

Mt. Murphy Road Bridge Rehabilitation

Executive Summary Outline

January 2014

1. Project Background

- Structure located in Coloma, CA within County property and Marshall Gold Discovery State Park property. Structure is eligible for listing on the National Register of Historic Places, but actual historic status has not yet been determined.
- Original bridge as constructed in 1915 had timber approach spans and a steel truss span over the low flow channel of the South Fork of the American River. Several earlier bridges at this site were washed away.
- The timber approach spans were replaced in 1931 with reinforced concrete, variable depth through-girders with reinforced concrete abutments and piers.
- Caltrans sufficiency rating is 0.0/100 – one of the lowest in the State. Bridge is considered both structurally deficient and functionally obsolete.
- Bridge is eligible for replacement funding under Highway Bridge Program at no cost to the County.

2. Functionally Obsolete Issues

- Substandard vertical clearance.
- Substandard bridge width for shared vehicular and pedestrian use, no shoulders no sidewalks.
- Substandard approach roadway width, unsafe bridge railings, no approach guardrails and no transitions.

3. Structural Deficiencies

Steel Truss

- Truss span currently posted for reduced truck loading, won't take emergency trucks.
- Concrete deck requires replacement.
- Majority of truss members require replacement. Concrete deck slab, floorbeams and stringers to be replaced.
- Eye-bar diagonal members are fracture critical, have existing cracks, require replacement.
- Concrete abutments and piers are lightly reinforced and vulnerable for seismic loading, require retrofit.
- Truss span footings are scour critical and require retrofit.
- Significant loss of historical features of the existing bridge.

Approach Spans

- Deck slab strengthening required for both approaches.
- Through-girder flexure retrofit required at southern approach.
- Concrete piers lightly reinforced and vulnerable for seismic loading, require retrofit.

4. Access

- Park in favor of wider bridge that allows for pedestrian use.
- Retrofit/rehab of existing bridge requires closure of Mt. Murphy Road Bridge, resulting in 20+ mile detour or extension of Scott Road for detour while Mt. Murphy Road Bridge is closed for approximately two years.
- Costly temporary bridge rental for approximately 2 years during if access must be maintained. Temporary bridge location could be tricky with Gold Discovery Park and Grange.

5. Costs

- Estimate to fix structural deficiencies of existing bridge= \$6,400,000 and may require 100% County funding to accomplish.
- Estimate to fix structural deficiencies and functional obsolescence of existing bridge = \$14,100,000. Significant additional maintenance and inspection costs over time. Design exceptions will be required for any functional obsolete issues not addressed in rehabilitation of the existing structure. Complete federal funding not guaranteed.
- Bridge Replacement = \$15,300,000 with no County contribution required.

6. Conclusions

- Bridge replacement is the most efficient use of public funds, most certain to be eligible for funding, requiring the lowest County match.