow analysis of those issues (e.g., visual resources, biology) that extended beyond the immediate area affected by suicide deterrent system installation.

1.3 PROJECT DESCRIPTION

This section describes the proposed action and the design alternatives that were developed by a multi-disciplinary team to achieve the project purpose

and need while avoiding or minimizing environmental impacts. The alternatives are Alternative 1A – Add Vertical System to Outside Handrail, Alternative 1B – Add Horizontal System to Outside Handrail, Alternative 2A – Replace Outside Handrail with Vertical System, Alternative 2B – Replace Outside Handrail with Horizontal System, Alternative 3- Add Net System that Extends Horizontally from Bridge (Preferred Alternative), and the No-Build Alternative.

The project is located in the City and County of San Francisco and Marin County on the Bridge from the Marin abutment (north viaduct) to the San Francisco abutment (south viaduct). The Bridge connects Highway 101 in San Francisco with Highway 101 in Marin. The project covers a distance of 1.7 miles. Within the limits of the proposed project, the roadway is a six-lane undivided highway with four 10-foot and two 11-foot wide lanes, and a 10-foot sidewalk on both sides.

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

1.4 PROJECT COSTS AND FUNDING

The cost estimate for the Preferred Alternative, Alternative 3 (Net System), is \$50 million (escalated to year 2013). This includes the cost of final design; construction of the net, including replacing the rolling maintenance scaffolds on the Bridge in order to accommodate the net; construction engineering; environmental monitoring during construction; the purchase of a large snooper truck for retrieving individuals from the net; and the purchase of a small, sidewalk-sized snooper truck to remove litter and debris from the net. As the estimated cost of all build alternatives is comparable, cost was not a factor in the selection of the Preferred Alternative.

This project is included in the Metropolitan Transportation Commission's (MTC) Transportation Improvement Program (TIP) for \$50 million in donations and non-profit funds for design and construction in fiscal years 2011 and 2013 respectively. The TIP ID is MRN050019. No federal funds are currently programmed for this project; however, federal funds may become available at a future date.

1.5 PROJECT ALTERNATIVES

1.5.1 BUILD ALTERNATIVES

The following build alternatives would impede the ability of individuals to jump from the Bridge, as well as generally satisfy additional criteria established by the District. During the screening process, these alternatives were evaluated for their ability to meet the project's purpose and need, which included the District's criteria. These alternatives include:

- Alternative 1A – Add Vertical System to Outside Handrail
- Alternative 1B – Add Horizontal System to Outside Handrail
- Alternative 2A – Replace Outside Handrail with Vertical System
- Alternative 2B – Replace Outside Handrail with Horizontal System
- Alternative 3 – Add Net System that Extends Horizontally from Bridge (Preferred Alternative)

As described below, Alternatives 1A, 2A and 3 were evaluated utilizing a fairing, while Alternatives 1B and 2B were evaluated utilizing a winglet.

Common Design Features of the Build Alternatives

The build alternatives were developed after the first phase of the project, wind tunnel testing, was completed. Wind tunnel testing was performed on various designs to determine which design features would not render the Bridge unstable during high winds. The wind tunnel testing determined that physical suicide barriers affected the aerodynamic stability of the Bridge. Testing also determined that wind devices could be installed to mitigate the adverse effects associated with the additions of such barriers.

All of the build alternatives developed and included in this document require the addition of one of two different types of wind devices. The first type of wind device is called a fairing and consists of a curved element placed at two locations below the sidewalk on the top chord of the west stiffening truss. The second type of wind device is called a winglet and consists of a curved element placed above the sidewalk at the top of the proposed barrier system. During the screening process, the build alternatives were evaluated for their ability to meet the project's purpose and need, which included the District's criteria. All of the build alternatives generally satisfy the District's criteria (see Section 1.5, Comparison of Alternatives). -Additionally, each build alternative has been developed to maintain the symmetry of the Bridge. The outside handrail posts, light posts, suspender ropes, and belvederes would all remain at the current locations. There would be no changes to the stiffening trusses.

The five build alternatives would all be constructed of steel. Wind devices, such as fairings and winglets, would be incorporated on all build alternatives. During the construction phase, all build alternatives would use the same construction staging areas.

Unique Features of Build Alternatives

Alternative 1A – Add Vertical System to Outside Handrail

Alternative 1A would construct a new barrier on top of the outside handrail (and concrete rail at the north anchorage housing and north pylon). The barrier would extend 8 feet vertically from the top of the 4-foot high outside handrail for a total height of 12 feet. The barrier's vertical members would be comprised of 1/2-inch diameter vertical rods spaced at 6 1/2 inches on center, leaving a 6-inch clear space between rods. Transparent panels to preserve views would be installed at the belvederes and towers on both sides of the Bridge. Transparency would be preserved through ongoing maintenance of the panels. The existing rail posts would be replaced with new 12-foot-high outside rail posts at the same locations and of the same cross-section, size, material, and color of the original posts. Additionally, the vertical rods would be constructed of steel and painted International Orange to match the material and color of the Bridge. The top horizontal header would consist of a chevron-shaped member matching the top element of the outside handrail. The vertical rods would be attached to the horizontal header and outside handrail.

This alternative will not proceed until the modification to the outside handrail on the west side of the Bridge between the two main towers and the installation of the wind fairings have been completed. Figures 1-3 and 1-4 illustrate Alternative 1A from several directions and Figures 1-5 through 1-7 represent architectural sketches of the proposed alternative. Special provisions for viewing areas are made at the mid-span of the Bridge. Figures 1-23 through 1-25 illustrate the plans for the physical suicide barrier at those locations.

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



ALTERNATIVE 1A: ELEVATION EAST SIDE



ALTERNATIVE 1A: EXTERIOR VIEW EAST SIDE

**FIGURE 1-3
ALTERNATIVE 1A: ILLUSTRATIONS**

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



ALTERNATIVE 1A: VIEW FROM ROAD



ALTERNATIVE 1A: EXTERIOR VIEW WEST SIDE

**FIGURE 1-4
ALTERNATIVE 1A: ILLUSTRATIONS**

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

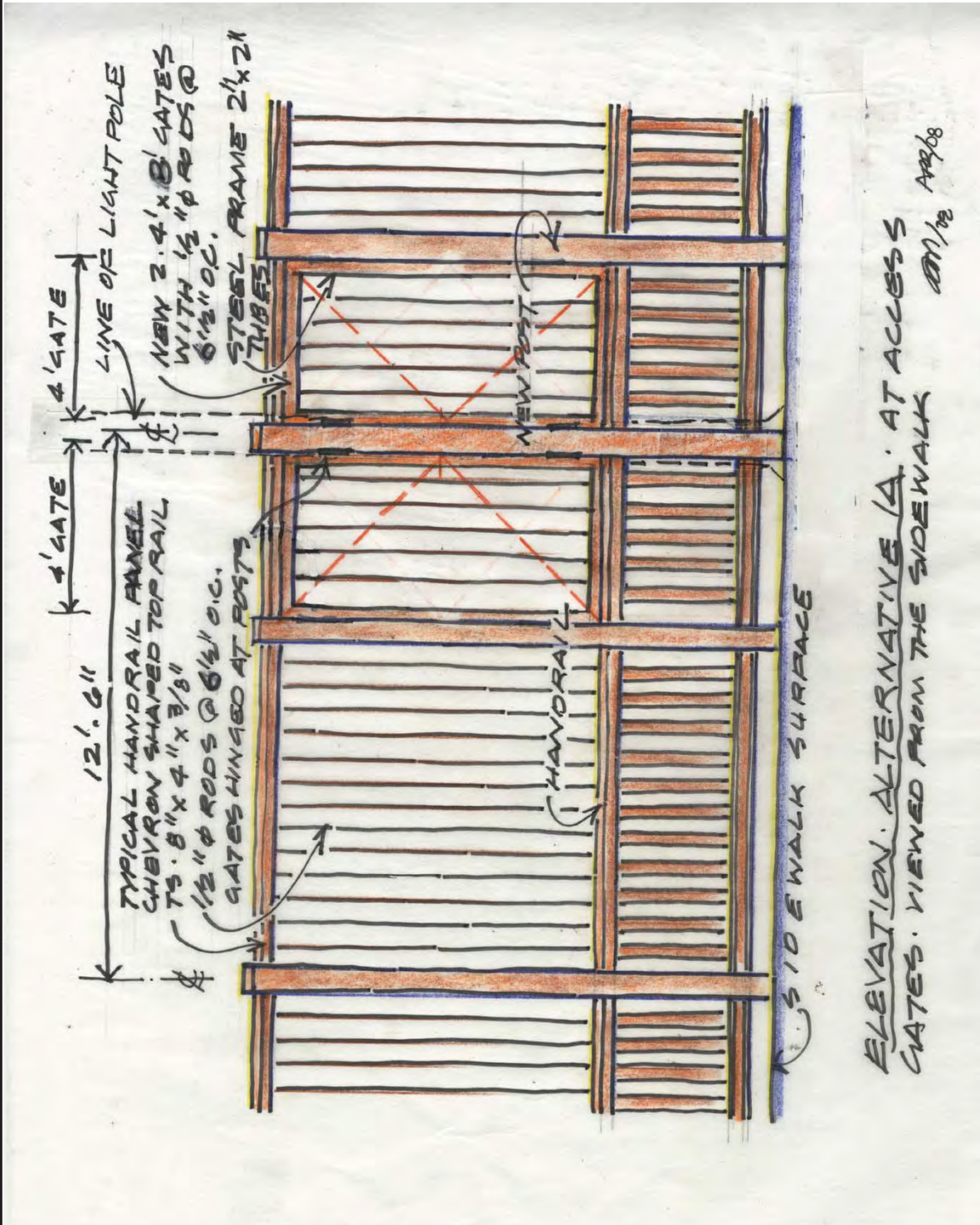


FIGURE 1-5
ALTERNATIVE 1A: ELEVATION AT ACCESS GATES
Environmental Impact Report / Environmental Assessment

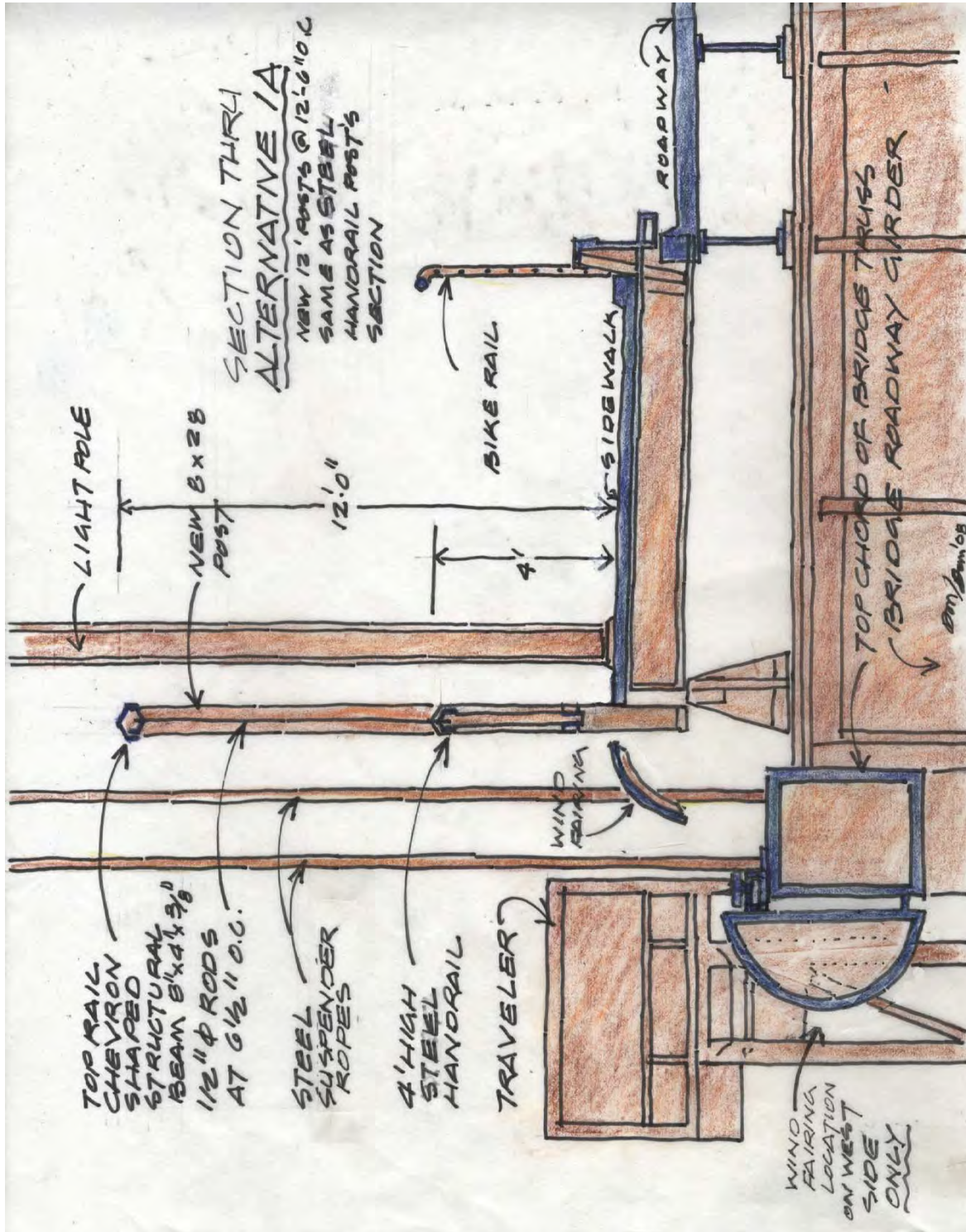


FIGURE 1-6
ALTERNATIVE 1A: CROSS SECTION
Environmental Impact Report / Environmental Assessment

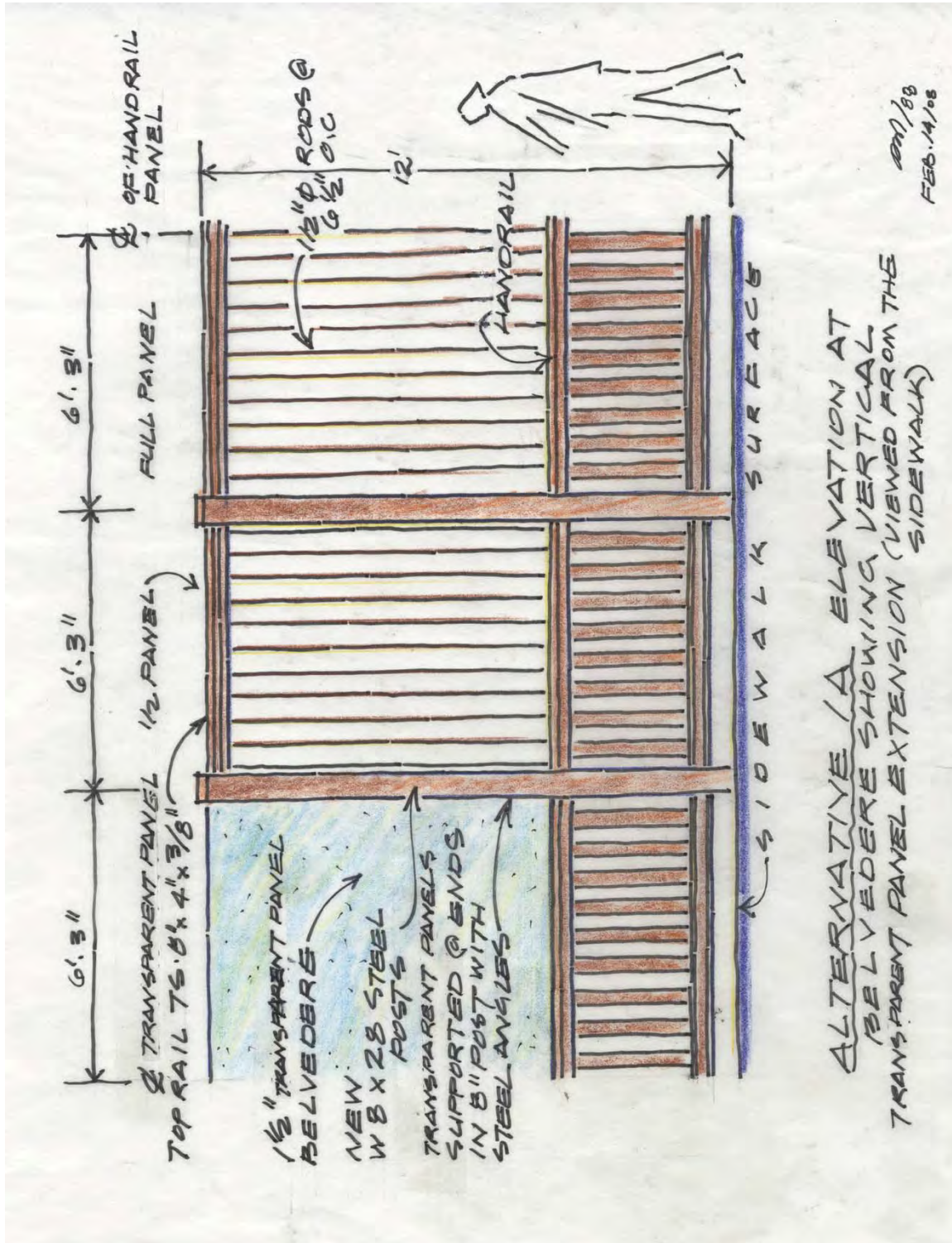


FIGURE 1-7
ALTERNATIVE 1A: ELEVATION AT BELVEDERE
Environmental Impact Report / Environmental Assessment

Source: macdonald architects, 2008

Alternative 1B – Add Horizontal System to Outside Handrail

Alternative 1B would construct a new barrier on top of the outside handrail (and concrete rail at North Anchorage Housing and north pylon) consisting of $\frac{3}{8}$ -inch diameter horizontal steel cables at 6 inches on center leaving $5\frac{5}{8}$ inches clear space between cables.

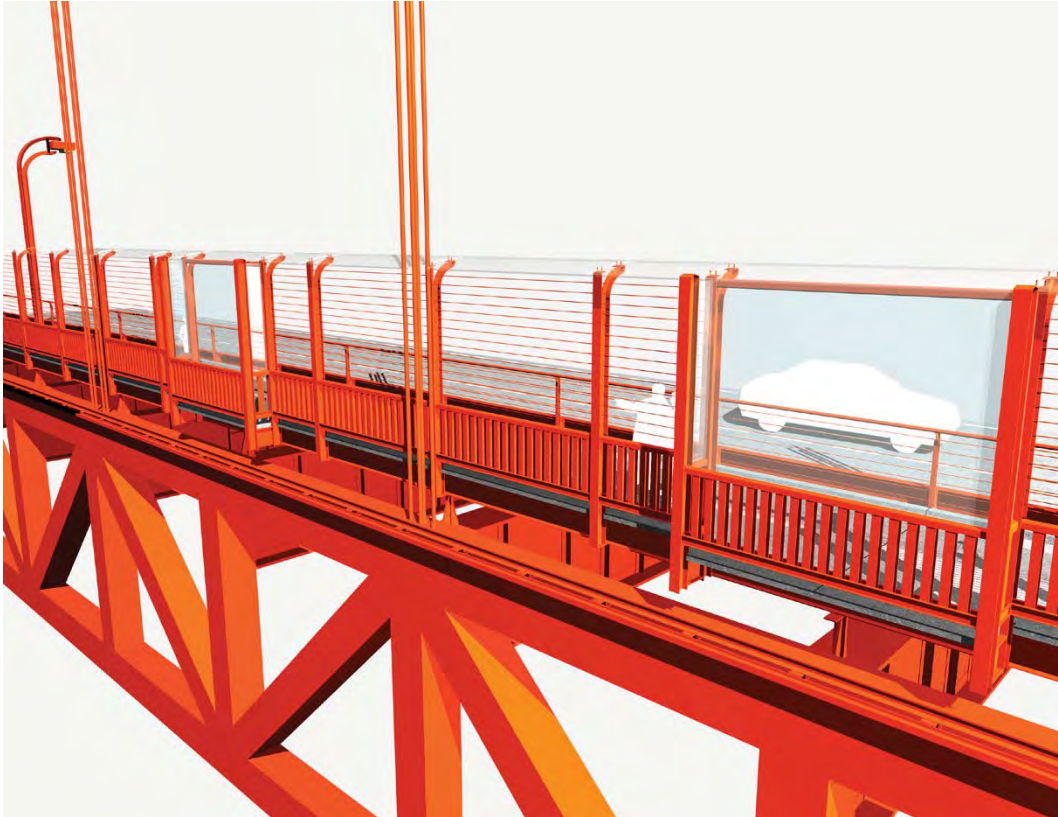
The cable diameter matches the cables on the public safety railing. The new barrier would extend 8 feet above the top of the 4-foot-high outside handrail for a total height of 12 feet. The existing rail posts would be replaced with new 12-foot-high outside rail posts at the same locations and of the same cross-section, size, material, and color of the original posts. Additionally, the horizontal steel cables would be painted International Orange to match the color of the Bridge. Transparent panels to preserve views would be installed at the belvederes and towers on both sides of the Bridge. Transparency would be preserved through ongoing maintenance of the panels.

A transparent winglet would be placed on top of the outside rail posts to ensure aerodynamic stability and impede individuals who have climbed up the horizontal cables from clearing the barrier. The winglet would be a transparent 42-inch wide panel with a slight concave curvature extending approximately 2 feet over the sidewalk. The winglet would run the length of the suicide deterrent barrier, except at the north and south towers. The winglet would be notched at the suspender ropes and light posts. Figures 1-8 and 1-9 illustrate Alternative 1B from various locations and Figures 1-10 through 1-12 represent architectural sketches of Alternative 1B. The modification to the outside handrail on the west side of the Bridge between the two main towers and the installation of the wind fairings would be completed as part of the previously approved Seismic Retrofit Project, prior to installation of Alternative 1B. Special provisions for viewing areas are made at the mid-span of the Bridge. Figures 1-23 through 1-25 illustrate the plans for the physical suicide barrier at those locations.

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



ALTERNATIVE 1B: ELEVATION EAST SIDE



ALTERNATIVE 1B: EXTERIOR VIEW EAST SIDE

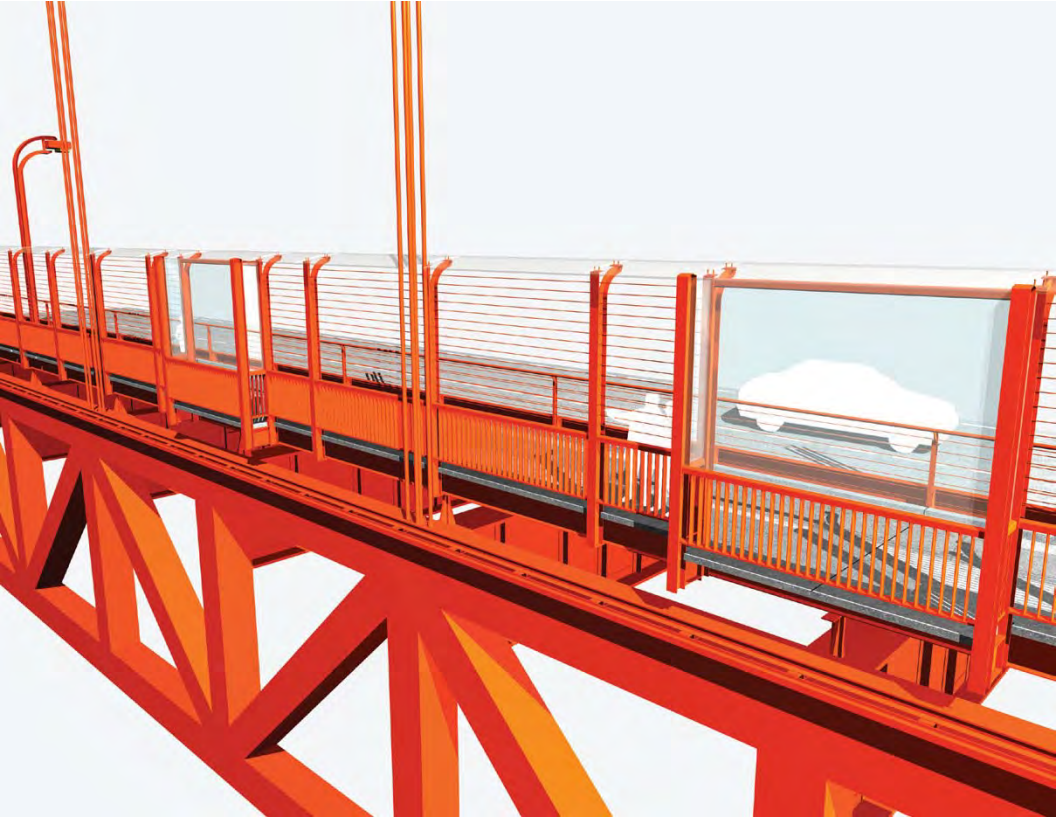
**FIGURE 1-8
ALTERNATIVE 1B: ILLUSTRATIONS**

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



ALTERNATIVE 1B: VIEW FROM ROAD



ALTERNATIVE 1B: EXTERIOR VIEW WEST SIDE

**FIGURE 1-9
ALTERNATIVE 1B: ILLUSTRATIONS**

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

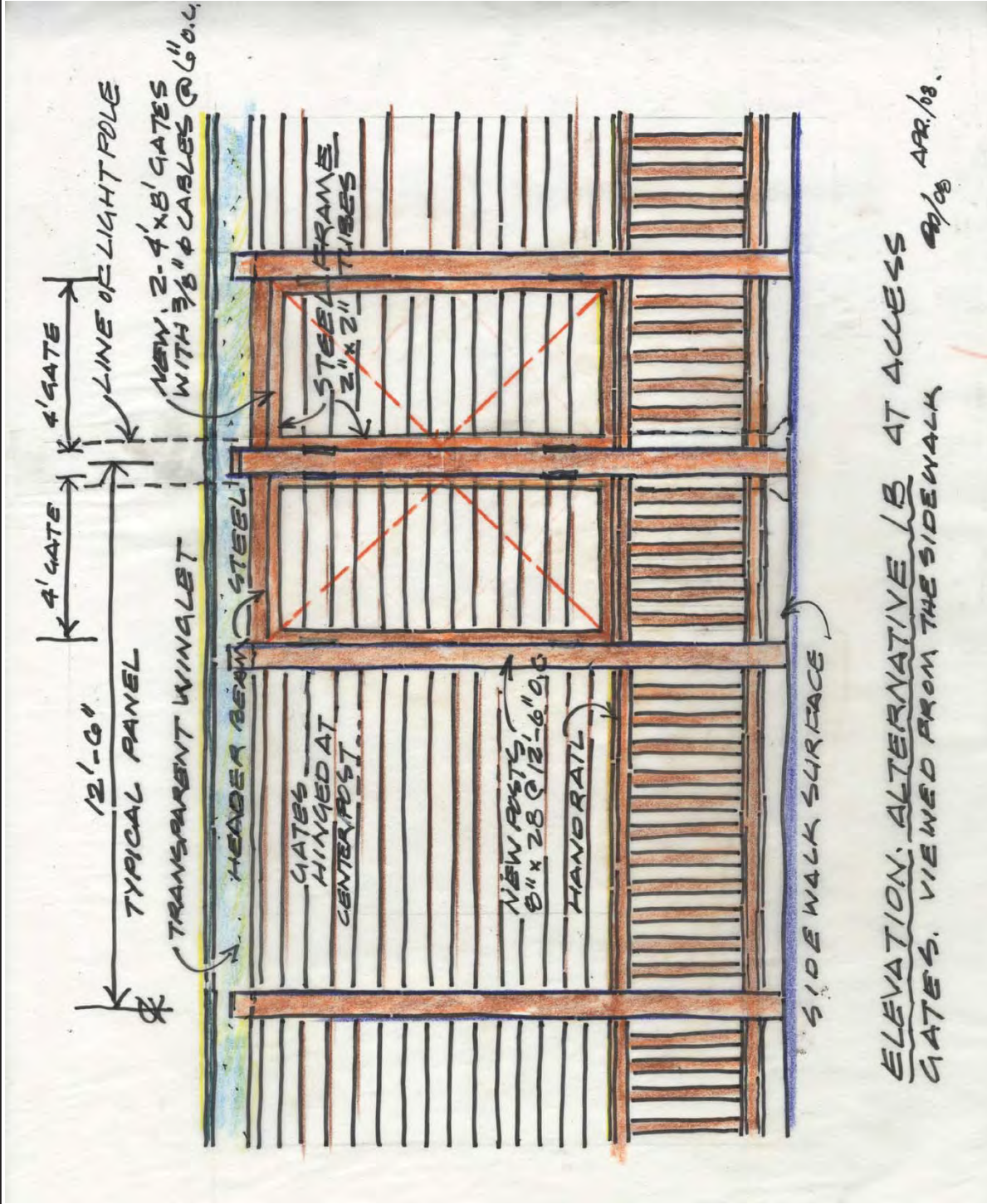


FIGURE 1-10
ALTERNATIVE 1B: ELEVATION AT ACCESS GATES
Environmental Impact Report / Environmental Assessment

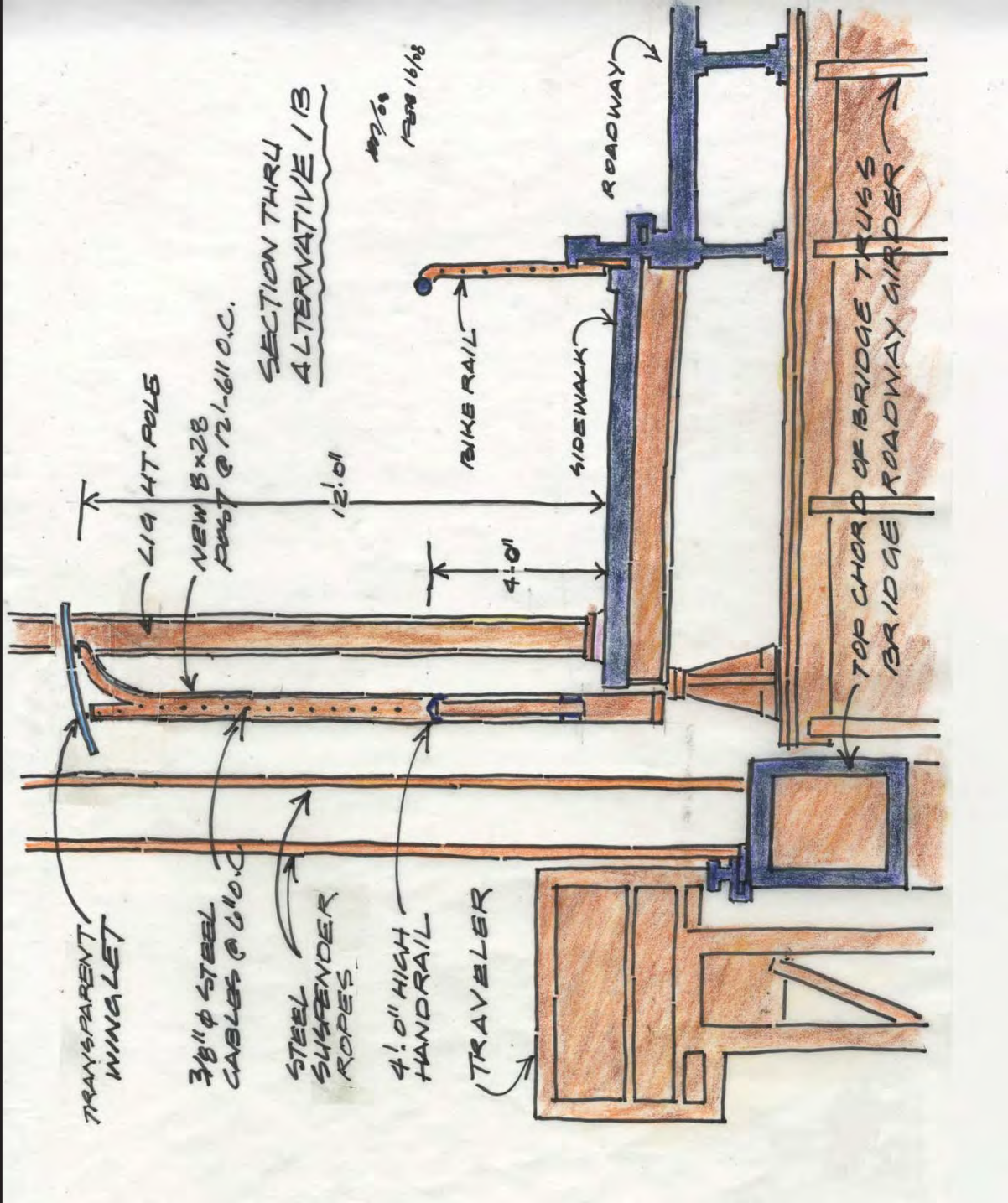


FIGURE 1-11
ALTERNATIVE 1B: CROSS SECTION
Environmental Impact Report / Environmental Assessment

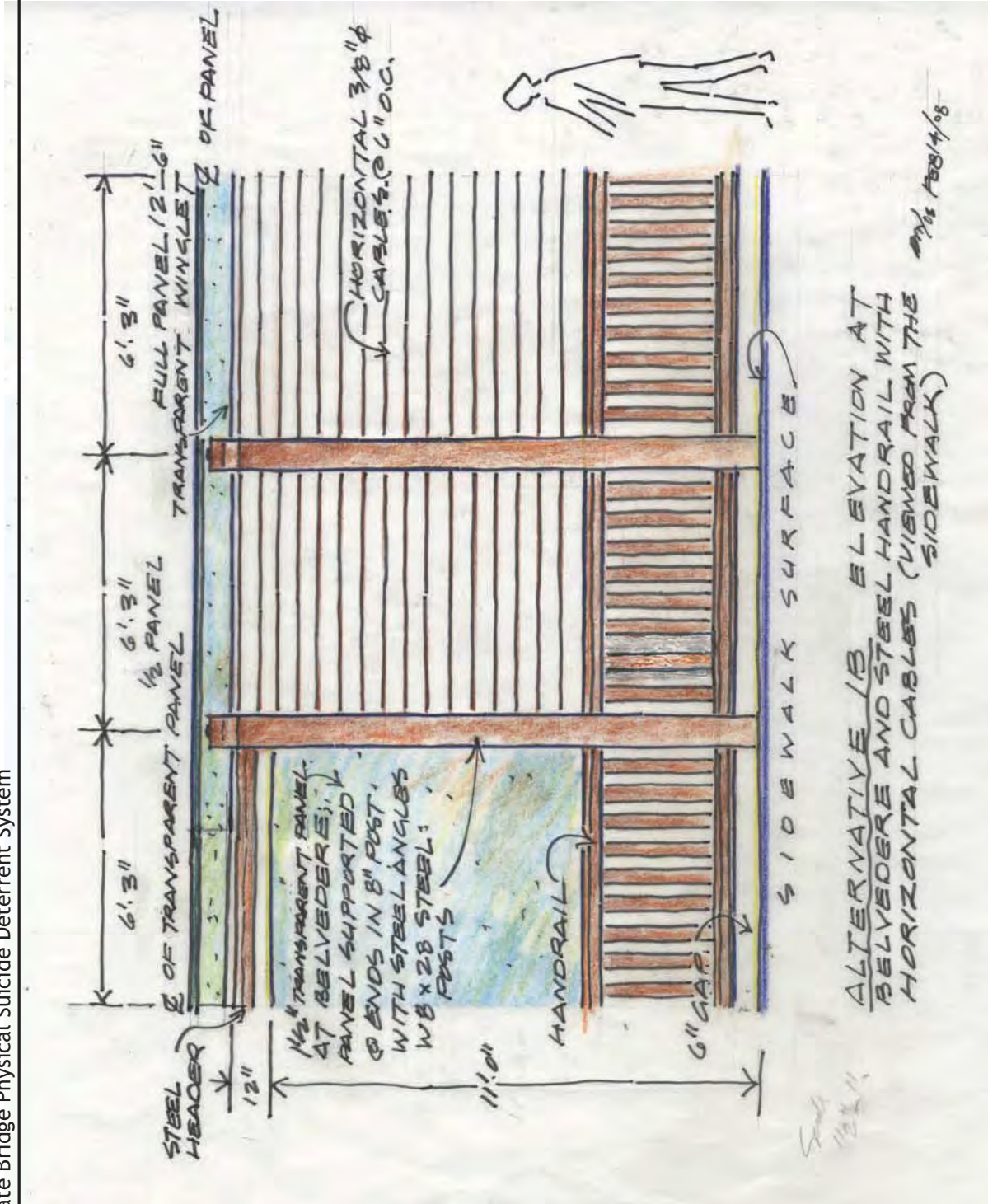


FIGURE 1-12
ALTERNATIVE 1B: ELEVATION AT BELVEDERE
Environmental Impact Report / Environmental Assessment

Alternative 2A – Replace Outside Handrail with Vertical System

Alternative 2A would replace the existing outside handrail with a new vertical 12-foot-high barrier consisting of 1/2-inch diameter vertical steel rods spaced at 4 1/2 inches on center, leaving a 4-inch clear space between rods. A rub rail would be installed at the same height as the public safety railing (4 feet 6 inches). The existing rail posts would be replaced with new 12-foot-high outside rail posts at the same locations and of the same cross-section, size, material, and color of the original posts. Additionally, the vertical rods would be constructed of steel and painted International Orange to match the material and color of the Bridge. The top horizontal header would consist of a chevron-shaped member matching the top element of the outside handrail to be removed. The vertical rods would be attached to the header and bottom barrier element. Transparent panels to preserve views would be installed at the belvederes and towers on both sides of the Bridge. Transparency would be preserved through ongoing maintenance of the panels.

This alternative will not proceed until the installation of the wind fairings as part of the previously approved Seismic Retrofit Project has been completed. The modification to the outside handrail on the west side of the Bridge between the two main towers would not occur, as the outside handrail would be replaced with a new vertical barrier. Figures 1-13 and 1-14 illustrate east and west side views of Alternative 2A and Figures 1-15 through 1-17 represent architectural sketches of the propose alternative. Special provisions for viewing areas are made at the mid-span of the Bridge. Figures 1-23 through 1-25 illustrate the plans for the physical suicide barrier at those locations.

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

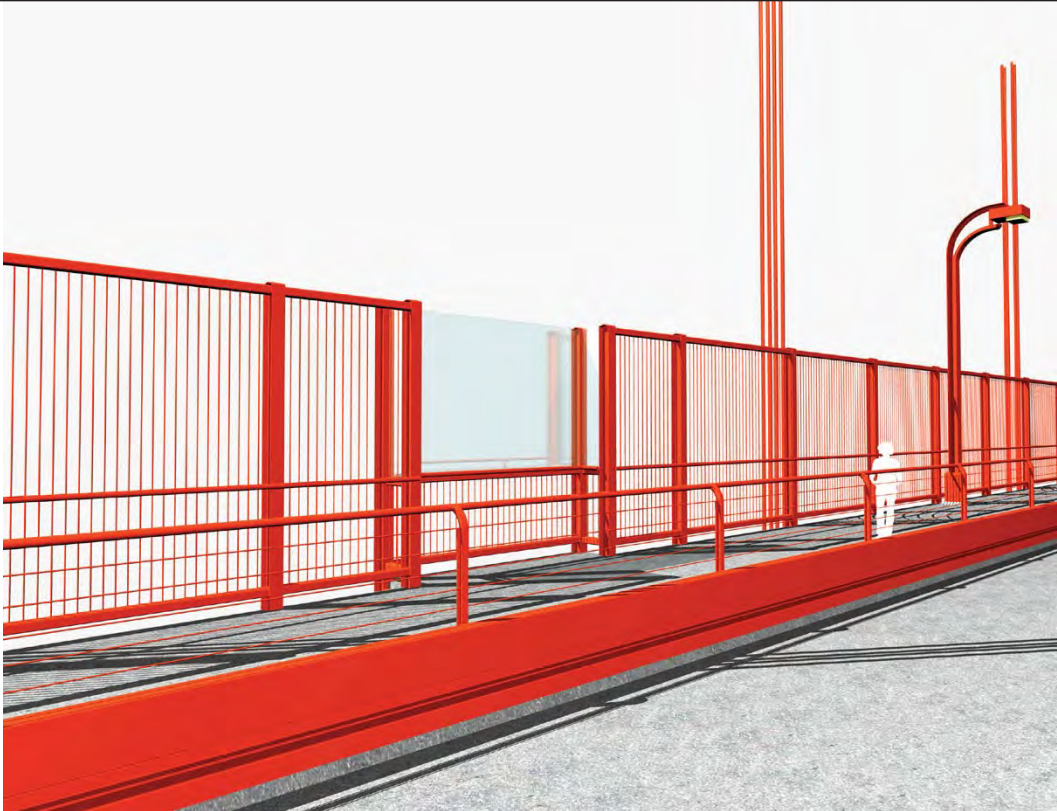


ALTERNATIVE 2A: ELEVATION EAST SIDE

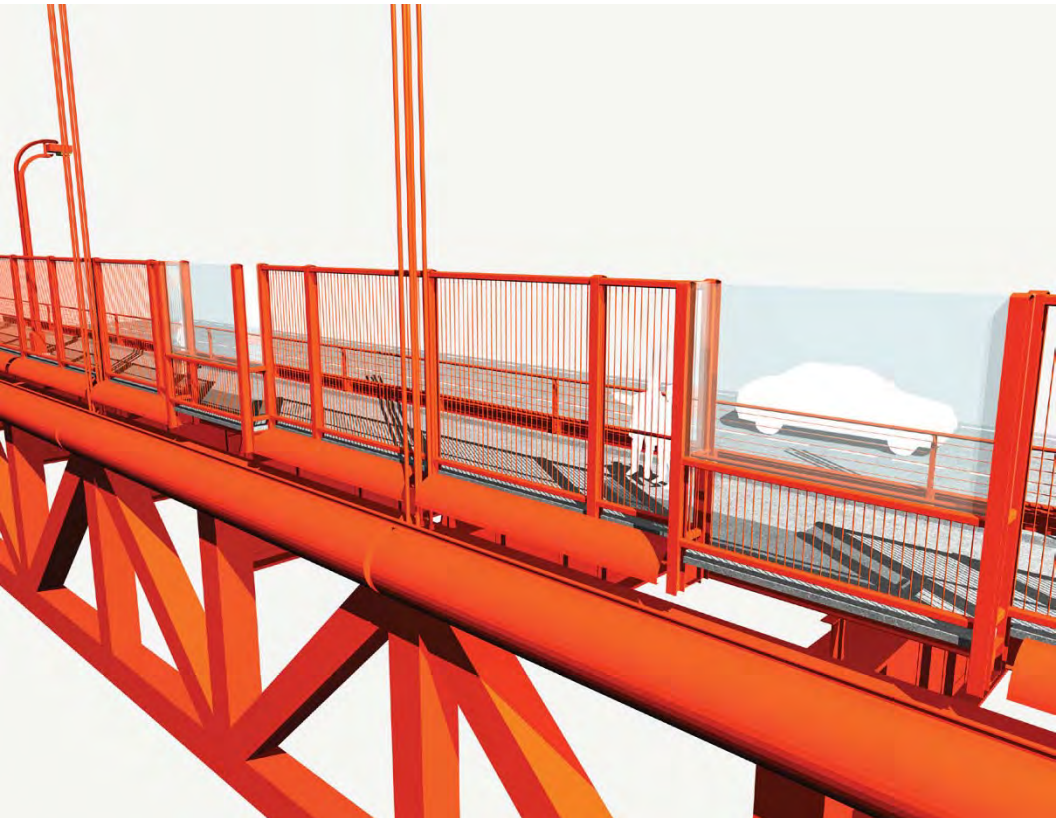


ALTERNATIVE 2A: EXTERIOR VIEW EAST SIDE

**FIGURE 1-13
ALTERNATIVE 2A: ILLUSTRATIONS**



ALTERNATIVE 2A: VIEW FROM ROAD



ALTERNATIVE 2A: EXTERIOR VIEW WEST SIDE

**FIGURE 1-14
ALTERNATIVE 2A: ILLUSTRATIONS**

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

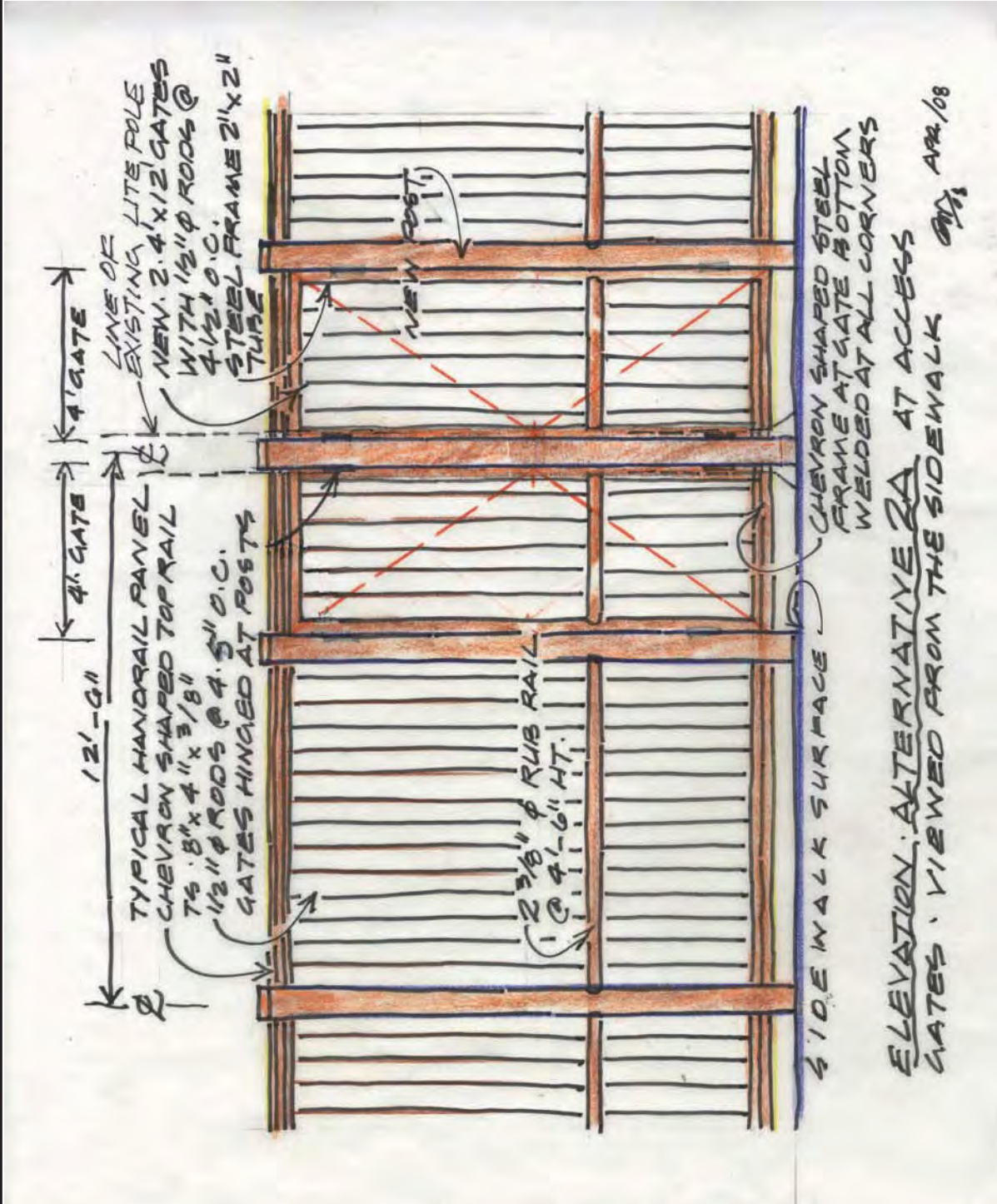


FIGURE 1-15
 ALTERNATIVE 2A: ELEVATION AT ACCESS GATES
 Environmental Impact Report / Environmental Assessment

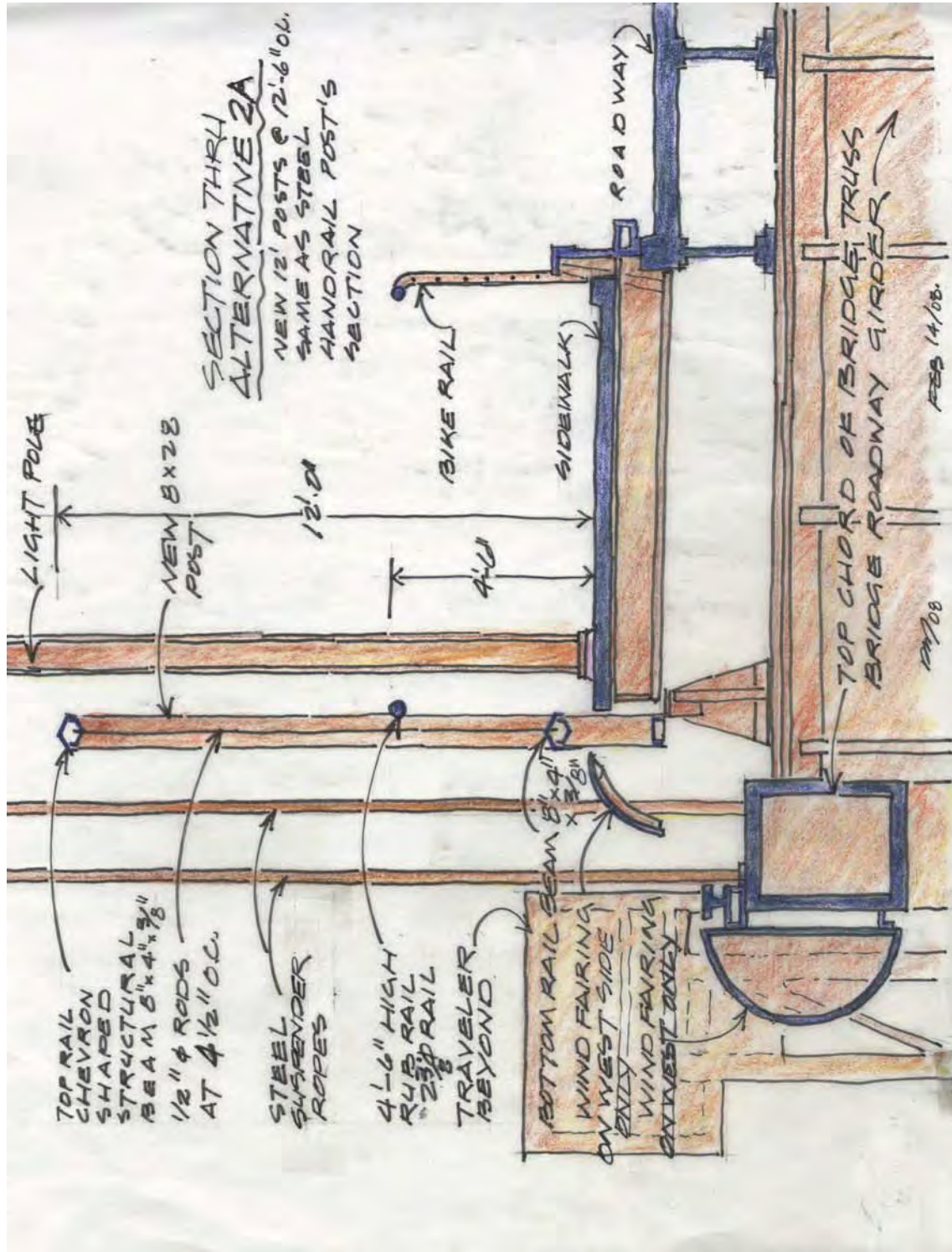


FIGURE 1-16
ALTERNATIVE 2A: CROSS SECTION
Environmental Impact Report / Environmental Assessment

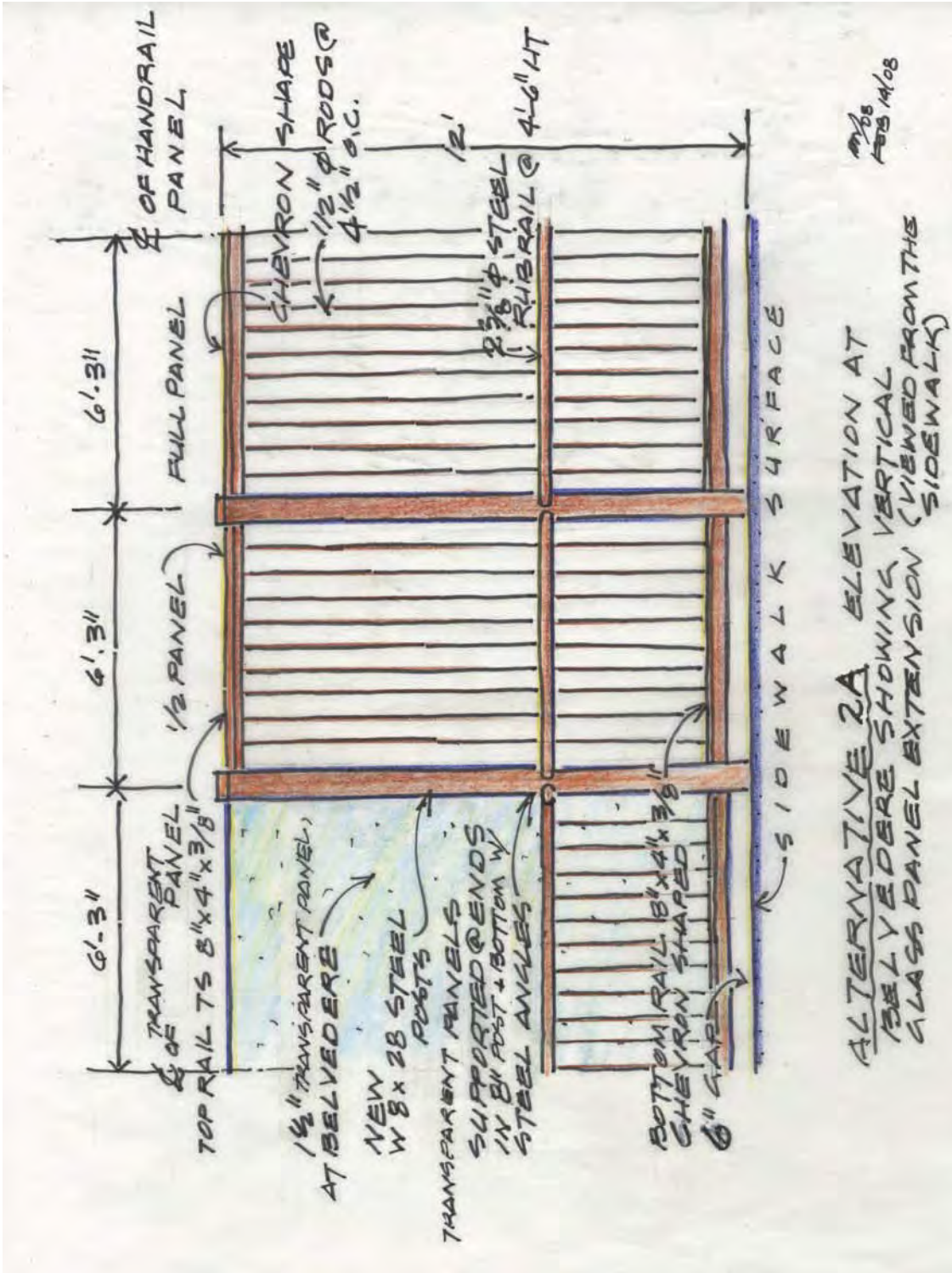


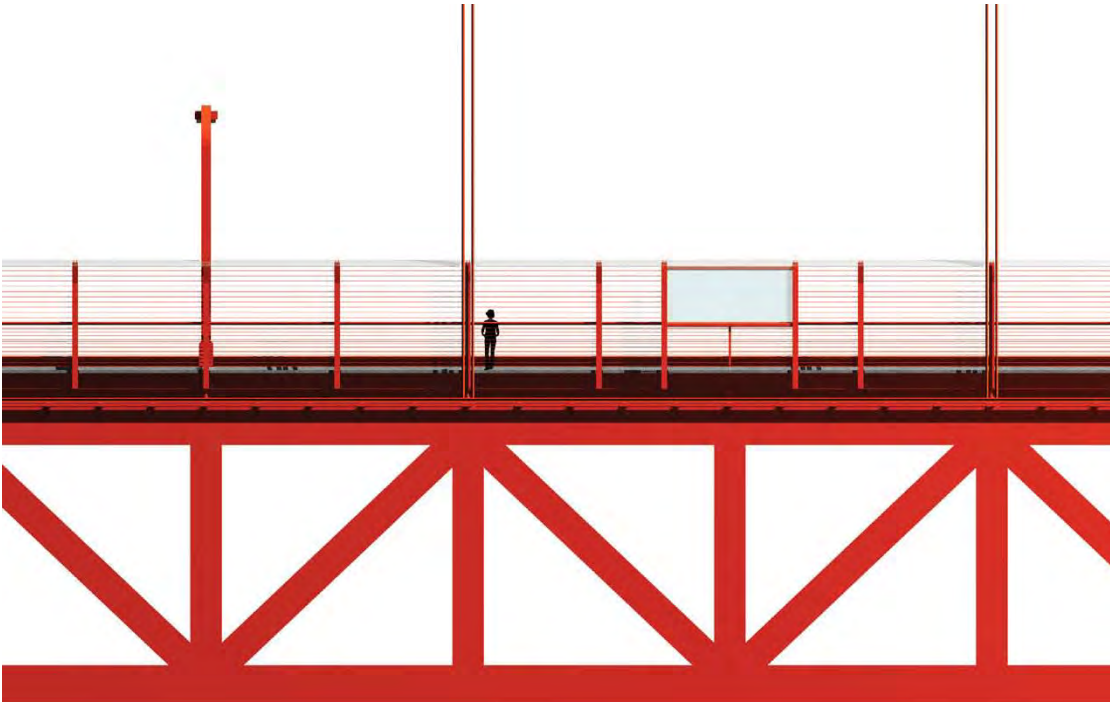
FIGURE 1-17
ALTERNATIVE 2A: ELEVATION AT BELVEDERE
Environmental Impact Report / Environmental Assessment

Alternative 2B – Replace Outside Handrail with Horizontal System

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

A transparent winglet would be placed on top of the outside rail posts to ensure aerodynamic stability and impede individuals who have climbed up the horizontal cables from clearing the barrier. The winglet would be placed on top of the rail posts. The winglet would be a clear 42-inch-wide transparent panel with a slight concave curvature extending approximately 2 feet over the sidewalk. The transparent winglet would run the length of the suicide deterrent barrier, except at the north and south towers. The transparent winglet would be notched at the suspender ropes and light posts. The installation of the wind fairings would be completed as part of the previously approved Seismic Retrofit Project, prior to installation of Alternative 2B. The modification to the outside handrail on the west side of the Bridge would not occur, as the outside handrail would be replaced with a new horizontal barrier. Figures 1-18 and 1-19 illustrate east and west side views of Alternative 2B and Figures 1-20 through 1-22 represent architectural sketches of the proposed alternative. Special provisions for viewing areas are made at the mid-span of the Bridge. Figures 1-23 through 1-25 illustrate the plans for the physical suicide barrier at those locations.

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

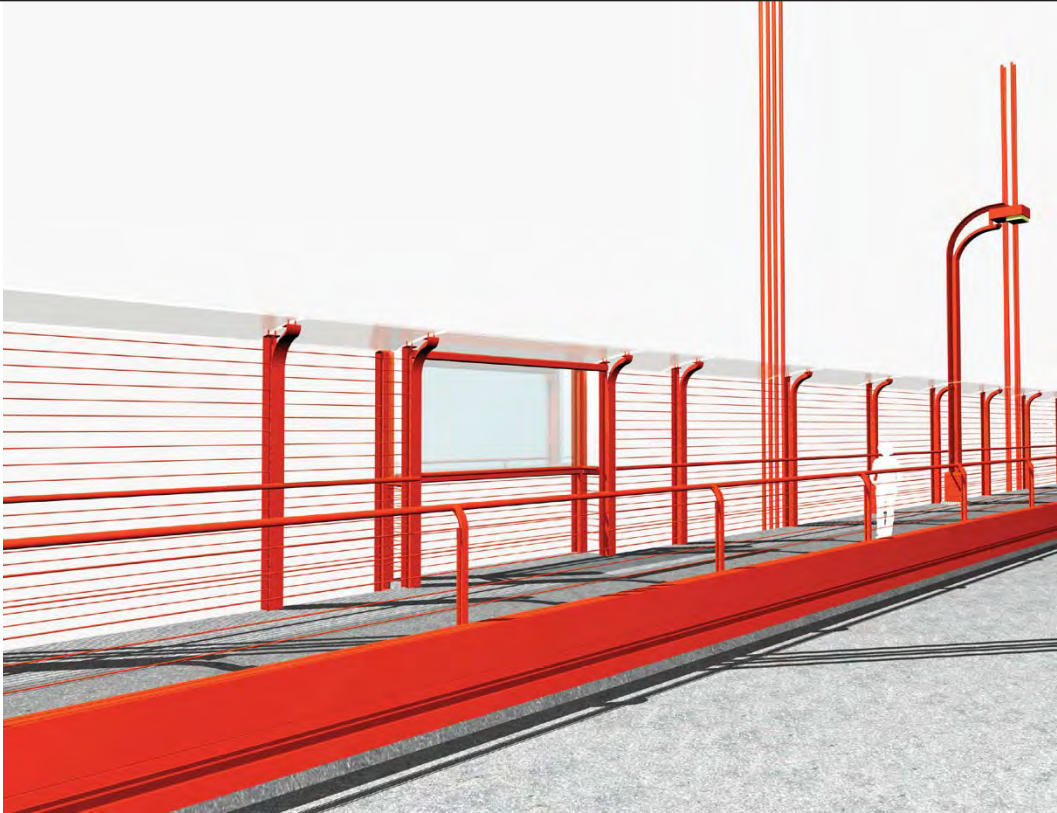


ALTERNATIVE 2B: ELEVATION EAST SIDE



ALTERNATIVE 2B: EXTERIOR VIEW EAST SIDE

**FIGURE 1-18
ALTERNATIVE 2B: ILLUSTRATIONS**



ALTERNATIVE 2B: VIEW FROM ROAD



ALTERNATIVE 2B: EXTERIOR VIEW EAST SIDE

**FIGURE 1-19
ALTERNATIVE 2B: ILLUSTRATIONS**

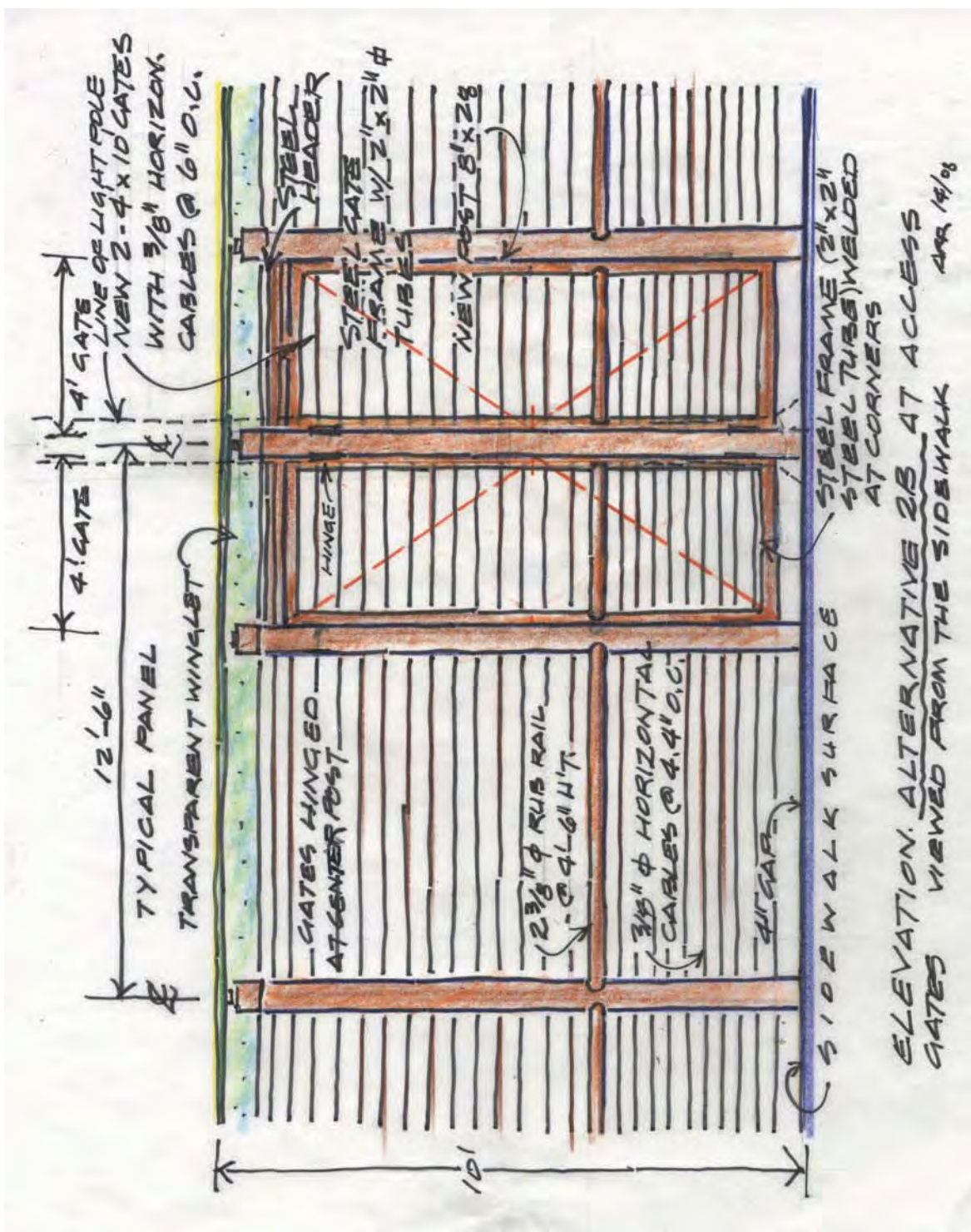


FIGURE 1-20
ALTERNATIVE 2B: ELEVATION AT ACCESS GATES

Environmental Impact Report / Environmental Assessment

Source: macdonald architects, 2008

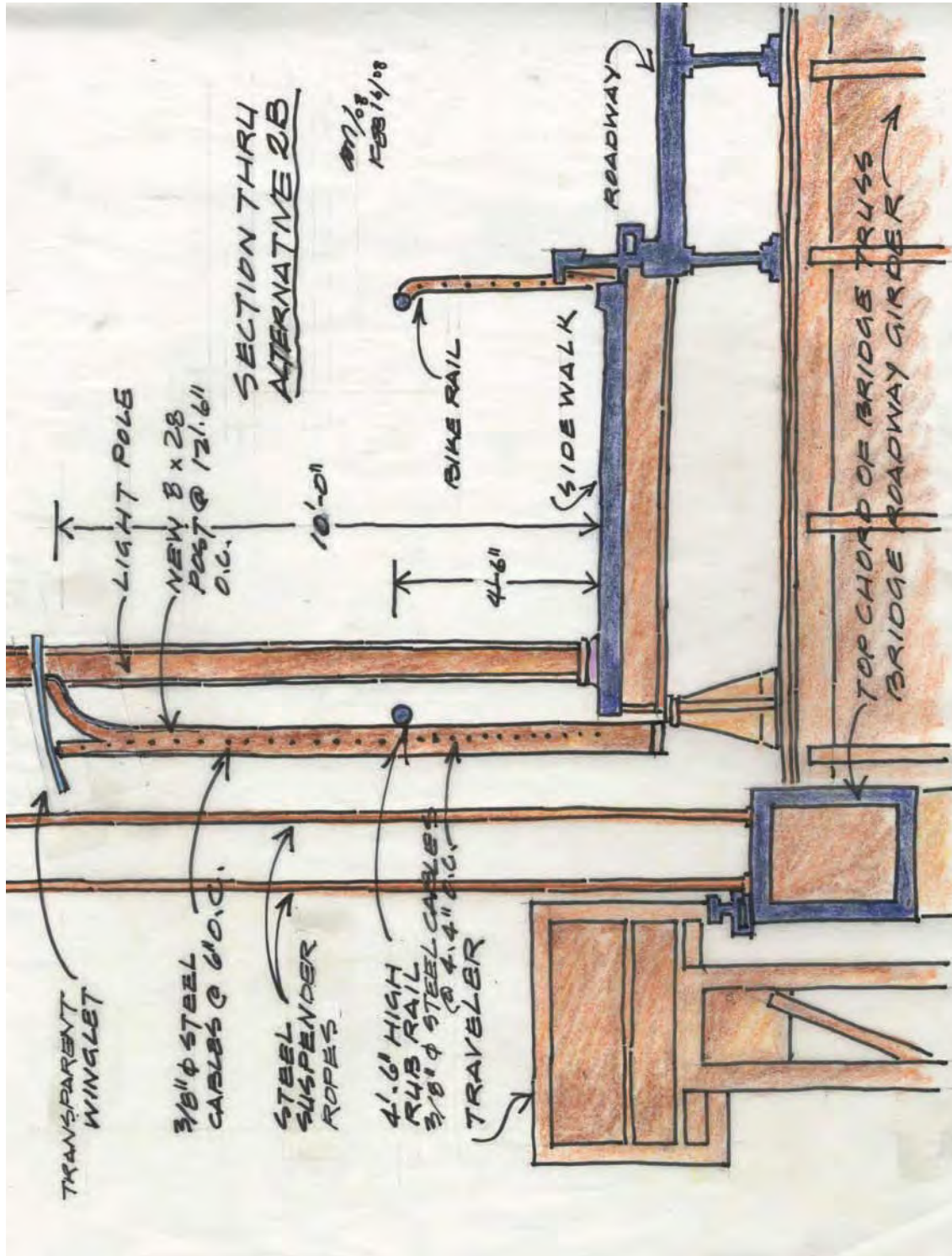


FIGURE 1-21
ALTERNATIVE 2B: CROSS SECTION

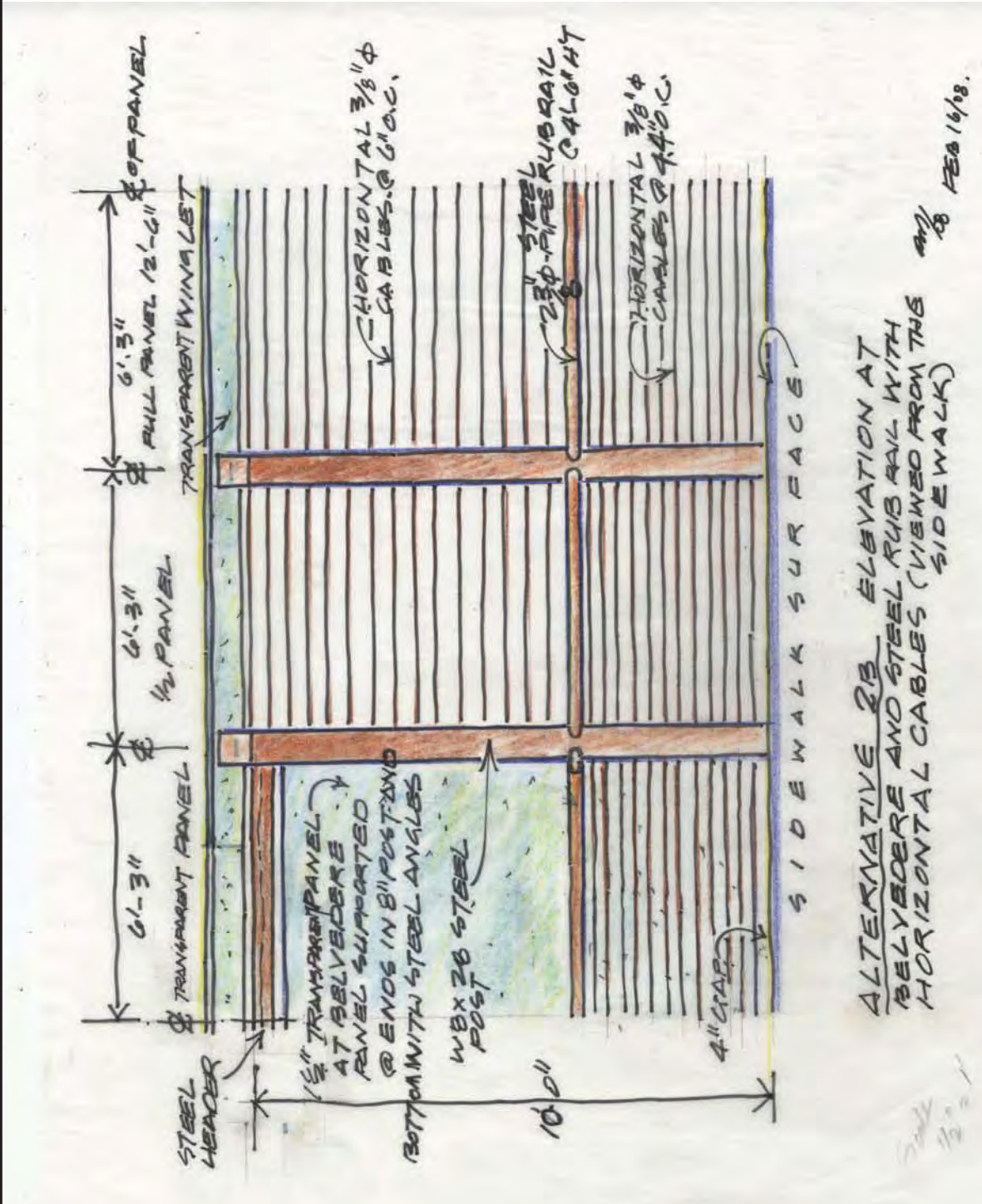


FIGURE 1-22
 ALTERNATIVE 2B: ELEVATION AT BELVEDERE
 Environmental Impact Report / Environmental Assessment

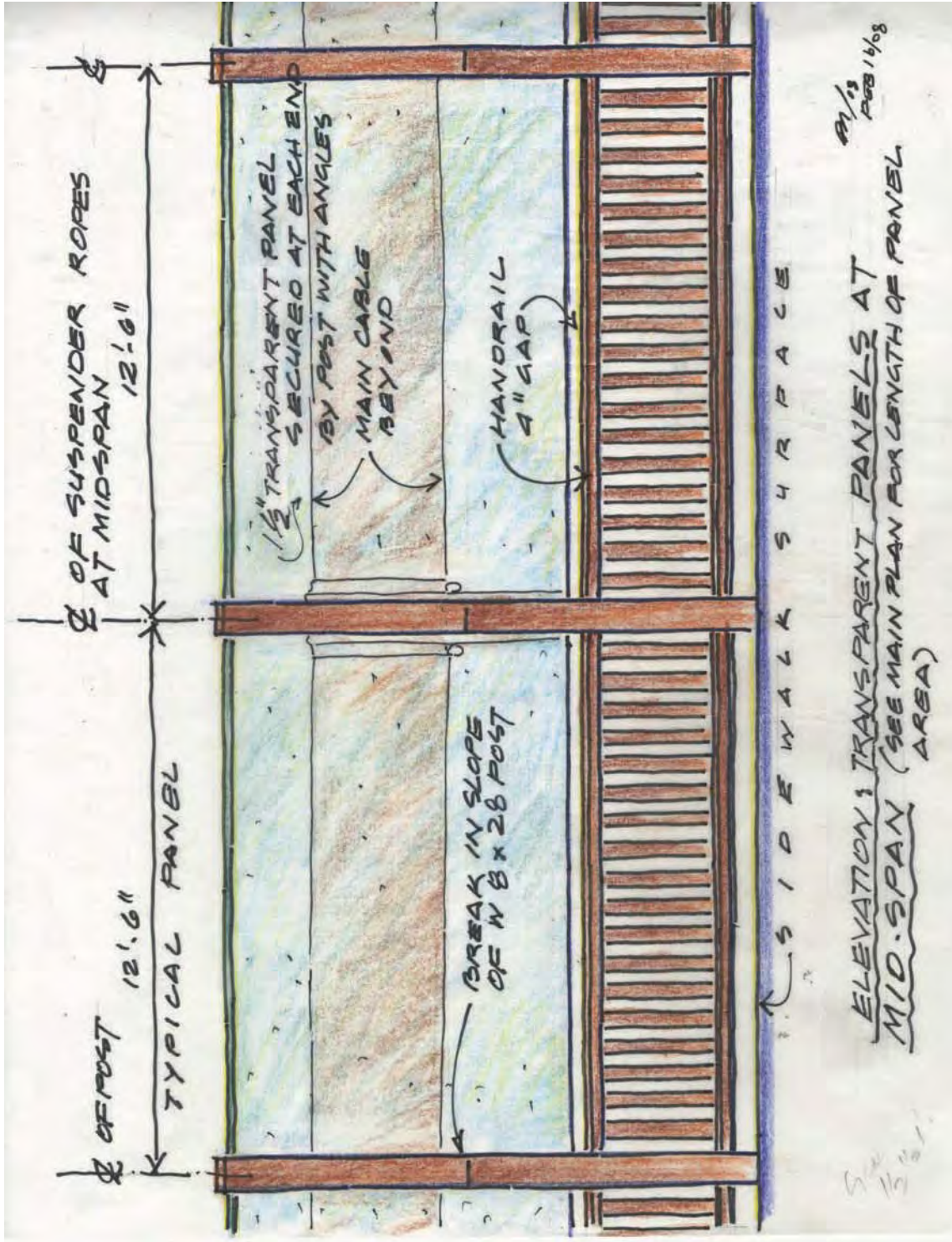


FIGURE 1-23
ELEVATION OF TRANSPARENT PANELS AT MID-SPAN
Environmental Impact Report / Environmental Assessment

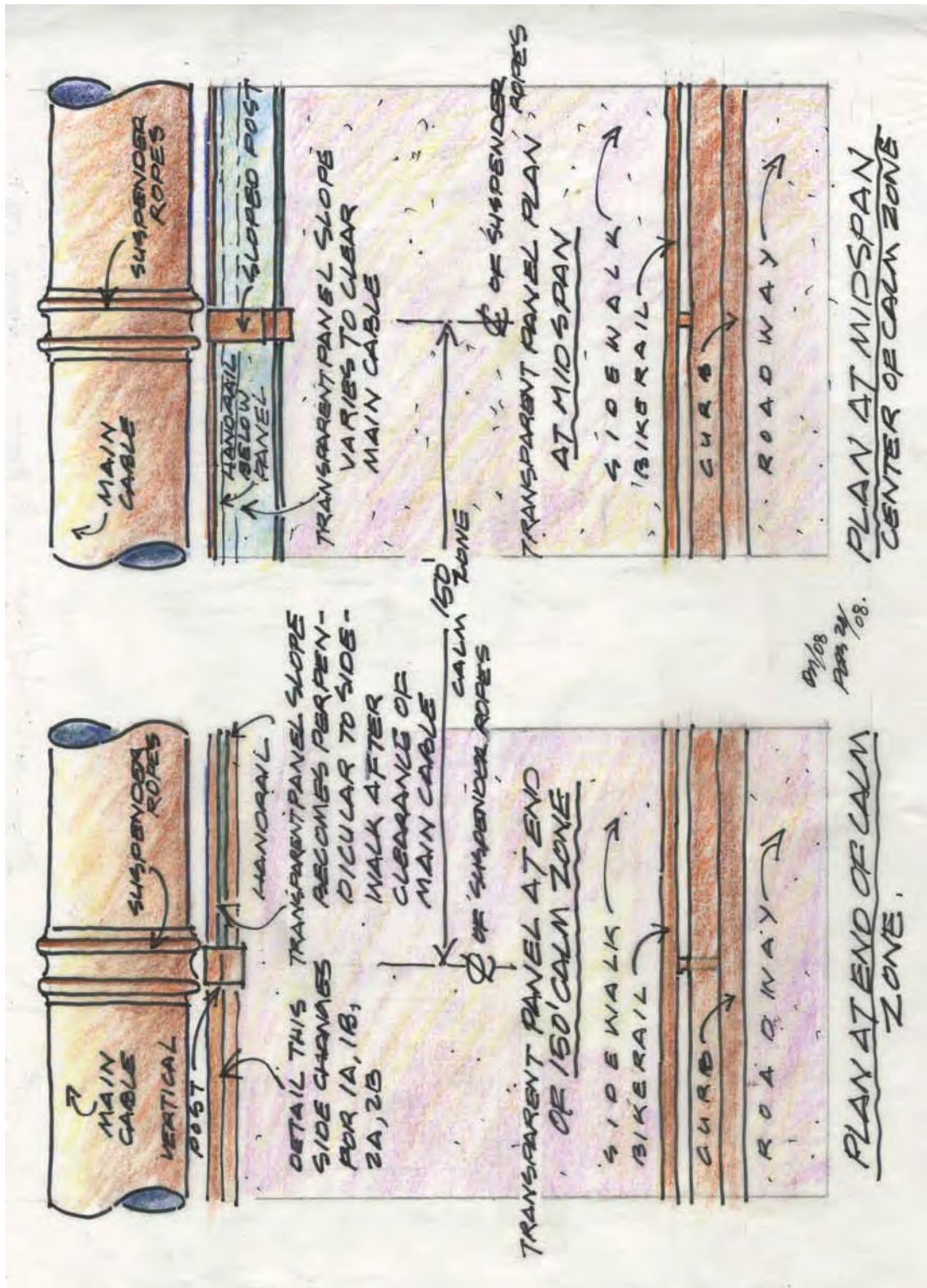


FIGURE 1-24
PLAN AT MID-SPAN

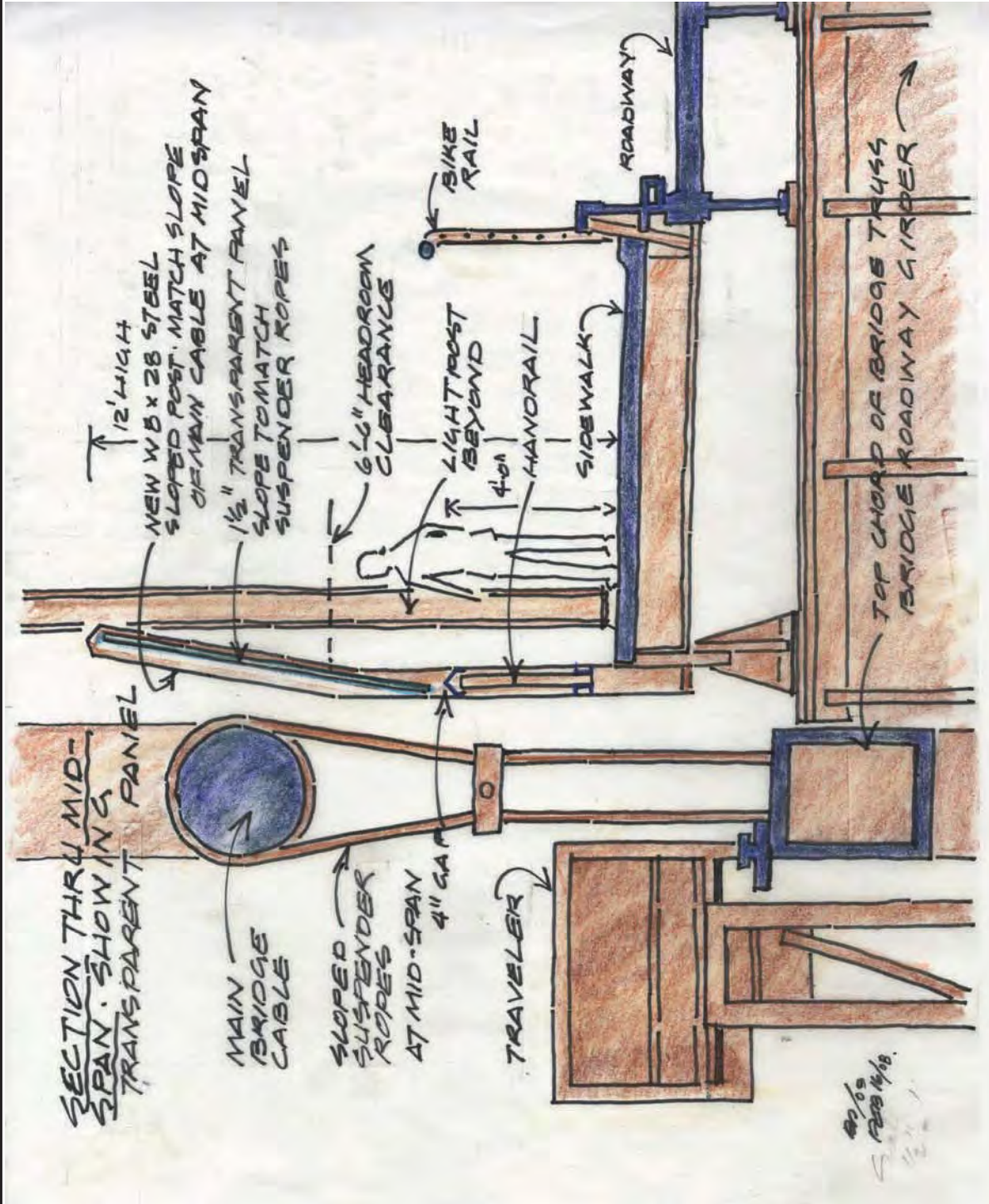


FIGURE 1-25
MID-SPAN CROSS SECTION

Environmental Impact Report / Environmental Assessment

Source: macdonald architects, 2008

Alternative 3 – Add Net System (Preferred Alternative)

Alternative 3 would construct a horizontal net approximately 20 feet below the sidewalk and approximately 5 feet above the bottom chord of the exterior main truss. Use of such net installations for suicide prevention on other facilities has resulted in greatly reduced fatalities and suicide attempts.¹ Should individuals jump, they would be expected to survive the fall and could be rescued. The net would extend horizontally approximately 20 feet from the Bridge and be covered with stainless steel cable netting incorporating a grid between 4 and 10 inches. The horizontal net would consist of independent 25-foot sections that can be rotated vertically against the truss to allow the maintenance travelers to be moved. The horizontal support system would connect directly to the exterior truss and be supported by cables back to the top chord of the truss. The support system for the netting would include cables that would pre-stress the netting to help keep it taut and not allow the wind to whip the netting. Alternative 3 would not include the use of transparent panels. Figures 1-26 and 1-27 illustrate east and west side views of Alternative 3 and Figure 1-28 represents an architectural sketch of the proposed alternative. The modification to the outside handrail on the west side of the Bridge between the two main towers and the installation of the wind fairings would be completed as part of the previously approved Seismic Retrofit Project, prior to installation of Alternative 3.

Refinements to Alternative 3

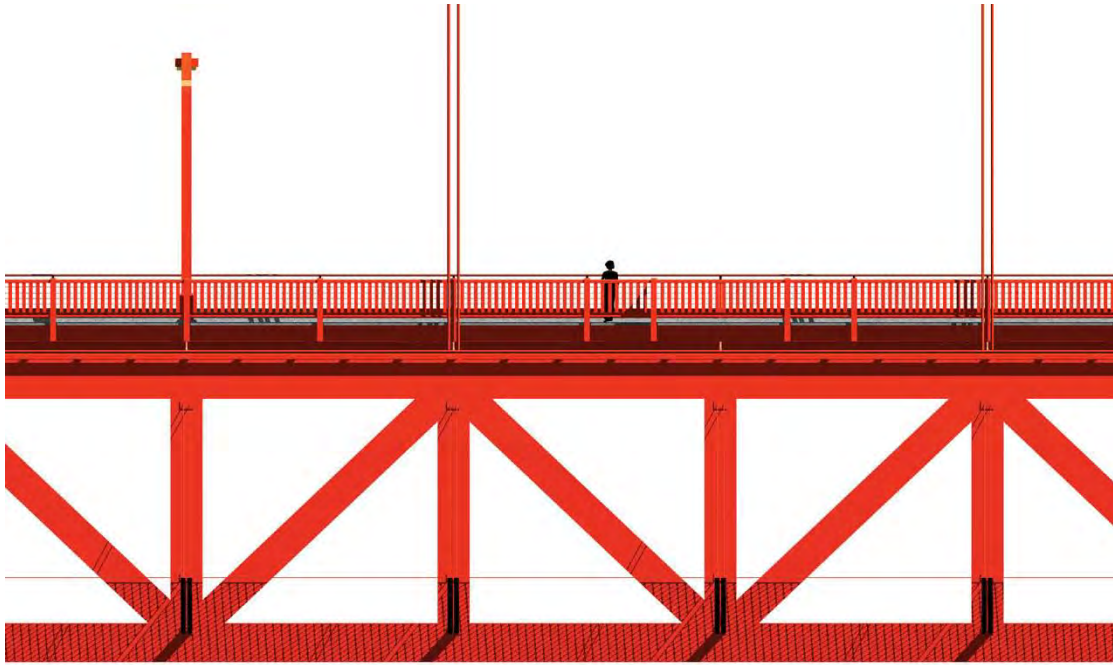
In response to public comments on the Draft EIR/EA and through consultation with the State Historic Preservation Officer (SHPO) and Advisory Council on Historic Preservation (ACHP), Alternative 3 has been refined as part of this Final EIR/EA. The refinements to Alternative 3 include a refinement of the color of the net material and a vertical barrier on the North Anchorage Housing.

Some of the comments received on the Draft EIR/EA suggested that the District consider other colors for the net material. In response to these comments, the District prepared renderings depicting different colors of netting material. Based on these renderings, as well as consultation with the SHPO and other interested parties, including the ACHP, Golden Gate National Recreation Area (GGNRA), the National Trust for Historic Preservation, Docomomo, and San Francisco Architectural Heritage, following the close of the public comment period, it was determined that

¹ Association of Suicidology, *Securing a Suicide Hot Spot: Effects of a Safety Net at the Bern Muenster Terrace*, August 2005; National Institute for Mental Health in England, *Guidance on Action to be Taken at Suicide Hotspots*, October 2006.

the unpainted and uncoated stainless steel net materials would have the least effect or minimize effects of the proposed project on cultural resources. Alternative 3 was therefore refined by replacing the International Orange net material with unpainted and uncoated stainless steel. The steel horizontal support system would be painted International Orange to match the existing structure of the Bridge.

Through consultation with the SHPO and ACHP, it was also determined that the portion of the net around the concrete surface of the North Anchorage Housing would be replaced by a vertical barrier, painted International Orange. The barrier would be installed along the 300-foot length of the North Anchorage Housing, representing approximately 3 percent of the 1.7-mile Bridge span. The barrier would extend 8 feet vertically from the top of the 4-foot-high concrete wall of the North Anchorage Housing for a total height of 12 feet, similar to the 8-foot vertical barrier under Alternative 1A. The barrier's vertical members would be comprised of 1/2-inch thick diameter vertical rods spaced at 6 1/2 inches on center. This design refinement minimizes the adverse effects of the alternative by using a much less visually intrusive vertical barrier for this portion of the project, leaving the solid surface of the housing wall unchanged. Alternative 3 was therefore refined by replacing the extension of the net around the North Anchorage Housing with the vertical barrier. Illustrations of the vertical barrier are shown in Figures 1-29 through 1-31.



ALTERNATIVE 3: ELEVATION EAST SIDE



ALTERNATIVE 3: EXTERIOR VIEW EAST SIDE

FIGURE 1-26
ALTERNATIVE 3: ILLUSTRATIONS

Source: macdonald architects, 2008



ALTERNATIVE 3: VIEW FROM ROAD



ALTERNATIVE 3: EXTERIOR VIEW WEST SIDE

FIGURE 1-27
ALTERNATIVE 3: ILLUSTRATIONS

Source: macdonald architects, 2008

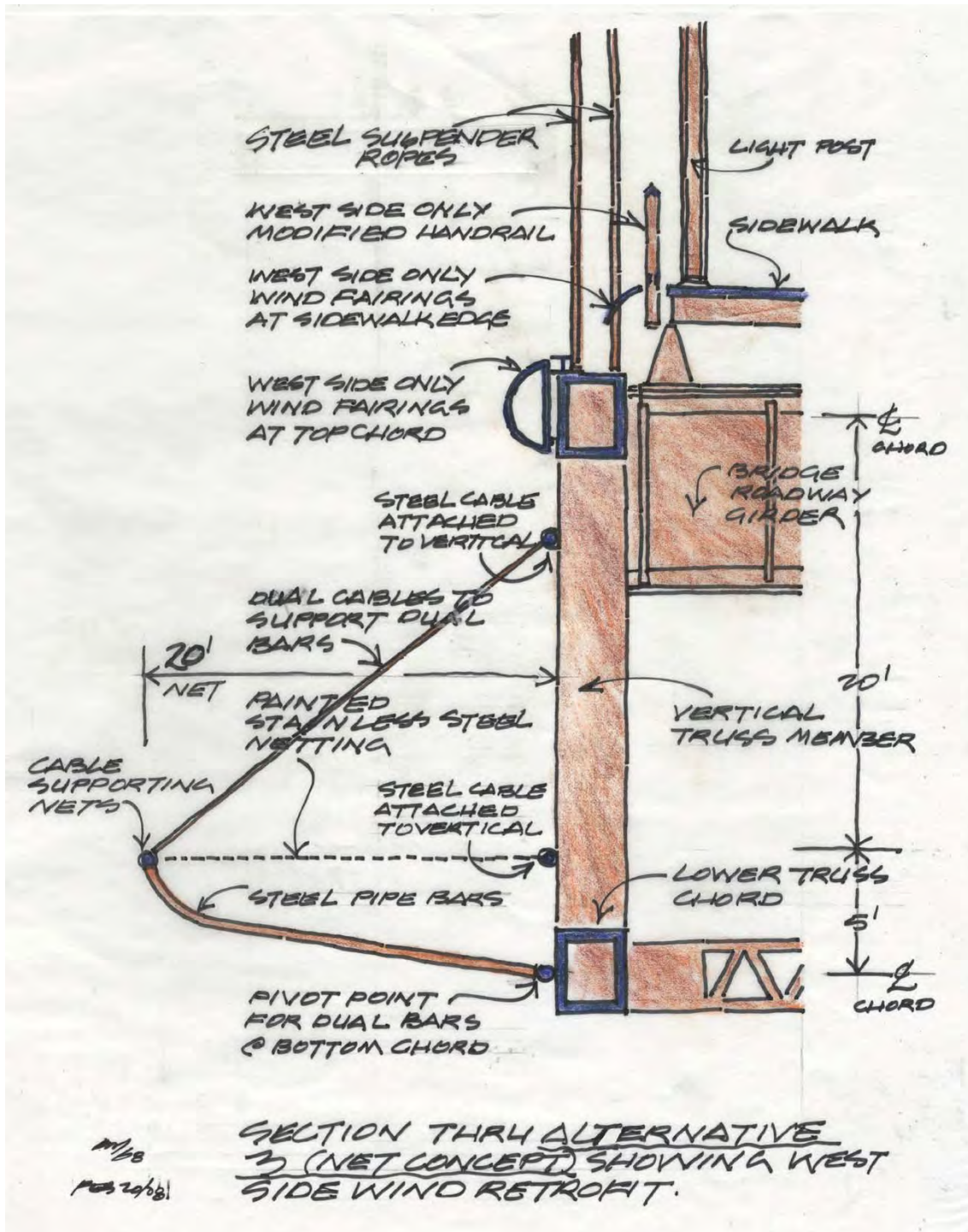
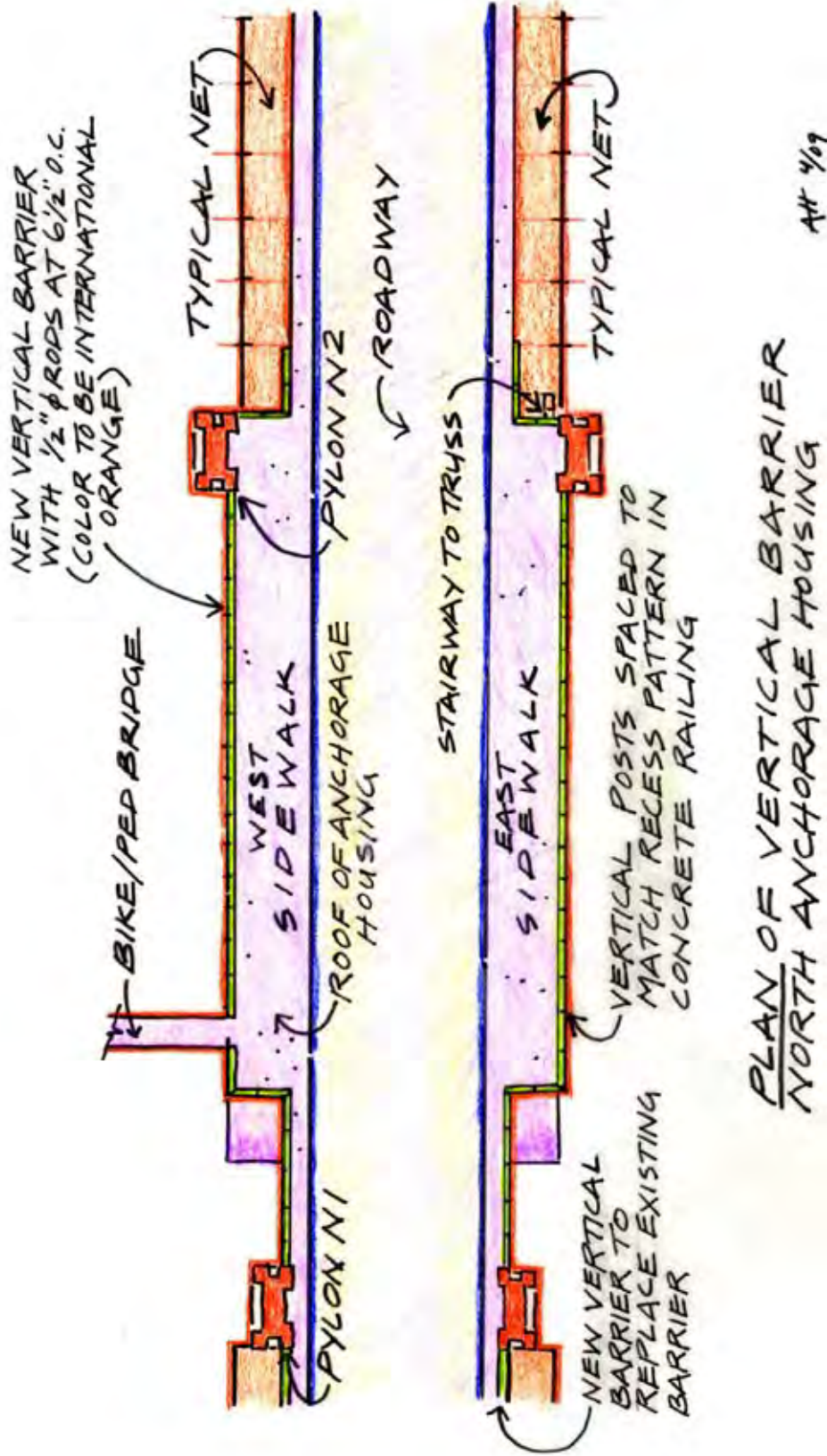


FIGURE 1-28
ALTERNATIVE 3: CROSS SECTION



PLAN OF VERTICAL BARRIER
NORTH ANCHORAGE HOUSING

FIGURE 1-29
ALTERNATIVE 3: VERTICAL BARRIER AT NORTH ANCHORAGE HOUSING (PLAN OVERVIEW)

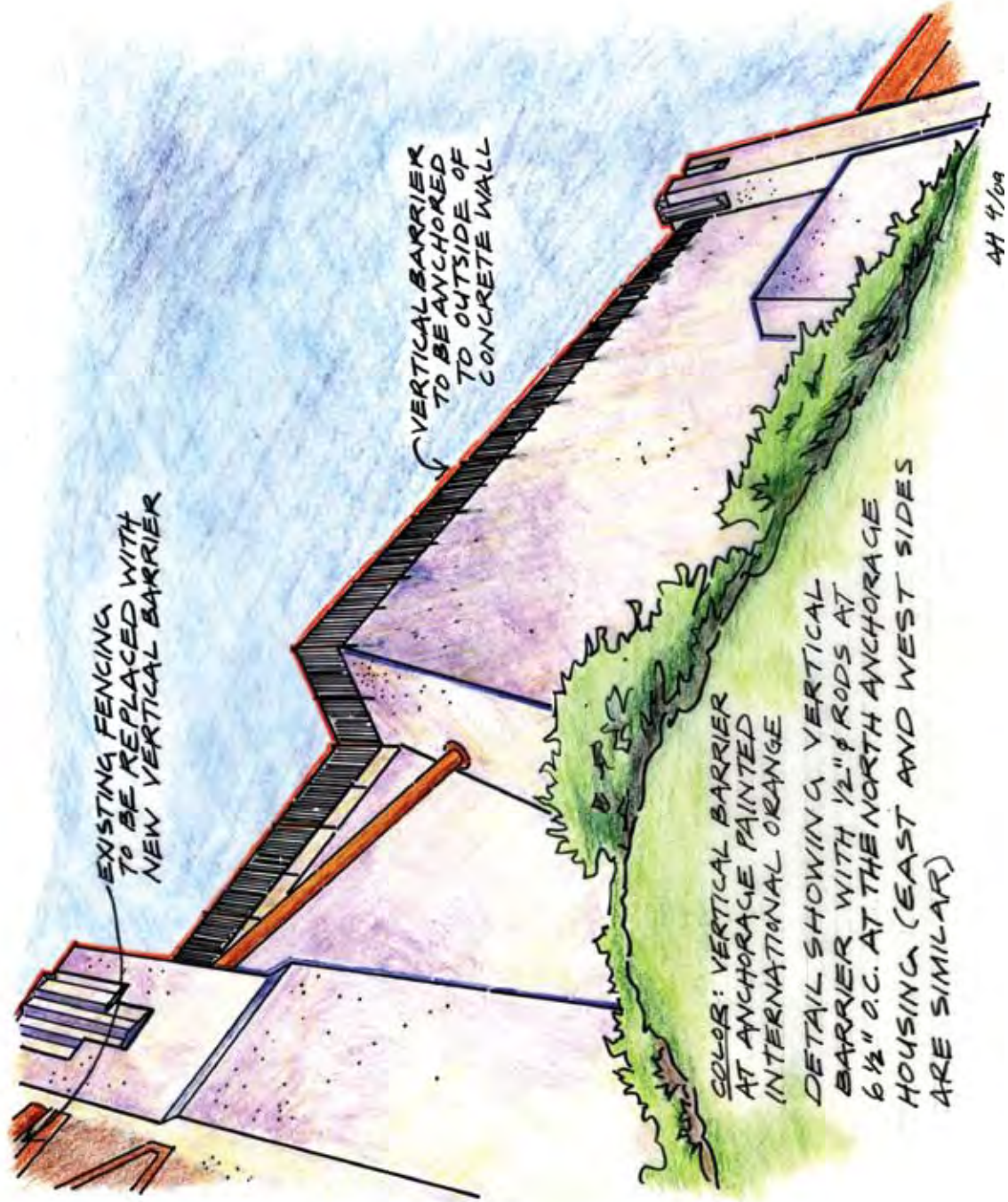


FIGURE 1-30
ALTERNATIVE 3: VERTICAL BARRIER AT NORTH ANCHORAGE HOUSING (VIEW FROM BELOW)

Environmental Impact Report / Environmental Assessment

Source: macdonald architects, 2009

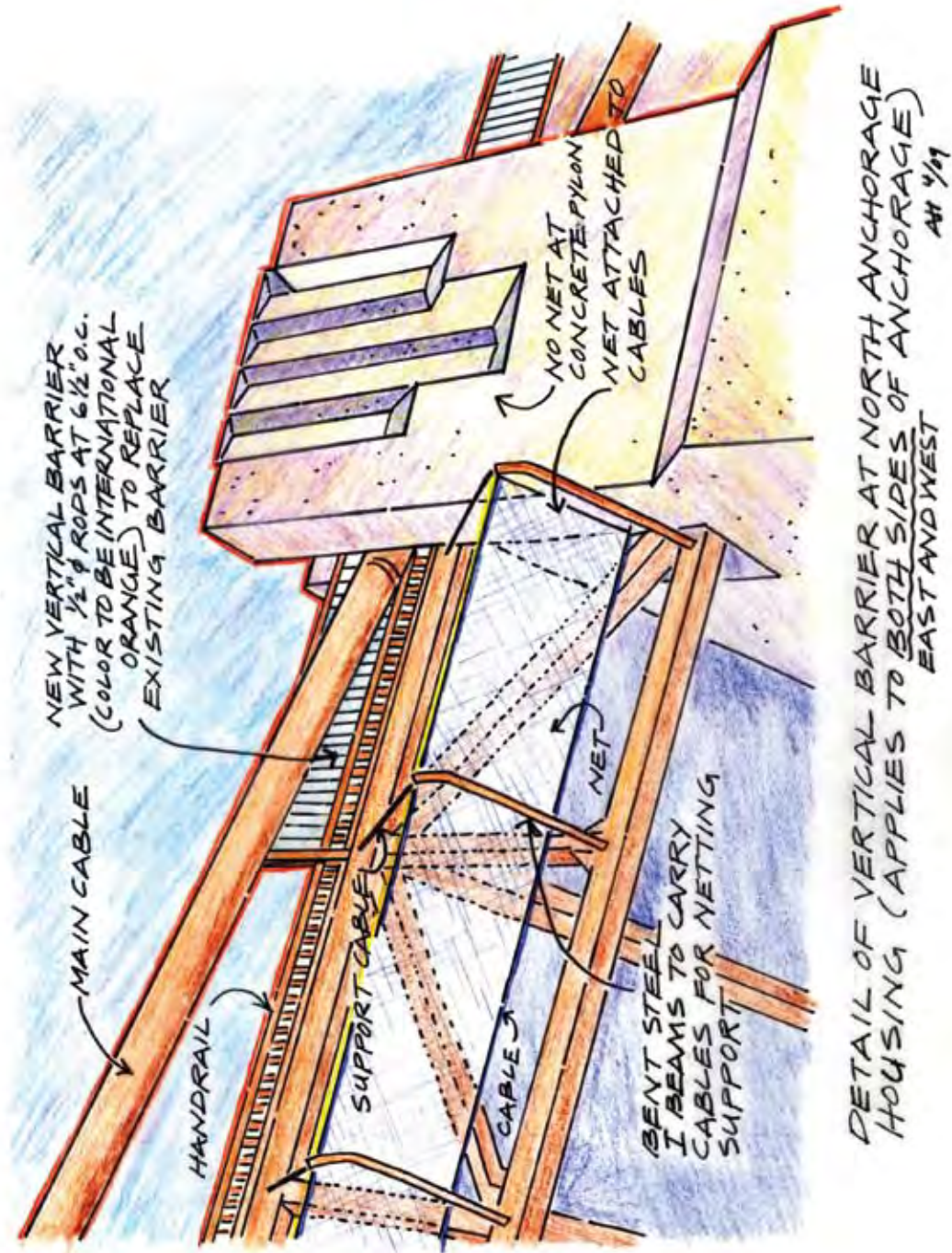


FIGURE 1-31
ALTERNATIVE 3: DETAIL OF VERTICAL BARRIER AT NORTH ANCHORAGE HOUSING
Environmental Impact Report / Environmental Assessment

1.5.2 NO-BUILD ALTERNATIVE

The No-Build Alternative represents an alternative and a baseline for future year conditions if no other actions are taken in the study area beyond what is already in place. Under this alternative, the Bridge's sidewalks would remain open to the public, with the existing outside railing remaining four (4) feet high. The No-Build Alternative would continue the existing non-physical suicide deterrent programs at the Bridge, as well as implement Bridge modifications approved as part of the seismic upgrade project.

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

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

Existing Suicide Deterrent Programs

Emergency Counseling Telephones

On November 5, 1993, by Board Resolution #93-264, the District upgraded the emergency motorist "call-box" telephone system on the Bridge sidewalks to also accommodate suicide prevention and crisis intervention calls. Additional phones were installed to expand the coverage area with a total of 11 phones located on both sidewalks. The system was modified to

allow the Bridge security staff to instantly connect callers, at their request, to trained suicide prevention counselors at San Francisco Suicide Prevention's crisis line.

To comply with international convention regarding emergency telephones, the signs above the telephone call boxes were modified in color from black on yellow to white on blue. The wording was changed from "Emergency Telephone" to "Emergency Telephone and Crisis Counseling" and the international "telephone" icon was added. Further, in 2006, additional signs with blue with white lettering, were added directly above the telephone call boxes that read: "Crisis Counseling, There is Hope, Make the Call. The Consequences of Jumping from this Bridge are Fatal and Tragic."

The phones are used both by potentially suicidal persons seeking assistance and by members of the public who wish to alert District authorities to persons that may be contemplating suicide. In recent years, the proliferation of cellular telephones has also increased the incidence of reporting by the general public of potential persons contemplating suicide.

Public Safety Patrols

On February 23, 1996, under Board Resolution 93-34, a Public Safety Patrol was initiated on the Bridge sidewalks with suicide prevention as one of its primary objectives. The patrols started on April 1, 1996. Under this program, the District's existing Bridge Patrol Program was reoriented with an emphasis on patrolling the Bridge east sidewalk. The initial patrols were performed on foot and by scooter. In August 1999, the Board authorized the formation of a bicycle unit within the Bridge Patrol ranks. Today the majority of sidewalk patrolling is done on bicycles. In December 2001, as a result of heightened security concerns, the Board authorized the hiring of additional Bridge patrol officers to expand the Bridge's security force. These new officers are trained in suicide prevention and intervention. In early 2003, the California Highway Patrol (CHP) deployed its own bicycle patrol officers on the Bridge, increasing law enforcement coverage even further. CHP officers are also trained in suicide intervention.

Employee Training

All Bridge security personnel, as well as several Bridge ironworkers who have volunteered to assist in suicide intervention and rescue activities, have received special training. In 2004, the District, CHP, and the U.S. Park Police jointly sponsored an intensive full-day training session on crisis intervention and suicide prevention. This course was attended by more than 120 law enforcement officers, District security, and ironworker personnel. The course was conducted by a nationally renowned expert in

the field of crisis intervention and by personnel from San Francisco Suicide Prevention, Inc.

Surveillance Cameras

In the 1960s, closed-circuit cameras were installed at the Bridge towers to remotely monitor traffic conditions. As a result of security system upgrades in the mid 1990s and again following September 11, 2001, additional cameras were installed at other locations on and around the Bridge. This network of cameras aids in directing intervention personnel.

Seismic Retrofit Project

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

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

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

An Environmental Assessment/Initial Study prepared in November 1995 and a Finding of No Adverse Effect prepared in January 1995 for the

Seismic Retrofit Project documented that the project would have no impacts, no adverse effects, and no cumulative effects.

Wind Retrofit of West Outside Handrail

In accordance with the findings of the wind study report conducted for the Seismic Retrofit Project, the vertical members under the outside handrail on the west side of the Bridge between the two main towers will be modified to reduce the effects of the wind on the handrail. The retrofit modification will replace the existing vertical members and bottom rail with narrower members. The new vertical members will be spaced at 5 inches on center, which will help to increase the porosity of the handrail by allowing the wind to pass through the pickets more freely, thus reducing the wind loads inducted upon these elements. The top rail and main support posts will remain unchanged.

Wind fairings will be installed at the west outer edge of the sidewalk and the top chord of the main stiffening truss. A quarter round fairing, with a radius of 19 inches, will be placed at the sidewalk's edge and a half round fairing, with a radius of 25 inches will be placed along the top chord of the stiffening truss. The fairings will be painted to match the existing Bridge color. The fairings radius and diameter will be equivalent to the width of the edge of sidewalk and top chord of the stiffening truss of which they cover. This will retain the same scale and the same relationship of solids and voids of the main suspension truss' elevation. This modification was previously approved as part of the Seismic Retrofit Project.

1.6 COMPARISON OF ALTERNATIVES

The current project, including the engineering design work and environmental evaluation associated with development of a physical suicide deterrent system, was initially authorized by Resolution #2005-15, adopted by the District's Board at its March 11, 2005 meeting. At this time the criteria were revised, as shown in Section 1.2, Purpose and Need, of this chapter, to encompass the considerations listed in that section while also recognizing the historic significance of the Bridge.

All of the build alternatives generally satisfy the revised criteria established by the District. During the screening process, many groups of alternatives, as discussed in Section 1.8, Alternatives Considered But Eliminated From Further Discussion, of this chapter, were considered and evaluated for their ability to meet the project's purpose and need, which included the District's criteria. The build alternatives evaluated in this environmental document were selected because they all impede the ability of an individual to jump from the Bridge and generally satisfy the District's criteria.

Table 1-1 compares the alternatives in relation to their ability to satisfy the project purpose and District criteria.

1.6.1 FINAL DECISION-MAKING PROCESS

Following circulation of the Final EIR/EA and in accordance with CEQA, the District will certify that the project complies with CEQA, prepare findings for all significant impacts identified, prepare a Statement of Overriding Considerations for impacts that will not be mitigated below a level of significance, and certify that the findings and Statement of Overriding Considerations have been considered prior to project approval. The District will then file a Notice of Determination with the State Clearinghouse that will identify whether the project will have significant impacts, mitigation measures were included as conditions of project approval, findings were made, and a Statement of Overriding Considerations was adopted. Similarly, if the Department, as assigned by FHWA, determines the NEPA action does not significantly impact the environment, the Department will issue a Finding of No Significant Impact (FONSI) in accordance with NEPA. If the Department determines the NEPA action significantly impacts the environment, an Environmental Impact Statement (EIS) will be prepared.

1.6.2 FUNDING PLAN

This project is included in the Metropolitan Transportation Commission's (MTC) Transportation Improvement Program (TIP) for \$50 million in donations and non-profit funds for design and construction in fiscal years 2011 and 2013 respectively. The TIP ID is MRN050019. No federal funds are currently programmed for this project; however, federal funds may become available at a future date.

Table 1-1 Comparison of Alternatives

		PROJECT PURPOSE AND DISTRICT CRITERIA									
Project Alternative	Must impede the ability of an individual to jump off the GGB	Must not cause safety or nuisance hazards to sidewalk users, including pedestrians, bicyclists, District staff, and District contractors/security partners	Must be able to be maintained as a routine part of the District's ongoing Bridge maintenance program without undue risk of injury to District employees.	Must not diminish ability to provide adequate security of the Golden Gate Bridge.	Must continue to allow access to the underside of the Bridge for emergency response and maintenance activities.	Must satisfy requirements of State and Federal historic preservation laws.	Must have minimal visual and aesthetic impact on the Golden Gate Bridge.	Must be cost effective to construct and maintain.	Must not, in and of itself, create undue risk of injury to anyone who comes in contact with the Suicide Deterrent System.	Must not prevent construction of a moveable median barrier on the GGB.	
1A - Add Vertical System to Outside Handrail	Configuration of thin rods vertically aligned provides for a system that is difficult to grasp and climb. Overall height sufficient to prevent a climber from reaching top of barrier from sidewalk level.	System serves as a passive barrier deterrent, and does not pose a safety or nuisance hazard to sidewalk users. District staff and District contractors/security partners.	Primary fence materials (posts, rods, etc) will utilize materials and components similar or identical to those used on the recently installed bike/ped railing.	System will not impede security patrols and will have no negative impact on sidewalk and above-deck security. System will help to protect main cable components (suspenders, main cable) and making access to these components/areas more difficult.	Current underbridge emergency response access will be maintained through the provision of access gates. Maintenance workers will have to walk along the upper chord of the truss, on the outside of the railing to access the maintenance traveler from the gates.	Project implementation will be in accordance with State and Federal historic preservation laws.	Use of thin vertical rods allows views through the barrier from the roadway/sidewalk perspectives, although stacking of rods will obstruct angled views from roadway/sidewalk perspectives. Barrier could be visible in views towards the Bridge, depending on the distance and duration of the view.	System utilizes conventional, readily available materials that can be installed using standard construction equipment and tools. Maintenance traveler modification costs can be avoided. System will increase the painted steel surfaces of the Bridge, which will increase maintenance costs.	System is not expected to cause injury to those in contact, since it is passive and relies upon fixed, stationary elements for its anti-climb effectiveness.	Based on wind tests, system can be installed in conjunction with a moveable barrier system.	
1B - Add Horizontal System to Outside Handrail	Horizontal cable alignment provides a foot-hold for climbing, but winglet will impede climbing over barrier. Overall height sufficient to prevent a climber from reaching top of barrier from sidewalk level.	System serves as a passive barrier deterrent, and does not pose a safety or nuisance hazard to sidewalk users. District staff and District contractors/security partners	Primary fence materials (posts, rods, etc) will utilize materials and components similar or identical to those used on the recently installed bike/ped railing. Transparent winglet will require periodic maintenance in order to maintain aesthetics and transparency.	System will not impede security patrols and will have no negative impact on sidewalk and above-deck security. System will help to protect main cable components (suspenders, main cable) and making access to these components/areas more difficult.	Current underbridge emergency response access will be maintained through the provision of access gates. Maintenance workers will have to walk along the upper chord of the truss, on the outside of the railing to access the maintenance traveler from the gates.	Project implementation will be in accordance with State and Federal historic preservation laws.	Use of horizontal system would allow head-on and angled views from sidewalk/roadway perspectives. Barrier could be visible in views towards the Bridge, depending on the distance and duration of the view. Use of above-deck winglet could be in conflict with Bridge aesthetics.	System utilizes conventional, readily available materials that can be installed using standard construction equipment and tools. Maintenance traveler modification costs can be avoided. Maintenance costs associated with winglet will be greater than 1A. System will increase the painted steel surfaces of the Bridge, which will increase maintenance costs.	System is not expected to cause injury to those in contact, since it is passive and relies upon fixed, stationary elements for its anti-climb effectiveness.	Based on wind tests, system can be installed in conjunction with a moveable barrier system.	
2A - Replace Outside Handrail with Vertical System	Configuration of thin rods vertically aligned provides for a system that is difficult to grasp and climb. Overall height sufficient to prevent a climber from reaching top of barrier from sidewalk level.	System serves as a passive barrier deterrent, and does not pose a safety or nuisance hazard to sidewalk users. District staff and District contractors/security partners.	Primary fence materials (posts, rods, etc) will utilize materials and components similar or identical to those used on the recently installed bike/ped railing.	System will not impede security patrols and will have no negative impact on sidewalk and above-deck security. System will help to protect main cable components (suspenders, main cable) and making access to these components/areas more difficult.	Current underbridge emergency response access will be maintained through the provision of access gates. Maintenance workers will have to walk along the upper chord of the truss, on the outside of the railing to access the maintenance traveler from the gates.	Project implementation will be in accordance with State and Federal historic preservation laws.	Use of thin vertical rods allows views through the barrier from the roadway/sidewalk perspectives, although stacking of rods will obstruct angled views from roadway/sidewalk perspectives. Barrier could be visible in views towards the Bridge, depending on the distance and duration of the view.	System utilizes conventional, readily available materials that can be installed using standard construction equipment and tools. System will increase the painted steel surfaces of the Bridge, which will increase maintenance costs.	System is not expected to cause injury to those in contact, since it is passive and relies on fixed, stationary elements for its anti-climb effectiveness.	Based on wind tests, system can be installed in conjunction with a moveable median barrier system.	

PROJECT PURPOSE AND DISTRICT CRITERIA										
	Must impede the ability of an individual to jump off the GGB	Must not cause safety or nuisance hazards to sidewalk users, including pedestrians, bicyclists, District staff, and District contractors/security partners	Must be able to be maintained as a routine part of the District's ongoing Bridge maintenance program without undue risk of injury to District employees.	Must not diminish ability to provide adequate security of the Golden Gate Bridge.	Must continue to allow access to the underside of the Bridge for emergency response and maintenance activities.	Must satisfy requirements of State and Federal historic preservation laws.	Must have minimal visual and aesthetic impact on the Golden Gate Bridge.	Must be cost effective to construct and maintain.	Must not, in and of itself, create undue risk of injury to anyone who comes in contact with the Suicide Deterrent System.	Must not prevent construction of a moveable median barrier on the GGB.
Project Alternative 2B - Replace Outside Handrail with Horizontal System	Horizontal cable alignment provides a foot-hold for climbing, but winglet will impede climbing over the barrier.	System serves as a passive barrier deterrent, and does not pose a safety or nuisance hazard to sidewalk users, District staff and District contractors/security partners.	Primary fence materials (posts, rods, etc) will utilize materials and components similar or identical to those used on the recently installed bike/peel railing. Transparent winglet will require periodic maintenance in order to maintain aesthetics and transparency.	System will not impede security patrols and will have no negative impact on sidewalk and above-deck security. System will help to protect main cable components (suspenders, main cable) and underbridge areas by making access to these components/areas more difficult.	Current underbridge emergency response access will be maintained through the provision of access gates. Maintenance workers will have to walk along the upper chord of the truss, on the outside of the railing to access the maintenance traveler from the gates.	Project implementation will be in accordance with State and Federal historic preservation laws.	Use of horizontal system would allow head-on and angled views from sidewalk/roadway perspectives. Barrier could be visible in views towards the Bridge, depending on the distance and duration of the view. Use of above-deck winglet could be in conflict with Bridge aesthetics.	System utilizes conventional, readily available materials that can be installed using standard construction equipment and tools. Maintenance costs associated with winglet will be greater than 2A. System will increase the painted steel surfaces on the Bridge, which will increase maintenance costs.	System is not expected to cause injury to those in contact, since it is passive and relies upon fixed, stationary elements for its anti-climb effectiveness.	Based on wind tests, system can be installed in conjunction with a moveable barrier system.
3- Add Net System that Extends Horizontally from Bridge (Preferred Alternative)	Horizontal net designed to collapse and capture potential jumpers.	Design requires District staff to rescue captured individuals.	Net material will collect debris and garbage, requiring periodic cleaning.	System will not impede security patrols and will have no negative impact on sidewalk and above-deck security.	Net is hinged at the bottom and rotates up to allow current maintenance traveler operations.	Project implementation will be in accordance with State and Federal historic preservation laws.	Net system would not be visible from motorists traveling along the Bridge and would have limited visibility to pedestrians. Net system could be visible in views towards the Bridge, depending upon the distance and duration of the view.	Netting support system and netting itself will utilize conventional materials that can be installed using standard construction equipment and tools. System will increase the painted steel surfaces on the Bridge, which will increase maintenance costs.	System will require Bridge workers to rescue individuals who land in the net.	Based on wind tests, system can be installed in conjunction with a moveable barrier system.
No-Build Alternative	The retention of the existing 4 foot high outside handrail would not impede the ability of an individual to jump off the Bridge.	The outside handrail does not pose a safety or nuisance hazard to sidewalk users, District staff and District contractors/security partners.	Under this alternative there would be no change to current maintenance activities.	Under this alternative there would be no change to existing security operations.	Under this alternative continued access to the underside of the Bridge would be available.	There would be no change to the outside handrail and therefore no impact to the historic character of the Bridge.	Under this alternative there would be no change to the existing visual environment.	No new construction would occur and therefore there would be no construction costs associated with this alternative.	The outside handrail does not cause injury to those in contact, since it is passive and relies upon fixed stationary elements.	Based on wind tests, retention of the 4 foot high outside handrail would not interfere with installation of a moveable barrier system.

1.7 IDENTIFICATION OF A PREFERRED ALTERNATIVE

After the close of the public comment period, all comments received were considered by the District. The District's Board discussed the selection of a Preferred Alternative at its October 10, 2008 Board Meeting. At the meeting, District staff gave presentations regarding the comments received on the Draft EIR/EA and the operation, maintenance, and emergency response impacts of the alternatives. Public comment was also heard during the meeting.

Following the presentations and comments, the Board discussed the selection of a Preferred Alternative, noting that the selection was part of the on-going environmental process and was not a definitive final approval of the project. Directors commented that Alternative 3 was the most humane, aesthetic and visionary approach and an "elegant solution," and recalled that in other locations where a suicide deterrent net system has been installed, there was a marked decrease in suicides and suicide attempts.

The discussion was followed by an action to approve Alternative 3 (Net System), as the Preferred Alternative. Alternative 3 meets the Purpose and Need for a physical suicide deterrent system and has fewer environmental impacts as compared to the other build alternatives, because it has fewer visual impacts to views from the Bridge, has fewer impacts to historic features of the Bridge, and provides for easier maintenance and operation of the Bridge. The action was approved by Board resolution No. 2008-090. In a letter dated July 29, 2009, the Department concurred with the identification of Alternative 3 as the Preferred Alternative in the Final EIR/EA.

The Board selection of the Preferred Alternative provided direction for the preparation of responses to comments and continued Section 106 consultation for the Preferred Alternative. For a description of the Section 106 process, refer to Section 2.3.1. Some of the public comments received on the Draft EIR/EA suggested that the District consider other colors for the net material. In response to those comments, the District prepared renderings depicting different colors of netting material, including black and unpainted and uncoated stainless steel. Based on these renderings, as well as consultation with the SHPO and other interested parties, including ACHP, GGNRA, the National Trust for Historic Preservation, Docomomo, and San Francisco Architectural Heritage, following the close of the public comment period, Alternative 3 has been refined to modify the color of the net material from International Orange to unpainted and uncoated stainless steel and it was determined that the stainless steel materials would have the least affect or minimize affects of the proposed project on

cultural resources. The steel horizontal support system for the net would be painted International Orange to match the color of the Bridge.

Based on consultation with the California State Office of Historic Preservation (OHP) and other interested parties, including ACHP, GGNRA, the National Trust for Historic Preservation, Docomomo, and San Francisco Architectural Heritage, following the close of the public comment period, it was also determined that at the North Anchorage Housing, the net should be replaced by a vertical barrier along the approximately 300-foot length of the North Anchorage Housing. This design refinement minimizes the adverse effects of the alternative by using a much less visually intrusive vertical barrier for this portion of the project, leaving the solid surface of the housing wall unchanged. This design detail is illustrated on Figures 1-29 through 1-31.

1.8 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DISCUSSION PRIOR TO THE DRAFT EIR/EA

1.8.1 ALTERNATIVE EVALUATION PROCESS

The concept of installing a physical suicide deterrent system on the Bridge has been explored since 1971. A variety of concepts have been studied, with all concepts ultimately rejected based primarily on aesthetic and effectiveness concerns. Subsequently, the District enhanced its monitoring, patrol, and intervention capabilities, which was effective for certain situations and instances. Nonetheless, approximately two dozen individuals jump from the Bridge each year.

On March 11, 2005, the District's Board approved proceeding with environmental studies and preliminary design work, contingent upon outside funding for those efforts, for development of a physical suicide deterrent system on the Bridge. The resolution authorizing this action stipulated that suicide deterrent system concepts conform to the 11 specific criteria (see Section 1.2, Purpose and Need, for criteria).

Conduct Industry Review

A comprehensive review of industry research, design, and experience related to suicide deterrent systems was conducted that included concepts from past studies performed on behalf of the District, existing installations and suggestions received from the public. A total of 83 concepts were recorded that were then organized into the following 13 groups, with each group representing a primary physical feature of the proposed system.

Group 1 – Fencing with vertical rod, bar or cable components (19 concepts)

Group 2 – Fencing with horizontal rod, bar or cable components (five concepts)

Group 3 – Horizontal net systems (12 concepts)

Group 4 – Glass systems (six concepts)

Group 5 – Enclosed walkway systems (nine concepts)

Group 6 – Chain link fence systems (seven concepts)

Group 7 – Electric systems (seven concepts)

Group 8 – Short systems (five concepts)

Group 9 – Barbed wire systems (four concepts)

Group 10 – Vertical net, metal mesh or wire grid systems (five concepts)

Group 11 – Offset barrier area systems (two concepts)

Group 12 – Laser systems (one concept)

Group 13 – Top chord attachment systems (one concept)

Evaluate Groups/Initial Wind Tunnel Testing

In order to process these groups of ideas down to those that would be considered technically feasible, they were first evaluated against the following list of performance criteria developed from the District-adopted criteria that established clear thresholds for compliance. These performance criteria were intended to screen ideas that contained an obvious flaw or “fatal” flaw.

Criterion 1. System must impede the ability of an individual to jump off the Bridge

Criterion 2. System must not cause safety or nuisance hazard to sidewalk users

Criterion 8. System must have minimal visual and aesthetic impact on the Bridge

Criterion 10. System must not in itself create undue risk of injury to anyone who comes in contact with the system

The project purpose and District criteria used to screen or eliminate groups of concepts were chosen based on the ability to establish clear thresholds

for compliance with each criterion. For example, Short Fence Systems below 6 feet in height were considered ineffective as a deterrent to climbing based on the ease with which an individual could jump over such a height. Similarly, systems that utilized barbed wire or electric shock transmission would create a hazard to sidewalk users and lead to injury to someone coming in contact with the system (Project Purpose and District Criteria 2 and 10). Only those systems considered to have an obvious negative visual or aesthetic impact (chain link, barbed wire, or enclosure) were eliminated based on aesthetics.

When evaluated against the performance criteria, nine groups were removed from further consideration: enclosed walkway (2, 8), chain link fence (8), electric fences (8, 10), barbed wire (2, 8, 10), short systems (1), offset barrier area (2, 8, 10), horizontal bars (1), laser (10), and top chord attachment (5).

During this phase of the project conceptual designs were evaluated for their performance during high winds to determine which concepts would and would not affect the aerodynamic stability of the Bridge. Meteorological and topographical analyses of wind hazards specifically associated with the Bridge site found that the Bridge could be subjected to winds of up to 100 miles per hour. Very small changes in the shape of the Bridge cross-sections (including the spacing and design of rail and fence elements) can have a significant impact on the Bridge's aerodynamic stability during high winds. Conceptual designs that significantly affected the aerodynamic stability of the Bridge under high winds were eliminated from further consideration, in accordance with the Board's established criterion that mandated maintenance of the aerodynamic stability of the Bridge.

Initial wind tunnel testing was performed to establish basic wind criteria and the aerodynamic stability of the Golden Gate Bridge. This testing was developed around three generic physical suicide deterrent system types using parametric features impacting Bridge aerodynamic performance (spacing, height, member size and shape, solid ratio, and top treatment). The three generic physical suicide deterrent systems tested were vertical extensions added on to the existing outside handrail, replacing the existing outside handrail, and utilizing nets that cantilever out horizontally. The preliminary wind tunnel testing determined that all three generic suicide deterrent system types were feasible (i.e. met the established aerodynamic performance criteria) and also that the existence of the movable barrier had little or no impact on the aerodynamic stability of the Bridge. Therefore, Project Purpose and District Criteria 11, which indicates that the system must not prevent construction of a moveable median barrier on the Bridge, is satisfied by all potential suicide deterrent systems.

Develop Concept Types

The four groups of concepts remaining after the initial evaluation of the 13 groups were carried forward to be developed into technically feasible alternatives. These groups included 1) vertical rods, bars, or cables; 2) horizontal rods, bars or cables; 3) horizontal net; and 4) glass systems. Design criteria were developed and architectural considerations identified that would guide the evaluation and development of technically feasible alternatives.

Design criteria were established at a parametric level sufficient to define the overall limits and basic forms of physical suicide deterrent system concepts. The design criteria include a barrier solid ratio to ensure the aerodynamic stability of the Bridge, a barrier height range depending on whether the existing outside handrail was retained (12-foot height) or removed (10-foot height), barrier top treatment to impede climbing, and spacing of barrier members (4 inches to 6 inches) in accordance with codes (buildings 4 inches and bridges 6 inches) for pedestrian outside handrails.

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

As a result of screening concepts against the identified performance criteria, and by applying the design criteria and architectural considerations discussed above, a total of nine generic concept types were identified. These concepts included three physical suicide barriers using horizontal members, four physical suicide barriers using vertical members, one vertical physical suicide barrier using glass pickets, and one net alternative. Illustrative examples of these concepts were developed and circulated with the Notice of Preparation Issued in June 2007. These concept renderings were not based on detailed designs, but rather represented idealizations of generic features that complied with the parametric criteria.

Alternatives Eliminated from Further Discussion

Prior to being considered technically feasible, further design refinements were developed for each concept and additional wind testing was performed as necessary to confirm the satisfactory aerodynamic performance of the Bridge. Following this testing, each concept was further evaluated against the Board-adopted criteria to identify those alternatives that best met these criteria. Based on this evaluation, four of the nine concepts were rejected. Below are brief descriptions of the four concepts which were removed from consideration and the rationale for removing them from consideration. The five remaining technically feasible concepts are the alternatives evaluated in this Final EIR/EA.

Additionally, another No-Build Alternative was initially considered, but was removed from consideration.

No Public Access to Sidewalks

This alternative would close the Bridge sidewalks to pedestrian and bicycle traffic.- It was removed from further consideration because the sidewalks are currently used by approximately 10 million visitors a year and by up to 5,000 bicyclists a day (commuters and recreational users). Their closure to the public would remove this very popular tourist destination. The sidewalks are also an integral link in the California Coastal Trail, The Ridge Trail and the Bay Trail. The closure would eliminate this important link to the state and regional trail systems and would prevent bicycle commuting in this corridor. This alternative would therefore not be prudent.

Vertical and Horizontal Wire Mesh Added to Railing

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

Criterion 8. Must have minimal visual and aesthetic impact on the Bridge

Curved Top Horizontal Cable Members Replacing Railing

This alternative would construct a 14-foot-high barrier using horizontal cable members and a curved top. It was removed from further consideration because of its excessive height and the visual intrusion from the curved top. It would not meet the following project purpose and District criteria.

Criterion 8. Must have minimal visual and aesthetic impact on the Bridge

Curved Top Diagonal Wire Mesh Replacing Railing

This alternative would construct a 12-foot-high diagonal wire mesh barrier with a curved top. It was eliminated because the diagonal wire mesh conflicted with the horizontal and vertical elements of the Bridge. It would not meet the following project purpose and District criteria.

Criterion 8. Must have minimal visual and aesthetic impact on the Bridge

Vertical Glass Pickets Replacing Railing

This alternative would construct a 12-foot-high vertical glass barrier along the Bridge. It was eliminated from further consideration because it would introduce a new source of light and glare, which could cause safety concerns, it could not be maintained as a routine part of the Bridge maintenance program, it would be difficult to allow access to the underside of the Bridge, and it would not utilize the existing architectural vocabulary of the Bridge. Therefore, it would not meet the following project purpose and District criteria.

Criterion 2. Must not cause safety or nuisance hazards to sidewalk users, including pedestrians, bicyclists, District staff, and District contractors/security partners

Criterion 3. Must be able to be maintained as a routine part of the District's ongoing Bridge maintenance program and without undue risk of injury to District employees

Criterion 5. Must continue to allow access to the underside of the Bridge for emergency response and maintenance activities

Criterion 9. Must be cost effective to construct and maintain

1.9 PERMITS AND APPROVALS NEEDED

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

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

As part of the Section 106 process, the State Historic Preservation Officer has concurred on the Finding of Effect and participated in the consultation for the preparation of the Memorandum of Agreement. The District, as the CEQA Lead Agency, will certify the EIR and the Department, as the NEPA lead agency, will approve the EA and issue the FONSI or require an EIS.

CHAPTER 2 - AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

This chapter provides the analysis of the potential impacts to the environment that would occur with development of the Golden Gate Bridge Physical Suicide Deterrent System Project (project). Sections 2.1 through 2.4 of this chapter each address a different environmental issue area of those identified as relevant to the project (land use and recreation, visual/aesthetics, and cultural resources). Each of these sections describes the affected environment and relevant regulatory policies, and considers the effects of implementing the project alternatives.

Section 2.5, Non-Relevant Topics, provides a brief discussion of environmental considerations that would not be affected by project development and do not require extensive evaluation in the environmental document. Potential short-term impacts that could occur during project construction are addressed in Section 2.6, Construction Impacts. The chapter concludes with an evaluation of potential contribution of the project to any cumulative impacts that could occur through development of this project in conjunction with other nearby or related projects.

2.1 LAND USE

This section discusses land use effects related to the project. Existing land uses in the project area are generally recreational and the project is adjacent to or near three separate park areas, all of which are subject to individual management plans. Because the Golden Gate Bridge (Bridge) is an historic and scenic icon, these management plans address the Bridge, but the Bridge is generally not directly regulated by them.

The project is also in close proximity to two ongoing development activities: (1) improvements to Doyle Drive, a roadway that provides vehicular access to the Bridge; and (2) development related to implementation of the Fort Baker Reuse Plan.

2.1.1 EXISTING AND FUTURE LAND USE

Existing Land Use

Land uses in the project area are comprised almost entirely of recreational park lands. Golden Gate National Recreation Area (GGNRA) lands surround the project site on both sides of the Bridge. The GGNRA is a part of the National Parks System, and is under the primary management of the National Park Service (NPS). Land uses in the GGNRA include many open space recreational resources and several historic properties. Other properties adjacent to or within the Bridge project site (project site) include Doyle Drive and other roadways that provide access to and from the Bridge, and the Roundhouse Gift Center. Within one-half mile of the project site, other recreational areas and historic properties include facilities that are part of the Presidio of San Francisco and Fort Baker. -Figures 2.1-1 and 2.1-2 show the location of these properties relative to the project site.

Table 2.1-1 provides a list of historic and recreational properties in the project area. Listed recreational resources are discussed in Section 2.1.3, Parks and Recreation, and in Appendix B, Section 4(f) Evaluation. Further discussion of historic properties can be found in Section 2.3, Cultural Resources, and in Appendix B, Section 4(f) Evaluation.

Development Trends in Project Vicinity

Two ongoing projects are under development in the project vicinity. Table 2.1-2 shows the two relevant projects and provides information on their current status. All of the alternatives under consideration are compatible with these projects.

Fort Baker Reuse Plan

A comprehensive reuse concept, the Fort Baker Reuse Plan, is currently being implemented with a goal of enhancing the recreational opportunities available to the public and adding additional visitor serving resources. The reuse plan was developed following the transfer of Fort Baker from the Army to the NPS.

NPS coordinated with private, public and non-profit organizations to develop the plan and contracted with a development firm to create a 142-room retreat and conference center called "Cavallo Point, The Lodge at the Golden Gate," which opened to the public in 2008.

Golden Gate Bridge Physical Suicide Deterrent System



FIGURE 2.1-1
 EXISTING AND FUTURE LAND USES: SAN FRANCISCO APPROACH

Source: GEOGRAFIKA, 2008; Imagery - NAIP 2005/2006; NPS Website; GGNRA Website

Environmental Impact Report / Environmental Assessment

Golden Gate Bridge Physical Suicide Deterrent System

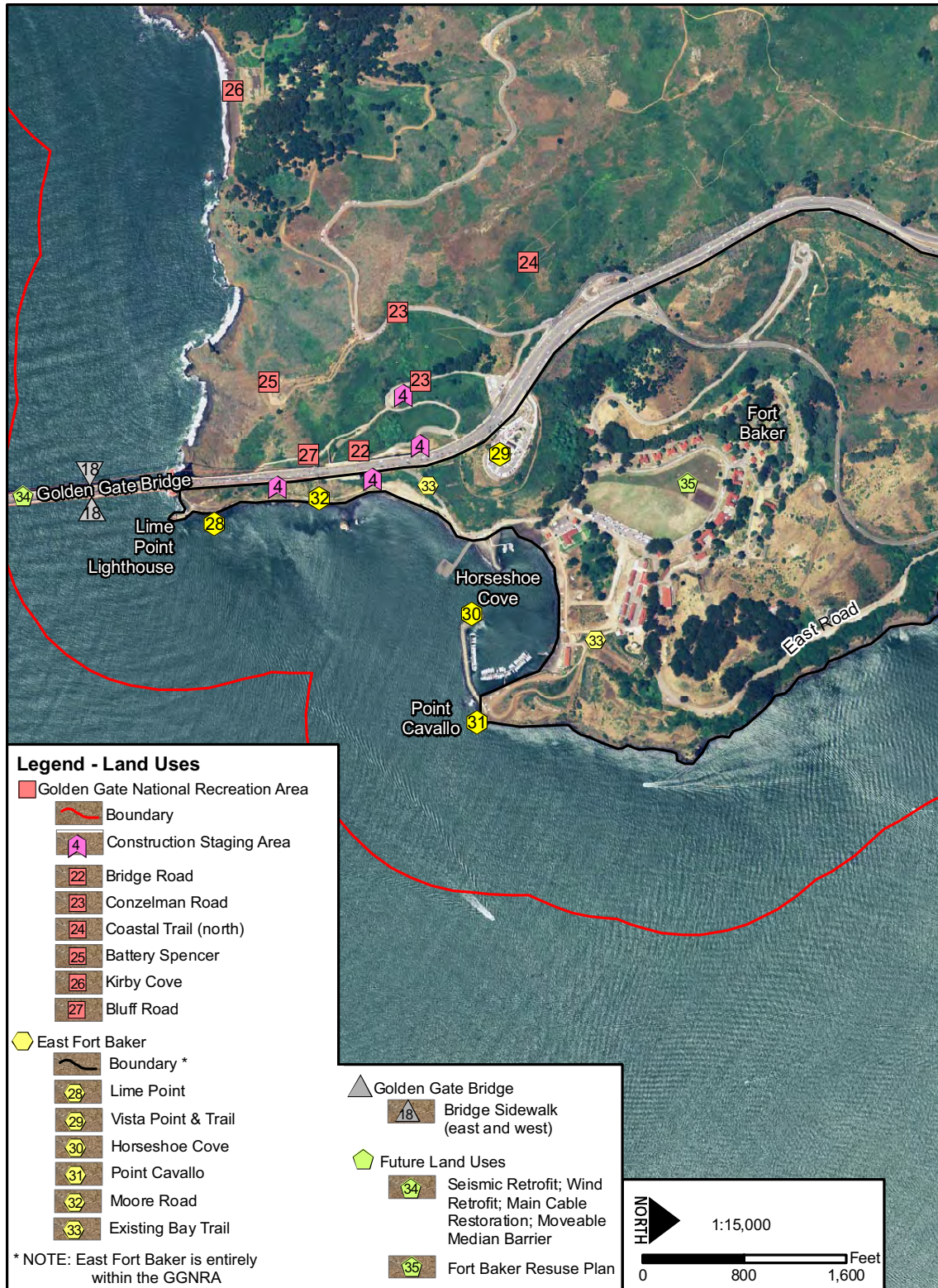


FIGURE 2.1-2
EXISTING AND FUTURE LAND USES: MARIN APPROACH

Source: GEOGRAFIKA, 2008; Imagery - NAIP 2005/2006; NPS Website; GGNRA Website

Environmental Impact Report / Environmental Assessment

Table 2.1-1 Existing Land Uses

Property	Type of Land Use
Golden Gate Bridge	Historic Resource, Public Road, Recreational Resource
Roundhouse Gift Center	Historic Resource
Toll Plaza Undercrossing	Historic Resource
Fort Point National Historic Site	Historic Resource, Recreational Resource
Battery East Road and Bike Turnouts	Historic Resource, Recreational Resource
Marine Drive	Historic Resource, Public Road, Recreational Resource
Doyle Drive	Historic Resource, Public Road
Crissy Field	Historic Resource, Recreational Resource
Coastal Trail	Recreational Resource
Bay Trail	Recreational Resource
Golden Gate Promenade / SF Bay Trail	Recreational Resource
Overlook at Fort Scott (off Coastal Trail)	Recreational Resource
Bluff Road	Public Road (currently closed for security purposes)
Bridge Road	Public Road (currently closed for security purposes)
Conzelman Road	Public Road, Recreational Resource
Battery Spencer	Historic Resource, Recreational Resource
Vista Point and Trail	Historic Resource, Recreational Resource
Lime Point	Historic Resource
Moore Road (Lime Point Trail)	Historic Resource, Public Road, Recreational Resource
Horseshoe Cove	Historic Resource, Recreational Resource
Point Cavallo	Historic Resource, Recreational Resource
Fort Baker	Historic Resource, Recreational Resource

Table 2.1-2 Future Development in Project Vicinity

Name	Jurisdiction	Proposed Use	Status	Figure
Doyle Drive - South Access to the Golden Gate Bridge	Federal Highway Administration, California Department of Transportation and the San Francisco County Transportation Authority	Improve seismic, structural and traffic safety; transportation	Geotechnical Investigation through May 2008; FEIS/R released September 2008	Figure 2.1-1

As part of the reuse of the site, historic buildings are being rehabilitated to national historic preservation standards to ensure that the significant historic features are maintained. Landscape improvements, such as the restoration of the main parade ground to its historic period, are also part of the project.

The centerpiece of the Fort Baker Reuse Plan is the Institute at the Golden Gate, which hosts lectures and provides a forum for environmentalists, researchers and policymakers to address environmental issues. The Golden Gate National Parks Conservancy developed and manages the institute. Cars are largely banished from the area and guests urged to walk, ride bikes or take a shuttle.

The Fort Baker Reuse Plan also calls for the creation of a waterfront park that will provide panoramic views of the Bridge, San Francisco Bay, San Francisco skyline and Alcatraz. Under the proposed plan, Fort Baker's waterfront and other open space will be transformed to create a multitude of opportunities for visitors to enjoy the area's scenic beauty, hike, bike, sail, kayak, picnic and explore. The U.S. Coast Guard Station and the Bay Area Discovery Museum will remain at Fort Baker.

South Access to the Golden Gate Bridge: Doyle Drive Project

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

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

The Final EIS/R for the Doyle Drive Project, which was released in September 2008, identified the Refined Presidio Parkway as the Preferred Alternative. The Refined Presidio Parkway design replaces the existing road structures with a new parkway-type roadway that includes short tunnels, new access and improved views from within the Presidio.

2.1.2 CONSISTENCY WITH STATE, REGIONAL AND LOCAL PLANS

GGNRA General Management Plan

Although the project would be located entirely on the Bridge, the Bridge itself is geographically within the GGNRA. The Bridge functions as an important transportation corridor, connecting southern and northern GGNRA properties and facilities. Additionally, the Bridge currently provides pedestrian and bicycle paths which are part of the Bay Trail. Therefore, any policies that address vehicular or pedestrian access within the GGNRA are relevant to the project.

The GGNRA General Management Plan (GMP) 1980 is the most current plan containing policies and goals for GGNRA lands. The GMP discusses the provision of shuttles and improved public transportation for both short and long-range transportation needs. Any existing or future shuttle service and public transportation would necessarily rely on use of the Bridge. The GMP is currently being updated; the update process is expected to be completed in the winter of 2010.

Applicable Policies

The GMP contains several goals that are applicable to the project, including:

To pursue the extensions of transit service between the park and transit dependent neighborhoods.

...

To develop a trail system for the use of hikers, bicyclists, and equestrians.

...

To alleviate traffic impacts on adjacent communities and on park resources by the use of transit systems.

(Management Objectives: Golden Gate National Recreation Area, GMP. 1980)

Consistency with Applicable Policies

None of the project alternatives would interfere with the goals of the GMP to provide improved transit to GGNRA lands. The project would not alter the existing use of the Bridge as a connector between north and south portions of the GGNRA, and planning for pedestrian pathways, shuttles,

bicycles or other vehicles would not be affected by development of any of the alternatives. The project is therefore consistent with the GMP.

Presidio Trust Management Plan, Land Use Policies for Area B of the Presidio of San Francisco

The NPS retains jurisdiction over Area A of the Presidio and policies that relate to Area A are discussed in the GGNRA GMP. This area is generally located north of Lincoln Boulevard and is shown in Figure 2.1-1. The Presidio Trust Management Plan addresses Area B of the Presidio. Because the project would not affect Area B, this plan is not applicable to the project area.

San Francisco Bay Plan

The Coastal Zone Management Act of 1972 (CZMA) is the primary federal law enacted to preserve and protect coastal resources. The CZMA sets up a program under which coastal states are encouraged to develop coastal management programs. States with an approved coastal management plan are able to review federal permits and activities to determine if they are consistent with the state's management plan.

California has developed a coastal zone management plan and has enacted its own law, the California Coastal Act of 1976, to protect the coastline. The policies established by the California Coastal Act are similar to those for the CZMA; they include the protection and expansion of public access and recreation, the protection, enhancement and restoration of environmentally sensitive areas, protection of agricultural lands, the protection of scenic beauty, and the protection of property and life from coastal hazards. The California Coastal Commission is responsible for implementation and oversight under the California Coastal Act.

The Bay Conservation and Development Commission (BCDC), created prior to the California Coastal Act, retains oversight and planning responsibilities for development and conservation of coastal resources in the Bay Area. The regulatory authority for BCDC is the McAteer-Petris Act and the Suisun Marsh Protection Act.

BCDC's jurisdiction includes all areas below Mean High Water, or the inland edge of marsh vegetation or 5 feet above mean sea level in marshlands, or within the 100-foot shoreline band (100 feet inland from Mean High Water or the inland edge of marsh vegetation). A portion of the project (construction staging areas) may be located within BCDC's jurisdiction and could, therefore, require a permit from BCDC. The project would be constructed entirely on the Bridge; the only use of land would be for the construction staging areas (see Section 2.5 Construction Impacts).

The project does not involve any changes to the use of the Bridge or the use of lands surrounding the Bridge.

Applicable Policies

The San Francisco Bay Plan (SF Bay Plan) was developed to implement the McAteer-Petris Act on Bay lands. Policies from the SF Bay Plan applicable to the project include:

Part IV– Development of the Bay and Shoreline: Findings and Policies

Transportation

4. Transportation projects on the Bay shoreline and bridges over the Bay or certain waterways should include pedestrian and bicycle paths that will either be a part of the Bay Trail or connect the Bay Trail with other regional and community trails. Transportation projects should be designed to maintain and enhance visual and physical access to the Bay and along the Bay shoreline.

Public Access

6. Public access improvements provided as a condition of any approval should be consistent with the project and the physical environment, including protection of Bay natural resources, such as aquatic life, wildlife and plant communities, and provide for the public's safety and convenience. The improvements should be designed and built to encourage diverse Bay related activities and movement to and along the shoreline, should permit barrier free access for the physically handicapped to the maximum feasible extent, should include an ongoing maintenance program, and should be identified with appropriate signs.

Appearance, Design and Scenic Views

6. Additional bridges over the Bay should be avoided, to the extent possible, to preserve the visual impact of the large expanse of the Bay. The design of new crossings deemed necessary should relate to others nearby and should be located between promontories or other land forms that naturally suggest themselves as connections reaching across the Bay (but without destroying the obvious character of the promontory). New or remodeled bridges across the Bay should be designed to permit maximum viewing of the Bay and its surroundings by both motorist and pedestrians. Guard rails and bridge supports should be designed with views in mind.

(Chapter IV: Development of the Bay and Shoreline: Findings and Policies, SF Bay Plan, 2008)

Project Consistency

The existing use of the Bridge and the land surrounding the Bridge will not change as a result of implementing any of the build alternatives. Currently the Bridge includes pedestrian and bicycle paths which are part of the Bay Trail alignment (Bay Trail Project, 2007) and provide visual access to the Bay. The construction of any of the build alternatives will maintain the existing paths and visual access. There will be no change to the paths. There would be a change in the visual environment under Alternatives 1A, 1B, 2A and 2B (see Section 2.2, Visual/Aesthetics), but the inclusion of transparent panels at the belvederes along the Bridge paths will maintain visual access. Visual access will not change with the construction of Alternative 3 (Preferred Alternative). Therefore the build alternatives would maintain visual access, consistent with Policy 4, Transportation.

The Bridge currently provides public access with views of the Bay and provides a great degree of barrier-free access. The project does not propose any additional public access improvements as visual access is already provided. This level of public access would continue with implementation of any of the alternatives under consideration and the use of transparent panels at the belvederes. Transparency would be preserved through ongoing maintenance of the panels. The project would also not affect the natural environment or reduce public safety or convenience. Therefore, the build alternatives would be consistent with Policy 6, Public Access.

All build alternatives seek to preserve views of the Bay and shoreline through the inclusion of transparent panels at the belvederes along the Bridge path in the designs for Alternatives 1A, 1B, 2A and 2B and maintaining open views in the design of Alternative 3 (Preferred Alternative). The project does not include the construction of any additional bridges, but it does modify the appearance of the existing Bridge through the addition of a physical suicide deterrent system. Alternatives 1A, 1B, 2A and 2B have all been designed with views to the Bay in mind. Alternative 3 would not affect views to the Bay. Therefore, the build alternatives would be consistent with Policy 6, Appearance, Design and Scenic Views.

Bay Trail Plan

The Bay Trail Plan, prepared by the Association of Bay Area Governments (ABAG) pursuant to SB 100, guides the development of a regional hiking and bicycling trail around the perimeter of the San Francisco and San Pablo

Bays. The Bridge currently provides pedestrian and bicycle paths which are part of the Bay Trail.

Applicable Policies

The following Bay Trail Plan policies are applicable to the project:

30. Bridges and roads will be important connections in the Bay Trail system, providing not only commute routes, but enhancing the recreational use of the Trail by creating loops which will allow a greater number of people to enjoy the Trail.

31. In the short term, attention should be focused on improving safe access to the bridges, possible expansion of bicycle shuttle services and public transit accommodations of bicycles to allow cross-bay access.

32. In the long term, unconstrained access on bridge structures is preferred. This can more easily be accomplished in planning future facilities, as long as public access is a requirement for new structures. Legislative action which would require bicycle and pedestrian access on new facilities should be actively sought.

Project Consistency

As noted previously, the Bridge currently provides pedestrian and bicycle access via the east and west side paved walkways. These walkways provide safe access to the Bay Trail from either the north or southbound approaches and are an important link between the San Francisco and Marin segments of the trail. Access to the Bridge is largely unconstrained, except as is necessary for security, as is preferred by the plan policies. Public access would not change with the implementation of any of the alternatives. Therefore, the project would be consistent with the policies of this plan.

Marin County Unincorporated Area Bicycle and Pedestrian Master Plan

The Marin County Unincorporated Area Bicycle and Pedestrian Master Plan intends to coordinate and guide the provisions of pedestrian and bicycle plans, programs and projects in Marin County.

Applicable Policies

The following policies are applicable to the project:

Objective F Policy Actions:

1. Support and promote bicycle use of Golden Gate Bridge, Highway, and Transportation, Transit, and ferry and bus services in Marin County.

Project Consistency

As noted, the Bridge currently provides pedestrian and bicycle access via the east and west side paved walkways. Public access would not change with the implementation of any of the alternatives and would not hinder the County's ability to encourage and implement its use. Therefore, the project would be consistent with the policy F-1 of this plan.

2.1.3 PARKS AND RECREATIONAL FACILITIES

The project is located in proximity to several publicly owned parks and recreational facilities of national and international prominence and local value. The resources listed in Table 2.1-3 are shown in relation to the project in Figure 2.1-1 and 2.1-2. A Section 4(f) Evaluation has been prepared for the project and is included as Appendix B of this document. Individual descriptions of the parks and facilities in Table 2.1-3 are provided in the Section 4(f) evaluation.

The Golden Gate Bridge

The Bridge is a publicly owned historic resource and a recreation resource with uses occurring on and around it. It is a multi-component historic structure that has been determined eligible for listing in the National Register of Historic Places (NRHP), is California State Historic Landmark No. 974 and is on the California Register of Historical Resources. It is also designated as San Francisco City Landmark No. 222. The Bridge provides recreational function through visitor serving facilities, lookout areas, and use of the span sidewalks by bicyclists, joggers and sightseers. It is one of the most well-known, frequently visited and internationally recognized suspension bridges in the world, spanning the Golden Gate Strait at the mouth of the San Francisco Bay and connecting San Francisco and Marin counties.

The Presidio of San Francisco

The Presidio of San Francisco (the Presidio) is a publicly owned recreation area and historic property and a unit of the GGNRA national park (see Figure 2.1-1). It is also listed in the NRHP (register # 66000232) and is a National Historic Landmark District (NHL). It is located in the northwestern most point of the San Francisco peninsula, bordered in the

north and the west by the San Francisco Bay and the Pacific Ocean, respectively.

The property is approximately 600-hectares (1,480 acres) in size and includes several significant recreation areas. In 1998, management of the Presidio was divided between two federal agencies: the Presidio Trust and the NPS. The Trust's mission is to preserve and enhance the natural, cultural, scenic and recreation resources of the Presidio for public use in perpetuity, and to achieve long-term financial sustainability.

The Presidio's diverse points of interest include historic military forts and batteries, forests, beaches and spectacular vistas. Along the approximately 37 miles of trails within the Presidio, recreational activities include walking, jogging, biking, camping, sightseeing and bird watching. On the waterfront, visitors can surf and windsurf, sail, fish and swim. The Presidio Trails and Bikeways Plan is the guide for directing a network of trails and bikeways that would enhance the public's exploration and experience of the Presidio, while also protecting its natural and cultural resources.

Golden Gate National Recreation Area

The GGNRA is a publicly owned national park. It is the world's largest urban national park and covers a total area of 73,398 acres of land and water, including approximately 28 miles of coastline. It is used extensively by the public for a variety of recreational uses and has numerous trails and vista points on the Marin and San Francisco portions bordering the Bay. The area also includes several historically significant sites.

All land immediately surrounding the Bridge and its approaches (including the Presidio and East Fort Baker) is part of the GGNRA. The Golden Gate Bridge, Highway and Transportation District (District) was granted a permit across the Presidio of San Francisco and Fort Baker Military Reservation in 1931 for construction, operation and maintenance of the Bridge (Payne, 1931). This right still exists and is administered by the GGNRA. The proposed construction staging areas are located on GGNRA lands (see Number 4, Figure 2.1-1 and 2.1-2).

Table 2.1-3 Parks and Recreational Facilities in Project Vicinity

Property	Parks and Recreational Facilities in Proximity to the Project	Figure Reference Number
Golden Gate Bridge	Roundhouse Gift Center Toll Plaza Undercrossing	Figure 2.1-1, Number 19 Figure 2.1-1, Number 20
Presidio of San Francisco	Fort Point National Historic Site Battery East Road and Bike Turnouts (formerly Battery East Area) Marine Drive Doyle Drive Crissy Field Coastal Trail (south) Golden Gate Promenade / SF Bay Trail Overlook at Fort Scott (off Coastal Trail)	Figure 2.1-1, Number 5 Figure 2.1-1, Number 6 Figure 2.1-1, Number 7 Figure 2.1-1, Number 8 Figure 2.1-1, Number 14 Figure 2.1-1, Number 3 Figure 2.1-1, Number 17 Figure 2.1-1, Number 12
GGNRA	Bluff Road Bridge Road Conzelman Road Coastal Trail (north) Battery Spencer Kirby Cove Bay Trail	Figure 2.1-2, Number 27 Figure 2.1-2, Number 22 Figure 2.1-2, Number 23 Figure 2.1-2, Number 24 Figure 2.1-2, Number 25 Figure 2.1-2, Number 26 Figure 2.1-2, Number 33
Fort Baker	Vista Point and Trail Lime Point Moore Road (Lime Point Trail) Horseshoe Cove Point Cavallo Bay Trail	Figure 2.1-2, Number 29 Figure 2.1-2, Number 28 Figure 2.1-2, Number 32 Figure 2.1-2, Number 30 Figure 2.1-2, Number 31 Figure 2.1-2, Number 33

East Fort Baker

East Fort Baker is a publicly owned historic and recreation resource that is part of the GGNRA national park and listed on the NRHP. It is a 335-acre property at the center of the GGNRA system, located in Marin County at the northeast foot of the Bridge (see Figure 2.1-2). It includes the Horseshoe Cove waterfront area with over a mile of rocky bay shoreline, Lime Point, Cavallo Point, many historic army buildings and several historic batteries. The Army acquired Fort Baker in 1866. Forts Baker, Barry, and Cronkhite Military Reservations, dating back to the mid-1800s, functioned as important coastal defense elements. The NRHP lists the forts together (USNPS 1992a:12/12/73, #73000255) due to their significant architecture, landscape architecture and history of the U.S. Army for the period 1850-1960. The forts are also included on the California Register of Historical Resources (CAL/OHP 1976:150,185).

As previously discussed, the Fort Baker Reuse Plan has recently been implemented and the fort's historic buildings are now open to the public as a retreat and conference center.

2.1.4 ENVIRONMENTAL CONSEQUENCES

Land Use

Installation of the proposed physical suicide deterrent system would not impact existing land uses of the Bridge or in the project area. The project would be constructed entirely on the Bridge, and therefore primarily affect the Bridge and not surrounding properties. It would not change the use of the Bridge, limit vehicle access, or affect vehicular travel across the Bridge.

Parks and Recreation Facilities

None of the build alternatives would affect land that is presently being used for recreation in the project vicinity. During construction there would be five staging areas located on GGNRA lands. All areas on GGNRA lands proposed for potential use as construction staging areas are currently being used for similar staging and maintenance activities or surface parking and are physically separated from recreational uses on surrounding properties. Therefore, use of the areas by the project for staging purposes would not have an adverse effect on recreational resources. Construction activities and staging areas are discussed further in Section 2.6, Construction Impacts.

Alternatives 1A, 1B, 2A and 2B modify existing Bridge components, specifically the outside handrails, and introduce new elements to the Bridge that may affect the recreational experience of its users. The addition of the 10 to 12 foot high barrier system would alter the recreational experience of pedestrians and bicyclists using the Bridge sidewalks by interfering with views from the Bridge.

Alternative 3 (Preferred Alternative) would also modify existing Bridge components, specifically the main truss, and introduce new elements to the Bridge that may affect the recreational experience of its users. The addition of a horizontal net system approximately 20 feet below that sidewalk extending horizontally 20 feet from the Bridge would alter the experience of pedestrians and bicyclists when looking down from the sidewalk. Views looking across the railings from bicyclists and pedestrians would not be altered except at the North Anchorage Housing.

The construction staging area along Merchant Road at the south side of the Bridge may be used under all build alternatives. This staging area is currently a District parking lot that includes 24 publicly available stalls.

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

2.2 VISUAL / AESTHETICS

2.2.1 REGULATORY SETTING

The National Environmental Policy Act of 1969 as amended (NEPA) establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 U.S.C. 4331[b][2]). To further emphasize this point, the Federal Highway Administration (FHWA), in its implementation of NEPA (23 U.S.C. 109[h]), directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

Likewise, the California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state "with...enjoyment of *aesthetic*, natural, scenic and historic environmental qualities." (CA Public Resources Code Section 21001[b])

2.2.2 AFFECTED ENVIRONMENT

Methodology

This analysis summarizes the information contained in the Visual Impact Assessment (May 2008) and Addendum to the Visual Impact Assessment (October 2009) prepared for the project. The process used in the visual impact assessment generally followed the guidelines outlined in the publication *Visual Impact Assessment for Highway Projects*, FHWA, March 1981. Six principal steps required to assess visual impacts were carried out as identified below.

- Define the project setting and viewshed
- Identify key views for visual assessment
- Analyze existing visual resources and viewer response

- Depict the visual appearance of project alternatives
- Assess the visual impacts of project alternatives
- Propose methods to mitigate adverse visual impacts

The existing visual conditions in the project area are comprised of actual visual resources (described in terms of visual character and quality), the characteristics of viewers – namely, viewer exposure (the ability to see the project area) – and viewer sensitivity. The visual resources were analyzed in terms of landscape types and distinct visual features within the region and from key viewpoints. The evaluation of viewer characteristics considers the project’s visual influence zone (the overall area from which the project would be potentially visible); the important views and viewing conditions; and viewer numbers, types and activities. Figure 2.2-1 illustrates the process of assessing the existing visual conditions.

The visual impact assessment process, shown in Figure 2.2-2, incorporates and combines the two principal visual impact components: visual resource change and viewer response to that change. Visual resource change is analyzed in terms of visual dominance and other specific visual effects of alternatives, together with change in visual quality. The viewer response to changes resulting from the project is the sum of viewer exposure and viewer sensitivity to the project identified as part of the existing visual conditions.

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

Impact Documentation

In order to assist in the analysis and documentation of visual resource change, a series of 14 representative viewpoints were identified. For each viewpoint, “before” and “after” photographs were prepared to simulate the proposed project alternatives. Once the viewpoints were established, photographs were taken in the field from each viewpoint and documented. A representative photograph was chosen from each viewpoint to be developed as a computer simulation. The selected photographs are meant to exemplify existing conditions at the viewpoints, but it is important to

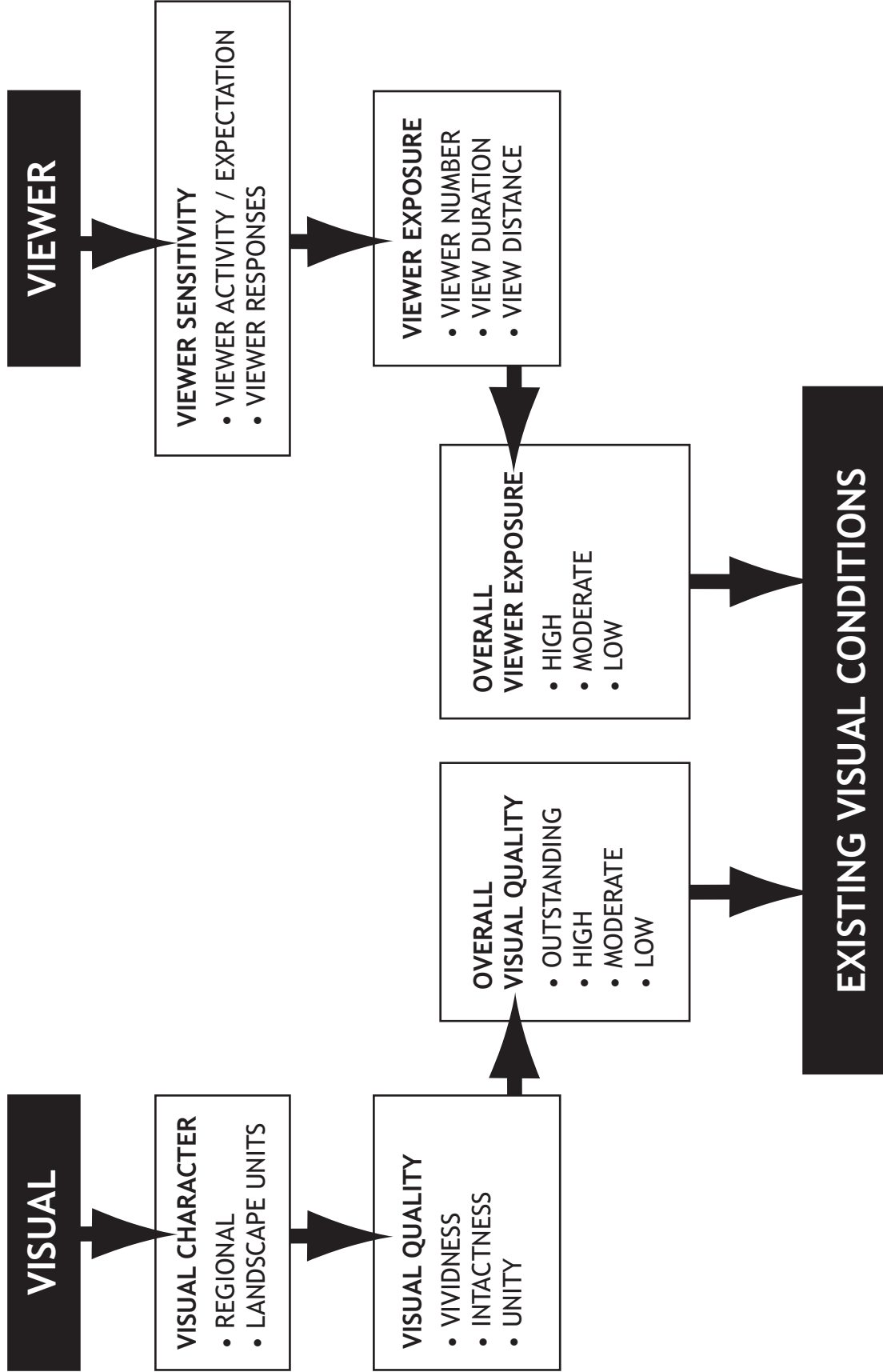


FIGURE 2.2-1
ASSESSMENT OF EXISTING VISUAL CONDITIONS

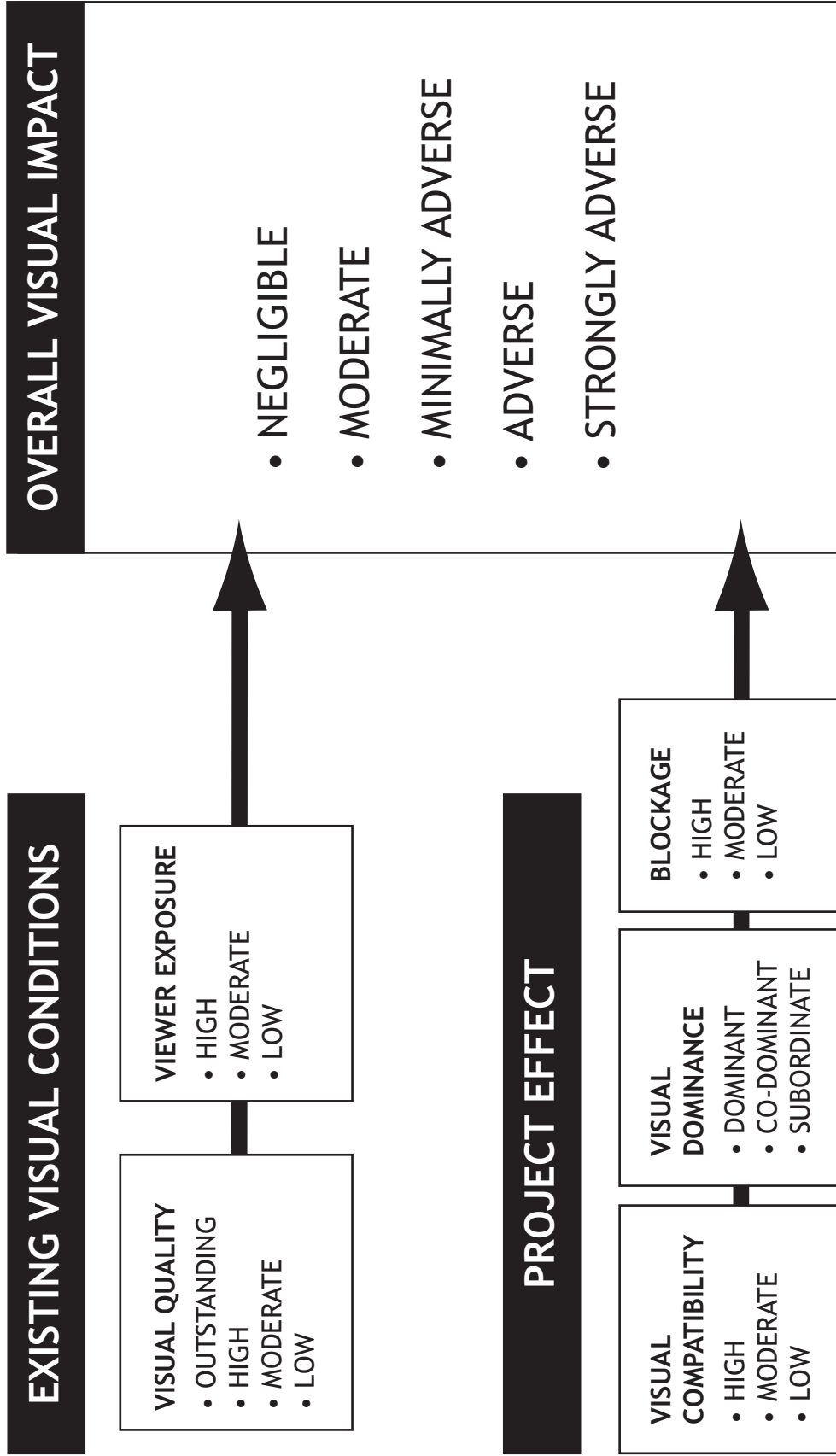


FIGURE 2.2-2
ASSESSMENT OF VISUAL IMPACTS EFFECTS ON VIEWERS
Environmental Impact Report / Environmental Assessment

recognize that these conditions may differ over the course of the day, due to meteorological conditions and the movement of the sun.

A computer database was developed for each viewpoint to correspond to key reference points (existing landscape characteristics) and proposed project components to be shown in the photograph. Proposed changes were displayed for each viewpoint by overlaying a three-dimensional computer model on the photograph and rendering it (applying paint) to reflect the project's expected appearance in full detail, including colors, shadows and lighting. Photo simulations accurately represent the location, scale and mass of potential new facilities.

Project Study Area

The study area for the visual impact analysis includes several recreational areas from which views towards the Bridge are available. Because these areas each contain distinct spatial characteristics, the study area has been subdivided into four landscape units. Landscape units are geographically discrete areas that often are separated by natural features such as bodies of water, ridges or changes in vegetation. Each landscape unit has a certain visual character based upon the land uses and features that comprise it. Figure 2.2-3 depicts the boundaries of the landscape units that make up the project study area. Table 2.2-1 summarizes the features within each landscape unit.

The Presidio

The Presidio is located directly south of the Bridge toll plaza. Formerly a military base, the Presidio provides its own unique scenic character. The Presidio is situated along a densely vegetated coastal bluff. This landscape unit is vegetated with eucalyptus, cypress, Monterey pine trees and shrubs. It provides an aesthetic of a relatively natural area or park-like setting with roadways, such as Doyle Drive, traversing through the area. Crissy Field, located on the eastern side of the Presidio, adds to the park-like setting with its open, green field bordered by the San Francisco Bay shoreline to the north. Baker Beach, to the west of the Presidio along the coast of the Pacific Ocean, exemplifies the natural aesthetic character of this landscape unit as well.

There are also residences and historic structures located within this landscape unit. Structures within the Presidio vary in architectural structure, size and use, but seem to share a common style and, most noticeably, a consistent color and material scheme (cream and brick-color buildings with red roofs). Many of the Presidio buildings are included in the National Register of Historic Places database. Fort Point, a brick structure formerly used by the U.S. military, is located beneath the Bridge

at the northern tip of the Presidio and represents a historical visual image type.

Table 2.2-1 Landscape Units

Landscape Unit	Description
The Presidio	<ul style="list-style-type: none"> ■ Located directly south of the Bridge toll plaza ■ Image types include beaches; open bluff areas vegetated with coastal scrub; woodland areas vegetated with eucalyptus, cypress and Monterey pine trees; medium-density residential; commercial and educational facilities; and historic buildings ■ Overall aesthetic is of a relatively natural area with interspersed developed visual image types and roadways
Toll Plaza Area	<ul style="list-style-type: none"> ■ Located at the southern end of the Bridge and the northernmost part of the Presidio on a high bluff over looking the Pacific Ocean, Bridge and San Francisco Bay ■ Heavily used by tourists as a vantage point to view the Bridge, as an access point to the pedestrian walkway on the east side of the Bridge, and for motor vehicle traffic heading both north and south ■ Image types include the toll plaza buildings and structures, trees and wooded areas, and recreational uses ■ Overall aesthetic is of a busy institutional and historic place
San Francisco Bay	<ul style="list-style-type: none"> ■ The Bridge is suspended above the mouth of the San Francisco Bay ■ Image types include coastal areas and recreational uses, such as boating and fishing ■ Overall aesthetic is of expansive blue-green waters surrounded by urban, industrial and natural landscapes
Marin Headlands	<ul style="list-style-type: none"> ■ Located to the northwest of the north end of the Bridge within Marin County ■ Primarily used for recreation, including by pedestrians and bicyclists along the ridges and trails, and by tourists as a vantage point to view the Bridge and the San Francisco Bay Area ■ Image types include open space, historic military elements and recreational uses
Fort Baker	<ul style="list-style-type: none"> ■ Located to the northeast of the Bridge at the base of the Marin Headlands ■ Image types include historic/landmark, institutional/military, recreational, educational and commercial uses ■ Overall aesthetic character is of low-density development surrounded by natural landscape features

Golden Gate Bridge Physical Suicide Deterrent System

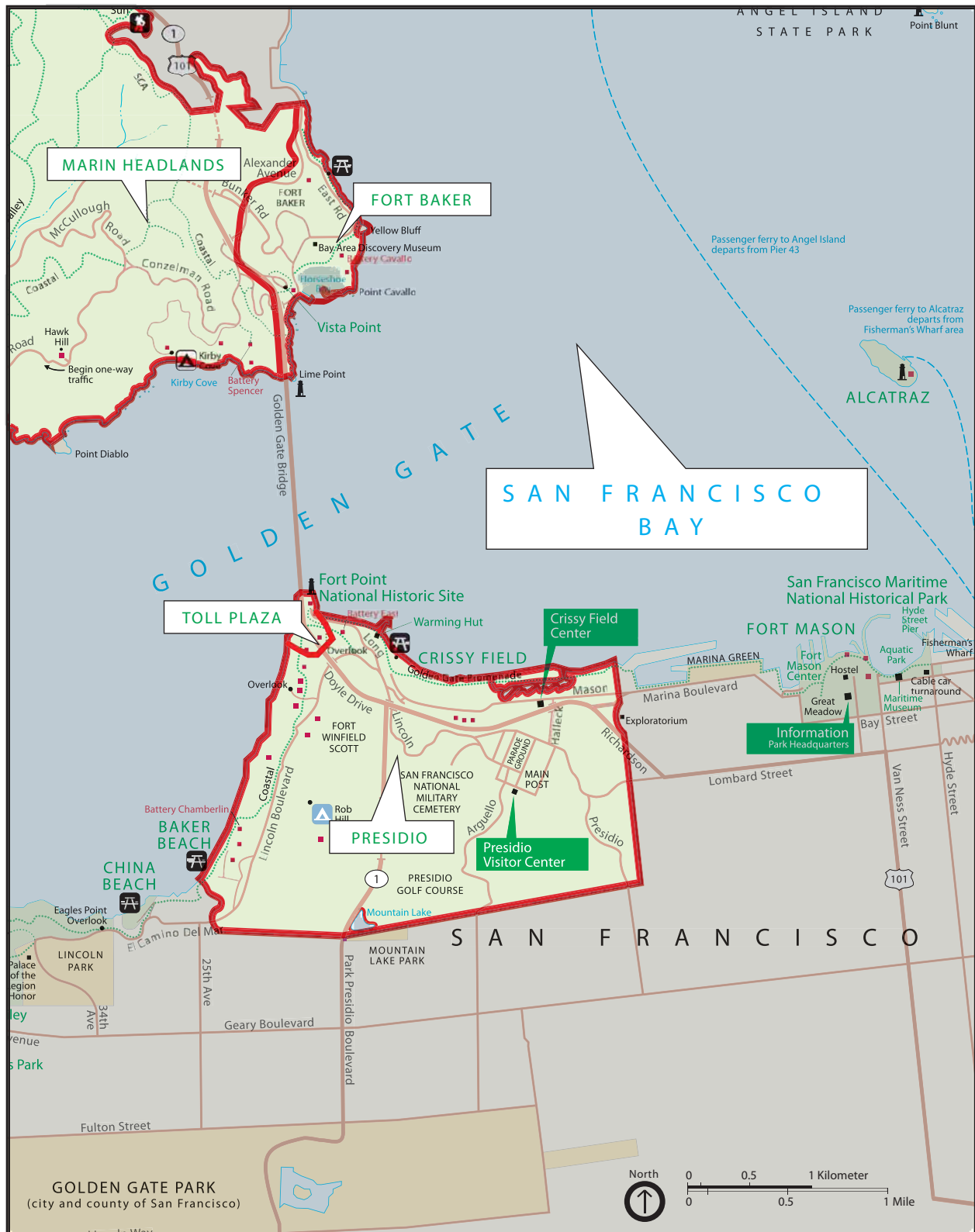


FIGURE 2.2-3
LANDSCAPE UNIT LOCATION

Toll Plaza Area

The Bridge toll plaza is located at the southern end of the Bridge on a high bluff overlooking the Pacific Ocean and San Francisco Bay. There are several image types located in this landscape unit including the toll plaza buildings, trees and wooded areas, and recreational uses. The area is heavily used by tourists as a vantage point to view the Bridge and San Francisco and greater Bay Area. Tourists also stop at the parking lots in this landscape unit to access the pedestrian sidewalk along the east side of the Bridge. The toll plaza is filled with vehicles as they pay tolls in the southbound direction and pass through in the northbound direction. The overall aesthetic of this landscape unit is of a busy institutional and historic place. It represents a primary entry point onto the Bridge for motorists traveling north.

San Francisco Bay

The San Francisco Bay consists of a large body of water situated between the San Francisco Peninsula, the East Bay hills, and the northern shore of the greater Bay Area region. The San Francisco Bay represents a coastal area visual image type, as the waters meet with the natural coastline at the base of the Marin Headlands and the urbanized shoreline around the City and County of San Francisco. The waters of the Bay are typically active, as the Bay serves as a major commercial and industrial shipping route. The Bay also serves a recreational purpose, as seen with year-round fishing, boating and windsurfing. The overall aesthetic of this landscape unit is of expansive blue-green waters surrounded by urban and industrial uses and natural landscapes.

The Bridge is suspended above the mouth of the San Francisco Bay connecting San Francisco and Marin counties. It is one of the most well-known, frequently visited and internationally recognized suspension bridges in the world, and widely considered one of the most beautiful examples of bridge engineering, both as a structural design challenge and for its aesthetic appeal. It was the largest suspension bridge in the world when it was completed in 1937 and has become an internationally recognized symbol of San Francisco with its unique and distinguishing architectural qualities and characteristics that combined Art Deco and Streamline Modern design with advanced engineering technologies. The Bridge is constructed of concrete and steel; the foundations, anchorage housings and pylons are concrete and the Bridge spans are steel.

The Bridge has been described as an environmental sculpture and is widely noted for its harmonious blending of the natural and built environment. The extraordinary setting intensifies the visual power of the Bridge. From its north-south alignment, the Bridge provides panoramic views of the

rugged beauty and urban diversity that surround it, encompassing the Marin hills, the Presidio of San Francisco Historic Landmark District, the skyline of San Francisco, Alcatraz and Angel Islands of San Francisco Bay, and the wide expanse of the Pacific Ocean and coastline. It is one of the most photographed places in the world, with views of the Bridge typically taken from GGNRA beaches and trails southwest of the Bridge, San Francisco Bay, the Presidio, Fort Point, Fort Baker, the Marin Headlands and from the air. The setting and the views contribute to the popularity of the sidewalks and to people's affection toward the structure.

Marin Headlands

The Marin Headlands are an undeveloped, mountainous area located at the southernmost tip of Marin County. The northern approach of the Bridge travels horizontally across the eastern edge of the hills. The Marin Headlands consist of high bluffs overlooking the Pacific Ocean, the Bridge, and the San Francisco Bay. Typical image types in this landscape unit include open space, historic batteries and recreational trails. The area is used by pedestrians, recreational users and tourists as a vantage point to the panoramic vistas of the northern San Francisco Bay Area and the Bridge. The recreational trails for hikers and the narrow winding roads and parking lots for motorists and bicyclists allow public access to the landscape unit. The overall aesthetic character of this landscape unit is of generally undisturbed open space with few manmade features and steep, rocky hills sloping down to the San Francisco Bay and the Pacific Ocean.

Fort Baker

Fort Baker is located to the northeast of the Bridge at the base of the Marin Headlands. The area is located on GGNRA land and is classified as a historic district on the National Register of Historic Places. Fort Baker consists of historic army buildings clustered around the main parade ground, the Discovery Museum, Conference Center, the Horseshoe Cove waterfront area and several historic batteries. Typical image types in this landscape unit include historic/landmark, such as the low-density, red-roofed, white, rectangular army-built buildings; institutional/military, including an active United States Coast Guard station; educational and recreational uses. The overall aesthetic character of this landscape unit is of low-density development surrounded by natural landscape features, such as vegetation, the water of the San Francisco Bay and the Marin Headlands.

Visual Setting

The Bridge is located within the San Francisco Bay Area between the northernmost tip of the San Francisco Peninsula and the Marin Headlands at the far southern end of Marin County. This area of northern California is

one of the most scenic areas in the world, where the blue waters of the Bay and Pacific Ocean combine with islands, bridges, mountains, and urban skylines to create both picturesque and impressive vistas. The International Orange-colored Bridge and towers stand out against the blue skies and waters of the San Francisco Bay and the Pacific Ocean.

The Bridge is a suspension bridge that extends over the mouth of the San Francisco Bay and links the City and County of San Francisco to Marin County. The Bridge is located in the GGNRA and is an iconic symbol of San Francisco and northern California, attracting visitors from around the world. The Bridge is surrounded by both natural and manmade landscape features, including the densely vegetated Presidio and the undeveloped Marin Headlands and the urbanized cityscape of San Francisco and historical military structures of Fort Point and Fort Baker.

The Bridge is also a primary transportation corridor within the area, as it connects Highway 101 between Marin and San Francisco. Automobile occupants, bicyclists and pedestrians traveling on the Bridge have a wide variety of visual experiences. To the east, the blue water of the San Francisco Bay, the densely urbanized cityscape of San Francisco, Angel Island, Alcatraz, the developed yet vegetated East Bay hills and the San Francisco-Oakland Bay Bridge are the primary visual features. When looking west, the viewer experiences the natural landscape of the undeveloped slopes of the Marin Headlands and the open water of the Pacific Ocean.

Viewshed

The viewshed for the proposed project incorporates a series of publicly accessible areas from which viewers can see the Bridge and could potentially notice a change in the height of the outside handrail. The viewpoints were chosen on the basis of a variety of factors, including high visibility/close proximity to sensitive viewers and a range of view types available to the public (close proximity to long-distance views). Figures 2.2-4 and 2.2-5 identify the locations of these viewpoints. The viewshed varies according to the location of the viewpoint.

For users of nearby public facilities such as Baker Beach, pedestrians and recreational users, such as those in the Marin Headlands, and boaters on the San Francisco Bay, the viewshed includes views of the Bridge. For motorists, pedestrians and bicyclists on the Bridge, the viewshed includes the Bridge deck, outside handrails, light posts and suspender ropes in the foreground, and views of the San Francisco Bay Area and Pacific Ocean in the distance.

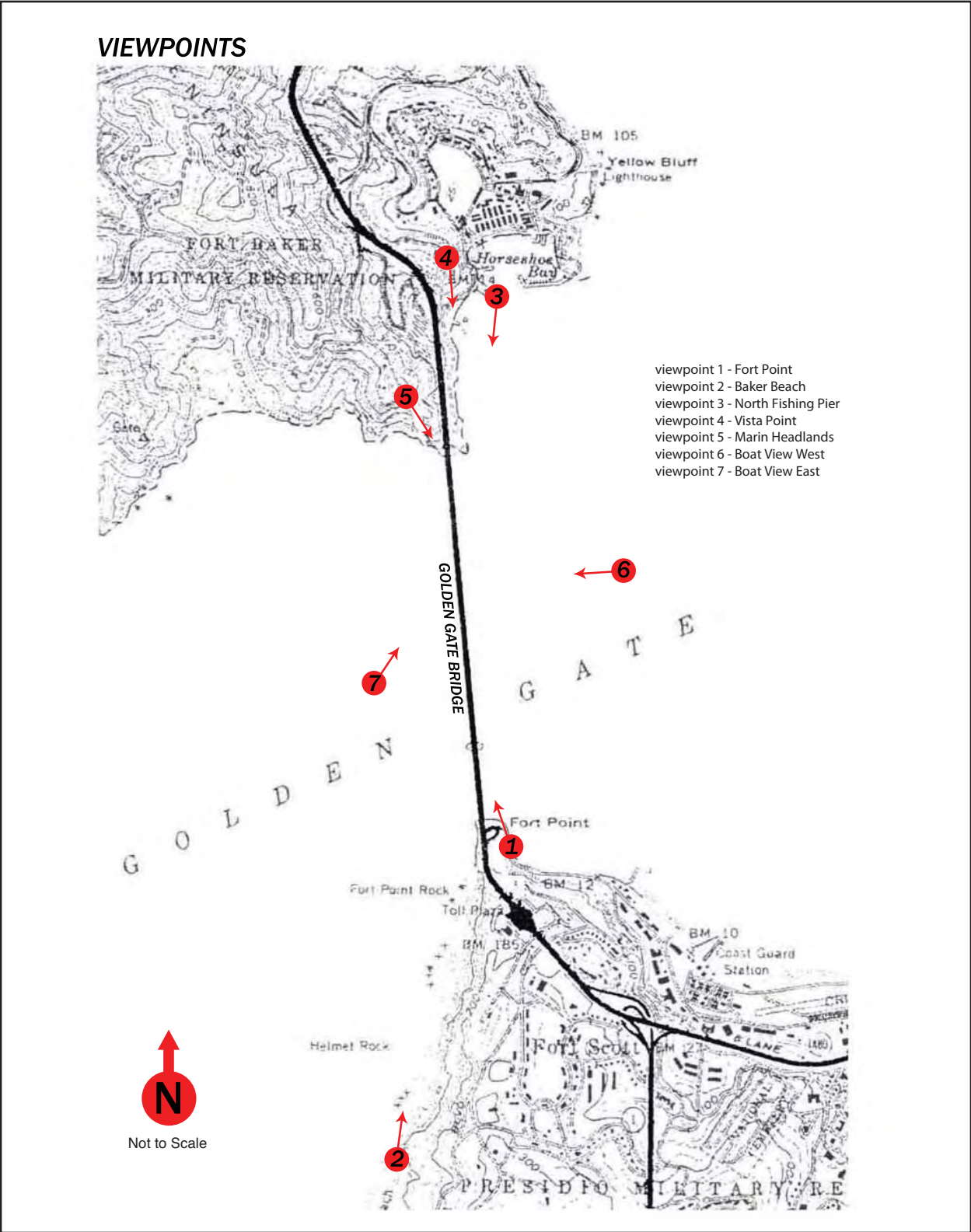


FIGURE 2.2-4
KEY TO VIEWPOINTS OF THE GOLDEN GATE BRIDGE

Source: macdonald architects, 2008

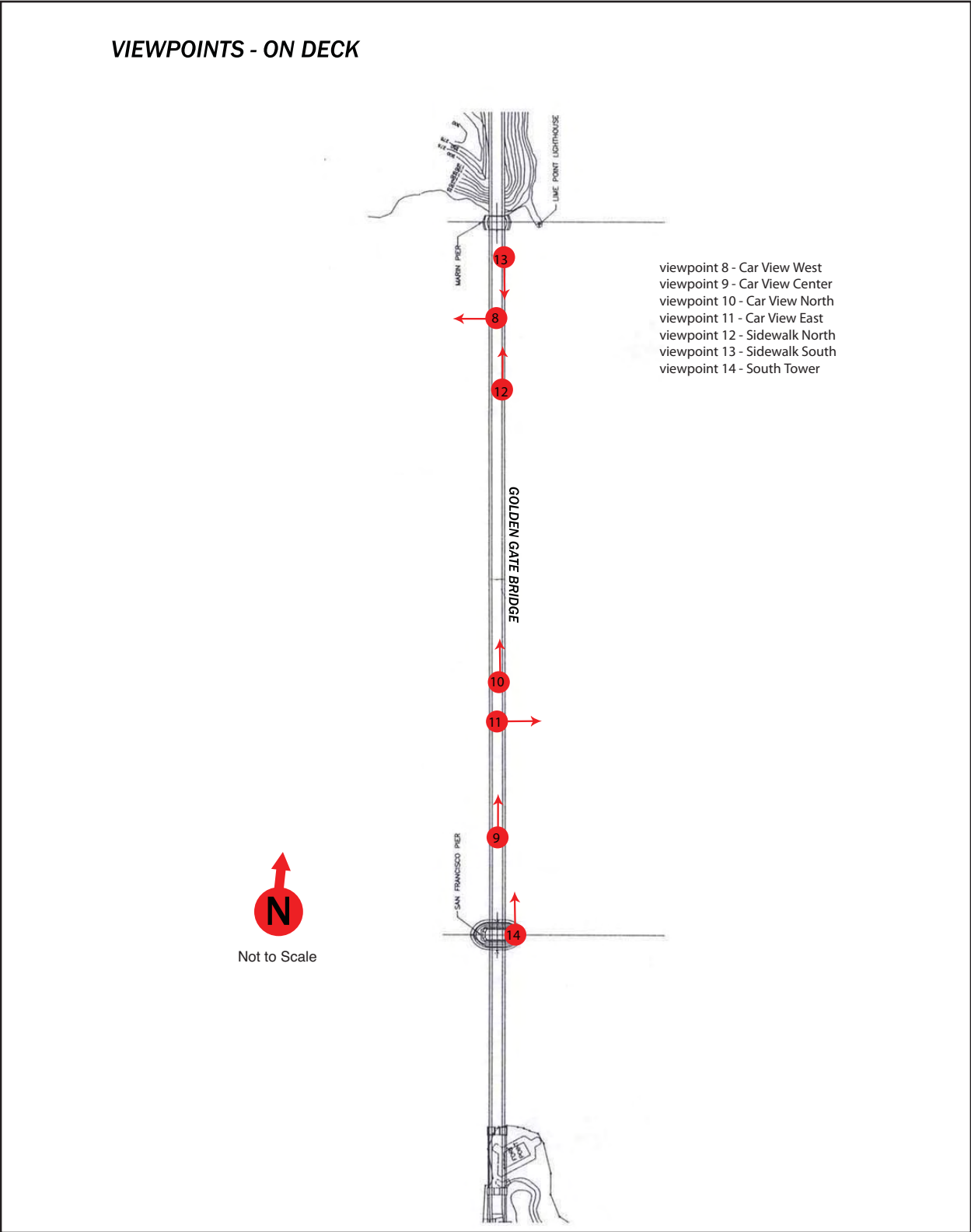


FIGURE 2.2-5
KEY TO VIEWPOINTS FROM THE GOLDEN GATE BRIDGE

The viewpoints of the Bridge are located at Fort Point, Baker Beach, the North Fishing Pier, Vista Point, the Marin Headlands, and also include a boat view from beneath the Bridge to the east and west. Views from the Bridge include a car view facing west, car view from the center traffic lane, car view facing north, car view facing east, sidewalk view facing north, sidewalk view facing south, and a view from the south Bridge tower. Figures 2.2-6 through 2.2-57 illustrate existing views and future views with the proposed alternatives from these 14 viewpoints.

Viewer Sensitivity

Viewer sensitivity is defined both as the viewer's concern for scenic quality and the viewer's response to change in the visual resources that make up the view. For the proposed project, primary factors affecting viewer sensitivity are the architectural and cultural significance of the Bridge. The Bridge is widely considered one of the most beautiful examples of bridge engineering, both as a structural design challenge and for its aesthetic appeal. It was the largest suspension bridge in the world when it was completed in 1937 and has become an internationally recognized symbol of San Francisco. The Bridge's setting and the views contribute to the popularity of the Bridge sidewalks and public viewpoints towards the Bridge.

The predominant viewer groups associated with the Bridge are those with views from the Bridge (automobile occupants, cyclists and pedestrians) and those with views of the Bridge (tourists, recreational users, residents, boaters, hikers, etc.). Viewer activity can affect their sensitivity to the views available to and from the Bridge. A person's experience of the Bridge also varies based upon location, the duration of the view, and the frequency of exposure to views of the Bridge.

The Bridge receives approximately 10 million visitors each year, and approximately 120,000 vehicles cross the Bridge daily. Viewer sensitivity would generally be categorized as high, because of the architectural and cultural significance of the Bridge, its proximity to recreational areas and the large numbers of visitors to the Bridge.

Existing Visual Quality

Visual quality is evaluated by identifying the vividness, intactness and unity present in the viewshed. Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns. An example within the study area is the distinctive relationship of land and water observed from the Bridge. Intactness is the visual integrity of the natural and manmade landscape of the immediate environs and its freedom from encroaching elements. An example within the study area is

the Marin Headlands, which is a natural area with few manmade features. Unity is the visual coherence and compositional harmony of the landscape considered as a whole. An example is the way manmade elements such as the Bridge combine with natural features such as the San Francisco Bay and the Marin Headlands to provide a coherent visage unique to the Bay Area.

The existing visual quality at each of the 14 viewpoints was evaluated using the criteria identified above and rated as outstanding, high, moderate or low based on the following considerations.

- Outstanding visual quality is a rating reserved for landscapes with exceptionally high scenic value. These landscapes are significant regionally and/or nationally. They usually contain exceptional natural or cultural features that contribute to this rating. They are what we think of as “picture postcard” landscapes. People are attracted to these landscapes just to be able to view them.
- High visual quality encompasses landscapes that have a high-quality scenic value. This may be due to cultural or natural features contained in the landscape or to the arrangement of spaces contained in the landscape that causes the landscape to be visually interesting or a particularly comfortable place for people. These are often landscapes that have a high potential for recreational activities or in which the visual experience is important.
- Moderate visual quality represents landscapes that have average scenic value. They usually lack significant manmade or natural features. Their scenic value is primarily a result of the arrangement of spaces contained in the landscape and the two-dimensional visual attributes of the landscape.
- Low visual quality refers to landscapes with low scenic value. The landscape is often dominated by visually discordant manmade alterations, or they are landscapes that do not include places that people find inviting and lack interest in terms of two-dimensional visual attributes.

The results of these evaluations at the 14 viewpoints are presented in Table 2.2-2. Viewpoints 1 through 7 represent views of the Bridge, while viewpoints 8 through 14 represent views from the Bridge.

Table 2.2-2 Overall Visual Quality

Viewpoint Number	Viewpoint Location	Vividness	Intactness	Unity	Overall Visual Quality
1	Fort Point	High	Moderate	High	High
2	Baker Beach	Outstanding	Outstanding	Outstanding	Outstanding
3	North Fishing Pier	High	Moderate	High	High
4	Vista Point	High	High	High	High
5	Marin Headlands	Outstanding	Outstanding	Outstanding	Outstanding
6	Boat View East	High	Moderate	High	High
7	Boat View West	High	Moderate	High	High
8	Car View West	High	Moderate	Moderate	Moderate
9	Car View Center	Low	Low	Low	Low
10	Car View North	Low	Low	Low	Low
11	Car View East	High	High	High	High
12	Sidewalk North	Moderate	High	High	High
13	Sidewalk South	Outstanding	High	Outstanding	Outstanding
14	Bridge Tower	High	High	High	High

Viewer Exposure

Viewer exposure refers to the visibility of the project from surrounding viewpoints as well as the viewing sequence from the Bridge user's viewpoint. Use patterns that determine viewpoints can be categorized by location, viewer volume, and duration of views, as well as by viewer type. Viewer exposure relates to duration and frequency of views and whether the viewer is located at a given site or is moving. The direction and speed of travel can profoundly influence the exposure to views. View position refers to the observer's height in relation to what is being viewed. This relationship is important in determining scenic quality and potential visual impact. This relationship applies to both viewers of the Bridge and viewers from the Bridge.

Viewing angle is also an important factor in evaluating viewer exposure. In general, a 45-degree viewing angle is preferable because it allows the viewer to see depth, architectural features and length of the feature being viewed. Highly acute viewing angles are less preferable because architectural details

are often reduced as well as the depth of the feature being viewed. Perpendicular angles are also less preferable than a 45-degree viewing angle because depth of the feature is often lost, while architectural details are more visible.

Viewing distance affects the degree of visibility of landscape features. Close viewpoints, typically within 0 to 0.3 miles (0 to 0.5 kilometers), permit perception of landscape detail and small-scale features. An intermediate viewpoint, typically from 0.3 to 3.0 miles (0.5 to 5.0 kilometers), permits the viewer to perceive the relationship of landscape features, although detailed perception is considerably reduced. Distant viewpoints, typically beyond 3.0 miles (5.0 kilometers) from the viewer, allow only perception of large-scale features (e.g., ridges, the Bay and urban settlements), with little detail and considerable loss of color contrast.

Viewing distance also exerts a considerable influence on the viewer's visual experience. Typically, a person can readily perceive objects within an approximately 40-degree range directly in front of him/her, in the horizontal plain, without moving his/her head or eyes (this is called the "normal view range" or the "normal view cone," and is replicated in a 50-millimeter lens using a 35 mm camera). From close viewpoints, the Bridge will encompass the entire view cone of a viewer facing it, and changes to it will be prominent. But from distant viewpoints, the Bridge will encompass only a portion of the view cone of a person facing it, making it possible that changes to the Bridge will be less prominent.

A person's experience of the Bridge varies based upon location, the duration of the view, and the frequency of exposure to views of the Bridge. Viewer exposure was evaluated at each of the 14 viewpoints. Table 2.2-3 summarizes the conclusions of this evaluation. Viewpoints 1 through 7 represent views of the Bridge, while viewpoints 8 through 14 represent views from the Bridge.

Table 2.2-3 Overall Viewer Exposure

Viewpoint Number	Viewpoint Location	View Distance	Number of Viewers	Duration of View	Overall Viewer Exposure
1	Fort Point	Foreground	High	Extended	High
2	Baker Beach	Middle ground	Moderate	Extended	Moderate
3	North Fishing Pier	Foreground	Moderate	Extended	High
4	Vista Point	Foreground	High	Extended	High
5	Marin Headlands	Foreground	High	Extended	High
6	Boat View East	Foreground	Low	Moderate	Moderate
7	Boat View West	Foreground	Low	Moderate	Moderate
8	Car View West	Foreground	High	Moderate	Moderate
9	Car View Center	Background	High	Extended	High
10	Car View North	Background	High	Extended	High
11	Car View East	Foreground	High	Moderate	Moderate
12	Sidewalk North	Foreground	High	Extended	High
13	Sidewalk South	Foreground	High	Extended	High
14	Bridge Tower	Foreground	High	Extended	High

2.2.3 ENVIRONMENTAL CONSEQUENCES

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

The criteria used to determine visual impacts include visual compatibility, visual dominance of the project, and view blockage or view expansion. Visual compatibility describes the degree to which the project's visual elements (consisting of form, line, color and texture) differ from the same visual elements established in the existing landscape. The presence of

forms, lines, colors and textures in the existing landscape similar to those of the project indicates a landscape more capable of accepting the project elements than a landscape where those elements are absent. The degree of visual contrast is rated as low, moderate or high.

Visual dominance refers to the contrast between the proposed improvements and their setting described in terms of vegetation, landform and structural changes. Visual elements of scale, form, line and position, as seen from representative sensitive viewing locations, determine the degree of contrast and dominance. Dominance is a function of how potentially noticeable the project is to the viewer, ranging from ineydent, subordinate, co-dominant and dominant. View blockage describes the extent to which any previously visible landscape features are blocked from view by the project. Blockage of higher quality landscape features by lower quality features causes adverse effects. The degree of view blockage is rated as low, moderate or high.

To evaluate the environmental consequences and visual changes by alternative, a series of public views towards and from the Bridge were identified and simulated for each alternative. Viewpoints 1 through 7 represent the views of the Bridge, while Viewpoints 8 through 14 represent views from of the Bridge by automobile occupants, bicyclists and pedestrians. Generally, views towards the Bridge would not be substantially affected by installation of the physical suicide deterrent system, with visual impacts ranging from negligible to minimally adverse. Views from the Bridge would be most noticeably impacted, with visual impacts ranging from adverse to strongly adverse.

Alternative 1A – Add Vertical System to Outside Handrail

Alternative 1A would construct a new barrier on top of the outside handrail (and concrete rail at the north anchorage housing and north pylon). The barrier would extend 8 feet vertically from the top of the 4-foot-high outside handrail for a total of 12 feet. The vertical addition to the outside handrail would maintain the same International Orange coloring and vertical line form established by the outside handrail, light posts and suspender ropes. The vertical addition to the outside handrail would remain consistent with the strong vertical elements of the Bridge and would maintain the existing visual rhythm of the Bridge structure. Additionally, transparent panels would be installed at the belvederes and towers on both sides of the Bridge. These transparent features would introduce a new visual element to the Bridge. Refer to Chapter 1.0, Proposed Project, for a detailed description of Alternative 1A.

Views of the Bridge

In regards to the views towards the Bridge, Alternative 1A would primarily have minimally adverse visual impacts, with the exception of an adverse visual impact from Viewpoint 4 (Vista Point). Table 2.2-4 summarizes the overall visual impact of Alternative 1A to the view of the Bridge. Figures 2.2-6 through 2.2-11 illustrates Alternative 1A from the views towards the Bridge (Viewpoints 1 through 7). Because Viewpoints 6 and 7 (Boat View West and Boat View East) represent a similar location and angle of view, simulations were prepared only for Viewpoint 6. Visual impacts to boat views are evaluated under Viewpoint 6.

Although Alternative 1A would primarily have minimally adverse visual impacts, Alternative 1A would have an adverse visual impact from Viewpoint 4 (Vista Point) because the physical suicide deterrent system would be a co-dominant visual feature in a landscape with high viewer sensitivity, altering views of the Bridge and interfering with views of the larger landscape. Conversely, visual impacts from Viewpoint 2 (Baker Beach) would be negligible for Alternative 1A due to the distant viewing location, which affords low view blockage and high visual compatibility with the Bridge features and surrounding environment.

Due to the viewing distance from the views of the Bridge and the International Orange coloring of Alternative 1A, the vertical rods would blend into the Bridge span and the existing vertical line form created by the suspender ropes and light posts. While the addition of the vertical system would slightly elevate the horizontal line of the outside handrail across the entire Bridge span, the overall appearance of the Bridge would not noticeably change from the views of the Bridge.

Overall, the primary visual change associated with Alternative 1A to views towards the Bridge would be the appearance of a higher outside railing on the Bridge with corresponding increased International Orange coloring added to the landscape.

Table 2.2-4 Alternative 1A: Overall Visual Impact to Views of the Bridge

Viewpoint		Existing Condition		Proposed Condition			Visual Impact
No.	Location	Visual Quality	Viewer Exposure	Visual Compatibility	Visual Dominance	View Blockage	
1	Fort Point	High	High	Moderate	Subordinate	Moderate	Minimally Adverse
2	Baker Beach	Outstanding	Moderate	High	Subordinate	Moderate	Minimally Adverse
3	North Fishing Pier	Moderate	High	Moderate	Subordinate	Low	Minimally Adverse
4	Vista Point	High	High	Moderate	Co-Dominant	Moderate	Adverse
5	Marin Headlands	Outstanding	High	Moderate	Subordinate	Moderate	Minimally Adverse
6	Boat View West	High	Moderate	Moderate	Subordinate	Moderate	Minimally Adverse
7	Boat View East	High	Moderate	Moderate	Subordinate	Moderate	Minimally Adverse



EXISTING



ALTERNATIVE 1A

FIGURE 2.2-6
VIEWPOINT 1: FORT POINT - ALTERNATIVE 1A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 1A

FIGURE 2.2-7
VIEWPOINT 2: BAKER BEACH - ALTERNATIVE 1A
Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 1A

FIGURE 2.2-8
VIEWPOINT 3: NORTH FISHING PIER - ALTERNATIVE 1A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 1A

FIGURE 2.2-9
VIEWPOINT 4: VISTA POINT - ALTERNATIVE 1A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 1A

FIGURE 2.2-10
VIEWPOINT 5: MARIN HEADLANDS - ALTERNATIVE 1A



EXISTING



ALTERNATIVE 1A

FIGURE 2.2-11
VIEWPOINT 6: BOAT VIEW WEST - ALTERNATIVE 1A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

Views from the Bridge

Alternative 1A would have adverse to strongly adverse visual impacts to views from the Bridge, in particular, to the sidewalk and car views. Table 2.2-5 summarizes the visual impacts of Alternative 1A to views from the Bridge. Figures 2.2-12 through 2.2-16 illustrate Alternative 1A from the views from the Bridge (Viewpoints 8 through 13). Because Viewpoints 9 and 10 (Car View Center and Car View North) represent a similar location and angle of view, simulations were prepared only for Viewpoint 9. Visual impacts to an automobile occupant's view from the Bridge are evaluated under Viewpoint 9.

Primary visual changes associated to Alternative 1A views from the Bridge include raising the height of the outside Bridge railing such that it would extend across a viewer's total field of view. The addition of the vertical system to the outside handrail would be seen in the immediate foreground, representing a co-dominant to dominant visual feature in the landscape.

Alternative 1A would have moderate view blockage and low visual compatibility with the existing landscape, with the exception of moderate compatibility at Viewpoints 12 and 13 (Sidewalk North and Sidewalk South). The transparent panels at the belvederes (24 widened areas located on both the east and west sidewalks) would also be visible at views from the Bridge and would contrast with the color and materials of the Bridge.

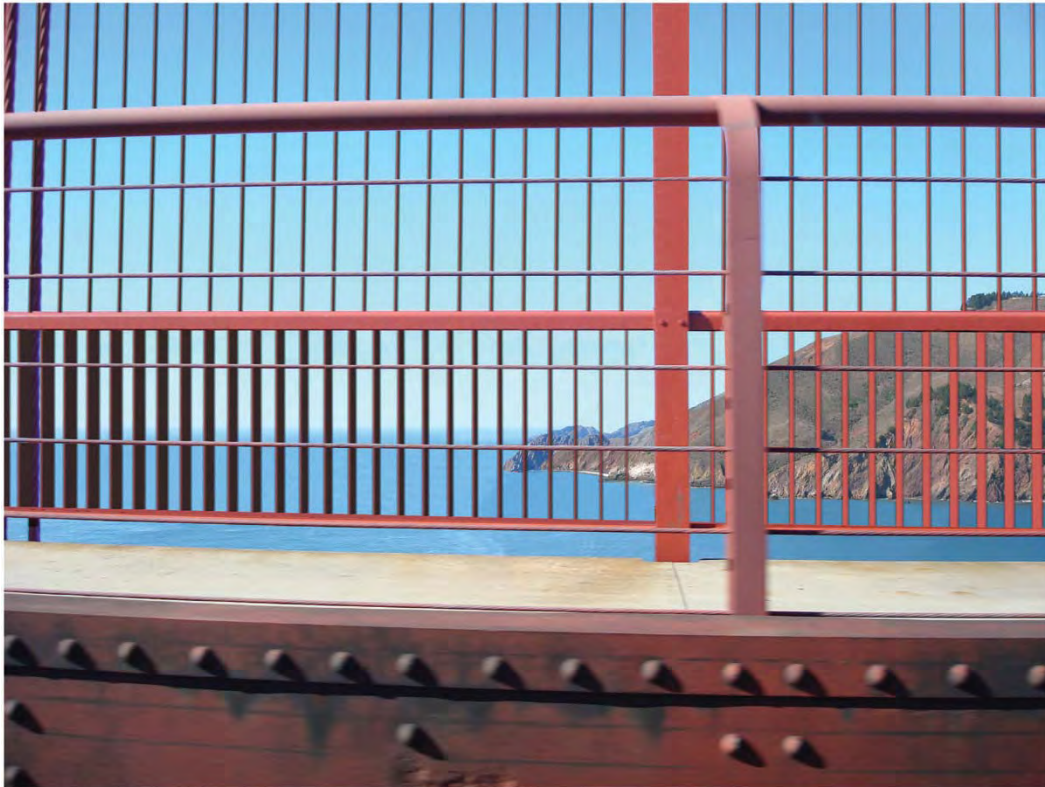
While the vertical addition maintains consistency with the strong verticality of the Bridge features, such as the suspender ropes, light posts, and Bridge towers, the vertical rods contrast with the horizontal line form established by the natural and built environment seen from the Bridge, such as the blue-green waters of the San Francisco Bay and the cityscape of San Francisco.

Table 2.2-5 Alternative 1A: 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	Low	Co-Dominant	Moderate	Adverse
9	Car View Center	High	High	Low	Co-Dominant	Moderate	Adverse
10	Car View North	High	High	Low	Co-Dominant	Moderate	Adverse
11	Car View East	High	High	Low	Dominant	Moderate	Strongly Adverse
12	Sidewalk North	High	High	Moderate	Dominant	Moderate	Adverse
13	Sidewalk South	Outstanding	High	Moderate	Dominant	Moderate	Adverse



EXISTING



ALTERNATIVE 1A

FIGURE 2.2-12
VIEWPOINT 8: CAR VIEW WEST - ALTERNATIVE 1A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 1A

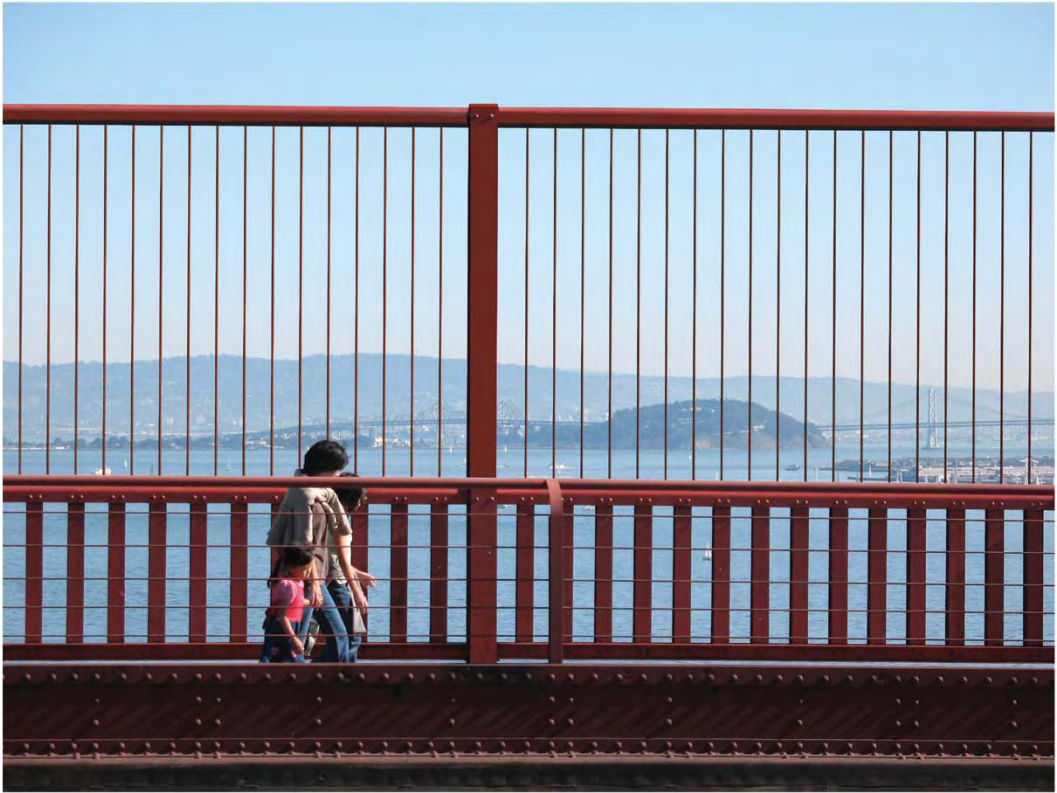
FIGURE 2.2-13
VIEWPOINT 9: CAR VIEW CENTER - ALTERNATIVE 1A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 1A

FIGURE 2.2-14
VIEWPOINT 11: CAR VIEW EAST - ALTERNATIVE 1A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

Golden Gate Bridge Physical Suicide Deterrent System



EXISTING



ALTERNATIVE 1A

FIGURE 2.2-15
VIEWPOINT 12: SIDEWALK VIEW NORTH - ALTERNATIVE 1A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 1A

FIGURE 2.2-16
VIEWPOINT 13: SIDEWALK VIEW SOUTH - ALTERNATIVE 1A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

Alternative 1B – Add Horizontal System to Outside Handrail

Alternative 1B would construct a new barrier on top of the outside handrail (and concrete rail at the North Anchorage Housing and north pylon) consisting of 3/8-inch diameter horizontal steel cables. The new barrier would extend 8 feet above the top of the outside handrail for a total height of 12 feet. The thin horizontal cables are situated between thicker, evenly spaced vertical rail posts on top of the outside handrail. While the horizontal addition to the outside handrail maintains the horizontal line form established by the public safety railing, the horizontal cables contrast with the strong verticality of the Bridge structures, such as the suspender ropes, light posts and Bridge towers. Additionally, transparent panels would be installed at the belvederes on both sides of the Bridge. A transparent winglet would be placed on top of the rail posts, with a slight concave curvature extending across the length of the suicide deterrent barrier. This addition of the transparent panels and winglet would introduce a new visual element to the Bridge. Refer to Chapter 1, Proposed Project, for a detailed description of Alternative 1B.

Views of the Bridge

In regards to the views towards the Bridge, Alternative 1B would primarily have minimally adverse visual impacts. Table 2.2-6 summarizes the overall visual impact of Alternative 1B to views of the Bridge. Figures 2.2-17 through 2.2-22 illustrate Alternative 1B from the views of the Bridge (Viewpoints 1 through 7). However, Alternative 1B would have an adverse visual impact from Viewpoint 4 (Vista Point) because the physical suicide deterrent system would be a co-dominant visual feature in a landscape with high viewer sensitivity, altering views of the Bridge and interfering with views of the larger landscape. Conversely, visual impacts from Viewpoint 2 (Baker Beach) would be negligible for Alternative 1B due to the distant viewing location, which affords low view blockage and high visual compatibility with the Bridge features and surrounding environment.

Due to the viewing distance from the views of the Bridge and the International Orange coloring of Alternative 1B, the horizontal cables would blend into the Bridge span and the existing vertical line form created by the suspender ropes and light posts. While the addition of the horizontal system would slightly elevate the horizontal line of the outside handrail across the entire Bridge span, the overall appearance of the Bridge would not noticeably change from the views of the Bridge. The transparent panels and winglet introduce some reflectivity to views of the Bridge; however, the transparency of these features substantially reduces their visibility at views of the Bridge.

Overall, the primary visual change associated with Alternative 1B to views towards the Bridge would be the appearance of a higher outside railing on the Bridge with the commensurate increased International Orange coloring to the landscape, representing a minimally adverse visual impact.

Table 2.2-6 Alternative 1B: Overall Visual Impact to Views of the Bridge

Viewpoint		Existing Condition		Proposed Condition			Visual Impact
No.	Location	Visual Quality	Viewer Exposure	Visual Compatibility	Visual Dominance	View Blockage	
1	Fort Point	High	High	Moderate	Subordinate	Moderate	Minimally Adverse
2	Baker Beach	Outstanding	Moderate	High	Subordinate	Moderate	Minimally Adverse
3	North Fishing Pier	Moderate	High	Moderate	Subordinate	Low	Minimally Adverse
4	Vista Point	High	High	Moderate	Co-Dominant	Moderate	Adverse
5	Marin Headlands	Outstanding	High	Moderate	Subordinate	Moderate	Minimally Adverse
6	Boat View West	High	Moderate	Moderate	Subordinate	Moderate	Minimally Adverse
7	Boat View East	High	Moderate	Moderate	Subordinate	Moderate	Minimally Adverse

Golden Gate Bridge Physical Suicide Deterrent System



EXISTING



ALTERNATIVE 1B

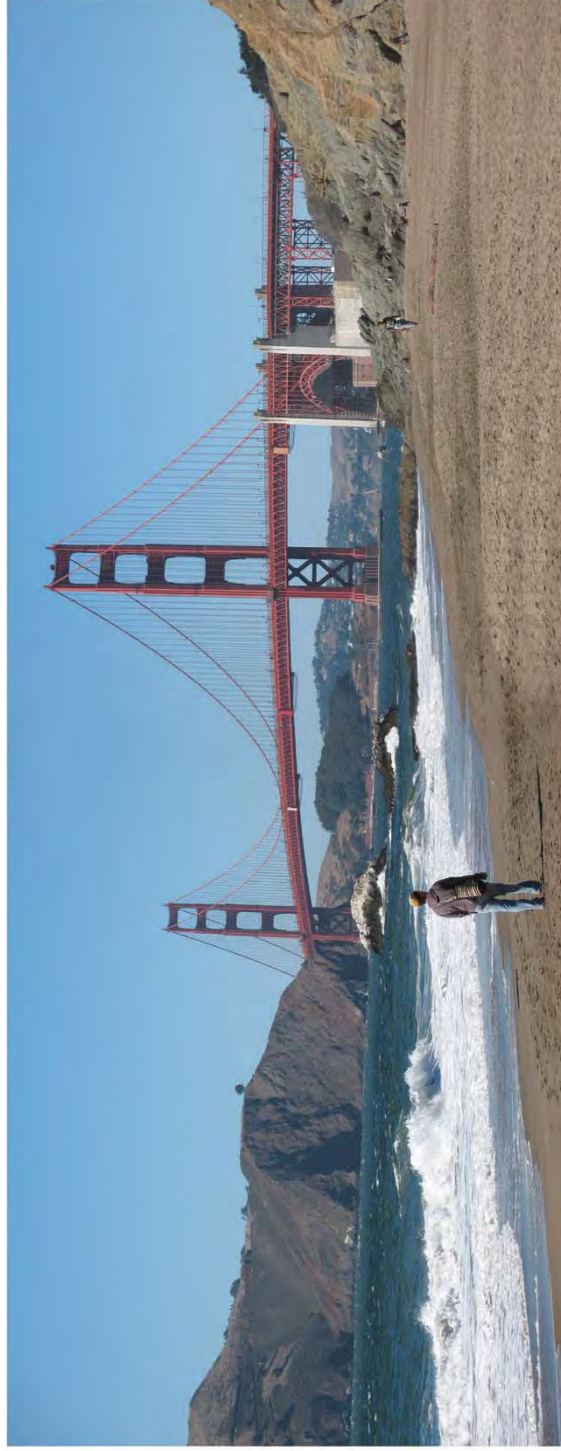
FIGURE 2.2-17
VIEWPOINT 1: FORT POINT - ALTERNATIVE 1B

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 1B

FIGURE 2.2-18
VIEWPOINT 2: BAKER BEACH - ALTERNATIVE 1B

Environmental Impact Report / Environmental Assessment

Source: macdonald architects, 2008



EXISTING



ALTERNATIVE 1B

FIGURE 2.2-19
VIEWPOINT 3: NORTH FISHING PIER - ALTERNATIVE 1B

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 1B

FIGURE 2.2-20
VIEWPOINT 4: VISTA POINT - ALTERNATIVE 1B

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 1B

FIGURE 2.2-21
VIEWPOINT 5: MARIN HEADLANDS - ALTERNATIVE 1B



EXISTING



ALTERNATIVE 1B

FIGURE 2.2-22
VIEWPOINT 6: BOAT VIEW EAST - ALTERNATIVE 1B

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

Views from the Bridge

Alternative 1B would primarily have adverse visual impacts to views from the Bridge, with the exception of a strongly adverse visual impact from Viewpoint 11 (Car View East) where the horizontal addition to the outside handrail would introduce the transparent winglet into the view and comprise a larger portion of the field of view than the existing elements. Table 2.2-7 summarizes the visual impacts of Alternative 1B to views from the Bridge. Figures 2.2-23 through 2.2-27 illustrate the visual impacts of Alternative 1B at views from the Bridge (Viewpoints 8 through 13).

Primary visual changes associated with Alternative 1B to views from the Bridge include raising the height of the Bridge railing such that it would extend across a viewer's total field of view. The addition of the horizontal system to the outside handrail would be seen in the immediate foreground, representing a co-dominant to dominant visual feature in the landscape, depending on the viewing angle. Overall, Alternative 1B would have moderate view blockage and low visual compatibility with the existing landscape, with the exception of moderate compatibility at Viewpoints 12 and 13 (Sidewalk North and Sidewalk South).

The transparent winglets and transparent panels around the Bridge tower and at the belvederes (24 widened areas located on both the east and west sidewalks) would be visible at views from the Bridge and would contrast with the color and materials of the Bridge. While the horizontal cables are consistent with the horizontal line form established by the natural environment, such as the horizon of the blue green waters of the San Francisco Bay and Pacific Ocean, the horizontal cables contrast with the vertical Bridge towers, suspender ropes and light posts on the Bridge.

Although the horizontal addition to the outside handrail would extend across the an expanded field of view, the natural landscape features, such as the open water of San Francisco Bay and the Marin hills would still be visible through the horizontal addition. The thin horizontal cables, transparent winglet and transparent panels would allow the viewer to see through Alternative 1B.

Table 2.2-7 Alternative 1B: 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	Low	Co-Dominant	Moderate	Adverse
9	Car View Center	High	High	Low	Co-Dominant	Moderate	Adverse
10	Car View North	High	High	Low	Co-Dominant	Moderate	Adverse
11	Car View East	High	High	Low	Dominant	Moderate	Strongly Adverse
12	Sidewalk North	High	High	Moderate	Dominant	Moderate	Adverse
13	Sidewalk South	Outstanding	High	Moderate	Dominant	Moderate	Adverse



EXISTING



ALTERNATIVE 1B

FIGURE 2.2-23
VIEWPOINT 8: CAR VIEW WEST - ALTERNATIVE 1B

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 1B

FIGURE 2.2-24
VIEWPOINT 9: CAR VIEW CENTER - ALTERNATIVE 1B

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 1B

FIGURE 2.2-25
VIEWPOINT 11: CAR VIEW EAST - ALTERNATIVE 1B

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

Golden Gate Bridge Physical Suicide Deterrent System



EXISTING



ALTERNATIVE 1B

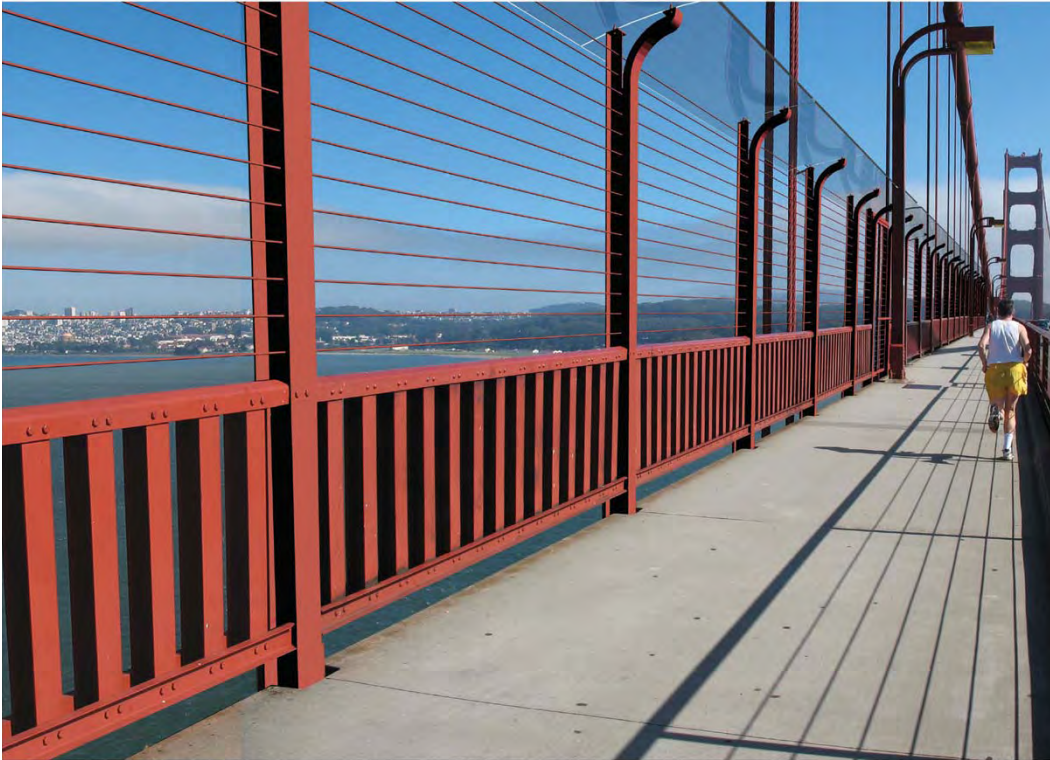
FIGURE 2.2-26
VIEWPOINT 12: SIDEWALK VIEW NORTH - ALTERNATIVE 1B

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 1B

FIGURE 2.2-27
VIEWPOINT 13: SIDEWALK VIEW SOUTH - ALTERNATIVE 1B

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

Alternative 2A – Replace Outside Handrail with Vertical System

Alternative 2A would construct a new vertical 12-foot-high barrier consisting of 1/2-inch diameter vertical steel rods painted International Orange. The replacement of the outside handrail with the vertical system visually thickens the height of the Bridge span across the San Francisco Bay. However, Alternative 2A remains consistent with the strong vertical line form created by the Bridge towers, suspender ropes and light posts on the Bridge. Transparent panels would also be installed along the upper 8 feet at the belvederes and towers on both sides of the Bridge, which would introduce a new visual element to the Bridge. Refer to Chapter 1 - Proposed Project, for a detailed description of Alternative 2A.

Views of the Bridge

In regards to the views towards the Bridge, Alternative 2A would primarily have minimally adverse visual impacts. However, Alternative 2A would have an adverse visual impact from Viewpoint 4 (Vista Point) because the physical suicide deterrent system would be a co-dominant visual feature in a landscape with high viewer sensitivity, altering views of the Bridge and interfering with views of the larger landscape.

Conversely, visual impacts from Viewpoint 2 (Baker Beach) would be negligible for Alternative 2A due to the distant viewing location, which affords low view blockage and high visual compatibility with the Bridge features and surrounding environment. Table 2.2-8 summarizes the overall visual impact of Alternative 2A to views of the Bridge. Figures 2.2-28 through 2.2-33 illustrate the visual impacts of Alternative 2A from views of the Bridge (Viewpoints 1 through 7).

Due to the viewing distance at the views of the Bridge and the International Orange coloring of Alternative 2A, the vertical replacement system would blend into the Bridge span and the existing vertical line form created by the suspender ropes and light posts. While the vertical replacement system would slightly elevate the horizontal line of the outside handrail across the entire Bridge span, the overall appearance of the Bridge would not substantially change.

Overall, the primary visual change associated with Alternative 2A to views towards the Bridge would be the appearance of a higher outside railing on the Bridge with the commensurate increased International Orange coloring to the landscape.

Table 2.2-8 Alternative 2A: Overall Visual Impact to Views of the Bridge

Viewpoint		Existing Condition		Proposed Condition			Visual Impact
No.	Location	Visual Quality	Viewer Exposure	Visual Compatibility	Visual Dominance	View Blockage	
1	Fort Point	High	High	Moderate	Subordinate	Moderate	Minimally Adverse
2	Baker Beach	Outstanding	Moderate	High	Subordinate	Moderate	Minimally Adverse
3	North Fishing Pier	Moderate	High	Moderate	Subordinate	Low	Minimally Adverse
4	Vista Point	High	High	Moderate	Co-Dominant	Moderate	Adverse
5	Marin Headlands	Outstanding	High	Moderate	Subordinate	Moderate	Minimally Adverse
6	Boat View West	High	Moderate	Moderate	Subordinate	Moderate	Minimally Adverse
7	Boat View East	High	Moderate	Moderate	Subordinate	Moderate	Minimally Adverse



EXISTING

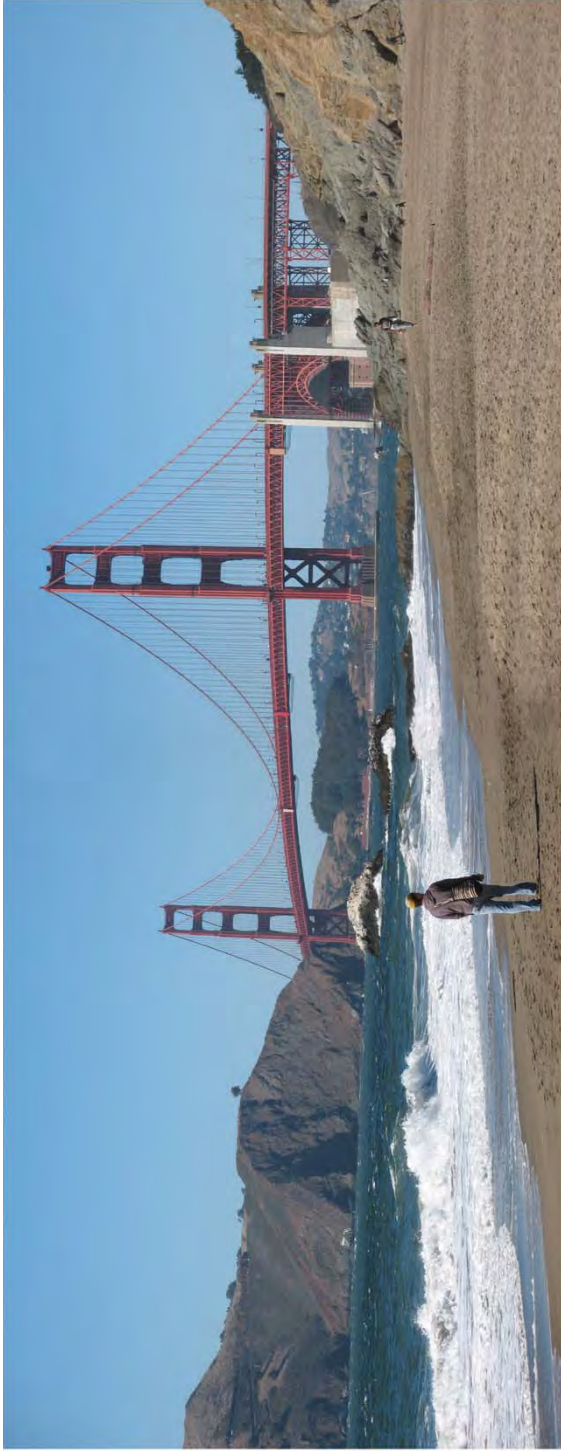


ALTERNATIVE 2A

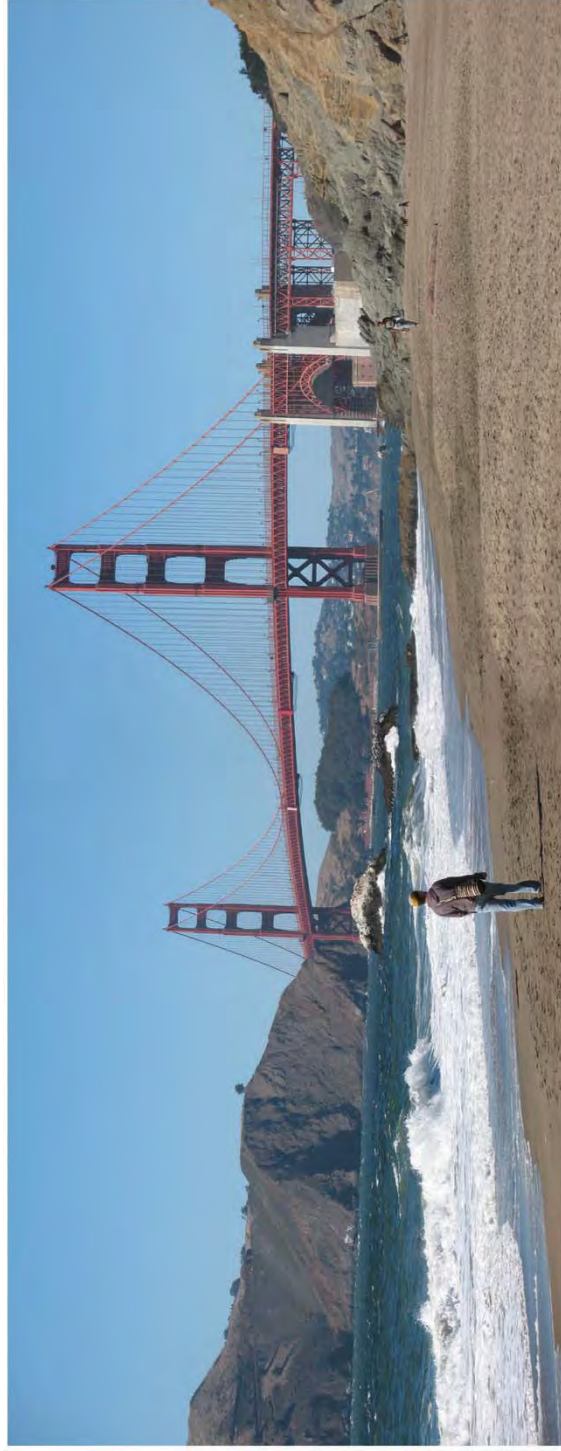
FIGURE 2.2-28
VIEWPOINT 1: FORT POINT - ALTERNATIVE 2A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 2A

FIGURE 2.2-29
VIEWPOINT 2: BAKER BEACH - ALTERNATIVE 2A

Environmental Impact Report / Environmental Assessment

Source: macdonald architects, 2008



EXISTING



ALTERNATIVE 2A

FIGURE 2.2-30
VIEWPOINT 3: NORTH FISHING PIER - ALTERNATIVE 2A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 2A

FIGURE 2.2-31
VIEWPOINT 4: VISTA POINT - ALTERNATIVE 2A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 2A

VIEWPOINT 5: MARIN HEADLANDS - ALTERNATIVE 2A
FIGURE 2.2-32

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 2A

FIGURE 2.2-33
VIEWPOINT 6: BOAT VIEW WEST - ALTERNATIVE 2A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

Views from the Bridge

Alternative 2A would primarily have adverse visual impacts to views from the Bridge, with the exception of a strongly adverse visual impact from Viewpoint 11 (Car View East) where the horizontal replacement of the outside handrail would comprise a larger portion of the field of view than the existing elements. Table 2.2-9 summarizes the visual impacts of Alternative 1B to views from the Bridge. Figures 2.2-34 through 2.2-38 illustrate visual impacts to views from the Bridge as a result of Alternative 2A.

Primary visual changes associated with Alternative 2A to views from the Bridge include raising the height of the outside handrail such that it would extend across a viewer's total field of view. The vertical replacement system of the outside handrail would be seen in the immediate foreground, representing a co-dominant to dominant visual feature in the landscape, depending on the viewing angle.

Overall, Alternative 2A would have moderate view blockage and low visual compatibility with the existing landscape, with the exception of moderate compatibility at Viewpoints 12 and 13 (Sidewalk North and Sidewalk South). The transparent panels at the belvederes (24 widened areas located on both the east and west sidewalks) would also be visible at views from the Bridge and would contrast with the color and materials of the Bridge. While the vertical replacement system maintains consistency with the strong verticality of the Bridge features, such as the suspender ropes, light posts, and Bridge towers, the vertical rods contrast with the horizontal line form established by the natural and built environment seen from the Bridge, such as the blue-green waters of the San Francisco Bay and the cityscape of San Francisco.

Although the vertical replacement of the outside handrail would extend across the expanded field of view, the natural landscape features, such as the open water of San Francisco Bay and the Marin Headlands would still be visible through the vertical replacement system of Alternative 2A.

Table 2.2-9 Alternative 2A: 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	Low	Co-Dominant	Moderate	Adverse
9	Car View Center	High	High	Low	Co-Dominant	Moderate	Adverse
10	Car View North	High	High	Low	Co-Dominant	Moderate	Adverse
11	Car View East	High	High	Low	Dominant	Moderate	Strongly Adverse
12	Sidewalk North	High	High	Moderate	Dominant	Moderate	Adverse
13	Sidewalk South	Outstanding	High	Moderate	Dominant	Moderate	Adverse



EXISTING



ALTERNATIVE 2A

FIGURE 2.2-34
VIEWPOINT 8: CAR VIEW WEST - ALTERNATIVE 2A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 2A

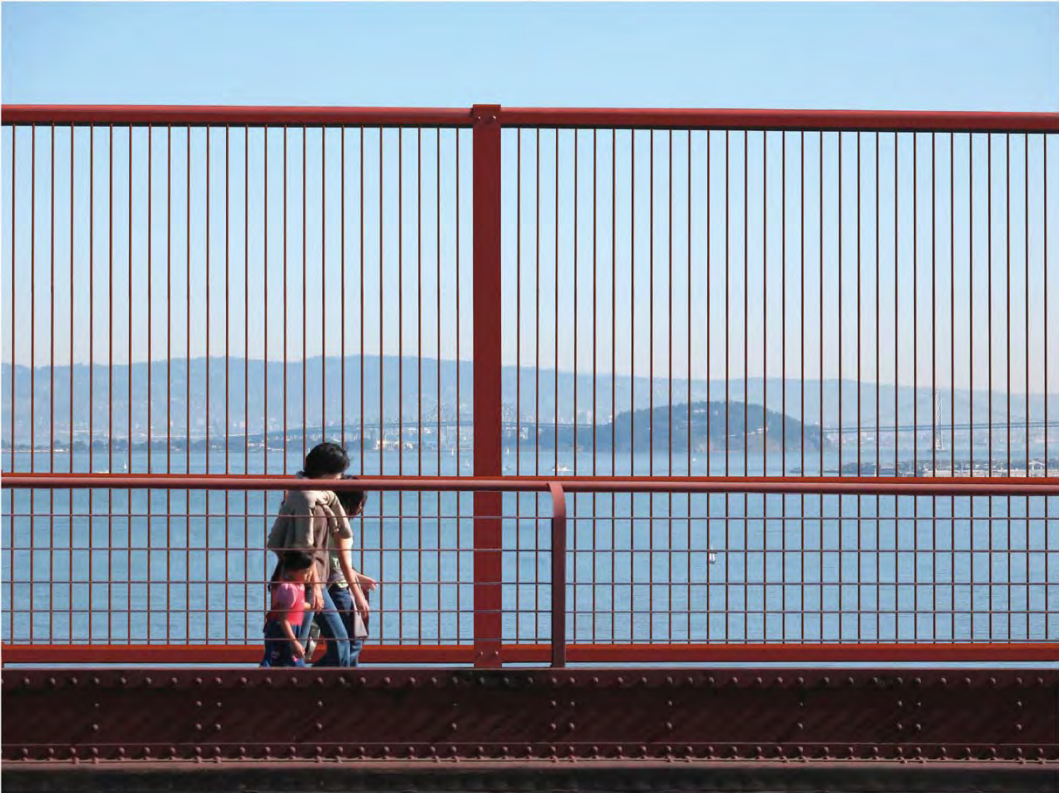
FIGURE 2.2-35
VIEWPOINT 9: CAR VIEW CENTER - ALTERNATIVE 2A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 2A

FIGURE 2.2-36
VIEWPOINT 11: CAR VIEW EAST - ALTERNATIVE 2A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING

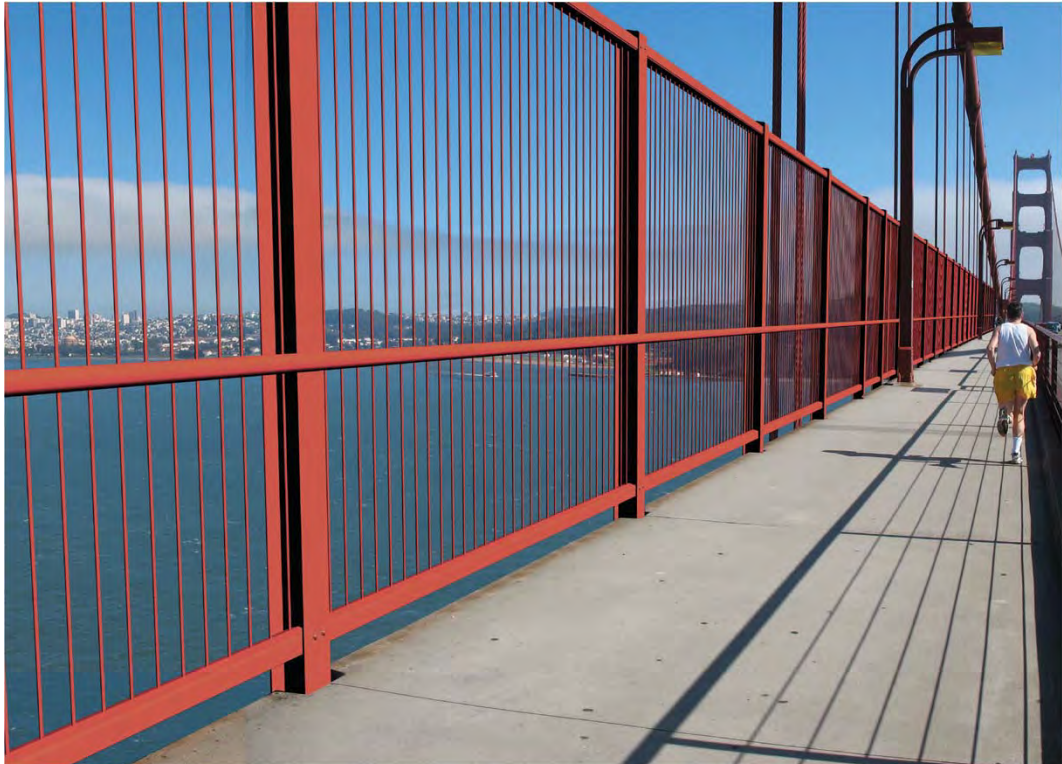


ALTERNATIVE 2A

FIGURE 2.2-37
VIEWPOINT 12: SIDEWALK VIEW NORTH - ALTERNATIVE 2A



EXISTING



ALTERNATIVE 2A

FIGURE 2.2-38
VIEWPOINT 13: SIDEWALK VIEW SOUTH - ALTERNATIVE 2A

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

Alternative 2B – Replace Outside Handrail with Horizontal System

Alternative 2B would construct a new 10-foot-high barrier consisting of 3/8-inch diameter steel horizontal cables. A rub rail would be installed at the same height as the public safety railing (4 feet 6 inches). The entire system would be constructed of steel that would be painted International Orange to match the material and color of the outside handrail. Transparent panels would be installed along the upper 6 1/2-foot portion at the belvederes and towers on both sides of the Bridge. A transparent winglet would be placed on top of the rail posts, with a slight concave curvature extending across the length of the suicide deterrent barrier, except at the north and south towers.

Views of the Bridge

In regards to the views towards the Bridge, Alternative 2B would primarily have minimally adverse visual impacts. Table 2.2-10 summarizes the overall visual impact of Alternative 2B to views of the Bridge. Figures 2.2-39 through 2.2-44 illustrates the visual impacts to views of the Bridge for Alternative 2B. However, Alternative 2B would have an adverse visual impact from Viewpoint 4 (Vista Point) because the physical suicide deterrent system would be a co-dominant visual feature in a landscape with high viewer sensitivity, altering views of the Bridge and interfering with views of the larger landscape.

Conversely, visual impacts from Viewpoint 2 (Baker Beach) would be negligible for Alternative 2B due to the distant viewing location, which affords low view blockage and high visual compatibility with the Bridge features and surrounding environment. Due to the viewing distance from the views of the Bridge and the International Orange coloring of Alternative 2B, the horizontal cables would blend into the Bridge span and the existing vertical line form created by the suspender ropes and light posts. While the replacement of the outside handrail with the horizontal system would slightly elevate the horizontal line of the outside handrail across the entire Bridge span, the overall appearance of the Bridge would not noticeably change from the views towards the Bridge.

The transparent winglet and transparent panels would introduce some reflectivity to views of the Bridge and would introduce a new material and visual texture to the Bridge; however, their transparency substantially reduces their visibility at views towards the Bridge. Overall, the primary visual change associated with Alternative 2B to views towards the Bridge would be the appearance of a higher outside railing on the Bridge with the corresponding increased International Orange coloring added to the landscape.

Table 2.2-10 Alternative 2B: Overall Visual Impact to Views of the Bridge

Viewpoint		Existing Condition		Proposed Condition			Visual Impact
No.	Location	Visual Quality	Viewer Exposure	Visual Compatibility	Visual Dominance	View Blockage	
1	Fort Point	High	High	Moderate	Subordinate	Moderate	Minimally Adverse
2	Baker Beach	Outstanding	Moderate	High	Subordinate	Moderate	Minimally Adverse
3	North Fishing Pier	Moderate	High	Moderate	Subordinate	Low	Minimally Adverse
4	Vista Point	High	High	Moderate	Co-Dominant	Moderate	Adverse
5	Marin Headlands	Outstanding	High	Moderate	Subordinate	Moderate	Minimally Adverse
6	Boat View West	High	Moderate	Moderate	Subordinate	Moderate	Minimally Adverse
7	Boat View East	High	Moderate	Moderate	Subordinate	Moderate	Minimally Adverse



EXISTING

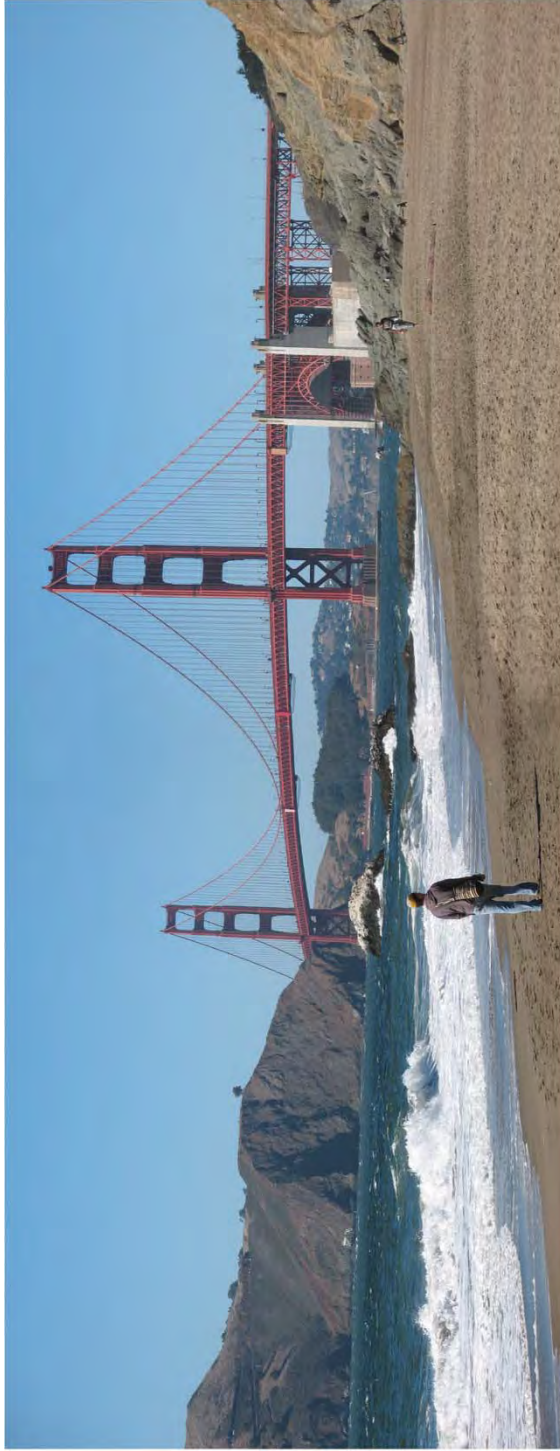


ALTERNATIVE 2B

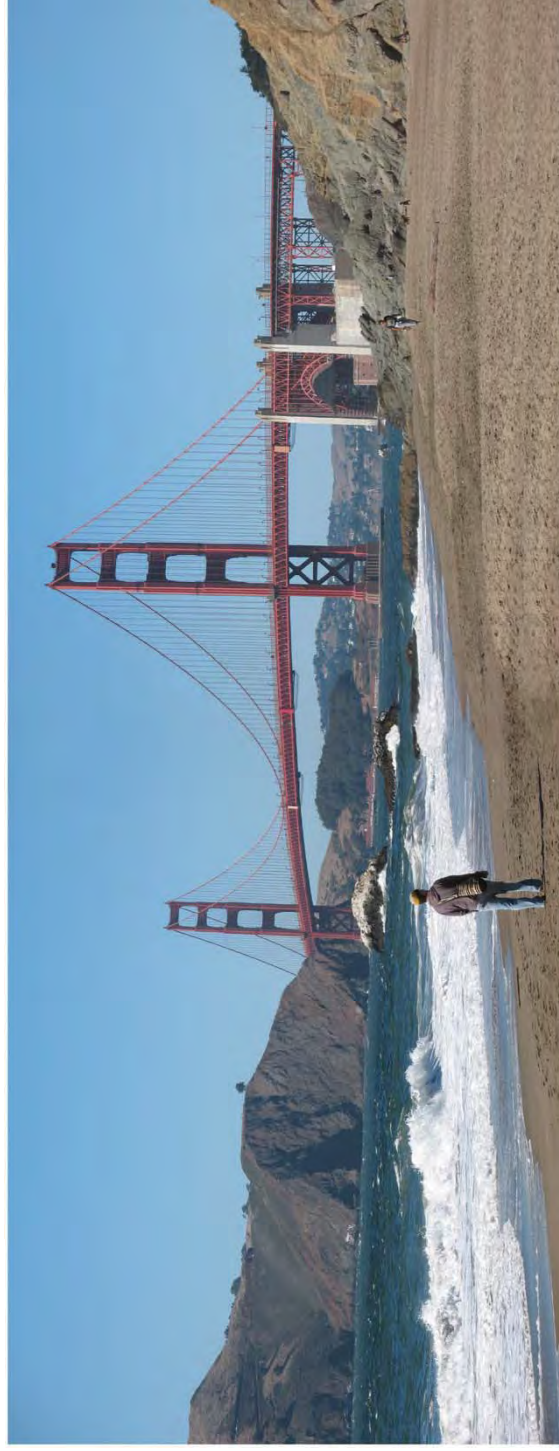
**FIGURE 2.2-39
VIEWPOINT 1: FORT POINT - ALTERNATIVE 2B**

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 2B

FIGURE 2.2-40
VIEWPOINT 2: BAKER BEACH - ALTERNATIVE 2B

Environmental Impact Report / Environmental Assessment

Source: macdonald architects, 2008



EXISTING



ALTERNATIVE 2B

**FIGURE 2.2-41
VIEWPOINT 3: NORTH FISHING PIER - ALTERNATIVE 2B**

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 2B

**FIGURE 2.2-42
VIEWPOINT 4: VISTA POINT - ALTERNATIVE 2B**

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 2B

FIGURE 2.2-43
VIEWPOINT 5: MARIN HEADLANDS - ALTERNATIVE 2B

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 2B

**FIGURE 2.2-44
VIEWPOINT 6: BOAT VIEW WEST - ALTERNATIVE 2B**

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

Views from the Bridge

Alternative 2B would primarily have adverse visual impacts to views from the Bridge, with the exception of a strongly adverse visual impact from Viewpoint 11 (Car View East) where the horizontal addition to the outside handrail would introduce the transparent winglet into the view and comprise a larger portion of the field of view than the existing elements. Table 2.2-11 summarizes the visual impacts of Alternative 2B to views from the Bridge. Figures 2.2-45 through 2.2-49 illustrate the visual impacts to views from the Bridge with Alternative 2B.

Primary visual changes associated with Alternative 2B to views from the Bridge include raising the height of the outside Bridge railing such that it would extend across a viewer's total field of view, and replacing the thick, 4-foot vertical outside handrail with thin horizontal cables. The horizontal replacement system of the outside handrail would be seen in the immediate foreground, representing a co-dominant to dominant visual feature in the landscape, depending on the viewing angle.

Overall, Alternative 2B would have moderate view blockage and low visual compatibility with the existing landscape, with the exception of moderate compatibility at Viewpoints 12 and 13 (Sidewalk North and Sidewalk South). The transparent winglet and transparent panels at the belvederes (24 widened areas located on both the east and west sidewalks) would also be visible at views from the Bridge and would contrast with the color and materials of the Bridge. While the horizontal cables are consistent with the horizontal line form established by the natural environment, such as the horizon of the blue-green waters of the San Francisco Bay and East Bay hills, the horizontal cables contrast with the vertical Bridge towers, suspender ropes and light posts on the Bridge.

Although the horizontal replacement of the outside handrail would extend across the expanded field of view for motorists, pedestrians and bicyclists on the Bridge, the natural landscape features, such as the open water of San Francisco Bay and the Marin hills would remain visible through the horizontal addition. The thin horizontal cables, transparent winglet, and transparent panels would allow the viewer to see through Alternative 1B with low to moderate view blockage.

Table 2.2-11 Alternative 2B: 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	Moderate	Co-Dominant	Low	Minimally Adverse
9	Car View Center	High	High	Low	Co-Dominant	Moderate	Adverse
10	Car View North	High	High	Low	Co-Dominant	Moderate	Adverse
11	Car View East	High	High	Low	Dominant	Moderate	Strongly Adverse
12	Sidewalk North	High	High	Moderate	Dominant	Moderate	Adverse
13	Sidewalk South	Outstanding	High	Moderate	Dominant	Moderate	Adverse



EXISTING



ALTERNATIVE 2B

**FIGURE 2.2-45
VIEWPOINT 8: CAR VIEW WEST - ALTERNATIVE 2B**

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 2B

**FIGURE 2.2-46
VIEWPOINT 9: CAR VIEW CENTER - ALTERNATIVE 2B**

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 2B

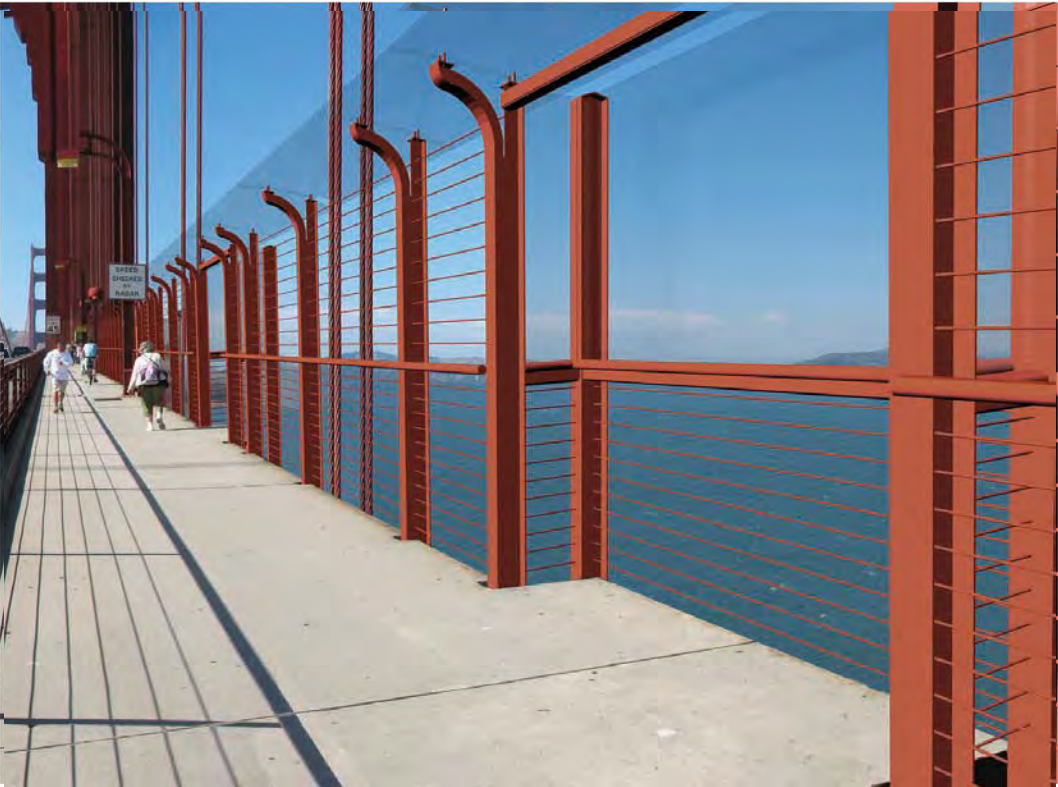
**FIGURE 2.2-47
VIEWPOINT 11: CAR VIEW EAST - ALTERNATIVE 2B**

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



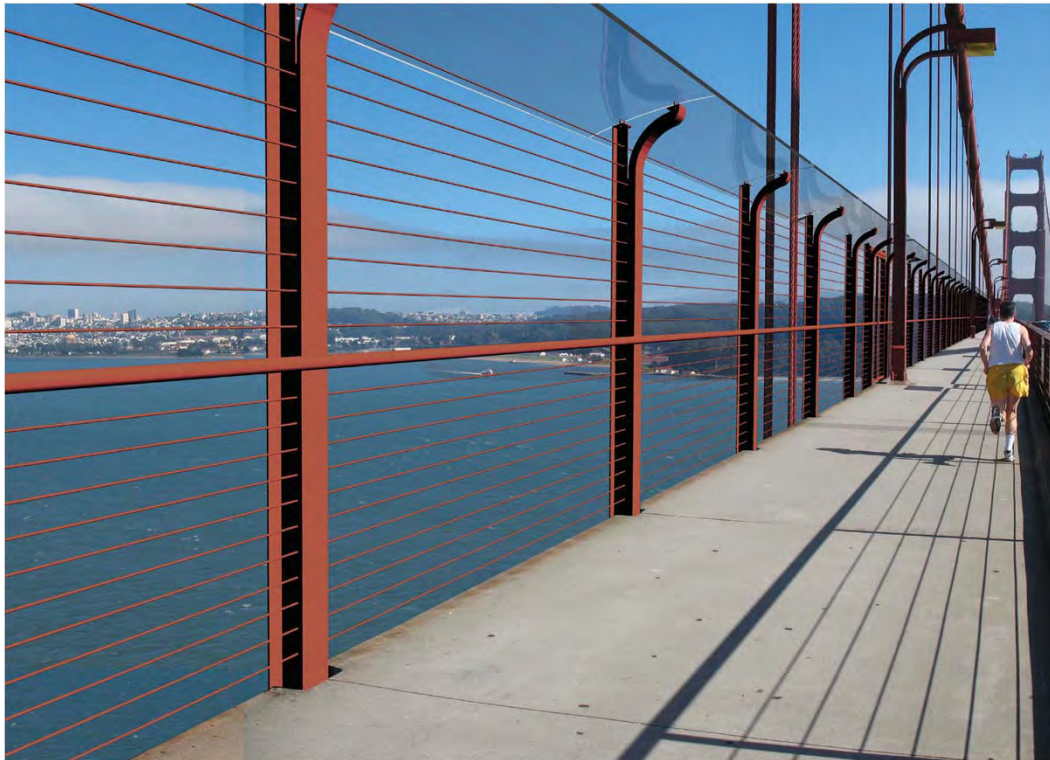
ALTERNATIVE 2B

VIEWPOINT 12: SIDEWALK VIEW NORTH - ALTERNATIVE 2B

FIGURE 2.2-48



EXISTING



ALTERNATIVE 2B

**FIGURE 2.2-49
VIEWPOINT 13: SIDEWALK VIEW SOUTH - ALTERNATIVE 2B**

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

Alternative 3 – Add Net System (Preferred Alternative)

This alternative would construct a horizontal net system approximately 20 feet below the sidewalk and approximately 5 feet above the bottom chord of the exterior main truss that would extend horizontally 20 feet from the Bridge. While the steel horizontal support system would be painted to match the International Orange color of the existing Bridge structure, the net material would be unpainted and uncoated stainless steel, in response to comments received on the Draft EIR/EA. In order to reduce visual impacts and in response to comments received on the Draft EIR/EA and consultation with the State Historic Preservation Officer (SHPO) and Advisory Council on Historic Preservation (ACHP), a vertical barrier, painted International Orange, would be constructed along the 300-foot length of the North Anchorage Housing, rather than extending the net around the concrete pylon. Refer to Chapter 1, Proposed Project, for a detailed description of Alternative 3 and refinements to Alternative 3.

Views of the Bridge

Visual impacts associated with Alternative 3 (Preferred Alternative) to views of the Bridge would generally be minimally adverse, with negligible visual impacts from Viewpoints 2 (Baker Beach) and 3 (North Fishing Pier). Table 2.2-12 summarizes the visual impacts of Alternative 3 to views of the Bridge. Figures 2.2-50a through 2.2-55b illustrate the visual impacts to views of the Bridge with Alternative 3. Figures 2.2-50b, 2.2-53b, and 2.2-55b illustrate the visual impacts to views of the Bridge with the refinements to Alternative 3.

At the North Anchorage Housing, a vertical barrier painted International Orange would be installed along the 300-foot length of the North Anchorage Housing in lieu of the net. The barrier would extend 8 feet vertically from the top of the 4-foot-high concrete wall on the North Anchorage Housing for a total height of 12 feet. This barrier would be slightly visible from Viewpoints 3 and 6, but would not block views of the Marin Headlands, thus view blockage would be low. It would not be visible from Viewpoints 1, 2, and 5 because of the location of these viewpoints relative to the North Anchorage Housing. At Viewpoint 4, the vertical barrier would be obscured, as it would align with the vertical plan of the concrete pylon in the foreground, as shown on Figure 2.2-53b.

The primary visual change associated with Alternative 3 (Preferred Alternative) would be the introduction of a strong horizontal element to the outside of the Bridge in contrast to the existing verticality of the Bridge. While the horizontal support system would be painted International Orange to match the existing Bridge structure, the net would be unpainted and uncoated stainless steel. The unpainted and uncoated stainless steel

would be less visually intrusive than the International Orange coloring, as it would blend with the coloring of the water of the San Francisco Bay and skyline and would not visually intrude into the existing landscape.

Without the refinements to the net color and vertical barrier (discussed in Chapter 1, Proposed Project) at the North Anchorage Housing, Alternative 3 would have had an adverse visual impact from Viewpoint 4, as the net would have been visible across the total field of view. The projection of the net would have disrupted the continuous horizontal line of the Bridge form extending across the San Francisco Bay. It would have also broken up the vertical plane of the concrete pylon. Replacement of the net at the North Anchorage Housing with the vertical barrier would minimize the adverse effects by using a much less visually intrusive vertical barrier for this portion of the project, leaving the solid surface of the North Anchorage Housing wall unchanged.

From the majority of viewpoints towards the Bridge, Alternative 3 would be a subordinate visual feature with low to moderate visual compatibility and low view blockage, representing minimally adverse visual impacts. From the views of the Bridge, the Bridge would remain the dominant feature. Visual impacts associated with Alternative 3 would be negligible from Viewpoints 2 and 3 due to the distant viewer location and upward viewing angle, respectively.

Table 2.2-12 Alternative 3 (Preferred Alternative): Overall Visual Impact to Views of the Bridge

Viewpoint		Existing Condition		Proposed Condition			Visual Impact
No.	Location	Visual Quality	Viewer Exposure	Visual Compatibility	Visual Dominance	View Blockage	
1	Fort Point	High	High	Low	Subordinate	Moderate	Minimally Adverse
2	Baker Beach	Outstanding	Moderate	High	Subordinate	Low	Negligible
3	North Fishing Pier	Moderate	High	High	Subordinate	Low	Negligible
4	Vista Point	High	High	Low	Co-Dominant	Low	Minimally Adverse
5	Marin Headlands	Outstanding	High	Moderate	Subordinate	Low	Minimally Adverse
6	Boat View West	High	Moderate	Moderate	Subordinate	Low	Minimally Adverse



EXISTING



ALTERNATIVE 3

FIGURE 2.2-50a
VIEWPOINT 1: FORT POINT - ALTERNATIVE 3

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING

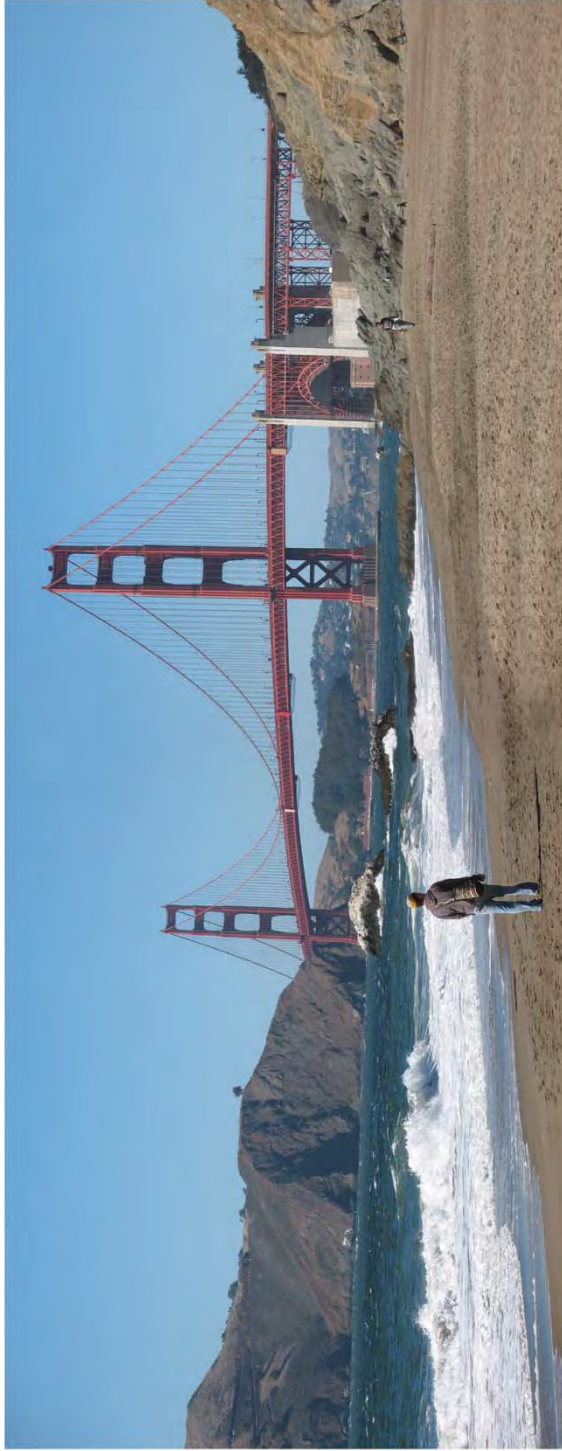


ALTERNATIVE 3

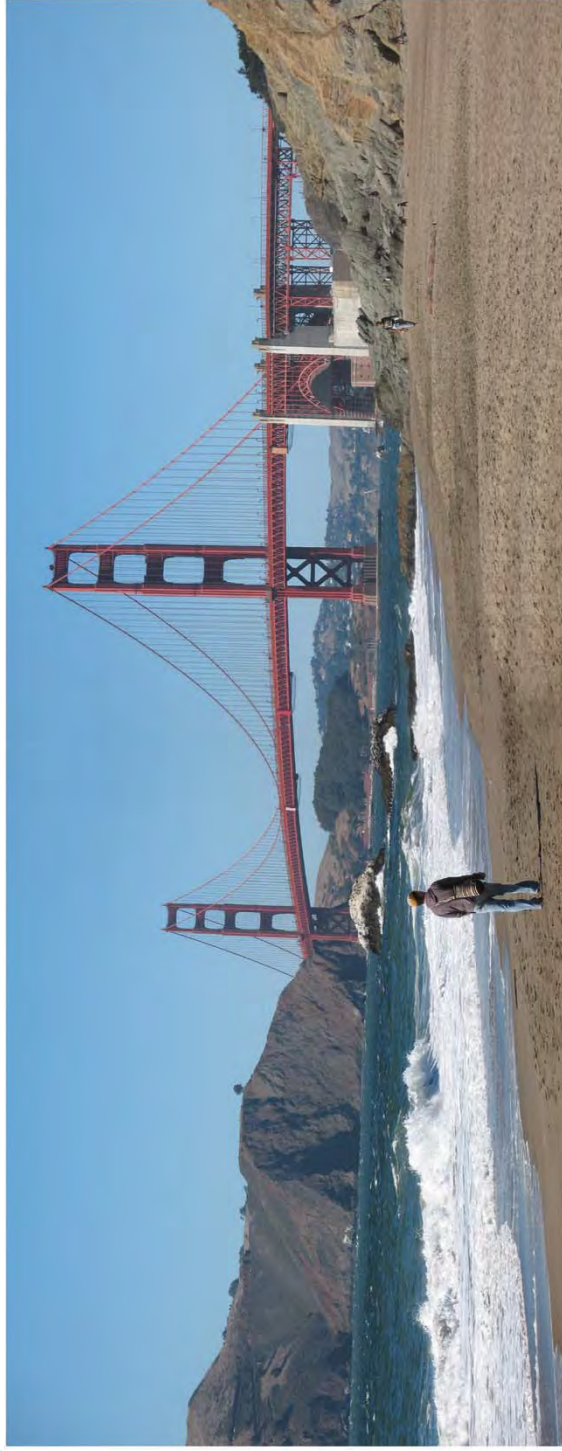
FIGURE 2.2-50b
VIEWPOINT 1: FORT POINT - REFINEMENTS TO ALTERNATIVE 3

Source: macdonald architects, 2009

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 3

FIGURE 2.2-51
VIEWPOINT 2: BAKER BEACH - ALTERNATIVE 3

Environmental Impact Report / Environmental Assessment

Source: macdonald architects, 2008

Golden Gate Bridge Physical Suicide Deterrent System



EXISTING



ALTERNATIVE 3

FIGURE 2.2-52a
VIEWPOINT 3: NORTH FISHING PIER - ALTERNATIVE 3

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

Golden Gate Bridge Physical Suicide Deterrent System



EXISTING



ALTERNATIVE 3

VIEWPOINT 3: NORTH FISHING PIER - REFINEMENTS TO ALTERNATIVE 3

FIGURE 2.2-52b

Source: macdonald architects, 2009.



EXISTING



ALTERNATIVE 3

FIGURE 2.2-53a
VIEWPOINT 4: VISTA POINT - ALTERNATIVE 3

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 3

VIEWPOINT 4: VISTA POINT - REFINEMENTS TO ALTERNATIVE 3

FIGURE 2.2-53b

Source: macdonald architects, 2009

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 3

FIGURE 2.2-54
VIEWPOINT 5: MARIN HEADLANDS - ALTERNATIVE 3

Golden Gate Bridge Physical Suicide Deterrent System



EXISTING



ALTERNATIVE 3

FIGURE 2.2-55a
VIEWPOINT 6: BOAT VIEW WEST - ALTERNATIVE 3

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment



EXISTING



ALTERNATIVE 3

FIGURE 2.2-55b
VIEWPOINT 6: BOAT VIEW WEST - REFINEMENTS TO ALTERNATIVE 3

Source: macdonald architects, 2009

Environmental Impact Report / Environmental Assessment

Views from the Bridge

As Alternative 3 (Preferred Alternative) would be located beneath the Bridge span, with the exception of the International Orange vertical barrier along the 300-foot length of the North Anchorage Housing, it would have a negligible visual impact to most views from the Bridge. Alternative 3 would not generally be visible to motorists, pedestrians and bicyclists on the Bridge due to its lowered location. The vertical barrier along the North Anchorage Housing, representing 3 percent of the entire Bridge length, would interrupt motorists' views from the Bridge for approximately 5 seconds and pedestrian views for approximately 1 to 1 1/2 minutes. Alternative 3 would be visible looking down from the sidewalk when viewers stand adjacent to the main towers as illustrated by Viewpoint 14.

Alternative 3 would introduce a horizontal element that would visually widen the base of the Bridge. While the net would be uncoated and unpainted stainless steel, the horizontal nature of the net would contrast with the strong verticality of the suspender ropes, light posts and Bridge towers, representing low visual compatibility.

From Viewpoint 14, Alternative 3 would not substantially block views of the surrounding landscape. The net would disrupt a small portion of the views towards San Francisco Bay looking down from the Bridge, while views of the exterior of the Bridge would remain undisturbed due to the location of the net. View blockage would be limited to downward viewing angles, demonstrating moderate view blockage. Thus, from Viewpoint 14, Alternative 3 would constitute an adverse visual impact.

Table 2.2-13 summarizes the overall visual impact to the views from the Bridge as a result of Alternative 3. Figure 2.2-56 illustrates the visual impact of Alternative 3 from the Bridge at Viewpoint 8 (Car View West). Viewpoint 8 is representative of a motorist's view of Alternative 3 from the Bridge. While the net would not be visible from Viewpoint 8, Figure 2.2-56 illustrates the modification to the outside handrail on the west side of the Bridge between the two main towers that would be completed as part of the previously approved Seismic Retrofit Project that would be implemented prior to the installation of Alternative 3.

Figures 2.2-57a and 2.2-57b illustrate the visual impact of Alternative 3 with and without the refinements to Alternative 3 (net color and vertical barrier) from the Bridge at Viewpoint 14 (Bridge Tower). As Alternative 3 would not be visible at the other views from the Bridge (Viewpoints 9 to 13), the visual character of Alternative 3 would be identical to that of the existing condition at these viewpoints. Refer to the existing conditions photographs in Figures 2.2-45 through 2.2-49.

Table 2.2-13 Alternative 3 (Preferred Alternative): 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	Not Visible	Not Visible	None	Negligible
14	Bridge Tower	High	High	Low	Co-Dominant	Moderate	Adverse

No-Build Alternative

While the No-Build Alternative would continue current suicide deterrent program operations on the Bridge, it 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 and views from the roadway would also remain the same as under existing conditions.

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.



EXISTING



ALTERNATIVE 3

FIGURE 2.2-56
VIEWPOINT 8: CAR VIEW WEST - ALTERNATIVE 3

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

Golden Gate Bridge Physical Suicide Deterrent System



EXISTING



ALTERNATIVE 3

FIGURE 2.2-57a
VIEWPOINT 14: BRIDGE TOWER - ALTERNATIVE 3

Source: macdonald architects, 2008

Environmental Impact Report / Environmental Assessment

Golden Gate Bridge Physical Suicide Deterrent System



EXISTING



ALTERNATIVE 3

FIGURE 2.2-57b
VIEWPOINT 14: BRIDGE TOWER - REFINEMENTS TO ALTERNATIVE 3

Source: macdonald architects, 2009

Environmental Impact Report / Environmental Assessment

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. 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 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, as the unpainted and uncoated stainless steel would appear transparent against the blue green water of the San Francisco Bay.

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

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

Alternative 3 (Preferred Alternative), 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 vertical barrier, painted International Orange, at the North Anchorage Housing as part of the refinement to Alternative 3 would reduce visual effects from Viewpoint 4, Vista Point, as the vertical barrier would maintain the continuous vertical line form of the Bridge and would not interrupt the vertical plane of the concrete pylon at the North Anchorage Housing.

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).

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, 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.

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). The Department, in consultation and coordination with the ACHP, SHPO, the District, and other consulting parties, including the GGNRA, the National Trust for Historic Preservation, Docomomo, and the San Francisco Architectural Heritage, has executed an MOA for the project.

The MOA, included as Appendix G, contains the various mitigation treatments agreed to by the signatory parties to address the adverse effects of the undertaking on the Bridge historic property. The treatments include:

- Design details for the Preferred Alternative will include International Orange paint color on the suicide deterrent system supports, with an unpainted and uncoated stainless steel net material; as well as a vertical barrier installed along the North Anchorage Housing rather than extending the net structure across the face of the housing;
- The existing Golden Gate Bridge historic property Historic American Engineering Record (HAER) documentation will be updated and expanded to include east and west outside railings, the concrete railing at the north pylon and exterior trusses of the Bridge. This documentation will be coordinated with the NPS Western Region Office;
- A National Historic Landmark (NHL) nomination for the Golden Gate Bridge historic property will be completed and submitted to the NHL program within one year of the implementation of the undertaking;
- An educational brochure will be prepared and distributed. It will focus on the historic elements of the Bridge affected by the undertaking;
- Interpretive displays will be created for installation at the Round House Gift Center and the Vista Point to describe the undertaking during construction;
- The remainder of the Bridge, as well as the Fort Point National Historic Site, will be protected during construction of the undertaking;
- Inadvertent damage to the Bridge, or to the Fort Point National Historic Site, will be repaired in accordance with the Secretary of the Interior's Standards for Rehabilitation.

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, specifically 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 the property is 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. A records search was requested at the Northwest Information Center in March 2007. Records of 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 were reviewed 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. 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 prepared for the Seismic Retrofit Project, and the 1997 National Historic Landmark nomination. The Focused APE for the current project includes the main Bridge structure (Bridge 27 0052), and two contributing elements: the Round House Gift Center and the Toll Plaza Undercrossing (Bridge 34 0069). Through consultation with Alicia Otani, PQS Principal Architectural Historian, Department District 4, and Jennifer Darcangelo, Chief Office of Cultural Resource Studies, Department District 4, an inventory and evaluation update strategy was designed for the property to recognize the extensive information provided in the previous studies and to augment that work with current descriptions of changes to the property since the mid 1990s. Historians conducted fieldwork at the Bridge on May 8, 2007, and November 20, 2007, to collect updated recordation information and to photograph the property.

Historians prepared the DPR 523 form update to present: a summary of previous inventory and evaluation efforts, an updated inventory and evaluation of the Toll Plaza Undercrossing (34 0069), and confirmation of the current historic status and character-defining features of the Bridge. Digitized copies of the previous survey forms for the property 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, graveled or otherwise disturbed 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 structure is Bridge 34 0069. The Bridge historic property was determined eligible for listing in the National Register of Historic Places (NRHP) in 1980. The consensus determination by the United States Department of Interior in 1980 found the Bridge significant, at the national level, under NRHP Criterion A, Criterion B and Criterion C, as defined in 36 CFR Part 60.4 (National Register of Historic Places Criteria for Evaluation), with a period of significance of 1933-1938. Subsequent detailed analysis by the NPS 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.

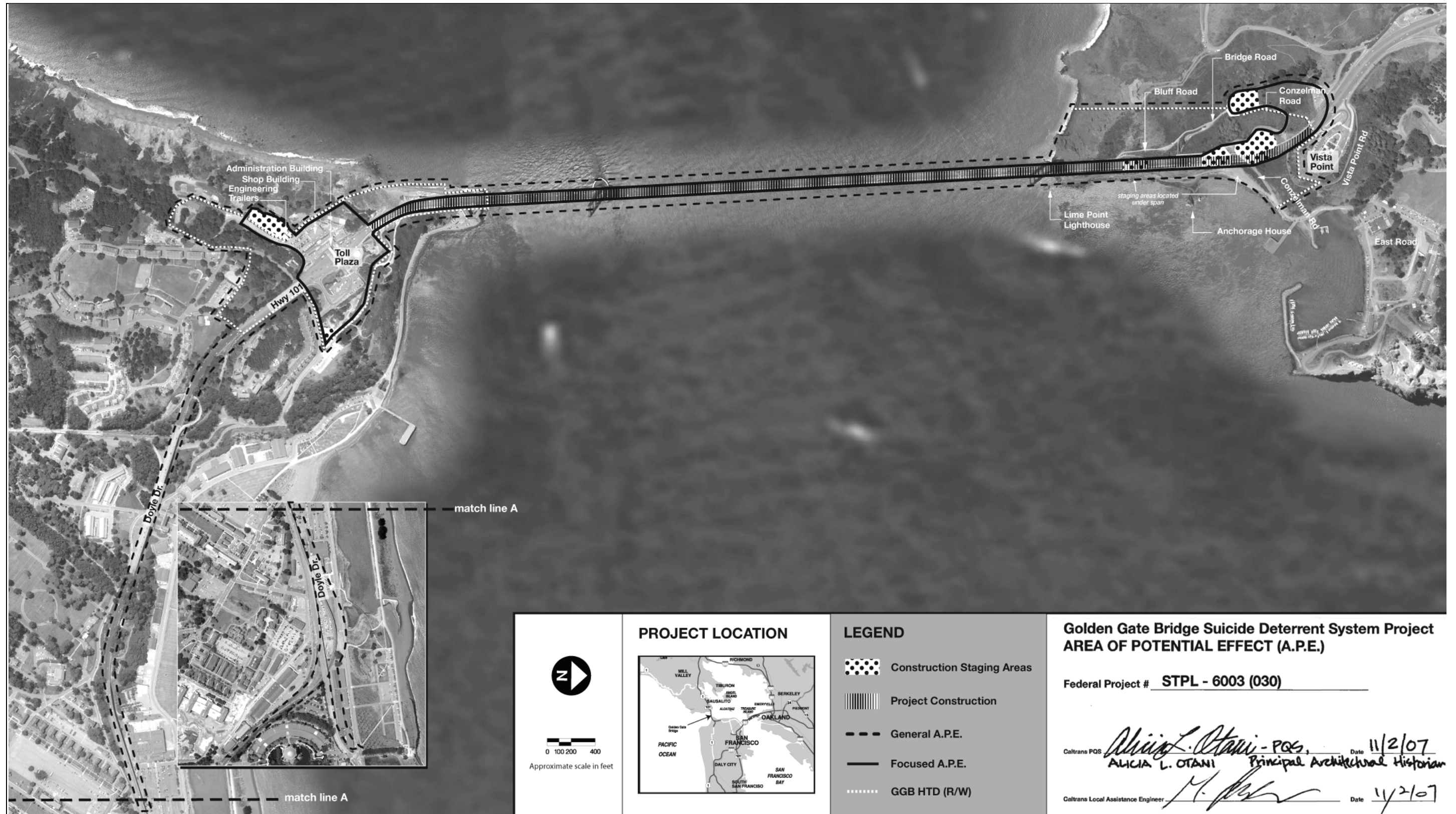


FIGURE 2.3-1
GENERAL AND FOCUSED AREAS OF POTENTIAL EFFECT FOR HISTORIC ARCHITECTURAL RESOURCES

This page intentionally left blank

Although the NHL nomination was prepared in 1997, the Bridge has not yet been listed as an NHL. The Bridge is listed in the California Register of Historical Resources (CRHR) because it was designated California State Landmark No. 974 in 1987. The Bridge is 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 (Presidio NHL), a district largely outside the Focused APE for this project. The Focus APE overlaps the Presidio NHL at the Toll Plaza area. 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 of the Golden Gate strait 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 elements 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 undercrossing is also listed on the NRHP as a contributing element of the Presidio NHL. 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 of the Bridge historic property 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 historic 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, and it clearly conveys its significance as an excellent example of the integration of architectural styling with 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). 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 (Preferred Alternative) would cause direct adverse effects to the Bridge historic property, which has been determined eligible for listing in the NRHP. 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 or exterior truss). The alternatives would also cause indirect adverse effects, including introduction of visual elements out of character with the property; change

in the character of its use as an historic property; addition of barrier systems where none were originally; use of non-historic materials (transparent panels, winglets, metal rods, or cable netting), and/or 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 alterations to part of the property. Effects would consist of alteration of posts at the east and west outside railings, and alteration 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 the historic property. 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 alterations to part of the property. Effects would include alteration of posts of the east and west outside railings, and alteration 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 the historic property. 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 alternations to part of the property, namely replacement 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 the historic property. 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 alternations to part of the property, namely replacement 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 the historic property. Alterations would include removal of east and west outside railings and installation of a 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 the 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 (Preferred Alternative)

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

- Direct Adverse Effect to Bridge character-defining features through alteration of the historic property. The original historic concrete wall and steel handrail will remain. A small portion of non-historic chain link fencing would be replaced. Alterations would include installation of a horizontal net approximately 20 feet below the sidewalk and approximately 5 feet above the bottom chord of the exterior main truss. The net would extend horizontally approximately 20 feet from the Bridge and be covered with stainless steel cable netting incorporating a grid between 4 inches and 10 inches. Adverse Effect (36 CFR 800.5 (a) (2)) (ii). Alternative 3 would not meet the following SOI Rehabilitation Standards: Standard 1, more than minimal change to distinctive features, spaces, and spatial relationships; Standard 2, alteration of character-defining features, spaces, and spatial relationships; Standard 9, destroys historic spatial relationships.

- Direct Adverse Effect to Bridge character-defining features through alteration of the historic property. Alterations would include installation of a vertical barrier along the approximately 300-foot length of the North Anchorage Housing. Adverse Effect (36 CFR 800.5(a)(2))(ii). Alternative 3 would not meet the following SOI Rehabilitation Standards: Standard 1, more than minimal change to distinctive features, spaces, and spatial relationships; Standard 2, alteration of character-defining features, spaces, and spatial relationships.
- 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. Introduction of a vertical barrier at the North Anchorage Housing would also cause an indirect adverse effect by introducing a new visual element that diminish the integrity of the property's significant historic features. Adverse Effect (36 CFR 800.5 (a) (2)) (ii) and (v).

Construction of Alternative 3 (Preferred Alternative) 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

This project has included on-going consultation with ACHP, OHP, the Department, and other consulting parties, including the GGNRA, the National Trust for Historic Preservation, Docomomo, and the San Francisco Architectural Heritage, to develop ways to avoid, minimize, and mitigate project effects on the Bridge historic property. This consultation identified potential design detail refinements that will help minimize the potential indirect adverse effects of Alternative 3 (Preferred Alternative), which have included construction of the horizontal net structure across the North Anchorage Housing exterior wall (Adverse Effect (36 CFR 8000.5 (a)(2)) (ii) and (v)). This design detail developed through consultation proposes installation of about 300 linear feet of a vertical barrier at the top of the North Anchorage Housing, instead of constructing the horizontal net structure along the face of the housing. This design detail refinement will help minimize the adverse effects of the alternative by using a much less visually intrusive vertical barrier for this portion of the project, leaving the solid surface of the housing wall unchanged. Minimization of potential

adverse effects is consistent with continued consultation requirements under 36 CFR 800.6 (a) and (b), Resolution of Adverse Effects.

This consultation also considered the color of the net and the steel horizontal support system. While the support system will be International Orange to match the existing Bridge structure, the net will be unpainted and uncoated stainless steel. This design detail refinement will help minimize the adverse effects of the alternative by selecting a net color that is less visually intrusive. Minimization of potential adverse effects is consistent with continued consultation requirements under 36 CFR 800.6 (a) and (b), Resolution of Adverse Effects.

An 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 No-Build Alternative will not affect the historic property.

The MOA stipulates various mitigation activities that will be conducted to avoid, minimize, and mitigate 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 photographs will specifically include the existing east and west outside railings, concrete railing at the north pylon (North Anchorage Housing), and exterior trusses of the Bridge.

The Department will ensure that the photographs will be processed for archival permanence in accordance with Historic American Engineering Record (HAER) photographic specifications. The recordation will follow the 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.

The Department will ensure that copies of the documentation will be offered to the San Francisco Public Library, Marin County Free Library, Environmental Design Archives (UC Berkeley), GGNRA, Presidio Trust, and the Department's Transportation Library and History Center at Department Headquarters in Sacramento.

- During the project approval process, the Department will ensure that within one year of project implementation, the District will complete and submit a National Historic Landmark nomination for the Bridge to the National Historic Landmarks Program at the NPS.
- The Department will ensure that an educational brochure will be prepared presenting information on the historic elements of the Bridge 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 GGNRA locations, and online at the District Web site (www.goldengate.org) during the construction period.

The Department will ensure that copies of *The Golden Gate Bridge Report of the Chief Engineer*, Volume II (2007) will be provided to libraries and repositories at the San Francisco 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.
- 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 protect 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. The Department will ensure that these reports will be provided to the District, the SHPO, and GGNRA, the property owner.

2.4 BIOLOGICAL ENVIRONMENT

The following description and evaluation of biological resources in the project area summarizes information contained in the Revised Natural Environmental Study (NES) prepared in July 2009 and Avian Impact Study prepared in April 2009 and revised in November 2009. 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 (CNDDDB) 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.

Following the public circulation of the Draft EIR/EA, the Avian Impact Study was prepared to further evaluate the potential adverse effects to avian (bird) species from installation of Alternative 3 (Preferred Alternative). The Avian Impact Study conducted background research to identify existing information regarding bird use of the Bridge and surrounding area and bird collision data for bridges or other similar structures. Bird movement patterns on, under, over, and around the Bridge were documented and developed as a visual model of bird use for specific portions of the Bridge structure. The Avian Impact Study also identified bird behavior adjacent to the footprint of Alternative 3 (Preferred Alternative) to assess whether the net system would have the potential to cause any changes in the behavior, or cause injury or death, to any birds.

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 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 on the north side of the Bridge 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 fifth proposed staging area on GGNRA land located in the Presidio is within a paved parking lot.

The staging areas located within the GGNRA north of the Bridge 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 lasalepis*), 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 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 CNDDDB 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 on GGNRA lands located north of the Bridge 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 on GGNRA land located in 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), will work in consultation with GGNRA Natural Resource staff and implement and oversee the below activities/measures.

- The biological ECM will flag and stake native vegetation near the staging areas on 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.

Measure 2: The District will provide specifications for erosion and dust control to the Contractor, which will be implemented.- This erosion and dust control will be reviewed and approved by GGNRA Natural Resource staff.

2.4.2 PLANT SPECIES

Regulatory Setting

The 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 are 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 Section 2.4.4, Threatened and Endangered Species, 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 on the north side of the Bridge 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 on GGNRA land located within the Presidio on the south side of the Bridge 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 on the north side of the Bridge 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, 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. Appendix E includes a letter from the District documenting that the project would not result in the take of a special-status species and Appendix F provides a list of special-status species documented in the project area for which the project would have no effect.

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), will work in consultation with

GGNRA Natural Resources staff and implement and oversee the below activities/measures.

- The biological ECM will flag and stake native vegetation near the staging areas on 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.

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.

2.4.3 ANIMAL SPECIES

Regulatory Setting

Many states and federal laws regulate impacts to wildlife. The USFWS, the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the 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, Threatened and Endangered Species. 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 Policy Act
- Migratory Bird Treaty Act
- Federal Endangered Species 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
- California Endangered Species Act

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.

The Avian Impact Study documented bird flight patterns and behavior within the vicinity of the Bridge. During standardized surveys, observations were recorded for 3,797 birds between December 19, 2008 and February 20, 2009. Of the birds observed, 73 percent of the birds utilizing the area around the Bridge were gulls, which are accustomed to flying around the Bridge structure. Gulls are also common avian species and their populations are not likely to be affected by any hazards introduced by the Bridge structure. However, a small percentage (1 percent) of sensitive avian species were documented regularly during the surveys, including peregrine falcon (a state Endangered species (and Candidate for Delisting)), double-crested cormorant, red-tailed hawk, and brown pelican. These sensitive avian species are considered likely residents of the area.

The surveys and observations demonstrated that the birds tended to pass over the Bridge roadway in the central and southern portions of the Bridge and avoided flying close to the two main Bridge towers. The majority of the

birds tended to fly at a north-south pattern along the roadway to a point where they could easily cross through the Bridge cross-section by traversing over the cables at their lower portions. At the northern end of the Bridge, birds tended to fly along the curve of the Marin Headlands and likely crossed over the Bridge far north of the Bridge's north tower. More birds were observed traveling east (68 percent) than west (30 percent). The average flight height for such birds was recorded at 73 feet above the roadway on the Bridge. While numerous birds would fly through the Bridge structure, only those that landed on the Bridge structure at roadway level would come within the footprint for Alternative 3 (Preferred Alternative). These birds included red-tailed hawk, American crow, and rock dove. The peregrine falcon was not observed at roadway level, but was observed on the north and south Bridge tower and on the main cable about 20 feet south of the north tower. With the exception of the brown pelican, the sensitive avian species were also observed nesting on or in the vicinity of the Bridge structure.

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, as documented in the Avian Impact Study.

Environmental Consequences

Four of 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 fifth proposed staging area within GGNRA lands and 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.

As part of the alternative evaluation process, five build alternatives were evaluated in the Draft EIR/EA process. Under Alternatives 1A, 1B, 2A, and 2B, the use of vertical transparent panels were considered for the physical suicide deterrent system, which could create a potential for bird collisions. With Alternatives 1A, 1B, 2A, and 2B, 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. Alternative 3, selected by the District's Board as the Preferred Alternative, would not use vertical transparent panels. It was determined that these alternatives would have greater impacts on birds than the Preferred Alternative and they were not further addressed in the Avian Impact Study.

Under Alternative 3, the Preferred 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 horizontal netting would extend out 20 feet from the Bridge and be located approximately 20 feet below the Bridge sidewalk. While no transparent panels would be used, the horizontal netting could result in an adverse effect to avian species traveling through or nesting on or within the vicinity of the Bridge.

Based on the field surveys and background research, Alternative 3 would have the potential to adversely affect migrating and nesting birds beyond that of the existing Bridge structure, as migrating birds may collide with the net, particularly during inclement weather. Birds may also be lured to nest or perch in an inappropriate spot on or adjacent to the net where mortality risk is high.

The net could create a collision hazard to birds flying over, under, or parallel to the Bridge. Observations made during daylight hours with high visibility have shown that birds do not typically fly in a trajectory in which they would be likely to collide with the net. However, during periods of low visibility and at night, particularly during migration, birds may be unable to see the Bridge structure or the horizontal netting, as their flight trajectories may be varied, increasing the likelihood for collisions. While the nighttime lighting required to illuminate the Bridge structure for motorists and low flying aircraft may light the horizontal netting, birds may be attracted to the lights on the Bridge and may collide with the Bridge structure or horizontal netting. However, collisions with the Bridge structure would be more likely than collisions with the net due to the overall relatively larger size of the Bridge in comparison to the net. While the net is not anticipated to substantially increase mortality associated with bird collisions beyond that which may already occur, implementation of the measures identified below

would reduce potentially adverse effects related to bird collisions with Alternative 3.

Alternative 3 would also have the potential to become an attractive nesting area for birds. Birds may use the horizontal netting for perching or building nests, as they may perceive the net to be suitable for nesting. However, due to the design of the horizontal netting, the nests may fail or young perching on the net may fall into the San Francisco Bay and drown. Based on the background review conducted as part of the Avian Impact Study, there is evidence that most peregrine falcon young fall into roadway or into water from nests built on bridges. Thus, the horizontal netting under Alternative 3 may increase the area available for this potential adverse effect and hazard for such bird species. Implementation of the measures identified below would reduce potentially adverse effects related to bird nesting hazards associated with Alternative 3.

Appendix E includes the Department's informal consultation with the USFWS, indicating that the project, including implementation of the avoidance, minimization, and mitigation measures included in Section 2.4, Biological Environment, and Section 3.3, Mitigation Measures for Significant Impacts Under CEQA, would not affect listed species. Appendix E also includes a letter from the District documenting that the project would not result in the take of a special-status species and Appendix F provides a list of special-status species documented in the project area for which the project would have no effect.

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 work in consultation with the USFWS and GGNRA Natural Resources staff and Caltrans and 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: 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 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.

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 patterns of bird strike, such as the time of day and visibility conditions. In coordination with the CDFG, USFWS and Caltrans, 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.

Measure 8: Ongoing through project operation, 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.

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.

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, 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.

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 States 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 FHWA, are required to consult with

the 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.” The Department’s informal consultation with the USFWS is included in Appendix E.

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 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. Appendix E includes a letter from the District documenting that the project would not result in the take of a special-status species and Appendix F provides a list of special-status species documented in the project area for which the project would have no effect.

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. Three are gravel areas located under the northern span of the Bridge, which are currently being used for similar staging and maintenance activities. The final one is a proposed construction staging area on GGNRA lands located within the Presidio in a location that is a paved parking lot, located just west of the toll plaza off Merchant Road.

Four of the 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 (October 1995) was prepared (pursuant to the requirements of Section 7 of the Federal Endangered Species Act) and a subsequent Biological Opinion was issued by the USFWS in August 1995 and amended in April 1996.

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 located north of the Bridge 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 with increased dust levels. However, the use of the staging areas within GGNRA lands located north of the Bridge 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.

As included in Appendix E, the Department's informal consultation with the USFWS under Section 7 documents that the project, including the incorporation of the avoidance, minimization, and/or mitigation measures listed below, would not affect listed species. Appendix E and Appendix F

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

also include a no effect and no take determination in regards to special-status species.

Avoidance, Minimization and/or Mitigation Measures

The following avoidance, minimization, and/or mitigation measures have been developed through ongoing coordination with the GGNRA, consultation with the USFWS, recommendations of the Revised Natural Environment Survey (July 2009) prepared as part of this project, and existing measures implemented as part of the Golden Gate Bridge Seismic and Wind Retrofit Project. Appendix E includes the Department's informal consultation with the USFWS indicating that the project, including implementation of the avoidance, minimization, and mitigation measures, would not affect listed species. Appendix E also includes a letter from the District documenting that the project would not result in the take of a special-status species and Appendix F provides a list of special-status species documented in the project area for which the project would have no effect.

As described below, to avoid impacts to Mission blue butterfly, the avoidance measures currently being implemented as part of the Golden Gate Bridge Seismic and Wind Retrofit Project would continue to be implemented as part of this project. Avoidance Measures 1, 2 and 3, as listed below, are currently being implemented to protect the species as part to the Golden Gate Bridge Seismic and Wind Retrofit Project and would continue to be implemented so that continued use of these staging areas for this project would not impact Mission blue butterfly. Additional measures beyond those included as part of the Golden Gate Bridge Seismic and Wind Retrofit Project have also been incorporated as necessary to reduce project impacts to endangered species. 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), will work in consultation with the GGNRA Natural Resources staff, the USFWS and Caltrans where applicable and implement and oversee the below activities/measures.

- The biological ECM will flag and stake native vegetation near the staging areas within GGNRA lands 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 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. 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.

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 prepared as part of the final project design and will be reviewed and approved by GGNRA Natural Resources staff prior to construction of the suicide deterrent system.

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.” FHWA 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 located north of the Bridge 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 lasiolepis*), 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) will coordinate with GGNRA Natural Resources staff and implement and oversee the below activities/measures.

- The biological ECM will flag and stake native vegetation near the staging areas 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 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. 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.

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 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. Further, the District complies with the Regional Water Quality Control Board (RWQCB) permit for construction activities and Provision C.3 requirements for stormwater run-off.

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, 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. A letter from the FHWA documenting that the project would be exempt from this requirement is included in Appendix E. 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.

Climate Change

Climate change is analyzed in Chapter 3, California Environmental Quality Act (CEQA) Evaluation. Neither EPA nor FHWA has promulgated explicit guidance or methodology to conduct project-level greenhouse gas analysis. As stated on FHWA's climate change website (<http://www.fhwa.dot.gov/hep/climate/index.htm>), climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will facilitate decision-making and improve efficiency

at the program level, and will inform the analysis and stewardship needs of project level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

Because there have been more requirements set forth in California legislation and executive orders regarding climate change, the issue is addressed in the CEQA chapter of this environmental document and may be used to inform the NEPA decision. The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the State has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours travelled.

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.

The proposed construction staging areas are located on GGNRA lands. Four of the proposed staging areas are located on the north 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. The fifth one is a proposed construction staging area to the south of the Bridge, located adjacent to the Bridge toll plaza on GGNRA lands within the Presidio. This 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. While several trail systems exist or are proposed in the project vicinity, there is no continuous system of sidewalks, bike trails or bike lanes 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.

Trail systems on the south and north ends of the Bridge which provide connections to the Bridge sidewalks, including the Bay Trail and the Coastal Trail, may experience some detours during project construction, however, they will remain open.

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 five staging areas within GGNRA lands are denuded of vegetation and are covered by gravel, compacted dirt, or pavement. 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, or as parking lots. 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, transportation, 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 ENVIRONMENT

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 located to the north of the Bridge 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, Biological Environment.

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), will work in consultation with GGNRA Natural Resources staff and implement and oversee the below activities/measures.

- The biological ECM will flag and stake native vegetation near the staging areas 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.

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 prepared as part of the final project design and will be reviewed and approved by GGNRA Natural Resources staff prior to construction of the suicide deterrent system.

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 work in consultation with the USFWS, GGNRA Natural Resources staff and Caltrans and 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 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 Final EIR/EA.

Projects on the Bridge

- Seismic Retrofit Project (FHWA is lead agency under NEPA, District is lead agency under CEQA)
- Moveable Median Barrier (Department is lead agency under NEPA, District is lead agency under CEQA)
- Golden Gate Bridge Main Cable Restoration Project (District is lead agency)
- Bridge Security Enhancements (District is lead agency)

Other Projects in Geographic Area

- South Access to the Golden Gate Bridge: Doyle Drive Project (San Francisco County Transportation Authority is lead agency)
- 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 Final 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 retain 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 (Preferred Alternative) 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 (Preferred Alternative) 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 Environment

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 in August 1995 and amended in April 1996 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.

The proposed project would also not contribute to cumulative bird impacts. Based on response to comments on the Draft EIR/EA, an Avian Impact Study was prepared to further evaluate the potential adverse effect to avian (bird) species from installation of Alternative 3 (Preferred Alternative). In addition to the avoidance measures from the Golden Gate Bridge Seismic and Wind Retrofit Project that would continue to be implemented as part of the proposed project, the Avian Impact Study identified additional avoidance measures to further reduce potentially adverse effected related to bird nesting hazards associated with Alternative 3. The related

development project considered as part of the cumulative analysis were determined to have no adverse effects to birds. Thus, the project in combination with the related development projects would not result in a cumulative impact to birds.

Appendix E includes the Department's informal consultation with the USFWS indicating that the project, including implementation of the avoidance, minimization, and mitigation measures, would not affect listed species. Appendix E also includes a letter from the District documenting that the project would not result in the take of a special-status species and Appendix F provides a list of special-status species documented in the project area for which the project would have no effect.

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 or parking 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 (Preferred Alternative) 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 Officer (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 (Preferred Alternative) 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. Though an adverse cumulative effect was identified for past projects, as discussed above, the project alternatives would not cause an adverse cumulative effect to the Bridge as a historic property when considered along with known future projects.

CHAPTER 3 - CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) EVALUATION

The project is subject to federal, and State environmental review requirements because the Golden Gate Bridge, Highway and Transportation District (District) proposes the use of federal funds and/or the project requires a federal approval action. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The District is the project proponent and the lead agency under CEQA. The Federal Highway Administration's (FHWA) responsibility for environmental review, consultation, and any other action required in accordance with NEPA and other applicable Federal laws for this project is being, or has been, carried out by the California State Department of Transportation (Department) under its assumption of responsibility pursuant to 23 U.S.C. 327.

3.1 DETERMINING SIGNIFICANCE UNDER CEQA

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an Environmental Impact Statement (EIS), or some less extensive level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) as a whole has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require the District to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an Environmental Impact Report (EIR) must be prepared. Each and every significant effect on the

environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of mandatory findings of significance, which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

Additionally, CEQA distinguishes three mandatory findings of significance:

- Potential to substantially degrade the environment, reduce the habitat of fish and wildlife species, cause fish or wildlife populations to drop below self-sustaining levels, threaten or eliminate a plant or animal community, reduce the number or range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or pre-history.
- Environmental effects that are individually limited but cumulatively considerable.
- Environmental effect will cause substantial adverse effects on human beings, either directly or indirectly.

3.2 DISCUSSION OF SIGNIFICANCE OF IMPACTS

3.2.1 SIGNIFICANCE CRITERIA

Land Use

In accordance with Appendix G of the *CEQA Guidelines* (the CEQA Checklist, Appendix A of this document), the following issues are considered when evaluating the significant land use impacts from a project. The project would have a significant impact if it would:

- Conflict with any applicable habitat conservation plan or natural community conservation plan
- Physically divide an established community
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the General Plan, Specific Plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect

Recreation

In accordance with the *CEQA Guidelines* Appendix G (the CEQA Checklist, Appendix A of this document), the project would cause a potentially significant impact to recreation facilities if it would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment

Visual/Aesthetics

In accordance with the *CEQA Guidelines* Appendix G (the CEQA Checklist, Appendix A of this document), the project would cause a potentially significant visual impact if it would:

- Have a substantial adverse effect on a scenic vista
- Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway
- Substantially degrade the existing visual character or quality of the site and its surroundings
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area

Cultural Resources

Actions associated with implementing the project that could cause a substantial adverse change in the significance of an historic resource are actions that may have a significant effect on the environment pursuant to CEQA. A substantial adverse change includes physical demolition, destruction, relocation, or alteration of the resource such that the significance of the resource would be materially impaired. Implementing the project may have a significant effect if it would:

- Demolish or materially alter in an adverse manner those physical characteristics of a historic resource that: (1) convey its historic significance and justify its inclusion in, or eligibility for, the California Register of Historic Resources (CRHR) or National Register of Historic Places (NRHP); (2) account for its inclusion in a local register of historical resources or a qualifying historical resources survey; or (3) convey its historical significance and justify its eligibility for inclusion in the CRHR or NRHP as determined by the lead agency for purposes of CEQA
- Have the potential to eliminate important examples of the major periods of California history or prehistory
- Cause damage to a unique archaeological resource
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature

- Disturb any human remains, including those interred outside of formal cemeteries

Biological Environment

In accordance with the *CEQA Guidelines* Appendix G (the CEQA Checklist, Appendix A of this document), the project would cause a potentially significant biological impact if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game (CDFG) or U.S. Fish and Wildlife Service (USFWS).
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species with established native resident or migratory wildlife corridors, or impeded the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

3.2.2 LESS THAN SIGNIFICANT EFFECTS OF THE PROPOSED PROJECT

Land Use

Conflict with Habitat Conservation Plan

The project does not involve any changes in the existing use of the Golden Gate Bridge (Bridge) or the land surrounding the Bridge. Construction of the project would occur within the permitted area granted to the District. The project would be constructed on the Bridge structure and the project construction staging areas are located on previously established paved and graveled parking areas. No additional road rights-of-way, either permanent or temporary, would be required for this project.

As part of the environmental clearance for the seismic upgrade project, a Habitat Protection Plan (Plan) was implemented by the District to minimize or eliminate indirect impacts to common vegetation during construction phases of the seismic upgrade project. The Plan requires the use of buffers to prevent or reduce the effects of disruption in the hydrologic or edaphic (growing) environment of native or non-native vegetation. The project avoids the areas subject to the Plan and would therefore not be in conflict with the Plan.

Physically Divide an Established Community

The project does not involve any changes in the existing use of the Bridge or the land surrounding the Bridge; thus, the project would not divide or disrupt an established community.

Conflict with Applicable Policies

The Bridge is bordered by the Golden Gate National Recreation Area (GGNRA) and the Presidio. These agencies' management plans contain policies related to public access, transportation, pedestrian, and bicycle access. The project does not affect the existing uses of the Bridge. The existing uses of the Bridge and the land surrounding the Bridge will not change. Currently the Bridge includes pedestrian and bicycle paths that are part of the Bay Trail alignment (Bay Trail Project, 2007) and provides visual access to the Bay. The construction of any of the build alternatives would maintain the existing paths and visual access. There would be no change to the paths.

The Bay Plan implemented by the Bay Conservation and Development Commission contains policies related to public access and preservation of existing views. Visual access will be maintained under Alternatives 1A, 1B, 2A and 2B through the inclusion of transparent glass panels at the belvederes and spacing of the physical suicide barrier vertical and horizontal members. The Bridge currently provides public access with views of the Bay, which will be maintained with implementation of the project.

Please see Section 2.1, Land Use, of this Final Environmental Impact Report/Environmental Assessment (Final EIR/EA) for a more detailed discussion of the project's consistency with applicable policies.

Recreation

The project does not involve any changes in the existing use of the Bridge or the land surrounding the Bridge; thus, the project would not increase the use of existing parks or expand recreational opportunities available on the Bridge.

As documented in the Section 4(f) Evaluation, the Bridge is surrounded by regional parks and facilities. The project would not affect the continued use

of these parks and facilities. Implementation of the project would, however, affect the recreational experience of users of the Bridge sidewalks. Please see Appendix B for a detailed discussion of the impact of the project to the Bridge and existing recreational uses and facilities surrounding the Bridge.

Visual/Aesthetics

Substantial Adverse Effect on a Scenic Vista (Views towards the Bridge)

As discussed in Section 2.2, Visual/Aesthetics, of the Final EIR/EA, views towards the Bridge would not be significantly altered by any of the build alternatives. The physical suicide deterrent systems would not be visible from Baker Beach and only marginally visible from the Marin Headlands. They would be somewhat visible from other viewpoints depending on the distance and angle of the view, but the change to the overall views resulting from construction of the alternatives would not be significant. The major visual components of the Bridge, the towers, suspender ropes, and main cables would remain the dominant features of the Bridge viewed in the landscape.

The build alternatives would also not affect the panoramic views of the San Francisco skyline and Marin Headlands available from the viewpoints towards the Bridge. Within the overall context of the study area's visual environment, the area of changes would be small. It would appear as a thickening of a horizontal line along the lower edge of the Bridge, which would not block views through the Bridge of the urban and natural elements surrounding the Bridge. The impact would therefore be less than significant.

Substantially Damage Scenic Resources

The Bridge connects the primary regional roadways in the project area – U.S. Highway 101 and State Route 1 – connecting points of land on either side of the entrance to the San Francisco Bay. These two roadways connect approximately 0.6 miles southwest of the Bridge on the San Francisco side, and extend north as a combined road across the Bridge to Marin County. Neither of these roadways is a designated state scenic highway, although State Route 1 is eligible. The project, therefore, would not affect resources within a state scenic highway, and the impact would be less than significant.

Substantially Degrade the Existing Visual Character

The major visual components of the Bridge are the main suspension span, suspender ropes and suspension cables, and towers, and the International Orange color. Installation of the build alternatives would not noticeably alter the relationships among these elements and would therefore not

substantially degrade the existing visual character of the Bridge. The build alternatives would repeat the vertical (suspender ropes) and horizontal (public safety railing) elements of the Bridge and the symmetrical relationships among the various Bridge elements.

The relationship of the Bridge to the overall regional landscape would also not be degraded through construction of the build alternatives. The project would not change the color, materials, or location of the Bridge, which would maintain its relationship within the dramatic coastal backdrop. The features of the Bridge that contribute to its harmonious blending of the natural and built environment would not be altered. Panoramic views within the project area that include the Bridge would not be degraded. The impact would therefore be less than significant.

Please see Section 2.2, Visual/Aesthetics, of the Final EIR/EA for a more detailed description of the project impacts to views towards the Bridge.

New Source of Light and Glare

Alternatives 1A, 1B, 2A, and 2B include transparent panels at the belvederes to allow areas of unobstructed views from the Bridge. Alternatives 1B and 2B include transparent winglets on top of the physical suicide barrier for aerodynamic stability. The introduction of additional transparent materials onto the Bridge will increase glare during daylight hours, but it would not represent a substantial increase because of the limited use of these materials in the context of the entire Bridge structure. The Preferred Alternative, Alternative 3, would not include the use of transparent panels and would not introduce new sources of glare. The horizontal netting would be unpainted and uncoated stainless steel and would not be anticipated to create significant daytime glare. Lighting on the Bridge itself will remain unchanged. The impact would therefore be less than significant.

Cultural Resources

Potential to Eliminate Important Examples of the Major Periods of California History or Prehistory

The project does not involve any changes in the existing use of the Bridge or the land surrounding the Bridge; thus, the project will not eliminate potential examples of California history or prehistory. The impact would therefore be less than significant.

Damage Unique Archaeological Resource; Destroy Unique Paleontological Resource or Unique Geologic Feature; Disturb Human Remains

The project would be constructed entirely within the right-of-way of the Bridge. The Area of Potential Effect (APE) for cultural resources was determined through consultation with the Department. In consultation

with Brett Rushing, PQS Archaeologist, it was determined that no archaeological study and therefore, no archaeological APE, would be necessary because the construction of the project would take place on the Bridge structure and the project construction staging areas would be located on previously established paved and graveled parking areas. No additional road rights-of-way, either permanent or temporary, would be required for this project. The impact would therefore be less than significant.

Biological Environment

Substantial adverse effect on special-status species

Monarch butterfly wintering sites, which are considered sensitive by the CDFG, have been documented in the project area. The four staging areas within GGNRA lands on the north side of the Bridge 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 fifth proposed staging area within GGNRA lands on the south side of the Bridge in 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 effect on a monarch butterfly wintering site. Refer to Appendix F for a determination of no effect and no take for the monarch butterfly and other special-status species documented in the project area.

Substantial adverse effect on riparian habitat or other sensitive natural community

The four staging areas within GGNRA lands on the north side of the Bridge 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. The fifth proposed staging area within GGNRA lands on the south side of the Bridge in the Presidio is within a paved parking lot. Given the above, and the developed condition of the Bridge, construction-related activities would not occur within areas containing vegetation. The impact would therefore be less than significant.

However, 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 lasiolepis*), 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 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 the California Natural Diversity Database (CNDDDB) 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.

Substantial adverse effect on federally protected wetlands

As part of the Golden Gate Bridge Seismic and Wind Retrofit Project, a Biological Assessment (October 1995) was prepared (pursuant to the requirements of Section 7 of the federal Endangered Species Act) and a subsequent Biological Opinion (August 1995) was issued by the USFWS. These documents addressed potential impacts from construction activities and use of staging areas within GGNRA lands on federally-listed species and other sensitive biological resources. No federally protected wetlands were identified on or near the construction staging areas.

Conflict with any local policies or ordinances protecting biological resources

The project proposes to construct a physical suicide deterrent system along both sides of the Bridge. Construction-related activities would be limited to the Bridge and to five staging areas, which are denuded of vegetation and are either paved or graveled. The avoidance measures being implemented as part of the Golden Gate Bridge Seismic and Wind Retrofit Project to protect sensitive biological resources bordering and near the staging areas within GGNRA lands would continue to be implemented as part of the proposed project. The project would continue the avoidance measures and would therefore not be in conflict with existing District policies protecting biological resources.

Conflict with Habitat Conservation Plan

As part of the environmental clearance for the seismic upgrade project, a Habitat Protection Plan (Plan) was implemented by the District to minimize or eliminate indirect impacts to common vegetation during construction phases of the seismic upgrade project. The Plan requires the use of buffers to prevent or reduce the effects of disruption in the hydrologic or edaphic (growing) environment of native or non-native vegetation. The project avoids the areas subject to the Plan and would therefore not be in conflict with the Plan.

3.2.3 SIGNIFICANT ENVIRONMENTAL EFFECTS

Visual / Aesthetics

Substantial Adverse Effect on a Scenic Vista (Views from the Bridge)

As described in Section 2.2, Visual/Aesthetics, of the Final EIR/EA Alternatives 1A, 1B, 2A, and 2B would have adverse to strongly adverse visual impacts to views from the Bridge, in particular the sidewalk and car views. Primary visual changes associated with these alternatives to views from the Bridge include raising the height of the outside Bridge railing such that it would extend across a viewer's total field of view. These alternatives would be dominant visual features, with moderate to low visual compatibility with the existing landscape features and moderate view blockage. This would be a significant impact.

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

Cultural Resources

Demolish or Materially Alter in an Adverse Manner Those Physical Characteristics of a Historic Resource That Convey Its Historic Significance and Justify Its Inclusion in National Register of Historic Places (NRHP).

Construction of project Alternatives 1A, 1B, 2A, 2B, or 3 (Preferred Alternative) would generally cause a substantial adverse change in the Bridge historic property, which has been determined eligible for listing in the National Register of Historic Places (NRHP) and is listed in the California Register of Historical Resources (CRHR). The addition of any of these physical suicide barrier systems would include an adverse material alteration of physical characteristics of the historic resource that: (1) convey its historic significance and justify its inclusion in, or eligibility for, the CRHR or NRHP; and (2) account for its inclusion in a local register of historical resources or a qualifying historical resources survey; and (3) convey its historical significance and justify its eligibility for inclusion in the CRHR or NRHP as determine by the lead agency for purposes of CEQA.

In general, these physical, or direct, adverse changes 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/or stiffening truss). The alternatives also would cause indirect adverse effects, including introduction of visual elements out of character with the property, change in the character of its use as a historic property, addition of physical suicide barrier systems where none were originally, use of non-historic material (transparent panels, transparent winglets, metal rods, and cable netting), as well as alteration of the pedestrian experience on the Bridge. This would be a substantial adverse change in the property, which is a significant impact on the environment.

The integrity of design of the property would be substantially changed by the project because Alternatives 1A, 1B, 2A, and 2B alter the original design of the railings and the pedestrian experience from the sidewalks of the Bridge, and by Alternative 3 (Preferred Alternative), which would introduce a non-historic visual element to the trusses at the sides of the Bridge. The integrity of materials and workmanship of the railings would be significantly diminished under Alternatives 1A, 1B, 2A, and 2B. Although this construction would not change most of the materials and workmanship of this structure, the alterations under Alternatives 1A, 1B, 2A, and 2B would adversely materially change the railings, and Alternative 3 would materially change the stiffening trusses, both character-defining features of the Bridge. This would be a substantial adverse change in the property, which is a significant impact on the environment.

For a more detailed discussion please see Section 2.3, Cultural Resources, of the Final EIR/EA.

Biological Environment

Substantial adverse effect on candidate, sensitive, or special-status species

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 impacts to special-status species and coastal scrub habitat are discussed below.

Mission Blue Butterfly

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, which would be a significant impact.

1. Construction-related traffic: vehicular traffic, especially at higher speeds, can collide with and kill or injure flying Mission blue butterflies.
2. 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.
3. 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.

As included in Appendix E, the Department's informal consultation with the USFWS under Section 7 documents that the project, including the incorporation of the avoidance, minimization, and/or mitigation measures (included in Section 3.3.3), would not affect listed species. Appendix E and Appendix F also include a no effect and no take determination in regards to special-status species.

Plant Species

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. However, unauthorized intrusion by construction equipment and workers into the coastal scrub habitat bordering the staging areas could result in trampling of special-status plant species. This would be a significant impact.

Peregrine Falcon

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

¹ Personal Communication with Allen Fish, Director of the Golden Gate Raptor Observatory. June 30, 2008.

activities could result in the abandonment of the eyrie. This would be a significant impact.

Substantially interfere with the movement of any native resident or migratory species

As documented in this Final EIR/EA, four of the build alternatives (Alternatives 1A, 1B, 2A, and 2B), considered the use of vertical transparent panels for the physical suicide deterrent system, which could create a potential for bird collisions. 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 approximately 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. The potential for the use of transparent panels to adversely affect various bird species was identified as a significant impact. In addition to being taller than the current 4 foot high outside handrails, the proposed transparent panel barriers would present new hazards for birds to strike the panels as they attempt to fly through the panels since they would not be visible. In addition, the reflective nature of the transparent panels when hit by the sun may disorient or “blind” birds. As a result, bird collisions would be more prevalent with the implementation of Alternatives 1A, 1B, 2A or 2B than with implementation of the net system chosen as the Preferred Alternative.

Under Alternative 3 (Preferred Alternative) horizontal netting would be used as part of the physical suicide deterrent system, with which birds could potentially collide and become entangled or otherwise harmed. The horizontal netting would extend out 20 feet from the Bridge and be located approximately 20 feet below the Bridge sidewalk. While no transparent panels would be used, the horizontal netting could result in an adverse effect to avian species traveling through or nesting within the vicinity of the Bridge.

As discussed in Section 2.4, Biological Environment, an Avian Impact Study was prepared in April 2009 and revised in November 2009 to further evaluate the potential for adverse effects to avian (bird) species from the implementation of Alternative 3 (Preferred Alternative). The Avian Impact Study provided existing information regarding bird use of the Bridge and surrounding area and bird collision data for bridges or other similar structures. Bird movement patterns on, under, over, and around the Bridge were documented and developed as a visual model of bird use for specific portions of the Bridge structure. The Avian Impact Study also identified bird behavior adjacent to the footprint of Alternative 3 to assess whether the net system would have the potential to cause any changes in their behavior, or cause injury or death, to any birds.

Based on the background research and field surveys, the Avian Impact Study found that Alternative 3 would have the potential to adversely affect migrating and nesting birds, as migrating birds could collide with the net, particularly during inclement weather. The study also found that birds could be lured to nest or perch in an inappropriate spot on or adjacent to the net where mortality risk is high.

For a more detailed discussion, refer to Section 2.4, Biological Environment, of this Final EIR/EA.

Nesting Bird Species

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. This would be a significant impact.

3.2.4 UNAVOIDABLE SIGNIFICANT ENVIRONMENTAL EFFECTS

Visual/Aesthetics

Substantial Adverse Effect on a Scenic Vista (Views from the Bridge)

To meet the purpose and need for the project, it is necessary to construct a physical suicide deterrent system that would impede the ability of an individual to jump from the Bridge. During preliminary engineering design it was determined that a physical suicide barrier with a total height of between 10 and 12 feet would be needed to successfully meet this criterion. The designs of Alternatives 1A, 1B, 2A, and 2B have incorporated elements of the existing Bridge structure (materials, symmetry, International Orange color), and have provided transparent panels at the belvederes to maintain uninterrupted visual access points along the sidewalks. Nonetheless, these build alternatives substantially reduce the views from the Bridge towards the urban and natural visual environments. Because the heights and vertical/horizontal members of these physical suicide deterrent systems are needed to meet the purpose and need of the project, the resulting substantial reductions to views from the Bridge would be a significant and unavoidable impact.

Cultural Resources

Demolish or Materially Alter in an Adverse Manner Those Physical Characteristics of a Historic Resource That Convey Its Historic Significance and Justify Its Inclusion in National Register of Historic Places (NRHP).

To meet the purpose and need for the project, it is necessary to construct a physical suicide deterrent system that would impede the ability of an individual to jump from the Bridge. As described in Section 3.2.3, Significant Environmental Effects, above, the build alternatives would all cause a substantially adverse change to the Bridge historic property, which has been determined eligible for listing in the NRHP. A project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. Mitigation measures are proposed to insure that (1) the Bridge is properly recorded through photography, written documentation, and educational/interpretive material; (2) this documentation and educational/interpretive material is appropriately distributed; and (3) other portions of the historic property within the project study are protected and monitored (see Section 3.3, Mitigation Measures for Significant Impacts Under CEQA, of this chapter). While these measures would ensure that a visual record is provided of the Bridge in context, as well as details of its historic engineering features, contributing elements, and character-defining features, the physical alteration to the historic property from implementation of the build alternatives would still occur. The impact to the Bridge historic property is therefore significant and unavoidable.

3.2.5 MANDATORY FINDINGS OF SIGNIFICANCE

The project does not involve any changes in the existing use of the Bridge or the land surrounding the Bridge. The project would be constructed entirely on the Bridge and the construction staging areas would be located on previously established paved and graveled parking areas. No additional road rights-of-way, either permanent or temporary, would be required for this project. The project would not substantially degrade the environment, affect habitat or wildlife, or eliminate important examples of California history.

The project would indirectly cause a substantive adverse impact to human beings through the reduction in views from the Bridge sidewalks. See discussion in Section 2.2, Visual/Aesthetics, and within this chapter of the Final EIR/EA.

The project would cause significant cumulative impacts to the Bridge historic property as described in Section 2.7, Cumulative Impacts, of the Final EIR/EA.

3.2.6 GROWTH-INDUCING IMPACTS

The project does not involve any changes in the existing use of the Bridge or the land surrounding the Bridge; thus, the project would not affect the location, density, or growth rate of the human population of the area.

3.2.7 CLIMATE CHANGE

Regulatory Setting

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), the efforts devoted to greenhouse gas² (GHG) emissions reduction and climate change research and policy have increased dramatically in recent years. These efforts are primarily concerned with the emissions of GHG related to human activity that include carbon dioxide (CO₂), methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulphur hexafluoride, HFC-23 (fluroform), HFC-134a (s,s,s,2 –tetrafluoroethane), and HFC-152a (difluoroethane).

In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and proactive approach to dealing with GHG emissions and climate change at the state level. AB 1493 requires the Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designated to apply to automobiles and light trucks beginning with the 2009-model year; however, in order to enact the standards California needed a waiver from the U.S. Environmental Protection Agency (EPA). The waiver was denied in December 2007. See *California v. Environmental Protection Agency*, 9th Cir. Jul. 25, 2008, No. 08-70011. However, on January 26, 2009, it was announced that the EPA will reconsider their decision regarding the denial of California's waiver. On May 18, 2009, President Obama announced the enactment of a 35.5 mpg fuel economy standard for automobiles and light duty trucks which will take effect in 2012. On June 30, 2009, EPA granted California the waiver. California is expected to enforce its standards for 2009 to 2011 and then look to the federal government to also allow California to implement

² Greenhouse gases related to human activity include: Carbon dioxide, Methane, Nitrous oxide, Tetrafluoromethane, Hexafluoroethane, Sulfur hexafluoride, HFC-23, HFC-134a*, and HFC-152a*.

even stronger standards in the future. The State is expected to start developing new standards for the post-2016 model year later this year.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to (1) 2000 levels by 2010, (2) 1990 levels by 2020, and (3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that CARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

With Executive Order s-01-07, Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this executive order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Climate change and GHG reduction is also a concern at the federal level; however, at this time no legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change. California, in conjunction with several environmental organizations and several other states, sued to force the U.S. Environmental Protection Agency (EPA) to regulate GHG as a pollutant under the Clean Air Act (Massachusetts vs. Environmental Protection Agency et al., 549 U.S. 497 (2007)). The court ruled that GHG does fit within the Clean Air Act's definition of a pollutant, and that the EPA does have the authority to regulate GHG. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting GHG emissions.

According to Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate change in CEQA Documents (March 5, 2007), an individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may participate in a potential impact through its incremental contribution combined with the contributions of all other sources of GHG. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See CEQA Guidelines sections 15064(i)(1) and 15130. To make this determination the incremental impacts of the project must be compared to the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult if not impossible task.

As part of this supporting documentation for the Draft Scoping Plan, CARB recently released an updated version of the GHG inventory for California (June 26, 2008). Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation (see Climate Action Program at Caltrans (December 2006), Caltrans has created and implemented the Climate Action Program at Caltrans that was published in December 2006. This document can be found at: <http://www.dot.ca.gov/docs/ClimateReport.pdf>.

Project Impacts to Climate Change

According to a recent white paper by the Association of Environmental Professionals,³ “an individual project does not generate enough greenhouse gas emissions to significantly influence global climate change.” Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of greenhouse gases. While the project has no traffic impacts and would therefore not contribute to cumulative increases in sources of GHGs over long-term project operation, construction of Alternative 3, the Preferred Alternative, would produce combustion emissions from various sources. Sources of construction related GHG emissions include the emissions from heavy-duty diesel trucks used to haul materials to and from the project site from various parts of the Bay Area; the motor vehicles used by the construction workers to travel to and from the project site; and on-site construction equipment engines, such as cranes, wheeled loaders, and boom trucks. Mobile sources of GHG emissions, such as the heavy-duty haul trucks and construction worker motor vehicles, would be higher on peak materials delivery days when heavy diesel truck trips are combined with employee trips and operation of on-site construction equipment.

However, construction activities would be temporary and localized in nature, as the construction areas would be confined to the Bridge structure and the five designated construction staging areas. As discussed in Section 2.6, Construction Impacts, construction of the new physical suicide deterrent system 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 construction would occur over a 12 to 18 month time period per side, or 24 to 36 months in total. Additionally, Best Management Practices (BMPs) for the construction staging areas would be

³ Hendrix, Micheal and Wilson, Cori. Recommendations by the Association of Environmental Professionals (AEP) on How to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents (March 5, 2007), p. 2.

incorporated into the construction contracts and project specification that could reduce impacts associated with GHG emissions. Control measures, consistent with the Bay Area Air Quality Management District (BAAQMD) Rules and Regulations, for diesel emissions, such as reducing construction vehicle idling, would also be incorporated into the construction contracts and project specifications.

3.3 MITIGATION MEASURES FOR SIGNIFICANT IMPACTS UNDER CEQA

3.3.1 VISUAL RESOURCES

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 primarily of steel. Alternatives 1A, 1B, 2A, and 2B would be painted International Orange to match the material and color of the Bridge. While the steel horizontal support system under Alternative 3, the Preferred Alternative, would be painted International Orange to match the color of the existing Bridge structure, the net would be unpainted and uncoated stainless steel to reduce the visual intrusion of the net, as the unpainted and uncoated stainless steel would appear transparent against the blue green water of the San Francisco Bay.

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 and Preferred Alternative, 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 vertical barrier, painted International Orange, at the North Anchorage Housing as part of the refinement to Alternative 3 would reduce visual effects from Viewpoint 4, Vista Point, as the vertical barrier would maintain the continuous vertical line form of the Bridge and would be consistent

with the vertical plane of the concrete pylon at the North Anchorage Housing.

The Memorandum of Agreement (MOA) executed as part of the Section 106 consultation process includes photographic recordation of selected existing features of the Bridge (see Section 2.3, Cultural Resources).

3.3.2 CULTURAL RESOURCES

To mitigate the adverse effect of the project on the historic property an MOA has been executed for the project and coordinated with the Department. The MOA stipulates various mitigation activities that will be conducted to address adverse effects this project would have on the Bridge. The MOA has been approved by the State Office of Historic Preservation. The Department will be responsible for carrying out these measures, insuring that (1) the Bridge is properly recorded through photography, written documentation, and educational/interpretive material; (2) this documentation and educational/interpretive material is appropriately distributed; and (3) 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 photographs will specifically include the existing east and west outside railings, concrete railing at the north pylon (North Anchorage Housing), and exterior trusses of the Bridge. The Department will ensure that the photographs will be processed for archival permanence in accordance with Historic American Engineering Record (HAER) photographic specifications.

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.

- The Department will ensure that copies of the documentation will be offered to the San Francisco Public Library, Marin County Free Library, Environmental Design Archives (UC Berkeley), Golden Gate National Recreation Area, Presidio Trust, and the Department's Transportation

Library and History Center at Department Headquarters in Sacramento.

- During the project approval process, the Department will ensure that within one year of project implementation, the District will complete and submit a National Historic Landmark nomination for the Bridge to the National Historic Landmarks Program at the NPS.
- The Department will ensure that an educational brochure will be prepared presenting information on the historic elements of the Bridge 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 *The Golden Gate Bridge Report of the Chief Engineer, Volume II (2007)* will be provided to libraries and repositories at the San Francisco 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.
- 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 protect 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. The Department will ensure that these reports will be provided to the District, the SHPO, and GGNRA, the property owner.

As noted previously, while these measures would provide a visual record of the Bridge in context, as well as details of its historic engineering features, contributing elements, and character-defining features, the physical alteration to the historic property from implementation of the build alternatives would still occur. The impact to the Bridge historic property following implementation of these measures therefore remains significant.

3.3.3 BIOLOGICAL ENVIRONMENT

Impacts to Sensitive Species

The proposed project would use staging areas within GGNRA lands that 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 following avoidance measures have been developed through ongoing coordination with the GGNRA, consultation with the USFWS, recommendations of the Revised Natural Environment Survey (July 2009) prepared as part of this project, and existing measures implemented as part of the Golden Gate Bridge Seismic and Wind Retrofit Project. Appendix E includes the Department's informal consultation with the USFWS indicating that the project, including implementation of the avoidance, minimization, and mitigation measures, would not affect listed species. Appendix E also includes a letter from the District documenting that the project would not result in the take of a special-status species and Appendix F provides a list of special-status species documented in the project area for which the project would have no effect.

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 in order to prevent adverse affects to Mission blue butterfly, special-status plant species, and coastal scrub habitat. Avoidance measures will also be implemented for the peregrine falcon.

Mission Blue Butterfly

- 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 prepared as part of the final project design and will be reviewed and approved by GGNRA Natural Resources staff prior to construction of the suicide deterrent system.
- 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.
- 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.

Plant Species

- 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 and implement and oversee the below activities/measures.
- The biological ECM will flag and stake native vegetation near the staging areas 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 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, 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.
- Prior to the 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) to determine if breeding pairs of peregrine falcon are currently nesting in the vicinity of the Bridge and may be disturbed by the proposed project. This consultation will also serve to determine if surveys for nesting peregrine falcon should be conducted prior to project implementation. If nesting pairs are identified by the GGRO or by site surveys, then 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. Construction activities may commence within the exclusion zone only upon determination by a qualified biologist that the nest is no longer active.

Impacts to Native or Wildlife Species

Potential impacts could occur to nesting peregrine falcon, other nesting birds, and various bird species from bird collisions. The below avoidance measures would be implemented to address these potential impacts.

- District personnel, in coordination with a qualified avian biologist, the GGNRA Natural Resources staff, and USFWS, 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 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.

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 patterns 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.

- 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 shall 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.

- Regular observations of the horizontal netting will be made 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.

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, 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.

- Prior to the implementation of construction activities occurring during the nesting season of native bird species, the biological ECM work in consultation with the GGNRA Natural Resources staff and the USFWS where applicable and will conduct surveys for nesting birds. 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 active nests are found, then 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. 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.

Implementing these measures would reduce impacts to biological resources to a less than significant level.

CHAPTER 4 - COMMENTS AND COORDINATION

4.1 INTRODUCTION

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts and mitigation measures, and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including project development team meetings, interagency coordination meetings, stakeholder meetings, and public meetings and workshops. This chapter summarizes the results of the Golden Gate Bridge, Highway and Transportation District's (District) efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

This Final EIR/EA also incorporates the responses to public comments on the Draft EIR/EA. Prior to project approval, the District and the Department must certify that the Final EIR/EA adequately discloses the environmental effects of the proposed project, that the Final EIR/EA has been completed in conformance with CEQA and NEPA, respectively, and that the decision-making body of the District independently reviewed and considered the information contained in the Final EIR/EA. Certification of the Final EIR/EA would not mean that the District is approving the project or any of the alternatives described in the Final EIR/EA. Rather, certification of the Final EIR/EA would indicate that the District's determination that the Final EIR/EA adequately evaluates the potential environmental impacts that could be associated with the project. The Final EIR/EA will be circulated to all responsible agencies that commented on the Draft EIR/EA within at least ten days of certification. Similar to the Draft EIR/EA, the Final EIR/EA will also be on the project website (www.ggbsuicidebarrier.org). While the public has an opportunity to comment on the Final EIR/EA, the District is not required to submit a formal response to comments received on the Final EIR/EA.

4.1.1 PUBLIC INVOLVEMENT PROGRAM OVERVIEW

Public Website and Public Comment System

On May 11, 2007, public outreach activities were initiated by launching the public Web site (www.ggbsuicidebarrier.org). The Web site was developed with a fully integrated public comment system and provided a fair and

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

Wind Study Report

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

Bridge District Board Meetings

As all Board meetings are open to the public, public comments received at the August 22, 2008 meeting are part of the public record and have been incorporated into the process and the environmental document. In addition, all comments received at District Board meetings were reviewed by the project team for consideration as they may relate to the Golden Gate Bridge Physical Suicide Deterrent System Study.

The Board considered public comments at its October 10, 2008 meeting. At the meeting, District staff gave presentations regarding the comments received on the Draft EIR/EA and the operation maintenance, and emergency response impacts of the alternatives. Public comment was also heard during the meeting. Following the presentations and comments, the Board selected Alternative 3 (Net System) as the Preferred Alternative to be carried forward into the Final EIR/EA and to be considered for project approval. Directors commented that Alternative 3 was the most humane, aesthetic and visionary approach and an "elegant solution."

The deliberation at the October 10, 2008 Board meeting also included a discussion of the costs of the project and potential funding sources, and it was determined that a Funding Plan would be prepared. Refer to Section 1.6.2, Funding Plan, for a discussion of the Funding Plan.

Some of the public comments received on the Draft EIR/EA suggested that the District consider other colors for the net material. Based on these further considerations and through subsequent consultation with the State Historic Preservation Officer (SHPO) and other interested parties following the close of the public comment period, it was determined that the unpainted and uncoated stainless steel net materials would have the least

affect or minimize affects of the proposed project on cultural resources. Through the same consultation, it was also determined that at the North Anchorage Housing, the net should be replaced by a vertical barrier, painted International Orange, along the approximately 300-foot length of the North Anchorage Housing.

Release of the Draft EIR/EA

The Draft EIR/EA was released on July 7, 2008 for public and agency comment. Copies of the Draft EIR/EA were distributed to state agencies, local governments, elected officials, groups, and individuals. Two open house public meetings were held in San Rafael, Calif. and San Francisco on July 22, 2008 and July 23, 2008, respectively, to receive comments on the accuracy and the adequacy of the information contained in the Draft EIR/EA. The Draft EIR/EA also was posted on the project website (www.ggsuicidebarrier.org) so that people/public were able to submit electronic comments during the comment period. The Draft EIR/EA comment period closed on August 25, 2008.

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

Public Open-House Meetings

Two open house public meetings were conducted by the District to provide an overview of the project, the alternatives that have been developed and the key environmental considerations that would result from the project. The District held the meetings from 3:30PM to 7:30PM on July 22 and 23, 2008 in San Rafael and San Francisco, respectively. A total of approximately 225 people attended the two open houses. At the open houses, 13 comment forms and 9 letters were submitted, as well as comments submitted online via available computers.

The open houses included a looping PowerPoint presentation with highlights from the environmental documents, boards detailing the purpose and content of the environmental documents, and District staff, architects, engineers, and environmental and historical specialists on hand to answer questions from the public regarding the project. At each open house, six computers were connected to an online comment form on the project Website to allow the public to submit their comments on the alternatives and Draft EIR/EA process. Written comments were also

accepted at the open houses and by the District via mail, fax and email until the August 25 comment deadline. The Draft EIR/EA Citizen's Guide and Draft EIR/EA were available for the public to take home in hardcopy format and on CD. Hardcopy visual reference sheets of the six Alternatives were also available. Interested citizens also had the opportunity to sign up for project e-mail updates.

Media Relations

The District Public Information Officer conducted media communications, created media packets, and attended both open-house public meetings and the Board meetings held after the document was released. The project and the availability of the document for review were extensively publicized and widely reported in the press.

4.1.2 AGENCY CONSULTATION AND COORDINATION

Notice of Preparation

On June 14, 2007 the Notice of Preparation (NOP) was issued for the environmental document. The NOP was mailed to more than 70 agencies to solicit input on which alternatives and issues should be evaluated in the environmental document. The distribution list for the NOP is included in Chapter 6, Distribution List.

On July 17, 2007 an agency consultation meeting was held at the District to receive comments on the NOP. Attendees included Jeffrey Lee, Denis Mulligan, John R. Eberle, Mary Currie, and Michael Conneran from the District; Steve Morton and Mike Barbour from DMJM Harris; Phyllis Potter and Heidi Rothrock from CirclePoint; Kerri Davis and Rafael Montes from the San Francisco Bay Conservation and Development Commission (BCDC); Hsien Tang and Kelso Vidal from California State Department of Transportation (Department); and Andrea Lucas from the Golden Gate National Recreation Area/National Park Service (GGNRA/NPS).

Comments were received from the four agencies following the issuance of the NOP. Commenting agencies included: BCDC, GGNRA/NPS, the Department, and the San Francisco Bay Trail. BCDC noted a permit would be required for the project and directed the District to consider the *McAteer-Petris Act* policies relevant to the project. The GGNRA/NPS requested that the document study visual, historic, noise, recreation, and construction impacts. The Bay Trail requested that the District consider visual, aesthetics, recreational use of the Bridge. These comments and concerns expressed were considered in the preparation of the Draft EIR/EA.

Notice of Completion

A Notice of Completion was filed with the State Clearing House on July 8, 2008 pursuant to CEQA Section 21161. The notice indicated that the Draft

EIR/EA had been prepared for the project and included a brief project description, information on where copies of the document were available for public comment, and stated the public comment period dates.

Notice of Determination

Ten days after the release of the Final EIR/EA or thereafter, the District and Department will make a decision regarding certification of the Final EIR/EA and project approval. After a decision has been made a Notice of Determination will be filed with the State Clearinghouse in the Office of Planning and Research within five working days. The notice will include brief description of the project, a summary of the CEQA process carried out, and the location where copies of the document are available for review.

State Office of Historic Preservation Consultation

The District, in conjunction with the Department, is continuing consultation with the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) following 36 CRF 800.6, to arrive at a resolution of the adverse effect. The Department, in accordance with Stipulation XI of the Section 106 PA, has executed a Memorandum of Agreement (MOA) to memorialize measures that would mitigate the adverse effects this undertaking will have on the historic property. The MOA signatory parties are the District, the Department, SHPO, and ACHP. Invited signatories and consulting parties include: GGNRA, NTHP, Docomomo, and San Francisco Architectural Heritage. The District sent a letter to interested parties in April 2008 notifying interested individuals and organizations that the project is anticipated to have an adverse effect on the Bridge and to solicit their input. Any responses to this letter will be included in future drafts of this document and the environmental document.

- The District, in conjunction with the Department, initiated consultation with SHPO following 36 CRF 800 and held a project meeting on site at the Bridge to discuss the Section 106 process on November 20, 2007. The meeting included the Department's Local Assistance staff and Architectural Historian Alicia Otani (Department PQS), as well as Office of Historic Preservation (OHP) staff historians, and the deputy SHPO in attendance.
- The District prepared a draft letter to parties interested in historical resources. The letter was circulated in late April 2008 to seek comment and information pertaining to the historic significance of the Bridge and the potential effect the project may have on the character-defining features of the property. Copies of the letter, the list of recipients, and the responses received are in Appendix E.
- The Draft Historic Property Survey Report (HPSR), including Historical Resources Evaluation Report (HRER), and updated DPR523 forms, were submitted to the Department in April 2008. The draft Finding of

Effect (FOE) was prepared and submitted to the Department in May 2008.

- The Department, in conjunction with the District, continued consultation with SHPO, ACHP, and interested parties following 36 CRF 800. Meetings among all of these parties were held on site at the Bridge to discuss avoidance, minimization, and mitigation of adverse effects identified in the FOE, and the Section 106 process. These meetings (February 24, 2009 and March 27, 2009) included the Department's HQ staff and Environmental Branch staff, and the SHPO and OHP staff, and a representative of the ACHP, as well as representatives of NTHP, Docomomo, and San Francisco Architectural Heritage.
- The Department executed the MOA for this project, in consultation with ACHP, SHPO, and the consulting parties in order to implement mitigation identified during this consultation to address the adverse effects of the build alternative on the historic property (36 CFR 800.6 (c), MOA).

4.1.3 PUBLIC PARTICIPATION

Comments on the Draft EIR/EA

During the 45-day Draft EIR/EA review period 5,870 discrete comments were received from a total of 3,455 individuals, agencies, or organizations (44 via U.S. mail; 134 e-mails; 2,823 online submissions; 15 public meeting comment cards from open house public meetings on July 22, 2008 and July 23, 2008; and 439 via the District testimony). The range of comments received during the review period included substantive comments on the Draft EIR/EA analysis, along with comments related to the project and process, but not related to issues evaluated in the Draft EIR/EA. Table 4-1 below identifies the general categories of comments received, the total number of comments and the percentage of the total each category of comments represented.

Table 4-1 Comments Received During 45 – Day Review Period

Type of Comment	Number of Comments	Percent of Total
Addressed environmental issues, adequacy of EIR/EA analysis, or requested additional information on the Preferred or No-Build Alternatives.	212	3.6
Expressed Concerns about Suicide	1497	25.5
Expressed Opinions About Alternatives	2965	50.5
Recommended Spending Funds for Other Programs	878	15.0
Other (future tolls, the intelligence of the Board & District, and potential future Bridge closings.	318	5.4
Total Number of Comments/Percentage	5870	100.0

Source: District, 2008.

Characterization of Comments

Figure 4-1 illustrates the percentages of comments as listed above and shows the distribution of the submittal methods. These illustrations were provided to the Board at their October 10, 2008 meeting.

As shown in Figure 4-1 the majority of the comments (81.6 percent) were submitted online via the District website. Another 12.8 percent were received by means of testimony at Board meetings, the majority of which came via a petition with 440 signatures. The remaining 5.6 percent were submitted by email, letter, or comment cards.

As shown in Table 4-1, of the comments received approximately 76 percent expressed opinions on the project/alternatives or on suicide, while over 20 percent commented on project costs or other concerns. The remaining 3.6 percent commented on the Draft EIR/EA.

The comments received during the formal review period fell within the following general themes.

- General comments about suicide. These comments typically either stated that individuals will commit suicide somewhere else if a barrier is built on the Bridge; or they stated that suicide is an impulsive act so a barrier on the Bridge will save lives.
- Personal opinions about project alternatives. These comments typically stated the reasons why the commenter liked or disliked a particular alternative.
- Comments pertaining to the project cost or alternative uses for that sum of money. These comments typically either suggested that: the project funding should be redirected to mental health counseling; the expenditure of funds on this project was poor use of public funds; or, the project funding should be spent on the Moveable Median Barrier Project instead of being used to build a suicide deterrent.
- Comments pertaining to the adequacy of the Draft EIR/EA. These comments, in general, stated that either the No-Build Alternative was not adequately considered, or that the commenter supported performing additional bird studies. Some comments also responded to the evaluation of the build alternatives and the conclusions of the Draft EIR/EA regarding their relative impacts. A few of these comments addressed historic and cultural preservation issues.
- Other Comments. These comments generally asked questions about whether the Bridge would be closed to the public, requested locations for pictures of the Bridge, complained about toll increases or expressed opinions about the District and Board.

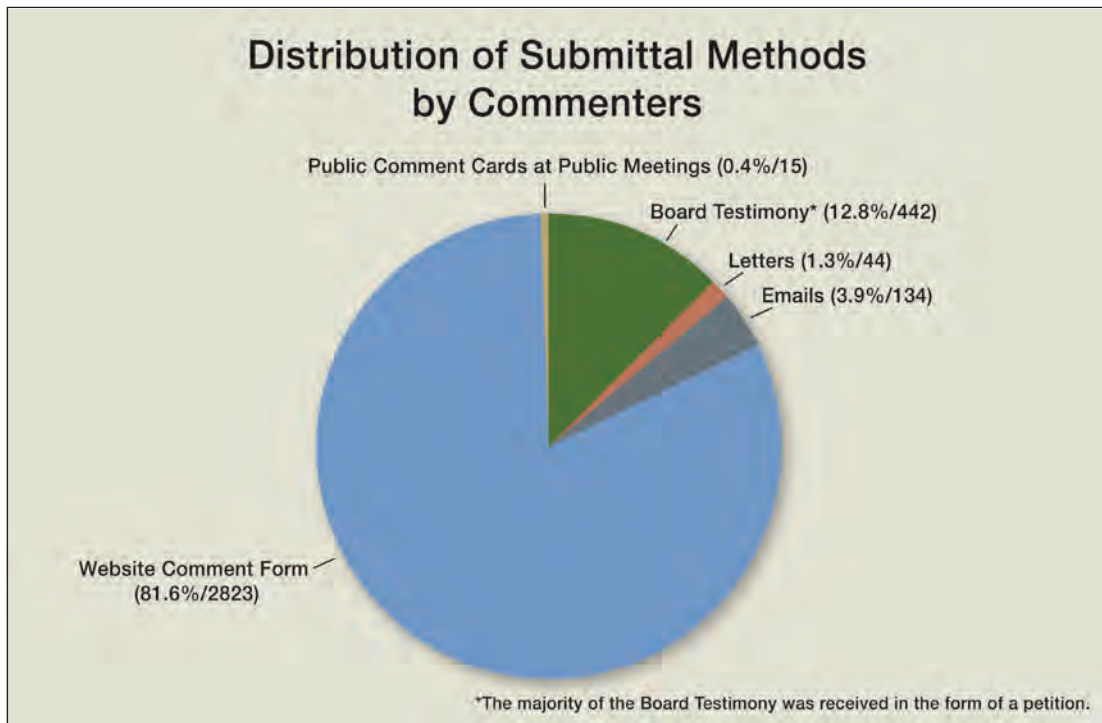
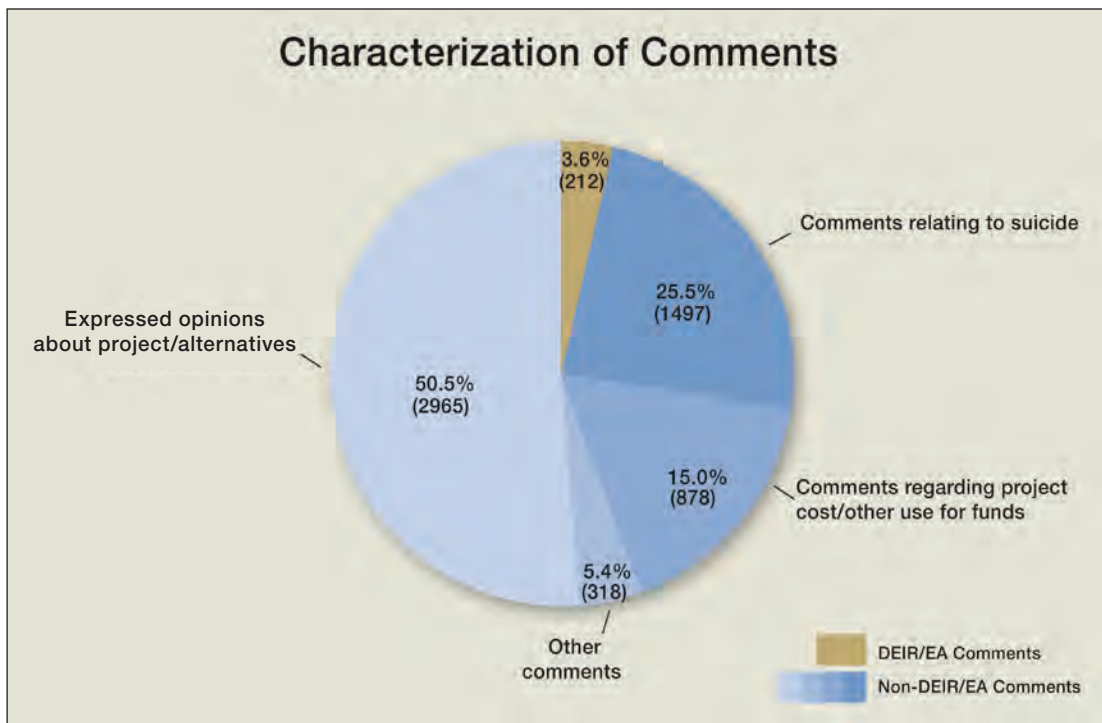


FIGURE 4-1
CHARACTERIZATION OF COMMENTS

Section 4.2, Comments and Responding to Comments, summarizes the substantive comments (those pertaining to the adequacy of the Draft EIR/EA) received during and shortly after the formal comment period and provides responses to these comments. The full text of the substantive comments provided via letters, emails, comment cards and on-line submissions is provided in Appendix H of this Final EIR/EA. Copies of all comments received during the public review period for the Draft EIR/EA are available at the local District offices at the Bridge Toll Plaza and Department offices at 111 Grand Avenue, Oakland, CA.

Other Opportunities for Public Participation

Ongoing public participation opportunities include District Board meetings, which are open to the public. Public comments received during formal public comment periods are a part of the public record and have been incorporated into the process and the environmental document. All comments received at District Board meetings were considered by the project team. Additionally, the District continues to maintain the project public information website at www.ggbsuicidebarrier.org.

4.2 COMMENTS AND RESPONDING TO COMMENTS

This section summarizes the substantive public and agency comments related to the environmental issues evaluated in the Draft EIR/EA, and provides written responses to these comments. Substantive comments are those that relate to the facts of the project, the project alternatives, the environmental document, or supporting studies.

Opinions or comments that were provided without factual substantiation, regarding a preference for one of the alternatives and/or related to a commenter's support or opposition to the project, which do not relate to the environmental impacts of the project, are not considered to be substantive and are therefore not presented in this section. Similarly, comments that do not address the adequacy of the document in evaluating the environmental issues associated with implementing the project (such as those pertaining to the project cost or alternative uses for that sum of money, asking questions about whether the Bridge would be closed to the public, requesting locations for pictures of the Bridge, complaining about toll increases or expressing opinions about the District and Board) are not presented in this section. These comments were considered by the District; however, because they do not pertain to the adequacy of the environmental evaluation but rather the merits of the project or issues outside the purview of the environmental analysis, formal responses are not required. A copy of all comments received during the formal review period is available at the District offices at the Bridge Toll Plaza and Department offices at 111 Grand Avenue, Oakland, CA.

4.2.1 ORGANIZATION OF COMMENTS AND RESPONSES

Comments and responses are grouped by subject matter and are arranged by topic corresponding to the chapters of the Draft EIR/EA. For example, if a comment was made regarding the project impacts to the historic integrity of the Bridge, the comment and response is provided under Chapter 2, Section 2.3 Cultural Resources. Comments that do not apply to a specific chapter or section of the Draft EIR/EA are presented at the end of this section under the heading *General*.

The full text of all substantive comments received on the Draft EIR/EA is provided in Appendix H. Each letter, email, comment card or website entry that provided substantive comments on the Draft EIR/EA has been outlined and numbered. If multiple comments are contained within an entry they are identified by letter, for example comment “h” in submittal letter 1 from the Golden Gate National Recreation Area is referenced as 1h. This comment reference that follows the comment summary is identified by **[GGNRA (1h)]**.

Each comment and response is numbered sequentially throughout this section (Comments/Responses 1–94) with the specific source of the comment is identified at the end of the comment summary, e.g. **[Bagnolli (116)]**. A response to each comment immediately follows the comment summary. Due to the high volume of comments submitted, several comments from separate commenters frequently addressed the same topic. As a result, master responses that address multiple commenters have been prepared.

Table 4-2 lists each commenter, their affiliation, their comment ID and the response numbers where their comments have been addressed. The comment ID number represents the number given to each commenting agency, organization or individual and corresponds to the comment numbering for the full text of comments provided in Appendix H. The response number represents the numbering of the comment summaries and responses provided in this section.

Table 4-2 Commenters and Location of Responses

Commenter	Agency/Group Affiliation	Comment ID ¹	Response Numbers
Federal Agencies			
Brian O'Neill	United States Department of the Interior, National Park Service, GGNRA	1	14, 16, 40, 43, 44, 45, 46, 47, 48, 49, 50, 51, 54, 55, 56, 57, 58, 59, 81, 86, 87, 88, 91, 92
State and Local Agencies			
John S. Rahaim	San Francisco Planning Department	2	14, 16, 17, 18, 36, 60, 61
Robert J. Morehen	Department of California Highway Patrol	3	21, 22, 23, 24, 25
Maureen Gaffney	San Francisco Bay Trail	4	16, 39, 41, 52, 62, 89
Eric Steger	County of Marin, Department of Public Works	5	42, 90
Kate Gillespie	Marin Mental Health Board	7	7, 8, 16, 19, 26, 33
Melissa Escaron	California Department of Fish and Game	33	81
Organizations			
Garret Glasgow	UC Santa Barbara	6	1
Robert W. Cherny	Landmarks Preservation Advisory Board	21	27
Amanda Coggin	Raise the Rails	23	81
Kaye Fichman	Raise the Rails	36	26
David Hull	The Bridge Rail Foundation	8	2, 3, 4
Steven Hull	Raise the Rails	42	26
	The Bridge Rail Foundation	87	10
Andrew Wolfrom	Docomomo	110	63
Robert M. Guernsey	Citizens for a Safe Golden Gate Bridge	111	64
Individuals			
Randall Van Nostrand		9, 78	34, 70
Derek Anderson		114	67
Martin Anderson		115	67
Jeff Anderson		88	27
Bob Anderson		89	27, 38
Roger Arnal		90	27
David Aro		91	19, 26, 27
Bruce Bagnoli		116	68
Drew Bailey		117, 118	67
Jason Ballesteros		119	67
Nora Barr		120	69

¹ See Appendix H for the full text of the comments.

Commenter	Agency/Group Affiliation	Comment ID¹	Response Numbers
Crystal Barrett		12	25, 26, 27
Michelle Benvenuto		121	67
Tim Bernard		122	67
Yve Betar		13*, 123	34, 36, 70
Sonia Binnendyk		14	53
Erik Blangsted		15	16, 27
Daniel Bloom		92	27
Mark Bluestein		124	69
Alan Blumenthal		16*	34, 36
David Bohman		93	25, 26
John Bourne		125	67
Bryan Boyce		126	67
MJ Boyd		17	19
Joanie Boyle		127	71
Kell Brigan		18, 128, 129	27, 30, 31, 69, 82, 83
Don Brubeck		130	72
Bill Brunt		94	27
Ester Bryant		131	72
Sandy Butler		132	67
EM Byrne		19, 133	67, 84
Colleen Camp		134	72
Diane Carroll		135	67
Monica Cassani		136	67
Christina Castaneda		20	6, 27, 35
Jim Cauble		95	27
Paul Clark		22*	34, 36, 70
Gloria Cevallos		137	69
Carol Chapman		138	67
Robert Chase		139	67
Robert Cherny		140	27, 73
Corey Christopher		141	67
Paul Clark		142	70
Jamie Collins		143	67
Ms Cossio		24	9
Chuck Cox		144	67
Creegen & D'Angelo		112	65
Penni Cremen		25	27, 30
Ian Crockett		145	67
William Cuevas		146, 147	67
R. Cummings		148	67

Commenter	Agency/Group Affiliation	Comment ID¹	Response Numbers
Kim Cyr		149, 150	67
Chad Daniels		151	67
Susan Daniloff		26, 152	67, 81
Laurie Davidson		153	72
R. DelaRosa		154	67
Mitchell Delving		155	67
Jennifer Dever		27, 156	67, 85
Christine Diehl		28	32
Helga Dietrich		29*	34, 36
Pamela Doerr-Kashani		30	27
Chris Draper		157	67
Rosa Dreezy		158	67
Marilyn Duffey		11	37
Susan Dynek		159	67
Theresa Edison		31	19, 30
Jason Elepano		32, 160, 161, 162, 163	12, 67, 74
Steve Evans		96	23, 27
Tom Evans		164	23, 27, 69
Paul Felton		34*, 165	34, 36, 70
Porter Felton		35*	34, 36
Rick Fieber		37	29
J. Folla		166	67
Judith Forman		167	69
Antonia Fraker		168	69
Rich Fritz		97	13
John Frye		169	67
Randy Fugle		38	2
Dave Garcia		98	26
Jason Gates		170	67
Peter Gerdes		39	1
Lorrie Goldin		40	23, 25, 30
Jim Goodman		171	67
Charlotte Grava		172	67
Trevor Hayman		173	67
Culver Heaton		99	27
Jeffrey Heller		174	67
Nicolle Henneuse		175, 176	67
Anthony Hernandez		100	23, 27

Commenter	Agency/Group Affiliation	Comment ID¹	Response Numbers
Heather Hernandez		177	23, 27, 67
Gary A. Hill		41	2
Bill Hole		178	72
Steven Hull		42	19
Duffy Hurwin		179	67
Scott Hutchison		101	27, 38
Janice Hutton		43	1
Gene Jack		44, 180	2, 70
Dave Jackson		181	67, 75
Robbyn Jackson		182	67
Kevin Johnson		45	27
Tom Jones		183	67
Neil Keating		184	67
Diane Knight		185	67
Daniel Kocher		186, 187, 188	67, 74
Sandri Kramer		189	72
Bob Ladd		46	82
Carolyn Lagerlof		190	67
Eugene Lee		47	19, 76
David Lehrer		191	67
Eugene Lee		192	76
Laurie Lew-McCrigler		10	19, 20, 26
John Lynch		193	67
Jim Macleod		194, 195	67
Howard Markert		48	10
Peter Massik		49	85, 86
Richard Matzinger		50	11
Barry Mcgale		51	26, 27
Catherine McMichael		196	67
Thomas Mcnamee		52, 197, 198	77, 81
Brett McPherson		199	67
Ray Miller		53	12
Eugene Miller		200	78
Bruce Mirken		202	67
Gregg Montarano		54	25
Meghan Moody		55	23, 28, 29
Melanie Morgan		56*, 201	12, 34, 70
Robert Morgan		57	36

Commenter	Agency/Group Affiliation	Comment ID¹	Response Numbers
Paul Muller		58	23, 27, 30
K Munjee		59	27
Patrick Murphy		60	1
Rich Myhre		61	27
David Neighbor		203	72
Kirk Norenberg		204	67
Karen Nygren		62	19
Ellena Ochoa		205	67
Alan O'Connor		206	67
Mary Ojakian		207	78
Tom O'Neill		63	27
Susan Oshiro		108	67
David Owen		109	77
P		102	27
Grant Patterson		64	64
Judy Penn		210	67
Deane Peterson		103	27
Erica Petrofsky		211	67
Peter Phaal		212	67
Ashley Phillips		213	67
David Plunkett		104	93
Peggy Radel		65	27, 84
Leah Reich		214	67
Jody Reiss		215	79
Lee Resnick		66	28
Catharine Riggs		216	78
Henry Riggs		217	67, 78
Aaron Roller		218	67
Lauren Roller		219	67, 77
Ruta Rudisill		105	27, 30
Maggie Rufo		67	84
John Rynski		68	84
Maida Salcido		220	67
Faye Schulte		221	67
Alec Seastrand		222	67
Edward Shea		106	27
Virginia Simpson-Magruder		69*, 223	34, 36, 70
Alistair Sinclair		224	67
Amy Kiernan Sinclair		225	67
Diana Sinclair		226	67
Allan Smorra		70	13

Commenter	Agency/Group Affiliation	Comment ID ¹	Response Numbers
Preston Stedman		227	67
Jonathan Stock		228	67
Lynne Stocker		229	67
Donald Stroh		71	5
Laura Swaminathan		72	32
Jessica Tai		230	69
Bren Taylor		73*, 231	34, 36, 70
Esther Taylor		74	27
Thomas Taylor		107	27
Stan Teng		75	19
George Topor		76	19, 26
Christian Utzman		232	67
Ann Leslie Uzdavinis		77, 233	73, 84
Erik Vance		235	67
Leonard Vinci		79	18
Alicia Watkins		80	8, 27
Walt Watkins		81	8
Lynn Wellman		82	23
Jane Wellman		236	67
J.R. Williams		108	27
Janet R. Williams		113	66
Arlene Wilshusen		83	94
Laura Winfrey		84	27
Ray Wisniewski		237	67
Lynn Wright		109	13
Yahiel Yisrael		238	72
Randall Young		85, 239	67, 80
Amy Zahler		86	84
Jane Zhang		240	67

* Same comment verbatim

4.2.2 COMMENTS AND RESPONSES

CHAPTER 1 – PROPOSED PROJECT

1.2 PURPOSE AND NEED

Comment 1

Commenters state that the purpose and need as stated in the Draft EIR/EA is ambiguous; that the document is unclear about the project's purpose, saving lives of suicidal people or diverting suicides from the Bridge. If the purpose of the project is to save lives, the document should state that no scientific study has shown physical deterrents systems save lives and the ability of a physical deterrent system to accomplish the project goal is unknown. It is highly speculative to imply in statement of purpose that investment will deter suicides. The Draft EIR/EA should be more explicit in stating that none of the proposed changes will ensure that there are no more suicides off the Bridge.

[Gerdes (39); Glasgow (6a-6f)]; Hutton (43); Murphy (60)]

Response 1

The purpose of the proposed project as stated on page 1-5 of the Draft EIR/EA is to consider a physical suicide deterrent system that reduces the number of injuries and deaths associated with individuals jumping off the Bridge. In accordance with the criteria set forth by the District, the deterrent system must impede the ability of an individual to jump off the Bridge, while continuing to allow access to the Bridge sidewalks by pedestrians, bicyclists, District staff, and District contractors or security partners. Please see pages 1-5 to 1-7 of the Draft EIR/EA and pages 1-6 to 1-8 of the Final EIR/EA for a complete discussion of the purpose and need for the project.

Comment 2

Commenters state that the Draft EIR/EA format is not designed to address the value of public safety and social needs along side the environmental values, such as views, birds, and visitor access. The public safety considerations should have been addressed first, followed by the decision to do an EIR. The Draft EIR/EA should have addressed the community responsibility of the District to construct a barrier. The Draft EIR/EA contains very little analysis of the suicide problem generally, but merely assumes that physical measures to further reduce suicide on the Bridge will be beneficial. The Draft EIR/EA is lacking in that it does not include an evaluation of social needs and impacts.

[The Bridge Rail Foundation (8a, 8b); Fugle (38); Hill (41); Jack (44)]

Response 2

The Draft EIR/EA has been developed in compliance with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). As stated in CEQA Section 21061, "The purpose of an environmental impact report is to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment." CEQA Section 21060.5 defines environment as "the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, objects of historic or aesthetic significance." As further noted in the CEQA Guidelines Section 15131(a), "Economic or social effects of a project shall not be treated as significant effects on the environment."

Thus, the Draft EIR/EA is not intended to provide a summary of all policy considerations related to a decision, but rather to provide decision makers with detailed information regarding the environmental impacts of the project, which are to be considered along with all other factors the decision makers find relevant.

As noted on page 1-5 of Chapter 1 of the Draft EIR/EA and page 1-7 of the Final EIR/EA, the District, by Resolution 2005-033, adopted on April 22, 2005, decided to consider a physical suicide deterrent system that reduces the number of injuries and deaths associated with individuals jumping off the Bridge. Following this decision engineering studies were undertaken to develop alternatives that met the project purpose and District criteria and the environmental analysis was conducted to evaluate the environmental effects of these alternatives. Public safety considerations established by the District as criteria to be met in developing the deterrent system as listed on page 1-5 of the Draft EIR/EA and page 1-7 of the Final EIR/EA include: not causing safety or nuisance hazards to sidewalk users, maintenance employees, or diminish the ability to provide adequate security of the Bridge. Chapter 1, Section 1.7 of the Draft EIR/EA and Section 1.8 of the Final EIR/EA documents the evaluative process leading up to the alternatives considered in the Draft EIR/EA.

Comment 3

Commenter states that the No Build option stacks the deck because it does not address the problem that is motivating the change. Typically the No-Build Alternative is defined as the alternative that fails to address the problem that is motivating the change. The description of the No-Build Alternative should clearly state that the status-quo fails adequately to address the overriding public safety concern.

[The Bridge Rail Foundation (8c)]**Response 3**

The Draft EIR/EA is not intended to provide a summary of all policy considerations related to a decision, but rather to provide decision makers

with detailed information regarding the environmental impacts to be considered along with other relevant policy issues. Consideration of the No-Build Alternative, as required by CEQA, provides information as to the types of impacts that would occur should no change to existing conditions occur. This alternative was evaluated throughout the Draft EIR/EA along with the build alternatives. It was considered, along with the other alternatives, when the Board selected the Preferred Alternative. As noted in CEQA Section 15126.2(e)(1), the purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The no project alternative is defined by CEQA as the circumstance under which the project does not proceed, and the description of the no project alternative, as provided in the Draft EIR/EA identifies, in accordance with CEQA, the future year conditions if no other actions are taken in the study area beyond what is already in place.

As noted on pages 1-5 and 1-6 of the Draft EIR/EA and pages 1-7 of the Final EIR/EA, the purpose of the project is to consider a physical suicide deterrent system that reduces the number of injuries and deaths associated with individuals jumping off the Bridge. It further notes that the variety of non-physical measures to deter suicides on the Bridge, while preventing approximately two-thirds of those individuals with the intent to commit suicide, has not been effective in preventing the remaining one-third resulting in approximately two dozen deaths per year from individuals jumping off the Bridge.

Comment 4

The commenter states that the effectiveness of the existing non-physical deterrents already in operation is not reported in the Draft EIR/EA and that the document implies that the existing systems are sufficient in impeding suicides.

[The Bridge Rail Foundation (8d, 8e)]

Response 4

The project purpose is to consider a physical deterrent system that reduces the number of injuries and deaths associated with jumping off the Bridge. The discussion of the need for the project provided on page 1-6 of the Draft EIR/EA and pages 1-7 and 1-8 of the Final EIR/EA identifies the reasons for considering a physical suicide deterrent system. As noted on page 1-7 of the Draft EIR/EA and pages 1-7 and 1-8 of the Final EIR/EA, the specific need for the project stems from the fact that the 4-foot height of the outside handrail does not sufficiently deter individuals, who are not using the sidewalk for its intended purposes, from climbing over the outside handrail. As noted on page 1-6 of the Draft EIR/EA and page 1-8 of the Final EIR/EA the existing non-physical measures to deter suicides have stopped approximately two-thirds of those individuals with the intent to commit suicide at the Bridge.

Comment 5

The commenter questions whether installing suicide barriers on other buildings (such as the Empire State Building) lower the overall suicide rate in the City.

[Stroh (71)]

Response 5

The project purpose is to consider a physical deterrent system that reduces the number of injuries and deaths associated with jumping off the Bridge. The Preferred Alternative, the net, satisfies this purpose. The project purpose is not tied to lowering the overall suicide rate in the Bay Area. It is outside the scope of this study to consider the effect of this project on the overall regional suicide rate.

1.3 PROJECT DESCRIPTION**Comment 6**

The commenter states that the current rail does not meet building code standards and questions if the Bridge is liable for this.

[Castaneda (20b)]

Response 6

Although standard building codes (such as the Uniform Building Code) are not applicable to bridges, the height of the outside handrail on the Bridge is taller than the height required by the current building code for outside handrails on balconies of tall buildings. As a governmental entity, the District is only liable for dangerous conditions of public property. The Bridge sidewalks are safe when used for their intended purpose. Therefore, the District would not be liable for death or injury to any person who jumps off the Bridge to commit suicide (See *Milligan v. Golden Gate Bridge,, Highway and Transportation District*, (2004) 120 Cal. App. 4th 1; 15 Cal. Rptr. 3d 25.) The installation of a deterrent will not change the fact that the sidewalks are safe when used for their intended purpose. Additionally, the concepts of trail immunity and design immunity offer the District additional legal defenses from liability.

1.4 PROJECT COSTS AND FUNDING**Comment 7**

The commenter states that the Draft EIR/EA does not provide a cost estimate for the current prevention programs in place on the Bridge including the cost of Bridge and public employees in San Francisco and Marin counties responding to suicides and suicide attempts, recovery, transfer/transport of persons or bodies.

[Marin Mental Health Board (7b)]

Response 7

The No-Build Alternative assumes continuance of the existing non-physical suicide deterrent programs. The cost of these programs is not an environmental condition to be evaluated in the Draft EIR/EA.

Comment 8

Commenters support charging pedestrians and bicyclists tolls for use of the Bridge's sidewalks to raise funds for suicide prevention improvements.

[Marin Mental Health Board (7d); Watkins (81)]

Response 8

The project purpose is to consider a physical deterrent system that reduces the number of injuries and deaths associated with jumping off the Bridge. Consideration of measures from which to raise funds for suicide prevention improvements is outside the scope of the Draft EIR/EA.

At this time, the District is not considering a study of pedestrian/biker tolls for use of the Bridge's sidewalks as a means to prevent suicide or as a funding source for the project.

Comment 9

A commenter questions whether an assessment of the costs of making any of the alternatives carbon neutral has been made.

[Cossio (24)]

Response 9

"Carbon neutral" projects are projects that voluntarily reduce carbon emissions and purchase offsets for unavoidable carbon emissions in order to have a net zero increase in carbon dioxide emitted into the atmosphere. Carbon emissions result from the burning of fossil fuels associated with a variety of activities, the largest sources of emissions result from coal, oil, and gas combustion in power plants, automobiles, industrial facilities, and other sources. Lesser sources include mineral production, metal production, and the use of petroleum-based products.

Current Bridge activities contributing to its carbon footprint include vehicle traffic crossing the Bridge, vehicle use in on-going painting and other maintenance activities, energy use to light the Bridge roadway and sidewalks, and limited instances of vehicle use for rescues of jumpers from the Bridge.

Operation of the Preferred Alternative would minimally change the current Bridge activities that contribute to its carbon footprint. The project would not change the volume of vehicle traffic crossing the Bridge, nor would it affect the use of energy for Bridge lighting. The project would require uses of snooper trucks and additional maintenance of the net that could nominally affect the Bridge's carbon footprint.

Construction of the Preferred Alternative would result in limited temporary indirect increases in carbon dioxide emissions; indirect emissions include emissions from the production of construction materials and the transportation of materials to the project site. The emissions increase would be temporary and negligible over the life of the project.

Comment 10

Commenters state that the document lacks financial information needed to arrive at a fully informed decision including the costs resulting from the loss of tourism.

[Markert (48); The Bridge Rail Foundation (87)]

Response 10

There is no anticipated change in the local tourism economy associated with any of the proposed alternatives. The purpose of the Draft EIR/EA is to evaluate the environmental impacts of the proposed suicide deterrent systems. Environment encompasses the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, objects of historic or aesthetic significance. Under CEQA, economic or social effects of a project shall not be treated as significant effects on the environment. See also Response 2.

Thus, the Draft EIR/EA is not intended to provide a summary of all policy considerations related to a decision, but rather to provide decision makers with detailed information regarding the environmental impacts of the project, which are to be considered along with all other factors the decision makers find relevant. The financial implications of a project may be considered by the Board when making their decision regarding the project, but are not part of the Draft EIR/EA analysis.

Comment 11

The commenter states that the Draft EIR/EA doesn't discuss alternative and less damaging uses for the 50 million dollars, such as the moveable traffic barrier.

[Matzinger (50)]

Response 11

The Draft EIR/EA is not intended to provide a summary of all policy considerations related to a decision, but rather to provide decision makers with detailed information regarding the environmental impacts of the project, which are to be considered along with all other factors the decision makers find relevant. The financial implications of a project may be considered by the Board when making their decision regarding the project, but are not part of the Draft EIR/EA analysis. See also Response 2.

1.5 PROJECT ALTERNATIVES

Comment 12

Commenters request an analysis of changes to resonant frequencies of the structure, the effect of added weight on the structure, and the expected stress from wind loads added to the Bridge.

[Elepano (32b); Miller (53); Morgan (57)]

Response 12

The District prepared the *Golden Gate Bridge Suicide Deterrent Phase 1 Wind Studies Report*, which evaluated the affects of wind on the Bridge with various suicide deterrent systems. This report is available on the project website: <http://www.ggbsuicidebarrier.org/studydocuments.php>. Project build alternatives were selected for their ability to maintain the wind stability of the Bridge. The report found that none of the proposed build alternatives affected the wind stability of the Bridge. Pages 1-44 through 1-51 of the Draft EIR/EA and pages 1-49 through 1-59 of the Final EIR/EA discuss the wind study and the process for selecting the build alternatives.

The Bridge weighs approximately 21,000 pounds per linear foot. Based on reviews of engineers, the additional load on the Bridge from installation of the net alternative would be negligible (less than 1 percent of the total Bridge weight) in comparison to the total weight of the Bridge due to the light weight materials used for the suicide deterrent system.

Comment 13

Commenters question what the District's legal liability would be if someone still got around the barrier and injured themselves or died.

[Smorra (70); Fritz (97); Wright (109)]

Response 13

As a governmental entity, the District is only liable for dangerous conditions of public property. The Bridge sidewalks are safe when used for their intended purpose. Therefore, the District would not be liable for death or injury to any person who jumps off the Bridge to commit suicide (See *Milligan v. Golden Gate Bridge,, Highway and Transportation District*, (2004) 120 Cal. App. 4th 1; 15 Cal. Rptr. 3d 25.) The installation of a deterrent will not change the fact that the sidewalks are safe when used for their intended purpose. Additionally, the concepts of trail immunity and design immunity offer the District additional legal defenses from liability.

Comment 14

Commenters request that the District do a detailed study of the color of the Preferred Alternative. One commenter suggests constructing a mock up painted in both International Orange and a receding color to be able to judge the mitigation of visual impacts, while another commenter suggests

painting the net itself a darker color, such as the color of the water, so as to be less visible.

[GGNRA (1g); San Francisco Planning Department (2c)]

Response 14

The visual impacts of the Preferred Alternative are addressed in the Draft EIR/EA and the accompanying Visual Analysis Report. Visual simulations were developed at 14 different viewpoints to evaluate the impacts to views towards the Bridge and views from the Bridge. The two viewpoints from which the net was most visible were from Vista Point and at the towers looking over the outside handrail (Figures 2.2-53 and 2.57 of the Draft EIR/EA). Additional visual simulations were prepared for these two viewpoints to evaluate different color netting material. Based on these simulations and on subsequent consultation with the State Historic Preservation Office (SHPO) and other interested parties following the close of the public comment period, it was determined that the unpainted and uncoated stainless steel net materials would have the least affect or would minimize affects of the proposed project on visual resources as it would reduce the visual intrusion of Alternative 3, the Preferred Alternative. The unpainted and uncoated stainless steel would visually blend with the color of the San Francisco Bay and skyline.

Comment 15

Commenter states that the report should provide pros and cons for each alternative and a ranking for the effectiveness of each alternative.

[Patterson (64)]

Response 15

The purpose of the proposed project is to reduce the number of injuries and deaths associated with jumping from the Bridge. The build alternatives are anticipated to be similarly effective in reducing the number of injuries and deaths associated with individuals jumping off the Bridge. Table 1-1 on page 1-45 of the Draft EIR/EA and page 1-51 of the Final EIR/EA compares the alternatives' effectiveness in meeting the project purpose and District criteria. At its meeting of October 10, 2008, the Board selected Alternative 3 (Net System) as the Preferred Alternative.

On average, approximately two dozen people kill themselves each year by jumping from the Bridge. Alternative 3 was developed based on several successful installations of nets as a suicide deterrent. Similar to those installations at other suicide hotspots, the net is located about 20 feet below the roadway. Where nets have been used in such a fashion, they have been 100 percent effective, because people have stopped jumping off those structures. It is therefore anticipated that the number of deaths associated with people jumping from the Bridge will greatly decrease with the construction of the net.

Comment 16

Commenters prefer non-physical deterrents, but believe Alternative 3 (Net System) has the least impact to the visitor experience, scenic and historic resources, and all other key aspects of the Bridge and is preferred over other build alternatives.

[GGNRA (1a; 1c); San Francisco Planning Department (2b; 2f); San Francisco Bay Trail (4b); Marin Mental Health Board (7c); Blangsted (15)]

Response 16

Over the years the District has evaluated and implemented a variety of non-physical suicide deterrent measures. The non-physical measures that are in place stop approximately two-thirds of those individuals who come to the Bridge to injure themselves. However, approximately two dozen individuals jump from the Bridge each year. The project purpose is to consider a physical deterrent system that reduces the number of injuries and deaths associated with jumping off the Bridge. Non-physical alternatives do not satisfy the purpose and need of the proposed project.

The Board has selected Alternative 3 (Net System) as the Preferred Alternative. Commenters' support for this alternative is noted.

Comment 17

The commenter recommends that the net and the struts of Alternative 3 be placed in different planes to avoid creating a solid visual platform when seen at a distance.

[San Francisco Planning Department (2d)]

Response 17

Since the struts structurally support the netting, they will need to remain in the configuration illustrated in the Draft EIR/EA. As shown by the visual simulations and discussed on page 2-92 of the Draft EIR/EA and pages 2-94 and 2-95 of the Final EIR/EA, Alternative 3 (Net System) would not be visible from many viewpoints looking towards the Bridge. It would have an adverse visual impact only from Viewpoint 4, Vista Point, as the net would be visible across the total field of view. Additional visual simulations of Alternative 3 have been prepared from Vista Point to depict the associated visual impacts for different colored netting coupled with international orange colored struts.

Comment 18

Commenters recommend netting material be as lightweight as possible with minimal maintenance and that netting not be firm with minimal spacing of the net mesh no closer than 6 to 8 inches across to prevent person from crawling across the net to the edge.

[San Francisco Planning Department (2e); Vinci (79)]

Response 18

The District agrees that the netting material should be as lightweight as possible, immediately usable after an event and easy to maintain. Marine-grade stainless steel wire netting satisfies all of these criteria. The net will incorporate a grid between 4 and 10 inches, the actual size to be determined during final design.

The District prepared the *Golden Gate Bridge Suicide Deterrent System Operations, Maintenance and Emergency Response Report* in order to evaluate the effects of the proposed alternatives on maintenance, operations and emergency response activities. This report, which discusses the impacts and associated costs, is available on the project website: <http://www.ggsuicidebarrier.org/studydocuments.php>

Comment 19

Commenters requested information on the maintenance of netting including: repainting; cleaning and removal of catch debris and garbage; associated costs.

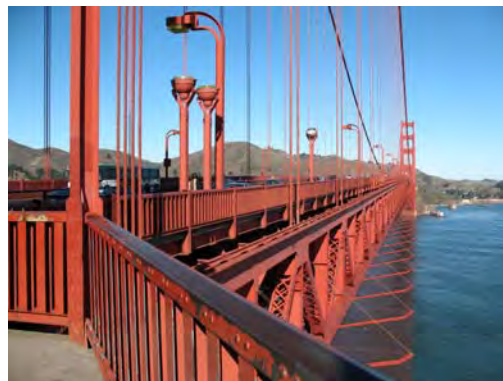
[Marin Mental Health Board (7c); Lew-McCrigler (10); Boyd (17); Edison (31); Hull (42a); Lee (47); Nygren (62); Teng (75); Topor (76); Aro (91c)]

Response 19

The net will incorporate a grid between 4 and 10 inches, the actual size to be determined during final design. The larger size would allow many common items, such as cameras, to pass through the net and fall to the water similar to what happens if a camera is dropped today. A smaller grid would capture more debris.

In addition to pedestrians dropping items into the net, debris from the roadway may accumulate in the horizontal net system. The Bridge is located at a windy site and lightweight debris may be blown onto the net. However, this lightweight debris which has been transported into the net by wind may similarly be removed from the net by the wind.

The net is most visible from the sidewalks at the towers (see photograph to the right). Thus, along the majority of the length of the net, where it is not readily visible to the public, a once every three month cleaning interval would likely be adequate. However, the approximately 200 foot long length nearest the towers would be very visible, necessitating that this area be more regularly cleaned. The required frequency of cleaning to satisfy public expectations of cleanliness is



unknown at this time, since there is no basis to estimate how quickly trash will accumulate in these segments of the net.

The snoopier truck that would be used for emergency operations with the net can be used to clean debris from the net. However, the snoopier for emergency operations requires a single lane closure. In order to avoid traffic impacts associated with trash removal the District will purchase a second, smaller sidewalk-sized snoopier (see photograph to the right) for



debris removal operations. The cost of the smaller snoopier truck is also included in the project cost estimate. As previously discussed the use of snoopier trucks near mid-span is limited. Alternate methods will be used for cleaning the nets at these locations.

The District prepared the *Golden Gate Bridge Suicide Deterrent System Operations, Maintenance and Emergency Response Report* in order to evaluate the effects of the proposed alternatives on maintenance, operations and emergency response activities. This report, which discusses the impacts and associated costs, is available on the project website: <http://www.ggbsuicidebarrier.org/studydocuments.php>

Comment 20

Commenter states that the net will rot faster than metal.

[Lew-McCrigler (10)]

Response 20

The net would be made from marine-grade stainless steel wire netting so it will be quite durable.

Comment 21

Commenter states that if Alternative 3 is built, rescue staff would need repelling training and cherry picking training, use of a truck equipped with an inverted “cherry picker” mechanism and basket, requiring closure of the sidewalk and travel lanes on the Bridge. This would result in catastrophic delays.

[California Highway Patrol (3b)]

Response 21

If an individual were to jump into the net, the District would need to rescue the individual from the net. In order to provide for the safe retrieval of such an individual, the District would purchase an under Bridge inspection truck (UBIT), which are some times referred to as “snoopier trucks”. The

snooper truck would be used to access and facilitate retrieval of jumpers from the horizontal netting along most of the length of the Bridge. Snooper trucks have a truck-mounted bucket-controlled basket that can be used for access beneath a bridge from the roadway. The District would purchase a snooper truck which operates within a single lane closure and that has a reach to span over the sidewalk and reach down to the net. Several manufactures make such a unit. One example is the Aspen A-62, manufactured by Aspen Aerials, Inc.



The equipment and procedures involved in deploying the UBIT are quite complex, so the District would have to periodically practice retrieval operations in order to be adequately prepared to retrieve someone if necessary.

It is important to note that the use of snooper trucks would be limited within approximately 300 feet of either side of mid-span. Rescue of victims from this area would require specialized and highly technical “suspended rescue” techniques. Operation of snooper trucks would also be prohibited during severe wind conditions. In these instances Bridge workers would utilize the same rescue techniques that are contemplated for the rescue of an injured Bridge worker. A small davit would be deployed on the sidewalk and a personnel basket lowered to the location of the individual in the net.

Traffic congestion and motorist delays are a possibility associated with a net rescue. The deployment of the snooper truck would require the closure of a traffic lane, reducing vehicular capacity on the Bridge during the incident. Depending on the time of day (lane configuration in place and traffic demand) this may result in significant delay to the motoring public. In addition, the Bridge sidewalk would need to be closed in the vicinity of the snooper truck during such an operation. Based on the success of nets at other suicide hotspots traffic congestion and delay associated with a net rescue would be a rare, non-recurring occurrence. The impact on pedestrian and vehicular traffic on the Bridge and surrounding highways is not anticipated to be catastrophic.

The District prepared the *Golden Gate Bridge Suicide Deterrent System Operations, Maintenance and Emergency Response Report* in order to evaluate the effects of the proposed alternatives on maintenance, operations and emergency response activities. This report, which discusses the impacts and associated costs, is available on the project website: <http://www.ggsuicidebarrier.org/studydocuments.php>

Comment 22

The commenter notes that since the California Highway Patrol does not train its personnel in the skills needed nor maintain the sort of vehicles and equipment to accomplish a rescue, other emergency personnel or Bridge workers and special vehicles would be need to be called to the scene.

[California Highway Patrol (3c)]**Response 22**

It is recognized that the California Highway Patrol does not train its personnel in the skills needed nor maintain the sort of vehicles and equipment to accomplish a rescue. In order to provide for the safe retrieval of such an individual, the District would purchase an under bridge inspection truck (UBIT), which are some times referred to as “snooper trucks”. The snooper truck would be used to access and facilitate retrieval of jumpers from the horizontal netting along most of the length of the Bridge. Snooper trucks have a truck-mounted bucket-controlled basket that can be used for access beneath a bridge from the roadway. The District would purchase a snooper truck which operates within a single lane closure and that has a reach to span over the sidewalk and reach down to the net. Several manufactures make such a unit. One example is the Aspen A-62, manufactured by Aspen Aerials, Inc.

In these instances where a snooper truck could not be deployed Bridge workers would utilize the same rescue techniques that are contemplated for the rescue of an injured Bridge worker. A small davit would be deployed on the sidewalk and a personnel basket lowered to the location of the individual in the net.

It is anticipated that the rescue operation discussed above would be a rare occurrence based on the history of other net applications. However, the equipment and procedures involved are quite complex, so the District would periodically practice retrieval operations in order to be adequately prepared to retrieve someone if necessary.

Comment 23

Commenters question if a person jumping into the net (a fall of 20 feet) would survive or sustain serious injury or require immediate medical attention.

[California Highway Patrol (3a); Goldin (40a); Moody (55); Muller (58a); Evans (96b); Hernandez (100b); Wellman (82)]**Response 23**

The net is intended to impede individuals from jumping, and the installation of similar systems elsewhere has proven to be effective in that regard. It is possible that an individual who fell into the net could experience injuries, and it is possible that those injuries could worsen while the individual awaits emergency personnel arriving on the scene.

Comment 24

The commenter notes that jumpers into the net may resist help, assault rescuers, or otherwise complicate and delay rescue efforts.

[California Highway Patrol (3d)]**Response 24**

It is possible that an individual who jumped into the net could resist help from retrieval personnel. The District, however, has prepared the *Golden Gate Bridge Suicide Deterrent System Operations, Maintenance and Emergency Response Report* in order to evaluate the effects of the proposed alternatives on emergency response activities, including how to retrieve an individual located on the net. As discussed in Responses 21 and 22, the District would purchase an under bridge inspection truck (UBIT), which are some times referred to as “snooper trucks”, to most effectively retrieve an individual from the net. The snooper truck would be used to access and facilitate retrieval of jumpers from the horizontal netting along most of the length of the Bridge. In the instances where a snooper truck could not be deployed, Bridge workers would utilize the same rescue techniques that are contemplated for the rescue of an injured Bridge worker. The District would also periodically practice retrieval operation in order to be adequately prepared to retrieve someone if necessary.

Comment 25

Commenters express concerns for the safety/well being of jumpers, Bridge rescue personnel, and pedestrians and motorists using the Bridge during rescues.

[California Highway Patrol (3e); Barrett (12); Goldin (40a); Montarano (54); Bohman (93b)]**Response 25**

The District agrees that the selection of the suicide deterrent system should consider the safety of the persons at risk of doing harm to themselves, as well as the safety of Bridge employees, public safety personnel, and the vast majority of the pedestrians and motorists who use and depend on the bridge for its intended transportation purpose. The District prepared the *Golden Gate Bridge Suicide Deterrent System Operations, Maintenance and Emergency Response Report* in order to evaluate the effects of the proposed alternatives on maintenance, operations and emergency response activities. Based on this evaluation and based on the success of nets as a suicide deterrent at other structures the District has determined that the net alternative provides the least overall risk.

Comment 26

Commenters request information on the protocols for responding when the net is engaged by a jumper including: how easily are the nets accessed; how the Bridge staff and response personnel would be notified that the net is

engaged; what would the impacts to the Bridge users; and note that there would be recurring costs.

[Marin Mental Health Board (7c); Lew-McCrigler (10); Barrett (12); Raise the Rails (36); Raise the Rails (42b); Mcgale (51); Topor (76); Aro (91a); Bohman (93a, 93b); Garcia (98)]

Response 26

Responses 21 and 22 describe the equipment and activities that would take place to retrieve individuals from the net. As noted in these responses specialized vehicle, called a “snooper” truck is necessary to access the net and would be brought in during a retrieval event. Two specially trained rescue workers would be lowered down to the net in a bucket to pull the person out. Existing surveillance measures will be maintained to identify when an individual has landed in the net.

During a retrieval operation from the net, authorities would shut down a lane of traffic and the pedestrian pathways. The impact on pedestrian and vehicular traffic on the Bridge and surrounding highways is not anticipated to be severe. Moreover, retrieval operations are not expected to be a common occurrence. The District prepared the *Golden Gate Bridge Suicide Deterrent System Operations, Maintenance and Emergency Response Report* in order to evaluate the effects of the proposed alternatives on maintenance, operations and emergency response activities. This report, which discusses the impacts and associated costs, is available on the project website:
<http://www.ggbsuicidebarrier.org/studydocuments.php>.

Comment 27

Commenters question if a determined person would be able to crawl out of the net and jump after landing there.

[Barrett (12); Blangsted (15); Brigan (18c); Castaneda (20c); Cherny (21); Cremen (25); Doerr-Kashani (30); Johnson (45); Mcgale (51); Muller (58b); Munjee (59); Myhre (61); O’Neill (63); Radel (65b); Taylor (74); Watkins (80); Winfrey (84); Andersen (88); Andersen (89b); Arnal (90); Aro (91a); Bloom (92); Brunt (94); Cauble (95); Evans (96a); Heaton (99); Hernandez (100a); Hutchison (101b); P (102); Peterson (103); Rudisill (105a); Shea (106); Taylor (107); Williams (108)]

Response 27

The purpose of the project is to reduce the number of injuries and deaths associated with individuals jumping from the Bridge. Currently, each year approximately two dozen people kill themselves by jumping from the Bridge. Although the number of injuries and deaths associated with people jumping from the Bridge will greatly decrease with the installation of the net, it is possible that an individual who fell into the net could crawl out to the edge of the net and jump to their death.

Alternative 3 (Net System), the Preferred Alternative, was developed based on several successful installations of nets as a suicide deterrent. The most famous such installation is the Muenster Terrace in Bern, Switzerland. At that location the net has been in place for ten years, and to date, nobody has jumped into the net.

Comment 28

The commenters question if it would be possible for someone to jump far enough out to by-pass the net.

[Moody (55); Resnick (66)]

Response 28

As noted in the Draft EIR/EA the net would be located approximately 20 feet below the sidewalk and extend horizontally approximately 20 feet from the Bridge. Given the horizontal distance of the edge of the net from the Bridge, it would be very difficult for someone standing on the Bridge to jump beyond the net. As noted in Response 27, nets installed elsewhere have created a substantial deterrent to individuals jumping from other suicide hot spots.

Comment 29

Commenters question the safety of the net and what might happen if the net fails.

[Fieber (37); Moody (55)]

Response 29

The net will be constructed of marine-grade stainless steel cable supported by struts, or beams, that extend out from the structure. These elements will be designed to support the anticipated loads (or weights) that are likely to occur during the life of the net structure. Marine-grade stainless steel wire netting was selected for the netting material to insure that it maintains adequate strength and provides a long service life in the harsh marine environment that exists at the Bridge.

Comment 30

Commenters note that “thrill seekers” and pranksters could purposefully jump into the net.

[Brigan (18c); Cremen (25); Edison (31); Goldin (40a); Muller (58a); Rudisill (105b)]

Response 30

It is possible that the net may attract thrill seekers that would purposefully jump into the net. Alternative 3 (Net System) was developed based on several successful installations of nets as a suicide deterrent. Where nets have been used in such a fashion, they have been 100 percent effective, because people have stopped jumping off those structures. It is anticipated

that the number of deaths associated with people jumping from the Bridge will greatly decrease with the construction of the net, which is consistent with the purpose of the project and the District criterion that the project must “impede” the ability of an individual to commit suicide by jumping from the Bridge.

Comment 31

The commenter questions what impacts the net might have on maintenance workers, i.e. would they be safer or placed at greater risk by moving the net around.

[Brigan (18d)]

Response 31

The District prepared the *Golden Gate Bridge Suicide Deterrent System Operations, Maintenance and Emergency Response Report* in order to evaluate the effects of the proposed alternatives on maintenance, operations and emergency response activities. This report, which discusses the impacts and associated costs, is available on the project website: <http://www.ggbsuicidebarrier.org/studydocuments.php>.

The maintenance activity impacted by the net alternative is associated with work using the maintenance traveler. Alternative 3 (Net System) is designed to be able to be pulled up in sections to allow unimpeded movement of the maintenance traveler. The maintenance workers are protected by the railing when the net is raised and are protected by the traveler railing when in the traveler.

Comment 32

Commenters state that the pictures show views towards the Bridge but not from the Bridge and that the images do not portray how the net would look from different angles.

[Diehl (28); Swaminathan (72)]

Response 32

Simulations of the build alternatives (including the net) were created from 14 different viewpoints, in order to provide the public and reviewing agencies visual references for each of the build alternatives, and the opportunity to assess their potential visual impacts. These simulations are included in the Draft EIR/EA in Section 2.2, Visual Resources.

Existing and simulated views towards the Bridge were provided from viewpoints:

- Viewpoint 1 - Fort Point
- Viewpoint 2 - Baker Beach
- Viewpoint 3 - North Fishing Pier

- Viewpoint 4 - Vista Point
- Viewpoint 5 - Marin Headlands
- Viewpoint 6 - Boat View West
- Viewpoint 7 - Boat View East

Existing and simulated views from the Bridge were provided from viewpoints:

- Viewpoint 8 - Car View West
- Viewpoint 9 - Car View Center
- Viewpoint 10 - Car View North
- Viewpoint 11 - Car View East
- Viewpoint 12 - Sidewalk North
- Viewpoint 13 - Sidewalk South
- Viewpoint 14 - South Tower

Simulations of the Alternative 3 (Net System), the Preferred Alternative, were prepared for viewpoints 1-7 and viewpoint 14. These simulations show how the net would look from several viewing angles. Since the net would not be visible from viewpoints 8 – 13, simulations were not necessary from these viewpoints.

Comment 33

Commenter states that the Draft EIR/EA fails to provide enough specific information about current prevention protocols.

[Marin Mental Health Board (7a)]

Response 33

The current prevention protocols comprise the No-Build Alternative, which represents future year conditions if no other actions are taken in the study area. As noted in CEQA Section 15126.2(e)(1), the purpose of describing and analyzing a no build alternative is to allow decision makers to compare the environmental impacts of approving the proposed project with the impacts of not approving the proposed project. Because the current protocols, as described on pages 1-40 through 1-42 of the Draft EIR/EA and pages 1-46 through 1-48 of the Final EIR/EA, are non-physical programs, they do not generate environmental impacts. The provision of more detailed information about these protocols would therefore not contribute to the comparison of environmental impacts, which is the purpose of the Draft EIR/EA.

Comment 34

Commenters state that the Draft EIR/EA is flawed in that the No-Build Alternative was not evaluated equally. It should be fully studied as a viable

alternative that can meet the District's 11 criteria established for a means to impede suicides on the Bridge.

[Van Nostrand (9), (78); Betar (13a); Blumenthal (16a); Clark (22a); Dietrich (29a); Felton (34a); Felton (35a); Morgan (56a); Simpson-Magruder (69a); Taylor (73a)]

Response 34

The No-Build Alternative was evaluated equally in the Draft EIR/EA. As noted in CEQA Section 15126.2(e)(1), the purpose of describing and analyzing a No-Build Alternative is to allow decision makers to compare the environmental impacts of approving the proposed project with the impacts of not approving the proposed project. The No-Build Alternative described in the Draft EIR/EA identifies the future year conditions if no other actions are taken in the study area beyond the non-physical programs that are already in place. Table 1-1, Comparison of Alternatives, summarizes how all of the alternatives, including the No-Build Alternative, respond to the Board criteria.

Environment is defined as the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, objects of historic or aesthetic significance (CEQA Section 21060.5). The No-Build Alternative does not include any physical features and would therefore have no affect on any of the existing physical conditions. The Draft EIR/EA evaluates the impacts of the build alternatives to existing physical conditions, which represent conditions under the No-Build Alternative. This analysis compares each build alternative to the no build condition.

The Draft EIR/EA is intended to be an informational document to be used in the planning and decision-making process. It is not the purpose of a Draft EIR/EA to recommend approval or denial of a project; rather decision makers use the document to balance the benefits of a proposed project against the environmental risks.

Comment 35

Commenter states that the No-Build Alternative should be stricken.

[Castaneda (20a)]

Response 35

Evaluation of a No Project or No-Build Alternative is required under the California Environmental Quality Act and National Environmental Policy Act. The purpose of describing and analyzing the No-Build Alternative is to allow decision makers to compare the environmental impacts of approving the proposed project with the impacts of not approving the proposed project.

Comment 36

Commenters suggests the District reconsider using non-physical alternatives beyond those currently employed at the Bridge, including a specific suggestion of having full-time staff at sidewalk entrances to make eye contact with users and help reduce suicide attempts.

[San Francisco Planning Department (2a-2) Betar (13b); Blumenthal (16b); Clark (22b); Dietrich (29b); Felton (34b); Felton (35b); Morgan (56b); Simpson-Magruder (69b); Taylor (73b)]

Response 36

Over the years the District has evaluated and implemented a variety of non-physical suicide deterrent measures. The non-physical measures that are in place stop approximately two-thirds of those individuals who come to the Bridge to injure themselves. However, approximately two dozen individuals jump from the Bridge each year. The project purpose is to consider a physical deterrent system that reduces the number of injuries and deaths associated with jumping off the Bridge. Non-physical alternatives do not satisfy the purpose and need of the proposed project.

Comment 37

Commenter states that the impacts to historic resources, Section 4(f) and visual impacts of all of the build alternatives should render a decision in favor of the No-Build Alternative.

[Duffey (11)]

Response 37

The stated goal of the project is to provide a physical deterrent system that reduces the number of injuries and deaths associated with individuals jumping off the Bridge, which is not met by the No-Build Alternative. The project purpose and District criteria require that the system satisfy the requirements of state and federal historic preservation laws and have minimal visual and aesthetic impacts on the Bridge. Alternative 3 (Net System) has been selected by the District as the Preferred Alternative. This alternative meets the project purpose and District criteria.

1.6 COMPARISON OF ALTERNATIVES**Comment 38**

Commenters indicate their understanding that the net has been approved.

[Andersen (89a); Hutchison (101a)]

Response 38

The selection of the Preferred Alternative is not an approval of the project. The Preferred Alternative is the alternative selected for further study in the

Final EIR/EA. The Board will make a separate decision on the project after they act on the Final EIR/EA document.

1.8 PERMITS AND APPROVALS NEEDED

Comment 39

Commenter notes that not only the staging areas but the entire project falls within BCDC's permitting jurisdiction and therefore requires a permit.

[San Francisco Bay Trail (4d)]

Response 39

The District is not aware of any previous BCDC or District action that indicates that the entirety of the Bridge is within BCDC jurisdiction.

CHAPTER 2 – AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

2.1 LAND USE

Comment 40

Commenter expresses concern that deterrent system may include physical impacts to historic elements, and the visual and visitor experience for drivers, cyclists, and pedestrians on the Bridge.

[GGNRA (1d)]

Response 40

The project has thoroughly identified and evaluated the potential impacts and effects to the Bridge under Section 106 of NHPA under NEPA, and as an historical resource under CEQA, and will continue to follow NEPA and CEQA procedures as they pertain to historic properties.

A series of visual simulations were prepared as part of the Visual Impact Assessment to consider the impacts to visitors, drivers, cyclists and pedestrians on the Bridge. A Section 4(f) Study was conducted to ascertain the impact of the alternatives upon the publicly owned parklands surrounding the Bridge.

Comment 41

Commenter notes that the Bay Trail and its policies regarding views and aesthetics are not addressed in the Draft EIR/EA. The Bay Trail segments at Fort Baker are also not referenced.

[San Francisco Bay Trail (4a)]

Response 41

The Bay Trail segments at Fort Baker have been added to Figures 2.1-1 and 2.1-2. A discussion of the Bay Trail policies has been added to Section 2.1.2 of the Final EIR/EA.

Comment 42

Commenter notes that both the Bridge sidewalks are identified in the Marin County Unincorporated Area Bicycle and Pedestrians Master Plan as Class 1 multiuse paths and bikeways.

[Marin County Department of Public Works (5a)]**Response 42**

The text has been updated to include this information, see pages 2-11 and 2-12 of the Final EIR/EA.

Comment 43

Commenter requests a correction be made to Figure 2.1-1 to show the legislative boundary of the GGNRA including waters under state lease. The commenter also requests that construction staging areas shown on this figure have a distinct color and symbol.

[GGNRA (1i; 1k)]**Response 43**

Figure 2.1-1 has been updated as requested; see page 2-3 and Appendix B, page 11, of the Final EIR/EA.

Comment 44

Commenter requests a correction be made to Figure 2.1-2 to show the legislative boundary of the GGNRA and to show all of East Fort Baker as part of the GGNRA. The commenter also requested that construction staging areas shown on this figure have a distinct color and symbol.

[GGNRA (1j; 1k)]**Response 44**

Figure 2.1-2 has been updated accordingly; see page 2-4 and Appendix B, page 12, of the Final EIR/EA.

Comment 45

Commenter requests that Table 2.1-1 be expanded to add certain land uses and land use classifications to specific properties.

[GGNRA (1I)]**Response 45**

This table has been updated accordingly; see page 2-5 of the Final EIR/EA.

Comment 46

Commenter requests that Table 2.1-2 be updated to reflect the current status of some of the projects.

[GGNRA (1m)]**Response 46**

The table has been updated accordingly; see page 2-5 of the Final EIR/EA.

Comment 47

Commenter requests descriptions of the Fort Baker and Doyle Drive projects provided on page 2-6 of the Draft EIR/EA be updated to reflect their current status.

[GGNRA (1n; 10)]**Response 47**

The text has been updated accordingly; see pages 2-2 through 2-6 of the Final EIR/EA.

Comment 48

Commenter requests that the Project Consistency discussion on page 2-10 of the Draft EIR/EA be expanded to include a discussion of wind impacts and potential bird impacts.

[GGNRA (1p)]**Response 48**

The text has been expanded accordingly; see page 2-10 of the Final EIR/EA.

Comment 49

Commenter requests a correction be made to Table 2.1-3 to show Fort Baker as part of the GGNRA.

[GGNRA (1q)]**Response 49**

The table has been updated accordingly; see page 2-14 of the Final EIR/EA.

Comment 50

Commenter requests that the Fort Baker discussion on page 2-13 of the Draft EIR/EA be updated to state that Fort Baker is now open to the public.

[GGNRA (1r)]**Response 50**

The text has been updated accordingly; see pages 2-14 and 2-15 of the Final EIR/EA.

Comment 51

Commenter requests a clarification be made to pages 2-13 and 2-130 to state that the Merchant Road staging area is also within GGNRA lands. Commenter also requests confirmation that public parking will be available during project construction and that coordination with the nearby GGNRA remediation and trail project will occur.

[GGNRA (1s), GGNRA (1u)]

Response 51

The text has been updated to identify the Merchant Road staging area, which is within the District's permitted area, as within the GGNRA, Presidio Area A. Public parking will be available during project construction as identified on page 2-14 of the Draft EIR/EA and pages 2-15 and 2-16 of the Final EIR/EA. The District will coordinate all construction with the GGNRA projects.

2.2 VISUAL / AESTHETICS**Comment 52**

Commenter states it is unclear why Table 2.2-13 on page 2-100 of Draft EIR/EA states that from viewpoints 12 and 13, visual impacts would be negligible. From any point along the north of the sidewalks views looking down will be impeded.

[San Francisco Bay Trail (4b)]

Response 52

Viewpoints 12 and 13 are taken from a location along the sidewalk looking across the outside handrail towards the San Francisco skyline and Marin County hillsides, illustrative of the views from pedestrians walking along the Bridge sidewalk. Existing views from these viewpoints are shown throughout the Draft EIR/EA and Final EIR/EA on Figures 2.2-15, 2.2-16, 2.2-26, 2.2-27, 2.2-37, 2.2-38, 2.2-48, and 2.2-49. The horizontal net would be located approximately 20 feet below the sidewalk, so the installation of the horizontal net would have a negligible affect on views from these viewpoints. Viewpoint 14 was selected to illustrate the affect to viewers looking down from the outside handrail (as identified by the commenter) and the resulting visual impact was identified as adverse.

Comment 53

Commenter states that the net could adversely impact the views of the Bridge from points in San Francisco, Marin County and across the Bay.

[Binnendyk (14)]

Response 53

The Draft EIR/EA presented simulated views towards the Bridge from seven viewpoints. As shown by these simulations, the net would not be

visible from the majority of views toward the Bridge. It would be somewhat visible from Viewpoint 1 – Fort Point and Viewpoint 6 – Boat View West, and the visual impact was determined to be minimally adverse. It would be more visible from Viewpoint 4 – Vista Point, and the visual impact was determined to be adverse.

Comment 54

Commenter notes that the Presidio landscape unit in Table 2.2-1 also includes expanses of coastal scrub and the Marin Headlands landscape unit includes historic military elements.

[GGNRA (1t)]

Response 54

Table 2.2-1 has been updated accordingly; see page 2-21 of the Final EIR/EA.

2.3 CULTURAL RESOURCES

Comment 55

Commenter states that Alternatives 1A and 1B best achieve compatibility and meet historic preservation objectives. Alternative 1B is preferred over Alternative 1A due to its design consistency with the outside handrail, and compatibility with the original design. It is less visually intrusive, and maintains panoramic views in its open spaces.

[GGNRA 1a-1; GGNRA 1e-1; GGNRA 1e-2]

Response 55

While Alternatives 1A and 1B would retain the outside handrail, with some modification, the Finding of Effect prepared for this project concluded that Alternative 3 not only retained the outside handrail, it would not reduce the integrity of design, setting, and feeling of the outside handrail and sidewalk elements of the Bridge because Alternative 3 would not add any structure(s) to the top of the outside handrail.

The Finding of Effect concluded that Alternatives 1A, 1B, 2A, and 2B would all result in direct and indirect adverse effects to the original outside handrails and pedestrian experience of the Bridge. Alternative 3 does not have these same adverse effects.

The Finding of Effect document concluded that Alternative 3 would have the least adverse effect to the historic property.

Comment 56

Commenter expresses concern that the suicide deterrent system would physically impact the historic Bridge.

[GGNRA (1d)]

Response 56

The project has thoroughly identified and evaluated the potential impacts and effects to the Bridge under Section 106 of NHPA under NEPA, and as an historical resource under CEQA, and will continue to follow NEPA and CEQA procedures as they pertain to historic properties.

Comment 57

Commenter does not recommend Alternative 2A and Alternative 2B because they remove the historic outside handrail, destroy the historic fabric of the Bridge, and completely change the promenade's design and appearance.

[GGNRA 1e-3]**Response 57**

These effects were identified in the Finding of Effect document. Alternative 3 has been selected as the Preferred Alternative.

Comment 58

Commenter does not recommend Alternative 3 as it introduces a new design element to the Bridge.

[GGNRA (1f)]**Response 58**

This effect was identified in the Finding of Effect document and will be subject to mitigation during the Section 106 process. Section 2.3, Cultural Resources, provides a discussion of potential impacts to historic resources which could potentially result from the implementation of the Preferred Alternative.

Comment 59

Commenter states that while certain features of the Bridge, such as Doyle Drive, contribute to the Presidio National Historic Landmark (NHL), the span of the Bridge itself is not a contributing feature of the Presidio National Historic Landmark Designation (NHLD).

[GGNRA (1h)]**Response 59**

The Bridge property was identified by the National Park Service (NPS) as a contributing element of the Presidio NHLD. While the Bridge span may not be directly related to the Presidio NHLD, the Doyle Drive element of the Bridge property passes through the Presidio NHLD. The two properties, the Bridge and the Presidio NHLD, are linked through this intersection.

Comment 60

Commenter states that the Bridge design and character defining elements are fundamental to its iconic nature and summarizes elements of the Historic Property Survey Report prepared for the project.

[San Francisco Planning Department (2a-1)]

Response 60

The commenter's support and concerns for historic preservation are noted. The project has thoroughly identified and evaluated the potential impacts and effects to the Bridge under Section 106 of NHPA under NEPA, and as an historical resource under CEQA, and will continue to follow NEPA and CEQA procedures as they pertain to historic properties.

Comment 61

Commenter states that Alternatives 1A, 1B, 2A and 2B would seriously undermine the integrity of the Bridge's original design.

[San Francisco Planning Department (2e-1)]

Response 61

The Finding of Effect document identified these effects and came to similar conclusions regarding Alternatives 1A, 1B, 2A, and 2B.

Comment 62

Commenter states that Alternatives 1A, 1B, 2A and 2B would have unmitigateable visual, cultural and recreational impacts which cannot be mitigated by photography documentation or other means as part of Section 106 Consultation as suggested in the Draft EIR/EA.

[SF Bay Trail (4a-1)]

Response 62

Alternative 3 has been selected as the Preferred Alternative.

Comment 63

The commenter states that the Bridge is historically significant and that the existing railing system is a character defining feature of the property. The organization "strongly recommends" against physical changes to the character-defining features of the Bridge. The commenter states that among the build alternatives, Alternative 3 is the only alternative that does not impact the character of the Bridge deck and visitor experience of the Bridge.

[Docomomo (110)]

Response 63

Because the project goals are to provide a physical deterrent to suicide, the feasible alternatives developed each involve some physical change to the

Bridge. The Draft EIR/EA includes a No-Build Alternative as required by CEQA and NEPA. The Finding of Effect document came to a similar conclusion that, of the build alternatives, Alternative 3 would cause the fewest adverse effects because it causes less impact to the design of the pedestrian areas of the Bridge.

Comment 64

The commenter requests information regarding the status of the Section 106 process. Would think that would now be complete.

[Citizens for a Safe Golden Gate Bridge (111)]

Response 64

The Section 106 process refers to the regulations implementing the National Historic Preservation Act of 1966 (36 CFR Part 800 – Protection of Historic Properties), which has been concluded for this project. Please see Section 2.3, Cultural Resources, and Appendix G, Memorandum of Agreement.

Comment 65

Commenter believes that changes to the Bridge's structure would diminish its value and not respect the icon, and therefore supports the No-Build Alternative.

[Creegan & D'Angelo (112)]

Response 65

The project purpose is to consider a physical deterrent system that reduces the number of injuries and deaths associated with jumping off the Bridge. The Preferred Alternative, Alternative 3 (Net System), satisfies this purpose. The project purpose is not tied to lowering the overall suicide rate in the Bay Area. It is outside the scope of this study to consider the effect of this project on the overall regional suicide rate.

Comment 66

Commenter expresses concern for historic impacts.

[Williams (113)]

Response 66

The Finding of Effect document prepared for the project concluded that the build alternatives would each result in adverse effects on the Bridge as an historic property; however, the type of adverse effects differ among the build alternatives. Refer to Section 2.3.3 of the Final EIR/EA, for an evaluation of impacts to the Bridge historic property. These effects have been addressed by mitigation under the completed Section 106 and on-going CEQA and NEPA processes.

Comment 67

Commenters expressed that they are against the alteration of the historic property as part of the project.

[D. Andersen (114); M. Andersen (115); Bailey (117, 118); Ballesteros (119); Benvenuto (121); Bernard (122); Bourne (125); Boyce (126); Butler (132); Byrne (133); Carroll (135); Cassani (136); Chapman (138); Chase (139); Corey (141); Collins (143); Cox (144); Crockett (145); Cuevas (146, 147); Cummings (148); Cyr (149, 150); Daniels (151); Daniloff (152); DelaRosa (154); Delving (155); Dever (156); Draper (157); Dreety (158); Dynek (159); Elepano (161, 162, 163); Folla (166); Frye (169); Gates (170); Goodman (171); Grava (172); Hayman (173); Heller (174); Henneuse (175, 176); Hernandez (177); Hurwin (179); Jackson (181, 182); Jones (183); Keating (184); Knight (185); Kocher (186, 187); Lagerlof (190); Lehrer (191); Lynch (193); Macleod (194, 195); McMichael (196); McPherson (199); Mirken (202); Norenberg (204); Ochoa (205); O'Connor (206); Oshiro (208); Penn (210); Petrofsky (211); Phaal (212); Phillips (213); Reich (214); Riggs (217); A. Roller (218); Salcido (220); Schulte (221); Seastrand (222); Sinclair (224, 225, 226); Stedman (227); Stock (228); Stocker (229); Utzman (232); Vance (235); J. Wellman (236); Wisniewski (237); Young (239); Zhang (240)]

Response 67

The purpose of the proposed project as stated on page 1-5 of the Draft EIR/EA is to reduce the number of injuries and deaths associated with individuals jumping from the Bridge. In accordance with the criteria set forth by the District, the deterrent system must impede the ability of an individual to jump off the Bridge, while continuing to allow access to the Bridge sidewalks by pedestrians, bicyclists, District staff, and District contractors or security partners. Please see pages 1-5 to 1-7 of the Draft EIR/EA and pages 1-6 to 1-8 of the Final EIR/EA for a complete discussion of the purpose and need for the project.

Comments from the individuals listed above were all against alteration of the historic Bridge. The Finding of Effect document prepared for the project concluded that the build alternatives would result in adverse effects on the Bridge as an historic property; however, the type of adverse effects differ among the build alternatives. Refer to Section 2.3.3 of the Final EIR/EA, for an evaluation of impacts to the Bridge historic property. These effects have been addressed by mitigation under the completed Section 106 and on-going CEQA and NEPA processes.

Comment 68

Commenter believes that minor modifications to the rail configuration are in keeping with the original design intent and doubts if the original

designers would have settled on this rail design if they had been able to foresee how many souls would be lost over the rail. This reconfiguration of the rail design corrects a regrettable design side effect that was unknown before construction.

[Bagnoli (116)]

Response 68

The proposed modifications to the rail under Alternatives 1A, 1B, 2A, and 2B, adding structures between 8 and 10 feet high are substantial and are not consistent with the original design intent as shown in the architectural plans, drawings, and meeting minutes of the original designers.

Comment 69

The commenters state a preference for retaining the original outside handrail under Alternative 1A or Alternative 1B.

[Barr (120); Bluestein (124); Brigan (128, 129); Cevallos (137); Evans (164); Forman (167); Fraker (168); Tai (230)]

Response 69

While Alternatives 1A and 1B would retain the outside handrail, with some modification, the Finding of Effect document prepared for this project concluded that Alternative 3 not only retained the outside handrail, it would not reduce the integrity of design, setting, and feeling of the outside handrail. However, Alternative 3 would modify the above-deck features of the North Anchorage Housing by adding a vertical barrier to the 300-foot length of the North Anchorage Housing concrete barrier. The vertical barrier would be constructed in place of the net to reduce the visual intrusion of Alternative 3. Similar to Alternative 1A, the concrete barrier would be retained, with some modification.

The Finding of Effect also concluded that Alternatives 1A, 1B, 2A, and 2B would all result in direct and indirect adverse effects to the outside handrails and pedestrian experience of the Bridge.

Comment 70

Commenters expressed the opinion that changes to the historic Bridge would not or could not be mitigated.

[Betar (123); Clark (142); Felton (165); Jack (180); Morgan (201); Simpson-Magruder (223); Taylor(231); Van Nostrand (234)]

Response 70

The Finding of Effect document prepared for the project concluded that the build alternatives would result in adverse effects on the Bridge as an historic property; however, the type of adverse effects differ among the build alternatives. Refer to Section 2.3.3 of the Final EIR/EA, for an evaluation of impacts to the Bridge historic property. These effects have

been addressed by mitigation under the completed Section 106 and on-going CEQA and NEPA processes.

Comment 71

The commenter expressed strong support for the construction of a suicide deterrent system on the Bridge, even though it would affect historic elements of the Bridge, noting that Alternatives 2A and 2B would have minimal impacts on historic resources.

[Boyle (127)]

Response 71

Alternatives 2A and 2B would not retain the outside handrail, which would adversely affect the historic Bridge. The Finding of Effect document prepared for this project concluded that Alternative 3 not only retained the outside handrail, it would not reduce the integrity of design, setting, and feeling of the outside handrail. However, Alternative 3 would modify the above-deck features of the North Anchorage Housing by adding a vertical barrier to the 300-foot length of the North Anchorage Housing concrete barrier. The vertical barrier would be constructed in place of the net to reduce the visual intrusion of Alternative 3. Similar to Alternative 1A, the concrete barrier would be retained, with some modification. The Finding of Effect document also concluded that Alternatives 1A, 1B, 2A, and 2B would all result in direct and indirect adverse effects to the outside handrails and pedestrian experience of the Bridge.

Comment 72

Commenters expressed the need to retain historic features of the Bridge, but were in favor of some physical barrier.

[Brubeck (130); Bryant (131); Camp (134); Davidson (153); Hole (178); Kramer (189); Neighbor (203); Yisrael(238)]

Response 72

The Finding of Effect document prepared for the project concluded that the build alternatives would result in adverse effects on the Bridge as an historic property; however, the type of adverse effects differ among the build alternatives. Refer to Section 2.3.3 of the Final EIR/EA, for an evaluation of impacts to the Bridge historic property. These effects have been addressed by mitigation under the completed Section 106 and on-going CEQA and NEPA processes.

Comment 73

Commenters expressed preference for Alternative 1A or 2A.

[Cherny (140), Uzdavinis (233)]

Response 73

The Finding of Effect document concluded that Alternatives 1A, 1B, 2A, and 2B would all result in direct and indirect adverse effects to the outside handrails and pedestrian experience of the Bridge. Alternative 3 not only retained the outside handrail, it would not reduce the integrity of design, setting, and feeling of the outside handrail. However, Alternative 3 would modify the above-deck features of the North Anchorage Housing by adding a vertical barrier to the 300-foot length of the North Anchorage Housing concrete barrier. The vertical barrier would be constructed in place of the net to reduce the visual intrusion of Alternative 3. Similar to Alternative 1A, the concrete barrier would be retained, with some modification.

Comment 74

Commenters expressed concerns regarding the adequacy of the Draft EIR/EA in addressing the historic nature of the Bridge.

[Elepano (32a, 160); Kocher (188)]

Response 74

The technical studies have adequately considered the Bridge as an historic property. These studies have provided inventory and evaluation of the historic property and its contributing elements, as well as effects analysis. The Finding of Effect document prepared for the project concluded that the build alternatives would result in adverse effects on the Bridge as an historic property; however, the type of adverse effects differ among the build alternatives. Refer to Section 2.3.3 of the Final EIR/EA, for an evaluation of impacts to the Bridge historic property. These effects have been addressed by mitigation under the completed Section 106 and on-going CEQA and NEPA processes.

Comment 75

Commenter states that historic regulations should not be used as a reason to not move forward with proposed improvements.

[Jackson (181)]

Response 75

Section 106 regulations require that a federal agency consider the historic properties that would be affected by a federal undertaking. The technical studies have adequately considered the Bridge as an historic property.

Comment 76

Commenter states that since no building would be impacted cultural resource impacts would be limited.

[Lee (192)]

Response 76

Cultural resources, or historic properties, are not limited to buildings. Bridges and other structures are often recognized for historical significance. Section 106 regulations require that a federal agency consider the historic properties that would be affected by a federal undertaking. The technical studies conducted for this project have thus far, and will continue to adequately consider the Bridge as an historic property under the completed Section 106 and on-going CEQA and NEPA processes.

Comment 77

Commenters note that Alternative 3 has the least affect on historic properties.

[McNamee (197, 198); Owen (209); Roller (219)]

Response 77

While Alternatives 1A and 1B would retain the outside handrail, with some modification, the Finding of Effect prepared for this project concluded that Alternative 3 not only retained the outside handrail, it would not reduce the integrity of design, setting, and feeling of the outside handrail and sidewalk elements of the Bridge because Alternative 3 would not add any structure(s) to the top of the outside handrail.

The Finding of Effect concluded that Alternatives 1A, 1B, 2A, and 2B would all result in direct and indirect adverse effects to the original outside handrails and pedestrian experience of the Bridge. Alternative 3 does not have these same adverse effects.

The Finding of Effect document concluded that Alternative 3 would have the least adverse effect to the historic property.

Comment 78

These comments expressed the opinion that the project would not affect the historic property.

[Miller (200); Ojakian (207); C. Riggs (216)]

Response 78

The Finding of Effect document prepared for the project concluded that the build alternatives would result in adverse effects on the Bridge as an historic property; however, the type of adverse effects differ among the build alternatives. Refer to Section 2.3.3 of the Final EIR/EA, for an evaluation of impacts to the Bridge historic property. These effects have been addressed by mitigation under the completed Section 106 and on-going CEQA and NEPA processes.

Comment 79

Commenter notes that they understood the original design of the Bridge called for higher handrails initially.

[Reiss (215)]

Response 79

Research regarding the original designs of the Bridge indicates that the outside handrail height as constructed was as intended by the designers.

Comment 80

The commenter suggests including historical information about the Bridge and restoring some of the surrounding military sites.

[Young (85)]

Response 80

The Finding of Effect document prepared for the project concluded that the build alternatives would result in adverse effects on the Bridge as an historic property; however, the type of adverse effects differ among the build alternatives. Refer to Section 2.3.3 of the Final EIR/EA, for an evaluation of impacts to the Bridge historic property. These effects have been addressed by mitigation under the completed Section 106 and on-going CEQA and NEPA processes. Mitigation must be directly related to the effects caused by the project. No direct or indirect adverse effect was identified for historic military properties.

2.4 BIOLOGICAL ENVIRONMENT**Comment 81**

Commenters support the need for further research into potential bird impacts and expressed concerns for birds in general, especially threatened and endangered species.

[GGNRA (1b); Raise the Rails (23); Daniloff (26); CDFG (33); Mcnamee (52)]

Response 81

The commenter's support for further research in to impacts of the Preferred Alternative on bird species is noted. An Avian Impact Study was prepared for the Preferred Alternative and has been incorporated into the discussion of animal species in the biological environment section of the document. As requested in comment 1b, the District will coordinate with GGNRA Natural Resource staff to ensure the protection of the environment.

Appendix E includes the Department's informal consultation with the USFWS indicating that the project, including implementation of the avoidance, minimization, and mitigation measures, would not affect listed

species. Appendix E also includes a letter from the District documenting that the project would not result in the take of a special-status species and Appendix F provides a list of special-status species documented in the project area for which the project would have no effect.

Comment 82

Commenters question if bird species would nest on the net.

[Brigan (18a); Ladd (46)]

Response 82

As discussed in Section 2.4.3, Animal Species, of the Final EIR/EA, Alternative 3 would have the potential to become an attractive nesting area for birds. According to the Avian Impact Study prepared for the Preferred Alternative, birds may use the horizontal netting for perching or building nests, as they may perceive the net to be suitable for nesting. However, due to the design of the horizontal netting, the nests may fail or young perching on the net may fall into the San Francisco Bay and drown. While the horizontal netting under Alternative 3 may increase the area available for this potential adverse effect and hazard for birds, implementation of the identified avoidance, minimization, and mitigation measures would reduce potentially adverse effects related to bird nesting hazards associated with Alternative 3.

Comment 83

Commenter questions if nesting birds on the net could cause impacts to wind stability or maintenance hardships.

[Brigan (18b)]

Response 83

An Avian Impact Study was prepared for the Preferred Alternative and has been incorporated into the discussion of animal species in the biological environment section of the document. It is not anticipated that nesting birds on the net would cause impacts to wind stability or maintenance hardships. Section 2.4.3, Animal Species, of the Final EIR/EA documents that avoidance, minimization, and mitigation measures to reduce the attraction of the net for nesting birds. Ongoing through project operation, 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 will also incorporate the largest mesh size possible to reduce the attraction and viability for nests. Through such measures, nesting on the net would be limited and would therefore not contribute to impacts to wind stability or maintenance hardships on the Bridge.

Comment 84

Commenters express concern that birds could become entangled in the net.

[Byrne (19); Radel (65a); Rufo (67); Rynski (68); Uzdavinis (77); Zahler (86)]

Response 84

An Avian Impact Study was prepared and has been incorporated into the discussion of animal species in the biological environment section of the document. The study determined that the net could create a collision hazard to birds flying over, under, or parallel to the Bridge. Observations made during daylight hours with high visibility have shown that birds do not typically fly in a trajectory in which they would be likely to collide, or become entangled, with the net. However, during periods of low visibility and at night, particularly during migration, birds may be unable to see the Bridge structure or the horizontal netting, increasing the likelihood for collisions. While the net is not anticipated to substantially increase mortality associated with bird collisions or entanglement beyond that which may already occur, implementation of the avoidance, minimization, and mitigation measures identified in Section 2.4.3, Animal Species, of the Final EIR/EA would reduce potentially adverse effects related to bird collisions, or entanglement, with Alternative 3.

Comment 85

The commenters question if staging areas would avoid coastal scrub habitats.

[Dever (27); Massik (49)]

Response 85

The staging area will not impact coastal scrub habitats. Five potential staging areas have been identified for project construction. Construction activities would be limited to the Bridge and the construction staging areas, areas that have already been developed and used for staging and maintenance activities. All construction impacts would be mitigated through provisions in construction contracts issued by the District, as identified on page 2-145 of the Draft EIR/EA and page 2-152 of the Final EIR/EA. The contracts would include project-specific specifications. The District would monitor contractors' work to ensure compliance with all applicable safety and environmental laws.

2.6 CONSTRUCTION IMPACTS

Comment 86

Commenters expressed concern about potential construction impacts including: falling objects at Fort Point; visitor access; visitor experience (noises); construction barriers; particulate matter (air quality); control of lead paint during removal; staging access/parking and storage.

[GGNRA (1e); Massik (49)]

Response 86

Proposed mitigation measures are under development as part of the Section 106 process that will include protection of the Fort Point Property along with coordination with GGNRA/NPS.

For the duration of construction, the District will ensure the protection of the Fort Point National Historic Site, located below the Fort Point Arch component of the Bridge. The drawings and specifications for the construction contract will provide safeguards to prevent falling objects arising from the construction of the netting. The District will further ensure against incidental damage to 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 provided to the District and the GGNRA. Additionally, the construction of the net will provide additional protection to the Fort from objects landing on the Fort from the Bridge above.

Work directly over the Fort, which is an approximately 330 foot long segment of netting, out of a total length of approximately 18,000 feet of netting, will only occur when the Fort is otherwise closed to the public. This will provide for continued, safe visitor access to the Fort.

The noise associated with the construction of the netting is similar to the noise associated with routine Bridge maintenance activities, so it will not represent a changed condition. Plus the work directly above the Fort will only occur when the Fort is otherwise closed to visitors, thus ameliorating any noise impacts to Fort visitors arising from the construction of the net above the Fort.

The removal of any lead based paints will comply with all applicable laws and regulations. The specifications for the construction contract will require that the contractor provide for the full containment of all paint removal operations. All contaminated paint and abrasive blast materials will be removed from the site and disposed of in accordance with state and federal requirements, protecting the environment and GGNRA visitors.

Comment 87

Commenter requests that Section 2.6.8 Measure 1 be clarified to note that the Biological ECM will work in consultation with the GGNRA Natural Resources Staff and that any chemical weed control must be approved by the GGNRA IPM Specialist. Comment also applies to Section 3.3.3.

[GGNRA (1v, 1z)]

Response 87

The text has been updated to indicate that the Biological ECM will work in consultation with GGNRA Natural Resources staff, see pages 2-132 through 2-147 and 3-22 through 3-26 of the Final EIR/EA. The District's Environmental Compliance Monitor will coordinate with and work with GGNRA staff. No chemical weed control will be used without first obtaining a permit from the GGNRA.

Comment 88

Commenter requests that Section 2.6.8, Biological Environment, Measure 2 be updated to include "Erosion and dust control plan will be reviewed and approved by GGNRA Natural Resources Staff."

[GGNRA (1w)]

Response 88

The text has been updated to include this information, see page 2-160 of the Final EIR/EA.

Comment 89

Commenter requests that page 2-141 be updated to acknowledge the existing trails systems in the area and provide mitigation for any identified impacts to these resources during construction.

[San Francisco Bay Trail (4c)]

Response 89

The text has been updated to include this information, see page 2-155 of the Final EIR/EA. There will be no impact to the trails from the construction staging areas.

Comment 90

Commenter notes that the Draft EIR/EA states that the Bridge sidewalks are to remain open as usual during construction and strongly encourages that this be carried out, as the corridor is an important travel connection for cyclists and pedestrians.

[Marin County Department of Public Works (5b)]

Response 90

The District intends to continue regular access to the Bridge sidewalks during construction activities. See Section 2.6, Construction Impacts for further discussion.

**CHAPTER 3 – CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)
EVALUATION****Comment 91**

Commenter notes that the final sentence on page 3-15 states “the project ... would contribute to cumulative increase...” it appears that it was intended to state “would not contribute.”

[GGNRA (1x)]**Response 91**

The text has been corrected, see page 3-18 of the Final EIR/EA.

Comment 92

Commenter notes that on page 3-15, Potential Impacts to Climate Change, it would be appropriate to evaluate the difference in maintenance among the alternatives.

[GGNRA (1y)]**Response 92**

Approximately 115,000 vehicles use the Bridge each day. When viewed in relation to the traffic volumes on the Bridge, the climate impacts of the maintenance activities would be negligible. Emissions associated with maintaining the net are related to the frequency of net maintenance activities. The District prepared the *Golden Gate Bridge Suicide Deterrent System Operations, Maintenance and Emergency Response Report* in order to evaluate the effects of the proposed alternatives on maintenance, operations and emergency response activities. This report, which discusses the impacts and associated costs, is available on the project website: <http://www.ggbsuicidebarrier.org/studydocuments.php>

GENERAL COMMENTS**Comment 93**

Commenter states their dissatisfaction with the Draft EIR/EA.

[Plunkett (104)]**Response 93**

The commenter’s opinion regarding the Draft EIR/EA is noted.

Comment 94

Commenter states that the document does a “fine job” of assessing walkway enhancements.

[Wilshusen (83)]

Response 94

Thank you for your comment.

CHAPTER 5 - LIST OF PREPARERS

Golden Gate Bridge, Highway and Transportation District

Denis Mulligan, PE, District Engineer

Jeffrey Lee, PE, Project Manager

John Eberle, PE, Supervising Civil Engineer

California State Department of Transportation

Dale Jones, Supervising Environmental Planner

Gregory McConnell, Senior Environmental Planner

Alicia Otani, Associate Environmental Planner

Lorena Wong, District Branch Chief, Landscape Architect

Jennifer Darcangelo, Chief, Office of Cultural Resource Studies

Melanie Brent, Chief, Office of Environmental Analysis

Elizabeth McKee, Senior Environmental Planner

Haiyan Zhang, Senior Environmental Planner

Andrew Hope, Associate Environmental Planner

CirclePoint

Phyllis Potter, AICP, Principal, Environmental Practice Leader

Megan Wessel, Environmental Senior Associate Planner

Allison Kelly, Environmental Associate Planner

Raymond Pajek, Senior Art Director

Daniel Farnan, Technical Graphic Designer

Jennifer Bonzagni Marshall, Technical Editor

AECOM

Stephen Morton, P Eng., Vice President

Daniel Faust, PE, Vice President

Bill Burton, PE, Northern California District Director

JRP Historical Consulting, LLC

Rebecca Meta Bunse, JRP Partner

Christopher McMorris, JRP Partner

MacDonald Architects

Donald MacDonald, Principal

Andy Hill, CAD Technician

Riyad Ghannam, Project Architect

Pacific Biology

Josh Phillips, President

EDAW|AECOM

Hildie Spautz, Ornithologist

Angie Harbin-Ireland, Senior Biologist

CHAPTER 6 - DISTRIBUTION LIST

Lisa Hanf, Chief
CMD-2, US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

Ryan Olah, Chief
Coast Bay Delta Branch
U.S. Fish and Wildlife Service
Sacramento Field Office
2800 Cottage Way, Suite W2605
Sacramento, CA 95825

Bruce Gellin, Director
Department of Health & Human Services
200 Independence Ave. SW
Room 537F
Washington, DC 20201

Leslie T. Rogers, Regional Administrator
Federal Transit Administration, Region IX
201 Mission Street, Suite 2210
San Francisco, CA 94105

Nancy Hornor, Chief of Planning and Compliance
Golden Gate National Recreation Area
National Park Service
Fort Mason, Building 201
San Francisco, CA 94123

Brian O'Neill, General Superintendent
Golden Gate National Recreation Area
National Park Service
Fort Mason, Building 201
San Francisco, CA 94123

Paul Scolari, Historian
Golden Gate National Recreation Area
National Park Service
Fort Mason, Building 201
San Francisco, CA 94123

Tamara Williams, Natural Resources Management
Golden Gate National Recreation Area
National Park Service
Fort Mason, Building 201
San Francisco, CA 94123

Richard Butler, Office Supervisor
National Marine Fisheries Service
777 Sonoma Ave., Room 325
Santa Rosa, CA 95404

Rodney McInnis, Regional Administrator
National Marine Fisheries Service, SW Region
501 W. Ocean Blvd., Suite 4200
Long Beach, CA 90802

Gary Munsterman, Regional Program Coordinator
National Park Service
Pacific Great Basin System
1111 Jackson St., Ste. 700
Oakland, CA 94607

Alan Schmierer, Regional Environmental
Coordinator
National Park Service
Pacific West Region Office
1111 Jackson St., Ste. 700
Oakland, CA 94607

Willie R. Taylor, Director
Office of Environmental Policy and
Compliance
U.S. Department of the Interior
Main Interior Building, MS 2340
1849 C Street, NW
Washington, DC 20240

Don L. Kilma,
Office of Federal Agency Programs
Compliance Office
Advisory Council on Historic
Preservation
1100 Pennsylvania Avenue NW, Suite
803
Old Post Office Building
Washington, DC 20004

Office of NEPA Policy and Compliance
U.S. Department of Energy
1000 Independence Avenue, S.W.
Room 4G-064
Washington, DC 20585

Partnerships & Strategic Initiatives
Golden Gate National Recreation Area
National Park Service
Fort Mason, Building 201
San Francisco, CA 94123

Tim Phipps, Fire Chief
Presidio Fire Department
218 Lincoln Boulevard
San Francisco, CA 94129

Michael Boland, Director of Planning
The Presidio Trust
34 Graham St.
San Francisco, CA 94129

Ric Borjes, Federal Preservation Officer
The Presidio Trust
34 Graham St.
San Francisco, CA 94129

Craig Middleton, Executive Director
The Presidio Trust
34 Graham St.
San Francisco, CA 94129

Sannie Osborn, Historic Archeologist
The Presidio Trust
34 Graham St.
San Francisco, CA 94129

Randolph Telehanty, Historian
The Presidio Trust
34 Graham St.
San Francisco, CA 94129

Rob Thomson, Historic Compliance
Officer
The Presidio Trust
34 Graham St.
Box 29052
San Francisco, CA 94129

Mark D'Avignon, South Section Chief
U.S. Army Corps of Engineers
San Francisco District, CESP-N-CO-R
1455 Market Street, 16th Floor
San Francisco, CA 94103

Anne Norton Miller, Director
U.S. Environmental Protection Agency
Office of Federal Activities
Ariel Rios Building
1200 Pennsylvania Ave., NW
Washington, DC 20460

Susan Moore, Field Supervisor
U.S. Fish and Wildlife Service
Ecological Services
Sacramento Field Office
2800 Cottage Way, Suite W2605
Sacramento, CA 95825

Christine Pytel, Regional Conservationist
U.S. Natural Resources
Conservation Service
Area Conservationist, Area II
430 G. St., Suite 4164
Davis, CA 95616

Michael R. Perkins, Commanding Officer
United States Coast Guard Station,
Golden Gate
435 Murray Circle
Sausalito, CA 94965

Wayne Nastri, Regional Administrator
US EPA, Region 9
75 Hawthorne St.
San Francisco, CA 94105

Michael Monroe,
WTR-8, US EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

Sylvia Fung, Chief, Office of Local
Assistance
California Department of Transportation,
District 4
111 Grand Avenue
Oakland, CA 94612

Jim Richards, Deputy District Director
California Department of Transportation,
District 4
Environmental Department
111 Grand Avenue
Oakland, CA 94612

Greg McConnell, Branch Chief, Office of
Environmental Analysis
California Department of Transportation,
District 4
Office of Cultural Resource Studies
P.O. Box 23660
Oakland, CA 94823

Michael Peevey, President
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Paul D. Thayer, Executive Officer
California State Lands Commission
100 Howe Avenue, Suite 100
Sacramento, CA 95825

Tam M. Doduc, Chair
California Water Resources Control
Board
P.O. Box 100
Sacramento, CA 95812

Bridgett Luther, Director
Department of Conservation
801 K St., MS 24-01
Sacramento, CA 95814

Lester A. Snow, Director
Department of Water Resources
1416 Ninth Street
Sacramento, CA 95814

Will Semmes, Chief Deputy Director
Environmental Planning
Department of General Services
PO Box 989052
West Sacramento, CA 95798

Larry Myers, Executive Secretary
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814

Milford Wayne Donaldson, State Historic
Preservation Officer
Office of Historic Preservation
Department of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296

Bruce Wolfe, Executive Officer
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Steven McAdam, Chief of Permits and
Enforcement
San Francisco Bay Conservation &
Development Commission (BCDC)
50 California Street, Suite 2600
San Francisco, CA 94111

Cynthia Bryant, Director
State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812

Maureen Gaffney, Bay Trail Planner
Association of Bay Area Governments
Metro Center, 101 8th Street
Oakland, CA 94607

Henry Gardner, Executive Director
Association of Bay Area Governments
Metro Center, 101 8th Street
Oakland, CA 94607

David Vintze, Air Quality Planning
Manager
Bay Area Air Quality Management
District
Planning Department
939 Ellis Street
San Francisco, CA 94109

Bob Morehen, CHP Commander
California Highway Patrol
53 San Clemente Drive
Corte Madera, CA 94925

Yomi Agunbiade, Acting General
Manager
City and County of San Francisco
Recreation and Park Department
501 Stanyan Street
San Francisco, CA 94117

Lydia B. Zaverukha, Director of
Operations Planning
City and County of San Francisco
Recreation and Park Department
501 Stanyan Street
San Francisco, CA 94117

Ben Berto, Principal Planner
County of Marin
3501 Civic Center Dr., #308
San Rafael, CA 94903

Farhad Mansourian, Director of Public
Works
County of Marin
Civic Center, Room 403
San Rafael, CA 94903

Kenneth Holmes, Coroner
County of Marin Coroner
3501 Civic Center Drive, Rm #241
San Rafael, CA 94903

Craig Tackabery, Chief Assistant Director
County of Marin, Department of Public
Works
Civic Center Drive, Room 304
P. O. Box 4186
San Rafael, CA 94913

Bond M. Yee, Executive Director
Department of Parking and Traffic
City and County of San Francisco
25 Van Ness Ave., Rm 345
San Francisco, CA 94103

Dean Macris, Director
Department of Planning
Environmental Division
City and County of San Francisco
1650 Mission Street, Suite 400
San Francisco, CA 94103

Amanuel Haile, Traffic Operations
Engineer
Department of Public Works, County of
Marin
3501 Civic Center Drive, 3rd Floor, #304
San Rafael, CA 94903

Jerry Robbins, Principle Transportation
Planner
DPT/Municipal Transportation Agency
1 South Van Ness Ave., 3rd Floor
San Francisco, CA 94103

James Metcalfe, Director
Golden Gate National Cemetery
Department of Veterans Affairs
1300 Sneath Lane
San Bruno, CA 94066

Therese Cason, San Francisco
Documents Librarian
Government Information Center
San Francisco Public Library
100 Larkin St.
San Francisco, CA 94102

Daniel Homsey, Director
Mayor's Office of Neighborhood Services
City Hall, Rm 234
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102

Steve Heminger, Executive Director
Metropolitan Transportation
Commission
101 Eighth Street
Oakland, CA 94607

Amy P. Hart, Chief of the Medical
Examiners
Office of the Chief Medical Examiner
City and County of San Francisco
Hall of Justice
850 Bryant Street - North Terrace
San Francisco, CA 94103

Fred Abadi, Director
Public Works Department
City and County of San Francisco
1 Dr. Carlton B. Goodlett Place
City Hall Rm. 348
San Francisco, CA 94102

José Luis Moscovich, Executive Director
San Francisco County Transportation
Authority
100 Van Ness Avenue, 26th Floor
San Francisco, CA 94102

Mark Luellen, Preservation Coordinator
San Francisco Planning Department
Landmark Preservation Advisory Board
1650 Mission Street, Ste. 400
San Francisco, CA 94103

M. Bridget Maley, President
San Francisco Planning Department
Landmark Preservation Advisory Board
1650 Mission St., Ste. 400
San Francisco, CA 94103

Heather Fong, Chief of Police
San Francisco Police Department
850 Bryant Street - Room 525
San Francisco, CA 94103

Kevin Dillion, Captain
San Francisco Police Department -
Northern Station
1125 Fillmore Street
San Francisco, CA 94115

Dianne Steinhauser, Executive Director
Transportation Authority of Marin
P.O. Box 4186
San Rafael, CA 94903

Ken Himmelman
Dean of Admissions and Financial Aid
Bennington College, Office of Admissions
One College Drive
Bennington, Vermont 05201-6003

David Hull
President
The Bridge Rail Foundation
3701 Sacramento Street, #466
San Francisco, CA 94118
John Brooks
15 Claire Way
Tiburon, CA 94920

Garrett Glasgow
Associate Professor of Political Science
Political Science Department
University of California, Santa Barbara
Santa Barbara, CA 93106-9420

Sarah Barr
4 Via Capistrano
Tiburon, CA 94920

Howard Wong, AIA
128 Varennes Street
San Francisco, Ca 94133

Paula J. Clayton MD
American Foundation for Suicide
Prevention
Medical Director
120 Wall Street, 22nd Floor
New York, NY 10005

Malcolm (Mac) Coffey, Ph.D.
5044 Paradise Drive
Tiburon, CA 94920

Mitchell H. Katz, MD
Director of Health
Department of Public Health
101 Grove Street
San Francisco, CA 94102-4593

Janice C. Tagart
Executive Director
Psychiatric Foundation of Northern
California
251 Post Street, Suite 312
San Francisco, CA 94108

Mel Blaustein, MD
President
Psychiatric Foundation of Northern
California
251 Post Street, Suite 312
San Francisco, CA 94108

Leah Shahum
Executive Director
San Francisco Bicycle Coalition
995 Market St Ste 1550
San Francisco, CA 94103

Kim Baenisch
Executive Director
Marin County bicycle Coalition
P.O. Box 1115
Fairfax, CA 94978

Honorable Gavin Newsom
Mayor, City and County of San Francisco
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4689

Eve Meyer
San Francisco Suicide Prevention
PO Box 191350
San Francisco, CA 94119

Paul Muller
608 Andover St.
San Francisco, CA 94110

Jerome A. Motto, MD
424 Occidental Avenue
San Mateo, CA 94402

Laurie Lew-McCrigler
2436 Homewood Drive
San Jose, CA 95128

Supervisor Michela Alioto-Pier
City and County of San Francisco
1 Dr. Carlton B. Goodlett Place, Room
244
San Francisco, Ca 94102-4689

Supervisor Aaron Peskin
City and County of San Francisco
1 Dr. Carlton B. Goodlett Place, Room
244
San Francisco, Ca 94102-4689

Supervisor Carmen Chu
City and County of San Francisco
1 Dr. Carlton B. Goodlett Place, Room
244
San Francisco, Ca 94102-4689

Supervisor Ross Mirkarimi
City and County of San Francisco
1 Dr. Carlton B. Goodlett Place, Room
244
San Francisco, Ca 94102-4689

Supervisor Chris Daly
City and County of San Francisco
1 Dr. Carlton B. Goodlett Place, Room
244
San Francisco, Ca 94102-4689

Supervisor Sean Elsbernd
City and County of San Francisco
1 Dr. Carlton B. Goodlett Place, Room
244
San Francisco, Ca 94102-4689

Supervisor Sophie Maxwell
City and County of San Francisco
1 Dr. Carlton B. Goodlett Place, Room
244
San Francisco, Ca 94102-4689

Supervisor Susan L. Adams
County of Marin
Marin County Civic Center, Room 315
San Rafael, CA 94903

Supervisor Steve Kinsey
County of Marin
Marin County Civic Center, Room 315
San Rafael, CA 94903

Supervisor Judy Arnold
County of Marin
Marin County Civic Center, Room 315
San Rafael, CA 94903

Supervisor Valerie Brown
County of Sonoma
2300 County Center Drive
Santa Rosa, CA 95403

Supervisor Tim Smith
County of Sonoma
2300 County Center Drive
Santa Rosa, CA 95403

Supervisor Mike Reilly
County of Sonoma
2300 County Center Drive
Santa Rosa, CA 95403

Supervisor Paul Kelley
County of Sonoma
2300 County Center Drive
Santa Rosa, CA 95403

Honorable Barbara Boxer
United States Senate
1700 Montgomery Street, Suite 240
San Francisco, Ca 94111

Honorable Dianne Feinstein
United State Senate
One Post Street, Suite 2450
San Francisco, CA 94104

Honorable Nancy Pelosi
Speaker of the House
U.S. House of Representatives
450 Golden Gate Ave.
San Francisco, CA 94102

Honorable Lynn Woolsey
U.S. House of Representatives
1050 Northgate Drive, Suite 354
San Rafael, CA. 94903

Honorable Mike Thompson
U.S. House of Representatives
1040 Main Street, Suite 101
Napa, CA 94559

Honorable Jackie Speier
U.S. House of Representatives
400 S. El Camino Real, Suite 410
San Mateo, CA 94402

Honorable Mark Leno
California Assembly
455 Golden Gate Avenue, Suite 14300
San Francisco, CA 94102

Honorable Carole Migden
California State Senate
455 Golden Gate Ave
Suite 14800
San Francisco, CA 94102

Caltrans Transportation Library
111 Grand Ave., Rm 12-639
Oakland, CA 94612

US Park Police
Major Jerry McCarthy, Commander
San Francisco Field Office
1217 Ralston Avenue
San Francisco, CA 94129-1802

Peter M. Janusch, Officer in Charge
United States Coast Guard
Golden Gate Station
1 Yerba Buena Road
San Francisco, CA 94130

John Barna
California Transportation Commission
(CTC)
1120 N Street, Rm 2233, MS-52
Sacramento, CA 95814

Mrs. Leola Lee Jackson
PO Box 958
Gilroy, CA 95021-0958

Gene K. Fong, P.E.
Division Administrator
FHWA
Capital Division
650 Capitol Mall, Ste. 4-100
Sacramento, CA 95814

Bill Forrester, Jr., P.E.
FHWA
California Division
650 Capitol Mall, St. 4-100
Sacramento, CA 95814

Nancy E. Bobb
Director of State Programs/Major
Projects Program Manager
Federal Highway Administration
650 Capitol Mall, Suite 4-100
Sacramento, CA 95814

Marin County Library
3501 Civic Center Drive Room #414
San Rafael, CA 94903

San Francisco Main Library
100 Larkin Street
San Francisco, CA 94102-4733

Presidio Library
3150 Sacramento Street
San Francisco, CA 94115

Santa Rosa Main Library
211 E Street
Santa Rosa 95404

MTC-ABAG Library
Joseph P. Bort MetroCenter
101 8th Street
Oakland, CA 94607

Alameda Library
2400 Stevenson Blvd
Fremont, CA 94538

Contra Costa Library
Pleasant Hill Library
1750 Oak Park Blvd.
Pleasant Hill, CA 94523

Presidio Trust Library
34 Graham St.
(on the Main Post)
San Francisco, CA 94129

Mill Valley Public Library
375 Throckmorton Avenue
Mill Valley, CA 94941

Petaluma Regional Library
100 Fairgrounds Drive
Petaluma, CA 94952

This page intentionally left blank.

CHAPTER 7 - REFERENCES AND TECHNICAL STUDIES

Bird-Safe Building Guidelines, New York City Audubon Society, Inc., May 2007.

Biological Opinion for the Golden Gate Bridge Seismic and Wind Retrofit Project, United States Fish and Wildlife Service, August 8, 1995, Amended April 1996.

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.

Cultural Institutions at the Presidio Main Post, The Presidio Trust, 2008.
<<http://www.presidio.gov/trust/projects/>>. Last Accessed May 12, 2008.

Current Plans and Projects, Golden Gate National Recreation Area, October 2007.
<http://www.nps.gov/goga/parkmgmt/current_plans.htm>. Last Accessed May 12, 2008.

Environmental Impact Report/Environmental Assessment Annotated Outline, Prepared by the California Department of Transportation, April 2008.

Environmental Remediation Program, The Presidio Trust, 2008.
<<http://www.presidio.gov/nature/cleanup/>>. Last Accessed May 12, 2008.

Golden Gate Bridge – Current Projects, Golden Gate Bridge, Highway and Transportation District, 2008. <<http://goldengatebridge.org/projects/>>. Last Accessed May 12, 2008.

Golden Gate Bridge Seismic and Wind Retrofit Project (Draft) – Environmental Assessment/Initial Study, Prepared by the US Department of Transportation Federal Highway Administration, California Department of Transportation (Caltrans), and Golden Gate Bridge, Highway and Transportation District, November, 1995.

Golden Gate Bridge Seismic and Wind Retrofit Project, Biological Assessment, Prepared by Environmental Science Associates (ESA), October 1995.

Golden Gate National Recreation Area General Management Plan, Prepared by National Park Service, September 1980 [electronic link].
<http://www.nps.gov/history/history/online_books/goga/goga_gmp.pdf>. Last Accessed May 12, 2008.

Guidance on Action to be Taken at Suicide Hotspots, National Institute for Mental Health in England, October 2006.

Federal Highway Administration, Office of Environmental Policy, Visual Impact Assessment for Highway Projects, Publication No. FHWA-HI-88-054, March 1981.

Finding of No Adverse Effect (FNAE) for the Seismic Retrofit Project for the Golden Gate Bridge, Prepared by MacDonald Architects, January 1995.

Fort Baker, Golden Gate National Recreation Area, September 2007.
<<http://www.nps.gov/goga/planyourvisit/fort-baker.htm>>. Last Accessed May 12, 2008.

Fort Baker, National Park Service, 2008. <<http://www.fortbaker.net/index.html>>. Last Accessed May 12, 2008.

Historic Architectural Survey Report (HASR) for the Environmental Assessment of the Proposed Seismic Retrofit Project for the Golden Gate Bridge, Prepared by MacDonald Architects, January 1995.

Historic Property Survey Report (HPSR) for the Environmental Assessment of the Proposed Seismic Retrofit Project for the Golden Gate Bridge, Prepared by MacDonald Architects, January 1995.

Historic Property Survey Report (HPSR)-Environmental Assessment of the Public Safety Railing Project-Golden Gate Bridge, Prepared by MacDonald Architects, March 1999.

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.

Master Ordinance 2007, A Master Ordinance To Establish Tolls, Service Charges and Transit Fares; To Prescribe Rules and Regulations Governing Use of the Golden Gate Bridge, its Approaches and Facilities, Including District Bus and Ferry Systems, and to Repeal Master Ordinance 2006, Prepared by Golden Gate Bridge, Highway and Transportation District, January 2007 [electronic copy].

<<http://goldengate.org/board/documents/MasterOrdinance2007.pdf>>. Last Accessed May 12, 2008.

Mobility for the Next Generation: Transportation 2030 Plan for the San Francisco Bay Area, Prepared by Metropolitan Transportation Commission, February 2005 [electronic copy]. <http://www.mtc.ca.gov/planning/2030_plan/downloads/final_2030_plan/0-T2030Plan-final_FrontTOC.pdf>. Last Accessed May 12, 2008.

National Historic Landmark Nomination for the Golden Gate Bridge, National Park Service, (August 13, 1997), submitted to SHPO but not designated as a National Historic Landmark (NHL).

Notice of Preparation of an Environmental Impact Report/Environmental Assessment – Golden Gate Bridge Physical Suicide Deterrent System, Prepared by Golden Gate Bridge Highway and Transportation District, June 2007.

Presidio Trust Management Plan, Land Use Policies for Area B of the Presidio of San Francisco, Prepared by The Presidio Trust, May 2002 [electronic copy]. <<http://library.presidio.gov/archive/documents/ptip/ptmp.pdf>>. Last Accessed May 12, 2008.

San Francisco Bay Plan, Prepared by San Francisco Bay Conservation and Development Commission, 1968.

Securing a Suicide Hot Spot: Effects of a Safety Net at the Bern Muenster Terrace, American Association of Suicidology, August 2005.

South Access to the Bridge – Doyle Drive Visual Impact Assessment, Prepared by Public Affairs Management, April 2004.

South Access to the Golden Gate Bridge – Doyle Drive, San Francisco County Transportation Authority, 2008. <<http://www.doyledrive.com/>>. Last Accessed May 12, 2008.

The Golden Gate Bridge: Report of the Chief Engineer, Volume II, Frank L. Stahl, Daniel E. Mohn, and Mary C. Currie, May 2007 (San Francisco, CA: Golden Gate Bridge, Highway and Transportation District, 2007).

The Future of Fort Baker, Golden Gate National Park Services, April 2008. <<http://www.nps.gov/goga/parkmgmt/fort-baker-future.htm>>. Last Accessed May 12, 2008.

Visual Impact Assessment for the Environmental Assessment of the Proposed Seismic Retrofit Project for the Golden Gate Bridge, Prepared by MacDonald Architects, September 1992.

TECHNICAL STUDIES

Addendum to the Visual Impact Assessment – Golden Gate Bridge Physical Suicide Deterrent System Project, Prepared by CirclePoint, October 2009.

Avian Impact Study for the Golden Gate Bridge Suicide Deterrent System Project. Prepared by EDAW/AECOM, April 2009, Revised November 2009.

Section 4(f) Evaluation – Golden Gate Bridge Physical Suicide Deterrent System Project. Prepared by CirclePoint, December 2009.

Historic Property Survey Report – Golden Gate Bridge Physical Suicide Deterrent System Project, Prepared by JRP Historical Consulting LLC, May 2008.

Historic Resource Evaluation Report Golden Gate Bridge Physical Suicide Deterrent System Project, Prepared by JRP Historical Consulting LLC, May 2008.

Finding of Effect – Golden Gate Bridge Physical Suicide Deterrent System Project. Prepared by JRP Historical Consulting LLC, May 2008.

Memorandum of Agreement Between the California Department of Transportation, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Golden Gate Bridge Physical Suicide Deterrent System Project in Marin and San Francisco Counties, 2009.

Revised Natural Environment Study – Golden Gate Bridge Physical Suicide Deterrent System Project, Prepared by Pacific Biology, July 2009.

Visual Impact Assessment – Golden Gate Bridge Physical Suicide Deterrent System Project, Prepared by CirclePoint, June 2008.

This page intentionally left blank.