

Appendix D Section 4(f) Evaluation

Draft Section 4(f) Evaluation



Emerald Bay Rock Wall Replacement Project

The project is located in El Dorado County on State Route 89 in between
Inspiration Point and Eagle Falls.

Caltrans District 3-El Dorado County-89-KP 25.75 to 27.36
(PM 16.00 to 17.00)

EA 4C2500

Prepared: June 3, 2004



Draft Section 4(f) Evaluation

Submitted Pursuant to 49 U.S.C. 303



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6/3/2004

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Introduction

Section 4(f) of the Department of Transportation Act of 1966, codified in Federal law at 49 U.S.C. §303, declares that “[I]t 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 recreational lands, wildlife and waterfowl refuges, and historic sites.”

Section 4(f) specifies that “[t]he 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 (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if-

- 1) there is no prudent and feasible alternative to using that land; and
- 2) 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.”

Section 4(f) further requires consultation with the Department of the Interior and, as appropriate, the involved offices of the Department of Agriculture and Housing and Urban Development in developing transportation projects and programs that use lands protected by §4(f). Since the Emerald Bay Rock Wall Replacement Project will have an Adverse Effect on an eligible National Register Historic Property, the aforementioned provisions of §4(f) have been evaluated and included in this document.

Proposed Action

Project Location

The California Department of Transportation (Caltrans), in association with the Federal Highway Administration (FHWA), proposes to replace a masonry parapet (rock/rubble barrier) on State Route (SR) 89 in El Dorado County. The project vicinity and location are shown in Attachments 1 and 2. The project area is near the southern rim of Emerald Bay at Lake Tahoe between Kilometer Posts 26.80 and 26.94 (Post Miles 16.65 and 16.74).

Purpose and Need

The existing masonry parapet is deteriorated in several places due to rock fall impacts from the steep mountainside on the opposite side of the highway. In addition, subsequent maintenance repairs using “in-kind” replacement of rocks and mortar has deteriorated the integrity of the parapet and weakened the parapet structure as a whole (see Figures 1 through 5). Therefore, the replacement of the parapet on this section of SR 89 will enhance the overall safety of SR 89 within the vicinity of the replacement barrier.

Figure 1. View of damaged portion of the masonry parapet



Figure 2. View of damaged portion of the masonry parapet



Figure 3. View of damaged portion of the masonry parapet



Figure 4. View of damaged portion of the masonry parapet



Figure 5. View of damaged portion of the masonry parapet



Section 4(f) Property

This project involves only the replacement of one masonry parapet on a segment of SR 89, which is approximately 145m (475ft) in length, with a new Type 732 concrete barrier. There are no buildings or structures within the Area of Potential Effect (APE), other than the highway itself and the masonry parapet and associated retaining wall. This area is entirely within the boundary of the property found eligible for National Register listing as a result of a survey conducted by Steven Mikesell in 1986, and subsequently concurred with by the State Historic Preservation Officer (SHPO).

The eligible property includes features within the right-of-way on SR 89 between KP 26.7 to 29.0 (PM 16.6 to 18.0). Contributing features include three masonry parapets and retaining walls, a masonry arch bridge, and a drinking fountain, all constructed between 1925 and 1930. Collectively these five masonry features have been determined eligible for National Register listing under Criteria A and C of the National Historic Preservation Act. They are a distinguished example of the period's efforts at beautification and enhancement of scenic highways. The highway itself has been widened and improved over the years, and is not a contributor to the historic property. In addition, modern highway facilities such as signs and metal beam guardrails are not contributors. The masonry parapet that is to be replaced by a new concrete barrier is identified as Feature 1 in Mikesell's *Historical Architectural Survey Report*, written in 1986.

Section 4(f) Impacts

Any undertaking may have an adverse effect on a historic property when it may alter the characteristics that qualify the property for listing on the National Register of Historic Places (36 CFR §800.5). The proposed replacement of the existing masonry parapet and a portion of the stone retaining wall it is atop of will have an Adverse Effect on this Historic Property. The project will result in a loss of integrity of design, materials, and workmanship to one of the three masonry parapet barriers that are components of the Historic Property. The SHPO concurred with this finding on March 12, 2004 (see Attachment 3).

Preferred Alternative

The masonry parapet is an above roadway grade guardrail structure that was placed on top of a masonry retaining wall constructed at the same time (see Figures 6 and 7 for photographs of existing parapet and retaining wall). The parapet can be removed without causing irreparable harm to the existing retaining wall. The existing parapet will be replaced by a Type 732 concrete guardrail/barrier that can be form molded, stamped, and/or colored for aesthetic treatment (see figures 9 and 11 for visual simulations of the new proposed barrier). In addition, the new barrier will be “faced” on both sides so that the view from Lake Tahoe is considered as well as the view from the highway. The Type 732 barrier is a solid Portland Concrete (PCC) structure that is able to withstand heavier loads, collisions, and rock fall better than a maintained masonry parapet. Other types of replacement barriers were considered, but the Type 732 was determined to be the best option with respect to the cost of installation, cost of future repairs, construction time required, and ability to withstand future rock falls. The Type 732 barrier is the most appropriate aesthetically, because it will be the easiest to work with in order to replicate the existing rock parapet.

All work will take place within the existing State right-of-way or Department of Agriculture, United States Forest Service-Lake Tahoe Basin Management Unit easement area. The existing parapet and the top .5m (1.5ft) of the existing retaining wall will be removed for replacement with the new concrete barrier. Minor roadway excavation of roughly .5m (1.5ft) deep by 2.3m (7.5ft) wide will be necessary to place the PCC slab that anchors the barrier into the ground under the existing northbound lane of the highway. The outer edge of the barrier slab will be flush with the outside face of the retaining wall and the concrete barrier. Furthermore, the Type 732 barrier will be placed on top of the existing retaining wall without connections of bolts or dowels. No new major cuts or fills are expected. During construction the one-way traffic control will be controlled by portable solar traffic signals. The construction period is expected to last approximately 45 days.

Figure 6. Existing masonry parapet, view southeast along SR 89, masonry parapet wall at left



Figure 7. Existing stone retaining wall, view southeast from below SR 89



Masonry Parapet Avoidance Alternatives

In order to adequately comply with §4(f), alternatives that clearly avoid the historic resource must be evaluated. The following are three avoidance alternatives that would not affect the masonry parapet.

1. Because of the location of SR 89 and the parapet, the only way to fix the existing safety problem without attempting to maintain or re-construct the parapet or install a new barrier would be to realign SR 89. Roadway realignment within the project vicinity is infeasible due to the large amount of adjacent mountainside excavation that would be required. Even if the exorbitant amount of funds were available to do the work, the Tahoe Regional Planning Agency (TRPA) would not permit Caltrans to undertake such a project because of potential significant impacts to their various attainment thresholds as well as conflicts with their governing code.
2. Repair of the existing parapet would address the current damage from rock falls, but the parapet would continue to be damaged by future rock falls and would be an ongoing, expensive maintenance problem. Future repair projects would increase in scope as the parapet continues to degrade and weaken due to deterioration of the mortar. Caltrans has been using this strategy of repairing in-kind for the past 30 years, and the Caltrans maintenance and structures engineers have deemed this strategy to no longer be effective given the decline of the integrity of the original mortar that is over 75 years old.
3. The last avoidance alternative is to install Rock Draping on the adjacent mountainside. Rock Draping is a form of wire mesh or chain link fencing that is laid on top of the hillside to hold back rock fall. This is an effective strategy from a cost and function perspective. However it would not address the current condition of the masonry parapet. Furthermore, TRPA would not permit this action due to the significant impacts on the TRPA scenic attainment threshold. In fact, the TRPA has repeatedly advised Caltrans that Emerald Bay has the highest scenic qualities and vistas in all of the Lake Tahoe Basin, and extraordinary measures must be implemented to maintain this status.

Measures to Minimize Harm

The minimization measures proposed for this project involve the design of the barrier that will replace the existing masonry parapet, and repairs to the retaining wall that supports the parapet.

1. The new Type 732 concrete barrier will be designed with a textured and colored surface on all exposed sides that will closely resemble the existing parapet. The new barrier will be within 2.5cm (1in) of the existing barrier height and will include the raised portions at regular intervals, as on the existing parapet. The relief of the new concrete barrier on the side facing northbound traffic will be limited to a total depth/relief of 1.59cm (.63in) for safety concerns. In addition, the new barrier will be angled slightly to deflect any errant cars. That is, the wall will lean 7 degrees away from perpendicular on the traffic facing side of the barrier (see Attachment 4). The relief on the outside of the new concrete barrier will be molded to match the existing masonry parapet relief and will be perpendicular to the roadway. The aforementioned measures will be accomplished by casting molds around intact sections of the existing masonry parapet for replication of the new barrier (see Figures 8 through 11 for visual simulations of new concrete barrier).
2. Rock from the masonry parapet that is to be removed will be reused to repair a portion of the retaining wall that was previously repaired with rock of sizes and shapes that do not match the rest of the wall (see Figure 12). This area presently stands out as a blemish in the retaining wall, and the repair will more closely match the intact portions of the retaining wall.

Figure 8. View of existing masonry parapet



Figure 9. Simulation of proposed textured concrete barrier



Figure 10. View of existing masonry parapet/retaining wall



Figure 11. Simulation of proposed concrete barrier on top of existing retaining wall



Figure 12. Detail of the previously repaired area of the retaining wall



Coordination

The Federal Highway Administration and Caltrans are the public entities that have jurisdiction over this §4(f) resource while the TRPA has permitting authority over development in the Lake Tahoe Basin. Therefore, a combination of phone conversations, e-mails, letters, field visits, and Project Development Team (PDT) meetings have been undertaken to coordinate between the various Caltrans functional units (i.e. Maintenance, Structures, Design, and Environmental units), FHWA, and the TRPA. The purposes of the aforementioned consultation was to resolve and minimize harm for the effect that this project will have on the existing National Register eligible values of the masonry parapet as well as the aesthetic qualities that the parapet adds to the high scenic values of Emerald Bay. At the last PDT meeting on April 16, 2004, Caltrans displayed and discussed the proposed replacement concrete barrier, methods of construction, and articulated why other alternatives to repair the masonry parapet may be infeasible. At this time, Caltrans has verbal and written agreements with TRPA representatives (Lyn Barnett, Jeanne McNamara, and Charles Emmett), who agree with our proposed alternative and methods of replacing the existing masonry parapet.

As mentioned earlier, the SHPO has concurred with the Caltrans Finding of Adverse Effect for this project. The Memorandum Of Agreement (MOA) has been reviewed and approved by the SHPO, the FHWA, and Caltrans for purposes of completing Section 106 of the National Historic Preservation Act coordination. The MOA is a tri-party agreement between Caltrans, SHPO, and FHWA on the best design of the new Type 732 replacement barrier and methods of repairing the existing masonry retaining wall (see the signed MOA in Attachment 5).

Caltrans has also sent letters to the Lake Tahoe Historical Society and Museum and the Washoe Tribe of Nevada and California, informing them of this project. No response was received from the Lake Tahoe Historical Society, while the Washoe Tribe responded that they had no concerns about the project.