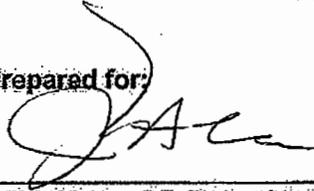


**VISUAL IMPACT ASSESSMENT**

**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)

**Prepared for:**



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## EXECUTIVE SUMMARY

### INTRODUCTION

This report presents results of the Visual Impact Assessment conducted for the Bridge Physical Suicide Deterrent System Project. The Golden Gate Bridge (Bridge) is located between San Francisco at the northernmost tip of the San Francisco Peninsula and the Marin Headlands at the far southern end of Marin County. Situated in Golden Gate National Recreation Area (GGNRA) land, the Bridge spans the Golden Gate, a narrow deep strait that serves as the mouth of the San Francisco Bay to the Pacific Ocean.

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

- The Bridge's sidewalks are open to the public, and the outside handrail 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 outside handrail and jumped to their death. There is no other physical barrier preventing an individual from jumping, once the outside handrail 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 taken off of 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 of the Bridge.

The purpose of the Bridge Physical Suicide Deterrent Project is to consider a physical deterrent system that reduces the number of injuries and deaths associated with jumping off the Bridge. The proposed physical deterrent system must meet several criteria as set forth by the Golden Gate Bridge Highway and Transportation District (District) as identified below.

1. Must impede the ability of an individual to jump off the Bridge.
2. Must not cause safety or nuisance hazards to sidewalk users including pedestrians, bicyclists, District staff, and District contractors or security partners.
3. Must be able to be maintained as a routine part of the District's on-going Bridge maintenance program and without undue risk of injury to District employees.
4. Must not diminish ability to provide adequate security of the Bridge.
5. Must continue to allow access to the underside of the Bridge for emergency response and maintenance activities.
6. Must not have a negative impact on the wind stability of the Bridge.
7. Must satisfy requirements of state and federal historic preservation laws.
8. Must have minimal visual and aesthetic impacts on the Bridge.

9. Must be cost effective to construct and maintain.
10. Must not in and of itself create undue risk of injury to anyone who comes in contact with the suicide deterrent system.
11. Must not prevent construction of a moveable Median barrier on the Bridge.

## **ALTERNATIVE DEVELOPMENT**

Preliminary alternatives were developed by the District in consultation with California State Department of Transportation (Department). Concepts were evaluated for their ability to improve the aerodynamic performance of the Bridge, as well as their ability to meet the District criteria identified above. Prior to being considered technically feasible, design standards and architectural considerations were incorporated into several concepts. Additional wind testing was then performed to confirm the satisfactory aerodynamic performance of the Bridge under each concept. 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, 5 alternatives were selected for further consideration.

- No-Build Alternative
- 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)

Each alternative is described in more detail in Chapter 2.0 of the Visual Impact Assessment.

## **METHODOLOGY**

The Visual Impact Assessment methodology was developed using guidelines provided in the publication *Visual Impact Assessment for Highway Projects*, Federal Highway Administration (FHWA), March 1981. The existing visual conditions in the project area were evaluated in terms of visual resources (visual character and quality), the characteristics of viewers (viewer exposure), and viewer sensitivity. The visual resources were analyzed in terms of landscape types and distinct visual features within the region and from key viewpoints. The evaluation of viewer characteristics considers the project's visual influence zone (the overall area from which the project would be potentially visible), the important views and viewing conditions, and viewer number, types, and activities.

Visual simulations provide depictions of the project alternatives from 14 viewpoints developed through consultation with the District and the Department. These simulations were compared to existing views when considering the visual impacts of the alternatives. The assessment of the changes that would be introduced by the project consider its integration with the existing visual elements of the Bridge and surrounding landscape, as well as the anticipated viewer response to the changes. Based on these considerations, the degree of visual impact was determined.

## **SUMMARY OF EXISTING VISUAL CONDITIONS**

The Bridge is located within the San Francisco Bay Area between the northernmost tip of the San Francisco Peninsula and the Marin Headlands at the far southern end of Marin County. This area of northern California is one of the most scenic areas in the world, where the blue green waters of the Bay and Pacific Ocean combine with islands, bridges, mountains and urban skylines to create both picturesque and impressive vistas. The International Orange-colored Bridge and towers stand out against the blue skies and waters of the San Francisco Bay and the Pacific Ocean.

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

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

## **SUMMARY OF VISUAL IMPACTS**

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

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

The change in visual quality by landscape unit was determined through comparing the level of change to the existing visual quality from implementation of the project alternatives. The visual impact and change in overall visual quality for each alternative was assessed and given a rating from negligible to strongly adverse.

## **VISUAL IMPACTS BY ALTERNATIVE**

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

The No-Build Alternative would continue current suicide deterrent programs operations on the Bridge, described in more detail in Section 2.2 of the Visual Impact Assessment (VIA), but would not make any physical changes to the Bridge. A portion of the west outside handrail (between the towers) is planned to be replicated to improve the aerodynamic stability of the Bridge as part of another project. That project was approved as part of the seismic upgrade program, with the appropriate environmental and Section 106 clearances.

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

Visual impacts associated with Alternative 3 to views of the Bridge would generally be minimally adverse, with the exception of an adverse visual impact from Viewpoint 4 (Vista Point) and negligible visual impacts from Viewpoints 2 (Baker Beach) and 3 (North Fishing Pier). The primary visual change associated with Alternative 3 would be the introduction of a strong horizontal element to the outside of the Bridge in contrast to the existing verticality of the Bridge. From the majority of viewpoints towards the Bridge, Alternative 3 would be a subordinate visual feature with low to moderate visual compatibility and moderate view blockage, representing minimally adverse visual impacts. Alternative 3 would have an adverse visual impact from Viewpoint 4 as the net would be visible across the total field of view. Visual impacts associated with Alternative 3 would be negligible from Viewpoints 2 and 3 due to the distant viewer location and upward viewing angle, respectively.

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

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

### **CHANGE TO VISUAL QUALITY BY LANDSCAPE UNIT**

Change in visual quality addresses the effect of the project on overall visual quality at the landscape unit scale. This has been determined by reevaluation of the vividness, unity, and intactness criteria for the unit in post-project condition, noting both specific changes and overall changes in visual character. This analysis reflects the cumulative effects of the project on views as documented for particular viewpoints, as well as inherent changes in visual character regardless of specific existing viewpoints.

The No-Build Alternative would have no impact on visual quality since it would not change the existing visual environment, but would instead perpetuate the visual conditions associated with the current structure. As Alternatives 1A, 1B, 2A, 2B, and 3 would be located on the Bridge, visual changes by landscape unit would be limited to the views of the Bridge from each respective landscape unit. Construction staging areas within the Toll Plaza and Marin Headlands landscape units would, however, introduce short-term construction-related visual impacts primarily related to additional sources of light and glare.

All of the build alternatives would cause a minimally adverse change to the existing visual quality at the San Francisco Bay and Fort Baker landscape units. Alternatives 1A, 1B, 2A, and 2B would cause a minimally adverse change to the existing visual quality at the Toll Plaza and Marin Headlands landscape units. Alternative 3 would cause a negligible change to the existing visual quality at the Toll Plaza and Marin Headlands landscape units.

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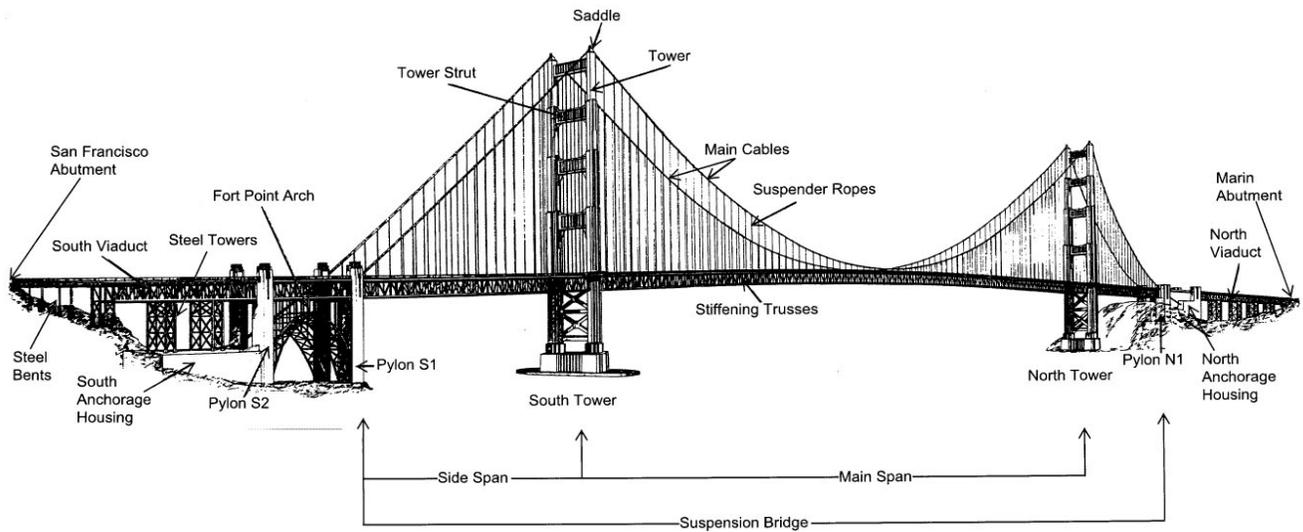
## 1.0 PURPOSE OF STUDY

The purpose of this study is to assess the visual impacts of the proposed project alternatives and to propose measures to mitigate any potential adverse visual impacts associated with construction of the Golden Gate Bridge Physical Suicide Deterrent System on the surrounding visual environment.

## 2.0 PROJECT DESCRIPTION

The project proposes to construct a physical suicide deterrent system along both sides of the Golden Gate Bridge (Bridge). As shown in Figure 1, 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 ½ 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 ½ 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.

# Golden Gate Bridge Physical Suicide Deterrent System

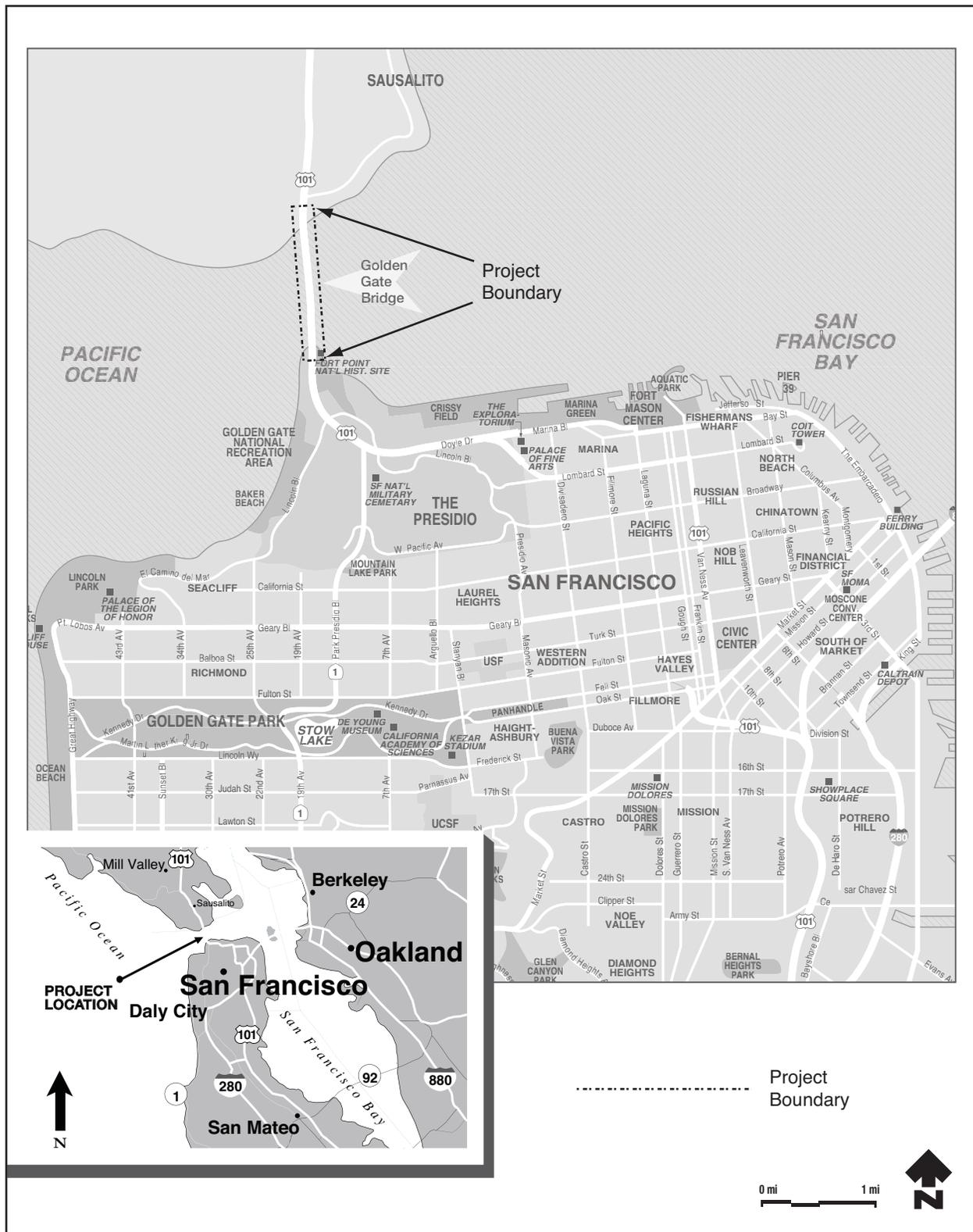


FIGURE 1  
PROJECT LOCATION

Golden Gate Bridge Physical Suicide Deterrent System

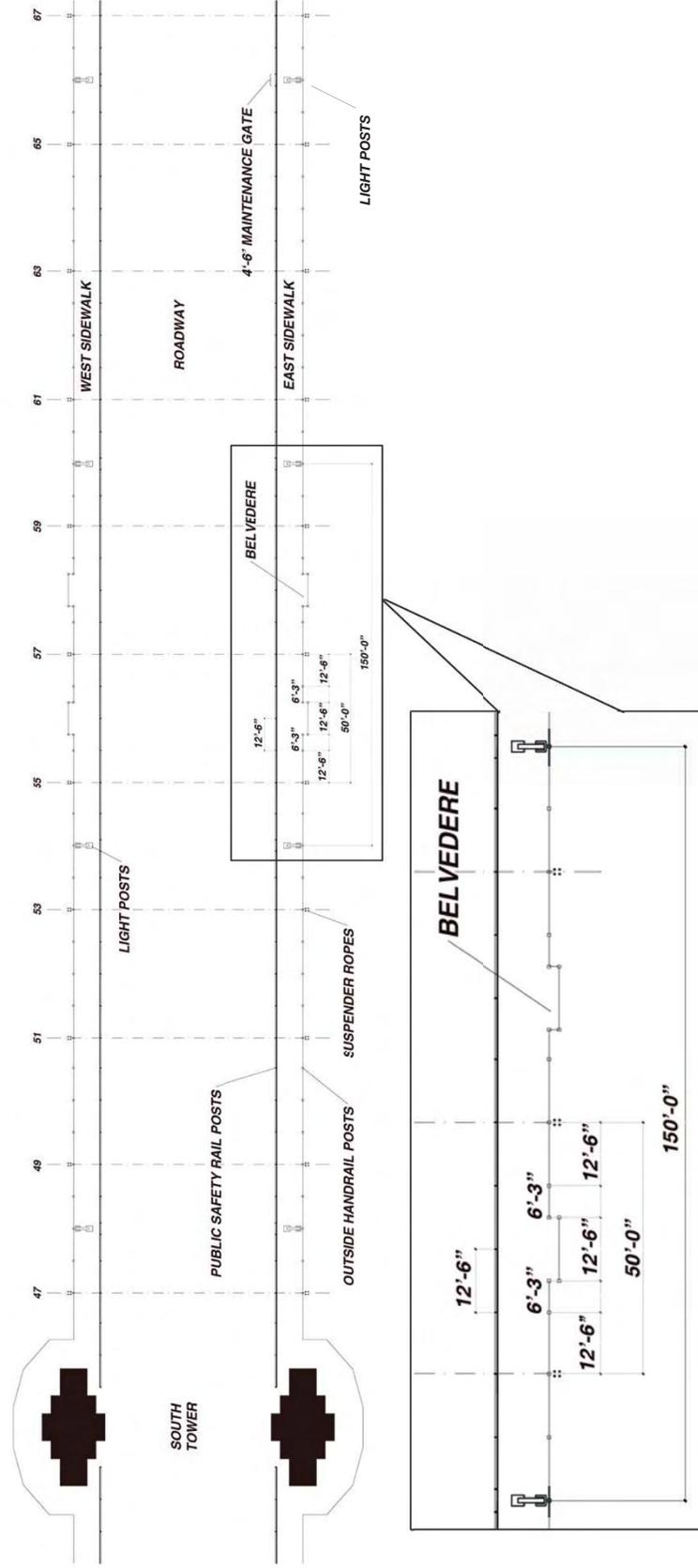


FIGURE 2  
PLAN VIEW OF BRIDGE

Visual Impact Assessment

Source: macdonald architects, 2008

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**

### **2.1.1 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.

### **2.1.2 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.

### **2.1.3 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.

#### **2.1.4 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. Unlike Alternatives 1A, 1B, and 2A, Alternative 2B would only require a total height of 10-feet, as the outside handrail would be replaced with a horizontal system. The replacement of the outside handrail would eliminate a climbing feature and would only require a height of 10-feet to meet the District criteria for the physical suicide deterrent system. Additionally, the inwardly-curved transparent winglet on top of the horizontal replacement system (discussed below) would impede climbing of the horizontal system as well.

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 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 (two 4 foot wide panels) and 10 feet high, and match the appearance of the horizontal system. The frame for each gate door would be constructed of 2-inch by 2-inch steel members. A rub rail would be located at a height of 4 feet 6 inches, matching the height of the public safety railing.

#### **2.1.5 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 upgrade project.

### **2.2.1 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.

### **2.2.2 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, backspans 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 Outside Handrail**

In accordance with the findings of the wind study report conducted for the seismic retrofit project, the vertical members under the outside handrail on the west side of the Bridge between the two main towers will be modified to reduce the effects of the wind on the Bridge. 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.

## **2.3 CONSTRUCTION ACTIVITIES**

### **2.3.1 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.

### **2.3.2 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.

## **3.0 ASSESSMENT METHODOLOGY**

The process used in this visual impact study generally follows the guidelines outlined in the publication *Visual Impact Assessment for Highway Projects*, Federal Highway Administration (FHWA), March 1981. Six principal steps required to assess visual impacts were carried out. They are as follows:

- Define the project setting and viewshed
- Identify key views for visual assessment
- Analyze existing visual resources and viewer response
- Depict the visual appearance of project alternatives
- Assess the visual impacts of project alternatives
- Propose methods to mitigate adverse visual impacts

The existing visual conditions in the project area are comprised of actual visual resources (described in terms of visual character and quality), the characteristics of viewers, namely viewer exposure (the ability to see the project area), and viewer sensitivity. The visual resources were analyzed in terms of landscape types and distinct visual features within the region and from key viewpoints. The evaluation of viewer characteristics considers the project's visual influence zone (the overall area from which the project would be potentially visible), the important views and viewing conditions, and viewer numbers, types, and activities. Figure 3 illustrates the process of assessing the existing visual conditions.

Visual simulations provide depictions of the project alternatives from 14 viewpoints developed by the District in consultation with the Department. Views towards the Bridge and views from the Bridge were selected. These simulations were compared to existing views when considering the visual impacts of the alternatives. The assessment of the changes that would be introduced by the project consider its integration with the existing visual elements of the Bridge and surrounding landscape, as well as the anticipated viewer response to that change. Based on these considerations, the degree of visual impact was determined.

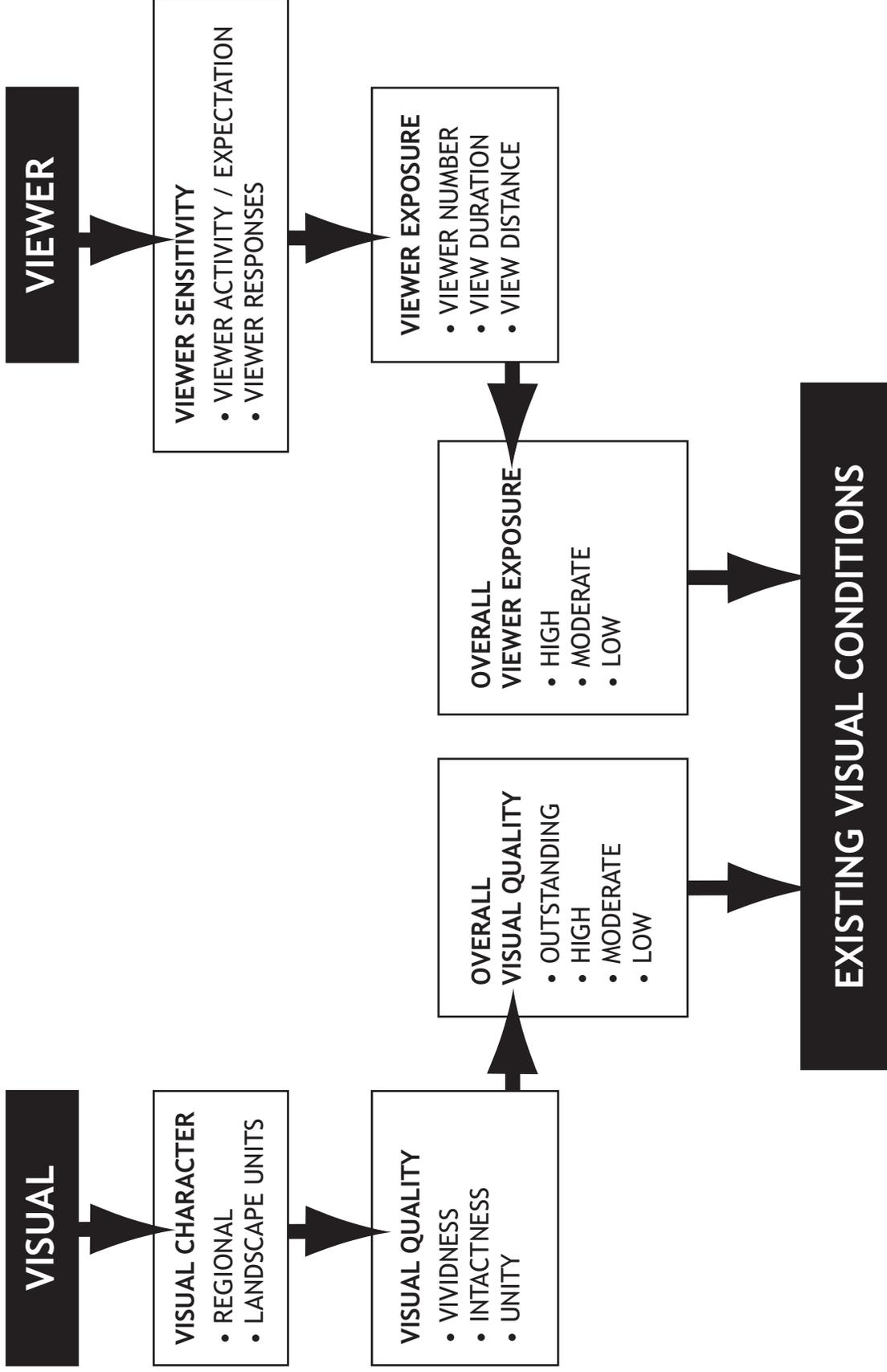


FIGURE 3  
ASSESSMENT OF EXISTING VISUAL CONDITIONS  
Visual Impact Assessment

## **4.0 VISUAL ENVIRONMENT OF THE PROJECT**

### **4.1 PROJECT SETTING**

The regional landscape establishes the general visual environment of the project, but the specific visual environment upon which this assessment will focus is determined by defining landscape units and the project viewshed. The regional landscape helps establish a frame of reference for comparing the visual effects of alternatives and determining their significance. Regional landscapes constitute broad areas defined by physical and ecological factors, and are characterized by specific combinations of four components: landform (or topography), water, vegetation, and man-made development.

### **4.2 LANDSCAPE UNITS**

Landscape units are portions of the study area that have a distinct visual character. Their boundaries are often marked by distinct changes in visual character or spatial experience, such as a valley entrance, a river crossing, or a change in land-use pattern. The visual character of some units is strongly influenced by specific landscape features, such as a large structure, individual landform, or a distinctive body of water.

### **4.3 PROJECT VIEWSHED**

A viewshed is a subset of a landscape unit and is comprised of all of the surface areas visible from an observer's viewpoint. The limits of a viewshed are defined as the visual limits of the views located from the proposed project. The viewshed also includes the location of viewers likely to be affected by visual changes brought about by project features. A project's viewshed is most often defined by topographic features such as ridgelines, which create the visual and physical boundaries of the visual envelope.

## **5.0 EXISTING VISUAL RESOURCES AND VIEWER RESPONSE**

### **5.1. EXISTING VISUAL CHARACTER AND CONTEXT**

#### **5.1.1 Regional Landscape and Scenic Resources**

The Bridge is located within the San Francisco Bay Area between the northernmost tip of the San Francisco Peninsula and the Marin Headlands at the far southern end of Marin County. The Bridge spans the Golden Gate, a narrow strait that serves as the mouth of the San Francisco Bay to the Pacific Ocean. This area of northern California is one of the most scenic areas in the world, where the blue green waters of the Bay and Pacific Ocean combine with islands, bridges, mountains, and urban skylines to create both picturesque and impressive vistas.

The visual character of the San Francisco Bay region is a melding of urban and suburban development within and around mountains, open space, and water. Examples of this aesthetic are the eight bridges that cross the Bay at various points. These include the Golden Gate Bridge, the San Francisco–Oakland Bay Bridge, and the Richmond–San Rafael Bridge. Dense urban areas such as San Francisco and Oakland are balanced by natural and open space areas such as the headlands (Marin Headlands) of the Golden Gate National Recreation Area (GGNRA), and East Bay hills. The waters of the San Francisco Bay and Pacific Ocean are almost always active, as they contain major shipping routes for the transportation of goods in and out of the Ports of Oakland and San Francisco.

The Bay waters are also the source of a year-round fishing industry and are extremely popular for recreational boating, sailing, and windsurfing. From almost any vantage point on any given day, each of these elements play a part in the regional aesthetic and character of the Bay Area.

### **5.1.2 Context of the Golden Gate Bridge within the Regional and Local Landscape**

The Bridge is a suspension bridge that extends over the mouth of the San Francisco Bay and links the City and County of San Francisco to Marin County. The Bridge is located in the GGNRA and is an iconic symbol of San Francisco and Northern California, attracting visitors from around the world. From points north and south of the Bridge, such as the Marin Headlands and Baker Beach, respectively, the Bridge is a prominent visual feature extending across the water of the San Francisco Bay. The International Orange colored Bridge and towers stand out against the blue skies and waters of the Bay and Pacific Ocean. When viewed from a distance, the Bridge forms a continuous linear feature across the Bay and visually connects the undeveloped hills of the Marin Headlands to the Presidio within San Francisco.

The Bridge is surrounded by features occurring naturally in the landscape and features that have been introduced by man into the landscape. The Bridge sits directly between the northernmost tip of San Francisco, which includes the densely vegetated Presidio and the undeveloped hills of the Marin Headlands in southern Marin County. Manmade features, such as Fort Point and Fort Baker, both historical military structures, are also located on the south and north side of the Bridge, respectively. The densely urbanized cityscape of San Francisco is located southeast of the Bridge.

The Bridge is a primary transportation corridor within the area, located between Highway 101 in San Francisco County and Marin County. It is a heavily traveled major thoroughfare, carrying high volumes of traffic during the weekdays (commuters) and weekends. Sidewalks line the east and west sides of the Bridge, accommodating pedestrian and bicyclists across the entire Bridge.

### **5.1.3 Context of the Golden Gate Bridge for Motorists and Pedestrians**

Motorists, bicyclists and pedestrians traveling on the Bridge have a wide variety of visual experiences. When looking to the east, the viewer is afforded views of the San Francisco Bay Area, including the water of the Bay, the densely urbanized cityscape of San Francisco, Alcatraz, Angel Island, the East Bay hills, and the San Francisco-Oakland Bay Bridge. This view encompasses a mixture of natural and man-made landscape features. When looking west, the viewer experiences a predominantly natural landscape consisting of the undeveloped, rocky slopes of the Marin Headlands and the open water of the Pacific Ocean.

When traveling north on the Bridge, it is evident that the viewer is leaving the urban environment of San Francisco and entering the more natural setting of the Marin Headlands. However, this transition is gradual as the Bridge provides a visual progression from urban and industrial (such as the area around the Toll Plaza) to views of the San Francisco Bay, the Pacific Ocean, and the undeveloped Marin Headlands.

When traveling south on the Bridge from Marin County, the visual character transitions from more natural and rural characteristics to an urban character, as views of San Francisco become more prominent for motorists traveling south. Views include the City of San Francisco, San Francisco Bay, the Presidio, Crissy Field, and Alcatraz Island.

A 4-foot-high outside handrail, comprised of evenly spaced vertical members, and public safety railing comprised of narrow horizontal cables, limit views from passengers in low-profile automobiles. From these vehicles, views are typically of the more distant features such as Alcatraz, distant San Francisco skyline and San Francisco-Oakland Bay Bridge. Existing car views from the Bridge illustrate the partial view blockage provided by the outside handrail and public safety railing.

#### **5.1.4 Landscape Units**

To facilitate a description and analysis of the study area, it has been subdivided into landscape units encompassing distinct spatial areas. Landscape units are geographically discreet areas that often are separated by natural features such as bodies of water, ridges, or changes in vegetation. Each landscape unit has a certain visual character based upon the land uses and features that comprise it. Figure 4 depicts the boundaries of the landscape units that make up the Bridge Physical Suicide Deterrent System Project study area. Table 5-1 summarizes the features within each landscape unit.

##### **The Presidio**

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

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

##### **Toll Plaza Area**

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

##### **San Francisco Bay**

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

The Golden Gate Bridge is suspended above the mouth of the San Francisco Bay connecting San Francisco and Marin counties. It is one of the most well known, frequently visited and internationally recognized suspension bridges in the world, and widely considered one of the most beautiful examples of bridge engineering, both as a structural design challenge and for its aesthetic appeal. It

# Golden Gate Bridge Physical Suicide Deterrent System

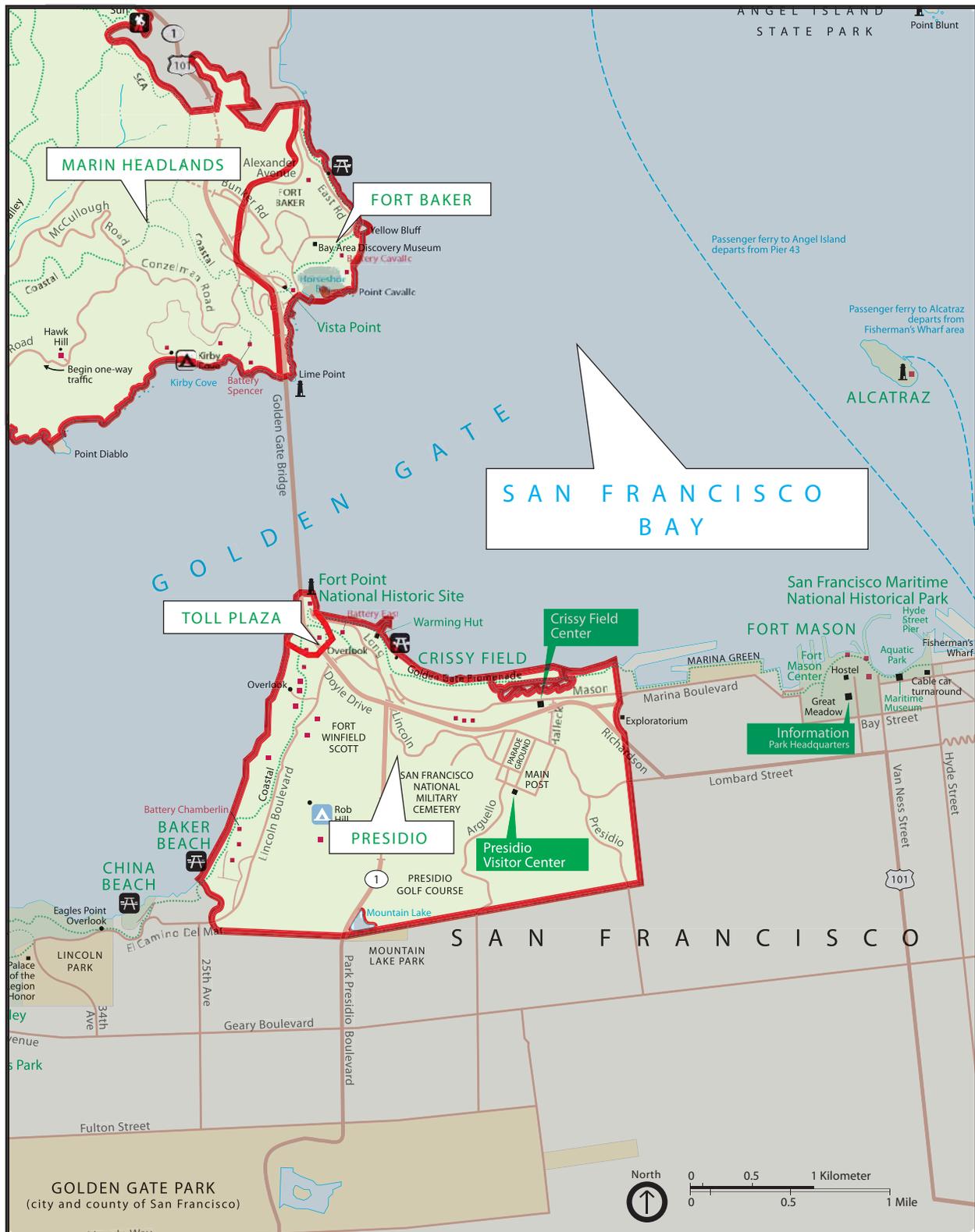


FIGURE 4  
LANDSCAPE UNIT LOCATION

**TABLE 5-1: LANDSCAPE UNITS**

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

was the largest suspension bridge in the world when it was completed in 1937 and has become an internationally recognized symbol of San Francisco design reflected by its unique and distinguishing architectural qualities and characteristics that combined Art Deco and Streamline Moderne design with advanced engineering technologies. The Bridge is constructed of concrete and steel; the foundations, anchorage housings and pylons are concrete, the Bridge spans are steel.

The Bridge has been described as an environmental sculpture and is widely noted for its harmonious blending of the natural and built environment. The extraordinary setting intensifies the visual power of the Bridge. From its north-south alignment, the Bridge provides panoramic views of the rugged beauty and urban diversity that surround it, encompassing the Marin hills, the Presidio of San Francisco Historic Landmark District, the skyline of San Francisco, Alcatraz and Angel Islands of San Francisco Bay, and the wide expanse of the Pacific Ocean and coastline. It is one of the most photographed places in the world, with views of the Bridge typically taken from GGNRA beaches and trails southwest of the Bridge, San Francisco Bay, the Presidio, Fort Point, Fort Baker, the Marin Headlands, and from the air. The setting and the views contribute to the popularity of the sidewalks and to people's affection toward the structure.

### **Marin Headlands**

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

### **Fort Baker**

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

## **5.2 EXISTING VISUAL QUALITY**

Visual quality is evaluated by identifying the vividness, intactness and unity present in the viewshed. The FHWA states that this method should correlate with public judgments of visual quality well enough to predict those judgments. The evaluation looks for indicators of the level of visual relationships, rather than judgments of physical landscape components. The three criteria for evaluating visual quality can be defined as follows:

- **Vividness** is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns. An example within the study area is the distinctive relationship of land and water observed from the Bridge.

- **Intactness** is the visual integrity of the natural and man-made landscape of the immediate environs and its freedom from encroaching elements. An example within the study area is the Marin Headlands, which is a natural area with few man-made features.
- **Unity** is the visual coherence and compositional harmony of the landscape considered as a whole. It frequently attests to the careful design of individual components of the landscape. An example is the way man-made elements such as the Bridge combine with natural features such as the San Francisco Bay and the Marin Headlands to provide a coherent visage unique to the Bay Area.

The Golden Gate Bridge spans the opening between the Pacific Ocean and the San Francisco Bay. At the south end, it begins at the Presidio, which is part of the GGNRA, an area of relatively undisturbed natural landscape along the Pacific Ocean, running from Daly City to Mt. Tamalpais State Park in Marin County. At the north end, it starts in the Marin Headlands, also part of the GGNRA. Although the Bridge connects the heavily urbanized area of San Francisco with the dense residential areas of Marin County, its direct surroundings are predominantly uninhabited.

Because the Bridge is visible from a very large area, for the purposes of this study a series of public viewpoints were selected that represent popular viewing areas or areas where the proposed changes would be most noticeable. A total of 14 viewpoints were selected by the District in consultation with the Department to represent the most photographed public views towards the Bridge and from the Bridge. The existing visual quality at each of these viewpoints has been evaluated using the criteria identified above and rated as outstanding, high, moderate, or low, based on the following considerations:

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

Locations of views towards the Bridge are shown on Figure 5 and locations of views from the Bridge are shown on Figure 6. Tables 5-2 and 5-3 summarize the overall visual quality from these viewpoints.

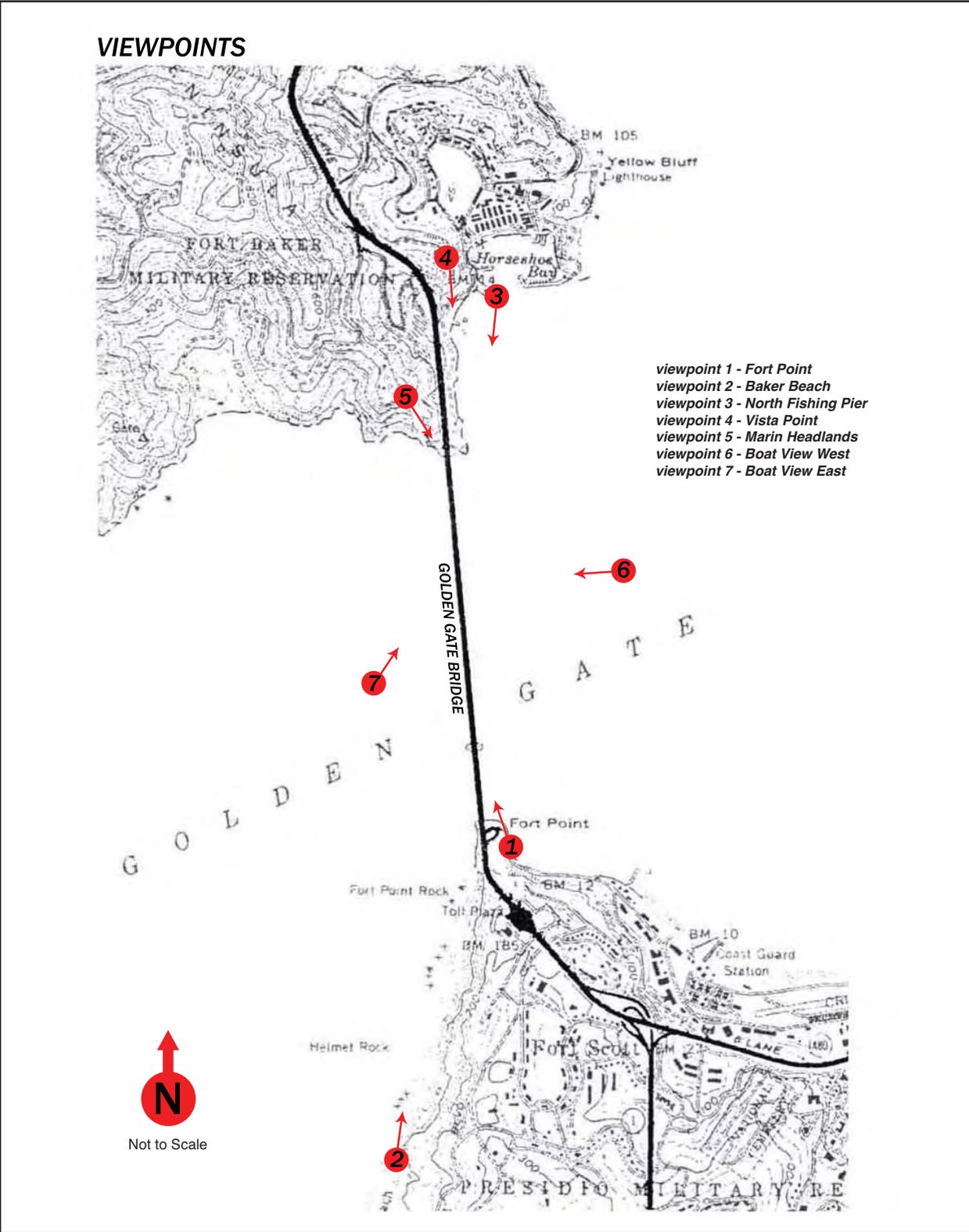


FIGURE 5  
KEY TO VIEWPOINTS OF THE GOLDEN GATE BRIDGE

## 5.2.1 VIEWS OF THE BRIDGE

### **Viewpoint 1: Fort Point**

Viewpoint 1 was selected to represent the closest view of the Bridge from the southern side of the Bridge in San Francisco. The viewpoint is located at Fort Point, at the southern end of the Bridge. The view is looking north across the San Francisco Bay, capturing the entire span of the Bridge from sea level. The primary viewer groups in this area are recreation users, and tourists.

### **Visual Quality**

Fort Point is a popular attraction providing dramatic views of the Bridge as it extends across the Bay, beginning at the Fort Point arch and continuing across San Francisco Bay to the Marin Headlands. The laced members of the engineered bridge, the faded brick of the Fort Point structure, and rugged hills and asphalt concrete parking area are distinctive visual elements in this landscape, creating a high vividness. The International Orange coloring of the Bridge stands out against the blue sky and water of the San Francisco Bay. There is a distinct separation from the man-made and natural elements of the landscape, although the Bridge encroaches into the area of Fort Point resulting in moderate intactness. The Bridge provides a strong visual line across the open water of the San Francisco Bay providing connectivity between the man-made features of Fort Point and the open space of the Marin Headlands, resulting in high unity. The combination of the man-made and natural features within this landscape, their historic value, and their connectivity to a variety of recreational activities in the area, attracts numerous visitors. The view from this viewpoint can be classified as having high visual quality.



**Viewpoint 1 – Fort Point**

## **Viewpoint 2: Baker Beach**

Viewpoint 2 was selected to represent a distant view of the entire span of the Bridge as experienced by recreational users at Baker Beach. The viewpoint is approximately one mile southwest of the Bridge, adjacent to the Presidio. The view is looking north along the coast of the Pacific Ocean towards the Bridge. The primary viewers in this area are recreation users and tourists.

### **Visual Quality**

The view from Baker Beach illustrates the striking visual pattern created by the Bridge in context with the natural landscape. At this viewpoint, the landscape is characterized by the Pacific Ocean shoreline where the ocean waves meet the wide sandy beach and the steep cliffs of the San Francisco coastline in the foreground. The middle ground is dominated by the Bridge, as it provides an elevated line form visually connecting the San Francisco-Pacific Ocean coastline to the open, steep sloping hills of the Marin Headlands. The International Orange color, distinctive design and placement of the Bridge across the mouth of the San Francisco Bay provide a vivid contrast to the surrounding natural forms. The manmade suspension Bridge is elevated above the hills in the background, creating an outstanding intact visual element as the views of the Bridge are free from distracting features in the background. The view provides a visually coherent arrangement of man-made and natural elements representing an exceptionally high scenic value that is often found on postcards or other visual representations of the Bridge. The view from this viewpoint can be classified as having outstanding visual quality.



**Viewpoint 2 – Baker Beach**

### **Viewpoint 3: North Fishing Pier**

Viewpoint 3 was selected to represent a close view of the Bridge as experienced from the North Fishing Pier, located northeast of the Bridge in Marin County. The North Fishing Pier is located on GGNRA land in the Fort Baker area. The view is looking southwest towards the Bridge and the mouth of the San Francisco Bay to the Pacific Ocean. The primary viewer groups in this area are recreation users, and tourists.

### **Visual Quality**

The view from this viewpoint also illustrates the striking visual pattern created by the Bridge in context with the natural landscape. From this view, the northeast side of the Bridge is the most prominent feature in the view. The Bridge structure, blue green water and sky, and Marin Headlands are distinct elements of this view, providing high vividness. The International Orange color and distinctive design provide a vivid contrast to the surrounding natural forms. There is a distinct separation from the man-made and natural elements of the landscape, although the Bridge encroachment into the shoreline hills and the railing in the foreground, result in moderate intactness. The Bridge provides a direct visual line across the open water of the San Francisco Bay providing connectivity between the open space of the Main Headlands and man-made features of the Presidio, resulting in high unity. The view from this viewpoint can be classified as having high visual quality.



**Viewpoint 3 – North Fishing Pier**

### **Viewpoint 4: Vista Point**

Viewpoint 4 was selected to represent a close public view of the Bridge as experienced by pedestrians and recreational users on the north side of the Bridge within Marin County. The viewpoint is located at Vista Point, a public rest area accessed directly from the Bridge at the northern end to the northeast. Vista Point has a parking area for visitors of the Bridge and allows pedestrian access to the Bridge sidewalks. The view is looking directly south, just east of the Bridge. The primary viewer groups in this area are pedestrians, bicyclists and tourists.

### **Visual Quality**

The view from this viewpoint illustrates the striking visual pattern created by the Bridge in context with the natural and man-made landscape. This viewpoint provides a colorful panoramic vista of Bridge extending over the blue green water of the San Francisco Bay towards the City and County of San Francisco with the Twin Peaks tower in the distant background. The distinctive visual patterns created by the relationship of the Bridge to the variety of land forms and water demonstrate high vividness. The Bridge is the dominant visual feature from Vista Point, creating a visually coherent transition from the undeveloped Marin hillsides across the Bay into the Presidio. Additionally, the natural and manmade elements in this view remain free of distracting and encroaching visual elements, representing high intactness. The Bridge provides a direct visual line across the open water of the San Francisco Bay and provides connectivity between the open space of the Marin Headlands and man-made features of San Francisco, resulting in high unity. The view from this area can be classified as having high visual quality.



**Viewpoint 4 – Vista Point**

### **Viewpoint 5: Marin Headlands**

Viewpoint 5 was selected to represent an elevated view of the entire Bridge as experienced by recreational users of the Marin Headlands and automobile occupants traveling along Conzelman Road. The viewpoint is located at a peak of the Marin Headlands to the northwest of the Bridge. The view is looking southeast over the Bridge and towards the San Francisco Bay. The primary viewer groups in this area are hikers, bicyclists, and tourists.

### **Visual Quality**

The view from the Marin Headlands illustrates the striking visual pattern created by the Bridge in context with the natural and man-made landscape. The north tower of the Bridge dominates the foreground view with the densely built-up San Francisco cityscape seen in the distant background through the vertical suspender ropes on the Bridge, followed by the East Bay hills along the horizon. The International Orange coloring of the Bridge stands out from the blue green waters of the San Francisco Bay, representing outstanding vividness. There is a distinct separation from the man-made and natural elements of the landscape, with no encroachment, for outstanding intactness. The view provides a visually coherent arrangement of man-made and natural elements representing an exceptionally high scenic value that is often found on postcards or other visual representations of the Bridge. The view from this viewpoint can be classified as having an outstanding visual quality.



**Viewpoint 5 – Marin Headlands**

### **Viewpoints 6 and 7: Boat View West and Boat View East**

Viewpoints 6 and 7 were selected to represent close views from underneath the Bridge as experienced by boaters on the San Francisco Bay. Viewpoint 6 is located under the Bridge looking northwest under the north tower of the Bridge towards the Marin Headlands. Viewpoint 7 is located under the Bridge looking northeast toward East Fort Baker. The primary viewer groups in this area are boaters.

### **Visual Quality**

The views from the water illustrate the visual pattern created by the Bridge in context with the natural landscape, comprised primarily of water, sky and the steep slopes of the adjacent Marin Headlands. The laced members of the International Orange colored bridge, the brown hillsides, and the blue green water and sky are distinctive visual elements in this landscape, creating a high vividness. There is a distinct separation from the man-made and natural elements of the landscape, although the Bridge encroaches into the Marin hillsides resulting in moderate intactness. The Bridge span coupled with the north Bridge tower and the vertical suspender ropes create a distinct line form that extends outward from the hillsides across the Bay. The landscape as a whole provides a visually coherent arrangement of man-made and natural elements representing high unity. The views from these viewpoints can be classified as having high visual quality.



**Viewpoint 6 – Boat View West**



**Viewpoint 7 – Boat View East**

**TABLE 5-2: OVERALL VISUAL QUALITY – VIEWS OF THE BRIDGE**

<b>Viewpoint Number</b>	<b>Viewpoint Location</b>	<b>Vividness</b>	<b>Intactness</b>	<b>Unity</b>	<b>Overall Visual Quality</b>
1	Fort Point	High	Moderate	High	High
2	Baker Beach	Outstanding	Outstanding	Outstanding	Outstanding
3	North Fishing Pier	High	Moderate	High	High
4	Vista Point	High	High	High	High
5	Marin Headlands	Outstanding	Outstanding	Outstanding	Outstanding
6	Boat View East	High	Moderate	High	High
7	Boat View West	High	Moderate	High	High

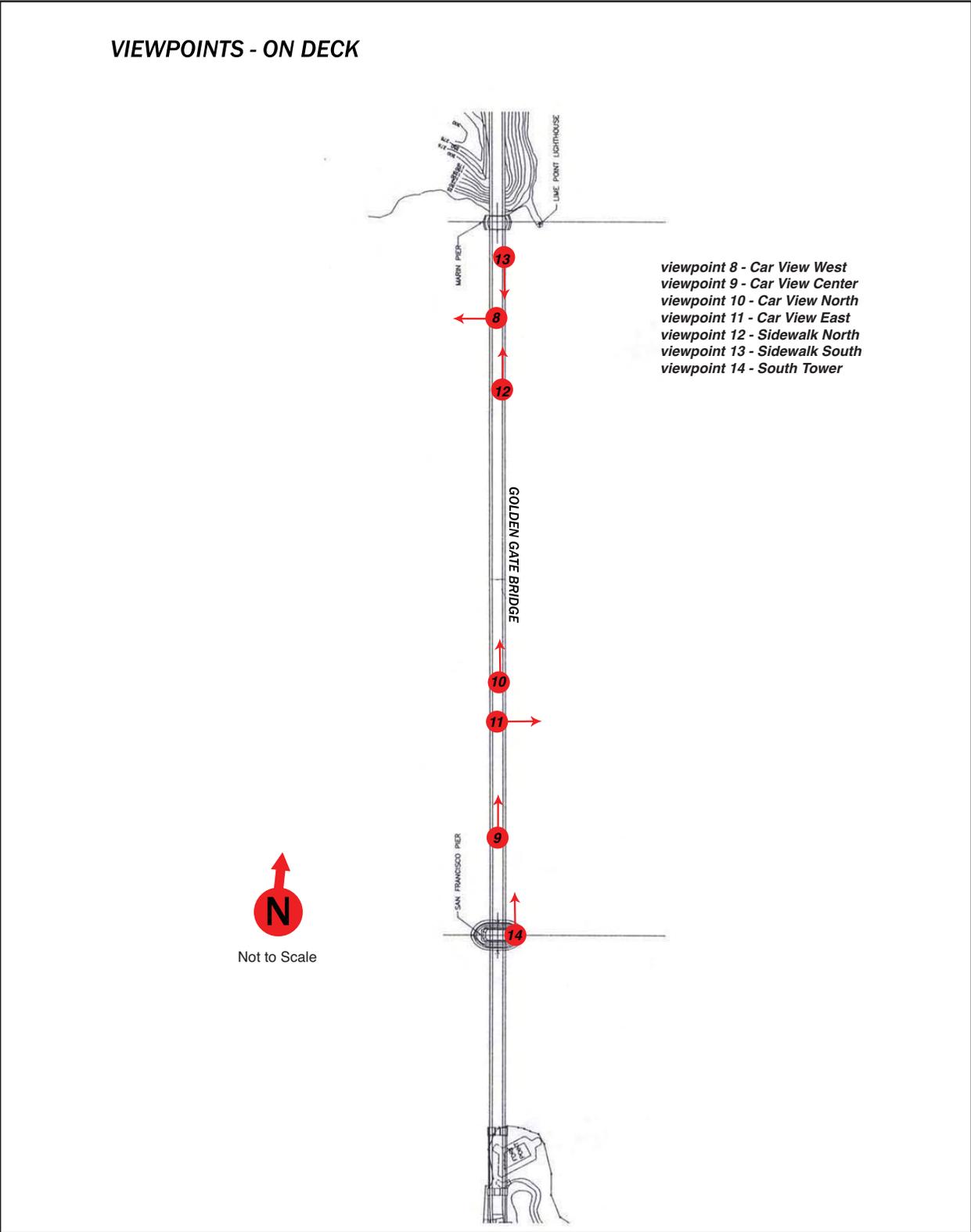


FIGURE 6  
KEY TO VIEWPOINTS FROM THE GOLDEN GATE BRIDGE

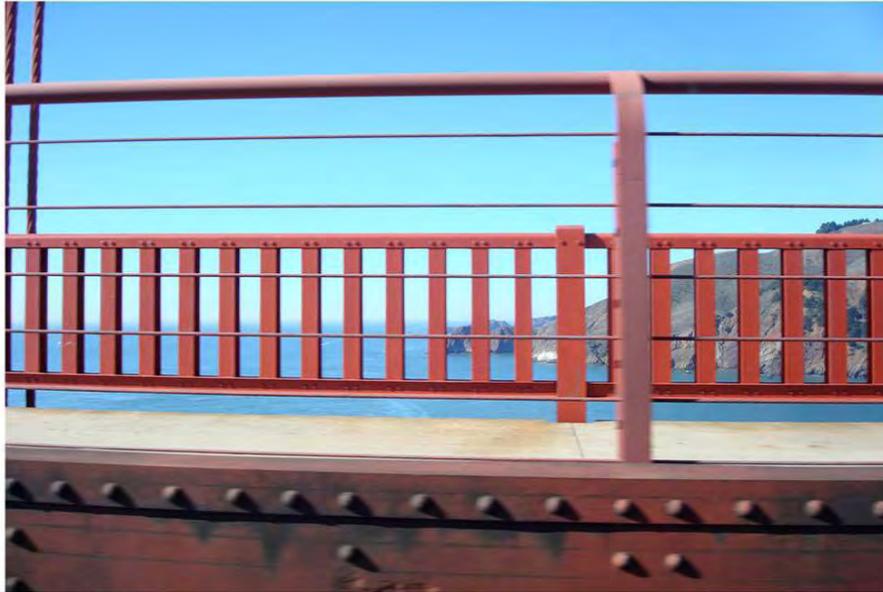
## 5.2.2 Views from the Bridge

### **Viewpoint 8: Car View West**

Viewpoint 8 was selected to represent an automobile occupant's view traveling south and looking west on the west side of the Bridge. The viewpoint is located on the roadway of the Bridge looking west towards the Pacific Ocean. The primary viewer groups in this area are automobile occupants.

### **Visual Quality**

The public safety railing and outside handrail dominate the foreground from this viewpoint somewhat obscuring the views of the Pacific Ocean and Marin hillsides. The International Orange color of these elements strikingly contrasts with the blue sky and waters in the background for a high vividness. There is a distinct separation between the man-made and natural elements within this view, with the Bridge elements encroaching into the visual plane of the natural elements, for a moderate intactness. The blue green waters of the Pacific Ocean and the sloping hills of the Marin Headlands, while visible through the outside handrail, appears as a distinctly separate element in the landscape, demonstrating moderate unity. The overall visual quality from this viewpoint can be classified as moderate.



**Viewpoint 8 – Car View West**

### **Viewpoints 9 and 10: Car View Center and Car View North**

Viewpoints 9 and 10 were selected to represent an automobile occupant's view from the northbound traffic lanes of the Bridge. Viewpoint 9 is located in the center traffic lane and is looking north across the Bridge from a driver's perspective. Viewpoint 10 is located near the center of the Bridge on the outermost northbound lane. The view is looking north towards the north tower of the Bridge and the Marin Headlands. The primary viewer groups from these viewpoints are automobile occupants.

### **Visual Quality**

From the traffic lanes, the Bridge structure, including the vertical suspender ropes, evenly spaced light posts, public safety railing and outside handrail, and the six-lane, paved roadway are the primary visual elements. The suspender ropes, light posts, and railing features create a vertical visual line form that is anchored by the heavier outside handrail elements and roadway. These elements are seen in the immediate foreground and extend to the background, creating an illusion of convergence with the north Bridge tower in the background. The top of the rolling hills of the Marin Headlands are seen to the west in the background as well. Because of the architectural significance of the Bridge and the symmetry of design, views of Bridge from the roadway are considered to represent a high level of vividness (the orange of the Bridge against the blue sky), intactness and unity. The views from these viewpoints are classified as having a high overall visual quality.



**Viewpoint 9 – Car View Center**



**Viewpoint 10 – Car View North**

### **Viewpoint 11: Car View East**

Viewpoint 11 was selected to demonstrate an eastern-facing view from the Bridge from an automobile occupant's perspective. The viewpoint is located on the southbound travel lane of the Bridge. The view is looking east across San Francisco Bay towards the East Bay Hills. The northeastern tip of San Francisco is seen in the middle ground to the east, while Yerba Buena Island, between the east and west spans of the San Francisco-Oakland Bay Bridge, is slightly beyond the City. The primary viewer groups in this area are automobile occupants.

### **Visual Quality**

This viewpoint provides a panoramic vista of the San Francisco Bay, Yerba Buena Island, the San Francisco-Oakland Bay Bridge, and the East Bay hills, exhibiting high vividness and intactness. The public safety railing and outside handrail of the Bridge are dominant visual features in the foreground. The horizontal cables of the public safety railing and the vertical members of the outside handrail partially obscure the lower portion of this view. The International Orange color contrasts strongly with features beyond the Bridge. The East Bay hills in the distant background create the horizon from this viewpoint. While the outside handrail reduces the view area, the preponderance of the view is made up of the panoramic vista of the Bay, including the San Francisco-Oakland Bay Bridge structure. The overall visual quality from this viewpoint can be classified as high.



**Viewpoint 11 – Car View East**

### **Viewpoint 12: Sidewalk North**

Viewpoint 12 was selected to represent a pedestrian's view from the Bridge. The viewpoint is located on the east sidewalk of the Bridge, looking northeast. The outside handrail visually separates the Bridge from views towards the North Bay. The primary viewer groups in this area are pedestrians and bicyclists.

### **Visual Quality**

The primary visual features of this viewpoint are the man-made features of the Bridge, including the gray concrete sidewalk and the International Orange outside handrail in the foreground. The evenly spaced vertical members on the outside handrail create a continuous visual pattern across the Bridge from this viewpoint. The blue green water of the San Francisco Bay can be seen through the spacing in the railing which adds a sense of color to the visual pattern, demonstrating moderate vividness. Above the railing, the blue green water of the Bay meets with the hills of the North Bay along the horizon. The layered nature of the view demonstrates high unity between landscape elements and the manmade features of the viewshed, and high intactness, as there are no encroaching elements blocking the views of the Bridge features and surrounding landscape. The overall visual quality rating of this viewpoint is high.



**Viewpoint 12 – Sidewalk North**

### **Viewpoint 13: Sidewalk South**

Similar to Viewpoint 12, Viewpoint 13 also represents a pedestrian's view from the east sidewalk of the Bridge. Viewpoint 13, however, is a southerly facing view towards the San Francisco Bay and the City and County of San Francisco. The primary viewer groups in this area are pedestrians and bicyclists.

### **Visual Quality**

The primary visual feature of this viewpoint is the International Orange outside handrail in the immediate foreground. The evenly spaced vertical members on the outside handrail create a continuous visual pattern across the Bridge from this viewpoint. Above the 4-foot steel outside handrail, the blue green water of the San Francisco Bay meets with the northern shoreline of the City and County of San Francisco, representing outstanding vividness. The green, vegetated hills of the Presidio are seen on the east side of the shoreline, while the densely urbanized cityscape of San Francisco. The distinct visual patterns created by the water of the Bay, the vegetated hills, and the urban skyline represent outstanding unity and high intactness. Therefore, the overall visual quality can be classified as outstanding.



**Viewpoint 13– Sidewalk South**

### **Viewpoint 14: Bridge Tower**

Viewpoint 14 was selected to represent a pedestrian's view from a tower on the Bridge. The viewpoint is located on the east sidewalk of the Bridge at the south Bridge tower. The view is looking north across the Bridge and the San Francisco Bay, capturing the outer east side of the Bridge span from a Bridge user's perspective. The primary purpose of selecting this viewpoint was to provide a view from the Bridge at which the net would be visible. The primary viewer groups in this area are pedestrians and bicyclists.

### **Visual Quality**

The primary visual feature of this viewpoint is the exterior frame of the Bridge in the foreground, extending to the background across the San Francisco Bay. The International Orange frame of the Bridge creates a distinct visual pattern and provides a striking contrast to the blue green water and brown hillsides creating high intensity. The vertical elements of the Bridge draw the eye across the Bay to the hillsides of the Marin Headlands in the background. This distinctive relationship of land and water and the combination of the natural and manmade landscape represents high intactness, and unity. The overall visual quality at this viewpoint can be classified as high.



**Viewpoint 14 – Bridge Tower**

**TABLE 5-3: OVERALL VISUAL QUALITY – VIEWS FROM THE BRIDGE**

<b>Viewpoint Number</b>	<b>Viewpoint Location</b>	<b>Vividness</b>	<b>Intactness</b>	<b>Unity</b>	<b>Overall Visual Quality</b>
8	Car View West	High	Moderate	Moderate	Moderate
9	Car View Center	Low	Low	Low	Low
10	Car View North	Low	Low	Low	Low
11	Car View East	High	High	High	High
12	Sidewalk North	Moderate	High	High	High
13	Sidewalk South	Outstanding	High	Outstanding	Outstanding
14	Bridge Tower	High	High	High	High

## **5.3 VIEWER RESPONSE**

Viewer response is composed of two elements: viewer sensitivity and viewer exposure. These elements combine to form a method of predicting how the public might react to visual changes brought about by the proposed Bridge Physical Suicide Deterrent System Project.

### **5.3.1 Viewer Sensitivity**

Viewer sensitivity is defined both as the viewer's concern for scenic quality and the viewer's response to change in the visual resources that make up the view. Evaluation of viewer sensitivity incorporates the visual preferences of viewers, viewer activities, viewer awareness of visual character and issues, local values and goals, and the cultural significance of the visual resource. Activities such as commuting in heavy traffic can distract an observer from many aspects of the visual environment. On the other hand, activities such as driving for pleasure or relaxing in scenic surroundings can encourage an observer to look at the view more closely and at greater length. The complexities in documenting viewer sensitivity are partially addressed through a physical inventory of viewer types and landscape characteristics affecting viewer exposure, as well as through interpretations of viewer sensitivity information obtained from ongoing public input and the project web site.

In the case of the Bridge, primary factors affecting viewer sensitivity are the architectural and cultural significance of the Bridge. The Bridge is widely considered one of the most beautiful examples of bridge engineering, both as a structural design challenge and for its aesthetic appeal. It was the largest suspension bridge in the world when it was completed in 1937 and has become an internationally recognized symbol of San Francisco. The Bridge is situated in a unique setting and affords spectacular views to the motorists that cross the structure and to the bicyclists and pedestrians that visit the sidewalks. The setting and the views contribute to the popularity of the sidewalks.

Additionally, the Bridge is a multi-component historic structure that has been determined eligible for listing in the National Register of Historic Places (NRHP). The Bridge was initially determined significant at the national level under NRHP Criterion A, B, and C with a period of significance of 1933-1938. The Bridge has also been nominated for National Historic Landmark (NHL) status by the National Park Service in 1997, but it has yet to be formally designated as such. The NHL nomination provides the documentation and analysis to support eligibility of the Bridge under NRHP Criterion C, as an important example of suspension bridge technology, ArtDeco design, and the work of more than one master engineer and architect. The Bridge is also listed in the California Register of Historical Resources under Criterion 3, with a period of 1933-1938, because it was designated California State Landmark No. 974 in 1987. The Bridge is also San Francisco City Landmark No. 222. Furthermore, the Bridge and its approaches have been documented by the Historic American Engineering Record (HAER #CA-31) and the Bridge has been the subject of many awards and recognitions.

The predominant viewer groups associated with the Bridge are those with views from the Bridge (automobile occupants, cyclists, and pedestrians) and those with views of the Bridge (residents, recreational users, tourists, boaters, etc.). As noted previously, viewer activity can affect their sensitivity to the views available to and from the Bridge. Commuters driving across the Bridge would not be expected to be as sensitive to the views and other features of the Bridge as pedestrians, cyclists, and recreational automobile occupants. The Bridge receives approximately 10 million visitors each year, and approximately 120,000 vehicles cross the Bridge daily. Viewer sensitivity would generally be categorized as high, because of the architectural and cultural significance of the Bridge, its proximity to recreational areas, and the large numbers of visitors to the Bridge.

### **5.3.2 Viewer Exposure**

Viewer exposure refers to the visibility of the project from surrounding viewpoints as well as the viewing sequence from the Bridge user's viewpoint. Use patterns that determine viewpoints can be categorized by location, viewer volume, and duration of views, as well as by viewer type. Viewer

exposure relates to duration and frequency of views, and whether the viewer is located at a given site or is moving. The direction and speed of travel can profoundly influence the exposure to views. View position refers to the observer's height in relation to what is being viewed. This relationship is important in determining scenic quality and potential visual impact. This relationship applies to both viewers of the Bridge and viewers from the Bridge.

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

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

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

A person's experience of the Bridge varies based upon location, the duration of the view, and the frequency of exposure to views of the Bridge. In this section, a cross-section of viewpoints was chosen to provide a representative sample of potential views and viewer groups that would experience the Bridge Physical Suicide Deterrent System Project. Public views towards the Bridge can be experienced by tourists, recreational users, residents, motorists, boaters, hikers, etc.

The following discussion evaluates viewer exposure at each of the 14 viewpoints. Viewpoints 1 through 7 represent views of the Bridge, while viewpoints 8 through 14 represent views from the Bridge. Tables 5-4 and 5-5, which follow each discussion of viewer exposure, summarize the conclusions of this evaluation.

### **5.3.3 Views of the Bridge**

#### **Viewpoint 1 – Fort Point**

Primary viewer exposure would be from pedestrians, including tourists and recreational users, such as walkers, runners, hikers, and bicyclists. Automobile occupants traveling to Fort Point would also experience views from this viewpoint. Although access to the site is limited to daylight hours, Fort Point is a popular tourist site and viewing location of the Bridge and is heavily used for recreational purposes in the area, as the end of the pathways within Crissy Field connect with Fort Point. Thus, there are a large number of viewers from this location. The pedestrians and automobile occupants would be either stationary or traveling at very low speeds, demonstrating an extended duration of views of the Bridge and its surrounding environment. Views from this location are dominated by the manmade Bridge, with primary landscape features including the blue green water of the Bay and the Marin Headlands hills in the middle ground and background. Additionally, the visual resources from the viewpoint are unique in character, as the Bridge provides a historical and unique visual quality.

The high number of viewers, extended duration of views, and the proximity of the culturally significant Bridge and landscape features to the viewers represent high overall visual exposure.

### **Viewpoint 2 – Baker Beach**

Primary viewer exposure would be from pedestrians and beach users at Baker Beach. There are a moderate number of viewers of the Bridge from Baker Beach. The views of the Bridge are extended at this viewpoint, as the pedestrians and beach users are typically stationary or slow-moving. Views from Baker Beach are dominated by the ocean and natural beach line in the foreground, and the Bridge in the middle ground. While the entirety of the Bridge can be seen from this viewpoint, specific details of the Bridge features are difficult to distinguish. Overall visual exposure is therefore classified as moderate.

### **Viewpoint 3 – North Fishing Pier**

Primary viewer exposure would be limited to pier users, such as pedestrians walking along the pier and recreational users, such as fishermen. Visitors of Fort Baker also typically walk along the pier to view the Bridge and the Bay. Thus, there are a moderate number of viewers of the Bridge from the North Fishing Pier. However, the duration of views of the Bridge are extended at this viewpoint as the viewers are typically stationary or slow-moving. Because the north approach of the Bridge is in the immediate foreground, the close viewing distance allows the viewer to experience a detailed view of the Bridge. Thus, overall viewer exposure is classified as high.

### **Viewpoint 4 – Vista Point**

The primary viewer exposure is from pedestrians standing or walking along the edge of Vista Point, although automobile occupants traveling within the Vista Point parking lot would also experience views. As the parking lot is used by pedestrians to view the Bridge and the San Francisco Bay, and by recreational users of the Bridge, such as pedestrians and bicyclists, there are a high number of viewers. Vista Point is also a popular tourist attraction for views of the Bridge. The pedestrians, recreational users, and automobile occupants at Vista Point would typically be stationary or slow-moving, representing extended viewer duration. This extended viewer duration affords complete views of the Bridge spanning across the viewshed. Thus, overall viewer exposure can be classified as high.

### **Viewpoint 5 – Marin Headlands**

From this viewpoint, primary viewer exposure is from recreational users, such as pedestrians and bicyclists, and tourists along the ridges, trails, and vista points within the Marin Headlands. Automobile occupants driving in the Marin Headlands, such as Conzelman Road, would also experience views from this location. Therefore, a high number of viewers would experience the views from this viewpoint. The recreational users and automobile occupants would be stationary or traveling at slow speeds, representing extended viewer duration. As the Bridge spans from the foreground to the background across the Bay, viewers experience the entire Bridge and its location within the northern San Francisco Bay. The overall viewer exposure can be classified as high.

**Viewpoints 6 and 7 – Boat View West and Boat View East**

As these viewpoints are located within the San Francisco Bay, viewer exposure would be limited to recreational users on the Bay, such as boaters and tourists, to the east of the Bridge. Thus, the number of viewers would be relatively low. Although boaters would experience a moving view of the landscape and the Bridge, most boats within the San Francisco Bay do not travel at high speeds, representing moderate viewer duration. As the Bridge is in the foreground of the view, the viewer experiences detailed views of the Bridge components and features. Thus, overall viewer exposure can be classified as moderate.

**TABLE 5-4: OVERALL VIEWER EXPOSURE – VIEWS OF THE BRIDGE**

<b>Viewpoint Number</b>	<b>Viewpoint Location</b>	<b>View Distance</b>	<b>Number of Viewers</b>	<b>Duration of View</b>	<b>Overall Viewer Exposure</b>
1	Fort Point	Foreground	High	Extended	High
2	Baker Beach	Middle ground	Moderate	Extended	Moderate
3	North Fishing Pier	Foreground	Moderate	Extended	High
4	Vista Point	Foreground	High	Extended	High
5	Marin Headlands	Foreground	High	Extended	High
6	Boat View East	Foreground	Low	Moderate	Moderate
7	Boat View West	Foreground	Low	Moderate	Moderate

### **5.3.4 Views from the Bridge**

Views from the Bridge are quite varied and range from close views of the Bridge's structural features and roadway to long-range, dramatic views of the waters of the San Francisco Bay and Pacific Ocean, the San Francisco skyline, Alcatraz Island, and the rolling hills of the Marin Headlands. Public views from the Bridge are primarily restricted to automobile occupants traveling northbound and southbound on State Highway 101 and pedestrians/bicyclists on the sidewalks of the Bridge. Viewpoints 8 through 14 depict views from the Bridge.

#### **Viewpoint 8 – Car View West**

Primary viewer exposure would be from automobile occupants traveling along the Bridge. While the west sidewalk is also dedicated to bicyclists, they would have a higher viewpoint than represented by the car view. Most vehicles travel at fast speeds along the Bridge (approximately 45 mph), demonstrating moderate viewing duration. The view is dominated by manmade features in the foreground, including the public safety railing on the Bridge that separates the traffic lanes from the west concrete sidewalk and the outside handrail on the edge of the west sidewalk. The blue green waters of the Pacific Ocean and the brown ridges of the Marin Headlands are seen in the background. Although the number of viewers is high, the moderate duration of view and the close viewing proximity of the Bridge features represent moderate overall viewer exposure.

#### **Viewpoints 9 and 10 – Car View Center and Car View North**

Primary viewer exposure would be from automobile occupants traveling northbound in the center lane of the Bridge. As the Bridge connects US Highway 101, a major thoroughfare in the San Francisco Bay Area, these viewpoints represent a relatively high number of viewers. Most vehicles would be traveling at approximately 45 mph across the entire span providing extended views of main suspender ropes, towers, outside railing, suspender ropes and light posts, with the landscape providing a backdrop to these views. Views from these viewpoints are dominated by manmade features of the Bridge with the tops of the Marin Headlands in the background as the primary landscape feature. The automobile occupants experience a continuity of form, established by the suspender ropes and light elements, as they travel across. A high number of automobile occupants view the landscape from these viewpoints, and views would be of extended duration. Overall visual exposure is therefore classified as high.

#### **Viewpoint 11 –Car View East**

Primary viewer exposure would be from automobile occupants on the west travel lane of the Bridge looking east across the San Francisco Bay. Because the Bridge affords panoramic views of the San Francisco Bay Area, a high number of viewers come to experience the views from this viewpoint. Most automobile occupants on the west travel lane would be traveling at moderate to relatively high speeds (depending on the time of day), providing moderate views of surrounding landscape and manmade features. The outside handrail of the Bridge is the primary visual feature in the foreground. Although the views from this viewpoint would be moderate, the close viewer distance to the Bridge railing and the high number of viewers demonstrate moderate overall visual exposure.

#### **Viewpoint 12 – Sidewalk North**

Primary viewer exposure would be from pedestrians and bicyclists traveling north on the Bridge. Because the Bridge affords panoramic views of the San Francisco Bay Area and the Pacific Ocean, a high number of viewers come to experience the views from this viewpoint. Additionally, viewer activity would primarily involve recreational uses, such as cycling and walking, and for the purposes of viewing

the surrounding landscape, representing extended duration of views. As the current Bridge railing is in the immediate foreground of the viewshed, viewers are within close proximity to the Bridge features. Thus, overall viewer exposure can be classified as high.

### **Viewpoint 13 – Sidewalk South**

At this location, the primary viewer exposure is from pedestrians and bicyclists on the eastern sidewalk of the Bridge. Because the Bridge affords panoramic views of the San Francisco Bay Area and the Pacific Ocean, a high number of viewers come to experience the views from this viewpoint. Additionally, viewer activity would primarily involve recreational uses, such as cycling, and purely viewing the surrounding landscape. The majority of viewers would be slow-moving, representing an extended duration of view. As the current Bridge railing is in the immediate foreground of the viewshed, viewers are within close proximity to the project area. Thus, overall viewer exposure can be classified as high.

### **Viewpoint 14 – Bridge Tower**

The primary viewer exposure is from pedestrians on the eastern sidewalk of the Bridge. As the Bridge is a destination point for a variety of users, including residents and tourists, a high number of viewers experience the views of the San Francisco Bay from the Bridge. The viewers from this viewpoint would be on foot or on bicycles and therefore would be stationary or traveling at slow speeds, demonstrating an extended duration of views from this viewpoint. As the outside handrail is in the foreground of the viewshed, the viewer has a detailed view of the architectural and engineering features on the Bridge. Thus, overall viewer exposure can be classified as high.

**TABLE 5-5: OVERALL VIEWER EXPOSURE – VIEWS FROM BRIDGE**

<b>Viewpoint Number</b>	<b>Viewpoint Location</b>	<b>View Distance</b>	<b>Number of Viewers</b>	<b>Duration of View</b>	<b>Overall Viewer Exposure</b>
8	Car View West	Foreground	High	Moderate	Moderate
9	Car View Center	Background	High	Extended	High
10	Car View North	Background	High	Extended	High
11	Car View East	Foreground	High	Moderate	Moderate
12	Sidewalk North	Foreground	High	Extended	High
13	Sidewalk South	Foreground	High	Extended	High
14	Bridge Tower	Foreground	High	Extended	High

## **6.0 VISUAL IMPACT ASSESSMENT**

### **6.1 METHODOLOGY**

The methodology used to assess visual impacts is also taken from the FHWA guidelines referenced in Section 3.0. The visual impact assessment process, shown in Figure 6, incorporates and combines the two principal visual impact components: visual resource change and viewer response to that change. Visual resource change is analyzed in terms of visual dominance and other specific visual effects of alternatives, together with change in visual quality. The viewer response to project changes is the sum of viewer exposure and viewer sensitivity to the project as determined in the preceding section.

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

#### **6.1.1 Impact Documentation**

In order to assist in the analysis and documentation of visual resource change, a series of 14 representative viewpoints were identified. For each viewpoint, “before” and “after” photographs were prepared to simulate the proposed project alternatives. The viewpoints were chosen on the basis of a variety of factors, including high visibility/close proximity to sensitive viewers and a range of view types available to the public (close proximity to long-distance views).

Once the viewpoints were established, photographs were taken in the field from each viewpoint and documented. A representative photograph was chosen from each viewpoint to be developed as a computer simulation. The selected photographs are meant to exemplify existing conditions at the viewpoints, but it is important to recognize that these conditions may differ over the course of the day, due to meteorological conditions and the movement of the sun.

A computer database was developed for each viewpoint to correspond to key reference points (existing landscape characteristics) and proposed project components to be shown in the photograph. Proposed changes were displayed for each viewpoint by overlaying a three-dimensional computer model on the photograph and rendering it (applying paint) to reflect the projects expected appearance in full detail, including colors, shadows, and lighting. Photo simulations accurately represent the location, scale, and mass of potential new facilities. However, as shown, the architectural character and certain engineering characteristics of the visual simulations of the Bridge physical suicide deterrent system are for illustrative purposes only.

#### **6.1.2 Impact Assessment Criteria**

Visual impacts have been categorized into general types. Separate criteria apply to each different visual impact type. The relationship of these impact types to the overall impact assessment is shown in Figure 7. The criteria used to determine visual impacts include visual compatibility, visual dominance of the project, and view blockage or view expansion.

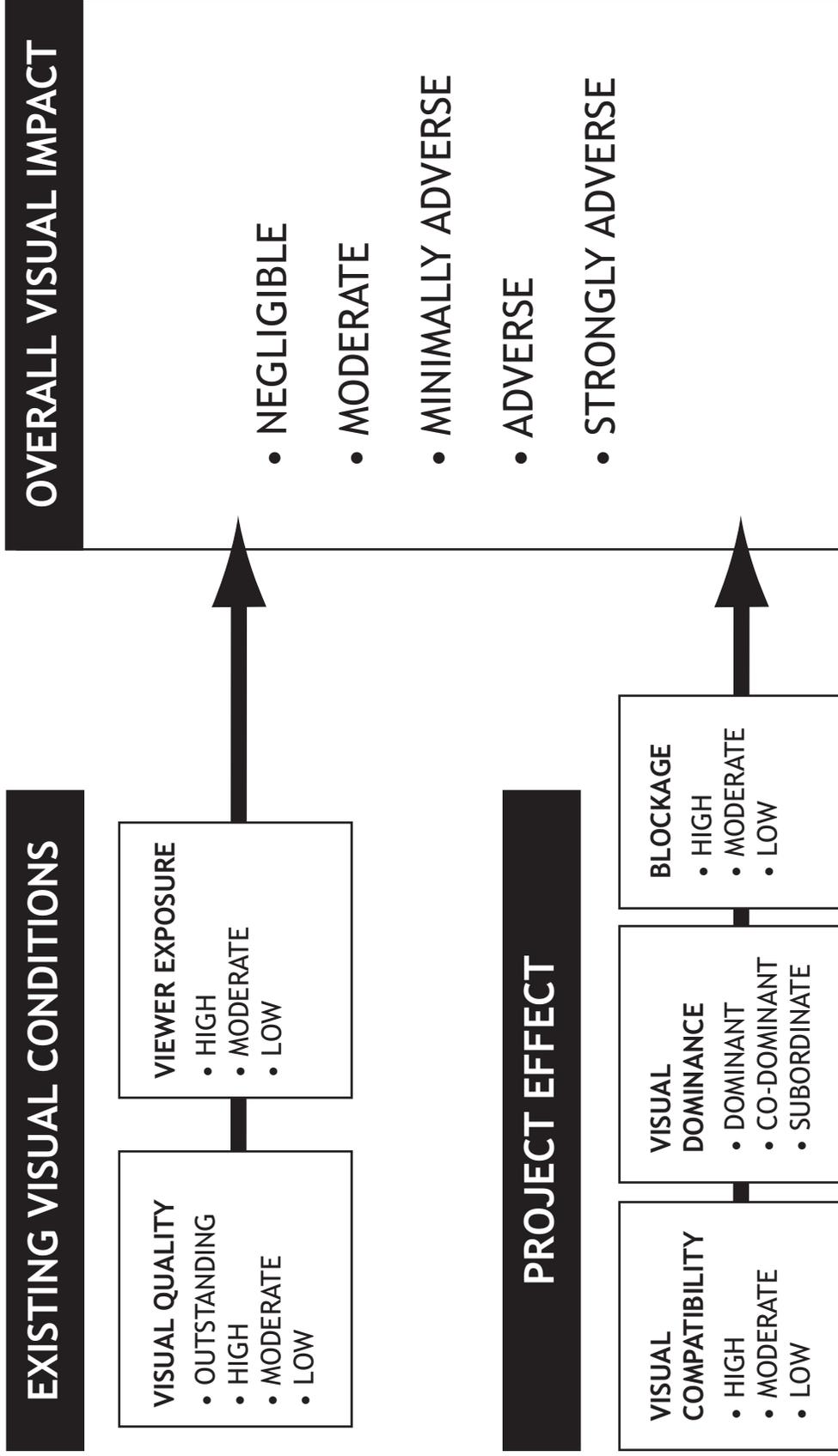


FIGURE 7  
ASSESSMENT OF VISUAL IMPACTS EFFECTS ON VIEWERS  
Visual Impact Assessment

## **Visual Compatibility**

Visual compatibility describes the degree to which the project's visual elements (consisting of form, line, color, and texture) differ from the same visual elements established in the existing landscape. The presence of forms, lines, colors, and textures in the existing landscape similar to those of the project indicates a landscape more capable of accepting the project elements than a landscape where those elements are absent. The degree of visual contrast is rated as low, moderate, or high.

- **Low** - The visual character of the project contrasts strongly with the visual character of its setting
- **Moderate** - The visual character of the project is different from the visual character of its setting, but does not strongly contrast with the visual character of its setting
- **High** - The visual character of the project does not strongly contrast with the visual character of its setting

## **Visual Dominance**

Visual dominance refers to the contrast between the proposed improvements and their setting described in terms of vegetation, landform, and structural changes. Visual elements of scale, form, line, and position, as seen from representative sensitive viewing locations, determine the degree of contrast and dominance. Dominance is a function of how potentially noticeable the project is to the viewer, ranging from:

- **Inevident** - Project is visible but generally not noticeable
- **Subordinate** - Project is noticeable, but attracts less attention than other components of the setting
- **Co-dominant** - Project attracts attention equally with other components of the setting
- **Dominant** - Project dominates the view and attracts more attention than other components of the setting

It is fairly straightforward to determine the expected degree of visual dominance for the project from a given viewpoint. The determination involves an evaluation of the visibility and visual contrast of project components within their surroundings, together with viewing distance and degree of visual exposure for the viewer. A visually dominant project represents a more substantial visual change if it occurs in areas such as an intact natural landscape.

It is important to stress that visual dominance is only one of the criteria which may be considered in evaluating visual quality. The visual effect may be altered considerably by other criteria, including view obstruction/expansion; vividness; intactness; unity; community disruption/privacy/orientation; design quality, art, and architecture.

## **View Blockage**

View blockage describes the extent to which any previously visible landscape features are blocked from view by the project. Blockage of higher quality landscape features by lower quality features causes adverse effects. The degree of view blockage is rated as low, moderate, or high.

- **High** - Project fully or largely blocks views of notable landscape features or vistas

- **Moderate** - Project interrupts or partly screens views of notable landscape features or vistas, but some experience of viewing features or vistas remains
- **Low** - Project opens up views of notable landscape features or vistas

### 6.1.3 Overall Effects on Viewers

An overall determination of adverse and beneficial effects on viewers is based on a combined evaluation of all the criteria described above. Impacts are categorized as:

- **Strongly Beneficial** - Substantial visual change and considerable increase in the overall visual quality, with the likelihood of strongly positive viewer responses
- **Beneficial** - Moderate degrees of visual change and an increase in the overall visual quality, with the likelihood of positive viewer responses
- **Minimally Beneficial** - Tangible visual changes and a minimal increase in overall visual quality, with the likelihood of moderately positive viewer responses
- **Negligible** - Little or no visual change and no tangible reduction or increase in visual quality, without negative or positive viewer responses expected
- **Minimally Adverse** - A tangible degree of visual change and a minimal reduction in overall visual quality, with the likelihood of some moderately negative viewer responses
- **Adverse** - Moderate degrees of visual change and a reduction in the overall visual quality, with the likelihood of negative viewer responses
- **Strongly Adverse** - Substantial visual change and considerable reduction in the overall visual quality, with the likelihood of strongly negative viewer responses

## 6.2 VISUAL CHANGES AND EFFECTS ON VIEWER GROUPS

The following section discusses the visual impacts of the proposed alternatives at the 14 viewpoints (see Figures 5 and 6 for viewpoint location). The visual impact assessment evaluates the changes to the visual setting resulting from construction and operation of the proposed project. The evaluation of the overall visual impact that could result from the project considers the existing visual character, as well as the project effects upon the visual landscape. The assessment of overall visual change is based on the conclusions regarding existing visual quality, overall viewer exposures, visual contrast, project dominance, and view blockage.

### 6.2.1 Views of the Golden Gate Bridge

#### Viewpoint 1 - Fort Point

##### Summary of Existing Conditions

This viewpoint is located at Fort Point, adjacent to the Fort Point Arch at the southern side of the Bridge. The view is looking north across the San Francisco Bay, capturing the entire span of the Bridge from sea level. The Bridge is a major feature from this viewpoint because of its elevated location, extending across the Bay. The former military structure of Fort Point, the blue green water of the San Francisco Bay, and the edge of the Marin Headlands can be seen from this viewpoint as well.

The primary viewer groups at this viewpoint are pedestrians, including recreational users and tourists, and automobile occupants. Overall visual quality and viewer exposure is high.

### **Visual Effects of Alternatives**

#### ***No-Build Alternative***

The No-Build Alternative would not modify any of the visual elements of the Bridge.

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

Under Alternative 1A, the outside handrail of the Bridge would be modified, as there would be an additional 8 feet of vertical rods. Figure 8 illustrates Alternative 1A from this viewpoint. The vertical addition to the outside handrail would maintain the same International Orange coloring and vertical line form established by the outside handrail, light posts, and suspender ropes. The vertical addition to the outside handrail would remain consistent with the strong vertical elements of the Bridge and would maintain the existing rhythm of the Bridge structure. Although Alternative 1A would introduce vertical rods into the viewshed, these thin vertical rods between the rail posts would not be distinguishable from Fort Point. However, the transparent panels at the Bridge towers and belvederes would introduce a new reflective surface on the Bridge, demonstrating moderate visual compatibility.

The dominant feature of the landscape from this viewpoint is the Bridge and the red brick building at Fort Point. As the entire span of the Bridge is seen from this viewpoint in the foreground to the background, the scale of the vertical system is comparatively small relative to the overall scale of the Bridge and the expansive skyline. As a result, the project would appear as a subordinate feature of the Bridge.

Alternative 1A would not block views of existing natural and manmade landscape features, such as Fort Point and the Marin Headlands. Thus, project view blockage would be moderate.

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

Visual impacts related to Alternative 1B would be similar to those of Alternative 1A. Figure 9 demonstrates Alternative 1B from this viewpoint. Although Alternative 1B would introduce horizontal cables instead of vertical rods, these thin horizontal cables between the rail posts would not be distinguishable from Fort Point. Nor would the inwardly curved transparent winglets on top of the barrier be visible due to the upward viewing angle and distance. However, the transparent panels at the Bridge towers and belvederes would introduce a new reflective surface on the Bridge, demonstrating moderate visual compatibility.

The dominant feature of the landscape from this viewpoint is the Bridge and the red brick building at Fort Point. As the entire span of the Bridge is seen from this viewpoint in the foreground to the background, the scale of the horizontal system is comparatively small relative to the overall scale of the Bridge and the expansive skyline. As a result, the project would appear as a subordinate feature of the Bridge.

Alternative 1B would not block views of existing natural and manmade landscape features, such as Fort Point and the Marin Headlands. Thus, project view blockage would be moderate.

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

Alternative 2A would remove and replace the 4-foot high outside handrail with a 12 foot high railing comprised of thin vertical rods situated between evenly spaced vertical posts, as shown in Figure 10. The thin vertical rods allow for a sense of transparency, as they would not be distinguishable from this viewpoint. Although the barrier height would be greater than the outside handrail height, the vertical

elements would be consistent with the vertical line form established by the suspender ropes and light posts on the Bridge. The vertical replacement to the outside handrail would remain consistent with the strong vertical elements of the Bridge and would maintain the existing rhythm of the Bridge structure. However, the transparent panels at the Bridge towers and belvederes would introduce a new reflective surface on the Bridge, demonstrating moderate visual compatibility.

The dominant feature of the landscape from this viewpoint is the Bridge and the red brick building at Fort Point. As the entire span of the Bridge is seen from this viewpoint in the foreground to the background, the scale of the vertical system is comparatively small relative to the overall scale of the Bridge and the expansive skyline. As a result, the project would appear as a subordinate feature of the Bridge.

Alternative 2A would not block views of existing natural and manmade landscape features, such as Fort Point and the Marin Headlands. Thus, project view blockage would be moderate.

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

The visual impacts related to Alternative 2B would be similar to those of Alternative 2A. Figure 11 represents Alternative 2B from this viewpoint. While Alternative 2B consists of thin, horizontal cables and an inwardly curved transparent winglet on top of the horizontal header, these features would not be distinguishable from this location due to viewer distance and the upward viewing angle. However, the transparent panels at the Bridge towers and belvederes would introduce a new reflective surface on the Bridge, demonstrating moderate visual compatibility.

The dominant feature of the landscape from this viewpoint is the Bridge and the red brick building at Fort Point. As the entire span of the Bridge is seen from this viewpoint in the foreground to the background, the scale of the horizontal system is comparatively small relative to the overall scale of the Bridge and the expansive skyline. As a result, the project would appear as a subordinate feature of the Bridge.

Alternative 2B would not block views of existing natural and manmade landscape features, such as Fort Point and the Marin Headlands. Thus, project view blockage would be moderate.

### ***Alternative 3 – Add Net System***

Alternative 3 would introduce a new visual element below the deck of the Bridge. The net would appear as an extension of the horizontal plane from the deck truss. Figure 12 illustrates Alternative 3 from this viewpoint. The horizontal net contrasts with the vertical line form of the suspender ropes and Bridge towers and introduces new materials onto the Bridge structure. Thus, visual compatibility would be low.

Because of the upward viewing angle at this viewpoint, the horizontal line of the net would be emphasized. In comparison to the overall scale of the Bridge, however, the net system would be a subordinate feature in the view. It blends with the underside of the Bridge and visually fades away into the background along the Bridge span.

At this viewpoint, the net would not block the views of the natural landscape features, which include the San Francisco Bay and the Marin Headlands. Nor would the net disrupt views of the historical building at Fort Point. The horizontal extension of the net would intrude into the skyline view and reduce the amount of the exterior deck truss visible from this view. Thus, project view blockage would be moderate.

**Overall Visual Impact**

Table 6-1 considers the evaluation of the existing visual environment and the proposed condition, and rates the level of overall visual impact.

**TABLE 6-1: VIEWPOINT 1 – OVERALL VISUAL IMPACT**

ALTERNATIVE	EXISTING CONDITION		PROPOSED CONDITION			VISUAL IMPACT
	Visual Quality	Viewer Exposure	Visual Compatibility	Visual Dominance	View Blockage	
1A	High	High	Moderate	Subordinate	Moderate	Minimally Adverse
1B			Moderate	Subordinate	Moderate	Minimally Adverse
2A			Moderate	Subordinate	Moderate	Minimally Adverse
2B			Moderate	Subordinate	Moderate	Minimally Adverse
3			Low	Subordinate	Moderate	Minimally Adverse



**EXISTING**



**ALTERNATIVE 1A**

**FIGURE 8  
VIEWPOINT 1: FORT POINT - ALTERNATIVE 1A**



**EXISTING**



**ALTERNATIVE 1B**

**FIGURE 9  
VIEWPOINT 1: FORT POINT - ALTERNATIVE 1B**



**EXISTING**



**ALTERNATIVE 2A**

**FIGURE 10  
VIEWPOINT 1: FORT POINT - ALTERNATIVE 2A**



**EXISTING**



**ALTERNATIVE 2B**

**FIGURE 11**  
**VIEWPOINT 1: FORT POINT - ALTERNATIVE 2B**



**EXISTING**



**ALTERNATIVE 3**

**FIGURE 12  
VIEWPOINT 1: FORT POINT - ALTERNATIVE 3**

## **Viewpoint 2 – Baker Beach**

### **Summary of Existing Conditions**

This viewpoint is located at Baker Beach, approximately one mile southwest of the Bridge. The view is looking north along the coast of the Pacific Ocean towards the Bridge. The entire span of the Bridge is seen suspended over the waters of the Pacific Ocean and the San Francisco Bay between the San Francisco-Pacific Ocean coastline and the sloping Marin Headlands. The primary viewer groups at this viewpoint are pedestrians and beach users.

### **Visual Effects of Alternatives**

#### ***No-Build Alternative***

The No-Build Alternative would not modify any of the visual elements of the Bridge.

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

Figure 13 illustrates Alternative 1A from this viewpoint. Due to the distance and International Orange coloring of Alternative 1A, the vertical rods would blend into the Bridge span and the existing vertical line form created by the suspender ropes and light posts. The vertical addition would maintain the existing vertical rhythm of the Bridge structure. While the new vertical system would slightly elevate the horizontal line of the outside handrail across the entire Bridge span, the overall appearance of the Bridge would not noticeably change. The level of visual compatibility would therefore be high.

The dominant feature of the landscape from this viewpoint is the entire span of the Bridge, as seen between the San Francisco and Marin County hills and shoreline. The location of the Bridge in the middle ground to the background renders the relative size of the vertical addition to the outside handrail small in comparison to the large scale of the Bridge and the other elements in the landscape, such as the steeply sloping Marin Headlands. As a result, Alternative 1A would appear as a subordinate feature of the landscape.

The vertical addition to the outside handrail would not substantially block views of the surrounding landscape. The new vertical system would slightly intrude into the skyline view beyond the Bridge, which is already interrupted by the suspender ropes and light posts on the Bridge. Thus, project view blockage would be moderate.

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

Figure 14 illustrates Alternative 1B from this viewpoint. Due to the distance and International Orange coloring of Alternative 1B, the horizontal cables would not be visible from this viewpoint. Visible elements from this distance would be the rail posts, suspender ropes and light posts. The addition of the transparent winglets on top of the outside rail posts would also not be visible from this viewpoint due to the extended viewer distance. While the new horizontal system would slightly elevate the horizontal line of the outside handrail across the entire Bridge span, the overall appearance of the Bridge would not noticeably change. The level of visual compatibility would therefore be high.

The dominant feature of the landscape from this viewpoint is the entire span of the Bridge, as seen between the San Francisco and Marin County hills and shoreline. The location of the Bridge in the middle ground to the background renders the relative size of the vertical addition to the outside handrail small in comparison to the large scale of the Bridge and the other elements in the landscape, such as the steeply sloping Marin Headlands. As a result, Alternative 1B would appear as a subordinate feature of the landscape.

The horizontal addition to the outside handrail would not substantially block views of the surrounding landscape. The new horizontal system would slightly intrude into the skyline view beyond the Bridge, which is already interrupted by the suspender ropes and light posts on the Bridge. Thus, project view blockage would be moderate.

***Alternative 2A – Replace Outside Handrail with Vertical System***

Figure 15 illustrates Alternative 2A from this viewpoint. Due to the distance and International Orange coloring of Alternative 2A, the vertical rods would blend into the Bridge span and the existing vertical line form created by the suspender ropes and light posts. The vertical replacement would maintain the existing vertical rhythm of the Bridge structure. While the new vertical system would slightly elevate the horizontal line of the outside handrail across the entire Bridge span, the overall appearance of the Bridge would not noticeably change. The level of visual compatibility would therefore be high.

As the Bridge is the dominant visual feature from this viewpoint, the relative size of the vertical replacement of the outside handrail is small in comparison to the large scale of the entire span of the Bridge and surrounding landscape features, such as the Marin Headlands and the water of the Pacific Ocean. Additionally, the Bridge is seen in the middle ground and background of this viewshed, representing a distant viewing location. Alternative 2A would appear as a subordinate feature of the Bridge and the surrounding landscape.

Alternative 2A would not block or limit views of the natural landscape features, including the Marin Headlands and the San Francisco Bay. The vertical replacement of the outside handrail minimally intrudes into the skyline view beyond the Bridge, which is already disrupted by the suspender ropes and light posts on the Bridge, and opens views that were formerly blocked by the outside handrail. Thus, project view blockage would be moderate.

***Alternative 2B – Replace Outside Handrail with Horizontal System***

Figure 16 illustrates Alternative 2B from this viewpoint. Due to the distance and International Orange coloring of Alternative 2B, the horizontal cables would not be visible from this viewpoint. Visible elements from this distance would be the rail posts, suspender ropes and light posts. The addition of the transparent winglets on top of the outside rail posts would also not be visible from this viewpoint due to the extended viewer distance. While the new horizontal system would slightly elevate the horizontal line of the outside handrail across the entire Bridge span, the overall appearance of the Bridge would not noticeably change. The level of visual compatibility would therefore be high.

As the Bridge is the dominant visual feature from this viewpoint, the relative size of the horizontal replacement of the outside handrail is small in comparison to the large scale of the entire span of the Bridge and surrounding landscape features, such as the Marin Headlands and the water of the Pacific Ocean. Additionally, the Bridge is seen in the middle ground and background of this viewshed, representing a distant viewing location. Alternative 2B would appear as a subordinate feature of the Bridge and the surrounding landscape.

Alternative 2B would not block or limit views of the natural landscape features, including the Marin Headlands and the San Francisco Bay. The horizontal replacement of the outside handrail minimally intrudes into the skyline view beyond the Bridge, which is already disrupted by the suspender ropes and light posts on the Bridge, and opens views that were formerly blocked by the outside handrail. Thus, project view blockage would be moderate.

***Alternative 3 – Add Net System***

Alternative 3 would not change the outside railing of the Bridge. This alternative would construct a horizontal net approximately 20 feet below the sidewalk and approximately 5 feet above the bottom chord of the exterior main truss that would extend horizontally approximately 20 feet from the Bridge. From this viewpoint, the horizontal support system would be slightly visible across the west side of the

Bridge, as shown on Figure 17. The net would not be visible from this viewpoint due to the viewing distance. From this view, the horizontal line form of the net and its support system blend into the horizontal Bridge span. Visual compatibility would therefore be high.

From this distant viewpoint, the net would not be a prominent visual feature in the landscape as it would be located near the bottom of the exterior main truss. This viewpoint remains dominated by the Bridge and the blue green water of the San Francisco Bay and Pacific Ocean. As a result, the net would appear as a subordinate feature of the dominant landscape features.

From this viewpoint there would be no discernable reduction to the views. There would be no changes to the outside railing with this alternative. View blockage would be low.

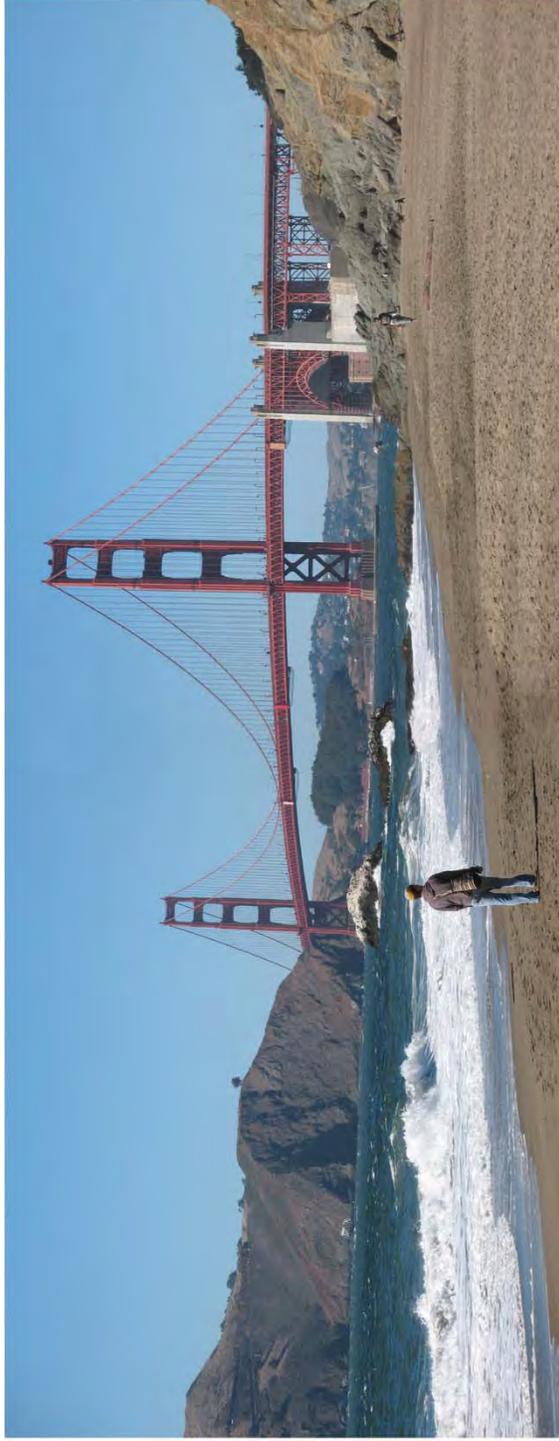
**Overall Visual Impact**

Table 6-2 summarizes the evaluation of the existing visual environment and the proposed condition, and rates the level of overall visual impact for the proposed project alternatives from Viewpoint 2.

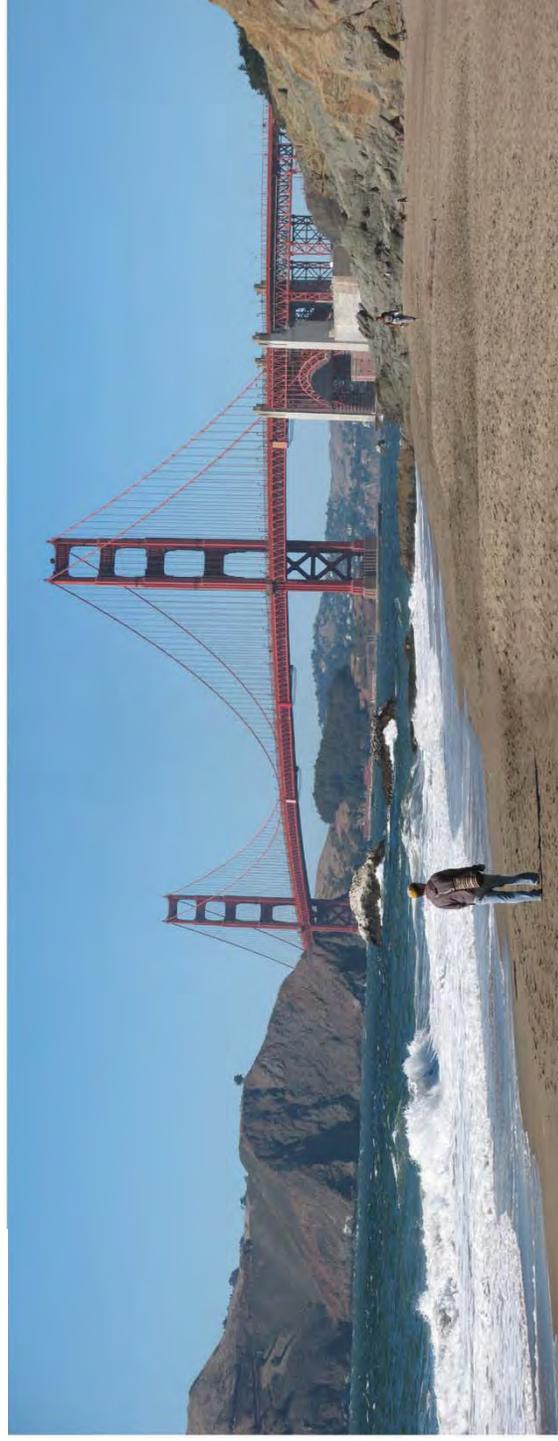
**TABLE 6-2: VIEWPOINT 2 – OVERALL VISUAL IMPACT**

ALTERNATIVE	EXISTING CONDITION		PROPOSED CONDITION			OVERALL VISUAL IMPACT
	Visual Quality	Overall Viewer Exposure	Visual Compatibility	Visual Dominance	View Blockage	
1A	Outstanding	Moderate	High	Subordinate	Moderate	Minimally Adverse
1B			High	Subordinate	Moderate	Minimally Adverse
2A			High	Subordinate	Moderate	Minimally Adverse
2B			High	Subordinate	Moderate	Minimally Adverse
3			High	Subordinate	Low	Negligible

Golden Gate Bridge Physical Suicide Deterrent System



EXISTING



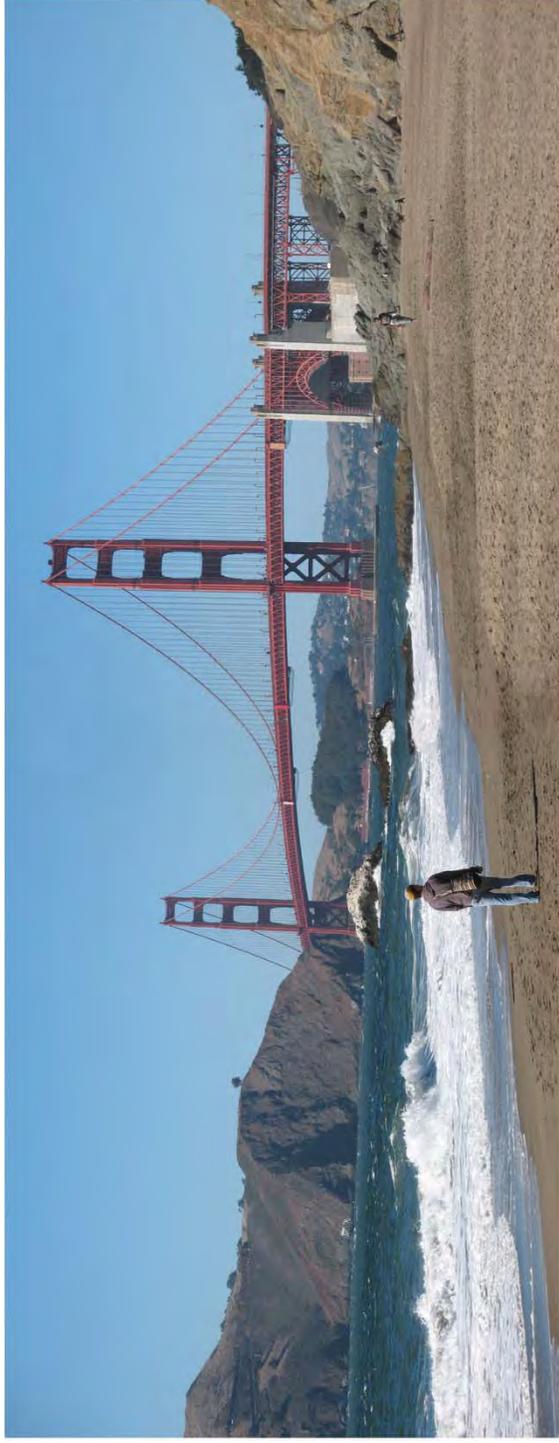
ALTERNATIVE 1A

FIGURE 13  
VIEWPOINT 2: BAKER BEACH - ALTERNATIVE 1A

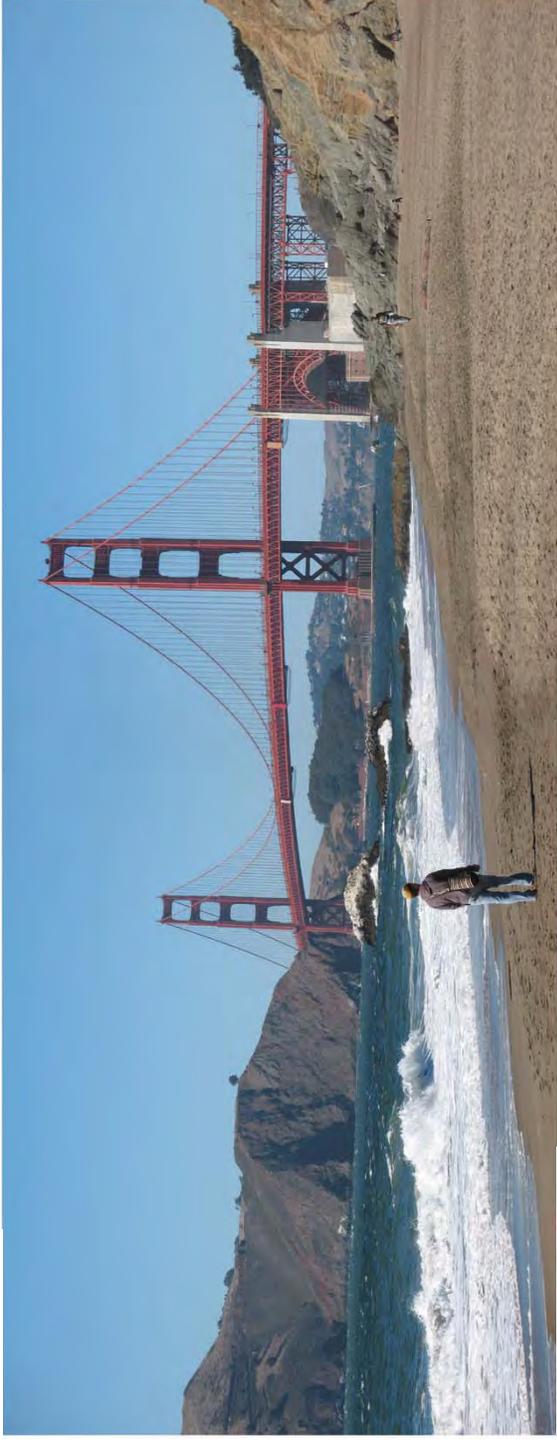
Source: macdonald architects, 2008

Visual Impact Assessment

Golden Gate Bridge Physical Suicide Deterrent System



**EXISTING**



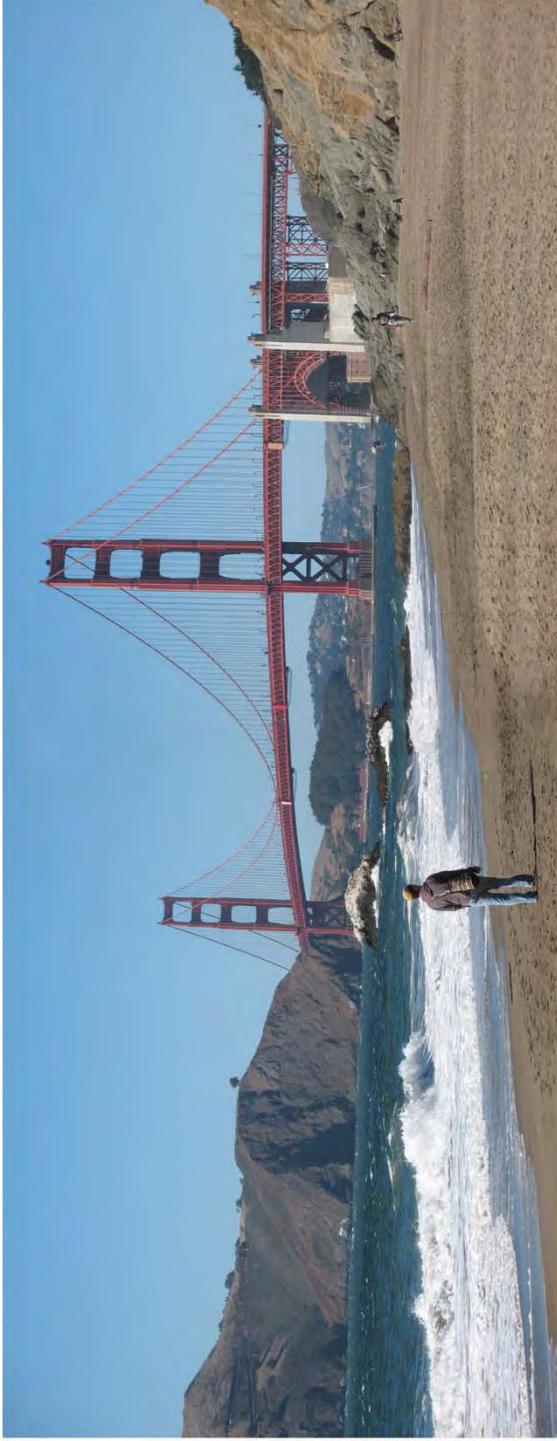
**ALTERNATIVE 1B**

**FIGURE 14**  
**VIEWPOINT 2: BAKER BEACH - ALTERNATIVE 1B**

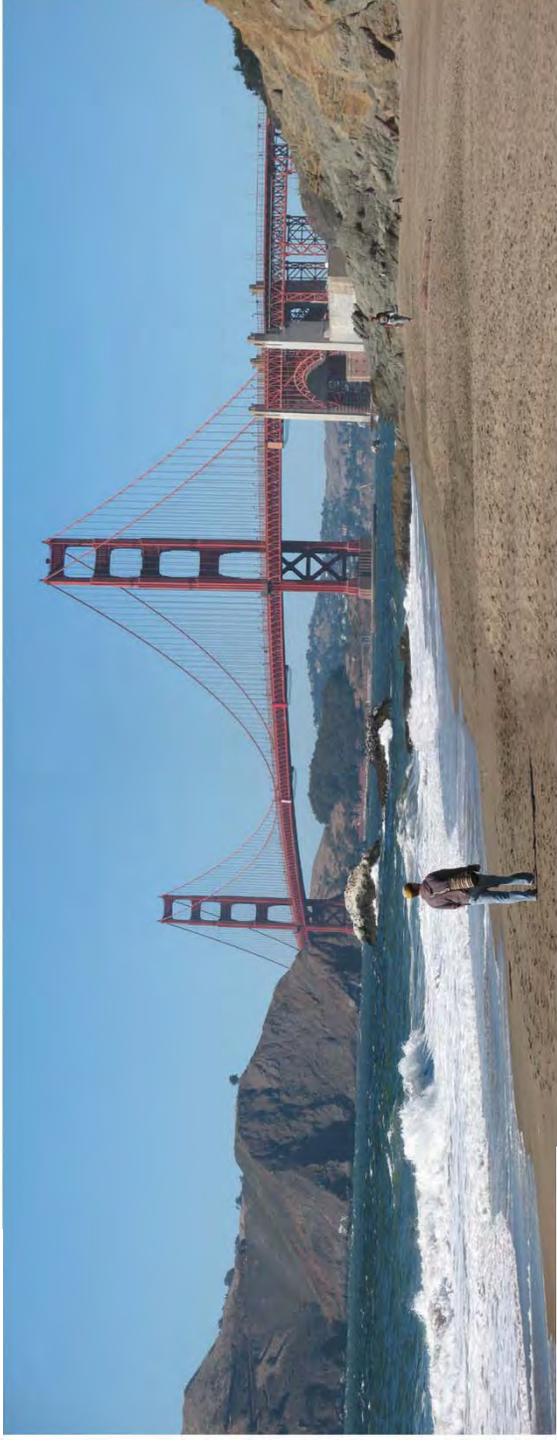
Source: macdonald architects, 2008

Visual Impact Assessment

Golden Gate Bridge Physical Suicide Deterrent System



EXISTING



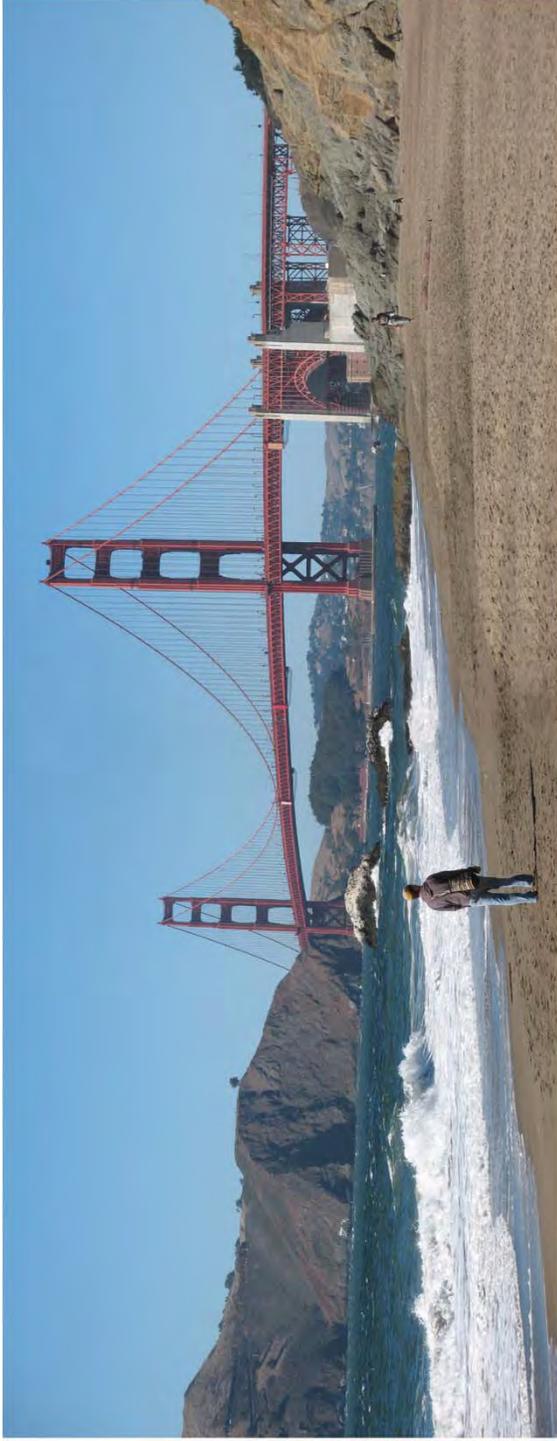
ALTERNATIVE 2A

FIGURE 15  
VIEWPOINT 2: BAKER BEACH - ALTERNATIVE 2A

Source: macdonald architects, 2008

Visual Impact Assessment

Golden Gate Bridge Physical Suicide Deterrent System



EXISTING



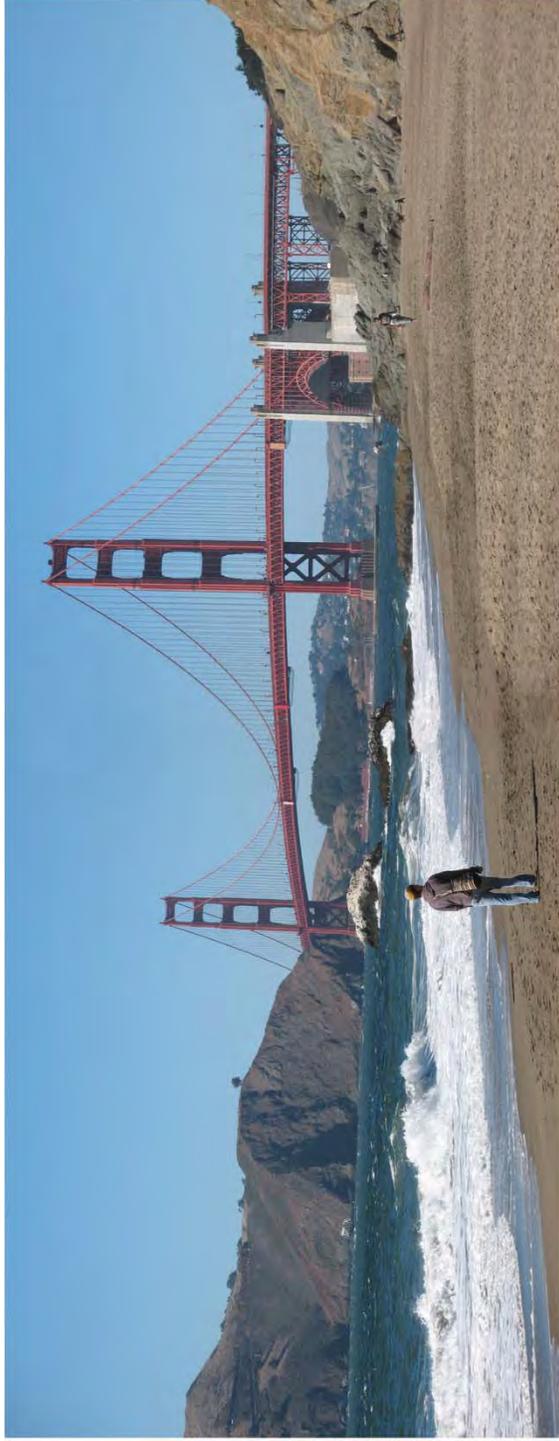
ALTERNATIVE 2B

FIGURE 16  
VIEWPOINT 2: BAKER BEACH - ALTERNATIVE 2B

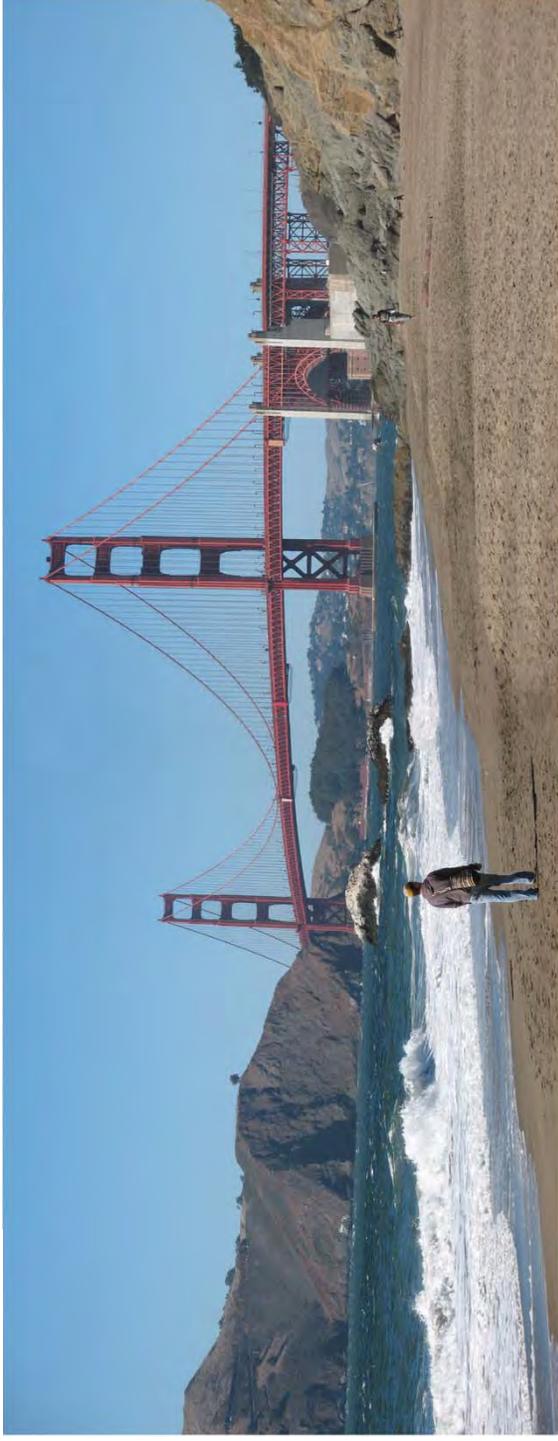
Source: macdonald architects, 2008

Visual Impact Assessment

Golden Gate Bridge Physical Suicide Deterrent System



EXISTING



ALTERNATIVE 3

FIGURE 17  
VIEWPOINT 2: BAKER BEACH - ALTERNATIVE 3

Source: macdonald architects, 2008

Visual Impact Assessment

### **Viewpoint 3: North Fishing Pier**

#### **Summary of Existing Conditions**

This viewpoint is located at the North Fishing Pier, located northeast of the Bridge in Marin County. The view is looking southwest towards the Bridge and the mouth of the San Francisco Bay to the Pacific Ocean. The Bridge is the most prominent feature in this view. The Bridge traverses across the Marin Headlands in the foreground and the blue green water of the San Francisco Bay in the background. The vegetated hills of the Presidio are seen in the background. Primary viewer exposure would be from pedestrians walking along the pier and recreational users, such as fishermen. Visitors of Fort Baker also typically walk along the pier to view the Bridge and the Bay. Overall visual quality from this viewpoint can be classified as moderate with high viewer exposure.

#### **Visual Effects of Alternatives**

##### ***No-Build Alternative***

The No-Build Alternative would not modify any of the visual elements of the Bridge that would be seen from this viewpoint.

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

Alternative 1A would construct a new barrier on top of the outside handrail (and concrete rail at the north anchorage housing and north pylon). The barrier would extend 8 feet vertically from the top of the 4-foot high outside handrail for a total height of 12 feet as shown in Figure 18. The addition of the vertical railing visually thickens the height of the Bridge span across the San Francisco Bay. However, Alternative 1A maintains the vertical line form created by the Bridge towers, suspender ropes, and light posts on the Bridge. The vertical addition to the outside handrail would remain consistent with the strong vertical elements of the Bridge and would maintain the existing rhythm of the Bridge structure. Alternative 1A would also be painted International Orange, representing moderate visual compatibility with the current Bridge features.

While installation of this vertical system would raise the height of the barrier from 4 feet to 12 feet, the scale of this change in the context of the overall scale of the Bridge and surrounding natural and man-made landscapes would appear small. The Bridge and surrounding landscape would remain the prominent visual features from this viewpoint. The vertical addition to the outside handrail would therefore be a subordinate feature of the Bridge.

From this viewpoint, Alternative 1A would minimally intrude into the skyline view and views of the cliffs of the Marin Headlands. However, as the vertical addition to the outside handrail consists of thin, evenly spaced vertical rods situated between thicker, intermittent vertical rail posts, only a small sliver of the visible Marin Headlands view would be obstructed. These views of the Marin Headlands in the foreground and skyline in the middle ground and background are already disrupted by the long, vertical suspender ropes and light posts on the Bridge, representing moderate view blockage.

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

Alternative 1B would construct a new barrier on top of the outside handrail (and concrete rail at the north anchorage housing and north pylon) consisting of 3/8-inch diameter horizontal steel cables. The new barrier would extend 8 feet above the top of the outside handrail for a total height of 12 feet, as shown on Figure 19. The addition of the horizontal system visually thickens the height of the Bridge span across the San Francisco Bay; however, the thin, horizontal rods are not visible from this viewpoint. The thicker, evenly spaced vertical rail posts remain visible, maintaining the vertical line form created by the Bridge towers, suspender ropes, and light posts on the Bridge. The transparent

winglets on top of the horizontal railing are also not visible from this viewpoint, illustrating moderate visual compatibility.

While installation of this system would raise the height of the barrier from 4 feet to 12 feet, the scale of this change in the context of the overall scale of the Bridge and surrounding natural and man-made landscapes would appear small. The Bridge and surrounding landscape would remain the prominent visual features from this viewpoint. The horizontal addition to the outside handrail would therefore be a subordinate feature of the Bridge.

From this viewpoint, Alternative 1B would minimally intrude into the skyline view and views of the cliffs of the Marin Headlands. As the horizontal addition to the outside handrail consists of thin, evenly spaced horizontal cables situated between thicker, evenly spaced vertical rail posts, only a small sliver of the visible Marin Headlands view would be obstructed. These views of the Marin Headlands in the foreground and skyline in the middle ground and background are already disrupted by the long, vertical suspender ropes and light posts on the Bridge, representing moderate view blockage.

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

Alternative 2A would construct a new vertical 12 foot high barrier consisting of ½-inch diameter vertical steel rods painted International Orange as shown in Figure 20. The addition of the vertical system visually thickens the height of the Bridge span across the San Francisco Bay. However, Alternative 2A remains consistent with the strong vertical line form created by the Bridge towers, suspender ropes, and light posts on the Bridge, representing moderate visual compatibility with the current Bridge features.

While installation of this system would raise the height of the barrier from 4 feet to 12 feet, the scale of this change in the context of the overall scale of the Bridge and surrounding natural and man-made landscapes would appear small. The Bridge and surrounding landscape would remain the prominent visual features from this viewpoint. The vertical replacement of the outside handrail would therefore be a subordinate feature of the Bridge.

From this viewpoint, Alternative 2A would minimally intrude into the skyline view and views of the cliffs of the Marin Headlands. As the vertical addition to the outside handrail consists of thin, evenly spaced vertical rods situated between thicker, evenly spaced vertical rail posts, only a small sliver of the visible Marin Headlands view would be obstructed. These views of the Marin Headlands in the foreground and skyline in the middle ground and background are already disrupted by the long, vertical suspender ropes and light posts on the Bridge. Due to the viewer distance, the thin vertical rods between the evenly spaced thick vertical rail posts would not be visible and would allow the viewer to see through the rods, representing moderate view blockage.

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

Alternative 2B would construct a new 10 foot high barrier consisting of 3/8-inch diameter steel horizontal cables as shown on Figure 21. The addition of the horizontal system visually thickens the height of the Bridge span across the San Francisco Bay; however, the thin, horizontal cables are not visible at this viewpoint. The thicker, evenly spaced vertical rail posts remain visible, but maintain the vertical line form created by the Bridge towers, suspender ropes, and light posts on the Bridge. The transparent winglets on top of the horizontal railing are also not visible from this viewpoint, illustrating moderate visual compatibility.

While installation of this system would raise the height of the barrier from 4 feet to 10 feet, the scale of this change in the context of the overall scale of the Bridge and surrounding natural and man-made landscapes would appear small. The Bridge and surrounding landscape would remain the prominent visual features from this viewpoint. The horizontal replacement of the outside handrail would therefore be a subordinate feature of the Bridge.

From this viewpoint, Alternative 2B would minimally intrude into the skyline view and views of the cliffs of the Marin Headlands. As the proposed system consists of thin, evenly spaced horizontal cables situated between thicker, evenly spaced vertical rail posts, only a small sliver of the visible Marin Headlands view would be obstructed. Views of the Marin Headlands in the foreground and skyline in the middle ground and background are already disrupted by the vertical suspender ropes and light posts on the Bridge. Due to the viewer distance, the thin horizontal cables between the evenly spaced thick vertical rail posts would not be visible, allowing the viewer to see through the cables, representing moderate view blockage.

**Alternative 3 – Add Net System**

Due to the upward viewing angle from this viewpoint, the net would not be substantially visible from the North Fishing Pier. Figure 22 represents views of Alternative 3 from this viewpoint. As shown in the figure, the net color and texture blends in with the Bridge and does not intrude into the existing visual landscape. The net would be painted International Orange, which would match the color of the Bridge, representing high visual compatibility.

The Bridge is the dominant visual feature from this viewpoint. When compared to the prominent Bridge scaling the cliff of the Marin Headlands and spanning across the blue green waters of the San Francisco Bay, Alternative 3 would be a subordinate feature of the landscape.

At this viewpoint, the net would not block views of the Marin Headlands, the San Francisco Bay, or the expansive skyline. Thus, view blockage would be low.

**Overall Visual Impact**

Table 6-3 summarizes the evaluation of the existing visual environment and the proposed condition, and rates the level of overall visual impact for the proposed project alternatives from Viewpoint 3.

**TABLE 6-3: VIEWPOINT 3 – OVERALL VISUAL IMPACT**

ALTERNATIVE	EXISTING CONDITION		PROPOSED CONDITION			OVERALL VISUAL IMPACT
	Visual Quality	Overall Viewer Exposure	Visual Compatibility	Visual Dominance	View Blockage	
1A	Moderate	High	Moderate	Subordinate	Low	Minimally Adverse
1B			Moderate	Subordinate	Low	Minimally Adverse
2A			Moderate	Subordinate	Low	Minimally Adverse
2B			Moderate	Subordinate	Low	Minimally Adverse
3			High	Subordinate	Low	Negligible



**EXISTING**



**ALTERNATIVE 1A**

**VIEWPOINT 3: NORTH FISHING PIER - ALTERNATIVE 1A**

**FIGURE 18**



**EXISTING**



**ALTERNATIVE 1B**

**VIEWPOINT 3: NORTH FISHING PIER - ALTERNATIVE 1B**

**FIGURE 19**



**EXISTING**



**ALTERNATIVE 2A**

**VIEWPOINT 3: NORTH FISHING PIER - ALTERNATIVE 2A**

**FIGURE 20**



**EXISTING**



**ALTERNATIVE 2B**

**VIEWPOINT 3: NORTH FISHING PIER - ALTERNATIVE 2B**

**FIGURE 21**



**EXISTING**



**ALTERNATIVE 3**

**FIGURE 22**  
**VIEWPOINT 3: NORTH FISHING PIER - ALTERNATIVE 3**

## **Viewpoint 4 – Vista Point**

### **Summary of Existing Conditions**

This viewpoint is located at Vista Point, looking south towards the City and County of San Francisco. The Bridge, the blue green water of San Francisco Bay, the steep slopes of the Marin Headlands, and the green, vegetated hills of the northern San Francisco Bay Peninsula are the main natural and man-made features in this landscape. The Bridge extends across the Bay from the Marin Headlands in the foreground to the Presidio in the background. Primary viewer exposure is from pedestrians and visitors at Vista Point. The overall visual quality and viewer exposure can be classified as high.

### **Visual Effects of Alternatives**

#### ***No-Build Alternative***

The No-Build Alternative would not modify any of the visual elements of the Bridge.

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

Alternative 1A would elevate the height of the exterior railing on the Bridge, as illustrated in Figure 23. The heightened vertical system along the east sidewalk, specifically on the north end of the Bridge, would be the most visible from this viewpoint due to its location in the foreground. While the vertical features of the railing would be intensified due to the additional 8 feet of height, the coloring, visual pattern of evenly spaced vertical elements, and consistency with the strong vertical rhythm of the Bridge's structural features, such as the outside handrail and suspender ropes, would result in moderate visual compatibility.

As this viewpoint affords a colorful panoramic vista of the International Orange-colored Bridge, blue green water of the San Francisco Bay, and the brown cliffs of the Marin Headlands, the vertical addition to the outside handrail would appear small in scale in comparison to Bridge and expansive landscape features. Alternative 1A would be the most visible in the foreground, but would fade into the visual line of the Bridge as it extends across the blue green water of the Bay to the green hills of the Presidio. Alternative 1A would be a co-dominant visual feature in this landscape.

Due to the viewing angle of the Bridge, the vertical addition to the outside handrail does not substantially block views of the landscape from this viewpoint. In the foreground at the northernmost end of the Bridge, the added barrier height encroaches into a small area of the viewshed toward the Marin Headlands. Views of the Marin Headlands in the foreground and skyline in the middle ground and background are already disrupted by the long, vertical suspender ropes and light posts on the Bridge. The vertical addition to the outside handrail would not block views when looking across the Bridge. Alternative 1A would maintain the same visual line as the Bridge when extending across the water of the Bay. View blockage would be moderate.

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

Alternative 1B would elevate the height of the exterior railing on the Bridge, as illustrated in Figure 24. The heightened horizontal system along the east sidewalk, specifically on the north end of the Bridge, would be the most visible from this viewpoint due to its location in the foreground. Although the horizontal cables would be difficult to distinguish due to their small size, the transparent winglets on top of the vertical rail posts would be seen in the foreground from this viewpoint. The transparent winglets would visually break the strong verticality of the Bridge structure, as seen with the suspender ropes, light posts, and outside handrail. The transparent nature of the winglets, however, substantially reduces their visibility in the middleground and background views, representing moderate visual compatibility.

As this viewpoint affords a colorful panoramic vista of the International Orange-colored Bridge, blue green water of the San Francisco Bay, and the brown cliffs of the Marin Headlands, the horizontal addition to the outside handrail and curved transparent winglets on the top of the rail posts would appear small in scale in comparison to scale of the Bridge and expansive landscape features. Alternative 1B would be the most visible in the foreground, but would fade into the visual line of the Bridge as it extends across the blue green water of the Bay to the green hills of the Presidio. Alternative 1B would be a co-dominant visual feature in this landscape.

Due to the viewing angle of the Bridge, the horizontal addition to the outside handrail does not substantially block views of the landscape from this viewpoint. In the foreground at the northernmost end of the Bridge, the added barrier height encroaches into a small area of the viewshed toward the Marin Headlands. Views of the Marin Headlands in the foreground and skyline in the middle ground and background are already disrupted by the long, vertical suspender ropes and light posts on the Bridge. The horizontal addition to the outside handrail would not block views when looking across the Bridge. Alternative 1B would maintain the same visual line as the Bridge when extending across the water of the Bay. View blockage would be moderate.

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

Alternative 2A would elevate the height of the exterior railing on the Bridge, as illustrated in Figure 25. The heightened vertical system along the east sidewalk, specifically on the north end of the Bridge, would be the most visible from this viewpoint due to its location in the foreground. While the outside handrail would be replaced with a higher railing of vertical rods, the new system would maintain the visual pattern of evenly spaced vertical elements, and strong vertical line form of the Bridge. This consistency with the existing vertical visual features results in moderate compatibility.

As this viewpoint affords a colorful panoramic vista of the International Orange-colored Bridge, blue green water of the San Francisco Bay, and the brown, rocky cliffs of the Marin Headlands, the vertical deterrent system would appear small in scale in comparison to scale of the Bridge and expansive landscape features. Alternative 2A would be the most visible in the foreground, but the elevated line of the vertical replacement system would blend with the frame of the Bridge span as it extends across the San Francisco Bay into the background. Alternative 2A would be a co-dominant visual feature in this landscape.

Due to the viewing angle of the Bridge, the vertical replacement of the outside handrail does not substantially block views of the landscape from this viewpoint. In the foreground at the northernmost end of the Bridge, the added barrier height encroaches into a small area of the viewshed toward the Marin Headlands. Views of the Marin Headlands in the foreground and skyline in the middle ground and background are already disrupted by the long, vertical suspender ropes and light posts on the Bridge. The vertical addition to the outside handrail would not block views when looking across the Bridge. Alternative 2A would maintain the same visual line as the Bridge when extending across the water of the Bay. View blockage would be moderate.

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

Alternative 2B would elevate the height of the exterior railing on the Bridge, as illustrated in Figure 26. The 10 foot high horizontal system along the east sidewalk, specifically on the north end of the Bridge, would be the most visible from this viewpoint due to its location in the foreground. While the outside handrail would be replaced with a higher railing of horizontal cables and transparent winglet, the most visible elements of the new system are the vertical rail posts, which maintain the visual pattern of evenly spaced vertical elements of the Bridge. This consistency with the existing visual features results in moderate compatibility.

As this viewpoint affords a colorful panoramic vista of the International Orange-colored Bridge, blue green water of the San Francisco Bay, and the brown, rocky cliffs of the Marin Headlands, the horizontal deterrent system would appear small in scale in comparison to scale of the Bridge and expansive landscape features. Alternative 2B would be the most visible in the foreground, but the elevated line of the horizontal replacement system would blend with the frame of the Bridge span as it extends across the San Francisco Bay into the background. Alternative 2B would be a co-dominant visual feature in this landscape.

Due to the viewing angle of the Bridge, the horizontal replacement of the outside handrail does not substantially block views of the landscape from this viewpoint. In the foreground at the northernmost end of the Bridge, the added barrier height encroaches into a small area of the viewshed toward the Marin Headlands. Views of the Marin Headlands in the foreground and skyline in the middle ground and background are already disrupted by the long, vertical suspender ropes and light posts on the Bridge. The horizontal replacement to the outside handrail would not block views when looking across the Bridge. Alternative 2B would maintain the same visual line as the Bridge when extending across the water of the Bay. View blockage would be moderate.

### ***Alternative 3 – Add Net System***

Alternative 3 would not change the outside railing of the Bridge. This alternative would construct a horizontal net approximately 20 feet below the sidewalk and approximately 5 feet above the bottom chord of the exterior main truss that would extend horizontally approximately 20 feet from the Bridge. From this viewpoint, the horizontal support system would be visible across the total field of view, as shown on Figure 27. The introduction of this strong horizontal plane onto the lower part of the Bridge is not consistent with the predominantly vertical elements of the Bridge. Additionally, the International Orange colored net would wrap around the grey, concrete pylon on the north end of the Bridge. The projection of the net would disrupt the continuous horizontal line of the Bridge form extending across the San Francisco Bay. It would also break up the vertical plan of the concrete pylon; while the net would be painted International Orange to match the Bridge, the introduction of this strong horizontal plane below the Bridge deck and along the Bridge pylon would demonstrate low visual compatibility.

As this viewpoint affords a colorful panoramic vista of the International Orange-colored Bridge, blue green water of the San Francisco Bay, and the brown, rocky cliffs of the Marin Headlands, the net system would appear small in scale in comparison to scale of the Bridge and expansive landscape features. Alternative 3 would be the most visible in the foreground view. Although it contrasts with the vertical elements of the Bridge, its small scale relative to the overall scale of the Bridge and predominant landscape elements would make it a co-dominant visual feature.

Alternative 3 would not substantially block views of the surrounding landscape. The net would disrupt a small portion of the Marin Headlands view that is adjacent to the northern end of the Bridge. Thus, view blockage would be moderate.

### **Overall Visual Impact**

Table 6-4 summarizes the evaluation of the existing visual environment and the proposed condition, and rates the level of overall visual impact for the proposed project alternatives from Viewpoint 4.

**TABLE 6-4: VIEWPOINT 4 – OVERALL VISUAL IMPACT**

ALTERNATIVE	EXISTING CONDITION		PROPOSED CONDITION			OVERALL VISUAL IMPACT
	Visual Quality	Overall Viewer Exposure	Visual Compatibility	Visual Dominance	View Blockage	
1A	High	High	Moderate	Co-dominant	Moderate	Adverse
1B			Moderate	Co-dominant	Moderate	Adverse
2A			Moderate	Co-dominant	Moderate	Adverse
2B			Moderate	Co-dominant	Moderate	Adverse
3			Low	Co-dominant	Moderate	Adverse



**EXISTING**



**ALTERNATIVE 1A**

**FIGURE 23  
VIEWPOINT 4: VISTA POINT - ALTERNATIVE 1A**



**EXISTING**



**ALTERNATIVE 1B**

**FIGURE 24  
VIEWPOINT 4: VISTA POINT - ALTERNATIVE 1B**



**EXISTING**



**ALTERNATIVE 2A**

**FIGURE 25  
VIEWPOINT 4: VISTA POINT - ALTERNATIVE 2A**



**EXISTING**



**ALTERNATIVE 2B**

**FIGURE 26**  
**VIEWPOINT 4: VISTA POINT - ALTERNATIVE 2B**



**EXISTING**



**ALTERNATIVE 3**

**FIGURE 27  
VIEWPOINT 4: VISTA POINT - ALTERNATIVE 3**

## **Viewpoint 5: Marin Headlands**

### **Summary of Existing Conditions**

This viewpoint is located to the northwest of the Bridge in the Marin Headlands. This view represents an elevated view of the entire Bridge looking southwest and provides a panoramic vista of the Bridge, the blue green water of the San Francisco Bay, the urban San Francisco cityscape, and the distant East Bay hills. Primary viewer exposure is from recreational users, such as hikers, bicyclists, and tourists, and automobile occupants driving along Conzelman Road. The overall visual quality can be classified as outstanding with high viewer exposure.

### **Visual Effects of Alternatives**

#### ***No-Build Alternative***

The No-Build Alternative would not modify any of the visual elements of the Bridge.

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

The vertical addition to the outside handrail would visually elevate the International Orange-colored line of the railing across the Bridge, as shown in Figure 28. However, the vertical elements would remain consistent with the vertical line structure of the Bridge towers, suspender ropes, and light posts. The transparent panels at the Bridge belvederes and towers would introduce some reflectivity around the tower from this viewpoint. There would be a noticeable difference to the view of the Bridge with Alternative 1A resulting in a moderate visual compatibility.

As this view provides a panoramic vista of the Bridge, San Francisco Bay, and the San Francisco skyline, the vertical addition to the outside handrail would appear small in scale. Alternative 1A would be a subordinate visual feature in the landscape from this viewpoint.

From this viewpoint there would be no discernable reduction to the panoramic views. The evenly spaced vertical elements would continue the existing pattern of the Bridge. View blockage would be moderate.

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

The horizontal addition to the outside handrail would visually elevate the International Orange-colored line of the railing across the Bridge, as shown in Figure 29. However, the horizontal cables would not be visible from this viewpoint, retaining the strong verticality of the rail post and light posts along the Bridge. The winglets and transparent panels at the Bridge belvederes and towers would introduce some reflectivity from this viewpoint. There would be a noticeable difference to the view of the Bridge with Alternative 1B resulting in a moderate visual compatibility.

As this view provides a panoramic vista of the Bridge, San Francisco Bay, and the San Francisco skyline, the horizontal addition to the outside handrail would appear small in scale to the surrounding landscape. Alternative 1B would be a subordinate visual feature in the landscape from this viewpoint.

From this viewpoint there would be no discernable reduction to the views. The horizontal cables are not visible from this viewpoint. View blockage would be moderate.

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

With Alternative 2A, the thicker line formed by the elements of the outside handrail would be replaced by thin vertical rods and transparent panels at the belvederes and towers. Figure 30 illustrates Alternative 2A from this viewpoint. The vertical line form of Alternative 2A would blend with the vertical suspender ropes and light posts on the Bridge. The vertical replacement to the outside handrail would remain consistent with the strong vertical elements of the Bridge and would maintain the existing rhythm of the Bridge structure. However, the transparent panels at the Bridge belvederes and towers would introduce some reflectivity demonstrating moderate visual compatibility.

As this view provides a panoramic vista of the Bridge, San Francisco Bay, and the San Francisco skyline, the vertical replacement of the outside handrail would appear small in scale to the surrounding landscape. Alternative 2A would be a subordinate visual feature in the landscape from this viewpoint.

From this viewpoint there would be no discernable reduction to the views. The removal of the outside railing would increase the area of the view through the Bridge. View blockage would be moderate.

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

With Alternative 2B, the thicker line formed by the elements of the outside handrail would be replaced by thin horizontal cables, winglets and transparent panels at the belvederes and towers as shown in Figure 31. Because of the distance, the horizontal cables would not be visible from this view. The vertical line form provided by the suspender ropes, rail posts and light posts would continue to be most noticeable from this view, consistent with the existing features of the Bridge. However, the transparent panels at the Bridge belvederes and towers would introduce some reflectivity demonstrating moderate visual compatibility.

As this view provides a panoramic vista of the Bridge, San Francisco Bay, and the San Francisco skyline, the horizontal system would appear small in scale to the surrounding landscape. Alternative 2B would be a subordinate visual feature in the landscape from this viewpoint.

From this viewpoint there would be no discernable reduction to the views. The removal of the outside railing would increase the area of the view through the Bridge. View blockage would be moderate.

### ***Alternative 3 – Add Net System***

Alternative 3 would not change the outside railing of the Bridge. This alternative would construct a horizontal net approximately 20 feet below the sidewalk and approximately 5 feet above the bottom chord of the exterior main truss that would extend horizontally approximately 20 feet from the Bridge. From this viewpoint, the horizontal support system would be slightly visible across the west side of the Bridge, as shown on Figure 32. The net would be visible in the middle ground of the view and would blend into the Bridge span in the background as it crosses the Bay towards the vegetated hills of the Presidio. From this view, the horizontal line form of the net and its support system contrasts with the laced members along the Bridge span and the vertical line form of the suspender ropes and Bridge towers. Visual compatibility would therefore be moderate.

From this elevated viewpoint, the net would not be a prominent visual feature in the landscape as it would be located near the bottom of the exterior main truss. This viewpoint remains dominated by the Bridge, the blue green water of the San Francisco Bay, and the San Francisco cityscape. As a result, the net would appear as a subordinate feature of the dominant landscape features.

From this viewpoint there would be no discernable reduction to the views. There would be no changes to the outside railing with this alternative. View blockage would be low.

**Overall Visual Impact**

Table 6-5 summarizes the evaluation of the existing visual environment and the proposed condition, and rates the level of overall visual impact for the proposed project alternatives from Viewpoint 5.

**TABLE 6-5: VIEWPOINT 5 – OVERALL VISUAL IMPACT**

ALTERNATIVE	EXISTING CONDITION		PROPOSED CONDITION			OVERALL VISUAL IMPACT
	Visual Quality	Overall Viewer Exposure	Visual Compatibility	Visual Dominance	View Blockage	
1A	Outstanding	High	Moderate	Subordinate	Moderate	Minimally Adverse
1B			Moderate	Subordinate	Moderate	Minimally Adverse
2A			Moderate	Subordinate	Moderate	Minimally Adverse
2B			Moderate	Subordinate	Moderate	Minimally Adverse
3			Moderate	Subordinate	Low	Minimally Adverse

Golden Gate Bridge Physical Suicide Deterrent System



**EXISTING**



**ALTERNATIVE 1A**

**FIGURE 28**  
**VIEWPOINT 5: MARIN HEADLANDS - ALTERNATIVE 1A**

Source: macdonald architects, 2008

Visual Impact Assessment

Golden Gate Bridge Physical Suicide Deterrent System

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**EXISTING**



**ALTERNATIVE 1B**

**FIGURE 29**  
**VIEWPOINT 5: MARIN HEADLANDS - ALTERNATIVE 1B**

Source: macdonald architects, 2008

Visual Impact Assessment

Golden Gate Bridge Physical Suicide Deterrent System

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**EXISTING**



**ALTERNATIVE 2A**

**FIGURE 30**  
**VIEWPOINT 5: MARIN HEADLANDS - ALTERNATIVE 2A**

Source: macdonald architects, 2008

Visual Impact Assessment

Golden Gate Bridge Physical Suicide Deterrent System



**EXISTING**



**ALTERNATIVE 2B**

**FIGURE 31**  
**VIEWPOINT 5: MARIN HEADLANDS - ALTERNATIVE 2B**

Source: macdonald architects, 2008

Visual Impact Assessment



**EXISTING**



**ALTERNATIVE 3**

**FIGURE 32**  
**VIEWPOINT 5: MARIN HEADLANDS - ALTERNATIVE 3**

## **Viewpoints 6 and 7: Boat View West and Boat View East**

### **Summary of Existing Conditions**

Viewpoints 6 and 7 both provide upward views of the Bridge from San Francisco Bay. Because these views represent a similar location and angle of view, simulations were prepared only for Viewpoint 6. These viewpoints represent a close view from underneath the Bridge as experienced by boaters on the San Francisco Bay. The primary visual elements viewed from Viewpoint 6 are the laced members of the Bridge, the north tower, the Marin hillsides, and the blue green water and sky. Viewer exposure would be boaters and other recreational users on the Bay. The overall visual quality of this viewpoint can be classified as high with moderate overall viewer exposure.

### **Visual Effects of Alternatives**

#### ***No-Build Alternative***

The No-Build Alternative would not modify any of the visual elements of the Bridge.

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

The vertical addition to the outside handrail would visually elevate the International Orange-colored line of the barrier across the Bridge, as shown in Figure 33. The vertical elements of the system would be consistent with the vertical line structure of the Bridge towers, suspender ropes, and light posts. The vertical addition would maintain the existing vertical rhythm of the Bridge structure. The transparent panels around the Bridge tower and at the belvederes would, however, contrast with the color and materials of the Bridge. There would be a noticeable difference to the view resulting in a moderate visual compatibility.

The dominant visual features of this landscape are the Bridge, the blue green water and sky, and the brown hills of the Marin Headlands. In comparison to these landscape features, the vertical addition to the outside handrail would appear small in scale and would be a subordinate feature of the landscape.

Alternative 1A would not substantially block the views of the landscape. The vertical addition to the railing would intrude only slightly into the skyline. Views of the Marin Headlands and skyline are already disrupted by the vertical suspender ropes, north tower, and light posts on the Bridge. Therefore, view blockage would be moderate.

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

Adding the horizontal system to the outside handrail would visually elevate the International Orange-colored line of the barrier across the Bridge, as shown in Figure 34. Because the horizontal cables would not be visible from this viewpoint, the primary visible features of the barrier would be the vertical rail posts, which would be consistent with the vertical line structure of the Bridge towers, suspender ropes, and light posts. The transparent winglet would not be visible from this viewpoint. The transparent panels around the Bridge tower and at the belvederes would, however, contrast with the color and materials of the Bridge. There would be a noticeable difference to the view of the Bridge with Alternative 1B resulting in a moderate visual compatibility.

The dominant visual features of this landscape are the Bridge, the blue green water of the Bay, and the brown hills of the Marin Headlands. In comparison to these landscape features, the horizontal addition to the outside handrail would appear small in scale and would be a subordinate feature of the landscape.

Alternative 1B would not substantially block views of the landscape. The horizontal addition to the outside handrail would intrude only slightly into the skyline. Therefore, view blockage would be moderate.

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

The vertical replacement of the outside handrail would remove the thick horizontal line created by the outside handrail with a higher, more transparent vertical system, as shown in Figure 35. The vertical rail posts would be visible across the Bridge, as the thin vertical rods would be too thin to detect from this viewpoint, which would be consistent with the vertical line structure of the Bridge towers, suspender ropes, and light posts. The vertical rail posts would maintain the existing vertical rhythm of the Bridge structure. The transparent panels around the Bridge tower and at the belvederes would, however, contrast with the color and materials of the Bridge. There would be a noticeable difference to the view of the Bridge with Alternative 2A resulting in a moderate visual compatibility.

The dominant visual features of this landscape are the Bridge, the blue green water of the Bay, and the brown hills of the Marin Headlands. In comparison to these landscape features, the vertical replacement to the outside handrail would appear small in scale and would be a subordinate feature of the landscape.

Alternative 2A would not substantially block views of the landscape. The vertical replacement of the outside handrail would open views of the skyline previously obscured by the thicker outside handrail. The skyline would be viewed between the vertical rail posts resulting in moderate view blockage.

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

The horizontal replacement of the outside handrail would remove the thick horizontal line created by the outside handrail with a higher, more transparent horizontal system, as shown in Figure 36. Because the horizontal cables would not be visible from this viewpoint, the primary visible features of the barrier would be the vertical rail posts, which would be consistent with the vertical line structure of the Bridge towers, suspender ropes, and light posts. The transparent winglet would not be visible from this viewpoint. The transparent panels around the Bridge tower and at the belvederes would, however, contrast with the color and materials of the Bridge. There would be a noticeable difference to the views resulting in a moderate visual compatibility.

The dominant visual features of this landscape are the Bridge, the blue green water of the Bay, and the brown hills of the Marin Headlands. In comparison to these landscape features, the horizontal replacement to the outside handrail would appear small in scale and would be a subordinate feature of the landscape.

Alternative 2B would not substantially block the landscape elements in this view. The horizontal replacement of the outside handrail would open views of the skyline previously obscured by the thicker outside handrail. The skyline would be viewed between the vertical rail posts resulting in moderate view blockage.

### ***Alternative 3 – Add Net System***

Alternative 3 would not change the outside railing of the Bridge. This alternative would construct a horizontal net approximately 20 feet below the sidewalk and approximately 5 feet above the bottom chord of the exterior main truss that would extend horizontally approximately 20 feet from the Bridge. From this viewpoint, the horizontal support system and net would be slightly visible extending from the west side of the Bridge, as shown on Figure 37. The horizontal support members and net grid contrast with the laced members along the Bridge span and the vertical line form of the suspender ropes and Bridge towers. Visual compatibility would therefore be moderate.

The dominant visual features of this landscape are the Bridge, the blue green water of the Bay, and the brown hills of the Marin Headlands. In comparison to these landscape features, the net system would appear small in scale and would be a subordinate feature of the landscape.

Alternative 3 would not substantially block views of the landscape. On the west side, the net would slightly intrude into the views of the Marin Headlands and sky. Thus, view blockage would be moderate.

**Overall Visual Impact**

Table 6-6 summarizes the evaluation of the existing visual environment and the proposed condition, and rates the level of overall visual impact for the proposed project Alternatives from Viewpoints 6 and 7.

**TABLE 6-6: VIEWPOINTS 6 AND 7 – OVERALL VISUAL IMPACT**

ALTERNATIVE	EXISTING CONDITION		PROPOSED CONDITION			OVERALL VISUAL IMPACT
	Visual Quality	Overall Viewer Exposure	Visual Compatibility	Visual Dominance	View Blockage	
1A	High	Moderate	Moderate	Subordinate	Moderate	Minimally Adverse
1B			Moderate	Subordinate	Moderate	Minimally Adverse
2A			Moderate	Subordinate	Moderate	Minimally Adverse
2B			Moderate	Subordinate	Moderate	Minimally Adverse
3			Moderate	Subordinate	Moderate	Minimally Adverse



**EXISTING**



**ALTERNATIVE 1A**

**FIGURE 33  
VIEWPOINT 6: BOAT VIEW WEST - ALTERNATIVE 1A**



**EXISTING**



**ALTERNATIVE 1B**

**FIGURE 34  
VIEWPOINT 6: BOAT VIEW WEST - ALTERNATIVE 1B**



**EXISTING**



**ALTERNATIVE 2A**

**FIGURE 35  
VIEWPOINT 6: BOAT VIEW WEST - ALTERNATIVE 2A**



**EXISTING**



**ALTERNATIVE 2B**

**FIGURE 36  
VIEWPOINT 6: BOAT VIEW WEST - ALTERNATIVE 2B**



**EXISTING**



**ALTERNATIVE 3**

**FIGURE 37  
VIEWPOINT 6: BOAT VIEW WEST - ALTERNATIVE 3**