

FINDING OF EFFECT

Golden Gate Bridge Physical Suicide Deterrent System Project
City and County of San Francisco and County of Marin, California

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

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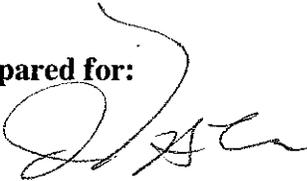
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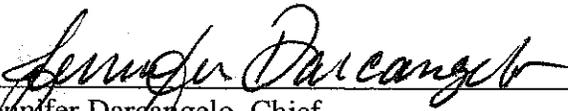
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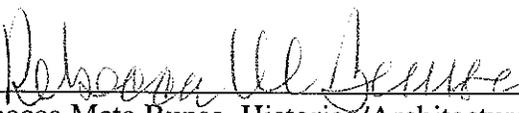
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1. INTRODUCTION

The Golden Gate Bridge Highway and Transportation District (District) is proposing the Golden Gate Bridge Physical Suicide Deterrent System Project (the Project) [04-MRN-101-GGHT, Project 2006-B-17; Federal Project #: STPL-6003(030)]. The District, in cooperation with the Federal Highway Administration, is the Lead Agency. The Project under study in this report proposes construction of a suicide deterrent system that would install a physical barrier on the Golden Gate Bridge that would reduce the number of injuries and deaths associated with jumping off the Bridge. JRP Historical Consulting, LLC (JRP) prepared this Findings of Effect (FOE) as part of the environmental compliance for this Project. The purpose of this document is to comply with applicable sections of the National Historic Preservation Act (NHPA), and the implementing regulations of the Advisory Council on Historic Preservation (ACHP), as these pertain to federally funded undertakings and their impacts on historic properties.

Section 106 compliance to date for this Project has included: issuance of a Notice of Preparation (June 14, 2007); a Public Agency Meeting, held July 17, 2007; and a letters to interested parties is scheduled for circulation in late April 2008. The Draft Historic Property Survey Report (Draft HPSR) was submitted to Caltrans in April 2008. Section 106 compliance activities and public participation conducted for this Project is described in Section 3.

The Draft HPSR identified one historic property within the Focused APE for this Project: the Golden Gate Bridge. This historic property includes the Round House Gift Center and the Toll Plaza Undercrossing, which are contributing elements. The main Golden Gate Bridge structure is Caltrans Bridge 27 0052 and the undercrossing is Bridge 34 0069. The Golden Gate Bridge historic property was determined eligible for listing in the National Register of Historical Places in 1980 and is further described in Section 4.

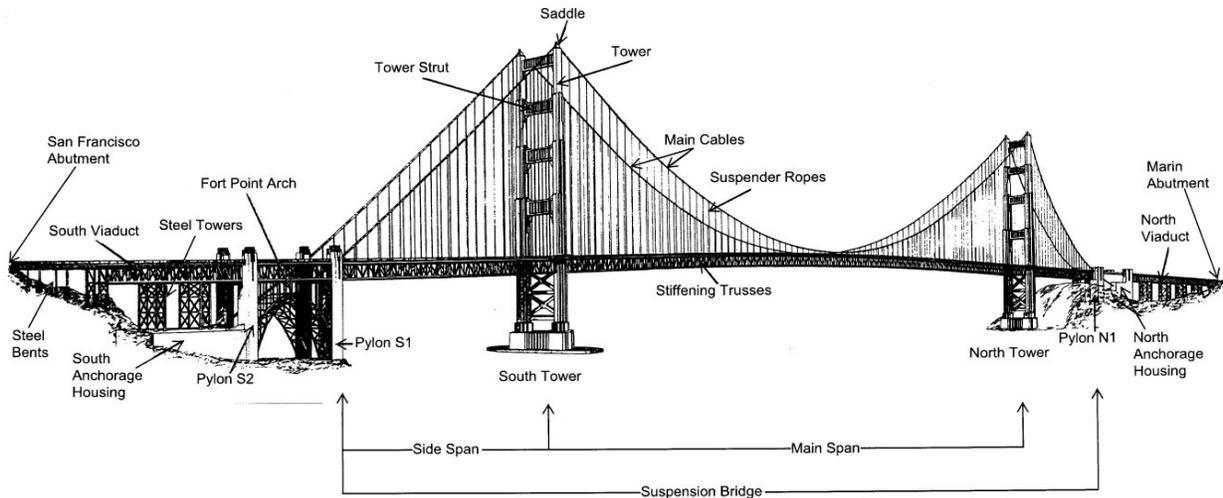
Construction of Project Alternatives 1A, 1B, 2A, 2B, or 3 would cause an Adverse Effect to the Golden Gate Bridge historic property (Bridge 27 0052). The two contributing elements of the Bridge within the Focused APE (the Round House Gift Center and Toll Plaza Undercrossing Bridge 34 0069) will experience No Adverse Effect under any of the proposed build alternatives.

FHWA has determined that the undertaking as a whole will have an Adverse Effect on the historic property known as the Golden Gate Bridge, pursuant to Section 106 PA Stipulation X.C and, with the cooperation and assistance of Caltrans, is consulting SHPO regarding the resolution of adverse effects, pursuant to Section 106 PA Stipulation XI, 36 CFR 800.6(a), and 800.6(b)(1).

2. DESCRIPTION OF THE UNDERTAKING

The Project proposes to construct a physical suicide deterrent system along both sides of the Golden Gate Bridge (Bridge). As shown in Figure 1 (Attachment A), the Project limits are from the Marin abutment (north viaduct) to the San Francisco abutment (south viaduct).

The illustration below identifies the various structural elements of the Bridge.



Main Elements of the Golden Gate Bridge

(Source: MacDonald Architects, "HASR: Seismic Retrofit Project, Golden Gate Bridge," [1995]).

The Bridge has a symmetrical design. Vertical bridge elements on the horizontal plane are generally based on increments of 12 ½ feet. For example, the outside handrail posts and the public safety rail posts are aligned at a spacing of 12 ½ 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 ½ feet). (Belvederes (24 widened areas located on both the east and west sidewalks) are 12 ½ 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 are aligned with the suspender ropes. Figure 2 shows a plan view of a section of the Bridge illustrating the relationship of these bridge elements.

Several build alternatives have been developed from the three general physical concepts considered for this Project. 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 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 alternative posts.

The fairing wind device was previously evaluated as part of the District's seismic retrofit program and has been environmentally cleared. Therefore, this report will not discuss this device. The winglet is a new feature that has not been evaluated and as such, will be discussed in this report.

The following build alternatives would impede the ability of individuals to jump from the Bridge, as well as meet additional criteria established by the Golden Gate Bridge, Highway and Transportation District (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 (Add Net System)

Alternatives 1A, 2A and 3 were evaluated utilizing a fairing, while Alternatives 1B and 2B were evaluated utilizing a winglet. Each build alternative design has been developed to maintain the symmetry of the Bridge. The outside handrail posts, light posts, suspender ropes and belvederes would all remain at their current locations. There would be no changes to the stiffening truss.

2.1 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 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 ½-inch diameter vertical rods spaced at 6 ½ inches on center, leaving a 6-inch clear space between rods. 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. 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. The entire system would be constructed of steel that would be painted International Orange, matching the material and color of the outside handrail. Transparent panels would be installed at the belvederes and towers on both sides of the Bridge.

This alternative assumes that 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 as part of the previously approved seismic retrofit Project.

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 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) 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. The entire system would be constructed of steel that would be painted International Orange, matching 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 winglet would be placed on top of the outside rail posts to ensure aerodynamic stability and impede climbing over 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.

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 2A – Replace Outside Handrail with Vertical System

Alternative 2A would construct a new vertical 12-foot high barrier consisting of $\frac{1}{2}$ -inch diameter vertical steel rods spaced at $4\frac{1}{2}$ 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. 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. The entire system would be constructed of steel that is painted International Orange, matching 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. This alternative assumes that 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 as part of the previously approved seismic retrofit project.

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 2B – Replace Outside Handrail with Horizontal System

Alternative 2B would construct 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. The entire system would be constructed of steel that would be painted International Orange, matching the material and color of the outside handrail. Transparent panels would be installed along the upper 6 $\frac{1}{2}$ foot portion at the belvederes and towers on both sides of the Bridge.

A winglet would be placed on top of the rail posts to ensure aerodynamic stability and impede climbing over the barrier. The winglet would be a 42-inch wide translucent 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.

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 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 3 – Add Net System

Alternative 3 would construct a horizontal net approximately 20 feet below the sidewalk and approximately 5 feet above the bottom chord of the exterior main truss. The net would extend horizontally approximately 20 feet from the Bridge and be covered with stainless steel cable netting incorporating a grid between 4 and 10 inches. 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.

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 net and the steel horizontal support system would be painted to match the International Orange Bridge color. With this alternative there would be no modifications to the above deck Bridge features. This alternative assumes that 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 as part of the previously approved seismic retrofit project.

2.2 No-Build Alternative

The No-Build Alternative represents the future year conditions if no other actions are taken in the study area beyond what is already in place. The No-Build Alternative provides the baseline for existing environmental conditions and future conditions against which all other alternatives are compared. 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 retrofit project.

2.3 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 re-oriented 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.

2.4 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 will 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 3 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.

Wind Retrofit of West 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 would 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, would be placed at the sidewalk's edge and a half round fairing, with a radius of 25 inches would 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's elevation. This modification was previously approved as part of the seismic retrofit project.

2.5 Construction Activities

Construction Staging Areas

Five potential staging areas have been identified. Four of the construction staging areas are located on the northern side of the Bridge in Marin County below the Marin Approach and Span 4 backspan. The four proposed construction staging areas on the north side of the Bridge would be located on existing parking lots and maintenance areas currently used for the Bridge operations. One staging area is located adjacent to the Bridge Toll Plaza within the City and County of San Francisco. This staging area would be located to the west of the Toll Plaza in an existing parking lot. Construction equipment and materials would be located within one or more of these construction staging areas. Storage of construction equipment and materials on-site would be limited to the staging areas.

Construction Activities

Construction of the new barrier would be done in sections, beginning on the west side of the Bridge and ending on the east side of the Bridge. Sidewalk and lane closures may be necessary during limited periods. Construction may take place during non-peak hours 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.

2.6 Area of Potential Effects (APE)

The Area of Potential Effects (APE) for the Project was established by the District, the cultural resources consultant team, Alicia Otani, PQS Principal Architectural Historian, H.P. Tang, Local Assistance Engineer, and Moe Shakeria, Caltrans Project Manager. The APE was signed on November 2, 2007, and is provided in Figure 3, Appendix A.

The APE for historic architectural resources includes two areas: General APE and Focused APE. The General APE was developed to encompass both the Project area, and the contributing elements of the Golden Gate 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 Golden Gate Bridge property that may be potentially affected by the Project: the main bridge structures where the proposed Project would be constructed (Bridge 27 0052), and the construction staging areas in the Toll Plaza area and along Conzelman Road. The Project has no potential to effect historic properties outside of the Focused APE. Please refer to Section 4 for a description of the cultural resources addressed in this FOE.

The general environment of this Project, as well as the General APE and the Focused APE, is visually spectacular and culturally rich. Located at the mouth of San Francisco Bay, the Bridge spans the Golden Gate Strait, from Fort Point at the northwestern tip of the San Francisco

Peninsula to Lime Point at the southeastern end of the Marin Headlands, east of Fort Baker. The Golden Gate Bridge is one of the most well-known, internationally recognized, and frequently visited suspension bridges in the world. 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.¹

¹ National Park Service, "National Historic Landmark Nomination for the Golden Gate Bridge," (August 13, 1997); Homme, FHWA, "Request for Determination of Eligibility for the Golden Gate Bridge," 1979; NPS, "Presidio of San Francisco: Presidio National Register of Historic Places Registration Forms," signed by Keeper of the National Register of Historic Places, October 1993.

3. PUBLIC PARTICIPATION

3.1 Section 106 Process to Date

This section presents the Section 106 process activities that have been completed, those taking place concurrently with the preparation of this Draft FOE, and those that will take place after the submittal of this document. Correspondence pertaining to this Project to date is included in Appendix C.

To date, efforts to involve the public in the Section 106 process have included:

- The District directed the creation of a public information website for the Project at www.ggbsuicidebarrier.org. The website went “live,” on May 11, 2007, and provides information about the Project, press releases, project document archives, links, and information about on-going technical and environmental studies. The site also provides a fully integrated public comment system, on-going opportunities for public input, contact information, and links to related projects.
- The District issued a Notice of Preparation (NOP) on June 14, 2007 and invited public agencies to participate in a meeting about the Project on July 17, 2007. Distribution list for the NOP is included in Appendix C.
- A Public Agency Meeting was held July 17, 2007 at the District. Attendees included: Jeffrey Lee, Denis Mulligan, John R. Eberle, Mary Curry and Michale 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 Department of Transportation (Caltrans); Andrea Lucas from the Golden Gate National Recreation Area/National Park Service (GGNRA/NPS). The minutes of the meeting and correspondence related to the meeting are included in Appendix C.
- The District, in conjunction with Caltrans, initiated consultation with SHPO following 36 CRF 800 and held a Project meeting on site at the Bridge to discuss Section 106 process on November 20, 2007. The meeting included Caltrans Local Assistance Staff and Architectural Historian Alicia Otani (Caltrans PQS), as well as OHP staff historians and Deputy SHPO in attendance.
- The District has prepared a letter to parties interested in historical resources. The letter was sent on April 29, 2008 to seek comment and information pertaining to the historic significance of the Golden Gate Bridge and the potential effect the Project may have on the character-defining features of the property. Copies of the letter and the list of recipients is included in Appendix C. Responses to this letter will be appended to this document and included in the environmental document upon receipt.

- The Draft Historic Property Survey Report (HPSR), including Historical Resources Evaluation Report (HRER) and updated DPR523 forms, was submitted to Caltrans in April 2008.

3.2 On-going Public Participation

This section will be expanded upon after submittal of this draft report as the Section 106 process continues for the Project, and will describe all steps taken to ensure public concerns were taken into account. If concerns are raised by public agencies or other interested parties, this section will identify all actions taken by the Project to ensure public concerns are incorporated into the Section 106 process. The District will also continue to maintain the public information website for the Project at www.gbsuicidebarrier.org.

- On-going public participation opportunities include District Board meetings, which are open to the public. Public comments received during formal public comment periods will be part of the public record and will be incorporated into the process and the environmental document. In addition, all comments received at District Board meetings will be reviewed by the Project team for consideration as they may relate to the Project.
- The District, in conjunction with Caltrans and FHWA, is continuing consultation with SHPO following 36 CRF 800.
- Caltrans, in accordance with Stipulation XI of the Section 106 PA, will prepare a draft Memorandum of Agreement (MOA) to memorialize measures to mitigate adverse effect(s) this undertaking may have on the historic property. The MOA signatory parties are anticipated to be the District, Caltrans, and SHPO.

4. DESCRIPTION OF HISTORICAL RESOURCES

4.1 Steps Taken to Identify Historic Properties

The Golden Gate Bridge historic property was determined eligible for listing in the NRHP in 1980 and it is a historic property for the purposes of Section 106 compliance. As part of the compliance effort for this Project, JRP conducted an updated inventory and evaluation of the property and compiled previous studies of the Golden Gate Bridge, as well as Section 106 related correspondence. The Bridge has been the subject of extensive documentation and historical analysis since the time of its construction (1933-1938), as well as numerous published accounts and other popular media. The most detailed previous studies are listed below and copies of agency correspondence about the historic status of the Bridge are provided in Appendix D. The list of all reference materials consulted for this Project are listed in the bibliography of the HRER, while materials consulted for this FOE appears in Section 7, below.

- National Park Service, “National Historic Landmark Nomination for the Golden Gate Bridge,” (August 13, 1997), submitted to SHPO but not designated as 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).
- 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 B. Strauss, provides a comprehensive history of the improvements and other modification to the Bridge since its completion in 1937.

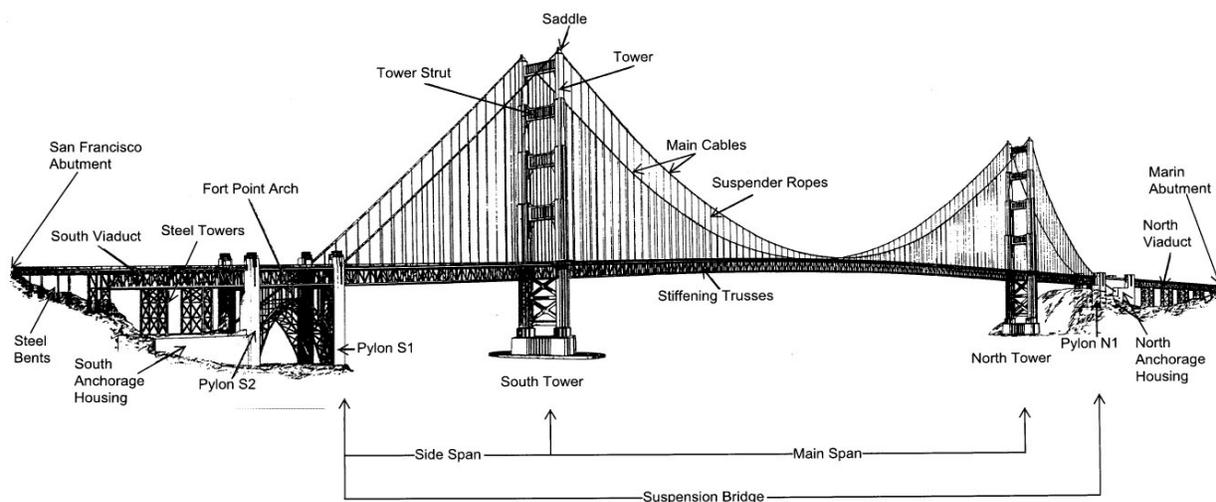
4.2 Description of Historic Property

JRP prepared an inventory and evaluation of the Golden Gate Bridge historic property to update the record of its current appearance, update identification of contributing elements, and to update the description of its character-defining features since the time of its previous inventory in 1993. The Bridge historic property includes the Round House Gift Center and the Toll Plaza Undercrossing, which are contributing elements. The main Golden Gate Bridge structure is Caltrans Bridge 27 0052 and the undercrossing is Bridge 34 0069. The Golden Gate Bridge historic property was determined eligible for listing in the National Register of Historical Places in 1980, OHP Status Code 2. The consensus determination in 1980 found the Bridge significant, at the national level, under NRHP Criterion A, B, and C, with a period of significance of 1933-1938. Subsequent detailed analysis by the National Park Service in 1997, during preparation of the NHL nomination cited above proposed significance under Criterion C only.² 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.

² The National Landmark Nomination prepared in 1997 has not been accepted and the Bridge is not yet listed as an NHL.

The Golden Gate Bridge is listed in the California Register of Historical Resources because it was designated California State Landmark No. 974 in 1987. The Bridge is also City of San Francisco Historic Landmark No. 222, designated in 1999. The Golden Gate Bridge property is a contributing element of the Presidio of San Francisco National Historic Landmark District, a district outside the Focused APE for this Project. The Golden Gate Bridge was also partly photographed for the Historic American Engineering Survey in 1985 (Survey number HAER CA-31).

The Golden Gate Bridge is one of the most well-known, internationally recognized, and frequently visited suspension bridges in the world. Combining Art Deco and Streamline Moderne design with advanced engineering technologies, and situated against a dramatic coastal backdrop, the Bridge has been described as an environmental sculpture and is widely noted for its harmonious blending of the natural and built environment. The extraordinary setting intensifies the visual power of the Bridge.³ The 1993 survey and the 1997 nomination cited above identified the main bridge structures from the Toll Plaza area on the south, to the Marin Approach Viaduct and North Abutment on the north as the primary element of the Golden Gate Bridge historic property. The major components of the Golden Gate Bridge are the main suspension span, suspender ropes and suspension cables, four pylons, Four Point Arch and two of each of the following structures: side suspension spans, anchorages, piers, towers, and North and South viaducts (see illustration below).⁴



Main Elements of the Golden Gate Bridge

(Source: MacDonald Architects, "HASR: Seismic Retrofit Project, Golden Gate Bridge," [1995]).

³ National Park Service, "National Historic Landmark Nomination for the Golden Gate Bridge," (August 13, 1997); Homme, FHWA, "Request for Determination of Eligibility for the Golden Gate Bridge," 1979; NPS, "Presidio of San Francisco: Presidio National Register of Historic Places Registration Forms," signed by Keeper of the National Register of Historic Places, October 1993.

⁴ The General APE for the current project includes Doyle Drive as a contributing element, while 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 Golden Gate Bridge.

The Draft HPSR for this Project identified the Toll Plaza Undercrossing (34 0069) as contributing element of the Golden Gate Bridge because it is an original component of the Bridge. The tunnel-like undercrossing is a single span concrete tee beam structure designed to allow vehicular traffic and pedestrians to cross from one side of the roadway to the other underneath the Toll Plaza using surface streets. The west side of the undercrossing is directly underneath the Administration Building (a non-contributing element because of integrity loss, according to both the 1993 and 1997 surveys), as shown in below. The rest of the undercrossing carries the lanes of traffic as they pass through the toll booths. Caltrans bridge logs indicate that the undercrossing is about 33' long and 291' wide, and that it has not undergone major widening or extension since it was completed in 1936.⁵



Detail of 1937 photograph showing Toll Plaza and bridge administration building during bridge construction, with west entrance to the Toll Plaza Undercrossing (34 0069) visible underneath the southern end of the building. (Permission pending: San Francisco Historical Photograph Collection, San Francisco Public Library)

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 Golden Gate Bridge. Other non-contributing elements of the Bridge property identified in the 1997 nomination: Toll Plaza Building, the clock on the toll booth canopy (1949), as well as modern bus shelters, phone booths, light standards, and signs.⁶

⁵ National Park Service, “National Historic Landmark Nomination for the Golden Gate Bridge,” August 13, 1997; Caltrans, “Structure & Maintenance Investigation, Log of Bridges on State Highways,” July 2007, accessed online at: <http://www.dot.ca.gov/hq/structur/strmaint/brlog/logpdf/logd04.pdf>.

⁶ Caspar Mol, MacDonald Architects, “Caltrans Architectural Inventory and Evaluation Form for the Golden Gate Bridge,” November 1993, 39-41; National Park Service, “National Historic Landmark Nomination for the Golden Gate Bridge,” August 13, 1997, 9-10; 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), 102, 122-144, 155-156, 170, 178, 180-182. This 2007 report, a supplement to *The*

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 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.⁷



Photograph of sidewalk, railing, light standards and roadway, just days before the Bridge opened in May 1937, with original light fixtures. (Permission pending: San Francisco Historical Photograph Collection, San Francisco Public Library)

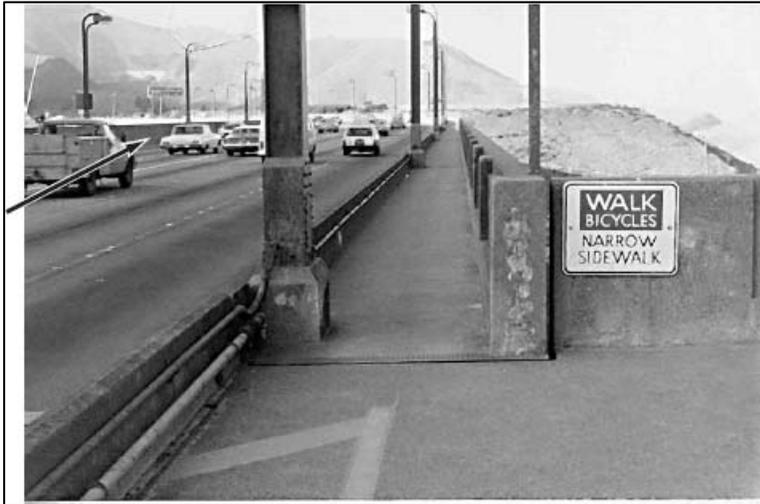
Other character-defining features that are important in conveying the artistic value of the property are the electroliers, or light standards, the International Orange paint color, and remaining concrete railings. The previous evaluations specifically identified the light standards and pedestrian railings 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

Golden Gate Bridge, Report of the Chief Engineer, September 1937 by Joseph B. Strauss, provides a comprehensive history of the improvements and other modification to the Bridge since its completion in 1937.

⁷ Irving F. Morrow to Ernest Born, September 26, 1938, and “Physical Characteristics of the Golden Gate Bridge compiled by Joseph B. Strauss, Chief Engineer,” typescript, received January 28, 1933, “Irving F. Morrow (and Gertrude C. Morrow) Collection, 1914-1958,” Project III.14, Environmental Design Archives, UC Berkeley; Consulting Board of Engineers for the Golden Gate Bridge, Minutes, July 16 and 17, 1934, Charles Derleth Papers, Box 1, Water Resources Center Archives, UC Berkeley.

modest, uniform posts placed far enough apart to allow motorists an unobstructed view. The electroliers (light posts) took on a lean, angled form and decorative cladding was added to the portal bracing of the main towers.”⁸

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



Photograph of east sidewalk, facing North Viaduct before 1980s sidewalk widening and extension projects. Arrow indicates no west sidewalk north of Pylon N1. (District, 2007 *Report of the Chief Engineer*)



View of North Viaduct, showing public safety railing left of sidewalk, and existing railing right of sidewalk, camera facing north, November 2007. (Source: JRP Historical Consulting, LLC)

⁸ Stahl, et al., *The Golden Gate Bridge: Report of the Chief Engineer, Volume II, May 2007*, 173.

5. APPLICATION OF THE CRITERIA OF ADVERSE EFFECT

5.1 Criteria of Adverse Effect

This FOE assesses whether the Golden Gate Bridge Physical Suicide Deterrent System Project will have an adverse effect on the Golden Gate Bridge historic property. An adverse effect is an alteration to the characteristics of a historic property that qualify it for inclusion in or eligibility for the NRHP. Under NHPA Section 106, as codified in 36 CFR 800.4(d)(2), if there are historic properties which may be affected by a federal undertaking, the agency official shall assess adverse effects. Adverse effects will be analyzed in accordance with the Criteria of Adverse Effect defined in 36 CFR 800.5, below.

(1) **Criteria of adverse effect** (36 CFR 800.5 (a)(1)). An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. 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.

(2) **Examples of adverse effects.** Adverse effects on historic properties include, but are not limited to:

- (i) Physical destruction of or damage to all or part of the property;
- (ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines (see below);
- (iii) Removal of the property from its historic location;
- (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- (v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;
- (vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
- (vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.⁹

⁹ 36 CFR 800.5, "Assessment of adverse effects," incorporating amendments effective August 5, 2004.

5.2 SOI Standards for the Treatment of Historic Properties

Because (36 CFR 800.5 (a)(2)(ii)), above, references the Secretary of the Interior's Standards for the Treatment of Historic Properties, the description of the four standards of treatment are included here:

- Preservation Treatment requires retention of the greatest amount of historic fabric, along with the building's historic form, features, and detailing as they have evolved over time.
- Rehabilitation Treatment acknowledges the need to alter or add to a historic property to meet continuing or new uses while retaining historic character.
- Restoration Treatment allows for the depiction of a property at a particular time in its history by preserving materials from the period of significance and removing materials from other periods.
- Reconstruction Treatment establishes a limited framework for re-creating a vanished or non-surviving building with new materials, primarily for interpretive purposes.

Preservation, Restoration, and Reconstruction treatments are not appropriate for this Project. Rehabilitation is the appropriate standard to apply because it “emphasizes the retention and repair of historic materials, but more latitude is provided for replacement ... both Preservation and Rehabilitation standards focus attention on the preservation of those materials, features, finishes, spaces, and spatial relationships that, together, give a property its historic character.”¹⁰

SOI Standards for Rehabilitation Treatment

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence. [*Not applicable to this project*]
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

¹⁰ USDI, SOI, *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (Washington, D.C.: 1992). Also at: <http://www.nps.gov/history/hps/tps/standguide/>.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken. [*Not applicable to this project*]
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

5.3 Application of the Criteria of Adverse Effect

This section assesses the effects of the alternatives on the Golden Gate 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 upon the main Golden Gate Bridge structures (Bridge 27 0052). The assessment provided below identifies the direct, indirect, and cumulative effects as defined in 36 CFR 800.5 (a)(2), and identifies how each alternative does, or does not meet the Secretary of Interior's Standards for the Treatment of Historic Properties. The section is arranged by Project alternative.

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

The Project alternatives have similar overall adverse effects on the main Golden Gate Bridge, as detailed in the rest of this section below, and summarize 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 Golden Gate 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 overall aesthetic expression 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 under Alternative 3, which would introduce a non-historic visual element to the trusses at the sides of the Bridge below the deck. The integrity of materials and workmanship of the outside metal and concrete railings would be significantly diminished under Alternatives 1A, 1B, 2A, and 2B. Although this construction would not affect most of the materials and workmanship of this structure, the alterations under Alternatives 1A, 1B, 2A, and 2B would adversely affect the railings, and Alternative 3 would alter the exterior trusses, both character-defining features of the property.

Construction of Project Alternatives 1A, 1B, 2A, 2B, or 3 would cause cumulative adverse effects to the Golden Gate 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 Golden Gate 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 Golden Gate Bridge for listing in the NRHP, were identified for either project.¹¹ SHPO concurred with these findings, as shown in the attached correspondence, and the previous determination that the Golden Gate Bridge is eligible for listing in the NRHP remains valid. Nevertheless, many projects have altered the Bridge property

¹¹ Frank L. Stahl, et al., 243-244; Donald MacDonald, MacDonald Architects, "Historic Property Survey Report, Finding of No Adverse Effect: Environmental Assessment of the Public Safety Railing Project" (March 1999) 1-2 and 6; Donald MacDonald and Caspar Mol, MacDonald Architects, "Historic Property Survey Report, Finding of No Adverse Effect for the Proposed Seismic Retrofit Project for the Golden Gate Bridge," (January 1995); Golden Gate Bridge, Highway and Transportation District, US Department of Transportation Federal Highway Administration, and California Department of Transportation, "Golden Gate Bridge Seismic and Wind Retrofit Project, Draft Environmental Assessment / Initial Study," (November 1995).

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 side walk on the North Approach; replace North Approach concrete guardrails with metal, and rehabilitate sidewalk framing, traffic curb, pedestrian railing, and electroliers (light standards), as well as a project in the 1990s that replaced over one mile (6,557 linear feet) of pedestrian hand railings on the west side of the Bridge with replicas of the originals.¹² Construction of Project Alternatives 1A, 1B, 2A, 2B, or 3 would, therefore, contribute to an adverse cumulative effect on the Golden Gate 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 (scheduled to begin in 2008) will include installation of new main cable exterior wire wrapping, reconditioning and replacing cable shrouds, and painting and caulking. Neither of these projects is anticipated to cause an adverse effect to the Bridge. The MMB project will not require physical modification of character-defining features of the Bridge. The Main Cable is a character-defining feature of the Bridge, but the rehabilitation activities of the Cable Rehabilitation Project involve repair and replacement in-kind of some components of the Main Cable in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR part 68). The Project alternatives would not cause an adverse cumulative effect to the Bridge as a historic property in consideration of known future projects.¹³

As noted above, construction of Project Alternatives 1A, 1B, 2A, 2B, or 3 would not cause adverse direct, indirect, or cumulative effects to either of the contributing elements within the Focused APE: the Round House Gift Center, and the Toll Plaza Undercrossing (34 0069).

Visual simulations provided in Appendix B illustrate the effects analysis that follows. These simulations, along with the renderings and detail sketches also included in Appendix B, are designed to enhance the written text by illustrating how the alternatives would appear when constructed.

¹² National Park Service, "NHL Nomination, Golden Gate Bridge," August 13, 1997, 9; Stahl, et al., *The Golden Gate Bridge: Report of the Chief Engineer, Volume II, May 2007*, 144.

¹³ District, "Seismic Retrofit," <http://goldengatebridge.org/projects/seismic.php>, updated April 2007; District, "Main Cable Restoration Project," updated September 2007, <http://goldengatebridge.org/projects/documents>.

Alternative 1A: Add Vertical System to Outside Handrail

Construction of Alternative 1A would cause the following effects to the Golden Gate Bridge historic property. Visual Simulations of Alternative 1A illustrating the effects analysis for all view points, as well as renderings and detail sketches are provided in Appendix B.

- Direct Adverse Effect to bridge character-defining features through physical destruction of part of the property. Destruction would consist of destruction of posts at the east and west outside railings, and destruction of portions of east and west outside railings where new maintenance access gates are installed. Adverse Effect (36 CFR 800.5 (a)(2)) (i) and (ii).
- Direct Adverse Effect to bridge character-defining features through alteration of a property that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines. Alterations would consist of: installation of 12' posts in the east and west outside railings; installation of 8' tall vertical rods into the horizontal top member of east and west outside railings and into the concrete railing at the north pylon; installation of translucent 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. Also 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 new 8' railing above the existing 4' 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 translucent 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 Golden Gate Bridge historic property. Visual Simulations of Alternative 1B illustrating the effects analysis for all view points, as well as renderings and detail sketches are provided in Appendix B.

- Direct Adverse Effect to bridge character-defining features through physical destruction of part of the property. Effects would include destruction of posts of the east and west outside railings, and destruction of portions of east and west outside railings where new maintenance access gates are installed. Adverse Effect (36 CFR 800.5 (a)(2)) (i) and (ii).
- Direct Adverse Effect to bridge character-defining features through alteration of a property that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines. Alterations would consist of installation of 12' posts in the east and west outside railings; installation of 8' of horizontal cables and translucent winglet above horizontal top member of east and west outside railings and the concrete railing at north pylon; installation of translucent 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. Also 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' of new railing above the existing 4' 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 translucent 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 Golden Gate Bridge historic property. Visual Simulations of Alternative 2A illustrating the effects analysis for all view points, as well as renderings and detail sketches are provided in Appendix B.

- Direct Adverse Effect to bridge character-defining features through physical destruction of part of the property: destruction of east and west outside railings. Adverse Effect (36 CFR 800.5 (a)(2)) (i) and (ii).
- Direct Adverse Effect to bridge character-defining features through alteration of a property that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines. Alterations would include: removal of east and west outside railings and installation of new 12' 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. Also 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 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 Golden Gate Bridge historic property. Visual Simulations of Alternative 2B illustrating the effects analysis for all view points, as well as renderings and detail sketches are provided in Appendix B.

- Direct Adverse Effect to bridge character-defining features through physical destruction of part of the property: destruction of east and west outside railings. Adverse Effect (36 CFR 800.5 (a)(2)) (i) and (ii).
- Direct Adverse Effect to bridge character-defining features through alteration of a property that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines. Alterations would include: removal of east and west outside railings and installation of new 10' horizontal cable system. Adverse Effect (36 CFR 800.5 (a)(2)) (ii). Alternative 2B would not meet the following SOI Rehabilitation Standards: Standard 1, more than minimal change to distinctive features, spaces and spatial relationships; Standard 2, alteration of character-defining features, spaces and spatial relationships; Standard 5, does not preserve distinctive materials and features; Standard 9, destroys historic materials, and character-defining features and spatial relationships; Standard 10, if new construction were removed in the future, the essential form and integrity of the character-defining railings would be impaired.
- Indirect Adverse Effect to bridge character-defining features through change in the character of the property's use that contributes to its historic significance. The original design of the handrail allows pedestrians to directly approach the railing, place their hands on top, and lean into the space over the rail to experience views. Change of character of the design of the rail would alter pedestrian experience of the property by preventing visitor use of the space above the railing. Also 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 new cable system railing in place of existing east and west railings; introduction of translucent panels at belvederes and winglets at east and west railings; and introduction of maintenance access gates in the east and west railings. Adverse Effect (36 CFR 800.5 (a)(2)) (ii) and (v).

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

Alternative 3: Add Net System

Construction of Alternative 3 would cause the following effects to the Golden Gate Bridge historic property. Visual Simulations of Alternative 3 illustrating the effects analysis for all view points, as well as renderings of this alternative are provided in Appendix B.

- Direct Adverse Effect to bridge character-defining features through alteration of a property that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines. Alterations would 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 and 10 inches. Adverse Effect (36 CFR 800.5 (a)(2)) (ii). Alternative 3 would not meet the following SOI Rehabilitation Standards: Standard 1, more than minimal change to distinctive features, spaces and spatial relationships; Standard 2, alteration of character-defining features, spaces and spatial relationships; Standard 9, destroys historic spatial relationships.
- Indirect Adverse Effect to bridge character-defining features through introduction of visual elements that diminish the integrity of the property's significant historic features: Introduction of new visual elements would include: installation of 20' of new horizontal cable netting system at east and west sides of trusses below deck level. Adverse Effect (36 CFR 800.5 (a)(2)) (ii) and (v).

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

6. ALTERNATIVES CONSIDERED BUT REJECTED

6.1 Background

The concept of installing a physical suicide deterrent system on the Golden Gate 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. In the absence of a physical suicide deterrent system, the District enhanced its monitoring, patrol and intervention capabilities, which was effective for certain situations and instances.

On March 11, 2005, the District's defined Board approved proceeding with environmental studies and preliminary design work for development of a physical suicide deterrent system on the Golden Gate Bridge. The resolution authorizing this action stipulated that suicide deterrent system concepts conform to the following criteria:

1. Must impede the ability of an individual to jump off of the Golden Gate Bridge.
2. Must not cause safety or nuisance hazards to sidewalk users, including pedestrians, bicyclists, District staff, and District contractors/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 Golden Gate 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 Golden Gate Bridge.
7. Must satisfy requirements of State and Federal historic preservation laws.
8. Must have minimal visual and aesthetic impact on the Golden Gate 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 Golden Gate Bridge.

6.2 Alternatives Development and Evaluation Process

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 (5 concepts)
- Group 3 – Horizontal net systems (12 concepts)
- Group 4 – Glass systems (6 concepts)
- Group 5 – Enclosed walkway systems (9 concepts)
- Group 6 – Chain link fence systems (7 concepts)
- Group 7 – Electric systems (7 concepts)
- Group 8 – Short systems (5 concepts)
- Group 9 – Barbed wire systems (4 concepts)
- Group 10 – Vertical net, metal mesh or wire grid systems (5 concepts)
- Group 11 – Offset barrier area systems (2 concepts)
- Group 12 – Laser systems (1 concept)
- Group 13 – Top chord attachment systems (1 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 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 (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 (7), laser (10), and top chord attachment (1).

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 negatively 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 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 deterrent systems tested were: vertical extensions added on to existing outside handrail, replacing existing outside handrail, and utilizing nets that cantilever out horizontally. The preliminary wind tunnel testing determined that all three generic system types were feasible (i.e. met the established aerodynamic performance criteria) and that the existence of the movable barrier had little or no impact on the aerodynamic stability of the Bridge. Therefore, District Criteria 11, which indicates that the system must not prevent construction of a moveable median barrier on the Golden Gate Bridge, is satisfied by all potential suicide deterrent systems.

Develop Technically Feasible Alternatives

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

Design criteria were established at a parametric level sufficient to define the overall limits and basic forms of 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 for pedestrian outside handrails.

Architectural considerations included developing a system compatible with the existing structural and ornamental forms, as well as that of the exterior and safety railings. Because the predominant forms of the Bridge are oriented either horizontally or vertically, the primary

elements of the barrier system were positioned in horizontal or vertical arrays. The other significant aesthetic concern related to minimizing the various view perspectives of the Bridge. These perspectives include automobile occupant, 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.

Technically Feasible Alternatives

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 9 generic concept types were identified. These concepts included 3 barriers using horizontal members, 4 barriers using vertical members, 1 vertical barrier using glass pickets, and 1 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.

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, 4 of the 9 concepts were rejected, and more detailed designs were developed as necessary for the remaining 5 (see Appendix A). These 5 alternatives were considered technically feasible, and are included in the Draft EA/EIR evaluation. These alternatives are described in Section 2.2 of this Section 4(f) Evaluation and Chapter 1 of the Draft EA/EIR.

6.3 Alternatives Considered and Rejected

Using the District criteria, the technically feasible alternatives were evaluated. Based on the findings, the following alternatives were withdrawn from further study.

Vertical and Horizontal Wire Mesh Added to Railing

This alternative would construct a 10-foot total 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 it would not meet the following District criteria.

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

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 also impair the ability of maintenance personnel to access the underside of the Bridge. It would not meet the following District criteria.

8. Must have minimal visual and aesthetic impact on the Golden Gate Bridge.
5. Must continue to allow access to the underside of the Bridge for emergency response and maintenance activities.

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 also impair the ability of maintenance personnel to access the underside of the Bridge and would not be maintained as a routine part of Bridge maintenance program. It would not meet the following District criteria.

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.
5. Must continue to allow access to the underside of the Bridge for emergency response and maintenance activities.
8. Must have minimal visual and aesthetic impact on the Golden Gate 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 existing architectural vocabulary of the Bridge. It would not meet the following District criteria.

2. Must not cause safety or nuisance hazards to sidewalk users, including pedestrians, bicyclists, District staff, and District contractors/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.
5. Must continue to allow access to the underside of the Bridge for emergency response and maintenance activities.
9. Must be cost effective to construct and maintain.

7. MITIGATION MEASURES

As discussed in Section 5, the Project will have an adverse effect on a historic property: the Golden Gate Bridge. The District, in conjunction with Caltrans and FHWA, is continuing consultation with SHPO following 36 CRF 800.6, to arrive at a resolution of the adverse effect. Caltrans, in accordance with Stipulation XI of the Section 106 PA, will prepare a draft Memorandum of Agreement (MOA) to memorialize measures that would mitigate the adverse effect this undertaking will have on the historic property. The MOA signatory parties will be the District, Caltrans, and SHPO. The District sent a letter to interested parties on April 29, 2008 notifying interested individuals and organizations that the Project is anticipated to have an adverse effect on the Golden Gate Bridge and to solicit their input. Responses to this letter will be appended to this document and included in the environmental document. Any revisions to proposed mitigation measures resulting from these responses will also be incorporated in the MOA stipulations.

The following provides discussion of the efforts in the Project to minimize and mitigate adverse effects to the Golden Gate Bridge.

7.1 Efforts to Avoid or Minimize Adverse Effects

The alternatives development evaluation process described in the previous section presents efforts to develop alternatives that could avoid and/or minimize adverse effects to the Bridge as a historic property. The alternatives development process did not identify alternatives that could completely avoid direct adverse effects to the Bridge property; however, alternatives were designed to minimize the effect the Project may have on the historic property to the extent possible. As part of this effort, the District examined other bridges in California, throughout the United States, and elsewhere in the world to assess potential designs for the barrier on this bridge. The District also coordinated with JRP architectural historians during the design process.

7.2 Proposed Mitigation Measures

A draft Memorandum of Agreement (MOA) will be developed for the Project and will be coordinated with Caltrans. The MOA will stipulate various mitigation activities that will be conducted to address adverse effects this Project would have on the Golden Gate Bridge. The District will be responsible for carrying out these measures, insuring that: a) the Golden Gate Bridge is properly recorded through photography, written documentation, and educational/interpretive material; b) this documentation and educational/interpretive material is appropriately distributed; c) other portions of the historic property within the Project study are protected and monitored. The District will not authorize Project-related activities that could result in an adverse effect to the historic property until these stipulations are completed. Mitigation measures proposed for the Project include the following:

- The Bridge has been the subject of partial recordation by the HAER program and the recordation conducted for mitigation for this Project will be designed to augment this

previous work.¹⁴ Large-format (four by five inch, or larger, negative size) black and white photographs will be taken showing the Golden Gate Bridge in context, as well as details of its historic engineering features, contributing elements, and character-defining features. The views will specifically include the existing east and west outside railings, concrete railing at the north pylon, and exterior trusses of the Bridge as these are the features that would be adversely affected by one or more of the proposed alternatives. The photographs will be processed for archival permanence in accordance with the Historic American Engineering Record (HAER) photographic specifications. If necessary, each view will be perspective corrected and fully captioned.

The recordation will follow the National Park Service's HAER Guidelines and the report format, views, and other documentation details will be coordinated with the Western Regional Office of the NPS, Oakland, CA. Oblique aerial photography will be considered as a photographic recordation option in these coordination efforts. It is anticipated that the recordation of the Golden Gate Bridge will be completed to Level I or Level II HAER written data standards, and will include archival and digital reproduction of historic images, plans, and drawings.

Copies of the documentation will be offered to the San Francisco Public Library, Marin Public Library, Environmental Design Archives (UC Berkeley), Golden Gate National Recreation Area, Presidio Trust, Caltrans District 4 Office of Cultural Resource Studies, and the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento. The documentation will also be offered in printed and electronic form to any repository or organization upon which the District, Caltrans, and SHPO, through consultation, may agree. The electronic copy of the report could be placed on an agency or organization's web site.

- Preparation of a history and educational brochure presenting the history of suicide prevention efforts at the Bridge. The brochure will be made available on-site at the Bridge, Presidio National Historic Landmark, select Golden Gate National Recreation Area locations, and online at the District website (www.goldengate.org) during the construction period.
- Installation of interpretive signs or display panels at the Round House Gift Center and the Vista Point to describe the Project for the duration of construction. Signs will incorporate information from the contextual history prepared for the brochure.
- The District will ensure the protection of the remainder of the historic property within the Project limits during construction of the suicide barrier, as well as the Fort Point National Historic Site, located below the Fort Point Arch component of the Bridge. The District will ensure against incidental damage to the remainder of the Bridge historic property and the Fort Point property by hiring an independent Environmental Compliance Monitor (ECM) who will periodically monitor the site during construction and will prepare monthly reports documenting compliance and protection. These reports will be submitted to the District and GGNRA.

¹⁴ Historic American Buildings Survey, Data Sheets and Photographs for Golden Gate Bridge HAER # CA-31 (1984), Library of Congress, accessed online: www.loc.gov.

8. CONCLUSIONS

The District, as lead agency in cooperation with Caltrans and the FHWA, is proposing the Golden Gate Bridge Physical Suicide Deterrent System Project [04-MRN-101-GGHT, Project 2006-B-17; Federal Project #: STPL-6003(030)]. The Project consists of construction of a suicide deterrent system that would install a physical barrier on the Golden Gate Bridge that would reduce the number of injuries and deaths associated with jumping off the Bridge.

The Draft HPSR identified one historic property within the Focused APE for this Project: the Golden Gate Bridge. This historic property includes the Round House Gift Center and the Toll Plaza Undercrossing, which are contributing elements. The main Golden Gate Bridge structure is Caltrans Bridge 27 0052 and the undercrossing is Bridge 34 0069. The Golden Gate Bridge historic property was determined eligible for listing in the National Register of Historical Places in 1980 as described in Section 4.

Construction of any one of the proposed Project Alternatives 1A, 1B, 2A, 2B, or 3 would cause an Adverse Effect to the Golden Gate Bridge historic property (Bridge 27 0052). The two contributing elements of the Bridge within the Focused APE (the Round House Gift Center and Toll Plaza Undercrossing Bridge 34 0069) will experience No Adverse Effect under any of the proposed build alternatives.

Construction of Project Alternatives 1A, 1B, 2A, 2B, or 3 would cause direct adverse effects to the Golden Gate Bridge historic property. The addition of any of these barrier systems would be an alteration to the historic property that is not consistent with the Secretary of Interior's Standards for the Treatment of Historic Properties. In general, Alternatives 1A, 1B, 2A, and 2B would cause physical or direct adverse effects that include complete or partial removal of character-defining features of the Bridge (outside railings) and alteration of character-defining features of the Bridge (metal and concrete outside railings). Alternatives 1A, 1B, 2A, and 2B would cause indirect adverse effects through the use of non-historic material (translucent panels, winglets, and metal rods), and alteration of the pedestrian experience on the Bridge. Alternative 3 would cause physical or direct adverse effects that include alteration of character-defining features of the Bridge (exterior trusses) and use of non-historic material (cable netting), as well as indirect effects through introduction of visual elements out of character with the property, and addition of a barrier system where none was originally. Construction of Project Alternatives 1A, 1B, 2A, 2B, or 3 would cause cumulative adverse effects to the Golden Gate Bridge historic property, when past, present and future projects are taken into account (36 CFR 800.5 (a)(1)).

Caltrans finds that there are historic properties affected by the Project pursuant to Section 106 PA Stipulation IX.B. FHWA proposes that the undertaking will have an Adverse Effect for the Golden Gate Bridge, and with the cooperation and assistance of Caltrans, is consulting to resolve adverse effects pursuant to Section 160 PA Stipulation XI, 36 CFR 800.6(a) and 800.6(b)(1). At this time, this document serves only to obtain SHPO concurrence that the undertaking will have an Adverse Effect on a historic property and that mitigation measures will be discussed in a separate consultation document along with a draft MOA.

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10. PREPARERS' QUALIFICATIONS

Rebecca Meta Bunse, JRP Partner and MA in History (Public History, California State University, Sacramento, 1996), served as primary historian and manager for this Project. Her duties included APE delineation, archival research, field work, evaluation and effects analysis, as well as report writing, review, editing. Ms. Bunse has eighteen years experience working as a consulting historian and architectural historian on a wide variety of historical research and cultural resources management projects, as a researcher, author, and project manager. Based on her level of education and experience, Ms. Bunse qualifies as a historian and architectural historian under the United States Secretary of the Interior's Professional Qualification Standards (as defined in 36 CFR Part 61), and meets the Professionally Qualified Staff Standards for these disciplines in the Section 106 Programmatic Agreement (Section 106 PA) Attachment 1.

JRP Partner Christopher McMorris and MS in Historic Preservation (Columbia University) served as architectural historian for this Project and contributed to archival research, evaluation, and effects analysis. Mr. McMorris has ten years experience working as a consulting historian and architectural historian on a wide variety of historical research and cultural resources management projects. He qualifies as an architectural historian and historian under the United States Secretary of the Interior's Professional Qualification Standards (as defined in 36 CFR Part 61), and meets the Professionally Qualified Staff Standards for these disciplines in the Section 106 Programmatic Agreement (Section 106 PA) Attachment 1.

APPENDICES

Appendix A: Project Vicinity, Location, and APE

Golden Gate Bridge Physical Suicide Deterrent System

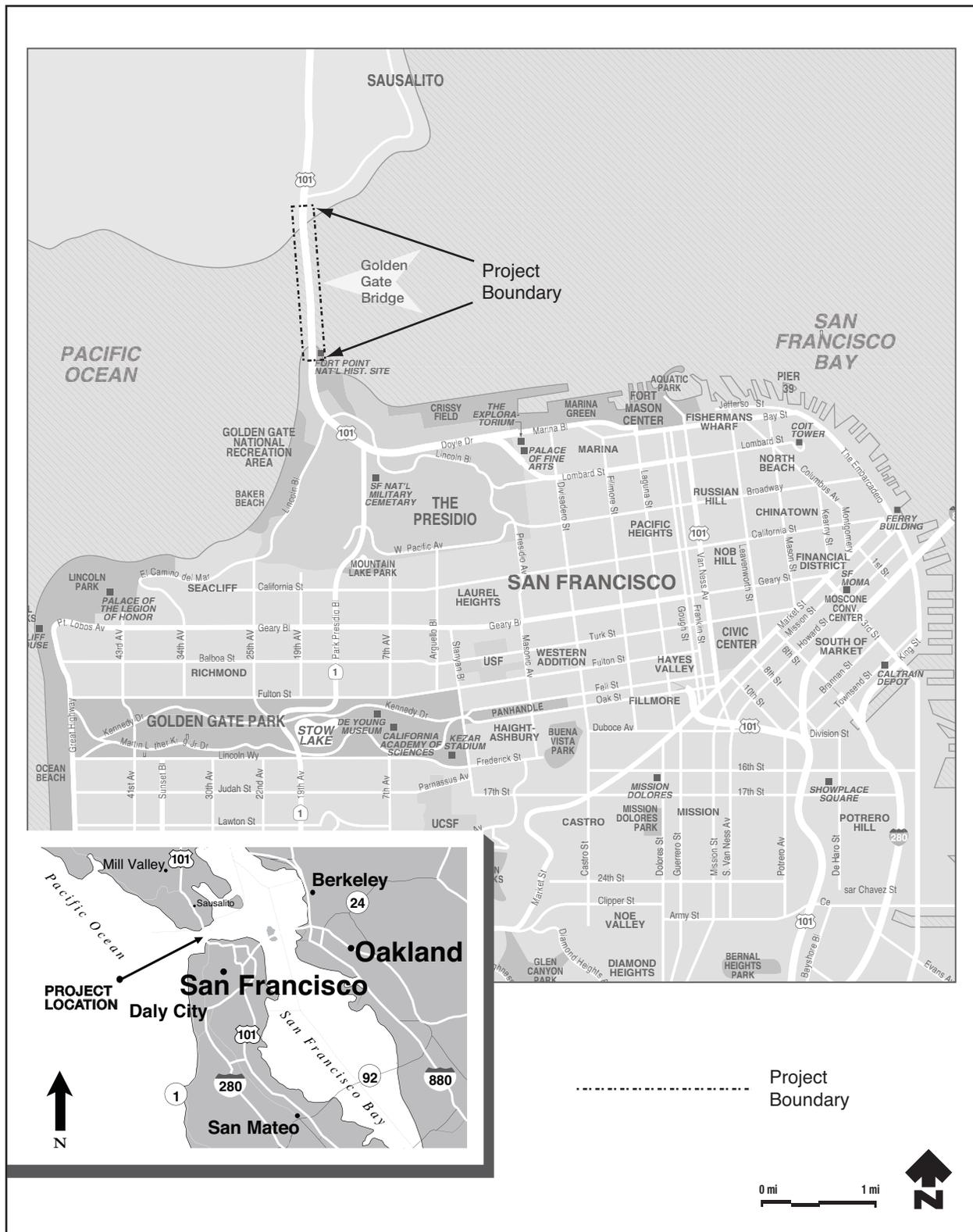


FIGURE 1
PROJECT LOCATION

Golden Gate Bridge Suicide Deterrent System

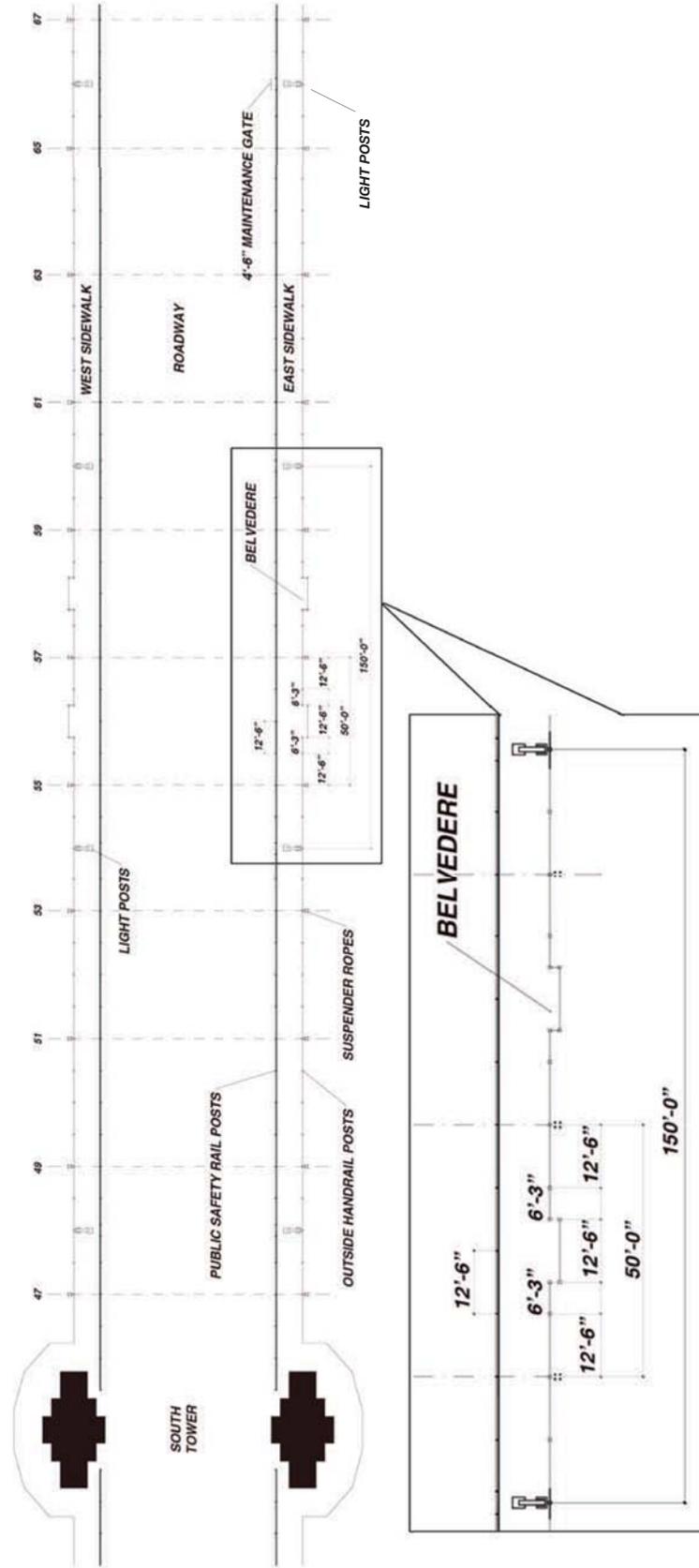


FIGURE 2
PLAN VIEW OF BRIDGE

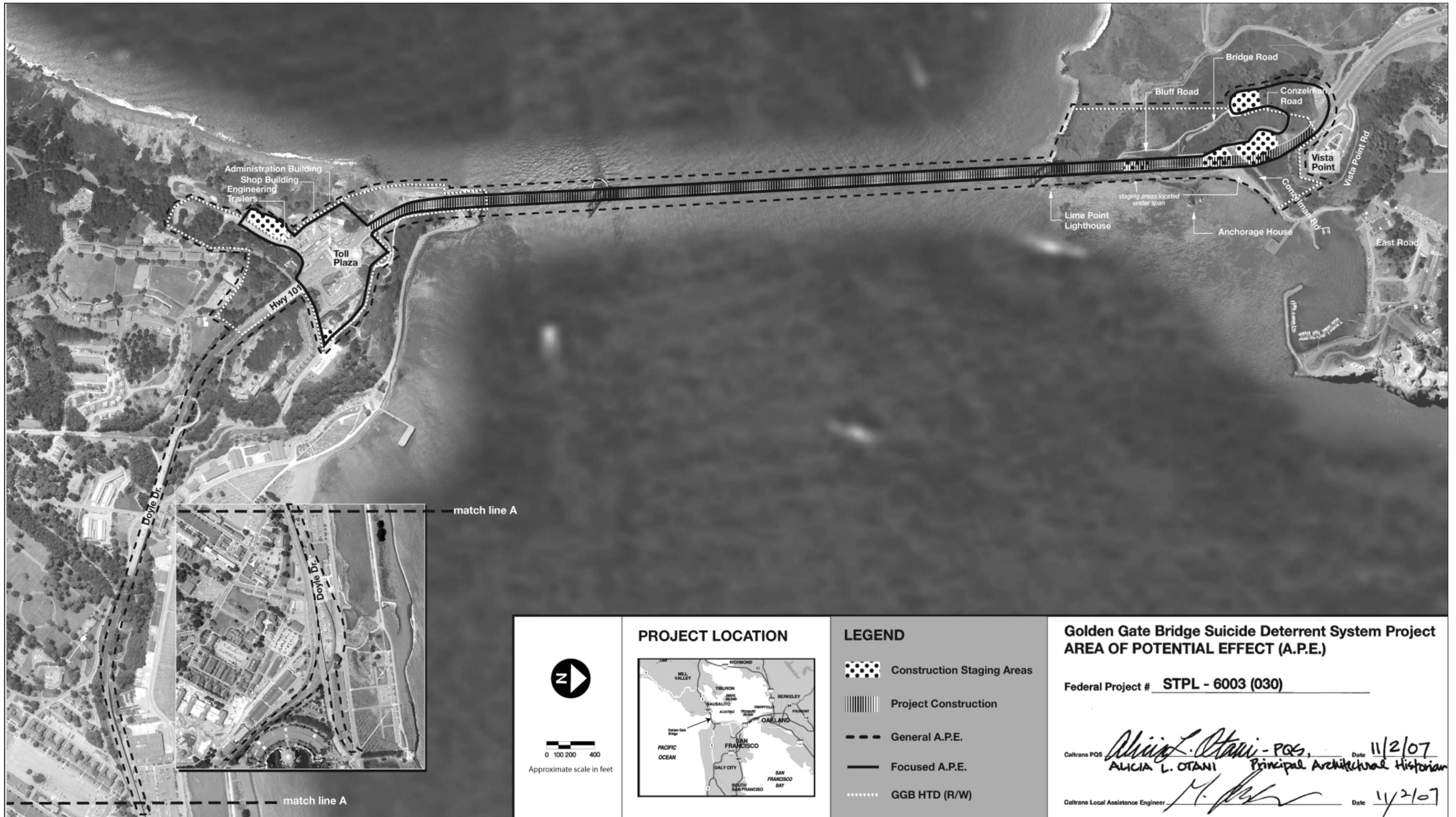
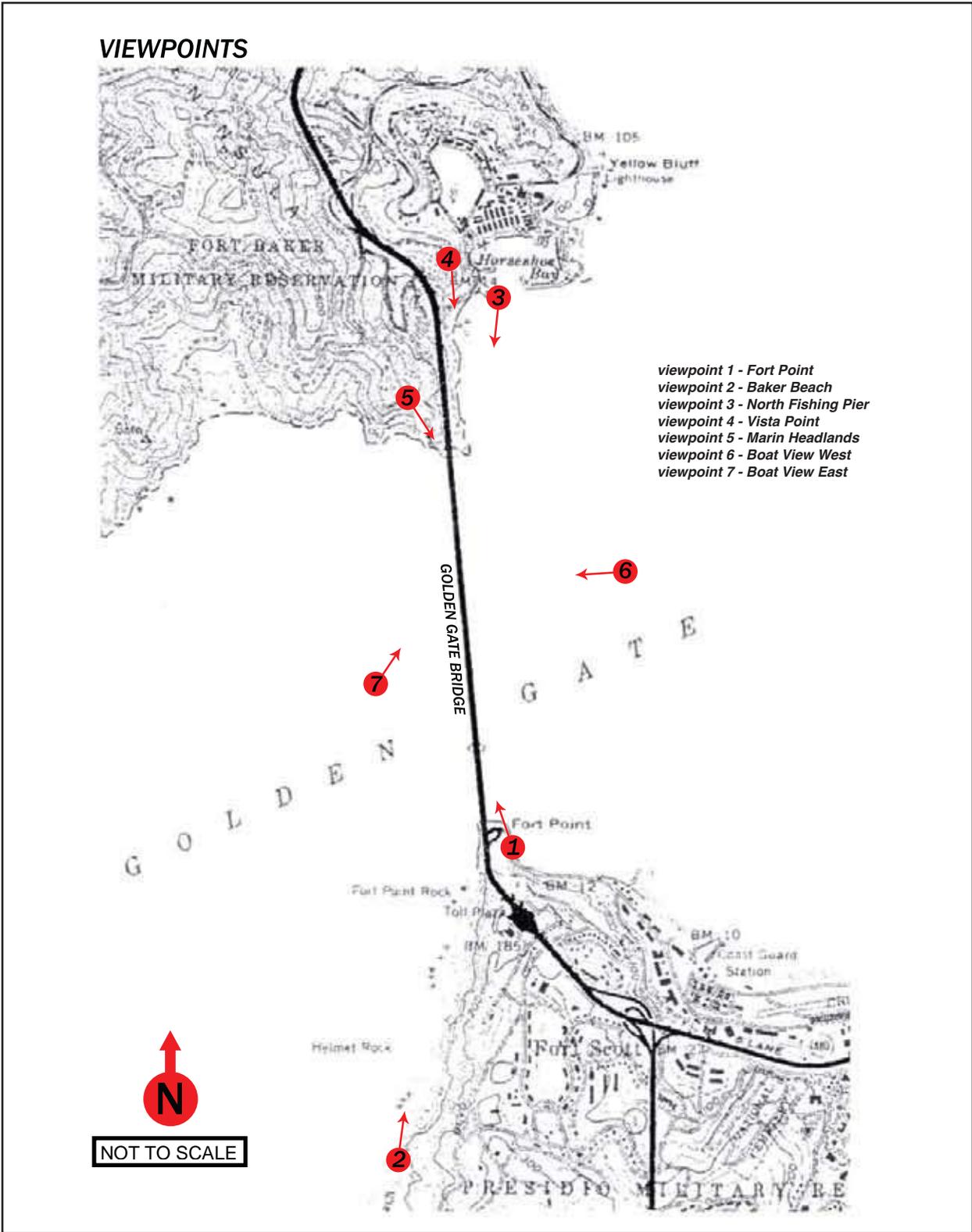


Figure 3. General and Focused Areas of Potential Effect for Historic Architectural Resources

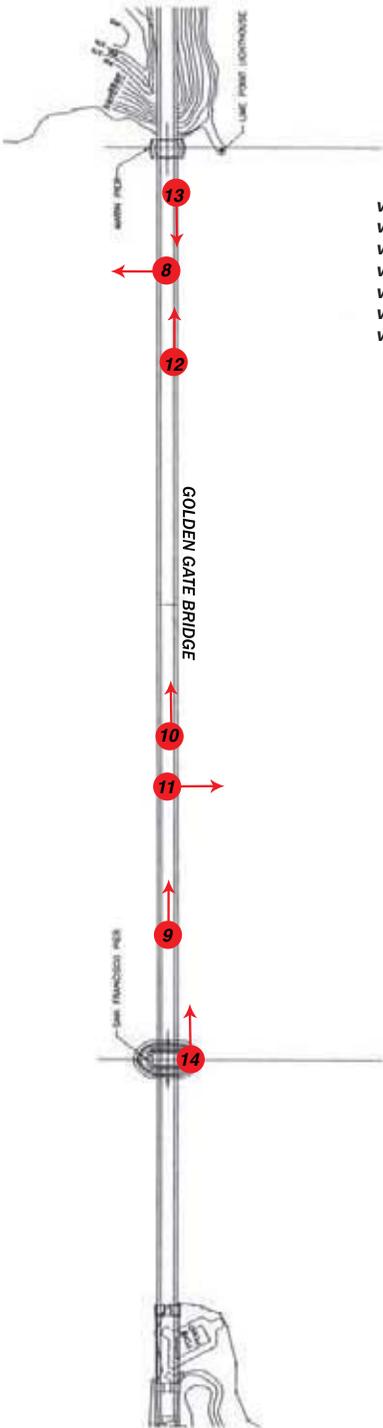
Appendix B: Project Visual Simulations, Renderings and Sketches



KEY TO VIEWPOINTS OF THE GOLDEN GATE BRIDGE

Source: macdonald architects, 2008

VIEWPOINTS - ON DECK



- 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*



NOT TO SCALE

KEY TO VIEWPOINTS FROM THE GOLDEN GATE BRIDGE



FORT POINT



BAKER BEACH



NORTH FISHING PIER



VISTA POINT



MARIN HEADLANDS



BOAT WEST



BOAT EAST



CAR WEST



CAR CENTER



CAR NORTH



SIDEWALK EAST



SIDEWALK NORTH



SIDEWALK SOUTH



TOWER



FORT POINT 1A

Visual Simulation: Alternative 1A



BAKER BEACH 1A

Visual Simulation: Alternative 1A



NORTH FISHING PIER 1A

Visual Simulation: Alternative 1A



VISTA POINT 1A

Visual Simulation: Alternative 1A



MARIN HEADLANDS 1A

Visual Simulation: Alternative 1A



BOAT WEST 1A

Visual Simulation: Alternative 1A



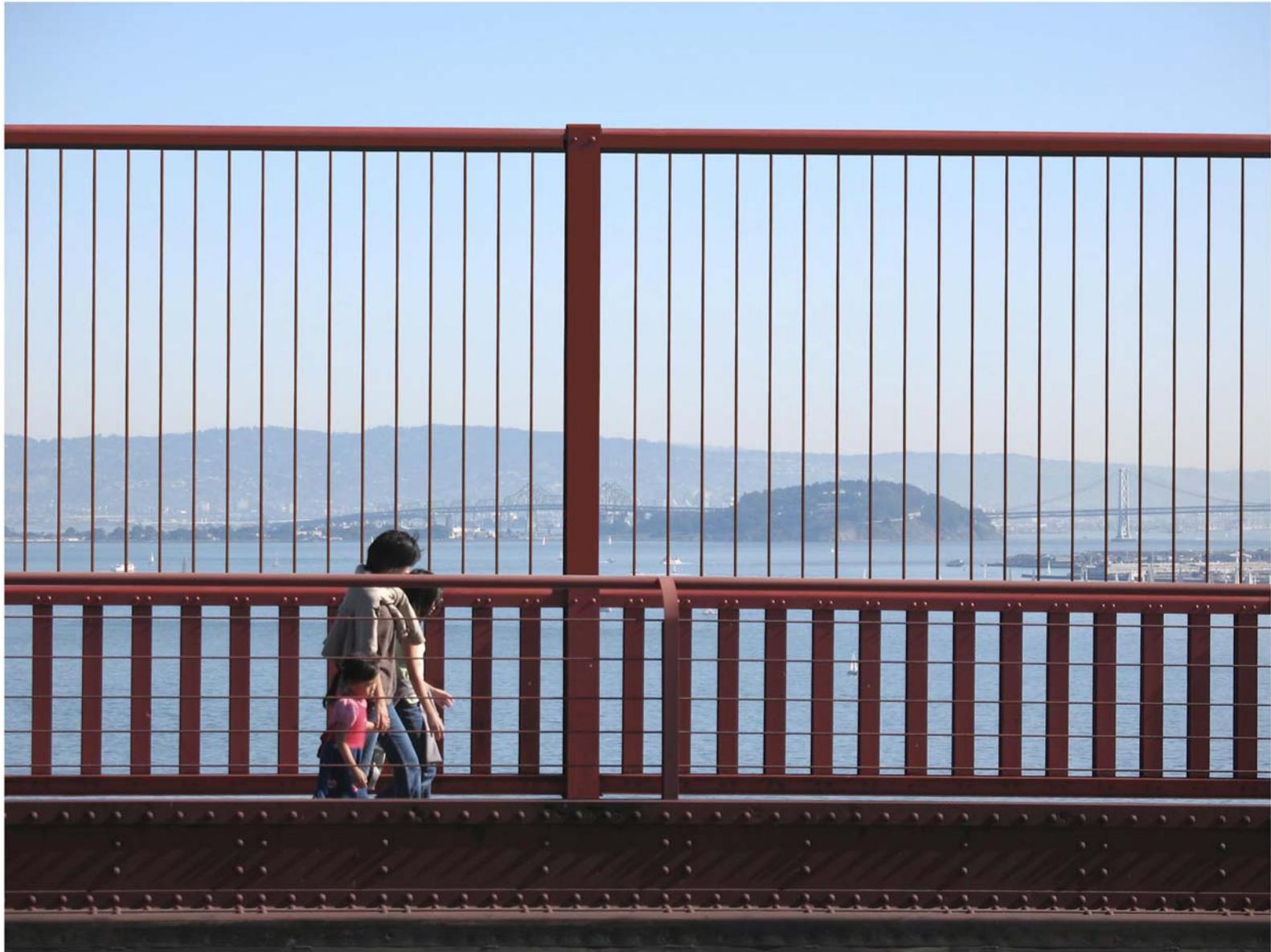
CAR WEST 1A

Visual Simulation: Alternative 1A



CAR CENTER 1A

Visual Simulation: Alternative 1A



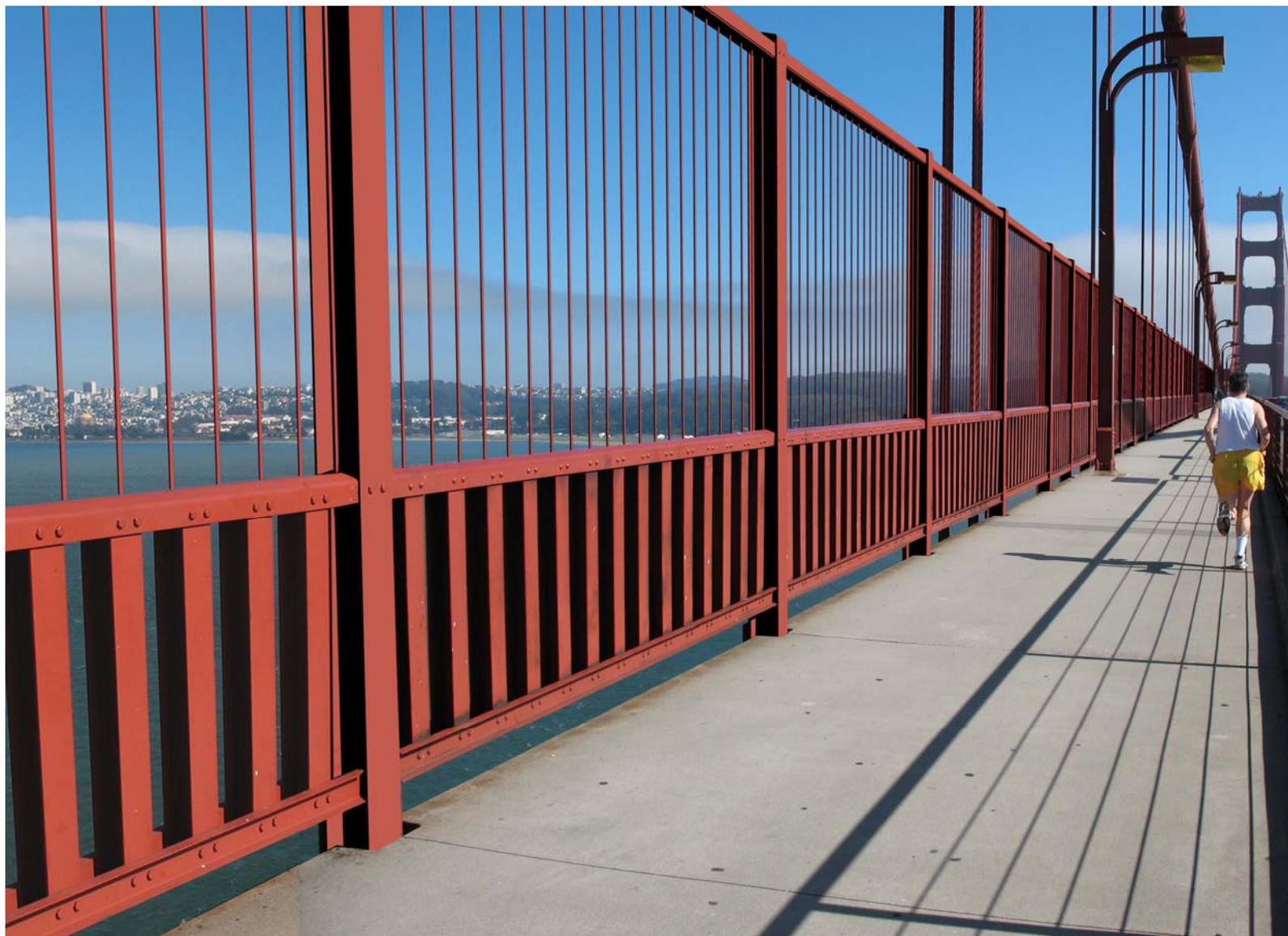
SIDEWALK EAST 1A

Visual Simulation: Alternative 1A



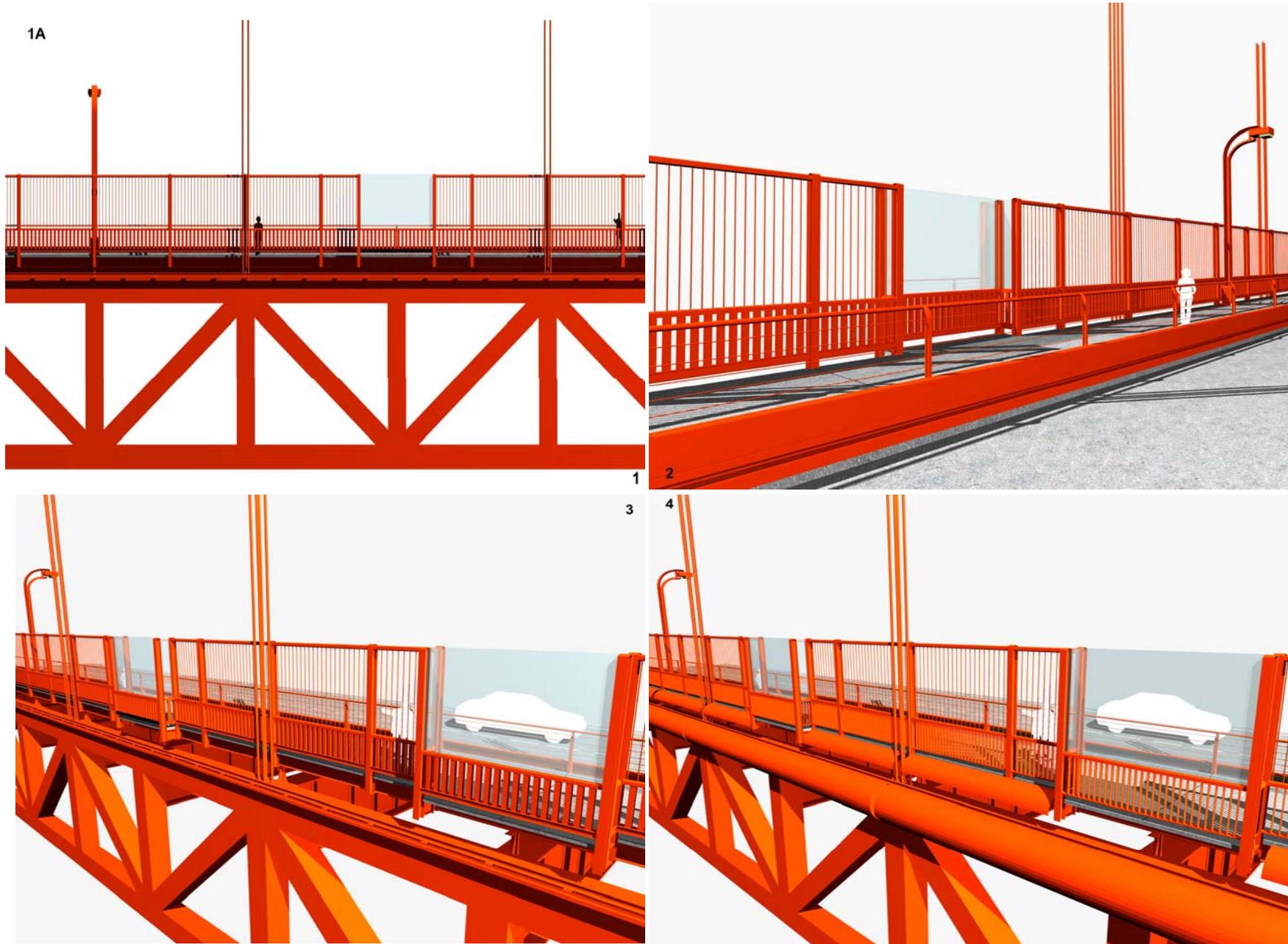
SIDEWALK NORTH 1A

Visual Simulation: Alternative 1A

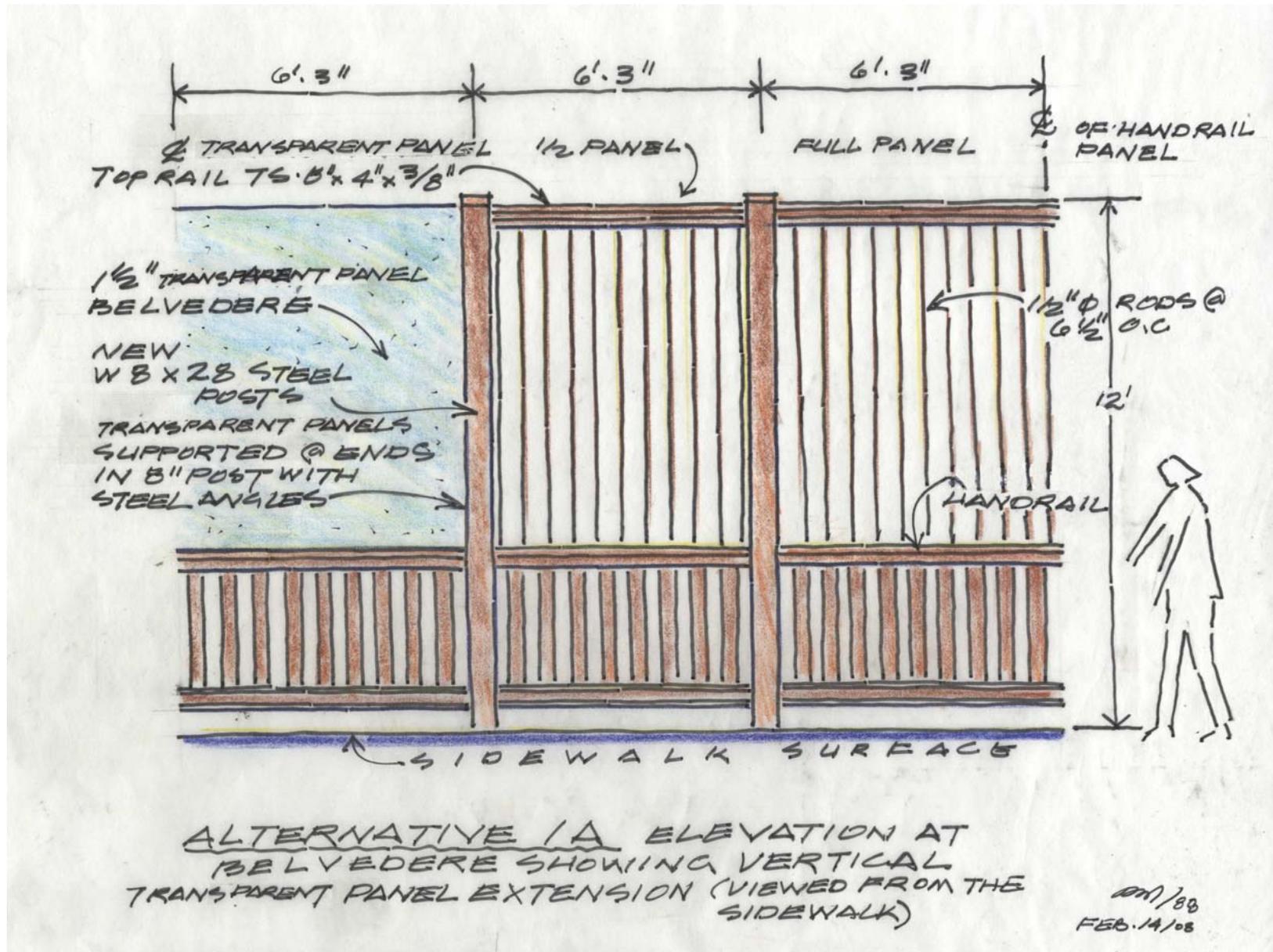


SIDEWALK SOUTH 1A

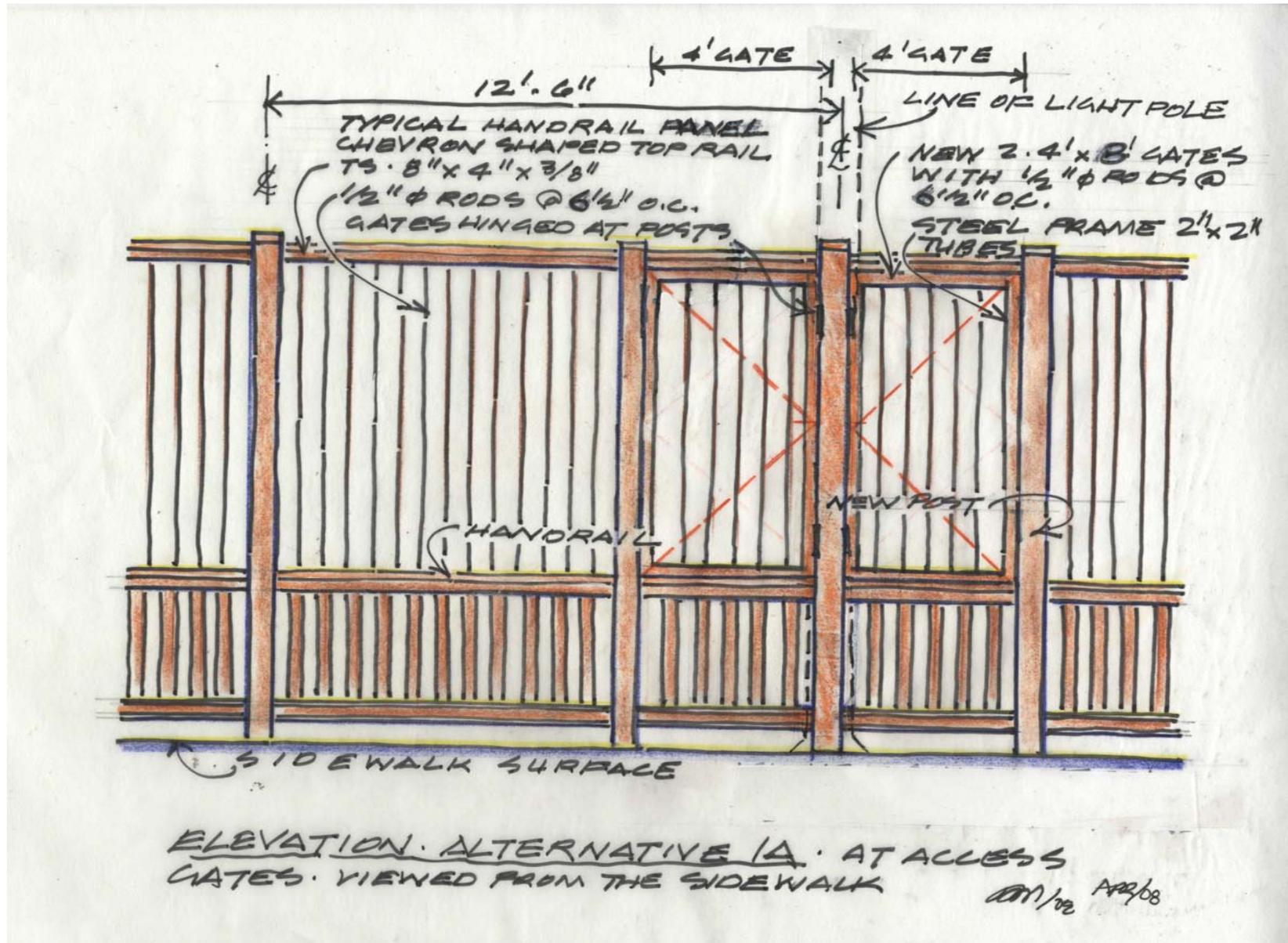
Visual Simulation: Alternative 1A



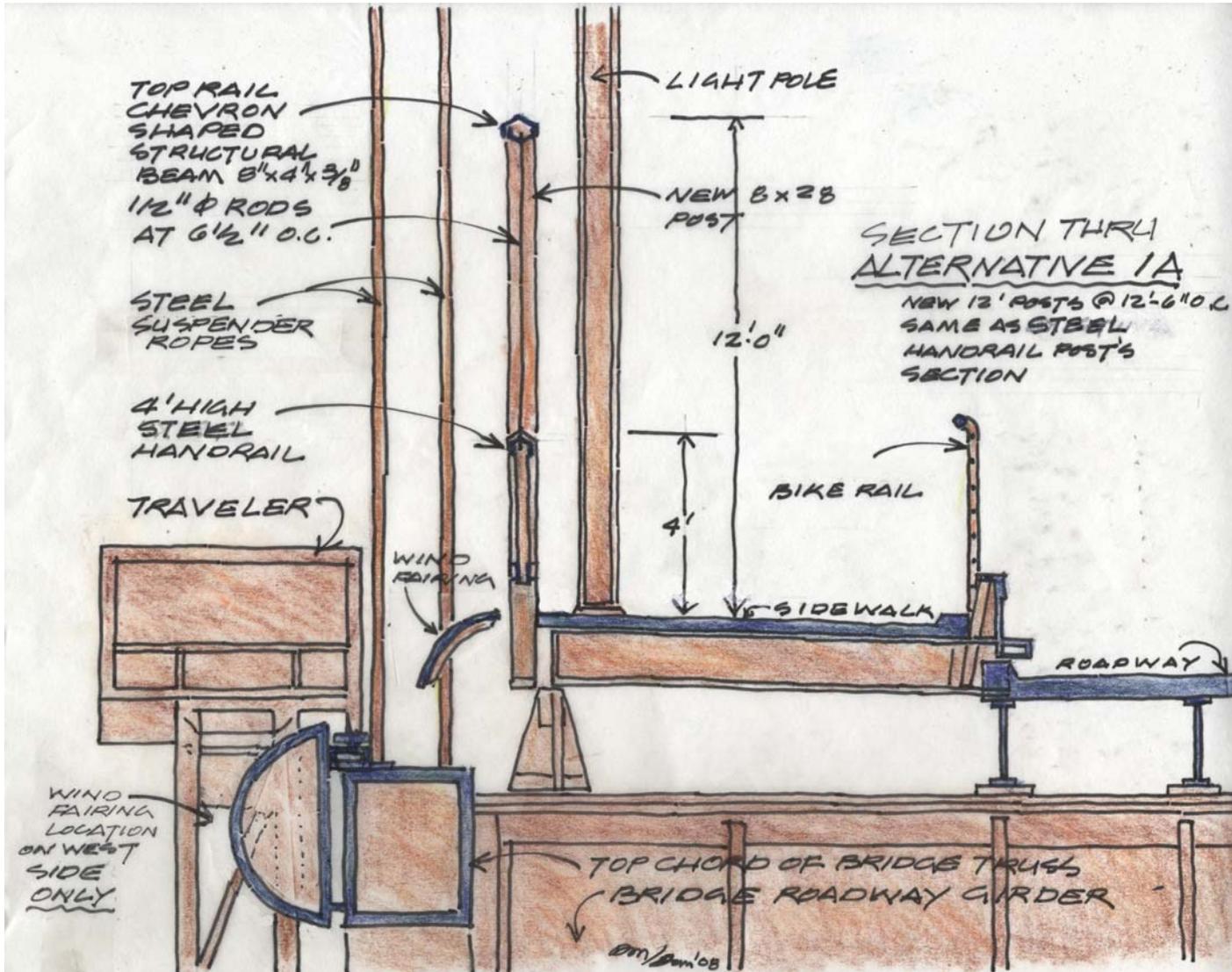
Renderings 1-4: Alternative 1A



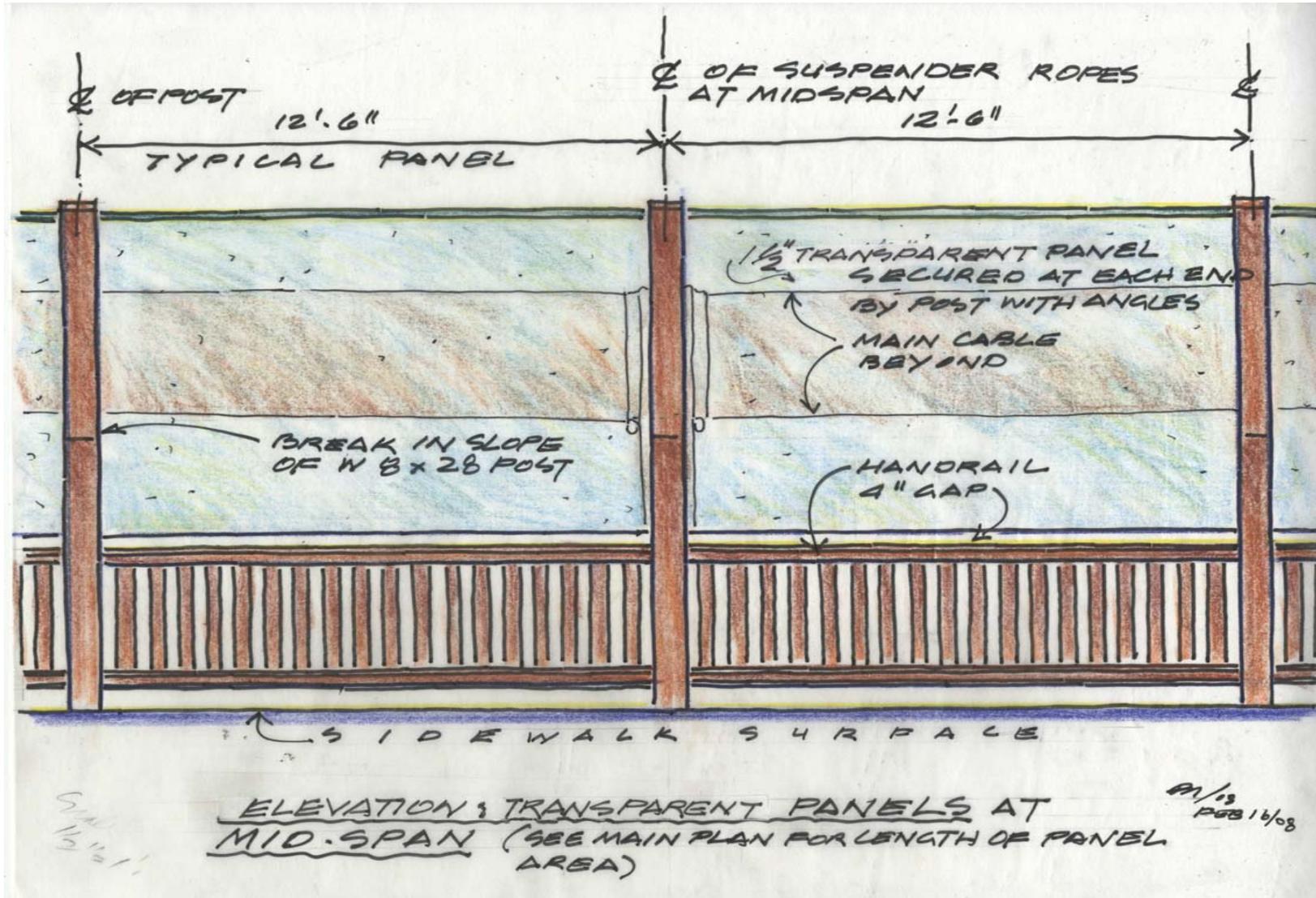
Sketch: Alternative 1A



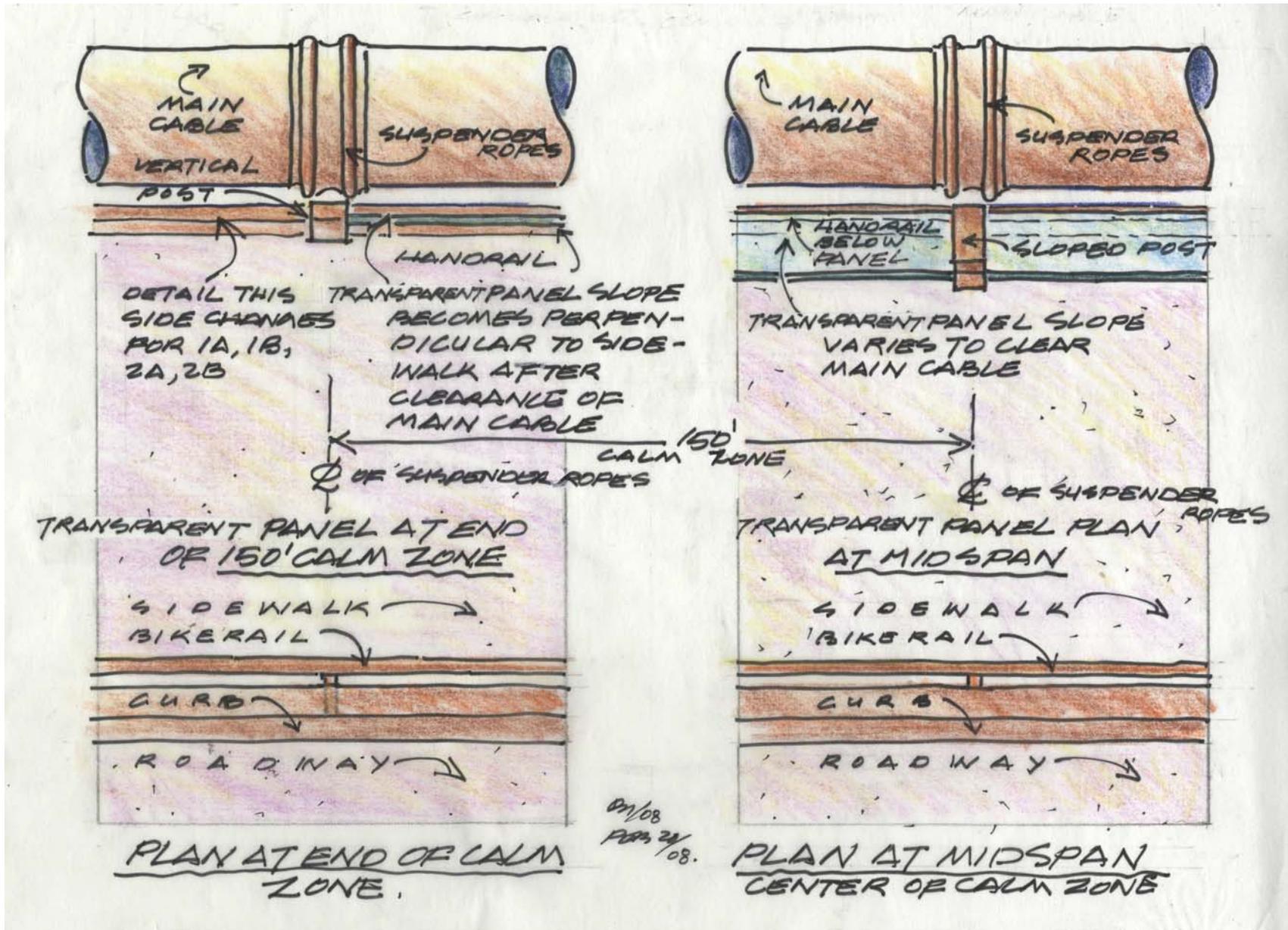
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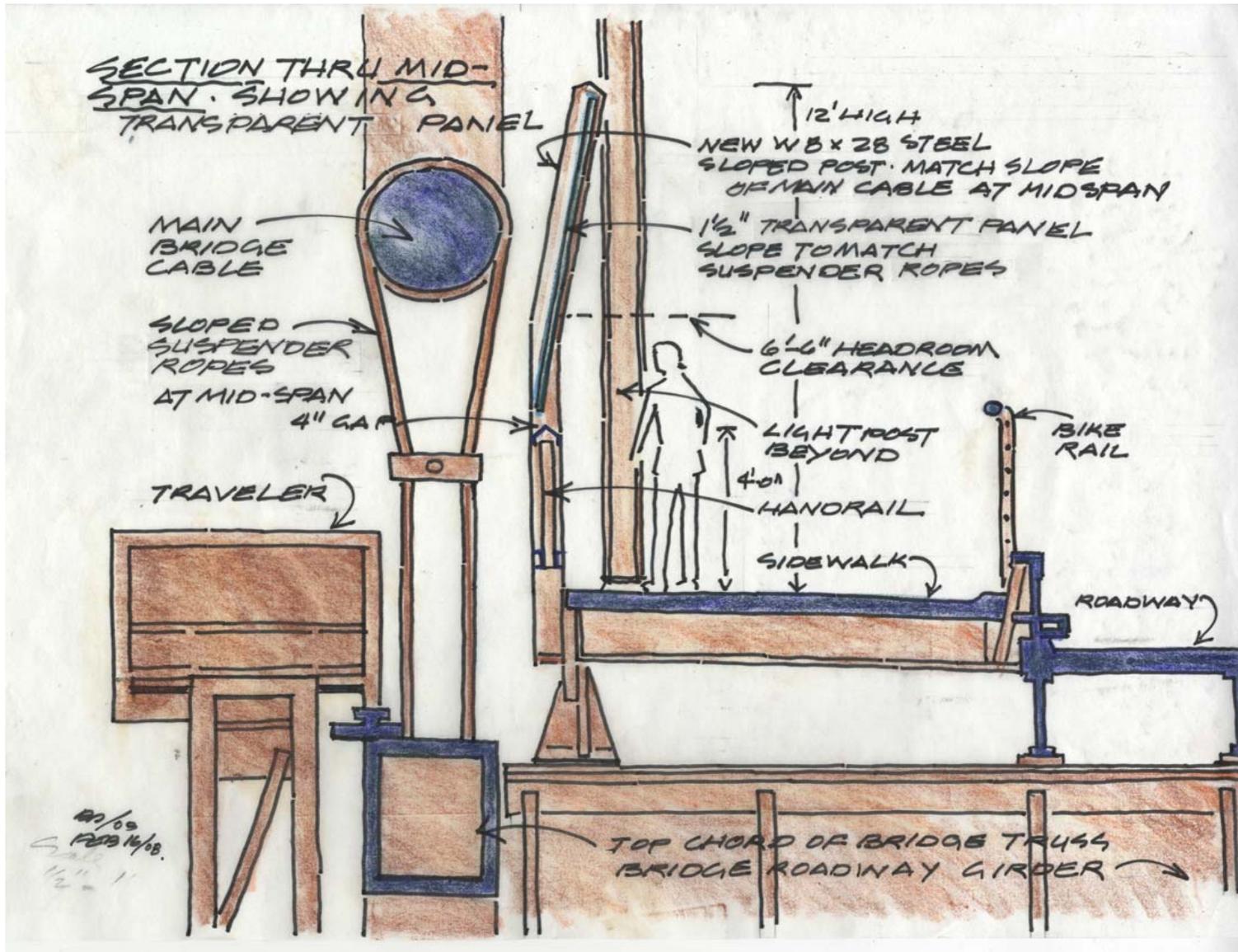
Sketch: Alternative 1A



Sketch: Alternative 1A



Sketch: Alternative 1A



Sketch: Alternative 1A



FORT POINT 1B

Visual Simulation: Alternative 1B



BAKER BEACH 1B

Visual Simulation: Alternative 1B



NORTH FISHING PIER 1B

Visual Simulation: Alternative 1B



VISTA POINT 1B

Visual Simulation: Alternative 1B



MARIN HEADLANDS 1B

Visual Simulation: Alternative 1B



BOAT WEST 1B

Visual Simulation: Alternative 1B



CAR WEST 1B

Visual Simulation: Alternative 1B



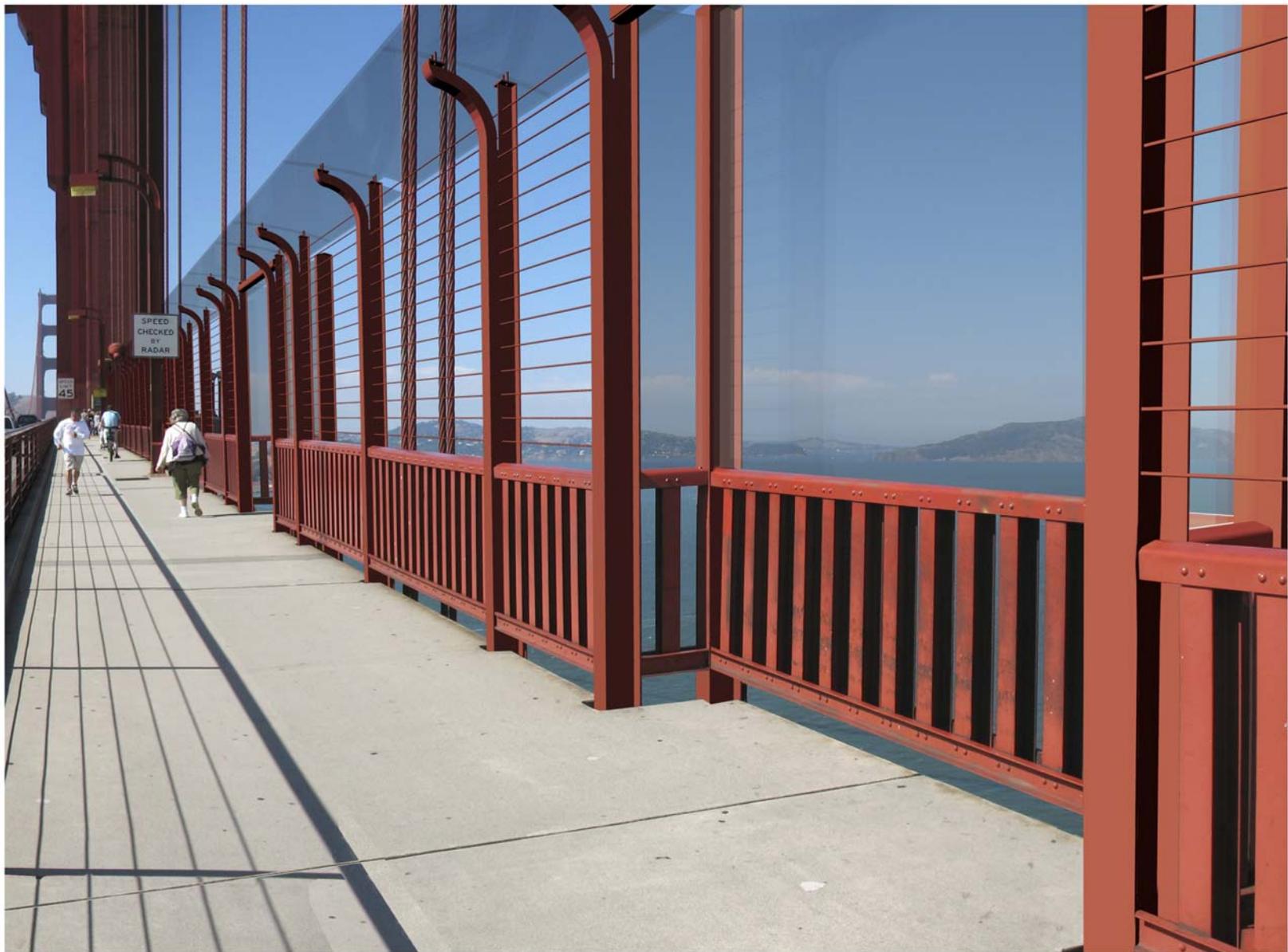
CAR CENTER 1B

Visual Simulation: Alternative 1B



CAR EAST 1B

Visual Simulation: Alternative 1B



SIDEWALK NORTH 1B

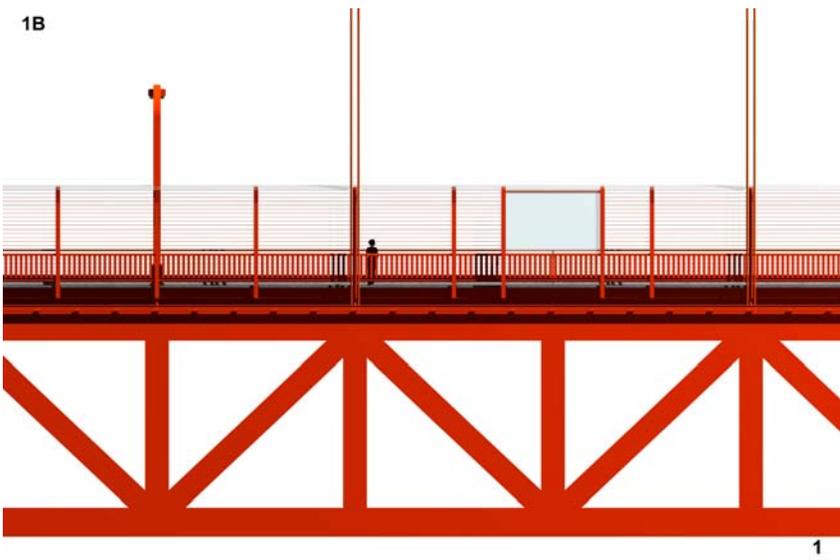
Visual Simulation: Alternative 1B



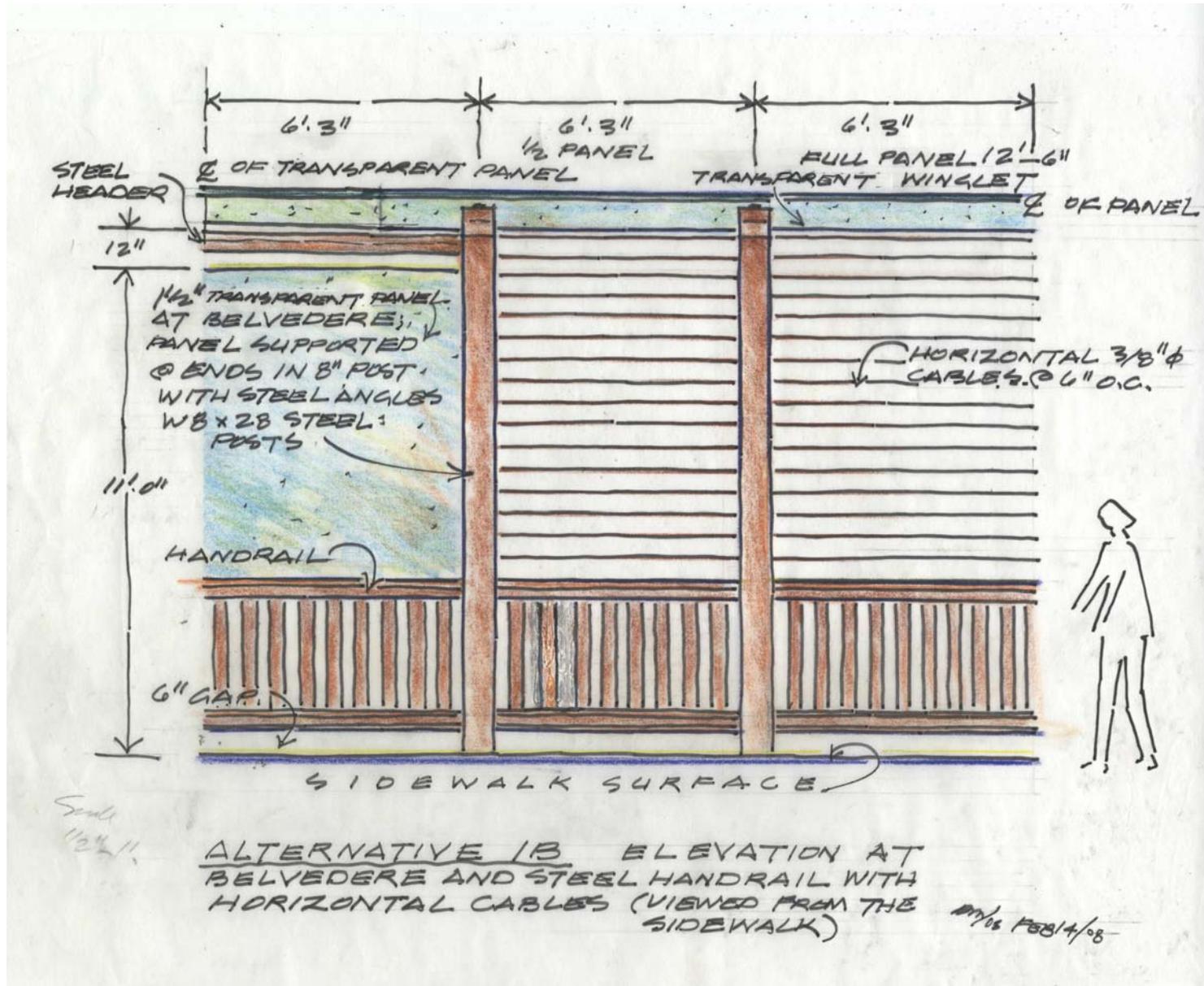
SIDEWALK SOUTH 1B

Visual Simulation: Alternative 1B

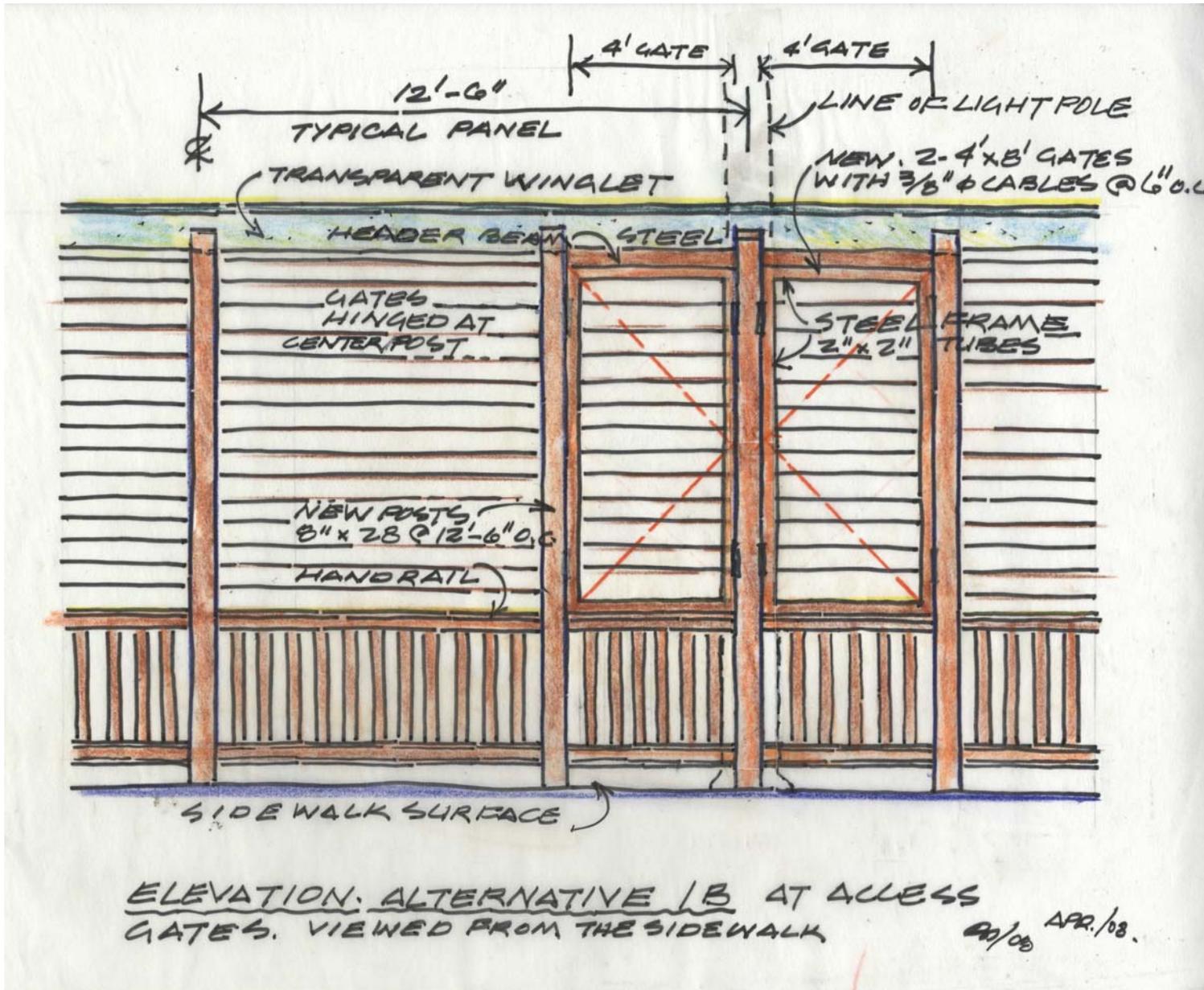
1B



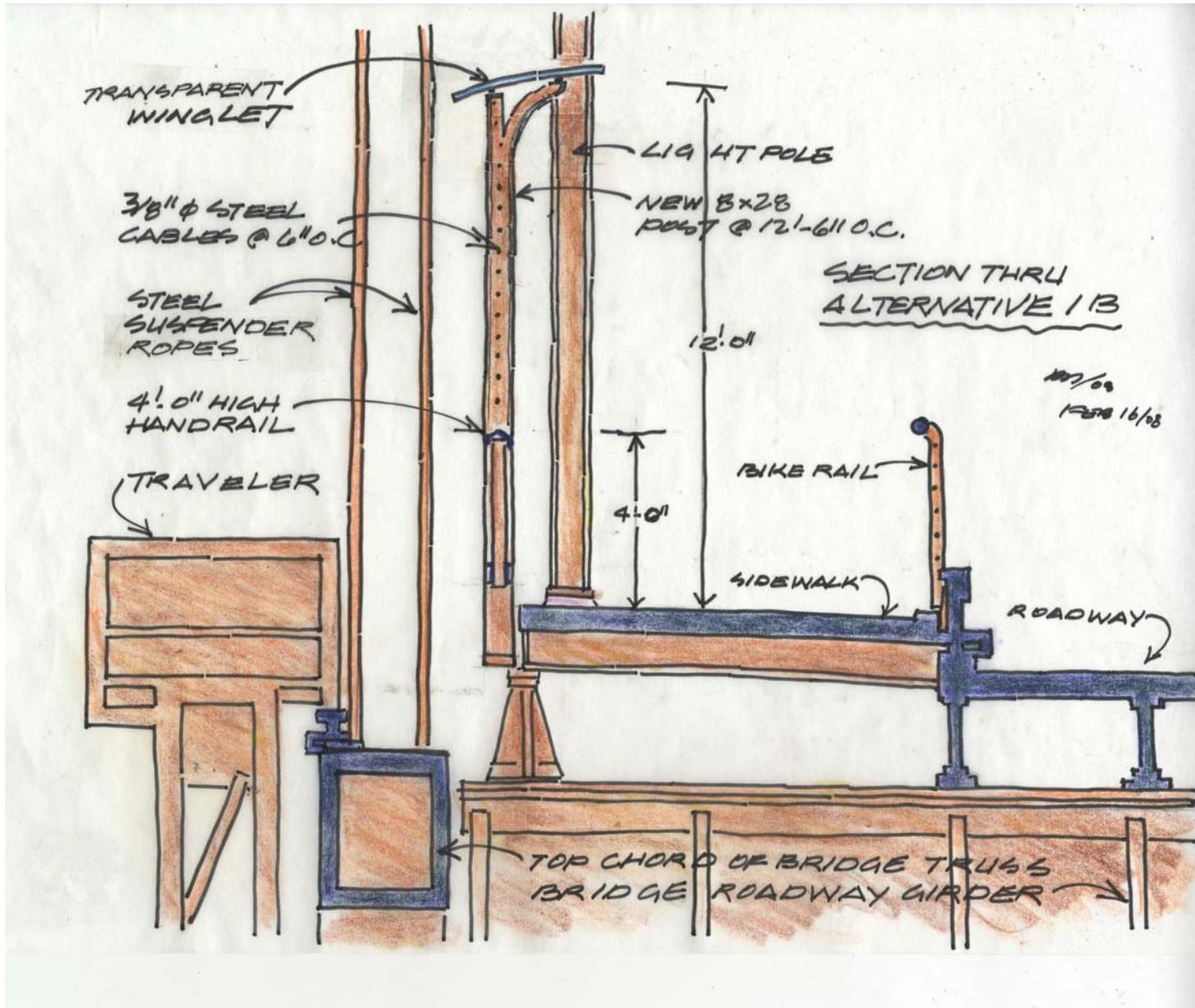
Renderings 1-4: Alternative 1B



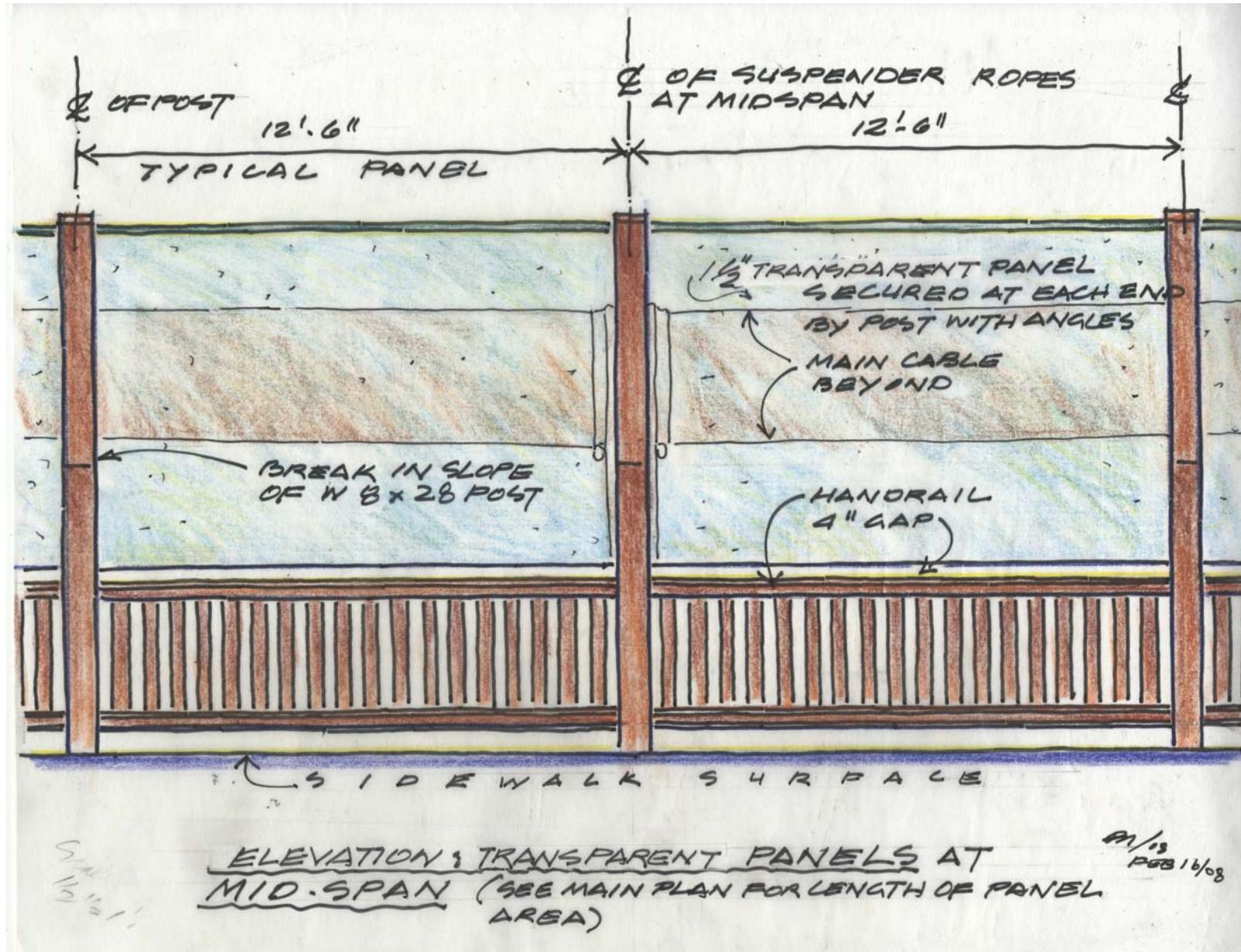
Sketch: Alternative 1B



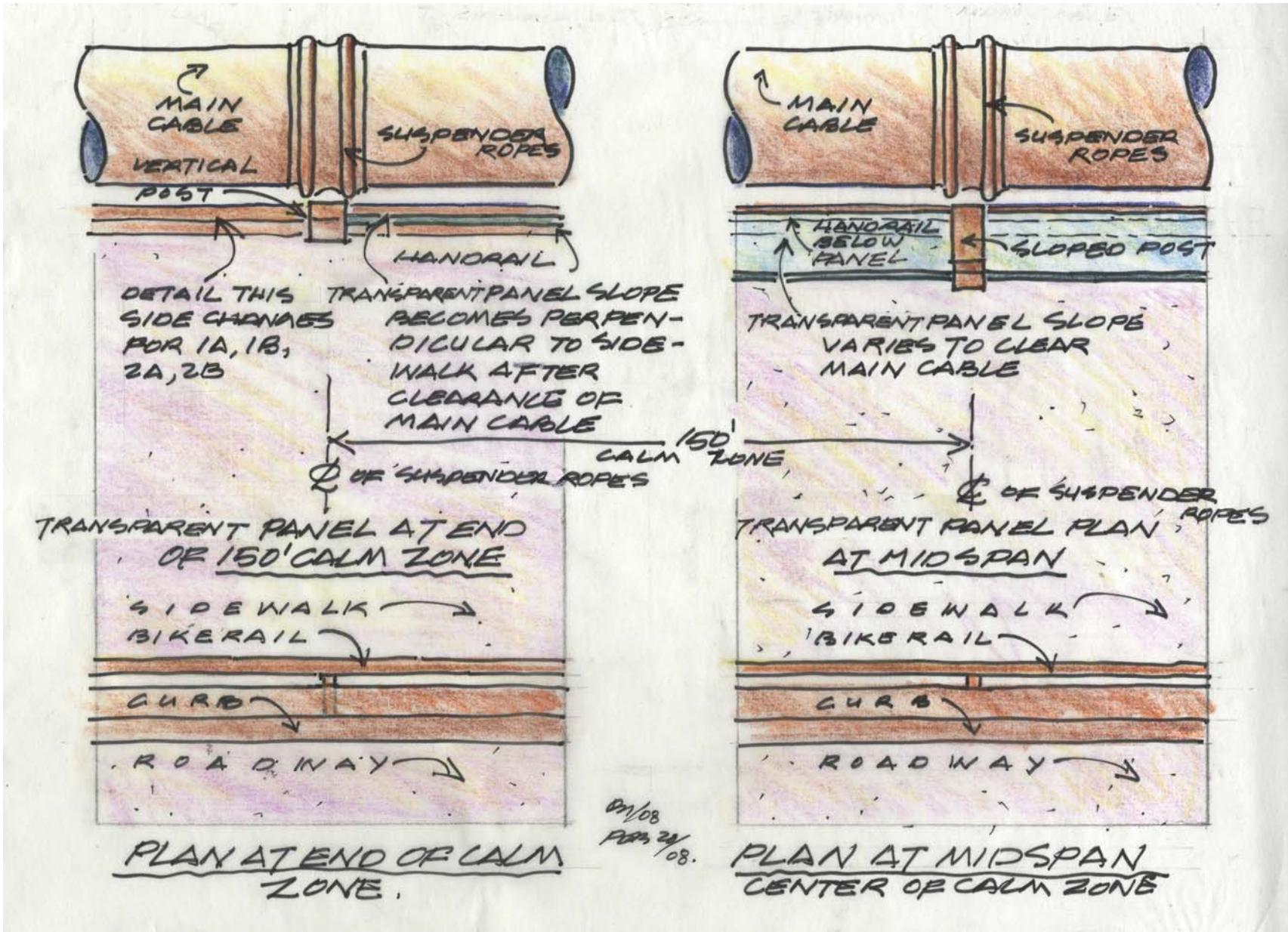
Sketch: Alternative 1B



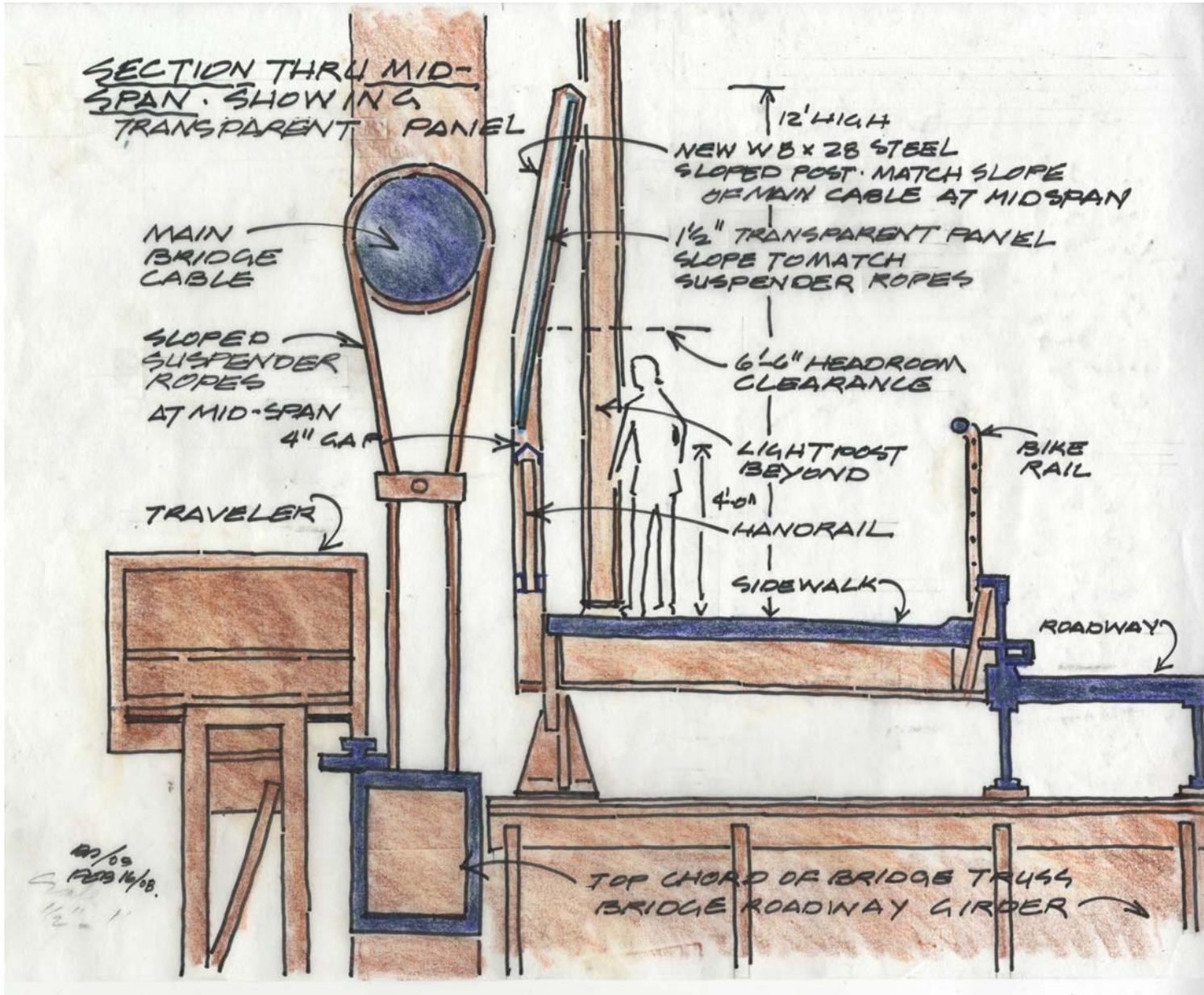
Sketch: Alternative 1B



Sketch: Alternative 1B



Sketch: Alternative 1B



Sketch: Alternative 1B



FORT POINT 2A

Visual Simulation: Alternative 2A



BAKER BEACH 2A

Visual Simulation: Alternative 2A



NORTH FISHING PIER 2A

Visual Simulation: Alternative 2A



VISTA POINT 2A

Visual Simulation: Alternative 2A



MARIN HEADLANDS 2A

Visual Simulation: Alternative 2A



BOAT WEST 2A

Visual Simulation: Alternative 2A



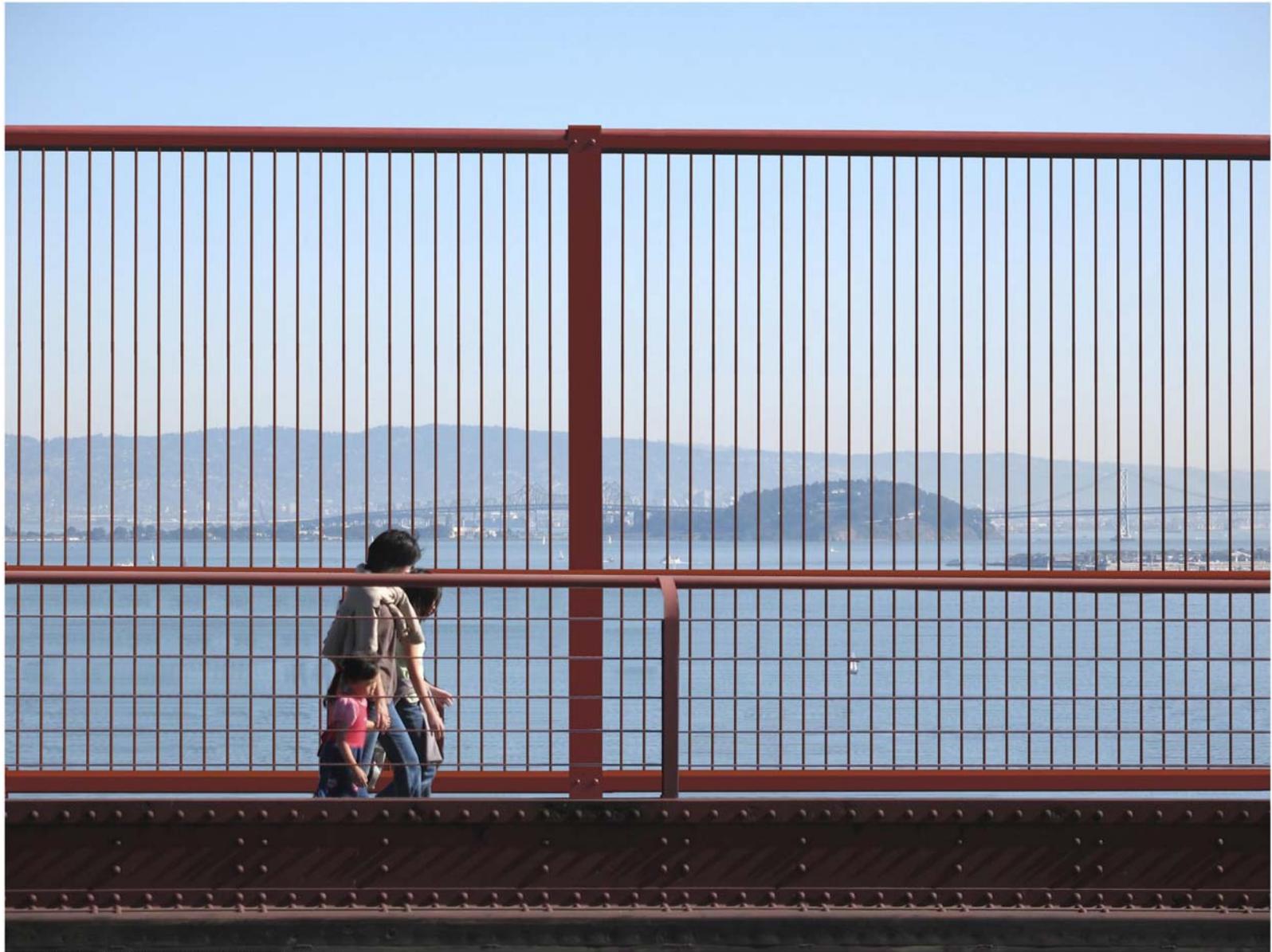
CAR WEST 2A

Visual Simulation: Alternative 2A



CAR CENTER 2A

Visual Simulation: Alternative 2A



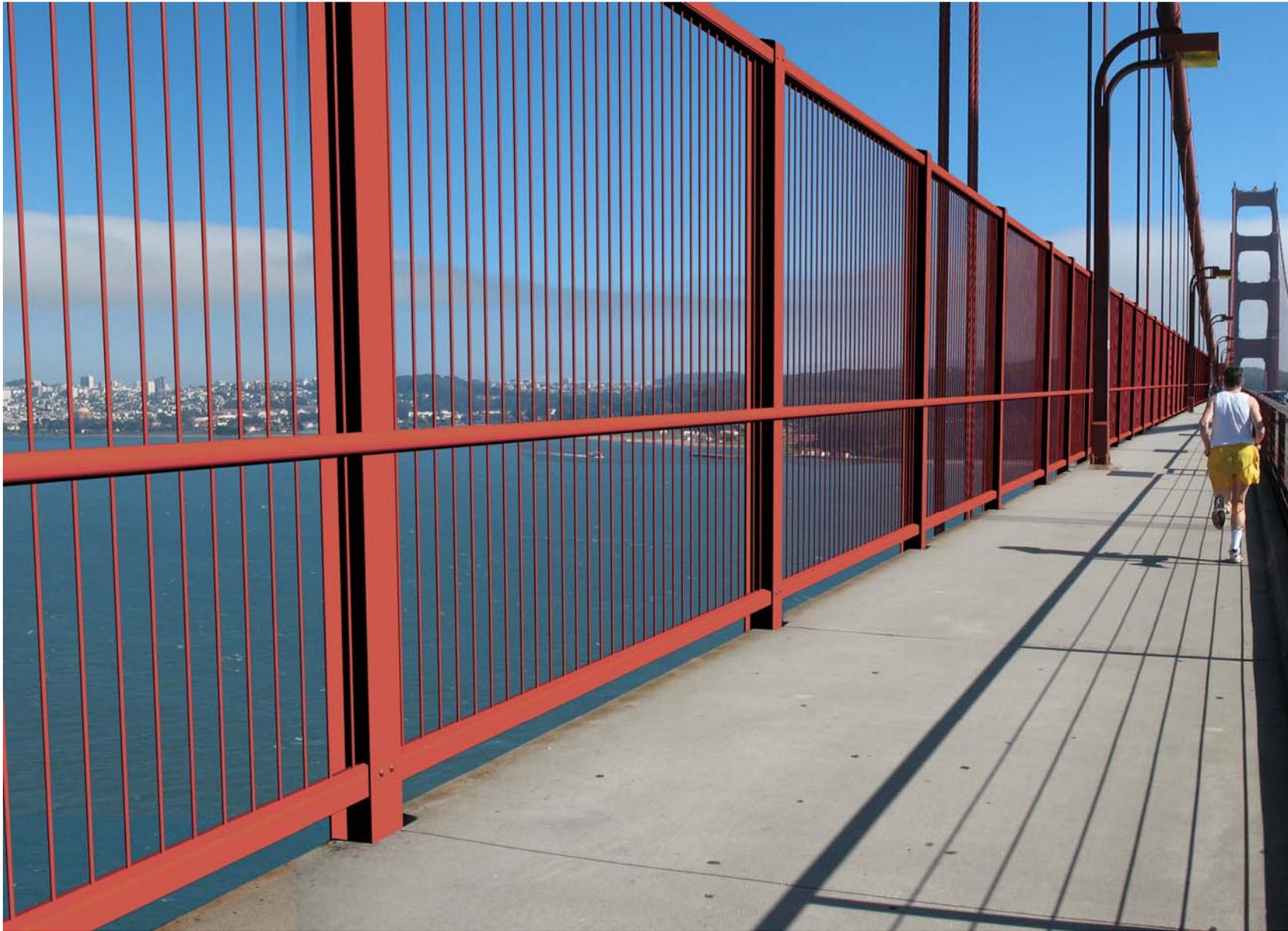
SIDEWALK EAST 2A

Visual Simulation: Alternative 2A



SIDEWALK NORTH 2A

Visual Simulation: Alternative 2A

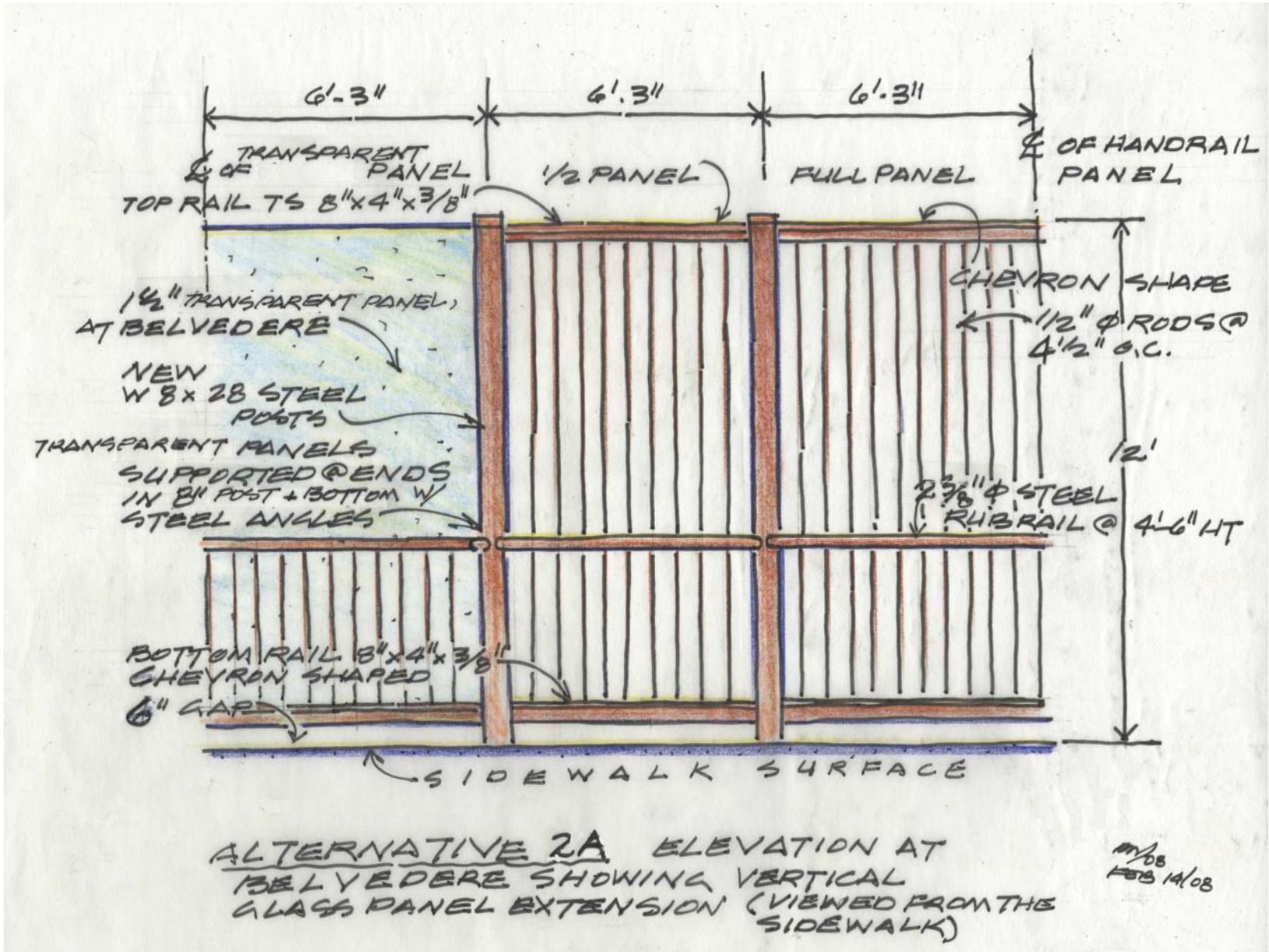


SIDEWALK SOUTH 2A

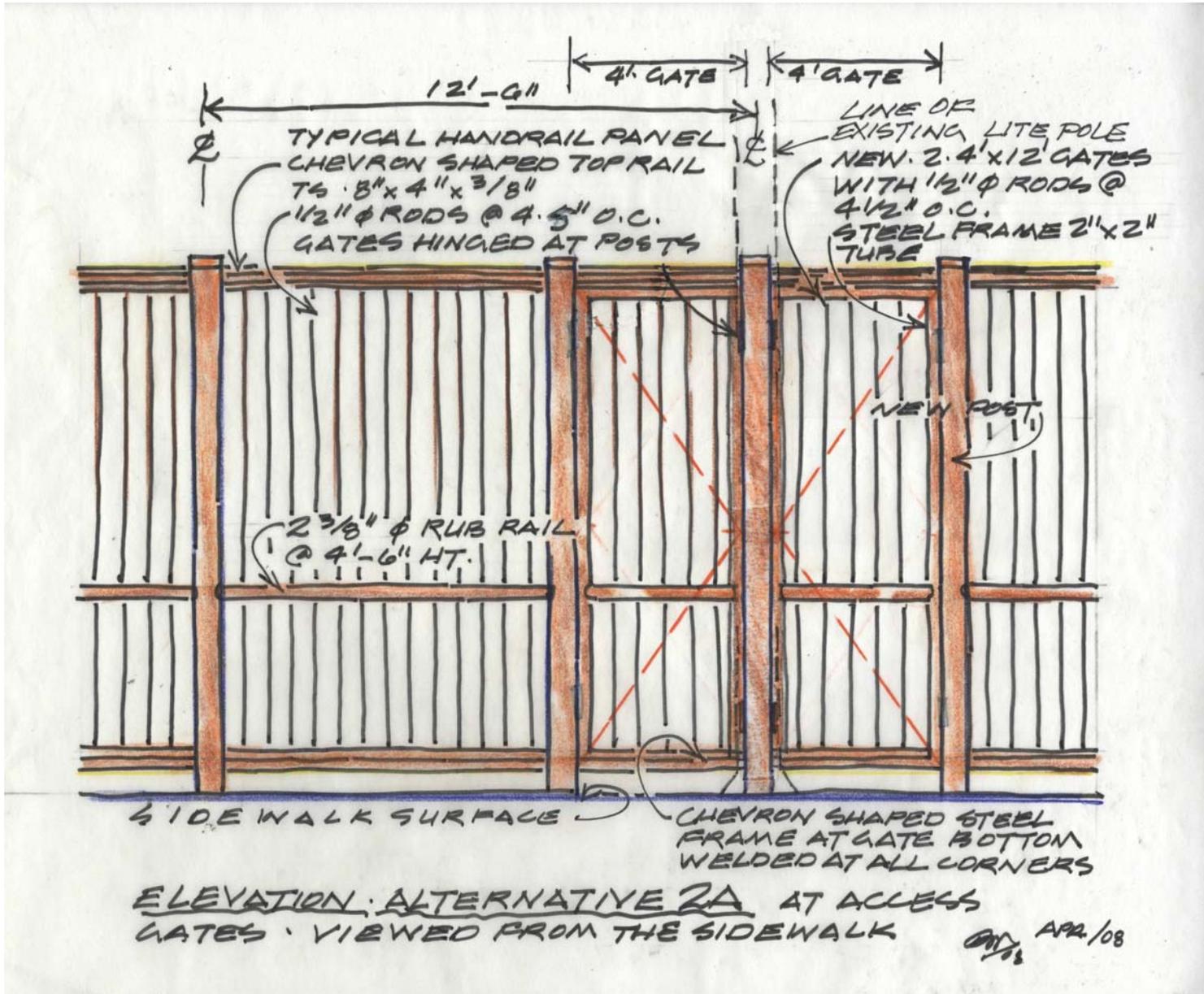
Visual Simulation: Alternative 2A



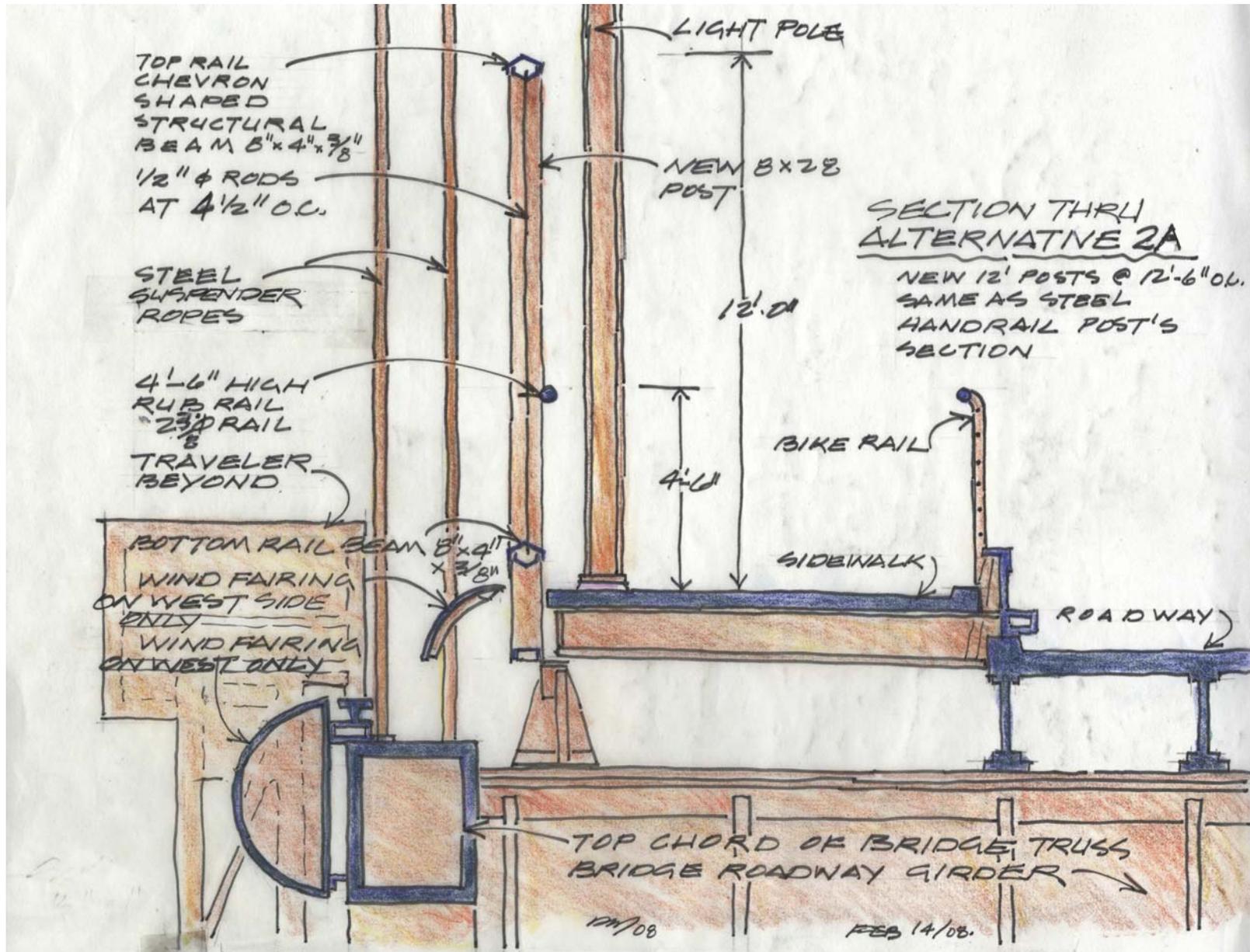
Renderings 1-4: Alternative 2A



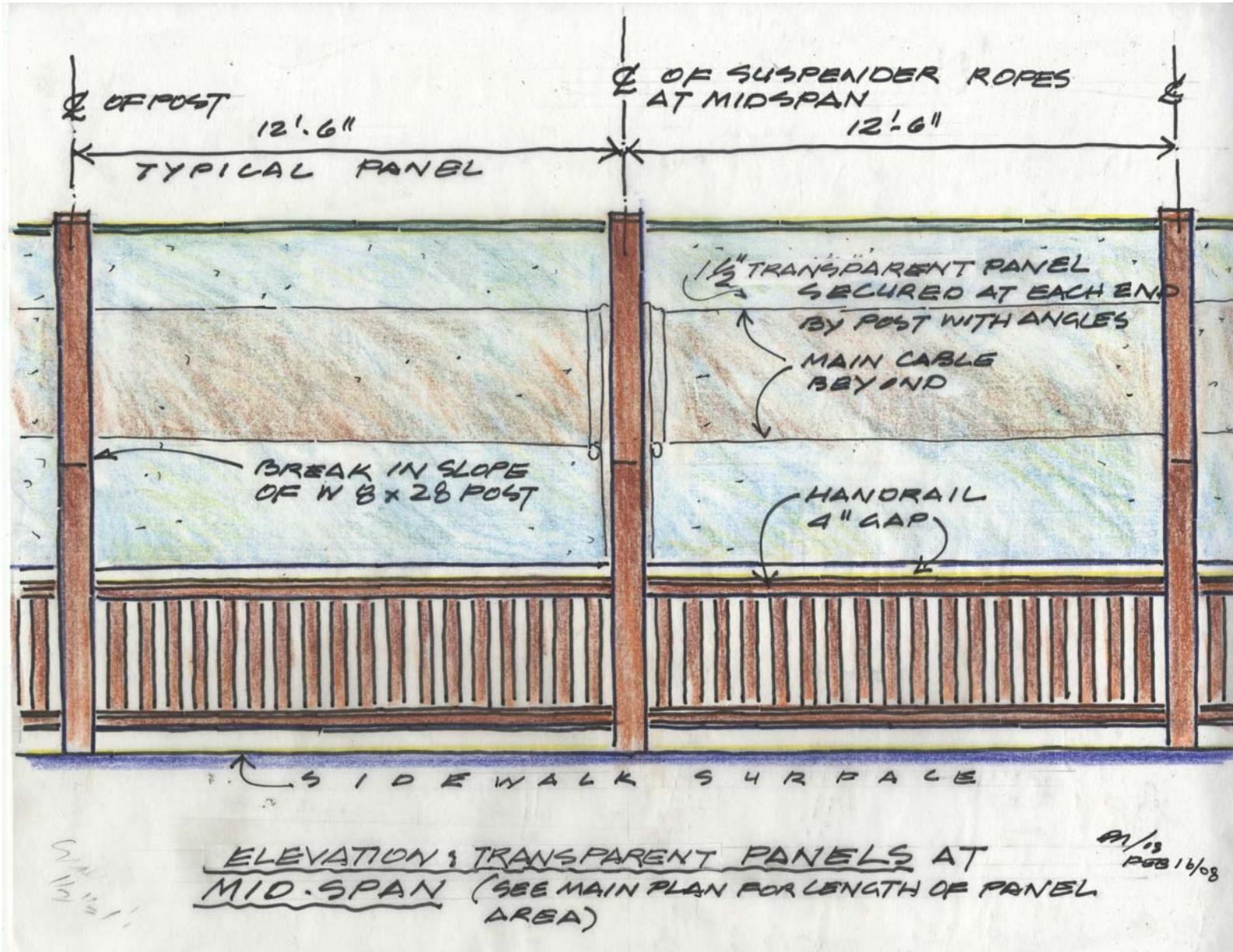
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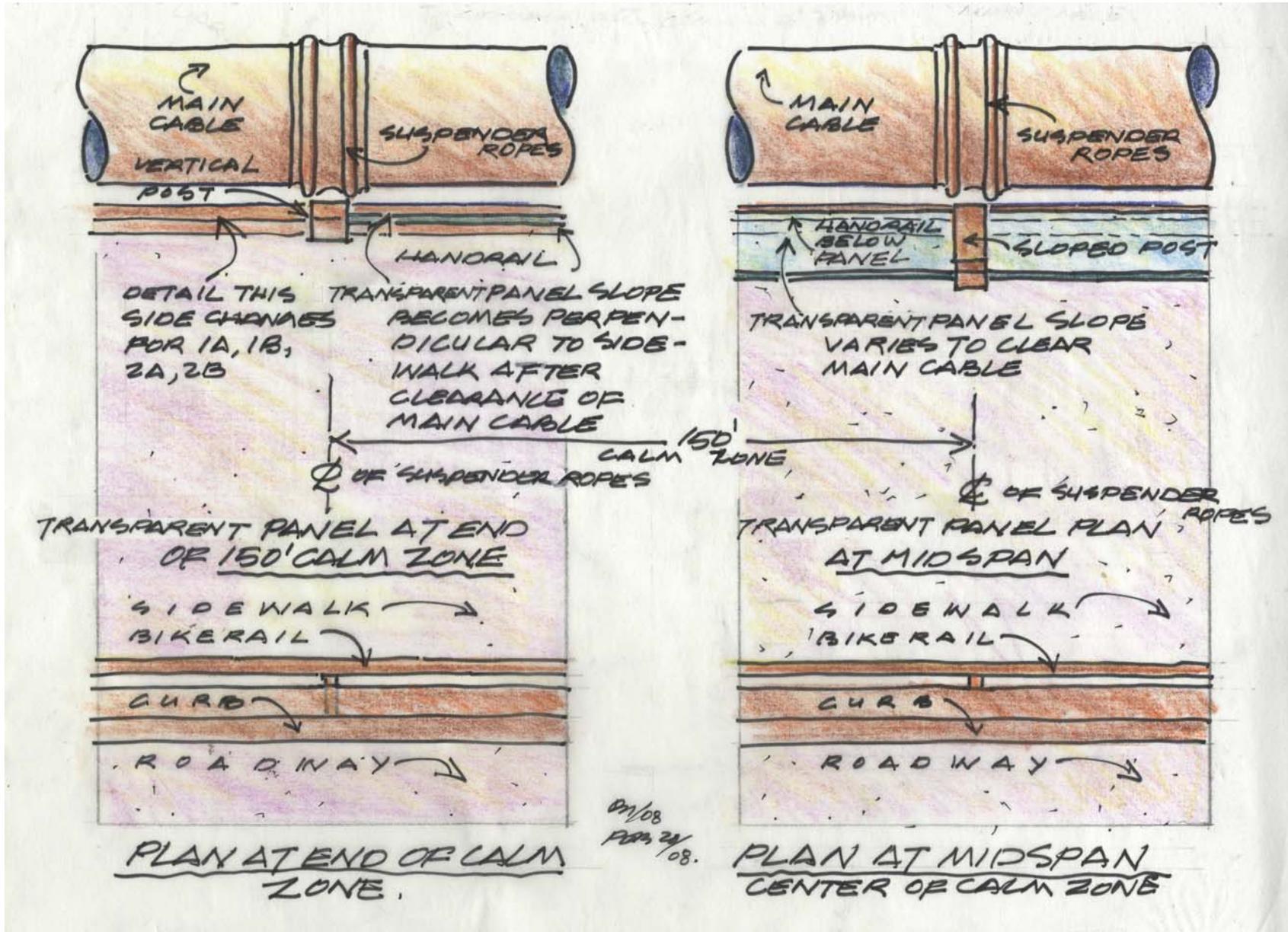
Sketch: Alternative 2A



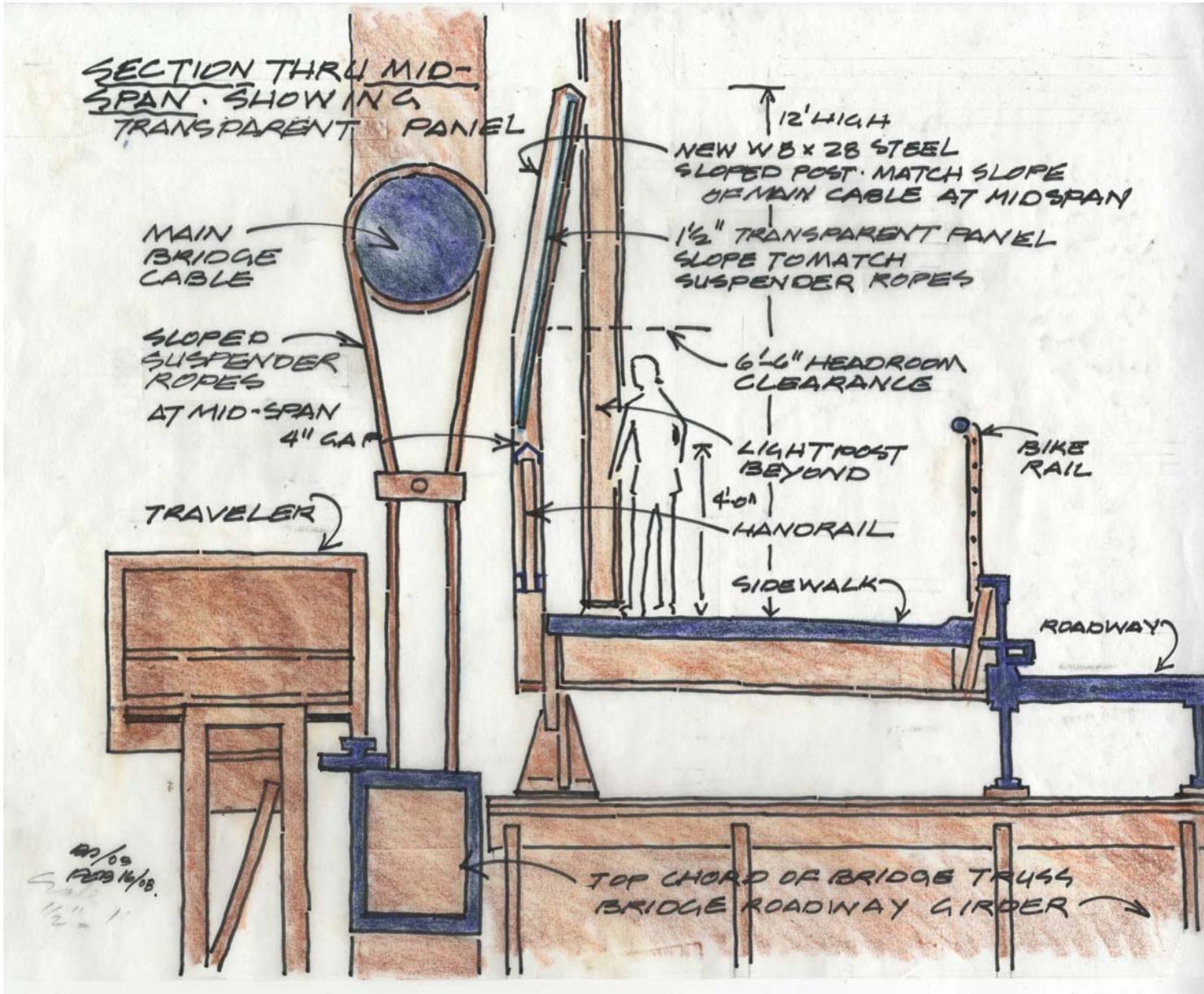
Sketch: Alternative 2A



Sketch: Alternative 2A



Sketch: Alternative 2A



Sketch: Alternative 2A



FORT POINT 2B

Visual Simulation: Alternative 2B



BAKER BEACH 2B

Visual Simulation: Alternative 2B



NORTH FISHING PIER 2B

Visual Simulation: Alternative 2B



VISTA POINT 2B

Visual Simulation: Alternative 2B



MARIN HEADLANDS 2B

Visual Simulation: Alternative 2B



BOAT WEST 2B

Visual Simulation: Alternative 2B



CAR WEST 2B

Visual Simulation: Alternative 2B



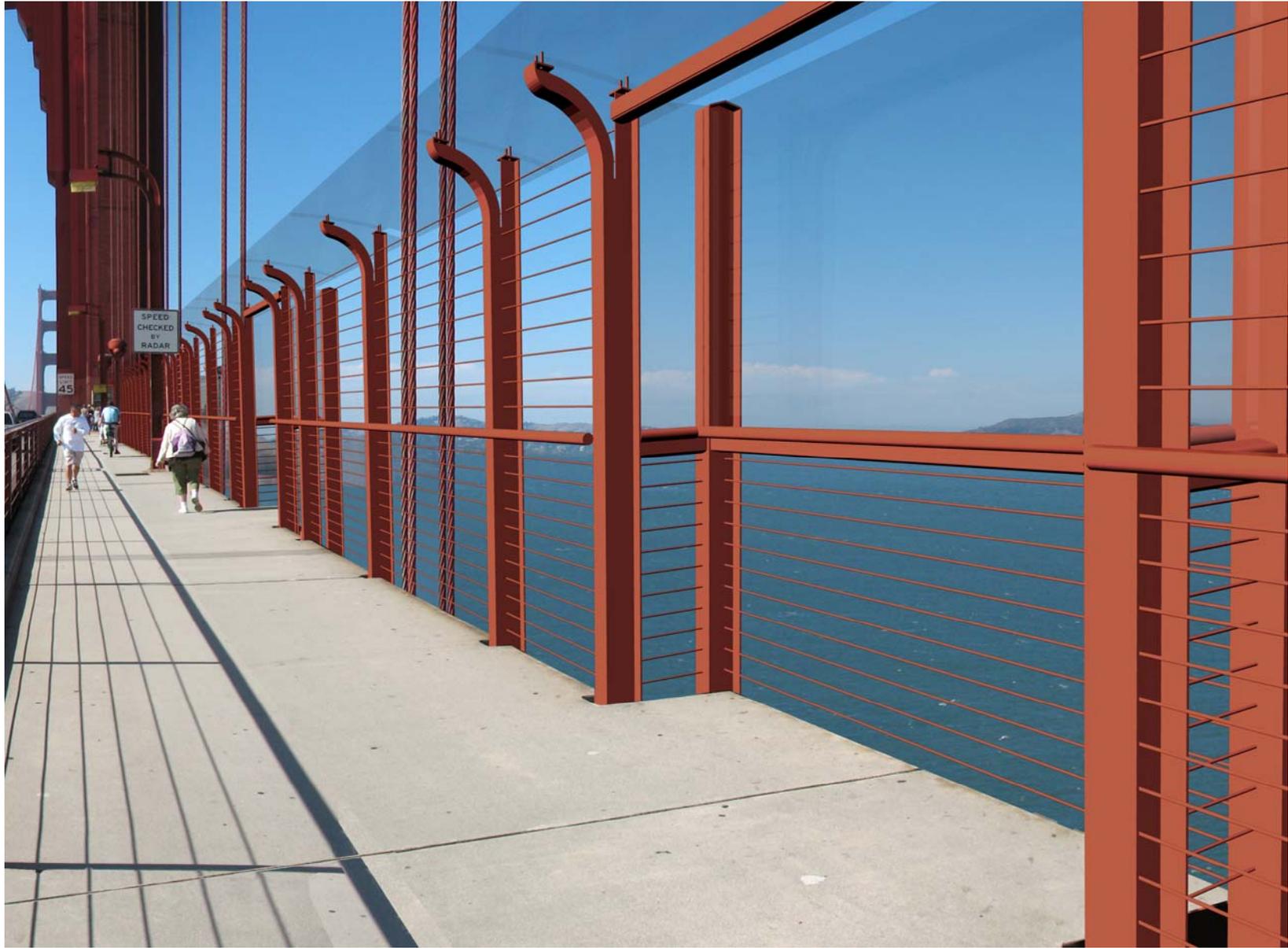
CAR CENTER 2B

Visual Simulation: Alternative 2B



CAR EAST 2B

Visual Simulation: Alternative 2B



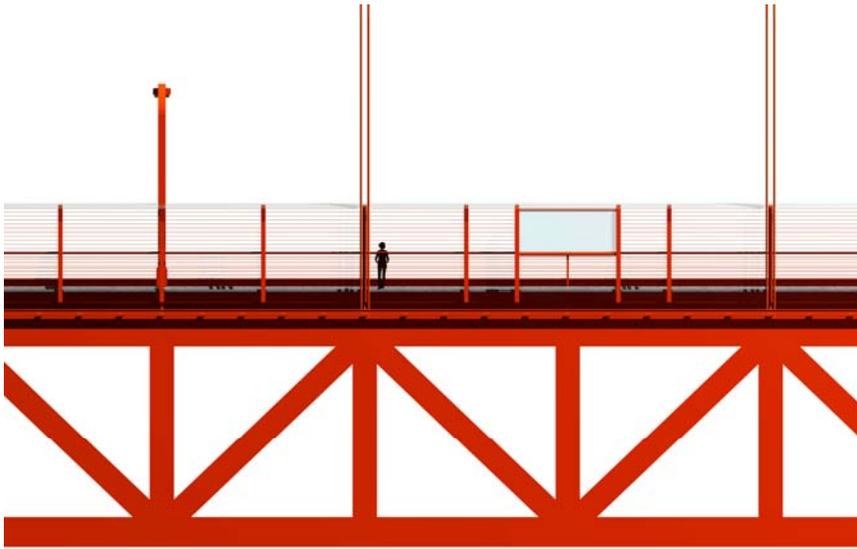
SIDEWALK NORTH 2B

Visual Simulation: Alternative 2B

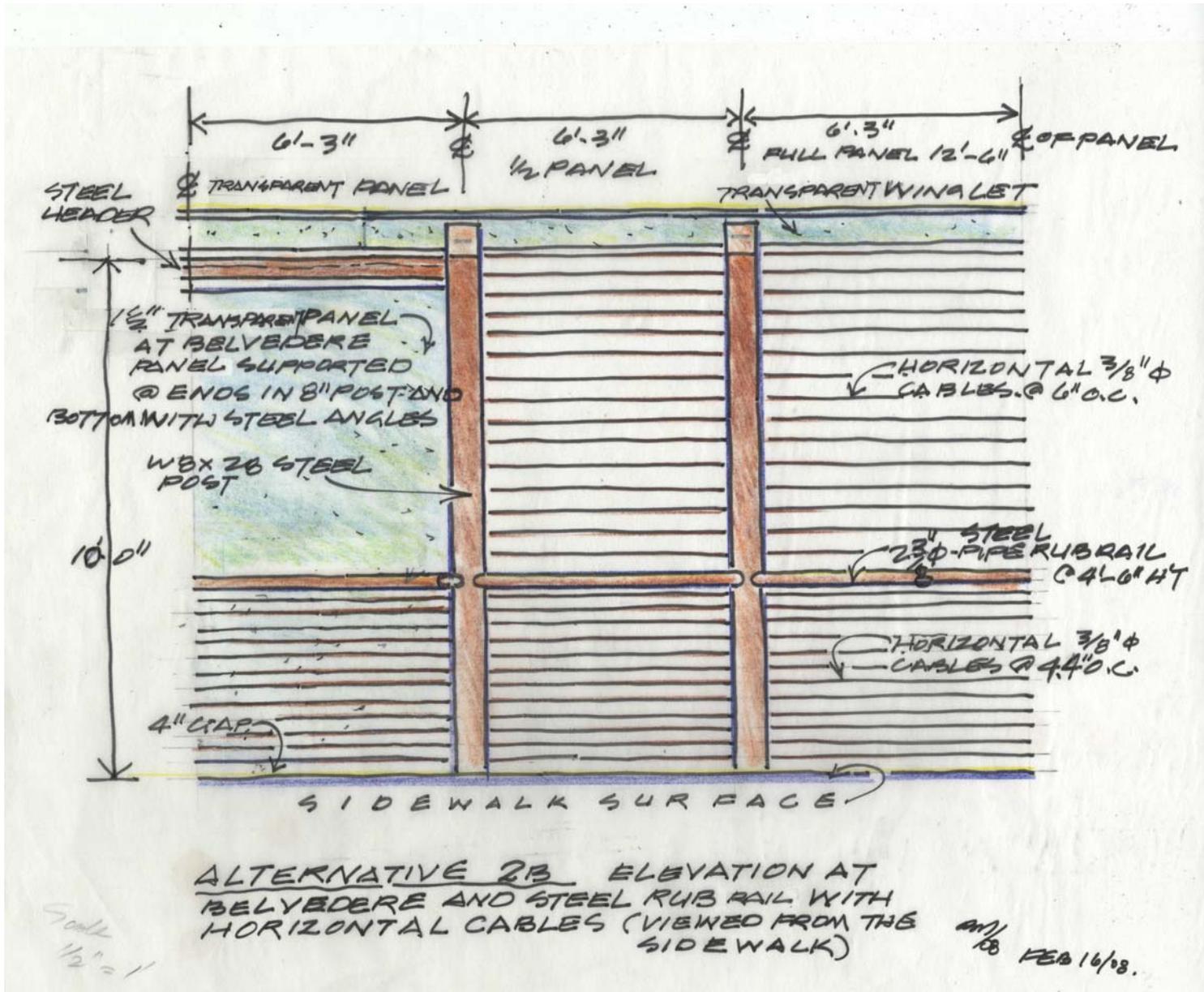


SIDWALK SOUTH 2B

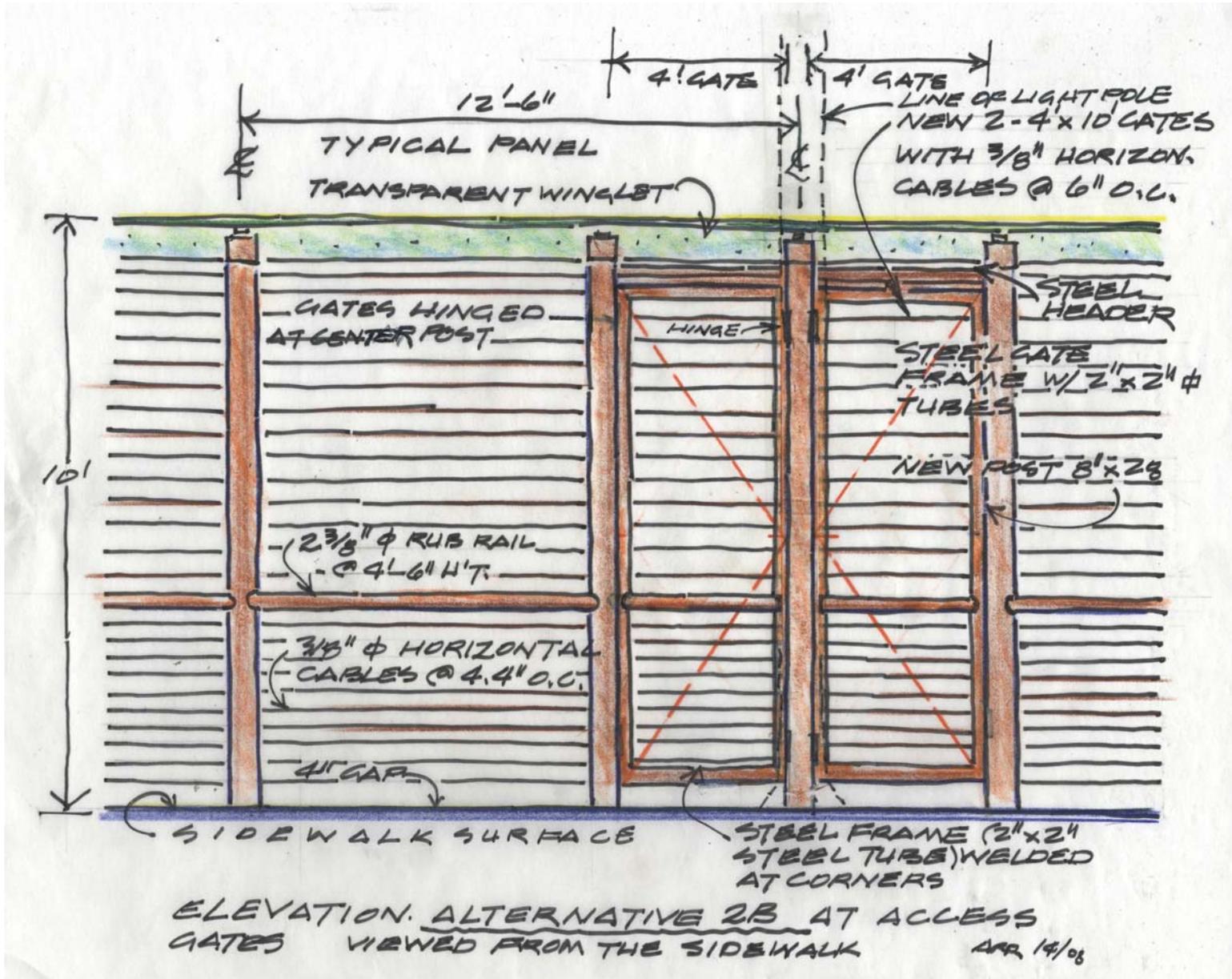
Visual Simulation: Alternative 2B



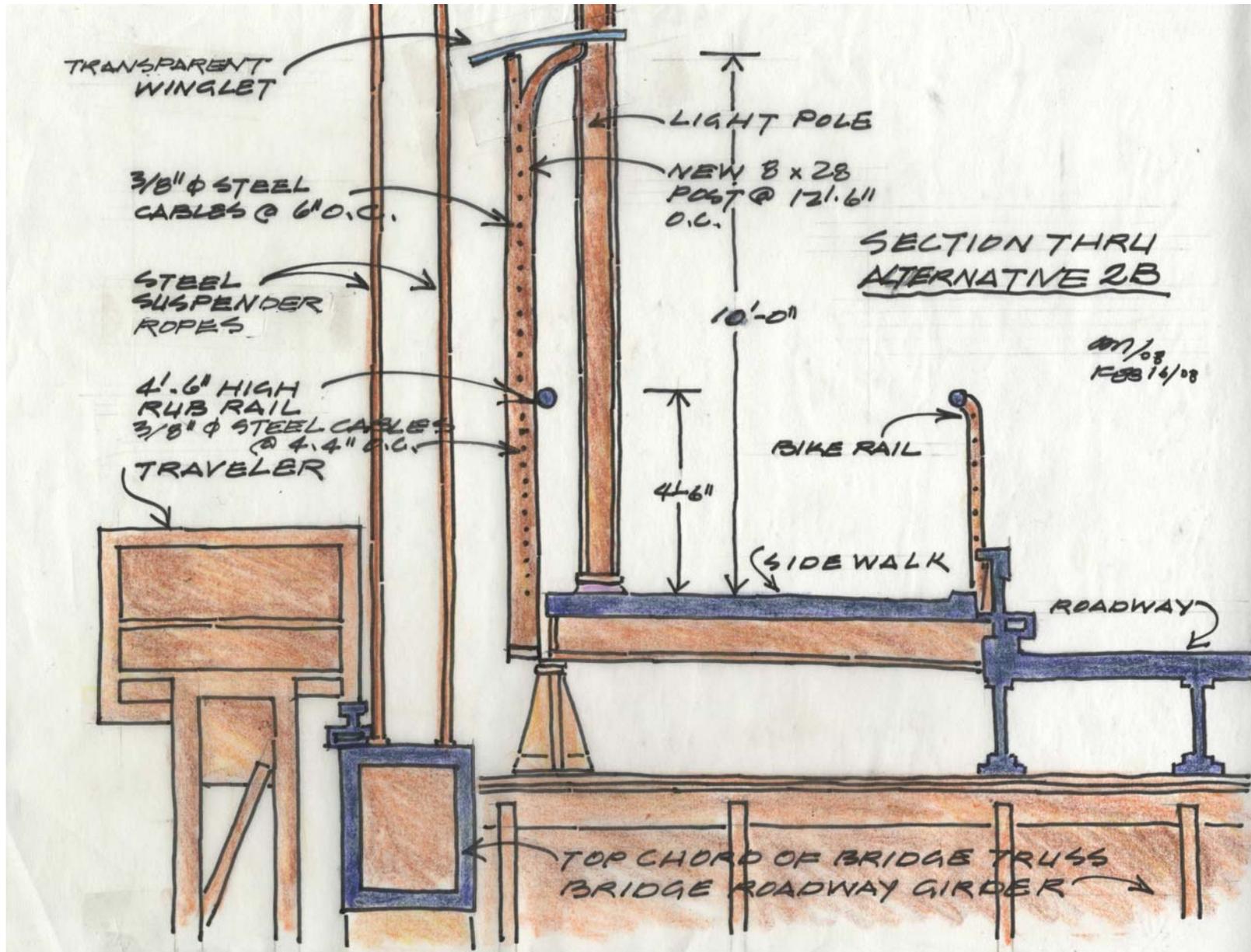
Renderings 1-4: Alternative 2



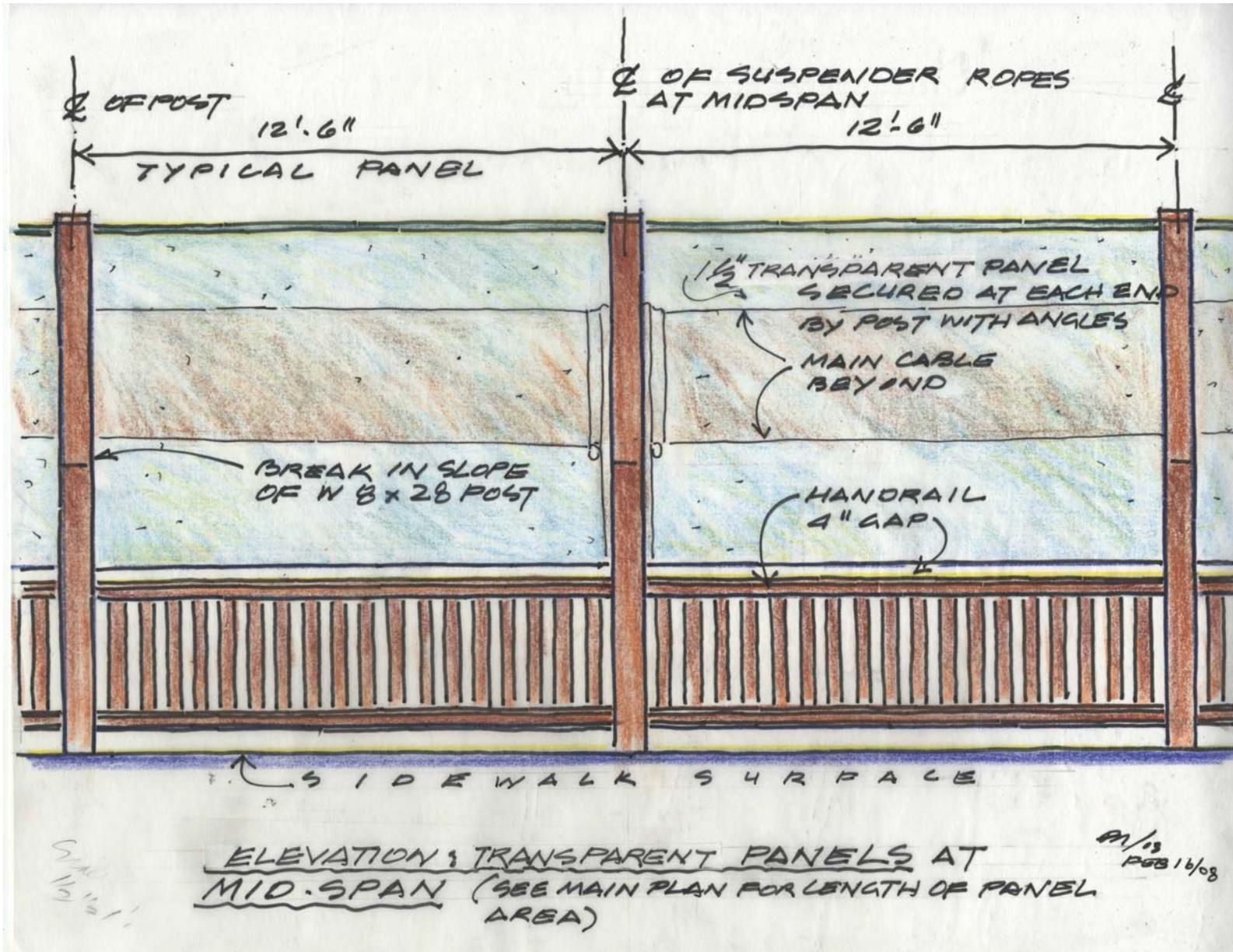
Sketch: Alternative 2B



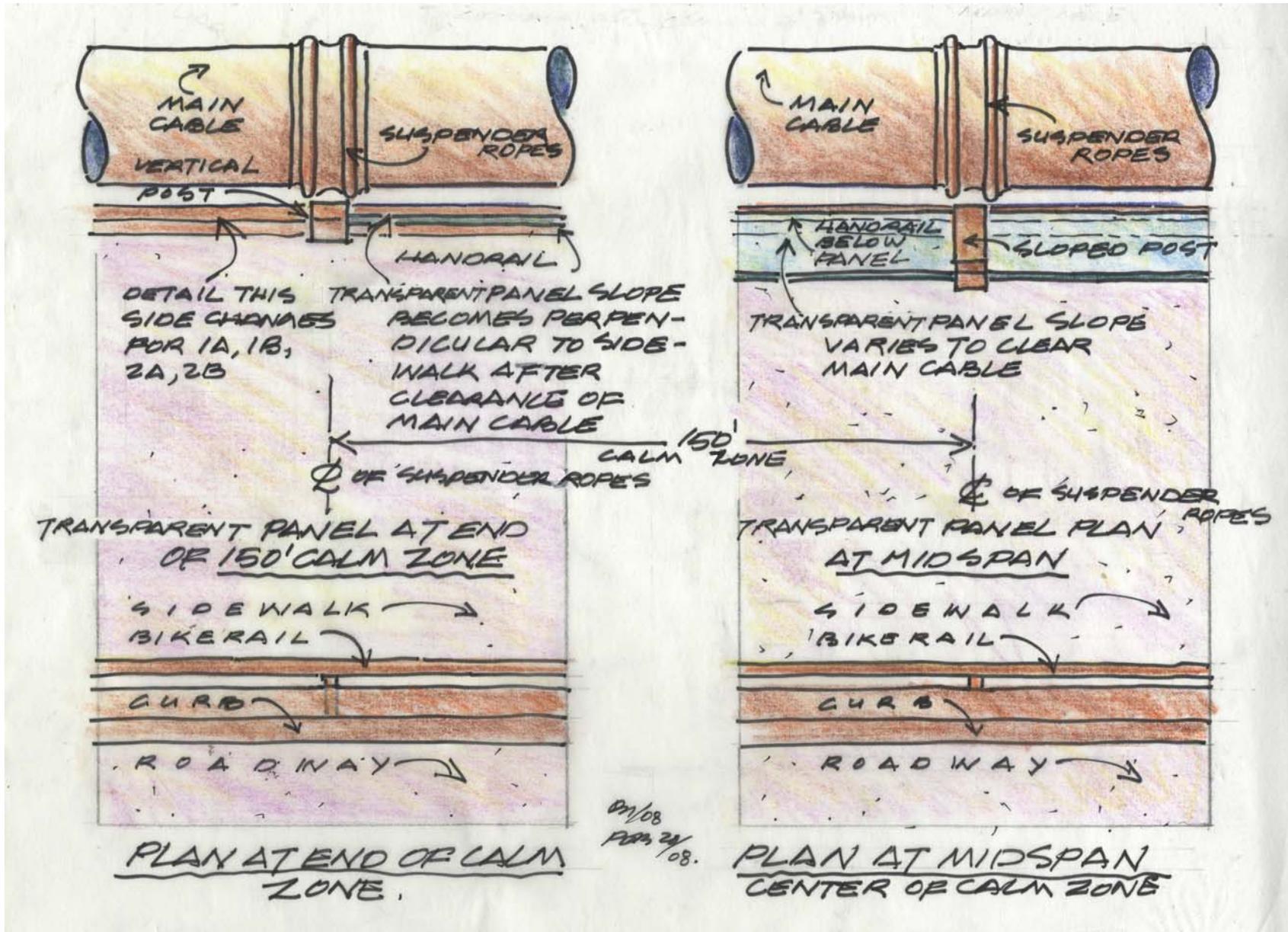
Sketch: Alternative 2B



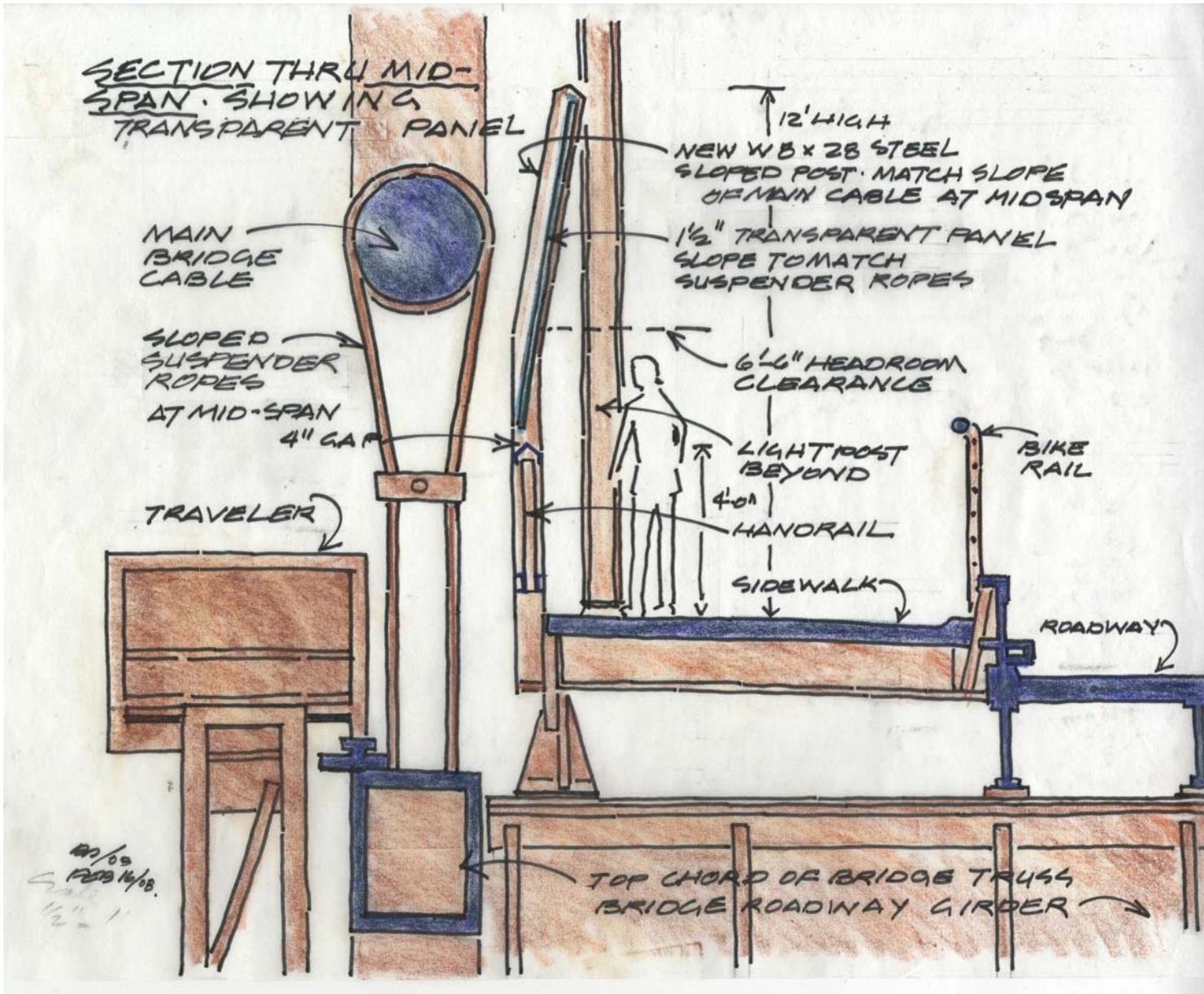
Sketch: Alternative 2B



Sketch: Alternative 2B



Sketch: Alternative 2B



Sketch: Alternative 2B



FORT POINT 3

Visual Simulation: Alternative 3



NORTH FISHING PIER 3

Visual Simulation: Alternative 3



VISTA POINT 3

Visual Simulation: Alternative 3



MARIN HEADLANDS 3

Visual Simulation: Alternative 3



BOAT WEST 3

Visual Simulation: Alternative 3



CAR WEST 3

Visual Simulation: Alternative 3

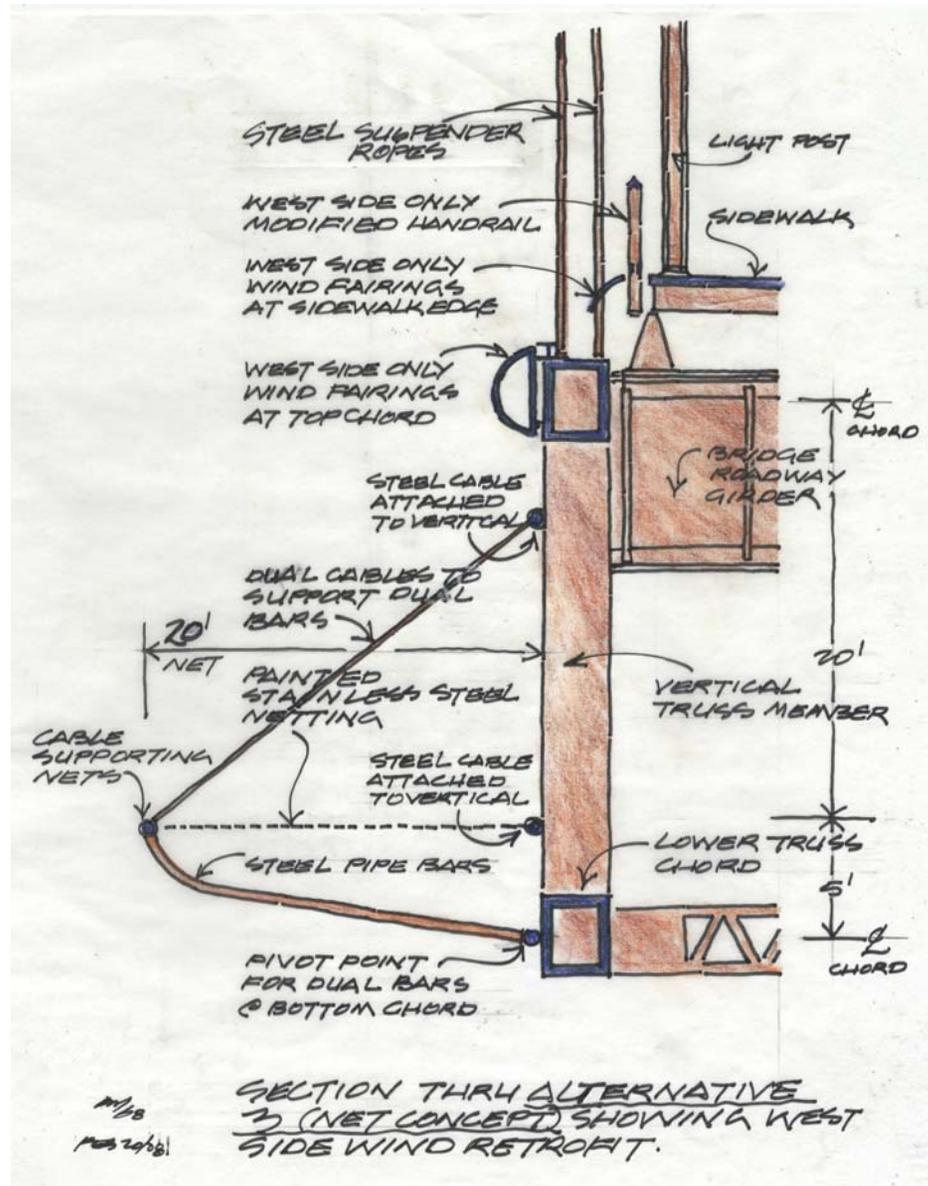


TOWER 3

Visual Simulation: Alternative 3



Renderings 1-4: Alternative 3



Sketch: Alternative 3

Appendix C: Project Public Participation and SHPO Correspondence



NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL ASSESSMENT

The Golden Gate Bridge, Highway and Transportation District (District), in cooperation with the Federal Highway Administration, will be the Lead Agency and will prepare an Environmental Impact Report/Environmental Assessment (EIR/EA) for the Golden Gate Bridge Physical Suicide Deterrent System Study. As required by CEQA, this Notice of Preparation (NOP) is being sent to interested agencies to request participation in the preparation and review of this document. The purpose of the NOP is to inform recipients that the District is beginning preparation of the environmental document and to solicit information that will be helpful in the environmental review process. Information that will be most helpful at this time would be descriptions of concerns about the impacts of the Proposed Project and suggestions for alternatives that should be considered.

Please send any response you may have within 30 days from the date you receive the notice, or by July 16, 2007. Your response, and any questions or comments, should be directed to:

Jeffrey Y. Lee, P.E., Senior Civil Engineer
Golden Gate Bridge, Highway and Transportation District
P.O. Box 9000, Presidio Station
San Francisco, CA 94129
Phone: (415) 923-2023
Email: jylee@goldengate.org.

An agency scoping meeting has been scheduled to review this project and solicit preliminary comments for consideration in the environmental document.

Date: Tuesday, July 17, 2007
Location: Golden Gate Bridge District Board Room
Time: 10:00 a.m.

Please RSVP to Jeffrey Y. Lee by July 13, 2007.

PROJECT TITLE: Golden Gate Bridge Physical Suicide Deterrent System

PROJECT LOCATION: Golden Gate Bridge (See Figure 1 for regional and local site locations.)

PROJECT BACKGROUND: The Project would involve installation of a physical suicide deterrent system on the Golden Gate Bridge. At its April 22, 2005, meeting the District Board of Directors established the Project purpose to be the consideration of a physical deterrent system that reduces the number of injuries and deaths associated with jumping off the Bridge. The 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, and the individuals were taken off the Bridge and transported to a local hospital for a psychiatric evaluation pursuant to Section 5150 of the California Welfare and Institutions Code.
- 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 the Bridge.

The first phase of the Project evaluated conceptual designs 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 negatively 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.

PROJECT ALTERNATIVES: Based on the results of the wind testing, the alternatives selected for evaluation in the EIR/EA fall within three generic categories: adding to existing railing, replacing existing railing, and utilizing nets that cantilever out horizontally. Figures 1.1 through 3.3b provide illustrative examples of these generic concepts. During preparation of the environmental document these concepts will be further refined so as to meet the following Board adopted criteria:

- Must impede the ability of an individual to jump off the Golden Gate Bridge.
- Must not cause safety or nuisance hazards to sidewalk users including pedestrians, bicyclists, District staff, and District contractors or security partners.

- Must be able to be maintained as a routine part of the District's on-going Bridge maintenance program and 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 impacts 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 Golden Gate Bridge.

PROBABLE ENVIRONMENTAL EFFECTS: It is anticipated that installation of a physical suicide deterrent system may result in environmental effects in the following issue areas:

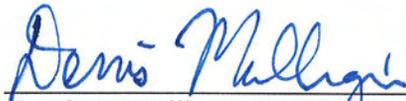
Land Use – Construction of the Project may alter the physical appearance of the Bridge and may potentially affect the maintenance and operation of the Bridge.

Historic Resources – The Bridge has been determined to be eligible for listing in the National Register of Historic Places. Construction of the Project could result in adverse effects on features of the Bridge that contribute to its historic significance. Section 106 of the National Historic Preservation Act (16 USC §470f) requires federal agencies (and those seeking funding from federal agencies) to take into account the effects of their undertakings upon historical resources. A Section 106 evaluation will be prepared during the environmental review process.

Visual Resources – The Bridge is a world-recognized engineering masterpiece. The Project may alter the appearance of the Bridge to viewers from adjacent areas and may affect the views from the roadway and walkways of the Bridge. Therefore, a Visual Impacts Assessment will be prepared as part of the environmental review process.

Parklands – The Bridge is located within the Golden Gate National Recreation Area. Any modifications to the Bridge would occur within a public parkland protected by Section 4(f) of the Department of Transportation Act (49 USC §303). A Section 4(f) report will be prepared as part of the environmental review process.

Date: June 14, 2007


Denis J. Mulligan, District Engineer

Attachments: Project Location Map
Illustrative Concepts

Golden Gate Bridge Suicide Deterrent System
Agency Scoping Meeting Notes
July 17, 2007
10:00AM

Attendees:

Jeffrey Lee, Denis Mulligan, John R. Eberle, Mary Curry and Michale Conneran from Golden Gate Bridge Highway & Transportation District (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 Department of Transportation (Caltrans); Andrea Lucas from the Golden Gate National Recreation Area/National Park Service (GGNRA/NPS)

Meeting Purpose:

This meeting is an agency scoping meeting for the Environmental Impact Report/ Environmental Assessment (EIR/EA) for the Golden Gate Bridge Physical Suicide Deterrent System Study. The purpose of the meeting is to discuss and take note of comments and concerns from interested agencies regarding issues that should be addressed in the EIR/EA.

I. Introductions

Jeffrey Lee from the District introduced himself and started the meeting by explaining the meeting's purpose. Meeting attendees introduced themselves by stating their name and agency affiliation.

II. Project Overview

The project overview was given by Steve Morton of DMJM Harris. He described the stages of the project and the current status.

Mr. Morton summarized Phase I, which included an evaluation of three generic concepts of deterrent systems to determine their performance during high winds. The wind study determined which concepts would and would not affect the aerodynamic stability of the Bridge. Conceptual designs that negatively affected the aerodynamic stability of the Bridge under high winds were eliminated from further evaluation in accordance with the District's established criteria.

Mr. Morton noted that Phase II includes refinement of the concepts that passed the wind study to identify alternatives that will best meet the criteria established by the District for detailed evaluation in the EIR/EA. He further noted that Phase II includes the completion of the EIR/EA, completion of technical studies, public outreach, and the refinement of engineering plans.

Mr. Morton mentioned that the project website www.ggbsuicidebarrier.org contains the NOP, wind study report, and links to background documents associated with the project.

III. Environmental Concerns/Process

Phyllis Potter from CirclePoint discussed the EIR/EA components and time frame. She mentioned that physical deterrent system alternatives and a no build alternative will be considered. She mentioned that a link will be provided on the project's website for the

public and agencies to provide comments to the Draft EIR/EA once it has been published. Phyllis Potter opened up the discussion for questions and comments.

IV. Questions/Comments

Questions and comments are paraphrased below. Agency speakers are shown in underline, responders in *italics*.

Andrea Lucas (GGNRA/NPS):

Andrea Lucas asked if the no project alternative could be chosen by the District.

Phyllis Potter:

Phyllis Potter clarified that two actions will be taken by the Board regarding the project. The first action will be to certify the environmental document, while the second action will be to make a decision on the project. She said that the certification of the environmental document is separate from the decision regarding the project.

Denis Mulligan:

Denis Mulligan said that the District has not a decision on whether to build a physical deterrent system or not. The District may choose not to proceed with the project.

Kerri Davis (BCDC):

Kerri Davis asked how are biological impacts are being addressed. She asked if the environmental document will address potential impacts to migratory birds.

Phyllis Potter:

Ms. Potter said that it is not believed that migratory birds will be a biological issue. The APE is limited and will not encroach into sensitive biological areas. Additionally, existing parking lots will be used as staging areas, which should not affect biological resources.

Denis Mulligan:

Mr. Mulligan said that previous information regarding migratory birds has been gathered. He mentioned that the District is aware of bird presence at the Bridge and it is not anticipated to be an issue. Cormorants nest at the base of the Bridge and sometimes below the roadway. There have been peregrine falcons, but there are no peregrine falcons nests currently at the Bridge. Between the roadway and 14 feet above the roadway, birds are not present.

Phyllis Potter:

Phyllis Potter mentioned that the EIR/EA will document the rationale for determining which issues do not receive detailed analysis in the EIR/EA.

Andrea Lucas (GGNRA/NPS):

Ms. Lucas expressed the need to address potential noise issues at Fort Baker and public access to the Bridge during construction. She mentioned that NPS is interested in the construction staging areas.

Kerri Davis (BCDC):

Ms. Davis mentioned concern with length of time the Bridge would be closed during construction. She noted that access to the bridge during this time period is a potential issue.

Andrea Lucas (GGNRA/NPS):

Ms. Lucas noted that the visual impact discussion should address the Bridge as a cultural icon. She asked if the alternatives being considered are feasible or if there are wind issues preventing their feasibility?

Denis Mulligan:

Mr. Mulligan said that wind studies have already been completed to assure that the alternative chosen would not be one that was aesthetically pleasing but infeasible due to wind issues.

Rafael Montes (BCDC):

Rafael Montes mentioned that installation of the barrier could change noise both on the Bridge and the surrounding area and requested that both issues be addressed in the environmental document.

Andrea Lucas (GGNRA/NPS):

Andrea Lucas asked when scoping period ends.

Denis Mulligan:

Mr. Mulligan said the official ending date was July 18th.

Phyllis Potter:

Ms. Potter said that it is not unusual to receive comments after the official closing date.

Denis Mulligan:

Mr. Mulligan noted that if comments are received a month or more after the closing date, it is difficult to incorporate them into the document since the environmental study would already be underway.

Kerri Davis (BCDC):

Kerri Davis stated that public views to the bay from pedestrians, bicyclists, and people in vehicles on the Bridge should be considered in the environmental document.

Andrea Lucas (GGNRA/NPS):

Ms. Lucas said that views from the Bridge are a linear experience. She said that this should be considered in the document and that it may be important to look at the Bridge views as a whole.

Phyllis Potter:

Ms. Potter said that viewpoints from the Bridge will be included in the visual analysis.

Kerri Davis (BCDC):

Ms. Davis noted that the Bridge is part of the 49-mile scenic drive. She asked if this will be addressed in the environmental document.

Phyllis Potter:

Ms. Potter noted that the historical significance of the Bridge will be evaluated in a Finding of Effect Report and in the EIR/EA.

Andrea Lucas (GGNRA/NPS):

Ms. Lucas asked for the purpose of the winglet on top of the barrier.

Steve Morton:

Mr. Morton stated that the winglet is for wind stability.

Denis Mulligan:

Mr. Mulligan said that the winglet helps the Bridge maintain its aerodynamic stability with the addition of a physical barrier. For the net alternative, winglets can be located above or below the roadway. If located below, they would not be visible from the Bridge. For the other alternatives, winglets are necessary on top of the barrier and would be visible.

Kerri Davis (BCDC):

Ms. Davis asked what the minimum height of the barrier was. She asked if there have been any studies that address the height necessary for the barrier.

Denis Mulligan:

Mr. Mulligan stated that the District used to have a requirement that the system needed to be 100% effective, which was not feasible. The range of barrier heights that has been considered is based on studies of what has been implemented elsewhere around the world and what is feasible given the wind velocities at the Bridge.

Kerri Davis (BCDC):

Ms. Davis asked if there is plan for what will happen to people once they land in the net.

Denis Mulligan:

Mr. Mulligan mentioned that Phase 1 focused on the ability of the concepts to not adversely affect the aerodynamic stability of the Bridge. The effectiveness of the net concept will be considered in the environmental document during refinements of alternatives based on their ability to meet the District established criteria.

Phyllis Potter:

Ms. Potter asked if there were any additional questions or comments. She mentioned that a draft environmental document is anticipated to be available in late fall. She noted that information will be posed on the website.

Jeffrey Lee:

Mr. Lee said that the NOP lists his contact information on the front page should anyone wish to send additional comments to the District.

Hsien Tang (Caltrans):

Mr. Tang asked if materials decided upon yet.

Denis Mulligan:

Mr. Mulligan responded that materials have not yet been determined. He said that such a decision was not part of Phase I. Materials will be chosen based on cost and environmental impacts.

Kerri Davis (BCDC):

Ms. Davis noted that her agency is concerned with public use, visual, and transportation impacts. She mentioned that the project is consistent with safety concerns.

Meeting Adjourned at 10:45 AM.



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210.4.1

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Below

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JUL 25 2007
GOLDENGATE BRIDGE
ENGINEERING DEPARTMENT

July 23, 2007

- SCAN, RETURN.

Golden Gate Bridge, Highway and
Transportation District
P. O. Box 9000, Presidio Station
San Francisco, California 94129

ATTENTION: Jeffrey Y. Lee, Senior Civil Engineer

SUBJECT: Golden Gate Bridge Physical Suicide Deterrent System Study,
the City and County of San Francisco and Marin County
(BCDC Inquiry File No. MC.SF.7603.2)

✓
DM
JE
ML
CP Nam
Phyllis
JRP NEJA
DMJM STONE

Ladies and Gentlemen:

Thank you for providing staff with the opportunity to comment on the Notice of Preparation for the Golden Gate Bridge Physical Suicide Deterrent System Environmental Impact Report/ Environmental Assessment (EIR/EA). The EIR/EA would evaluate potential impacts and design alternatives for the proposed construction off a Physical Suicide Deterrent System on the Golden Gate Bridge in the City and County of San Francisco and Marin County.

It appears that a portion of the proposed project would fall within the Commission's jurisdiction; therefore, the project proponent must obtain a permit from BCDC before commencing any work. The Commission'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).

The Commission staff has reviewed the Notice of Preparation (NOP) and is submitting its comments regarding the document. Although the Commission itself has not reviewed the environmental document, the staff comments are based on the *McAteer-Petris Act* and the Commission's *San Francisco Bay Plan* (Bay Plan). Furthermore, it would be helpful to review the Bay Plan's findings and policies specifically relating to your project. We suggest you review the policies on *Transportation* (for example, transportation policy no. 4 on page 48), *Public Access* policy Nos. 6, 8 and 9 on page 58, and *Appearance, Design and Scenic Views* policy no.'s 2, 6, 14 and 15 on pages 60 to 61. Please incorporate where necessary, these findings and policies into your analysis for possible impacts from your project.

Jeffrey Lee
Golden Gate Bridge, Highway and
Transportation District
July 23, 2007
Page 2

Public Access

The Bay Plan's policies on public access state that, "...maximum feasible public access to and along the waterfront and on any permitted fills should be provided in and through every new development on the Bay or on the shoreline, whether it be for housing, industry, port, airport, public facility, wildlife area or other use, except in cases where public access would be clearly inconsistent with the project because of public safety considerations or significant use conflicts...In these cases, in lieu access at another location preferably near the project should be provided...." The EIR/EA should include an analysis of the project's impact on public access and evaluate whether public access should be provided as part of the project to be consistent with the Commission's policies on public access. Pursuant to the Bay Plan policies on public access, public views to the Bay are a form of public access. Thus, the EIR/EA should evaluate how the proposed project would impact views to and of the Bay from public roadways. Finally, the EIR/EA should evaluate the potential impacts of the proposed public access on sensitive wildlife species and habitats. Of particular attention for the proposed project would be any possible impacts to migratory birds.

Scenic Drive Designation

The Golden Gate Bridge is included in the San Francisco 49-Mile Scenic Drive. The 49-mile scenic drive was created in 1938 by the Downtown Association to highlight the city's beauty and to promote it as a tourist destination. The route was also created as a way for visitors to see San Francisco during the Golden Gate International Exposition from 1939-1940. The Bridge has been described as one of the world's most beautiful suspension bridges and is world renowned as a scenic resource. It is viewed and appreciated from many locations in the region and contributes significantly as a major visitor attraction for the tourist industry of the San Francisco Bay area.

Bay Plan Map 4 designates the proposed project site as a scenic drive. Moreover, the Bay Plan policies on transportation state that, "[t]ransportation projects on the Bay shoreline and bridges over the Bay...should be designed to maintain and enhance visual and physical access to the Bay and along the Bay shoreline."

Thank you again for the opportunity to comment on the NOP of the EIR/EA. If you have any questions, please do not hesitate to contact me at (415) 352-3617.

Sincerely,



KERRI DAVIS
Coastal Program Analyst

KD/mm

2.18.1.1

1 SCANS;
2 ORIGINAL TO ME



United States Department of the Interior

NATIONAL PARK SERVICE
Golden Gate National Recreation Area
Fort Mason, San Francisco, California 94123

- H. G. W. 10
- M. G.
- P. P.
- S. M.
- J. E.
- P. M.

IN REPLY REFER TO:

L76 (GOGA - PLAN)

JUL 17 2007

Jeffrey Y. Lee, PE
Senior Civil Engineer
Golden Gate Highway Bridge and Transit District
Box 9000 Presidio Station
San Francisco, CA 94129

RECEIVED
JUL 19 2007

GOLDEN GATE BRIDGE
ENGINEERING DEPARTMENT

Dear Mr. Lee

Thank you for the informational meeting on the Golden Gate Bridge Physical Suicide Barrier Project and for inviting our agency to comment.

The National Park Service mission is to preserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations.

In support of the National Park Service (NPS) Mission, the NPS would like the project to include the study and analysis of effects as follows:

NPS concerns about the potential suicide barrier include visual impacts and cumulative material impacts to the historic bridge structure; impacts to views to and from the bridge for drivers, cyclists and pedestrians; and the impact to the users' experience being on the bridge.

The NPS is concerned about noise impacts during construction to park visitors at Golden Gate National Recreation Area (GGNRA) park sites including Fort Baker, Kirby Cove and Fort Point. Other potential construction impacts that should be addressed include physical danger, such as from falling objects, to visitors to Fort Point or other park sites; continuous visitor access; visitor experience relative to noise, construction barriers, particulate matter; and issues concerning the control and effects of lead paint removal. Staging areas and construction access, parking and materials storage and movement need to be coordinated with the NPS.

Thank you for continuing to provide information on the project to the NPS at the Golden Gate Recreation Area. For review and coordination issues, please contact Andrea Lucas, Landscape Architect, GGNRA at andrea_lucas@nps.gov or (415) 561- 4478.

Sincerely,

Mai-Liis Bartling
Mai-Liis Bartling
Deputy Superintendent

April 29, 2008



GOLDEN GATE BRIDGE
HIGHWAY & TRANSPORTATION DISTRICT

Environmental Studies and
Preliminary Design for a
Suicide Deterrent System on the
Golden Gate Bridge
Contract No. 2006-B-17

Dear Sir or Madam:

The Golden Gate Bridge, Highway and Transportation District (District) is conducting a study of its proposed Golden Gate Bridge Physical Suicide Deterrent System Project (Project) [04-MRN-101-GGHT, Project 2006-B-17; Federal Project #: STPL-6003(030)]. The District, in cooperation with the Federal Highway Administration, is the Lead Agency and is preparing an Environmental Impact Report / Environmental Assessment (EIR/EA) for the project, in accordance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

The District has formed a consultant team to perform preliminary engineering and environmental technical studies to meet these state and federal environmental requirements. JRP Historical Consulting, LLC, is part of this team and is preparing a technical study of the historic architectural and engineering resources in the proposed project area. Historical resources are those properties potentially eligible, determined eligible, listed in the National Register of Historic Places, or the California Register of Historical Resources. The Golden Gate Bridge and its contributing elements comprise a historic property that is eligible for listing in the National Register and is considered historical resource for the purposes of CEQA.

The District is evaluating five alternatives and a "no-build" alternative for the proposed Project; and descriptions of these alternatives are attached. For additional project information, or to receive copies of this information via regular mail, please visit the project website at: www.ggbsuicidebarrier.org, or call me at (415) 923-2023. If you or your organization has any concerns regarding this Project, including its potential effects on this historical resource, please respond in writing to me at the address below citing your concerns within the next thirty days.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Lee".

Jeffrey Y. Lee, PE
Project Manager

Attachment

ATTACHMENT

PROJECT TITLE: Golden Gate Bridge Physical Suicide Deterrent System
[04-MRN-101-GGHT, Project 2006-B-17; Federal Project #: STPL-6003(030)]

PROJECT LOCATION: Golden Gate Bridge

PROJECT DESCRIPTION: The Golden Gate Bridge Physical Suicide Deterrent System Project (the Project) under study in this report proposes the construction of a physical suicide deterrent system on the Golden Gate Bridge to reduce the number of injuries and deaths associated with jumping off the Bridge.

The first phase of the Project evaluated several conceptual designs 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 negatively 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.

Project alternatives were also developed to meet the following District Board-adopted criteria:

1. Must impede the ability of an individual to jump off of the Golden Gate Bridge.
2. Must not cause safety or nuisance hazards to sidewalk users, including pedestrians, bicyclists, District staff, and District contractors/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 Golden Gate 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 Golden Gate Bridge.
7. Must satisfy requirements of State and Federal historic preservation laws.
8. Must have minimal visual and aesthetic impact on the Golden Gate 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 Golden Gate Bridge.

Five build alternatives have been developed that would impede the ability of individuals to jump from the Bridge, that incorporate the wind study findings, and that meet the District criteria:

- 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
(Add Net System)

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 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 vertical rods attached to the outside handrail. The top horizontal header would consist of a chevron-shaped member matching the top element of the outside handrail. The entire system would be constructed of steel that would be painted International Orange, matching the material and color of the outside handrail. Transparent vertical panels would be installed in lieu of the steel rods at the slightly wider sections of the sidewalks which are referred to as "belvederes." There are a total of twelve belvederes on each side of the Bridge.

Alternative 1B – Add Horizontal System to Outside Handrail. Alternative 1B would construct a new barrier on top of the existing outside handrail (and concrete rail at north pylon). The new barrier would consist of horizontal steel cables similar to the existing public safety railing ("bike rail" between sidewalk and traffic lanes). 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 entire system would be constructed of steel that would be painted International Orange, matching the material and color of the outside handrail. Transparent vertical panels would be installed in lieu of the steel cables at the belvederes.

A "winglet" would be placed on top of the new barrier to ensure aerodynamic stability and to prevent climbing over the barrier. The winglet would be a 42-inch wide transparent 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.

Alternative 2A – Replace Outside Handrail with Vertical System. Alternative 2A would construct a new vertical 12-foot high barrier consisting of vertical steel rods in place of the existing outside handrail. 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. The entire system would be constructed of steel that is painted International Orange, matching the material and color of the outside handrail. Transparent vertical panels would be installed at the belvederes on both sides of the Bridge.

Alternative 2B – Replace Outside Handrail with Horizontal System. Alternative 2B would construct a new 12 foot high barrier consisting of horizontal steel cables in place of the existing outside handrail. The horizontal steel cables used in the new barrier would be similar to the existing public safety railing (“bike rail” between sidewalk and traffic lanes). The entire system would be constructed of steel that would be painted International Orange, matching the material and color of the outside handrail. Transparent vertical panels would be installed at the belvederes on both sides of the Bridge.

A “winglet” would be placed on top of the new barrier to ensure aerodynamic stability and to prevent climbing over the barrier. The winglet would be a clear 42-inch wide transparent 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.

Alternative 3 – Add Net System. Alternative 3 would construct a horizontal net system approximately 20 feet below the sidewalk at the exterior main truss. The net would extend approximately 20 feet horizontally from the Bridge, constructed with a stainless steel cable netting incorporating a grid between 4 and 10 inches. 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. 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 net and the steel horizontal support system would be painted to match the International Orange bridge color. With this alternative there would be no modifications to the above deck Bridge features.

No-Build Alternative. The No-Build Alternative represents the future year conditions if no other actions are taken in the study area beyond what is already in place. It is the baseline condition against which all other alternatives are compared. The No-Build Alternative would continue the existing non-physical suicide deterrent programs at the Bridge, which include emergency counseling telephones, public safety patrols, and employee training.

Distribution List for Historic Resources Interested Parties

Federal, State, & Local Government Agencies:

Katry Harris (Transportation)
Kelly Yasaitis Fanizzo (National Park Service)
Katharine R. Kerr (Presidio Trust)
Carol Legard (FHWA Liaison)

Advisory Council on Historic Preservation

Compliance Office
1100 Pennsylvania Avenue NW, Suite 809, Old Post Office Building
Washington, DC 20004

Milford Wayne Donaldson, State Historic Preservation Officer

California Office of Historic Preservation

P.O. Box 942896
Sacramento, CA 94296-0001

Craig Kenkel, Chief of Cultural Resources

Golden Gate National Recreation Area

National Park Service

Fort Mason, Bldg. 201
San Francisco, CA 94123

Ric Borjes, Federal Preservation Officer

The Presidio Trust

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Tilly Chang, Deputy Director for Planning

Brian Larkin, Chair, Citizens Advisory Committee

San Francisco County Transportation Authority

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M. Bridget Maley, President
Mark Luellen, Preservation Coordinator
San Francisco Planning Department
Landmark Preservation Advisory Board

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San Francisco, CA 94103

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Lily Chan, Courtney Damkroger,
Ina Dearman, Karl Hasz, Johanna Street

David Alumbaugh, Manager
Joshua Switzky, Built Environment Lead

San Francisco Planning Department

City Design Group

1650 Mission St., Ste. 400
San Francisco, CA 94103

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County of Marin
Community Development Agency
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San Rafael, CA 94903

Other Interested Parties:

American Indian Alliance, Marin
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San Rafael, CA 94915

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American Institute of Architects
Preservation Committee
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San Francisco, CA 94102

American Society of Civil Engineering
Historic Civil Engineering Landmark Program
Carol Reese
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Anne T. Kent California Room
Civic Center Branch, Marin County Free Library
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San Rafael, CA 94903

Stephen Farneth
M. Bridget Maley
Architectural Resources Group
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The Embarcadero
San Francisco, CA 94111

Art Deco Society of California
100 Bush Street, Suite 511
SF, CA 94104

William F. Bailey
1009 Las Palmas Drive
Santa Clara, CA 95051-5308

Bay Area Discovery Museum

East Fort Baker
557 McReynolds Road
Sausalito, CA 94965

Bay Area Museum Connection San Francisco State University

1600 Holloway Avenue
San Francisco, CA 94132

Martin Friedman, Executive Director

Bay Area Trails Preservation Council

P.O. Box 153
Corte Madera, CA 94976

Belvedere-Tiburon Landmarks Society

PO Box 134
Belvedere-Tiburon, CA 94920

The Bolinas Museum

48 Wharf Road
Bolinas, CA 94924

Cable Car Museum

1201 Mason St.
San Francisco, CA 94108

California Academy of Sciences

California Academy of Sciences, Golden Gate Park
San Francisco CA 94118

California Council for the Humanities

312 Sutter Street #601
San Francisco, CA 94108

Gary Widman

California Heritage Council

P.O. Box 475046
San Francisco, CA 94147

California Historical Society

Stephen Becker, Executive Director
678 Mission Street
San Francisco, CA 94105

California Preservation Foundation

5 Third St., Ste 424
San Francisco, CA 94103

Alison Moore, Archivist
CSAA Archives & Historical Services
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China Camp State Park
Route 1, Box 244
San Rafael, CA 94901
Chinese Culture Center of San Francisco
750 Kearny Street, 3rd Floor
San Francisco, CA 94108

The Chinese Historical Society of America
965 Clay Street
San Francisco, CA 94108

City of Sausalito Historic Landmarks Board
City Hall
420 Litho Street
Sausalito, CA 94965

de Young Museum
50 Hagiwara
San Francisco, CA 94118

Fairfax Historical Society
P.O. Box 662
Fairfax, CA 94978-0622

Falkirk Cultural Center
1408 Mission Avenue
San Rafael, CA 94901

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Fisherman's Wharf Merchants Association
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San Francisco, CA 94133

David H. Grubb, Chairman of the Board
Fort Point & Presidio Historical Association
P.O. Box 29163, Presidio Station
San Francisco, CA 94129

**Gay, Lesbian, Bisexual, Transgender
Historical Society**
657 Mission St., Suite 300
San Francisco, CA 94105

Global Virtual Museum
P.O. Box 93
Ross, CA 94957

Carol Prince, Deputy Director, External Affairs
Golden Gate National Park Association
Fort Mason, Building 201
San Francisco, CA 94123

Charlene Harvey, Chair
Golden Gate National Parks Conservancy
Building 201, Fort Mason
San Francisco, CA 94102

Holocaust Center of Northern California (HCNC)
121 Steuart Street
San Francisco, CA 94105

International Museum of Women
P.O. Box 190038
San Francisco, CA 94119-0038

Jewish Museum San Francisco
736 Mission Street
San Francisco, CA 94103

Labor Archives and Research Center San Francisco State University
480 Winston Drive
San Francisco, CA 94132

Lesbian & Gay Historical Society of Northern California
P.O. Box 470310
San Francisco, CA 94147-0310

Marin Conservation League
1623A Fifth Avenue
San Rafael, CA 94901

Jim Farley, Director
Marin County Department of Cultural Services
10 Avenue of the Flags
San Rafael, CA 94903

Marin County Historical Society
1125 D Street
San Rafael CA 94901

Marin Heritage
P.O. Box 1432
San Rafael CA 94915

Marin History Museum
1125 B Street
San Rafael, CA 94901

Marin Museum of the American Indian

2200 Novato Boulevard
Novato CA 94948

Mill Valley Historical Society

375 Throckmorton Avenue
Mill Valley, CA 94941

Mission Cultural Center for Latino Arts

2868 Mission Street
San Francisco, CA 94110

Mission Dolores

3321 Sixteenth Street
San Francisco, CA 94114

Susan Morris, Curator and Historian

55 Rowley Circle
Tiburon, CA 94920

Mount Tamalpais State Park Visitor Center

801 Panoramic Hwy
Mill Valley CA 94941

Museum of Russian Culture

2450 Sutter Street
San Francisco, CA 94115

Nicasio Historical Society

P.O. Box 111
Nicasio, CA 94946
Alan Schmierer

Regional Environmental Coordinator

National Park Service, Pacific West Region Office

1111 Jackson St., Ste. 700
Oakland, CA 94607

Ron Usndergill, Regional Director

National Parks Conservation Association

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San Francisco, CA 94108

Anthea M. Hartig, Ph.D., Director
Western Office, The Hearst Building

National Trust for Historic Preservation

5 Third Street, Suite 707
San Francisco, CA 94103

Northern California Chapter Society of Architectural Historians

c/o Lissa McKee, NCCSAH Treasurer
307 Starling Road
Mill Valley, CA 94941

Novato Historical Guild

75 Rowland Way, suite 200
Novato, CA 94945

Novato History Museum and Archives

75 Rowland Way, suite 200
Novato CA 94945

Old Timers Museum

11 Knolltop Ct.
Novato CA 94945

Olompali State Historic Park

P.O. Box 1016
Novato, CA 94948

Amy Meyer, Co-Chair
Edgar Wayburn, Co-Chair

People for a GGNRA

3627 Clement Street
San Francisco, CA 94121

Presidio of San Francisco Museum

William Penn Mott Jr. Visitor Center
Golden Gate National Recreation Area
Building 201, Fort Mason
San Francisco, CA 94123

Richardson's Bay Maritime Association

P. O. Box 1108
Sausalito, CA 94966

Judy Coy, Chair

San Anselmo Historical Commission

110 Tunstead Avenue
San Anselmo, CA 94960

Charles R. Olson, Board President

San Francisco Architectural Heritage

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San Francisco, CA 94109

Steven McAdam, Deputy Director
Kerri Davis, Coastal Program Analyst
San Francisco Bay Conservation and Development Commission
50 California Street, Suite 2600
San Francisco, CA 94111

DeeDee Workman, Executive Director
San Francisco Beautiful
564 Market Street, Ste. 709
San Francisco CA 94104-5415

San Francisco Fire Department Museum
655 Presidio Avenue and Bush Street
San Francisco, CA 94115

San Francisco History Association
PO Box 31907
San Francisco, CA 94131

San Francisco Maritime National Park Association
PO Box 470310
San Francisco, CA 94147-0310

Charles Chase, Executive Director
San Francisco Museum and Historical Society
2007 Franklin Street
San Francisco, CA 94142

San Francisco Museum of Modern Art
151 Third Street
San Francisco, CA 94103

San Francisco's Gold Rush Trail/Foundation
57 Post Street
San Francisco, CA 94104

Sausalito Historical Society
420 Lithos Street
Sausalito, CA 94965

Shaping San Francisco
1095 Market Street, Suite 210
San Francisco, CA 94103

Society of California Pioneers
300 - 4th Street
San Francisco, CA 94107

Sutro Library
480 Winston Drive
San Francisco, CA 94132

The Legion of Honor

100 34th Avenue
San Francisco, CA 94121

The Exploratorium

3601 Lyon Street
San Francisco, CA 94123

The Mexican Museum

San Francisco Fort Mason Center, Building D
San Francisco, CA 94123

The Victorian Alliance

824 Grove St
San Francisco, CA 94117

Treganza Anthropology Museum

600 Holloway Avenue
San Francisco, CA 94132

**U.S. District Court for the Northern
District of California Historical Society**

P.O. Box 36112
San Francisco, CA 94102

Wells Fargo Bank Historical Services

420 Montgomery Street (A0101-026)
San Francisco, CA 94163

Appendix D: Previous Correspondence regarding Golden Gate Bridge Historic Status

DEC 06 1991

REQUEST FOR DETERMINATION OF ELIGIBILITY
FOR THE
GOLDEN GATE BRIDGE

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I. INTRODUCTION

Between 1969 and 1978, the Golden Gate Bridge Highway and Transportation District and the California Department of Transportation (CALTRANS) conducted engineering studies of the condition of the roadway slab on the Golden Gate Bridge. The bridge spans the entrance to San Francisco Bay between San Francisco and Marin Counties (see Exhibit 1). The studies resulted in a determination that the roadway is in no danger of immediate failure, but that unchecked deterioration will lead to unacceptably high maintenance cost to prevent future failure. The studies further found that the existing slab could be rehabilitated for about \$10 million (1978), which would extend its useful life for 12-15 years, or the slab could be replaced for about \$35 million, which would provide a serviceable roadway for another 50 years. Either rehabilitation or replacement of the slab would take approximately four years. The recommendation of the engineering studies is to replace the roadway slab.

Since a Federal grant has been obtained to pay for the project, the National Historic Preservation Act of 1966 (NHPA) and Executive Order 11593 are applicable. The Golden Gate Bridge is not presently listed on the National Register of Historic Places; however, pursuant to the guidelines implementing procedures with respect to NHPA and E.O. 11593, the Federal Highway Administration (FHWA) and the State

Historic Preservation Officer (SHPO) have applied the National Register Criteria to the bridge to determine its listing eligibility. In March 1979, following consultations and field reviews, the FHWA and SHPO agreed that the bridge is eligible for inclusion on the National Register.

THEREFORE: in compliance with Section 63.3, Federal Register, Vol. 42, No. 183, applicable when FHWA and SHPO agree a property is eligible, the following information is hereby submitted to the Keeper of the National Register for determination of eligibility.

II. THE ELIGIBLE PROPERTY

A. Background

The physical barrier created by San Francisco Bay has always figured in the sequence of development of the Bay Area. Those areas which lacked convenient access via land or water to the metropolitan center developed later and grew more slowly. As the San Francisco Bay Area developed, it was inevitable that pressure would mount to bridge the Golden Gate to provide for the expansion of growth northward from San Francisco. Marin County and regions further north had been inhabited since the early settlement of the Bay Area, but not until the advent of the automobile and the feasibility of Marin County as a bedroom community for San Francisco did a span across the Gate become a serious topic. Ferryboats had plied the bay from San Francisco to Sausalito, in southern Marin, since the late 19th century, but by 1919, the service had been rendered inadequate to accommodate the demand for the passage of cars bound to and from Marin.

In 1918, the first feasibility studies for a Golden Gate Bridge were undertaken. During the next 15 years, as the burden upon ferry service increased, political, business, and civic interests both north and south of the Gate joined to study the magnitude of the engineering

feat that lay ahead. These years saw the formation of the Bridging the Golden Gate Association, the passage of the Golden Gate Bridge and Highway District Act, the formation of the Golden Gate Bridge and Highway District, and the commencement of the planning and designing of the bridge. The successful passage of a bond act in 1930 to fund construction brought the probability of construction nearer fruition. Finally, in 1935, after several delays due to litigation, construction was commenced. On May 28, 1937, the Golden Gate Bridge was open to traffic.

B. Description

The Golden Gate Bridge is one of the world's greatest suspension bridges, and, until the Verranzano Narrows Bridge (New York) was erected in 1964, contained the longest single span between towers of any bridge in the world. The bridge is 8450 feet long from abutment to abutment, exclusive of approaches, and its two towers rise above the water to a height of 746 feet. Between these towers a single 4200-foot span bridges the entrance to San Francisco Bay. At mid-span, the bridge is 220 feet above the water, high enough to let any ship afloat pass beneath, although several modern day aircraft carriers must tilt their radar antennae.

Since the Golden Gate is a suspension bridge, the entire roadway is "suspended" at 50-foot intervals by four 2½-inch steel ropes which are attached above to two steel cables which pass over the top of the towers and fasten to concrete blocks on shore. These two huge cables are 7650 feet long, 36½ inches in diameter, and contain over 27,000 parallel wires approximately ¼-inch thick. The bridge has six lanes and two sidewalks and is painted red-orange which contrasts with the colors of the Bay and the shore (see Exhibits 2, 3, and 4).

Since its opening, traffic volumes on the bridge have risen from 9000 vehicles per day (1937) to approximately 100,000 vehicles per day (1978). Since the Bridge District has no taxing power, the entire operation is funded from revenues derived from tolls. Over the years, the toll has returned to its original \$1.00 level for a round trip. The original bonded indebtedness incurred to construct the bridge was also paid from the tolls. In 1971, the bonds were fully redeemed.

The affairs of the Golden Gate Bridge, Highway and Transportation District are managed by a Board of Directors representing San Francisco, Marin, Sonoma, Napa, Mendocino, and Del Norte Counties. The members

of the Board are selected by the Boards of Supervisors of the respective counties. Today, the Bridge District not only operates the Bridge itself, but also owns a fleet of modern buses, which carry passengers from Marin to San Francisco. In recent years the District also purchased ferryboats, which ply the Bay from the San Francisco embarcadero to Marin County. Thus, ironically, the bridge which was constructed to replace the ferries, is today the owner of a ferry fleet.

C. Significance and Eligibility

The Golden Gate Bridge is not presently listed on the National Register of Historic Places, although it is included on the Historical American Engineering Register. The Secretary of the Interior has established a National Register Criteria which must be applied to heritage resources which are affected by federally funded projects. The National Register Criteria states that:

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location design, setting, materials, workmanship, feeling, and association, and:

1. That are associated with events that have made a significant contribution to the broad patterns of our history; or

2. That are associated with the lives of persons significant in our past; or
3. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
4. That have yielded, or may be likely to yield, information important in pre-history or history.

Measured against the National Register Criteria, the bridge has been determined to be eligible for inclusion on the National Register on the basis of three of the four criteria mentioned. This determination has been made by the Federal Highway Administration in consultation with the State Historic Preservation Officer.

CRITERION 1: EVENTS AND SETTING

The entrance to San Francisco Bay has played a significant role in Western history since the days of Spanish exploration. Commerce to and from the San Francisco Bay Area was channeled through the Golden Gate long before overland transportation was possible. The mile-wide passage between present day Marin and San Francisco Counties witnessed the passage of the ships of every maritime nation from the Spanish era through Mexican, California Republic, and finally, American dominion. The defense of the United States has been inextricably

interwoven with the history of the Bay. For many soldiers and sailors in every war since the 19th Century, the Golden Gate was the last sight on departure and the first sight on return.

The Golden Gate is fortunate in having a scenic setting which is world famous. San Francisco is one of the world's most fascinating cities. The millions of tourists who go there every year would be sufficient testimony of its allure. Yet, the fact that San Francisco is so well known to millions who have never been here is even better evidence; and, if asked what they know of San Francisco, most would say, Chinatown, the Cable Cars, and the Golden Gate Bridge. So great is the fame of the portals to San Francisco Bay, that when one refers to "the City by the Golden Gate," a stranger, a world away, knows what city is meant.

Still, the bridge is more than an adornment. It is so easy to think of the bridge as a mile long span across a narrow strait, that one forgets it is a link in a highway stretching from Canada to Mexico. The Golden Gate Bridge is the southern gateway to the Redwood Empire, with its thousand year old trees; to the world renowned California wine country, ninety miles away, which inspired the likes of Robert

Louis Stevenson and Jack London. Finally, the Golden Gate is the gateway to Asia with its billion people. It is a symbol of the international bonds between America and Asia in much the same way that the Statue of Liberty represents the link between America and Europe.

CRITERION 2: ASSOCIATION WITH THE LIFE OF A SIGNIFICANT PERSON

The Golden Gate Bridge was designed and constructed under the supervision of Joseph B. Strauss, Chief Engineer of the Golden Gate Bridge and Highway District from 1929 to 1937. Born in Cincinnati, he was graduated from the University of Cincinnati in 1893. Later that university conferred on him the Degree of Doctor of Science. In 1894, he organized and became president of the Strauss Engineering Corporation. Since that time he was in charge of design and construction of bridges all over the world. To his credit stand more than four hundred great steel bridges.

He designed the Republican Bridge at Leningrad (formerly St. Petersburg), Russia; the Longview, Washington, bridge across the Columbia River; the beautiful bascule span of the famous Arlington Memorial Bridge at Washington D.C.; and many others. As Consulting

Engineer to the Port of New York Authority, he shared credit for the Hudson River Bridge and the Bayonne Arch at Bayonne, New Jersey. He was a member of many important societies of engineers in the United States and was consulting engineer for half a dozen foreign governments stretched around the globe from the Republic of Panama to Egypt.

CRITERION 3: QUALITY OF THE STRUCTURE

The structural attributes of the Golden Gate Bridge which make it one of the marvels of the engineering world have been previously described and discussed; therefore, the significance of the bridge with respect to design, size, and type will not be further cited here as evidence of its eligibility for inclusion on the National Register. (Also see Exhibit 4 - Bridge Statistics).

CRITERION 4: YIELDS INFORMATION ON HISTORY OR PREHISTORY

Not Applicable.

The National Historic Preservation Act declares that the spirit and direction of the Nation are founded upon its past and reflected in its great works. Celebrated in history, adventure, song, and poetry, the Golden Gate Bridge is the very essence of this spirit.

MENDOCINO CO.

LAKE CO.

YOLO

SONOMA NAPA CO.

SANTA ROSA

CALISTOGA

Lake Berryessa

ST. HELENA

NAPA

SOLANO CO.

PETALUMA

MARIN

SAN RAFAEL

MARTINEZ

CONTRA COSTA

WALNUT CREEK

SAN JOAQUIN

Pacific

SAN FRANCISCO

OAKLAND

COSTA

CO.

PROJECT LOCATION



San Francisco

ALAMEDA

LIVERMORE

Bay REDWOOD CITY

HALF MOON BAY

STANISLAUS

Ocean

SAN MATEO

SAN JOSE

SANTA

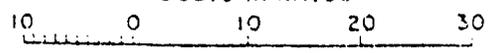
SANTA CRUZ

CLARA

GILROY

LOCATION MAP

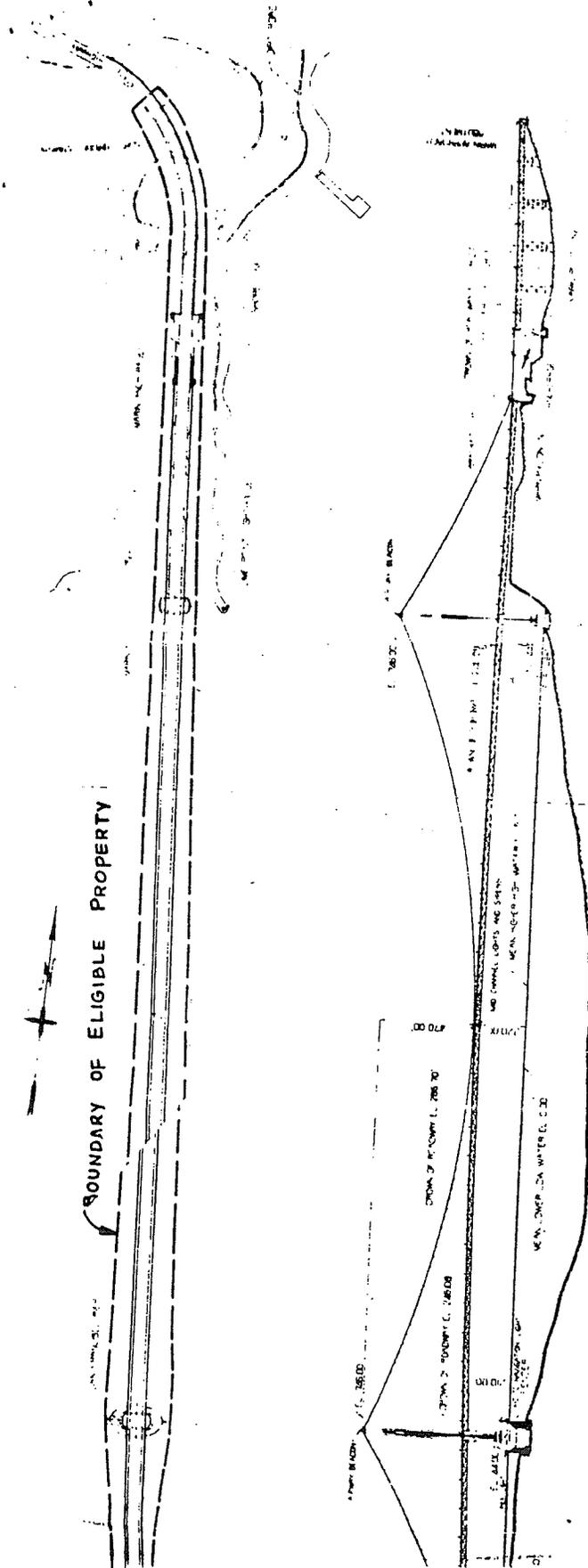
Scale in Miles



MONTEREY CO.

SAN BENITO CO.

BOUNDARY OF ELIGIBLE PROPERTY



ALL DIMENSIONS ARE BASED ON THE ORIGINAL SURVEY RECORDS AND ARE SUBJECT TO THE ACCURACY OF THE ORIGINAL RECORDS.

THE GOLDEN GATE BRIDGE

SAN FRANCISCO, CALIF.

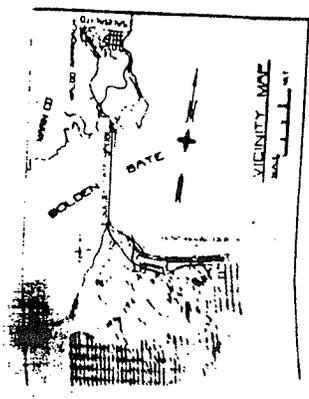
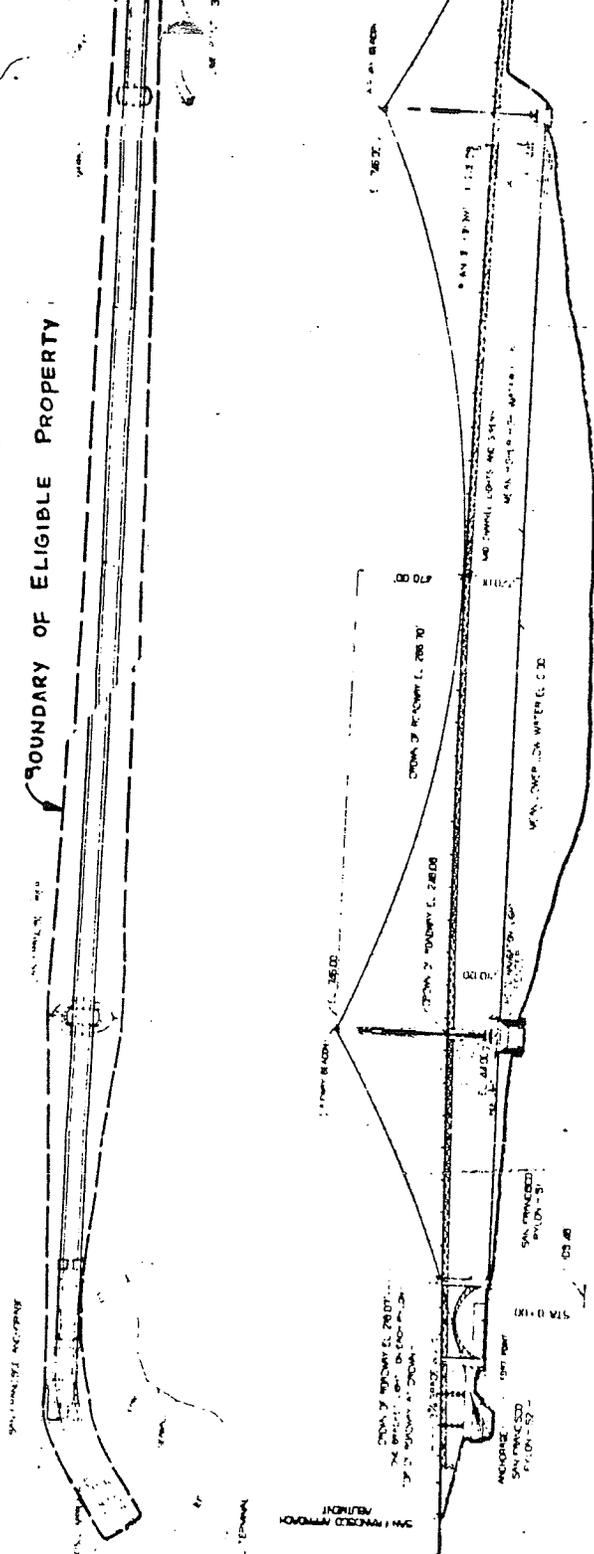
DESIGNED BY JOHN B. JOHNSON

CONSTRUCTED BY THE UNITED STATES GOVERNMENT

MAIN BRIDGE
PLAN AND ELEVATION

SCALE 1/4" = 1'-0"

BOUNDARY OF ELIGIBLE PROPERTY



ANCHORAGE
SPAN BRIDGE
SPAN BRIDGE

MIN. LOWEST HIGH WATER E.L.

MIN. LOWEST LOW WATER E.L.

TOLL TOWER

ANCHORAGE

SPAN BRIDGE

SPAN BRIDGE

MIN. LOWEST HIGH WATER E.L.

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TOLL TOWER

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TOLL TOWER

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TOLL TOWER

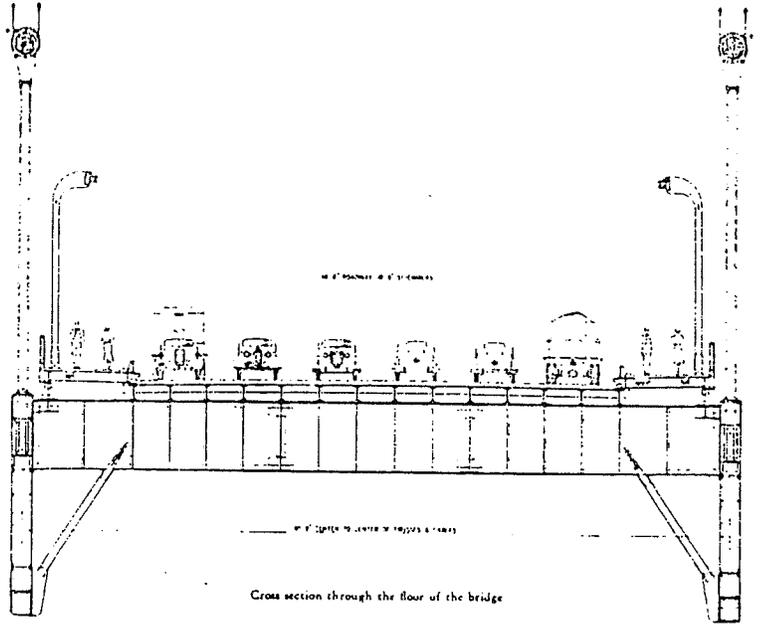
ANCHORAGE

SPAN BRIDGE

SPAN BRIDGE

MIN. LOWEST HIGH WATER E.L.

MIN. LOWEST LOW WATER E.L.

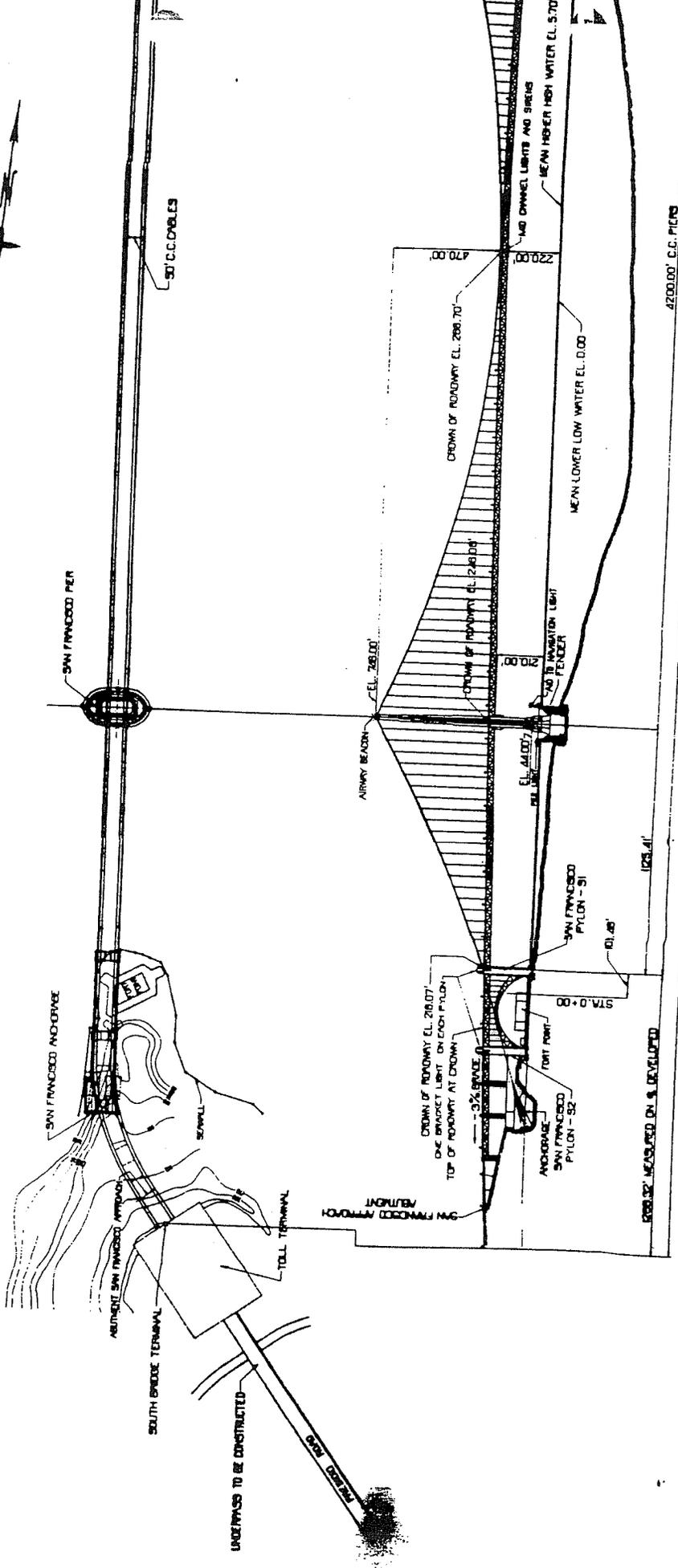


Cross section through the floor of the bridge

GOLDEN GATE BRIDGE CROSS SECTION

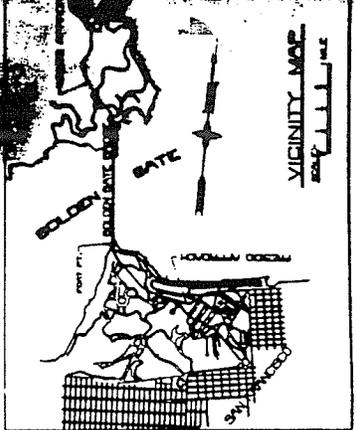
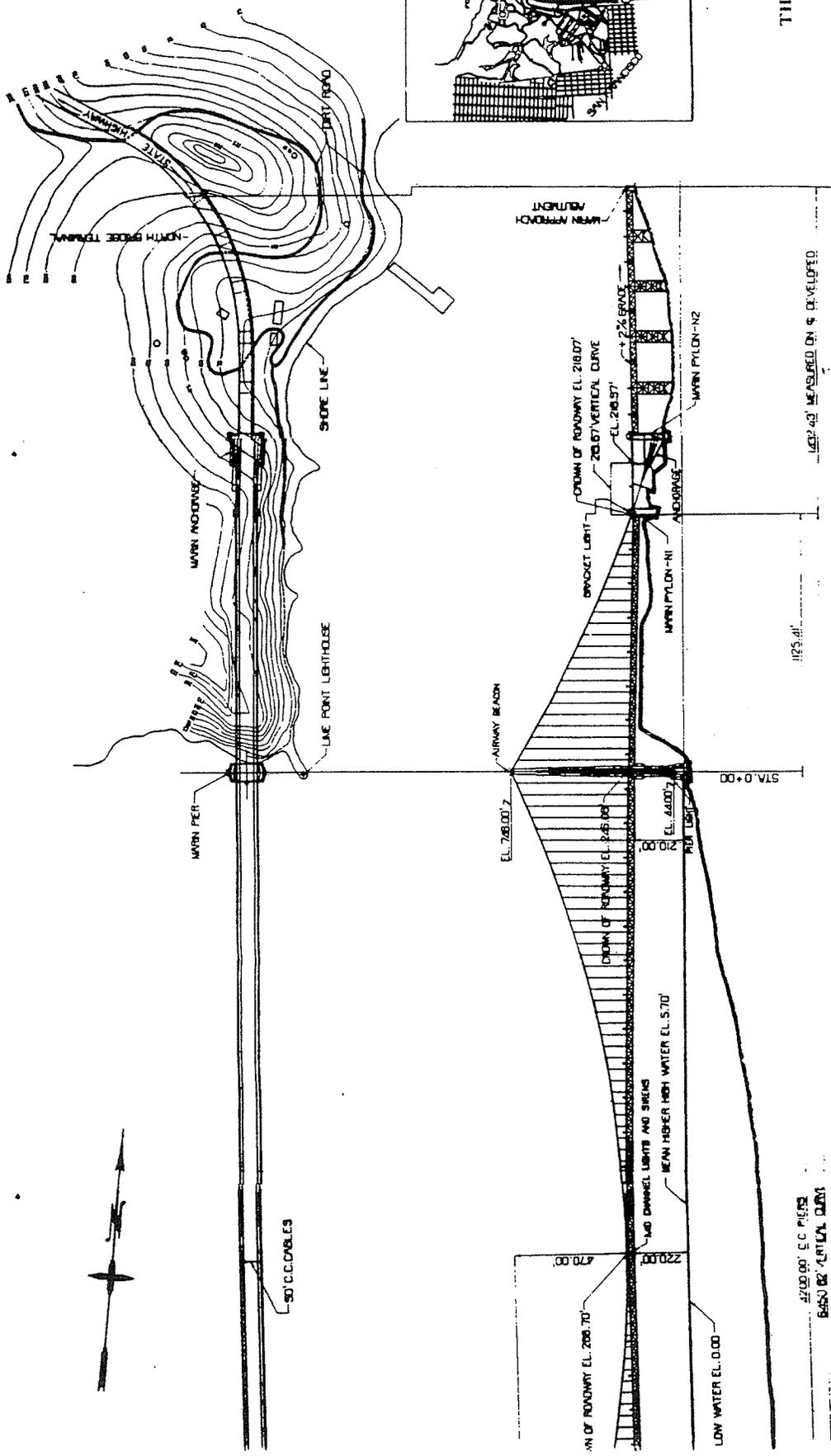
Total Length of Bridge including Approach Structure.....	8,981 ft.....	2,737 m
Length of Suspended Structure.....	6,450 ft.....	1,966 m
Length of Main Span.....	4,200 ft.....	1,280 m
Length of Each Side Span.....	1,125 ft.....	343 m
Width of Bridge.....	90 ft.....	27.4 m
Width of Roadway Between Curbs.....	60 ft.....	18.3 m
Clearance Above Mean Higher High Water.....	220 ft.....	67 m
Live Load Capacity Per Linear Foot.....	4,660 lb.....	1,810 kg
Total Weight on San Francisco Pier Foundation.....	226,000 tons.....	201,000,000 kg
Weight of Cable Anchorage at Each End of Bridge.....	240,000 tons.....	216,000,000 kg
Deepest Foundation Below Mean Lower Low Water.....	110 ft.....	33 m
Maximum Transverse Deflection, Center Span.....	17 in.....	4.3 cm
Maximum Downward Deflection, Center Span.....	60 in.....	15.2 cm
Maximum Upward Deflection, Center Span.....	75 in.....	19.0 cm
TOWERS		
Height of Towers.....	276 ft.....	84 m
Weight of Two Towers.....	88,000 tons.....	79,000,000 kg
Number of Cells at Base, Per Leg (3' 8" x 3' 8" at Top).....	63	
Number of Cells at Top, Per Leg.....	21	
Base Dimension (Each Leg).....	33 ft 3/4 in.....	10.2 m
Load on Tower from Cables.....	123,000 tons.....	111,000,000 kg
Transverse Deflection.....	12 in.....	3.0 cm
Longitudinal Deflection.....		
Shoreward.....	22 in. at Semi-Chanceward.....	18 in. at 400 ft
CABLES		
Diameter of Cables Over Wrapping.....	36 in.....	9.1 m
Length of One Cable.....	7,879 ft.....	2,403 m
Number of Wires in Each Cable.....	27,572	
Number of Strands in Each Cable.....	81	
Size of Wire (No. 6) Diameter.....	0.196 in.....	5 mm
Total Length of Wire Used.....	80,000 miles.....	127,000 km
Weight of Cables, Suspenders and Accessories.....	24,500 tons.....	22,200,000 kg
CONCRETE QUANTITIES		
San Francisco Pier and Fender.....		
Fender.....	130,000 cu yd.....	99,400 m ³
Main Pier.....	23,500 cu yd.....	18,100 m ³
Anchorage, Pylons and Cable		
Housings.....	182,000 cu yd.....	139,000 m ³
Approaches.....	28,800 cu yd.....	22,100 m ³
Paving.....	25,000 cu yd.....	19,100 m ³
	39,000 cu yd.....	29,700 m ³
STRUCTURAL STEEL QUANTITIES		
Main Towers.....	44,700 tons.....	40,200,000 kg
Suspended Structure.....	22,000 tons.....	19,800,000 kg
Anchorage.....	4,400 tons.....	3,960,000 kg
Approaches.....	10,500 tons.....	9,450,000 kg
	81,600 tons.....	74,160,000 kg

GOLDEN GATE BRIDGE STATISTICS



4200.00' C.C. PIERS
 8450.00' VERTICAL CURVE
 3151.48' MEASURED ON S. DEVELOPED

1025.41'



THE GOLDEN GATE BRIDGE
 SAN FRANCISCO, CAL.
 PROJECT REPORT OF CHIEF ENGINEER
 SEPTEMBER 30, 1937
MAIN BRIDGE
PLAN AND ELEVATION
 SCALE IN FEET

4700.00' 5 C. PIECES
 5450.00' 4 CENTRAL CABLES
 2181.40' MEASURED ON & DEVELOPED



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE
CALIFORNIA DIVISION
P.O. Box 1915
Sacramento, California 95809

ARIZONA
CALIFORNIA
NEVADA
HAWAII
GUAM
AMERICAN SAMOA

January 15, 1980

IN REPLY REFER TO
HA-CA

File:
BHOS-3072(42)
Golden Gate Bridge

Dr. William J. Murtagh
Keeper of the National Register
Heritage Conservation and Recreation Service
Department of the Interior
Washington, D. C. 20240

Dear Dr. Murtagh:

On December 11, 1979 we submitted to your office a request for determination of National Register eligibility for the Golden Gate Bridge in the Counties of San Francisco and Marin. Subsequently, Mr. Joseph Towner of your staff requested additional information to assist in the eligibility determination.

Enclosed are a set of photos showing this bridge from various viewpoints and a drawing of the bridge in plan and elevation.

With regard to the question of why the toll plaza was not included in the eligibility package, it was our feeling that this facility was constructed for the purpose of collecting tolls until the bridge bonds were retired and then the booths would be removed. As such, they are considered temporary structures which do not possess significant features which would qualify them for the National Register, nor do they add to the features which qualify the bridge for the National Register even though they are contiguous to the bridge. There have also been numerous modifications to the toll plaza since the original construction.

If you have any further questions, please contact Messrs. D. L. Eyres, District Engineer or H. F. Rennison, Jr., Area Engineer, at FTS 448-3541.

Sincerely yours,

For
Omar L. Homme
Division Administrator

Enclosures



United States Department of the Interior

HERITAGE CONSERVATION AND RECREATION SERVICE
WASHINGTON, D. C. 20243

1966-11-20
FT-201
[Handwritten initials]

IN REPLY REFER TO W436

Mr. ~~OMER~~ L. Homme
Division Administrator
Federal Highway Administration
Region Nine
Department of Transportation
P.O. Box 1915
Sacramento, California 95809

Dear Mr. Homme:

Thank you for your letter requesting a determination of eligibility for inclusion in the National Register pursuant to Executive Order 11593 or the National Historic Preservation Act of 1966, as amended. Our determination appears on the enclosed material.

As you are aware, transportation projects requiring the use of lands from significant historic properties are also subject to the provisions of section 4(f) of the Department of Transportation Act of 1966. Your request for our professional judgment constitutes a part of the Federal planning process. We urge that this information be integrated into the National Environmental Policy Act and section 4(f) analyses in order to bring about the best possible program decisions. This determination does not represent the results of formal consultation by the Department of Transportation with the Department of the Interior pursuant to section 4(f). Such requirements would be fulfilled only when the Department of the Interior separately comments on any section 4(f) statement which may be prepared and approved by you for circulation. The determination also does not serve in any manner as a veto to uses of the property, with or without Federal participation or assistance. Any decision on the property in question and the responsibility for program planning concerning such properties lie with your agency after the Advisory Council on Historic Preservation has had an opportunity to comment.

We are pleased to be of assistance in the consideration of historic resources in the planning process.

Sincerely,

Carol D. Shull
Acting Keeper of the National Register

Enclosure

DEPARTMENT OF PARKS AND RECREATION

P.O. BOX 2390
SACRAMENTO 95811

(916) 445-8000

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NOV 30 1979

Mr. Omar L. Homme
Division Administrator
Federal Highway Administration
P.O. Box 1915
Sacramento, California 95809

Dear Mr. Homme:

Golden Gate Bridge

I have received your letter of October 30, 1979 regarding the National Register eligibility of the Golden Gate Bridge in the counties of San Francisco and Marin.

Thank you for transmitting the Determination of Eligibility Report for this property. The Golden Gate Bridge, a property of exceptional importance, is clearly eligible for inclusion in the National Register of Historic Places despite the fact that it achieved significance within only the past 50 years. It possesses the quality of significance in American history, architecture, and culture, and thus qualifies under National Register Criteria A, B, and C (36 CFR 60.6).

If you have any questions or concerns, please feel free to contact Jeffrey Bingham at 322-8701.

Sincerely yours,

Dr. Knox Mellon
State Historic Preservation Officer
Office of Historic Preservation

G-9328C

DETERMINATION OF ELIGIBILITY
NOTIFICATION DISTRIBUTION

cc: State Historic Preservation Officers: Dr. Knox Mellon
Federal Representative: Mr. Robert F. Crecco
Bureau Liaison: Mr. Larry Isaacson
Advisory Council on Historic Preservation Denver Office

cc: HCRS Regional Office: Pacific Southwest
Interagency Archeological Services: San Francisco

NATIONAL REGISTER

FOR: JTowner:mjd 343-6401 1/29/80

BASIC FILE RETAINED IN NATIONAL REGISTER

HISTORIC RESOURCE EVALUATION REPORT
APPROACHES TO THE GOLDEN GATE BRIDGE

Prepared for: Darnell Reynolds, Chief, Environmental Branch A
District 4, Department of Transportation

Prepared by: Stephen D. Mikesell _____
Cultural Studies Section, Office of Environmental
Analysis
Department of Transportation

December, 1987

A. SUMMARY OF FINDINGS

Of the various approaches to the Golden Gate Bridge on the San Francisco and Marin County shores, only the "Presidio Approach Road" is an original part of the Golden Gate Bridge. This road, now called Doyle Drive and identified as Structures 34-14 and 34-19 on the Caltrans Bridge Inventory, appears to be eligible for listing in the National Register of Historic Places. Other approaches do not appear to be eligible for National Register listing.

B. SCOPE OF REPORT

This report will evaluate National Register eligibility for the approaches to the Golden Gate Bridge. All approach structures were evaluated individually as part of the Caltrans Historic Bridge Inventory and none was found to be individually eligible for listing in the National Register of Historic Places. This report will evaluate eligibility in terms of the relationship between these approaches and the Golden Gate Bridge, to identify any approaches that are original approach spans to the bridge, and which should have been included as part of the Request for Determination of Eligibility for the Golden Gate Bridge as constituent components of the bridge project.

The term, "original approach span," is defined as any approach (i.e. a span or roadway south of the Golden Gate Bridge abutment in San Francisco or north of the abutment in Marin County) which was constructed as an integral part of the larger bridge project. An approach span meeting this definition was: 1) designed by the firm of Strauss and Paine, designers of the Golden Gate Bridge; 2) built under contract to the Golden Gate Bridge and Highway District in the mid-1930s; and 3) financed from the original \$35 million bond approved by district voters on November 4, 1930.

This report is divided into three major parts. Section C provides a historical overview of the building of approaches to the Golden Gate Bridge. Section D discusses the many approaches to the Golden Gate Bridge which were not part of the original Golden Gate Bridge. Section E discusses in detail those approaches which were part of the Golden Gate Bridge and which appear to be eligible for the National Register.

C. HISTORY OF GOLDEN GATE BRIDGE APPROACHES

The Golden Gate Bridge was determined eligible for listing in the National Register of Historic Places in 1980 through a Request for Determination of Eligibility prepared by the Golden Gate Bridge and Highway District. That determination concerned only the Golden Gate Bridge, from abutment to abutment. This report focuses on any improvements directly associated with the Golden Gate Bridge which extend beyond the north or south abutment. The Golden Gate Bridge is also a State Historical Landmark. Documentation for the State Historical Landmark does not mention the approaches.

The Golden Gate Bridge, a risky venture from an engineering and

construction standpoint, was also a financial risk. The bridge was constructed by the Golden Gate Bridge and Highway District, a special purpose district including the counties of Del Norte, San Francisco, Marin, Mendocino, Napa and Sonoma. The District incorporated in 1929 and in November, 1930 committed to the issuance of \$35 million in bonds, at 5 percent interest, to pay for construction of the bridge. These bonds were secured by expected toll revenues and by the taxing authority of the District, specifically authority to tax real property. Early completion of the project was imperative, were property owners in these counties to avoid heavy taxation on depressed land values.

Toll-generating capability obviously required adequate approaches on the San Francisco and Marin shores. On a long-term basis, the District assumed that such access would be provided by the California Division of Highways and by the City-County of San Francisco. The District assumed that the Division of Highways would provide a bridge approach in Marin from U.S. 101 at the Waldo Grade, and a route 480/1* approach in San Francisco along what is now called Park Presidio Boulevard (Route 1.) San Francisco was expected to provide feeder road access from the Marina district.

District planners, including Chief Engineer, J.B. Strauss, were not willing to leave entirely to others the task of building approach roads, simply because the District could not survive financially, were the approach roads delayed. In its planning, the District board decided that it would be prudent for the district to build one minimal approach road at each end of the bridge, until more permanent connections were made by the Division of Highways and San Francisco.

The logic behind these approaches was explained in 1937 by Strauss:

The Golden Gate Bridge is, as stated, a project conceived and justified as a toll bridge. For this reason the studies underlying the conclusions presented in the Chief Engineer's report of 1930 were limited to the examination of those factors only which would more immediately affect the financial success of the bridge, and the carrying out of the origin-destination surveys necessary for the purpose of determining approach road locations and capacities was postponed pending the approval of the bonds. Nevertheless, the traffic and revenue forecasts were very definitely predicated upon the assumption that adequate and properly placed approaches would be provided by the time the bridge was opened to traffic.¹

To this end, the district decided to build two approach roads -- one in San Francisco and one in Marin. It did so as a kind of insurance policy, in the event that the Division of Highways and San Francisco were unable to complete the major approaches and feeder roads in a timely manner.

*Doyle Drive through the Presidio of San Francisco is signed U.S. 101, but is officially designated Interstate 480 in the Caltrans highway log.

It was an insurance policy that paid dividends, for other parties were unable to complete their approaches in time for the opening of the bridge. Both the Park Presidio connectors and the Waldo Grade and Tunnel approach in Marin were delayed, leading Chief Engineer Strauss to make the following comments in 1937:

As to approaches, the [1930] plan included (1) a lateral to Sausalito's south limits leading from a braided connection with the Waldo Road, and (2) the so-called Presidio Approach Road terminating at the end of Marina Boulevard in San Francisco. The remaining outlets, unfortunately, but through no fault of the District, were not contracted for completion synchronously with the completion of the bridge, with the result that when the bridge was completed, it lacked adequate and properly placed feeders to its main approaches.²

The Sausalito Lateral and Presidio Approach Road, then, were crucial to the operation of the bridge and were included in all major planning documents. They were mentioned in the 1930 Chief Engineer's Report and in the 1930 bond measure. They were also carried as separate items in the plans, specifications, and estimates on which the Golden Gate Bridge Project was bid in 1931.

The overall bridge project was bid for in 10 separate contracts, totaling about \$24 million. The two biggest contracts were for the steel superstructure, a \$10.5 million contract to McClintic-Marshall Corp., and the cables, a \$5.85 million contract to John A. Roebling's Sons Co. The approach road contracts were small by comparison -- \$996,000 for the Presidio Approach Road, and \$59,780 for the Sausalito Lateral -- accounting for 4.4% of total project costs.

The Presidio Approach Road contract was awarded to the firm of Eaton & Smith, of San Francisco, and work commenced in January, 1934. The Contract was broken into two parts, with Part I including the necessary grading work, and Part II including the construction of the two structures needed for this approach, the so-called "High Viaduct" and "Low Viaduct."

The Low Viaduct, now carried as Bridge 34-14 in the Caltrans Bridge Inventory, reached from Marina Boulevard, north about 3300 feet to a hill. The High Viaduct, now carried as Bridge 34-19, began at the north slope of this hill and extended north about 1500 feet, to the hill on which the toll plaza was to be constructed. Work on the Low Viaduct continued from June 1934 to September 1936. Work on the High Viaduct extended from February 1934 to June 1935.³

The design of the Presidio Approach Road was modified at its southern end while the road was under construction. J. B. Strauss explains how and why this modification occurred:

Some time after work on the Presidio Approach road had begun, objection was raised to its terminus at Marina Boulevard, on the ground that the bridge traffic would increase the congestion on the boulevard intolerably. The District was therefore asked to abandon this terminus and divert all the traffic to Lombard

Street. After protracted negotiation between the City, the War Department, the Park Commission and the District, an agreement was reached on a compromise solution proposed by the Chief Engineer [Strauss], whereby the Marina Terminus was retained as planned and a secondary outlet, for truck traffic principally, was carried behind the Palace of Fine Arts joining with the Presidio Approach by means of a braided connection with a new diagonal street now called Richardson Avenue and thence with Lombard Street. This outlet was subsequently built as a W.P.A. project sponsored by the city.⁴

The Sausalito Lateral contract was never awarded by the Golden Gate Bridge and Highway District. Strauss explains how this project was built:

This staff [Strauss' assistants], operating under the direction of the Chief Engineer, handled all the work on the [Golden Gate Bridge] project from its inception to its conclusion, with one exception, namely that on February 1, 1933 the Board of Directors by resolution transferred the planning of the Sausalito Lateral work to the California State Highway Commission. The work was executed as a W.P.A. project sponsored by the District.⁵

In subsequent years, other agencies built numerous roadways that connect, directly or indirectly, to the Golden Gate Bridge. Chief among these are the U.S. 101 connections in Marin County, and the State Route 1 connections in San Francisco. These roadways, however, were not planned as part of the original Golden Gate Bridge project, were not designed by Strauss, and were not approved or funded by the Golden Gate Bridge and Highway District.

D. ROADWAYS AND APPROACHES THAT ARE NOT ELIGIBLE FOR LISTING IN THE NATIONAL REGISTER AS PART OF THE GOLDEN GATE BRIDGE

The narrative above demonstrates that very few approach roads or structures were built as part of the Golden Gate Bridge. Only the Presidio Approach Road and Sausalito Lateral were originally planned by the District, and only the Presidio Approach Road was actually built by the District.

If we use District design, funding, and construction as criteria for direct association with the Golden Gate Bridge, it is possible to eliminate from consideration all elements of U.S. 101 in Marin County, and all elements of State Route 1 in San Francisco, even where those roadways and structures were constructed in the 1930s.

In Marin County, no elements north of the Golden Gate Bridge abutments are directly associated with the Golden Gate Bridge. These would include the Waldo Tunnel (left), constructed by the Division of Highways in 1937. It would also include the Sausalito Lateral, which was planned preliminarily by the District, but which was brought to the construction phase by the Division of Highways.

In San Francisco, the State Route 1 approaches should not be considered as integral elements of the Golden Gate Bridge. This

roadway through the Presidio was planned, designed, and constructed entirely by the Division of Highways and was completed after completion of the Golden Gate Bridge. The same logic excludes those connector ramps that allow transitions from State Route 1 to U.S. 480.

E. STRUCTURES THAT APPEAR TO BE ELIGIBLE FOR LISTING IN THE NATIONAL REGISTER OF HISTORIC PLACES

The only approach road that appears to be eligible for listing in the National Register of Historic Places as an integral part of the Golden Gate Bridge is the Presidio Approach Road, now called Doyle Drive.

As demonstrated in the earlier narrative, the Presidio Approach Road was a functional part of the Golden Gate Bridge. The road was designed, funded and constructed by the District. The road, as shown on the attached "Presidio Approach Road (Doyle Drive)" schematic, comprises three major elements -- the High Viaduct (34-19), the Low Viaduct (34-14), and a series of connectors designed by J.B. Strauss but included at the request of the City of San Francisco.

These various units are not only functionally related to the Golden Gate Bridge, they are also very much aesthetically a part of the bridge. Strauss and his architect, Irving Morrow, designed a clean-lined "modernistic" bridge. Strauss explained the design concept:

The architectural treatment [of the Golden Gate Bridge] is in general modernistic, to ensure a satisfactory architectural effect without undue cost or structural sacrifice. Where ornament was desirable, either to enrich certain surfaces unlikely to be perfectly executed over large areas, a simple vertical fluting was used consisting of intersecting plane facets which could be carried out readily in both concrete and steel. Since an ornamental elaboration of minor details such as hand rails, lighting units, etc., is likely to be inharmonious in a structure predominantly engineering and industrial in character, these features were handled in the spirit of the large design, using principally structural steel shapes.⁶

While eschewing applied ornamentation, Strauss and Morrow nonetheless paid attention to the details of the total design, much to the credit of the overall structure. For example, the inflected pattern of the tower sheathing -- the largest and most easily recognizable non-structural aspect of the bridge -- is repeated in concrete at the toll plaza. The careful detailing of the bridge itself accounts for a great deal of the success of the design.

This same attention to detail and repetition of design motifs can be found on the Presidio Approach Road. The High Viaduct is a steel Pratt deck truss structure, carried on concrete piers, on spread footings. The concrete piers, which rise to a height of about 50 feet, are cast in the same inflected and fluted pattern of the bridge towers -- the piers are small and simplified copies of the towers for the Golden Gate Bridge. x

The light standards on Doyle Drive are identical to those found on the Golden Gate Bridge. These standards are very "modernistic," to use Strauss' phrase, their metal beams bent into a very sculptural form. Apparently all original fixtures remain on Bridges 34-14 and 34-19; the few new standards found on these structures are in addition to, not at the expense of, the original fixtures.

The Presidio Approach Road is also unified architecturally by its railing, which is the same on 34-14 and 34-19. It is a simple concrete barrier, scored on the outside face. This barrier is dissimilar from the metal baluster railing found on the bridge itself.

In summary, the Presidio Approach Road (34-14, 34-19, and the roadway between the two structures, also called Doyle Drive, and designated postmiles 4.5 to 5.3 on Route 480 in San Francisco) is an integral part of the Golden Gate Bridge and is eligible for listing in the National Register of Historic Places as a constituent component of that larger structure.

1. Golden Gate Bridge and Highway District, The Golden Gate Bridge: Report of the Chief Engineer to the Board of Directors of the Golden Gate Bridge and Highway District, California, September, 1937, p. 64.

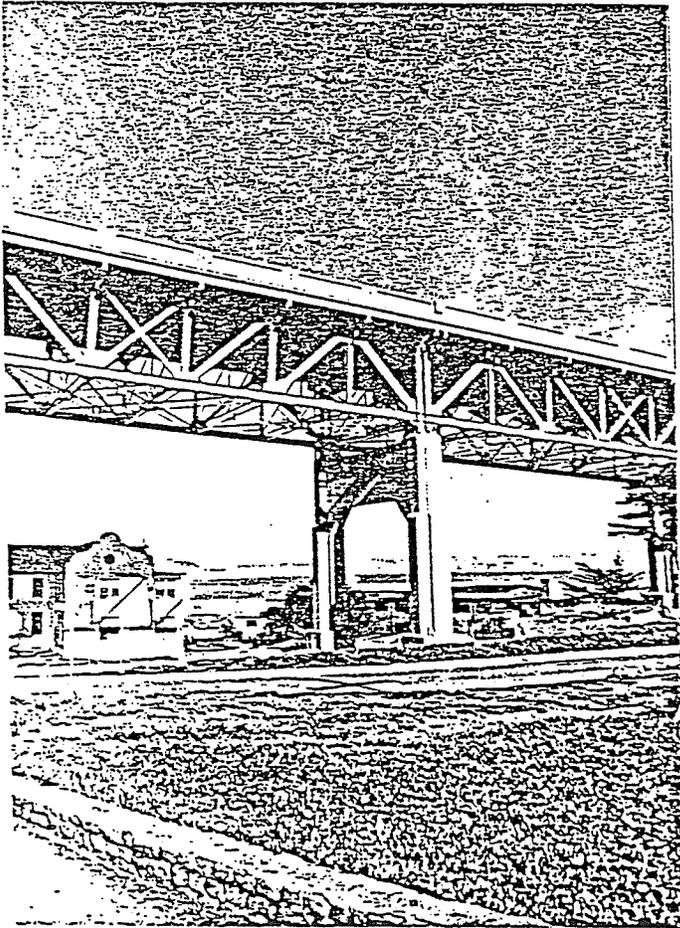
2. Ibid., p. 44.

3. Ibid., pp. 183-4.

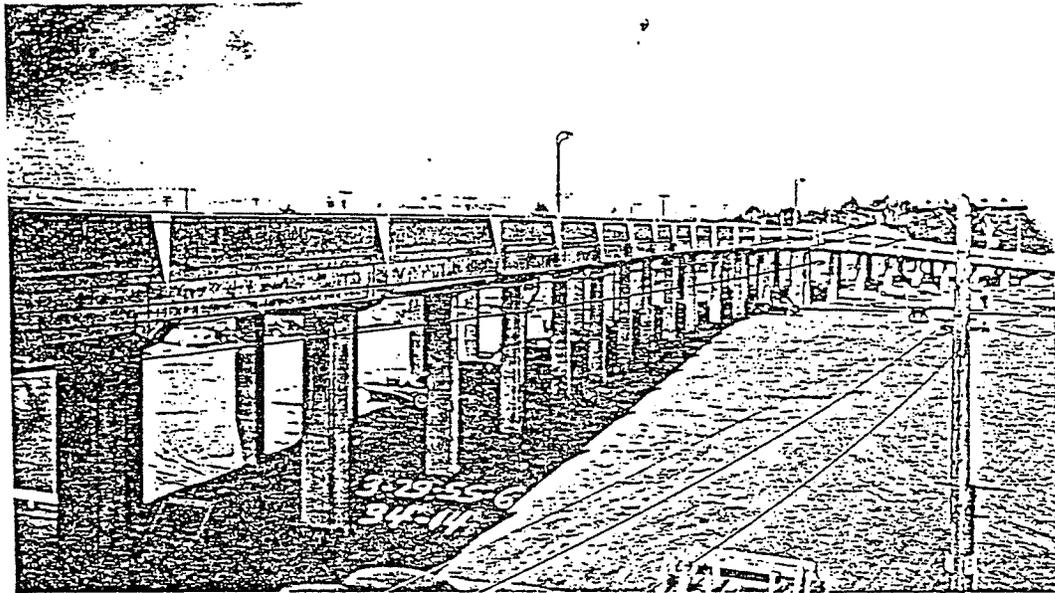
4. Ibid., p. 50.

5. Ibid., p. 36.

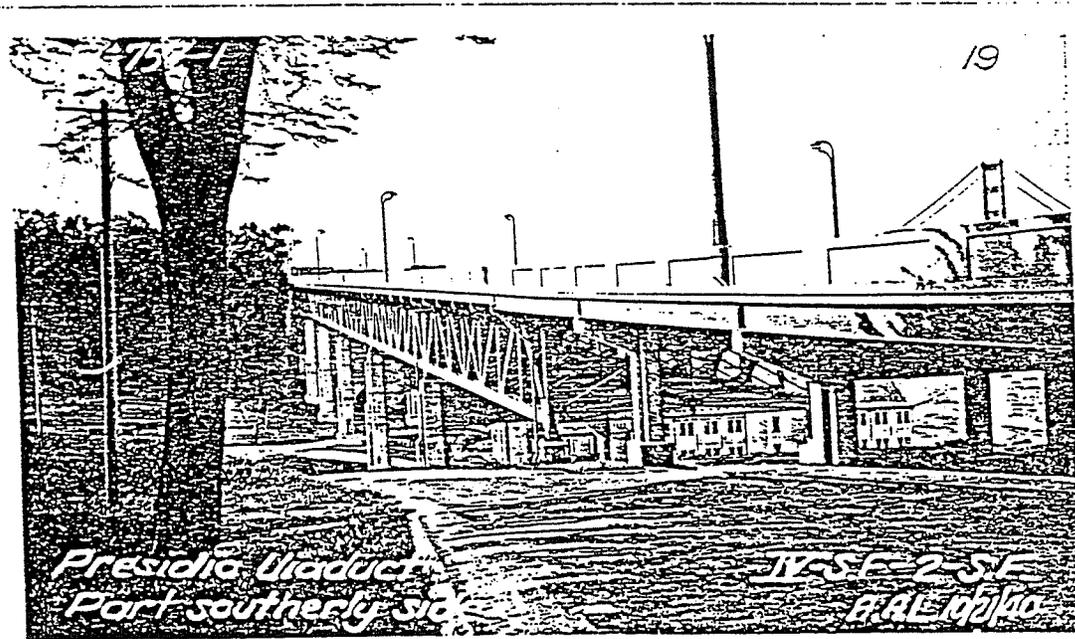
6. Ibid., p. 91.



PRESIDIO APPROACH ROAD
BRIDGE 34-19, HIGH VIADUCT



BRIDGE 34-14, LOW VIADUCT



BRIDGE 34-19, HIGH VIADUCT

OFFICE OF HISTORIC PRESERVATION

DEPARTMENT OF PARKS AND RECREATION

P.O. BOX 942896
SACRAMENTO 94296-0001
(916) 653-6624
FAX: (916) 653-9824

JAN 11 1994

FHWA-Sacramento



(916) 653-6624
FAX (916) 653-6624

December 29, 1993

FHWA931112A

Roger Borg, Division Administrator
Region Nine
Federal Highway Administration
California Division
980 9th Street
SACRAMENTO CA 95814-2724

Re: Marina Viaduct Seismic Retrofit, San Francisco, San Francisco County.

Thank you for submitting to our office your November 9, 1993 letter and supporting documentation regarding the proposed seismic retrofit for the Marina Viaduct, a 3,300 foot long portion of Doyle Drive, which serves as an approach to the Golden Gate Bridge, San Francisco, San Francisco County. The viaduct was constructed in 1936 as part of the overall construction of the Golden Gate Bridge and retains many of the design features and ornamentation associated with the world-famous structure.

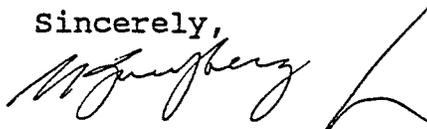
The proposed project will involve the installation of cable restrainers along with the addition of a small amount of new material on the underside of the viaduct superstructure, and the removal of existing corbels and their replacement with continuous ledgers. You are seeking our comments on your determination of eligibility of the Marina Viaduct for inclusion on the National Register of Historic Places (NRHP) in accordance with Section 106 of the National Historic Preservation Act. You are also seeking our comments on your determination of the effects the proposed project will have on historic resources in accordance with the aforementioned act.

Our review of the submitted documentation leads us to concur with your determination that the Marina Viaduct is eligible for inclusion on the NRHP under Criterion C as defined by 36 CFR 60.4 as a contributing member of the Golden Gate Bridge System. The viaduct's design associations with the bridge make it a compatible component of the bridge system with its identical concrete railings and light standards. The fact that it was designed by Golden Gate Bridge designer, J.B. Strauss, makes its architectural associations with the bridge even stronger

We also concur with your determination that the proposed project, as described, will have no adverse effect on the viaduct as defined in 36 CFR 800.9. Very little of the viaduct's historic fabric will be disturbed or removed during the retrofit, and there will be no noticeable difference in the structure's appearance after the project is completed. Please submit your documentation to the Advisory Council on Historic Preservation (ACHP) for their concurrence on our determination of no adverse effect pursuant to 36 CFR 800.5.

Thank you again for seeking our comments on you project. If you have any questions, please contact staff historian Clarence Caesar at (916) 653-8902.

Sincerely,



Steade R. Craig, A.I.A.
Acting State Historic Preservation Officer

cc: Stanley Albright, Western Region, NPS

— Advisory
Council On
Historic
Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

Reply to: 730 Simms Street, #401
Golden, Colorado 80401

April 28, 1994

Roger Borg
Division Administrator
Federal Highway Administration
Region Nine, California Division
980 9th Street, Suite 400
Sacramento, CA 95814-2724

REF: No Adverse Effect determination for the Seismic Retrofit
Project on the Marina Viaduct, City and County of San
Francisco, California

Dear Mr. Borg:

We have reviewed the documentation regarding your no adverse effect determination for the above referenced undertaking. Under procedures set forth in 36 CFR Section 800.5(d)(2), the Council does not object to the finding of no adverse effect. This letter evidences that the requirements of Section 106 of the National Historic Preservation Act and the Council's regulations have been met for this project. It should be retained with all supporting documentation in your agency's environmental or project file.

If you have any questions or require the further assistance of the Council, please contact the Western Office at (303) 231-5320.

Sincerely,



Claudia Nissley
Director, Western Office
of Review

MAY 03 1994
FHWA-Sacramento



United States Department of the Interior

NATIONAL PARK SERVICE
Golden Gate National Recreation Area
Fort Mason, San Francisco, California 94123

IN REPLY REFER TO:

L76 (GOGA-RMPPC)

OCT 17 1995

Mervin C. Giacomini ^(N)
District Engineer
Golden Gate Bridge, Highway and Transportation District
Box 9000 Presidio Station
San Francisco, California 94129

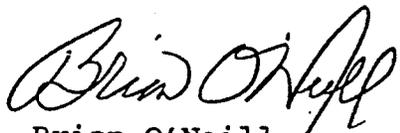
Dear Mr. Giacomini:

Golden Gate National Recreation Area supports and endorses the proposed Golden Gate Bridge Seismic Retrofit Project. Our staff has worked with the Golden Gate Bridge, Highway and Transportation District (GGBHTD) for many months to identify measures to minimize harm to park resources, identify alternative approaches where appropriate, and identify reasonable mitigation measures for unavoidable effects. Our concerns to date are addressed in the environmental assessment prepared for public review.

This letter does not represent the Department of the Interior formal determination as required by Section 4 (f) of the Department of Transportation Act. Such a request should be made to the Director of the Office of Environmental Policy and Compliance at the Department of the Interior's Washington Office, at the initiation of the public comment period for the EA/IS.

We look forward to the conclusion of the environmental review process and our continued cooperation on this important project.

Sincerely,


Brian O'Neill
General Superintendent

EZBauer
 JDKao
 NASTampfl
 TLJones
 GSShishido
 SGHolland
 File: _____

RECEIVED
OCT 19 1995
GOLDEN GATE BRIDGE
ENGINEERING DEPT.



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE
CALIFORNIA DIVISION
980 Ninth Street, Suite 400
Sacramento, California 95814-2724

ARIZONA
CALIFORNIA
NEVADA
HAWAII
GUAM
AMERICAN SAMOA
N. MARIANA IS.

June 27, 1995

IN REPLY REFER TO

RECEIVED
JUL 03 1995

HA-CA

File #: 04-SF-101

Document #: 767

Ms. Claudia Nissley, Director
Western Division of Project Review
Advisory Council on Historic Preservation
730 Simms Street - Suite 401
Golden, Colorado 80401

**GOLDEN GATE BRIDGE
ENGINEERING DEPT.**

SUBJECT: Seismic Retrofitting of the Golden Gate Bridge

Dear Ms. Nissley:

Enclosed is a copy of the May 25, 1995 letter from the Office of Historic Preservation concurring in our March 7, 1995 submittal for the proposed seismic retrofitting of the Golden Gate Bridge, San Francisco, California. Based on the State Historic Preservation Office's (SHPO) review of the documents submitted, the SHPO concurred that the Round House Gift Shop is eligible for the NRHP under Criteria A as defined by 36 CFR 60.4. All the other structures outlined in the HASR are not eligible for inclusion on the NRHP under any of the criteria defined by 36 CFR 60.4

The SHPO also concurred with our determination that the proposed seismic retrofit project as described in the FNAE will have no adverse effect on the Golden Gate Bridge.

We are submitting the HASR, HPSR, and FNAE for your concurrence with the SHPO's determination of no adverse effect pursuant to 36 CFR 800.5. If you have any questions, please contact Bill Wong of this office at (916) 498-5041.

Sincerely,

S/B. Wong

For
Fred J. Hempel
Division Administrator

Enclosure

cc:

Caltrans Hqs, Howard Sarasohn
Caltrans Dist. 04, Joann Cullom

FHWA, Joan Bollman/Steve Guhin
FHWA, John Schultz

GPWong:jw

OFFICE OF HISTORIC PRESERVATION

DEPARTMENT OF PARKS AND RECREATION

P.O. BOX 942896

SACRAMENTO 94296-0001

(916) 653-6624

FAX: (916) 653-9824

(916) 653-6624

FAX (916) 653-9824

May 25, 1995

FHWA920324A

Fred J. Hempel, Division Administrator
Federal Highway Administration
Region Nine, California Division
980 9th Street, Suite 400
SACRAMENTO CA 95814-2724

Re: Seismic Retrofit of the Golden Gate Bridge, San Francisco,
San Francisco County.

Dear Mr. Hempel:

Thank you for submitting to our office your March 7, 1995 letter and supporting documentation regarding the proposed seismic retrofitting of the Golden Gate Bridge, San Francisco, San Francisco County. The Golden Gate Bridge (Bridge) has been determined, by consensus, to be eligible for inclusion on the National Register of Historic Places (NRHP). Among the submitted supporting documentation is the Historic Property Survey Report (HPSR), Historic Architectural Survey Report (HASR), and the Finding of No Adverse Effect (FNAE).

The proposed project is being considered due to a study conducted under California Executive Order D-86-90 in which T.Y. Lin International concluded that major seismic retrofitting work needs to be executed in order to maintain the Bridge's ability to accommodate some level of traffic immediately following a major earthquake. The work will include the following:

South Viaduct -

- o Spans will be isolated with seismic isolators.
- o Support structures will be almost entirely replaced by stronger structures of similar layout.

South Pylons -

- o Pylons S1 and S2 will require foundation anchorage and strengthening both internally and externally. Pylon exteriors will be restored to existing condition.

REC'D FHWA

JUN 16 1995

Fort Point Arch -

- o Arch will be substantially reinforced by strengthening and replacement of deficient members. New members will be added in the upper part of the arch to create a horizontal stiffening truss, while leaving room for possible future light rail right-of-way.

In addition, the South and North Anchorage Housings will be strengthened internally, and the concrete tower bases on the main part of the Bridge will be reinforced internally. Wind retrofit work is required on the west side of the main suspension span to improve the aerodynamics of the handrail. At the North Viaduct, deficient members in the spans and supports will be strengthened.

You are seeking our comments on your determination of the eligibility of the following resources associated with the Bridge for inclusion on the National Register of Historic Places (NRHP) in accordance with Section 106 of the National Historic Preservation Act:

- o Round House Gift Shop
- o Golden Gate Bridge District Administration Building
- o Golden Gate Bridge Maintenance Building
- o Golden Gate Bridge Toll Booths, Canopy and Plaza
- o East Bus Stop Shelter
- o West Bus Stop Shelters #1 and #2
- o Comfort Station
- o Miscellaneous Structures

You are also seeking our concurrence on your determination of the effects the project will have on historic resources in accordance with the aforementioned act.

Our review of the submitted HASR, HPSR, and FNAE lead us to concur with your determination that the Round House Gift Shop is eligible for the NRHP under Criteria A as defined by 36 CFR 60.4. The structure has strong associations with the Bridge in its historic themes of accommodating the needs of travelers crossing the San Francisco Bay. The structure blends well with those elements of setting and feeling that make the Bridge the desired destination of tourists from around the world. We also concur with your determination that the other aforementioned structures are not eligible for inclusion on the NRHP under any of the criteria defined by 36 CFR 60.4. None of the structures have strong associations with the Bridge's historic period of significance nor are they architecturally significant.

We have also reviewed the FNAE and concur with your determination that the proposed project, as described, will have no adverse effect on the Bridge. All of the work proposed for the seismic retrofit will not alter or change those characteristics of design, setting, or materials that contribute to the Bridge's historic significance. Please submit your documentation to the Advisory Council on Historic Preservation (ACHP) for their concurrence with our determination of no adverse effect pursuant to 36 CFR 800.5.

Thank you for seeking our comments on your project. If you have any questions, please contact staff historian Clarence Caesar at (916) 653-8902.

Sincerely,

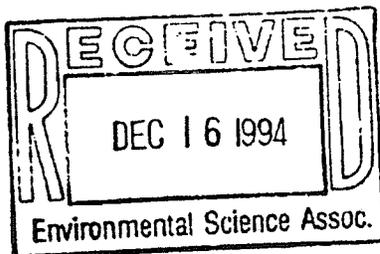


Cheryl Widell
State Historic Preservation Officer



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE
CALIFORNIA DIVISION
980-9th Street, Suite 400
Sacramento, California 95814-2724

ARIZONA
CALIFORNIA
NEVADA
HAWAII
GUAM
AMERICAN SAMOA
N. MARIANA IS.



December 7, 1994

IN REPLY REFER TO

HA-CA

File: 04-SF-101
Golden Gate Bridge

Mr. Joe Browne, Director
CALTRANS, Dist. 04
Oakland, California

Attention: Ms. JoAnn Cullom

Dear Mr. Browne:

SUBJECT: Golden Gate Bridge Seismic Retrofit Project

We received a letter from The Golden Gate Bridge, Highway and Transportation District (GGBH&TD) regarding the Golden Gate Bridge Seismic Retrofit Project. They are requesting our comments on the outline of the Section 4(f) resources that are to be included as part of the environmental review for the project.

We concur that the following resources are to be considered:

- The Golden Gate Bridge and associated buildings (Roundhouse Gift Shop, Toll Plaza)
- East Battery Dynamite
- Bicycle and hiking trails and pathways (impacted by the project)
- Fort Point Historic Property
- Fort Baker

We do not believe the following resources are to be included:

- Scenic Overlooks, Caltrans Vista Point
- East Fort Baker fishing pier
- The Presidio Historic Landmark District



GOLDEN GATE BRIDGE
ENGINEERING DEPT

If you have any questions, please contact Messrs. John R. Schultz,
Chief, District Operations A or Bill Wong, Senior Transportation
Engineer at (916) 498-5041.

Sincerely yours,

/s/ John R. Schultz

For
Peter C. Markles
Acting Division Administrator

cc:
Mr. Merv Giacomini, Golden Gate Bridge
Joan Bollman, with 10-31-94 letter
John Schultz, with 10-31-94 letter
Bill Wong, with 10-31-94 letter

GPWong:lmg File Code: I:\common\policy\GGB4FRES.GPW



GOLDEN GATE BRIDGE, HIGHWAY AND TRANSPORTATION DISTRICT

October 31, 1994

Mr. Bill Wong
Senior Transportation Engineer
Federal Highway Administration
California Division
980 Ninth Street, Suite 400
Sacramento, CA 95814-2724

Re: GOLDEN GATE BRIDGE SEISMIC RETROFIT PROJECT

Dear Bill:

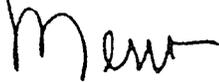
JoAnn Cullom, of Caltrans, suggested that I write you to briefly outline our Section 4(f) resources that are under review as part of our environmental review for the project. We would like to request your review and concurrence with the resources being considered:

- The Golden Gate Bridge and associated buildings (Roundhouse Gift Shop, Toll Plaza)
- East Battery Dynamite
- Scenic Overlooks, Caltrans Vista Point
- Bicycle and hiking trails and pathways
- Fort Point Historic Property
- Fort Baker
- East Fort Baker fishing pier
- The Presidio historic landmark district

Mr. Bill Wong
October 31, 1994
Page 2

If you concur with this identification of resources to be considered in our Section 4(f) analysis, please initial this letter and return it to me. If you have any suggestions, please let either JoAnn or myself know as soon as possible so we can complete our report.

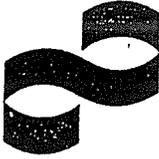
Sincerely,



Mervin C. Giacomini, P.E.
Deputy District Engineer

MCG/jd

c: JCullom
DEMohn/NAStampfli/JDKao/2.7.11.7



GOLDEN GATE BRIDGE, HIGHWAY AND TRANSPORTATION DISTRICT

March 20, 1992

Dear

The Golden Gate Bridge, Highway and Transportation District is initiating environmental studies for the Golden Gate Bridge Seismic Retrofit Project. This project was directed by Governor's Executive Order No. D-86-90 after the 1989 Loma Prieta Earthquake. The Governor's Executive Order recommends that the District evaluate and upgrade this critical transportation structure. Attached is a brief project description.

Please advise within 30 days if you have any comments or concerns that we should be aware of for the Golden Gate Bridge Seismic Retrofit project.

Partial funding for this project is from the Federal Highway Administration under the "Intermodal Surface Transportation Efficiency Act of 1991" (ISTEA).

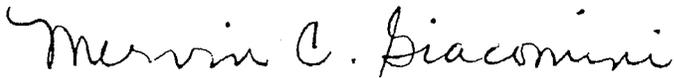
When sufficient engineering and environmental information has been developed, a public informational meeting will be held to discuss the project studies. The public information meeting will be publicized and you will be notified well in advance of the meeting time and location.

March 20, 1992
Page 2

If you have any questions regarding this project, please write or telephone:

Mr. Mervin C. Giacomini, Deputy District Engineer
Golden Gate Bridge, Highway and Transportation District
P.O. Box 9000, Presidio Station
San Francisco, CA 94129-0601
Phone: 415-923-2284
FAX: 415-563-0809

Sincerely,



Mervin C. Giacomini, PE
Deputy District Engineer

MCG/sgb

Attachment

c: JoAnn Cullom, Caltrans
DEMohn/2.7.11.5

OFFICE OF HISTORIC PRESERVATION

DEPARTMENT OF PARKS AND RECREATION

P.O. BOX 942896

SACRAMENTO 94296-0001

(916) 653-6624

FAX: (916) 653-9824

(916) 653-6624

FAX (916) 653-9824

May 25, 1995

FHWA920324A

Fred J. Hempel, Division Administrator
Federal Highway Administration
Region Nine, California Division
980 9th Street, Suite 400
SACRAMENTO CA 95814-2724

Re: Seismic Retrofit of the Golden Gate Bridge, San Francisco,
San Francisco County.

Dear Mr. Hempel:

Thank you for submitting to our office your March 7, 1995 letter and supporting documentation regarding the proposed seismic retrofitting of the Golden Gate Bridge, San Francisco, San Francisco County. The Golden Gate Bridge (Bridge) has been determined, by consensus, to be eligible for inclusion on the National Register of Historic Places (NRHP). Among the submitted supporting documentation is the Historic Property Survey Report (HPSR), Historic Architectural Survey Report (HASR), and the Finding of No Adverse Effect (FNAE).

The proposed project is being considered due to a study conducted under California Executive Order D-86-90 in which T.Y. Lin International concluded that major seismic retrofitting work needs to be executed in order to maintain the Bridge's ability to accommodate some level of traffic immediately following a major earthquake. The work will include the following:

South Viaduct -

- o Spans will be isolated with seismic isolators.
- o Support structures will be almost entirely replaced by stronger structures of similar layout.

South Pylons -

- o Pylons S1 and S2 will require foundation anchorage and strengthening both internally and externally. Pylon exteriors will be restored to existing condition.

REC'D FHWA

JUN 16 1995

Fort Point Arch -

- o Arch will be substantially reinforced by strengthening and replacement of deficient members. New members will be added in the upper part of the arch to create a horizontal stiffening truss, while leaving room for possible future light rail right-of-way.

In addition, the South and North Anchorage Housings will be strengthened internally, and the concrete tower bases on the main part of the Bridge will be reinforced internally. Wind retrofit work is required on the west side of the main suspension span to improve the aerodynamics of the handrail. At the North Viaduct, deficient members in the spans and supports will be strengthened.

You are seeking our comments on your determination of the eligibility of the following resources associated with the Bridge for inclusion on the National Register of Historic Places (NRHP) in accordance with Section 106 of the National Historic Preservation Act:

- o Round House Gift Shop
- o Golden Gate Bridge District Administration Building
- o Golden Gate Bridge Maintenance Building
- o Golden Gate Bridge Toll Booths, Canopy and Plaza
- o East Bus Stop Shelter
- o West Bus Stop Shelters #1 and #2
- o Comfort Station
- o Miscellaneous Structures

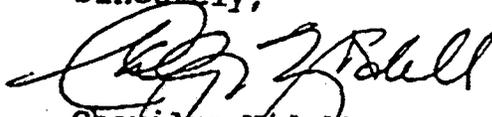
You are also seeking our concurrence on your determination of the effects the project will have on historic resources in accordance with the aforementioned act.

Our review of the submitted HASR, HPSR, and FNAE lead us to concur with your determination that the Round House Gift Shop is eligible for the NRHP under Criteria A as defined by 36 CFR 60.4. The structure has strong associations with the Bridge in its historic themes of accommodating the needs of travelers crossing the San Francisco Bay. The structure blends well with those elements of setting and feeling that make the Bridge the desired destination of tourists from around the world. We also concur with your determination that the other aforementioned structures are not eligible for inclusion on the NRHP under any of the criteria defined by 36 CFR 60.4. None of the structures have strong associations with the Bridge's historic period of significance nor are they architecturally significant.

We have also reviewed the FNAE and concur with your determination that the proposed project, as described, will have no adverse effect on the Bridge. All of the work proposed for the seismic retrofit will not alter or change those characteristics of design, setting, or materials that contribute to the Bridge's historic significance. Please submit your documentation to the Advisory Council on Historic Preservation (ACHP) for their concurrence with our determination of no adverse effect pursuant to 36 CFR 800.5.

Thank you for seeking our comments on your project. If you have any questions, please contact staff historian Clarence Caesar at (916) 653-8902.

Sincerely,

A handwritten signature in cursive script, appearing to read "Cheryl Widell".

Cheryl Widell
State Historic Preservation Officer



U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 CALIFORNIA DIVISION
 980 Ninth Street, Suite 400
 Sacramento, CA 95814-2724

RECEIVED

MAY 24 1999

GOLDEN GATE BRIDGE
 ENGINEERING DEPARTMENT

IN REPLY REFER TO

HA-CA

File #: 04-SF-101

Document #: P 22294

May 19, 1999

CERTIFIED RECEIPT RETURNED: Z 211 283 478

Mr. Daniel Abeyta
 Acting State Historic Preservation Officer
 Office of State Historic Preservation
 P.O. Box 942896
 Sacramento, CA 94296-0001



Dear Mr. Abeyta:

SUBJECT: HPSR AND FNAE FOR GOLDEN GATE BRIDGE SAFETY RAILING PROJECT

Enclosed for your review and concurrence is a copy of the Historic Property Survey Report (HPSR) and Finding of No Adverse Effect (FNAE) for the Golden Gate Bridge Public Safety Railing project. The proposed project is to provide a physical separation between the vehicle travel lanes and the bicycle/pedestrian sidewalk on the Golden Gate Bridge. The public Safety Railing would be installed on the east and west sides of the bridge to enhance bicycle and pedestrian safety.

Several design alternatives were considered for the safety railing, and the Golden Gate Bridge, Highway and Transportation District has recommended Alternative C as the Preferred Alternative due to the minimal visual impact.

We have reviewed the enclosed HPSR and FNAE and concur with Caltrans and the GGBH & TD recommendation of Finding of No Adverse Effect determination. Your early review and concurrence will be appreciated.

If you have any questions, please contact Bill Wong at 498-5042.

Sincerely,

/s/ Robert F. Tally

For
 Jeffrey A. Lindley
 Division Administrator

ms
 [Signature]
 [Signature] EZBauer
 [Signature] JD Kao
 [Signature] NASTamp
 [Signature] CT Guerrero
 [Signature] GSShishido
 [Signature] SGHolland
 File: 2.7.16.5

Enclosure

cc:

Noel Stampfli, GGBH & TD
Rich Monroe, Caltrans Dist. 04
Joan Cullom, Caltrans Dist. 04

cc: (e-mail)

Bob Tally, HA-CA
Bill Wong, HA-CA

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-8624 Fax: (916) 653-9824
calshpo@mail2.quiknet.com

FAX TRANSMITTAL

of pages > 1

To	Noel Stampfli	From	Bill Wong
Dept./Agency	Golden Gate Brg	Phone #	916-498-5042
Fax #	916-563-0809	Fax #	916-498-5008
NSN 7540-01-317-7368		5099-101 GENERAL SERVICES ADMINISTRATION	

June 11, 1999

Reply To: FHWA990525B

Jeffrey Lindley
Division Administrator
California Division
Federal Highway Administration
980 Ninth Street, Suite, 400
SACRAMENTO CA 95814-2724

Re: 04-SF-101
HPSR and FNAE Golden Gate Bridge Safety Railing Project

Dear Mr. Lindley:

FHWA has requested my comments on the subject undertaking in accordance with 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act. Thank you for consulting me.

FHWA has determined that the only historic property in the undertaking's APE is the Golden Gate Bridge. I do not object to this determination.

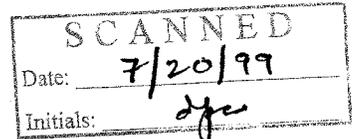
FHWA has determined that implementation of any of three alternatives considered will not adversely affect the historic property. FHWA acknowledges that the project sponsors prefer Alternative C. I am not prepared to concur in this determination at this time.

Before further considering the FNAE, I herewith request FHWA to provide me with documentation indicating how and when interested persons were afforded the opportunity to comment on the undertaking's potential effects on the historic property (36 CFR § 800.1[c][2]). I note that the documentation provided refers to a public meeting in early 1999 to discuss the undertaking. Please provide me with any information that documents any interested persons' views about the undertaking's effects on the historic property.

If you have any questions, please call Hans Kreutzberg at 653-9107.

Sincerely,

Daniel Abeyta, Acting
State Historic Preservation Officer



- MCGiacomini
- ZBauer
- JDKao
- NASampfli
- CTGuerrero
- GSSHishido
- SGHolland
- File: _____

2.7.16.8

cc Joanne Cullom ✓
Marilynn Daffler ✓

Called
Ben Cullom, Golden Gate
Bridge will fund
needed Budget
6-27-99
JUN 14 1999
FHWA-Sacramento

SEP 28 1999

GRAY DAVIS, Governor

STATE OF CALIFORNIA - THE RESOURCES AGENCY

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov



August 17, 1999

Reply To: FHWA990525B

Jeffrey Lindley
Division Administrator
California Division
Federal Highway Administration
980 Ninth Street, Suite 400
SACRAMENTO CA 95814-2724

RE: 04-SF-101; FNAE for Golden Gate Bridge Safety Railing Project

Dear Mr. Lindley:

In accordance with my request of June 11, 1999, FHWA has furnished me with information that documents consultation with interested persons about the captioned undertaking. Thank you for providing me with this information.

Based on my review of all the documentation received, I herewith concur in your determination that this undertaking will not adversely affect historic properties. Please note that 36 CFR § 800.5(d) specifies the actions to be taken by FHWA if the undertaking is not carried as now proposed. It is therefore important for FHWA to be notified in the event the GGBHTD may modify the undertaking.

FHWA's consideration of historic properties in the project planning process is appreciated. If you have any questions, please contact Hans Kreutzberg at 653-9107 or e-mail hkreu@ohp.parks.ca.gov

Sincerely,

Daniel Abeyta, Acting
State Historic Preservation Officer

EXECUTIVE SECRET
SEP 23 1999

Copy to Dist 04 along with CE
8-25-99

AUG 20 1999
FHWA-Sacramento