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California Incline Bridge Replacement Project, Santa Monica, CA

PROGRAMMATIC SECTION 4(f) EVALUATION

Submitted Pursuant to:

49 USC 303

THE STATE OF CALIFORNIA

Department of Transportation as assigned

Date of Approval

Gary Iverson

Senior Environmental Planner

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

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ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ACHP	Advisory Council on Historic Preservation
ADL	aerially deposited lead
BMPs	best management practices
Caltrans	California Department of Transportation
CCTV	closed-circuit television
CFR	Code of Federal Regulations
CIDH	cast-in-drilled-hole
City	City of Santa Monica
EIR/EA	environmental impact report/environmental assessment
FHWA	Federal Highway Administration
FO	functionally obsolete
HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HBP	Highway Bridge Program
HRER	Historic Resources Evaluation Report
LWCF Act	Land and Water Conservation Fund Act
MOA	memorandum of agreement
MSE	mechanically stabilized earth
NAHC	Native American Heritage Commission

NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
PRC	Public Resources Code
SCAQMD	South Coast Air Quality Management District
SD	structurally deficient
SHPO	State Historic Preservation Officer
SI	Site Investigation
SR-1	State Route 1
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
USC	United States Code

Introduction

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code (USC) 303, declares that "it is the policy of the United States government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Section 4(f) specifies that the Secretary [of Transportation] may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance or land of a historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if

- there is no prudent and feasible alternative to using that land and
- the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Description of Proposed Project and Alternatives

This section describes the proposed Build Alternative, which was developed to meet the identified need by accomplishing the defined purpose while avoiding or minimizing environmental impacts. The proposed project includes two design options: Design Option 1: Cast-in-Place Concrete Slab Bridge and Design Option 2: Precast Slab Bridge Spanning Longitudinally. In addition, a No-Build Alternative, which is described in this section, was also considered. Project regional vicinity and location maps are provided in Figures 1 and 2.

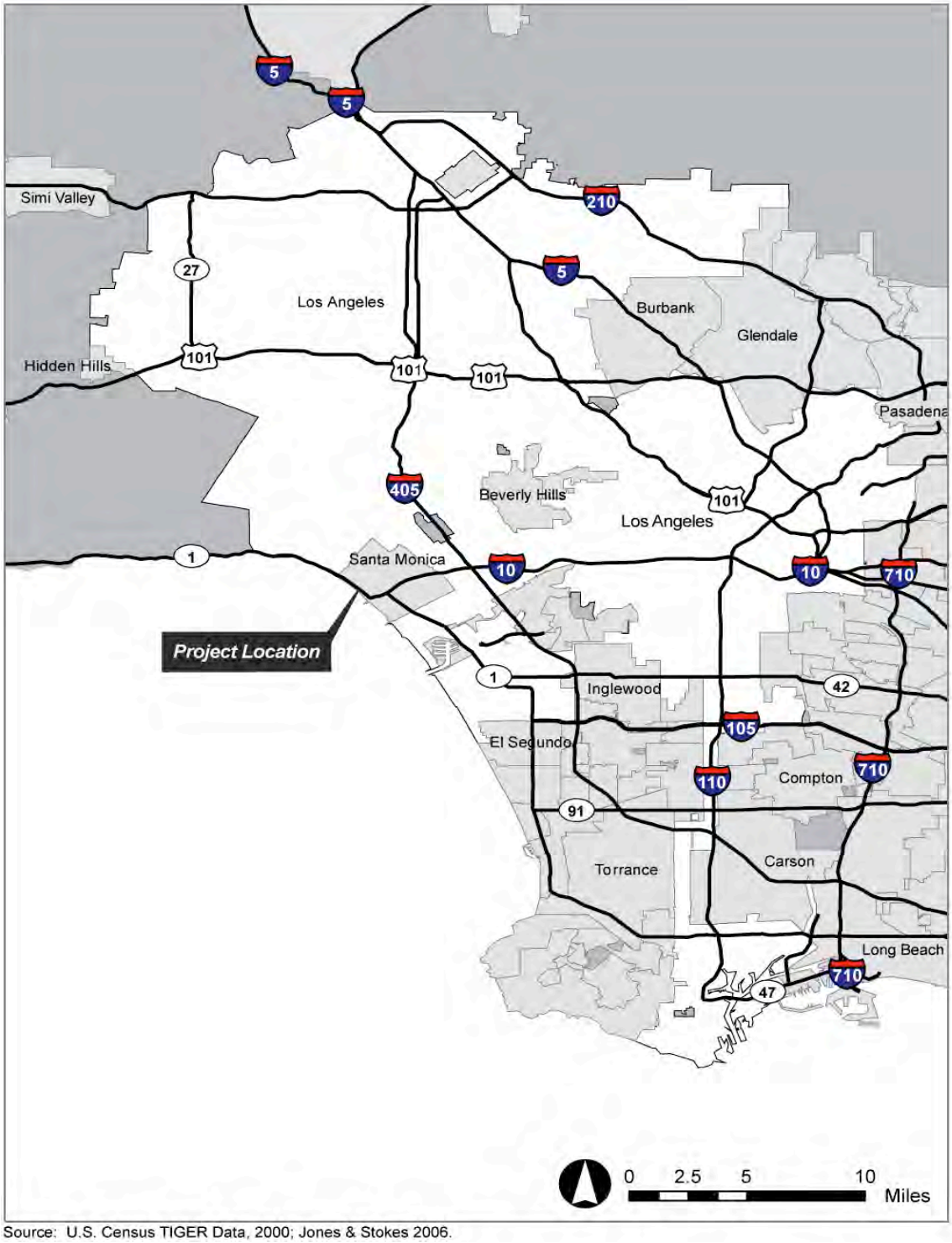
Common Features of Design Options 1 and 2

Both Design Options 1 and 2 would entail demolition of the existing incline structure and construction of a new incline at the same location. The replacement structure would retain the same alignment and profile as that of the existing structure. To correct geometric deficiencies, the roadway would be widened by approximately 6 feet to allow more shoulder width. In addition, 16 feet of the new 52-foot-wide roadway would be used to provide a wider sidewalk and bike lanes, which would be separated from vehicular traffic. However, because of the fixed width of the pedestrian overcrossing, the roadway width north of the overcrossing would not change. Falsework and guy wires may be needed on the lower slope to stabilize the column forms. Although falsework columns may be needed on the lower slope at the south end of the incline, custom brackets on the pile extensions could eliminate the need for extensive falsework columns.

The preliminary slope stability analysis indicates that a portion of the upper bluff slope would need to be strengthened through the use of soil nails. Installation of the nails would involve drilling small-diameter holes (6 to 8 inches) in the hillside, usually 25 to 50 feet deep. Once installed, the soil nails would not need to be replaced.

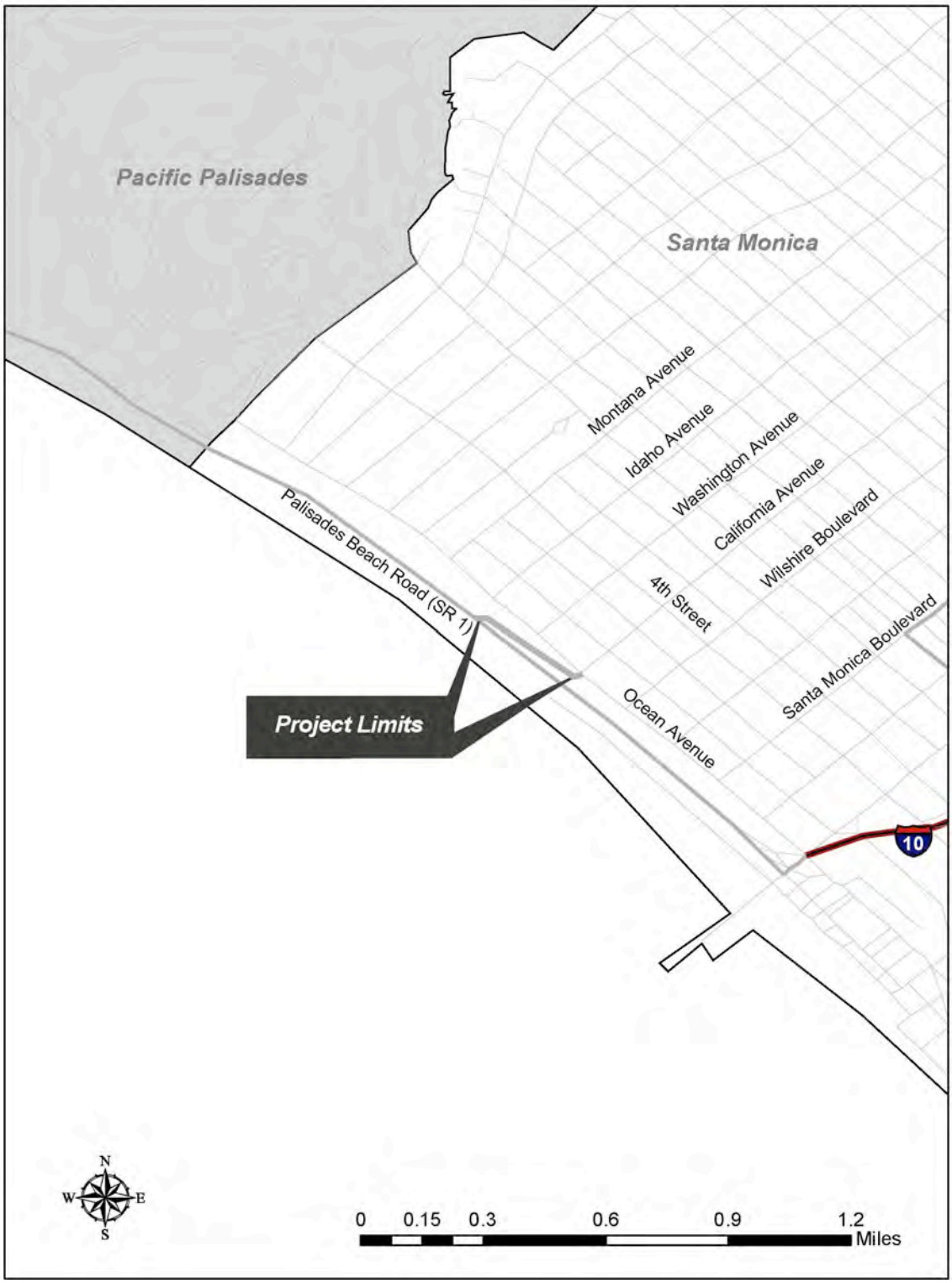
The new incline would be a reinforced concrete slab structure with spans of approximately 44 feet. To access the columns under the bridge structure during construction, a temporary access road may be required along the lower bluffs. The road would be approximately 600 feet long and 12 feet wide.

Figure 1: Regional Vicinity Map



Source: U.S. Census TIGER Data, 2000; Jones & Stokes 2006.

Figure 2: Project Location Map



The roadway is currently striped for one vehicular travel lane in the northbound direction, which fans out to left-turn and right-turn lanes at the intersection with State Route 1 (SR-1). In the southbound direction, the roadway is striped for two lanes from SR-1 to Ocean Avenue, fanning out to a left-turn lane, a through lane, and a right-turn lane at the intersection with Ocean Avenue. Under the proposed restriping plan, striping for the northbound lane would remain the same. However, in the southbound direction, one lane would be provided instead of two. The lane would fan out to one left-turn lane, one through lane, and one right-turn lane at the intersection with Ocean Avenue. The space provided by restriping would be used for additional sidewalk width and designated bicycle lanes on the west side of the incline, adjacent to the southbound lane.

Under both design options, construction would last approximately 12 to 18 months, during which time the incline would be closed. In response to comments and suggestions received during public review of the draft environmental impact report/ environmental assessment (EIR/EA), the City of Santa Monica (City) will consider various incentives for expedited construction to minimize construction-period traffic disruptions. Construction may be extended beyond the usual daytime hours and carry into nighttime hours as needed. Work at night has the potential to increase noise and lighting/glare impacts (these are discussed under the respective sections in Chapters 2 and 3. However, according to comments received during public review of the previous version of the draft EIR/EA, most people are concerned with traffic impacts during construction. They recommend that measures be considered to expedite the construction schedule and decrease the length of time the incline would be closed. Therefore, the proposed project would extend construction hours to minimize the overall length of time of the closure. The potential impacts due to extended working hours would be expected to be less than the potential impacts of a longer construction period.

Construction of both design options would involve the following:

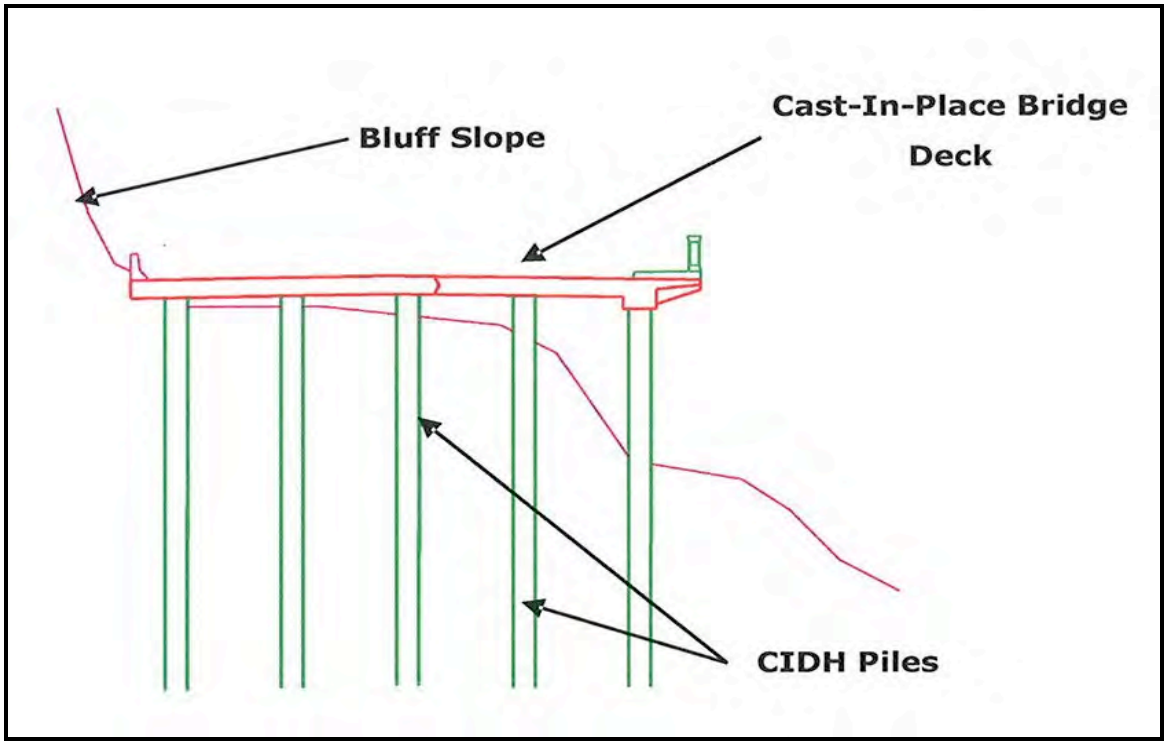
- constructing a temporary access road on the lower bluffs, approximately 600 feet long and 12 feet wide;
- excavating soil for temporary falsework footings and drilling holes for cast-in-drilled-hole (CIDH) piles;
- installing reinforcing cages and pouring concrete for CIDH piles;
- erecting temporary falsework columns and beams;
- placing reinforcing steel and pouring concrete for a new bridge deck;
- constructing a retaining wall at the north-end curb, gutter, sidewalk, and barrier;
- reconstructing and restriping the roadway and reconstructing the curb and gutter;
- removing falsework and temporary footings; and
- removing the temporary access road, and regrading and revegetating the disturbed slope.

Unique Features of the Design Options

Design Option 1: Cast-in-Place Concrete Slab Bridge

A standard reinforced concrete cast-in-place slab bridge supported on CIDH piles is under consideration (see Figure 3). The bridge would be designed to carry legal loads, be visually similar to the existing structure, and require minimal maintenance. Because the structure would be supported on CIDH piles, it would remain stable throughout its design life, even with slope erosion. This type of structure can be constructed on straight or curved alignments. In most locations, the new structure can be cast directly on the ground, though additional excavation may be needed to install and remove falsework beams. There would also be some excavation needed for bent cap beams.

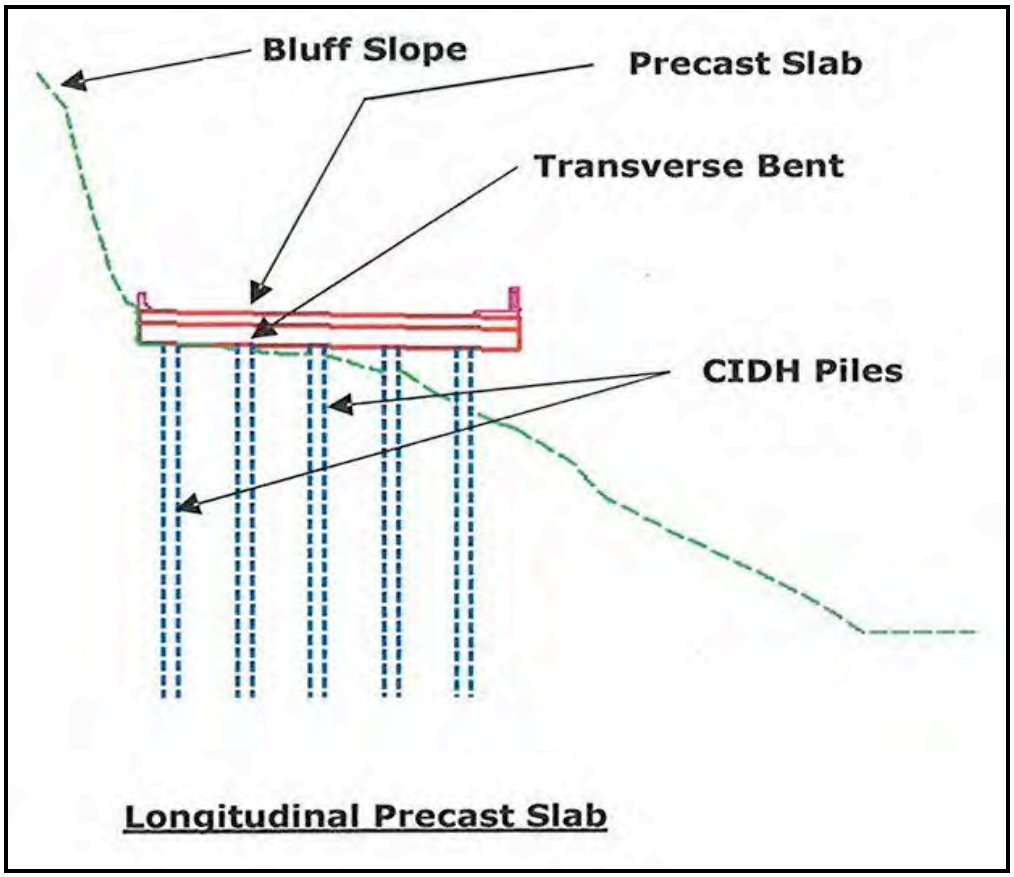
Figure 3: Design Option 1, Cast-in-Place Concrete Slab Bridge



Design Option 2: Precast Slab Bridge Spanning Longitudinally

A precast slab bridge spanning longitudinally is proposed as Design Option 2 (see Figure 4). The precast slab bridge would be supported on CIDH piles. Similar to Design Option 1, the new structure would be stable, even with slope erosion. However, under Design Option 2, the CIDH piles would be aligned to transverse bents, which would be spaced according to the span of the precast slabs. The spans can be adjusted to cross over the deeply eroded gullies in the slope but are limited to a maximum span of approximately 55 feet. The precast slabs would be designed to act compositely with a cast-in-place topping slab. The topping slab, which would vary in thickness to provide the desired roadway profile, would ensure structural continuity between the precast slabs and increase the strength of the superstructure.

Figure 4: Design Option 2, Precast Slab Bridge Spanning Longitudinally



No-Build Alternative

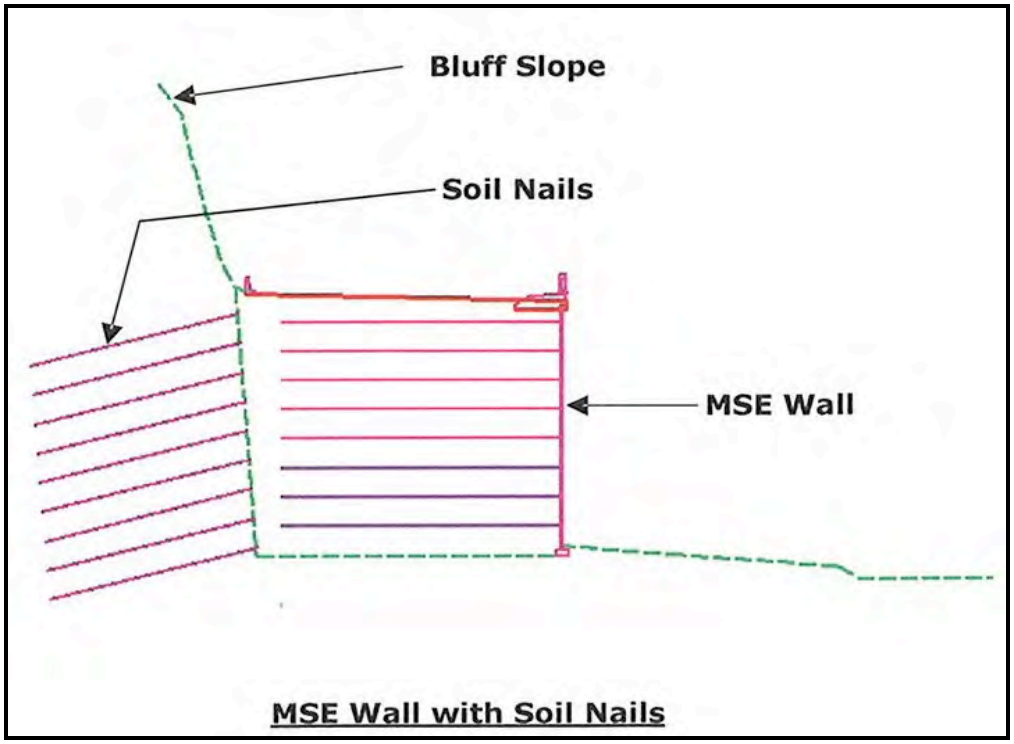
The No-Build (or No-Action) Alternative would result in no structural or physical changes to the incline or the surrounding environment. Under this alternative, the incline would continue to deteriorate structurally and eventually require closure. In addition, the California Incline would be susceptible to damage or collapse in the event of a major earthquake, posing a hazard to motorists and pedestrians on the incline and residents in the vicinity. Furthermore, multi-modal transportation improvements on the incline (i.e., a proposed bicycle lane and wider sidewalk) would not occur under the No-Build Alternative.

Alternatives Considered but Eliminated from Further Discussion

Earth-retaining Structure Design Option

Because of the alignment of the incline on the bluff, an earth-retaining structure in the form of a mechanically stabilized earth (MSE) wall with precast facing panels was one of the alternatives considered to replace the existing incline structure. The upper bluff slope would be reinforced with soil nails; a soil nail wall and MSE wall would be constructed to stabilize the lower bluff slope up to the roadway elevation, as shown in Figure 5.

Figure 5: Earth-retaining Structure (MSE Wall)

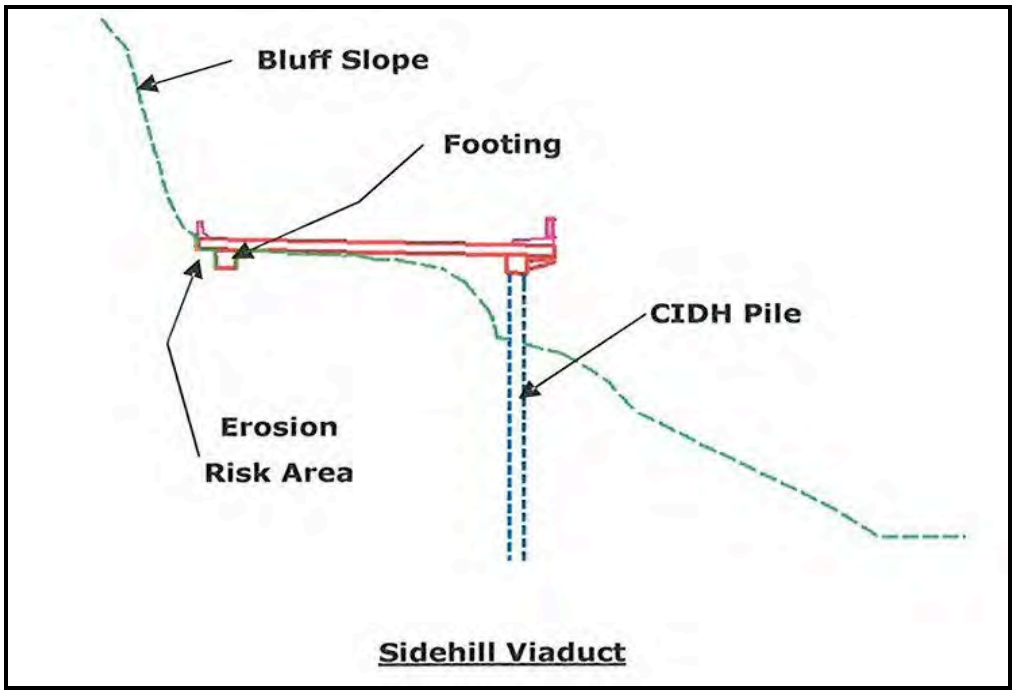


This alternative would require a shotcrete (i.e., spray-on concrete) facing on the lower bluff slope. This alternative was eliminated from further analysis because of the proposed concrete facing and MSE wall on the lower bluffs, which would result in substantial adverse visual impacts.

Sidehill Viaduct Structure Design Option

The existing California Incline is considered a sidehill viaduct structure; therefore, replacing it with a similar sidehill viaduct structure was considered as a possible alternative. The substructure would be composed of a combination of footings and CIDH piles. Shallow footings would be cast on the east side, while CIDH piles would be used on the west side (see Figure 6). The superstructure would be a cast-in-place or precast concrete structure. This would require a soil nail wall and a concrete facing over the lower bluff slope to minimize erosion potential at the footings. Excavation and smoothing of the lower bluff slope and outcroppings would be required for the soil nail wall. This alternative was eliminated from further discussion because the footings on the east side would be more susceptible to erosion and slope failure. In addition, the concrete facing over the lower bluffs would result in substantial adverse visual impacts.

Figure 6: Sidehill Viaduct Structure



Precast Slab Bridge Spanning Transversely Design Options

A precast slab bridge spanning transversely was also considered as an alternative for the replacement structure. A precast slab bridge would be supported on CIDH piles so that it would be independently stable and protected from slope erosion. Precast panels would span transversely between two longitudinal girders that would be connected directly to the CIDH piles. The CIDH piles would be cast in two lines, one near the slope face and one along the bluff edge, to minimize disturbance to the slope (see Figures 7 and 8). The longitudinal bent caps would be cast in place on the ground and on falsework. The falsework needed would be relatively small; the forms could be supported on pile extensions to minimize ground disturbance.

The precast slabs would be designed to act compositely with a cast-in-place topping slab. The use of a topping slab, which would vary in thickness to provide the desired roadway crown, would ensure structural continuity between the precast slabs and increase the strength of the superstructure for negative bending over the cantilever. A fascia panel would be used on the transverse edge to provide a smooth surface at the ends of the slabs and replicate the existing concrete bracket. This alternative was eliminated from further analysis because of the large number of piles needed near the bluff's edge (due to the bent cap configuration). This alternative could result in higher erosion risks and collapse of the bluffs; therefore, it was eliminated from further consideration.

Figure 7: Precast Slab Bridge Spanning Transversely

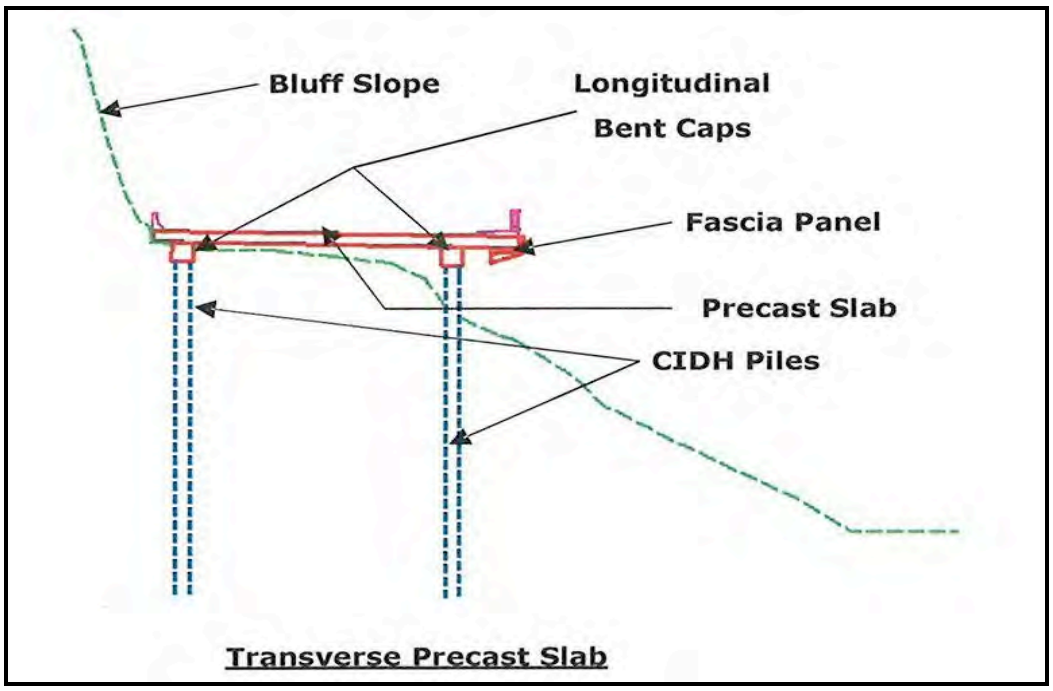
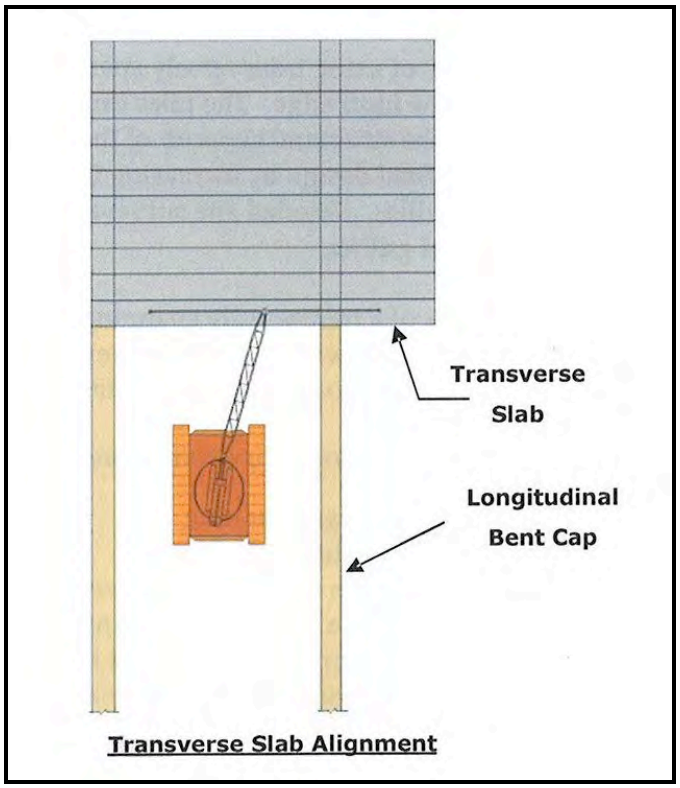


Figure 8: Transverse Slab Placement



Incline at a New Location

Constructing an incline at a new location was considered early in the planning process but eliminated from further consideration because of the potential for substantial environmental impacts. Under this scenario, the existing incline would be closed to vehicular traffic. However, the structure would be seismically upgraded for use by pedestrians, which would result in additional costs. Any new incline to connect Ocean Avenue to SR-1 would likely require acquisition of parkland, removal of vegetation, extensive grading along the bluffs, and changes to the transportation network (i.e., new intersections and traffic signals). The incline has existed at its current location since the early 1900s and is part of the history and development of the area. Construction of a new incline would result in substantially greater environmental, economic, and social impacts than the proposed Build Alternative.

One Lane of the Incline Open to Traffic during Construction

The California Incline is an important transportation link, connecting Ocean Avenue to SR-1. To minimize the impacts of traffic disruption due to lengthy detours, consideration was given to keeping one lane of the incline open during construction. This lane would be no more than 10 feet wide given the space requirements for construction and a temporary K-rail, which would prevent vehicles from hitting construction workers and equipment. However, risks to moving vehicles from construction equipment and falling material cannot be completely avoided. Also, in case of a construction or traffic accident on the incline, accessibility for emergency vehicles would be compromised. In addition, the existing California Incline is a sidehill viaduct structure and therefore structurally unable to support traffic on only one lane of the roadway. Keeping one lane open would also result in a longer construction period (i.e., longer than 12 months) because only one half of the roadway could be built at a time. Costs would be higher as well. Therefore, given the structural limitations associated with keeping one lane open to traffic during construction and the risks involved for motorists and construction workers on the incline, as well as the longer construction period and length of time for construction-period impacts, such as air quality, noise, visual, and biological impacts, this alternative was eliminated from further consideration.

Rehabilitation Alternative

Rehabilitation of the bridge was considered as an alternative but eliminated from further consideration because the structural deficiencies could not be corrected by rehabilitation. Rehabilitation would be a costly alternative, with limited efficacy. Given the structural deficiencies in the bridge and the loss/erosion of the bluffs supporting the bridge, replacement of the bridge cannot be avoided. Rehabilitation of the bridge would provide only a short-term solution, and the bridge would still need to be replaced in the long term. Considering that replacement is the ultimate solution for the structural deficiencies in the bridge, rehabilitation and subsequent replacement would result only in a loss of public funds. Additionally, the incline would have to be closed twice, once during rehabilitation and again when the bridge is ultimately replaced, which would cause adverse impacts on the surrounding community and traffic.

Need and Purpose for Project

The proposed project would replace the existing California Incline bridge structure with a new structure of the same type. The purpose of the proposed project is to correct deficiencies in the bridge and make it safe for vehicular, bicycle, and pedestrian use. The deteriorated condition of the bridge makes corrective action necessary. The condition of the substructure and superstructure is poor. According to the latest bridge inspection report (March 2010), the bridge is currently rated as Structurally Deficient, with a sufficiency rating of 34.1. Given this poor rating and the fact that the bridge was built in 1930, it can be determined that the bridge is currently seismically deficient when compared with current standards. The new design would need to conform to the 2006 Caltrans Seismic Design Criteria. The California Incline has an estimated sufficiency rating of 35.8 and is classified as structurally deficient. Furthermore, the bridge suffered earthquake damage in the Sylmar and Northridge earthquakes and is now in need of seismic upgrades.

The integrity of the upper bluffs is also poor, causing landslide and erosion concerns for vehicles, cyclists, and pedestrians. Therefore, improvements related to the geologic integrity of the upper bluffs are planned as part of the proposed project, including the installation of stabilizing soil nails.

In addition to correcting structural deficiencies and providing seismic upgrades, another purpose of the project is to improve the safety of multi-modal uses of the structure. Automobiles, pedestrians, and bicyclists all currently use the California Incline. Pedestrians and bicyclists currently share a 4.5-foot-wide sidewalk that runs along the western edge of the incline, starting at Palisades Park at the top and continuing to the bottom. Cyclists currently ride in the same lane as vehicles, and the existing sidewalk is not wide enough to readily accommodate uphill and downhill pedestrians as they pass one another; therefore, cyclists often walk in the roadway with their bicycles, posing a safety hazard for both bicyclists and pedestrians. The proposed improvements for the replacement structure include barrier separation between vehicular lanes and bicycle lanes, as well as exclusive pedestrian space on the incline, to accommodate all users more safely.

Description of Section 4(f) Property

One historic bridge, the California Incline, has been identified within 0.5 mile of the project site. See Figure 9 for the location of this resource.

#	Name	Location	Significance*
Architectural Resources (Significant/Potentially Significant)			
1	California Incline (and the adjoining bluffs)	Within Palisades Park, between Ocean Avenue and SR-1	California Incline (Bridge No. 53C-0543) and the adjoining bluffs were determined eligible for inclusion in the National Register of Historic Places (NRHP) as character-defining features of Palisades Park, which was confirmed by the State Historic Preservation Officer (SHPO) on October 13, 1998.

California Incline Bridge – Description and Significance of Property

The California Incline (Bridge No. 53C-0543) and the adjoining bluffs have been determined eligible for inclusion in the NRHP as character-defining features of Palisades Park. Palisades Park has been determined eligible for listing in the NRHP under Criterion A because it is highly significant in the history of parks and recreation in the City of Santa Monica. A historic resources evaluation report (HRER) was prepared for the California Incline, Robert E. McClure Tunnel, and Santa Monica Pier, including the pier sign, as part of the Beach Improvement Group Project in July 1998.

California Incline, a three-lane roadway, extends from Ocean Avenue to SR-1, a distance of approximately 850 feet. A 4.5-foot-wide sidewalk with a cast concrete balustrade is located along the western edge of the incline, starting at Palisades Park at the top and continuing to the bottom. The incline is entirely supported on soil along the eastern side, while portions along the western side are supported on soil as well as 14 concrete columns. The roadway consists of an 8-inch concrete slab, which is supported on transverse floor beams that are made of concrete.

Impacts on Section 4(f) Property

Build Alternative: The replacement alternative (including both design options) would result in an adverse effect on both the California Incline and its character-defining features because of the demolition of this historic resource. All materials, design, workmanship, feeling, and association that characterize the historic property would be destroyed. Thus, a direct use of the Section 4(f) resource would occur. Both design options would result in similar impacts.

The EIR/EA prepared for the proposed project has analyzed the impacts of the project in detail; provided below is a summary of the pertinent impacts included in the EIR/EA. For a more detailed discussion of the impacts, please refer to the EIR/EA.

- **Aesthetics**: A visual impact assessment has been prepared for the project. Replacement of the incline, as proposed under the Build Alternative, Options 1 and 2, with a new incline that would be similar in size, scale, and design to the existing structure and replicate the character-defining design elements would not result in a significant visual impact/substantially adverse effect because the project is proposed for the same location as the existing incline. All other visual elements that define the visual setting within Palisades Park, including the mature landscape and hardscape features on the bluff, would not change. In addition, existing views of Palisades Park and its bluffs, the Pacific Ocean, and SR-1 and Ocean Avenue would remain essentially unchanged.
- **Air Quality**: The construction of the replacement incline would result in a temporary increase in emissions. However, mitigation measures have been provided that would ensure that these temporary impacts would not be substantially adverse.
- **Biological Resources:** There are no jurisdictional waters within the study area. Vegetation removal during clearing of the site would affect mostly nonnative species; only minimal numbers of native plant species associated with the coastal bluff scrub plant community would be affected. In addition, the study area is highly disturbed

Figure 9: Location of Section 4(f) Resource

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and has large amounts of litter, which has degraded and fragmented the existing plant communities. Because the amount of potentially suitable foraging and nesting habitat to be removed and/or degraded by the proposed project would be limited, the impact on wildlife would be considered minor adverse.

- **Noise**: The construction of the replacement incline would result in a temporary increase in noise levels. However, mitigation measures have been provided that would ensure that these temporary impacts would not be substantially adverse.
- **Traffic**: The 12- to 18-month construction period would require temporary closure of the California Incline. During this temporary closure, the officially designated detour would be Ocean Avenue via Moomat Ahiko Way. From a traffic circulation and accessibility standpoint, the Ocean Avenue/Moomat Ahiko Way detour is the most logical detour because it is located less than 1 mile southeast of the Ocean Avenue/California Incline intersection (roughly 5 blocks away). As the impact analysis indicated previously, the majority of detoured traffic would be bound for areas located south of California Avenue. Those areas are geographically closer to the detour intersection of Ocean Avenue and Moomat Ahiko Way.

  While the Ocean Avenue/Moomat Ahiko Way detour would be the most logical and feasible detour, the ability of the detour/intersection to accommodate the expected added traffic would be key to minimizing traffic shifts to other routes. In anticipation of the traffic shift to the detour, a number of physical improvements have been identified to enhance the traffic-carrying capacity of the detour route as well as the intersection of Ocean Avenue and Moomat Ahiko Way.
- **Water Quality**: The proposed project would not add lanes to the California Incline, thereby increasing bridge capacity. Because vehicular traffic levels would not increase, there would be no increase in nonpoint-source pollutants or long-term degradation of local surface water quality. There is little potential for stormwater runoff generated at the project site to percolate to groundwater and affect its quality. Compliance with the City's Urban Runoff Pollution Ordinance would ensure that short-term impacts on groundwater during construction would not be adverse.
- **Hazards and Hazardous Materials**: The project site was not listed in any of the state or federal hazardous materials databases. Therefore, it is not anticipated that excavation activities would release any known toxins or contaminants on the project site or adjacent to the project site. However, measures to minimize harm are recommended to ensure that any lead-based paint, aerially deposited lead (ADL), asbestos-containing material, or other contaminants and hazards present within or on the California Incline do not pose a substantial hazard to workers or the public.

No Build Alternative: The No-Build Alternative would result in no structural or physical changes to the incline. Under this alternative, the incline would continue to deteriorate if not properly maintained or repaired. It is likely that, with continued deterioration, the incline would have to be closed to traffic resulting in traffic/circulation and potential public safety impacts. If the incline is closed, other areas where the diverted traffic would move to could experience increased noise and air quality impacts. Also, access to Palisades Park would be diminished.

Applicability of the Programmatic Section 4(f) Evaluation for Projects that Necessitate the Use of Historic Bridges

As documented below, the replacement alternative meets the applicability criteria and the required findings of the *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges* (1983). The above-referenced applicability criteria and required findings are presented in the text below.

1. The bridge is to be replaced or rehabilitated with federal funds.

   Response 1: Yes. The California Incline would be replaced using federal HBP funds.
2. The project will require the use of a historic bridge structure that is on or is eligible for listing in the NRHP.

   Response 2: Yes. The California Incline (Bridge No. 53C-0543) is eligible for inclusion in the NRHP as a character-defining feature of Palisades Park, which is also eligible for listing in the NRHP.
3. The bridge is not a National Historic Landmark.

   Response 3: Yes. The California Incline is not a National Historic Landmark.
4. The Federal Highway Administration (FHWA) administrator determined that the facts of the project match those set forth in the sections of this document labeled Alternatives, Findings, and Mitigation.

   Response 4: Yes. A programmatic evaluation has been sent to the FHWA administrator for concurrence with the alternatives, findings, and mitigation.
5. Agreement among FHWA, the SHPO, and the Advisory Council on Historic Preservation (ACHP) has been reached through procedures pursuant to Section 106.

   Response 5: Yes. Consultation and coordination with the SHPO and ACHP, which included the matter of this programmatic evaluation, has been completed as part of the Section 106 process, as stated in the ACHP letter dated June 28, 2011 (included in Appendix A of this Programmatic Section 4(f) Evaluation).

Avoidance Alternatives and Other Findings

The following alternatives would avoid use of the historic incline:

1. Do nothing;
2. Build a new structure at a different location without affecting the historic integrity of the old bridge, as determined by procedures implementing the National Historic Preservation Act; or
3. Rehabilitate the historic bridge without affecting the historic integrity of the structure, as determined by procedures implementing the National Historic Preservation Act.

The facts and circumstances below support the findings required for the programmatic evaluation.

1. **Do-Nothing (No-Build) Alternative**. The Do-Nothing (No-Build) Alternative has been studied. The Do-Nothing Alternative ignores the basic transportation need. For the following reasons, this alternative is not considered feasible and prudent:
    a. Maintenance: The Do-Nothing Alternative does not correct the situation that causes the bridge to be structurally deficient and in a deteriorated condition. These deficiencies can lead to sudden collapse and possibly injuries or loss of life. Normal maintenance is not considered adequate to cope with the situation; and
    b. Safety: The Do-Nothing Alternative does not correct the situation that causes the bridge to be considered deficient.

The bridge poses serious and unacceptable safety hazards to the traveling public or places intolerable restriction on transport and travel. Replacement of the bridge is necessary because deterioration, which is evidenced by its dilapidated appearance, including spalling (i.e., breaking of concrete into chips or fragments) and cracks. According to bridge inspection reports (1989 and 1994), the bridge appears to be in poor condition. The asphalt deck at the south end of the bridge has potholes, and the sidewalk near the north end exhibits spalling of up to 12 inches wide and 3 inches deep. Furthermore, the handrail has exposed rebar, which is rusted.

As of 1994, the California Incline had an estimated sufficiency rating of 35.8. It is classified as structurally deficient and qualifies for replacement under the HBP.[1] The condition of the substructure is also poor, with rock pockets, cracks, and gaps in some of the columns. Furthermore, the bridge suffered damage from the Sylmar and Northridge earthquakes. Therefore, the bridge is in need of a seismic upgrade.

The No-Build Alternative would result in no structural or physical changes to the incline. Under this alternative, the incline would continue to deteriorate if not properly maintained or repaired. It is likely that, with continued deterioration, the incline would have to be closed to traffic. Because the existing incline does not meet current seismic codes, it may become a safety hazard for pedestrians and motorists who use the incline, recreational users in the park, and the surrounding community in general. Under the No-Build Alternative, use of the Section 4(f) resource would be avoided. However, this is not considered a feasible and prudent alternative because it would not correct the situation that causes the incline to be considered structurally deficient. The No-Build Alternative does not meet the purpose and need for the project.

2. **Build on New Location without Using the Old Bridge**. The option of constructing a bridge at a new location or parallel to the old bridge (allowing for a one-way couplet) has been investigated, but for one or more of the following reasons, this alternative is not considered feasible and prudent:
    a. Terrain: The present bridge structure is located at the only feasible and prudent site (i.e., a gap in a landform, the narrowest point of a river canyon, etc.). To build a new bridge at another site would result in extraordinary bridge and approach engineering and construction costs or extraordinary disruptions to established traffic patterns;

[1] According to FHWA guidelines, if the sufficiency rating for a bridge is less than 50 and it is designated as structurally deficient (SD) or functionally obsolete (FO), the bridge is eligible for replacement using HBP funding.

b. Adverse Social, Economic, or Environmental Effects: Building a new bridge away from the present site would result in social, economic, or environmental impacts of extraordinary magnitude. Impacts such as severing productive farmlands, displacing a significant number of families or businesses, disrupting established travel patterns and access routes, and damaging wetlands may individually or cumulatively weigh heavily against relocation to a new site;
c. Engineering and Economy: Construction at a new site would not be feasible or prudent if cost and engineering considerations were to reach an extraordinary magnitude. Factors supporting this conclusion would include significantly increased roadway and structure costs, serious foundation problems, or extreme difficulty reaching the new site with construction equipment. Additional design and safety factors to be considered include the ability to achieve minimum design standards or to meet the requirements of various permitting agencies, such as those involved with navigation, pollution, and the environment; and/or
d. Preservation of the Old Bridge: It would not be feasible or prudent to preserve the existing bridge, even if a new bridge were to be built at a new location. Construction at a new location could occur when the historic incline is beyond rehabilitation for a transportation or an alternative use, when no responsible party can be located to maintain and preserve the bridge, or when a permitting authority, such as the Coast Guard, requires removal or demolition of the old bridge.

It would not be prudent to construct a new incline adjacent to or away from the existing incline because any new location would result in substantial adverse social, economic, and/or environmental impacts. Any new incline between Ocean Avenue and SR-1 would likely require the acquisition of parkland, the removal of vegetation, extensive grading along the bluffs, and changes to transportation layouts (i.e., new intersections and traffic signals). Therefore, no prudent locations are available for a new incline in the adjacent area.

Although a new incline may be feasible from a technological and structural point of view, it would result in substantial additional costs. The resulting adverse social, economic, and environmental impacts that would result from displacing or otherwise interfering with the surrounding area cannot be known with absolute certainty but would likely be so extensive as to exceed the magnitude of those effects related to the loss of the current incline. Also, leaving the incline in its current deteriorated condition at its existing location could result in harm to life and property in the future. Rehabilitation of the existing bridge for an alternate use, such as a pedestrian-only bridge, would result in adverse impacts on the historic bridge because a substantial amount of building material would have to removed and replaced. There are no cost-effective ways to remove the bridge without demolition.

Any incline alternatives in the vicinity of the existing incline would also have to avoid use of another Section 4(f) resource, that being Palisades Park. To avoid the park resource, the alternatives could not use columns, and any abutments would have to be outside park boundaries. Additionally, during construction, all staging areas and construction zones would have to be outside park boundaries. However, total avoidance of parkland would not be possible or feasible. Therefore, complete avoidance of use of Section 4(f) resources during construction of a new incline would not be feasible.

3. **Rehabilitation without Affecting the Historic Integrity of the Bridge**. Studies of rehabilitation measures have been conducted, but for one or more of the following reasons, this alternative is not considered feasible and prudent:

a. The bridge is so structurally deficient that it cannot be rehabilitated to meet minimum acceptable load requirements without affecting the historic integrity of the bridge, and/or
b. The bridge is seriously deficient geometrically and cannot be widened to meet the minimum required capacity of the highway system on which it is located without affecting the historic integrity of the incline. Flexibility in the application of the American Association of State Highway and Transportation Officials (AASHTO) geometric standards should be exercised as permitted in 23 Code of Federal Regulations (CFR) Part 625 during the analysis of this alternative.

Rehabilitation of the incline was considered; however, it was determined that it would not be possible to rehabilitate the incline without affecting the historic integrity of the structure. Given the extensive rehabilitation that would have to take place to correct the serious deficiencies in the current incline structure, use of historic material from the bridge cannot be avoided. Flexible application of AASHTO standards would offer no assistance in this instance. Incline rehabilitation cannot avoid removal and replacement of historic building material.

Measures to Minimize Harm to Section 4(f) Property

The intent of the measures listed below is to minimize harm to a Section 4(f) property.

1. For bridges that are to be replaced, the existing bridge will be made available for an alternative use, provided a responsible party agrees to maintain and preserve the bridge.
2. For bridges that are to be adversely affected, agreement among the SHPO, ACHP, and FHWA will be reached through the National Historic Preservation Act's Section 106 process to identify measures to minimize harm. Such measures will be incorporated into the project. This programmatic Section 4(f) evaluation does not apply to projects where such agreement cannot be reached.

The following mitigation measures are presented in a memorandum of agreement (MOA) document that was submitted to the SHPO under separate cover, pursuant to Section 106 Programmatic Agreement Stipulation XI, 36 CFR 800.6(a) and 800.6(b)(1). Please see Appendix A for a copy of the MOA that was signed by Caltrans and the SHPO in April 2011 and by the City of Santa Monica in May 2011.

A. Prior to the start of any work that could adversely affect any characteristics that qualify the California Incline Bridge (Bridge #53C-0543) as an historic property, Caltrans shall ensure that the recordation measures specified in Section A of this stipulation are completed.
    1. The City shall take large-format (4- by 5-inch or larger negative size) photographs showing Bridge #53C-0543 in context as well as details of its historic engineering features. Photographs shall be processed for archival permanence in accordance with the Historic American Engineering Record (HAER) photographic specifications. Views of Bridge #53C-0543 shall include:

        a. Contextual views showing Bridge #53C-0543 in its setting,

        b. Elevation views,

c. Views of the bridge's approaches and abutments, and

d. Detailed views of significant engineering and design elements.

2. The City shall make a reasonable and good faith effort to locate historic construction drawings for Bridge #53C-0543. If these drawings are located, the City shall photographically reproduce plans, elevations, and selected details from these drawings in accordance with HAER photographic specifications. If they are legible in this format, reduced-size (8.5- by 11-inch) copies of construction drawings may be included as pages of the report cited in subsection A.3 of this stipulation rather than photographed and included as photographic documentation. The City shall promptly notify Caltrans if historic construction drawings for Bridge #53C-0543 cannot be located. In that event, the requirements of this paragraph shall not apply.

3. A written historical and descriptive report for Bridge #53C-0543 will be completed. This report will provide a physical description of the bridge, discuss its construction and significance under applicable NRHP criteria, and address the historical context for its construction *following the format and instructions in the September 1993 National Park Service HAER Guidelines for Preparing Written Historical and Descriptive Data*.

4. Upon completion, copies of the documentation prescribed in subsection A.3 of this stipulation shall be retained by Caltrans District 7, deposited in the Caltrans Transportation History Library in Sacramento, submitted to the OHP, and offered to the City of Los Angeles Public Library and the City of Santa Monica Public Library.

B. The City shall install informative permanent metal plaques in public locations at both ends of the new bridge. The plaques shall provide a brief history of the original bridge, information regarding its engineering features and characteristics, the reasons for its demolition, and a statement regarding the characteristics of the replacement structure. SHPO shall have 30 days to review the proposed plaque information before the plaques are produced and installed.

C. The City shall prepare a web site, or adapt its current web site, to make the information from the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) report available to the public for at least 5 years. The information will also be made available to the Caltrans Transportation Library in Sacramento for inclusion on its web site.

Coordination

Consultation with the SHPO, which has been completed, is described in the National Historic Preservation Act documentation in Appendix A.

Letters and Other Correspondence

Notification letters were sent to the Santa Monica Historical Society Museum, Santa Monica Preservation Alliance, and several other agencies that requested information regarding cultural resources that may be located along the incline or in Palisades Park. Copies of this correspondence are included in Appendix A.

Native American consultation was conducted through letters sent to the NAHC and individual Native American contacts. The results of this correspondence are included in Appendix A.

Please see Appendix A and Appendix B for letters and other correspondence.

Concluding Statement

Given the above considerations, there is no feasible and prudent alternative to the use of land from the California Incline. The proposed action includes all possible planning to minimize harm to the California Incline resulting from such use.

Appendix A

Appendix B