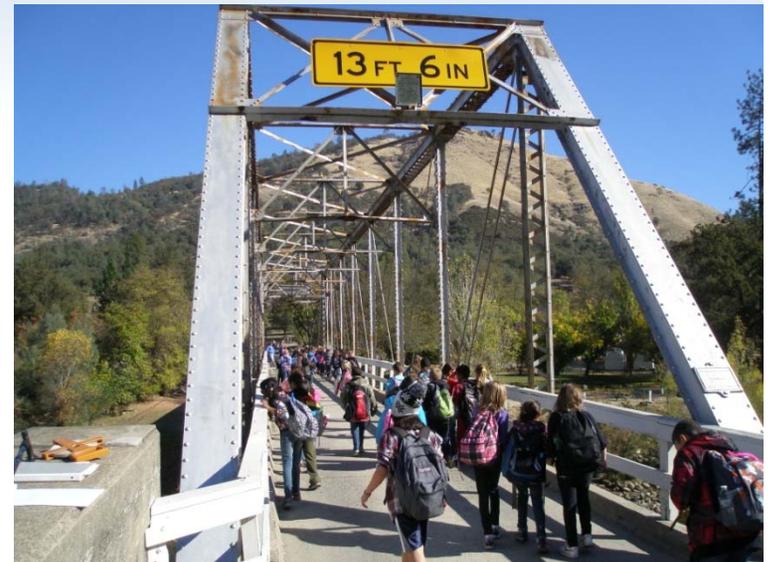


# Mt. Murphy Road Bridge Rehabilitation Analysis

Presented to  
El Dorado County Board of Supervisors  
February 2014



# Agenda

- Introduction & Background
- Rehabilitation Findings
- Access
- Historic Considerations
- Agency Positions
- Costs
- Recommendation

# Introduction

- Present findings of Phase 1A of the Alternatives Analysis for Mt. Murphy Road Bridge

# Project Background

- Bridge replaced in 1915, approach spans replaced in 1931
- Caltrans sufficiency rating – 0.00/100
- Eligible for replacement – 100% Federal funding
- Safety is primary concern to qualify for federal funding
- Community meeting held – February 2013
- Board authorized Phase 1A to further evaluate existing bridge on April 23, 2013
- Further public involvement as part of Phase 1B

# Rehabilitation Findings

- Functional Obsolence
  - Substandard geometry (width, height, barriers)



# Rehabilitation Findings

- Structural Deficiency
  - Bridge does not meet structural condition ratings, fixes needed



**Retrofit  
Columns**

**Strength beams  
and slabs**

**Retrofit  
Footings**

# Rehabilitation Findings



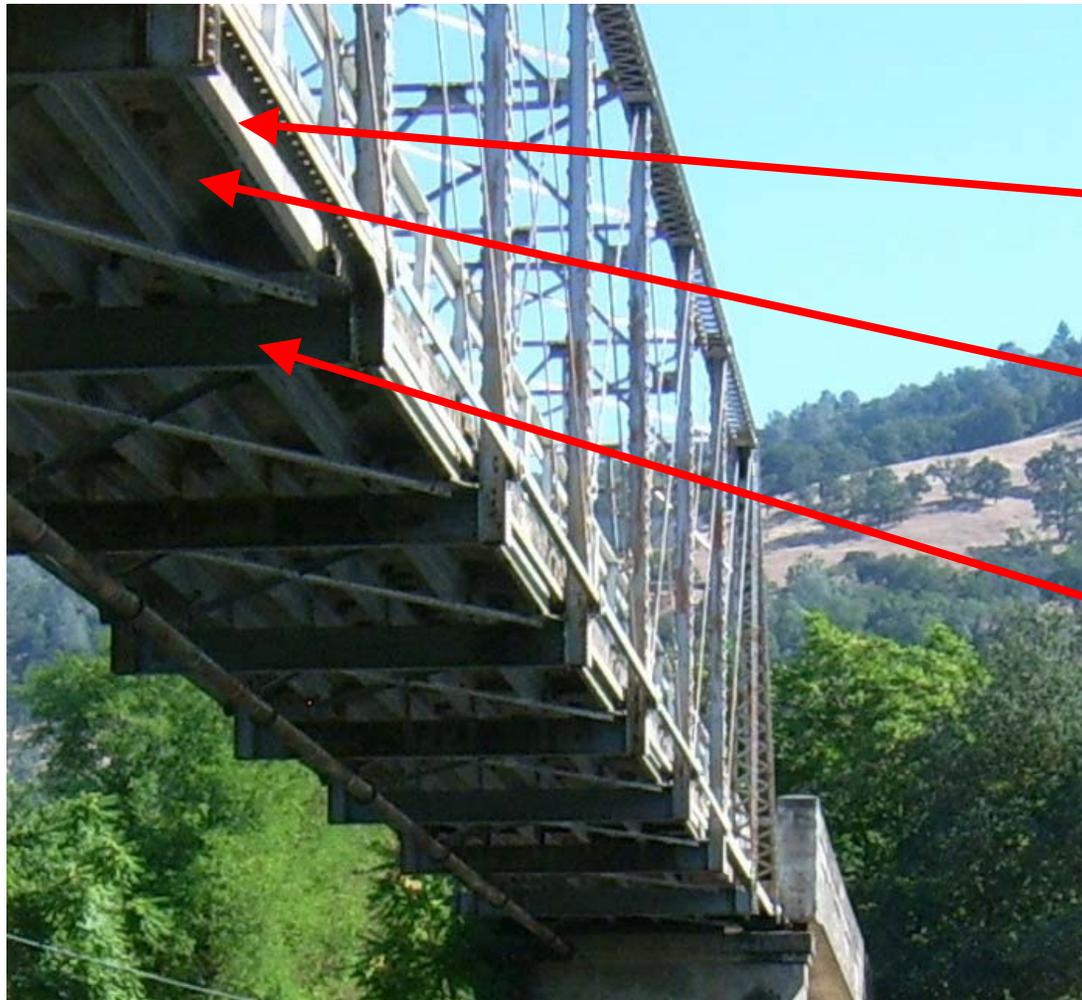
**Retrofit Piers**

**Replace all  
Diagonals**

**Replace Upper  
and Lower  
Chords**

**Replace  
Barriers**

# Rehabilitation Findings



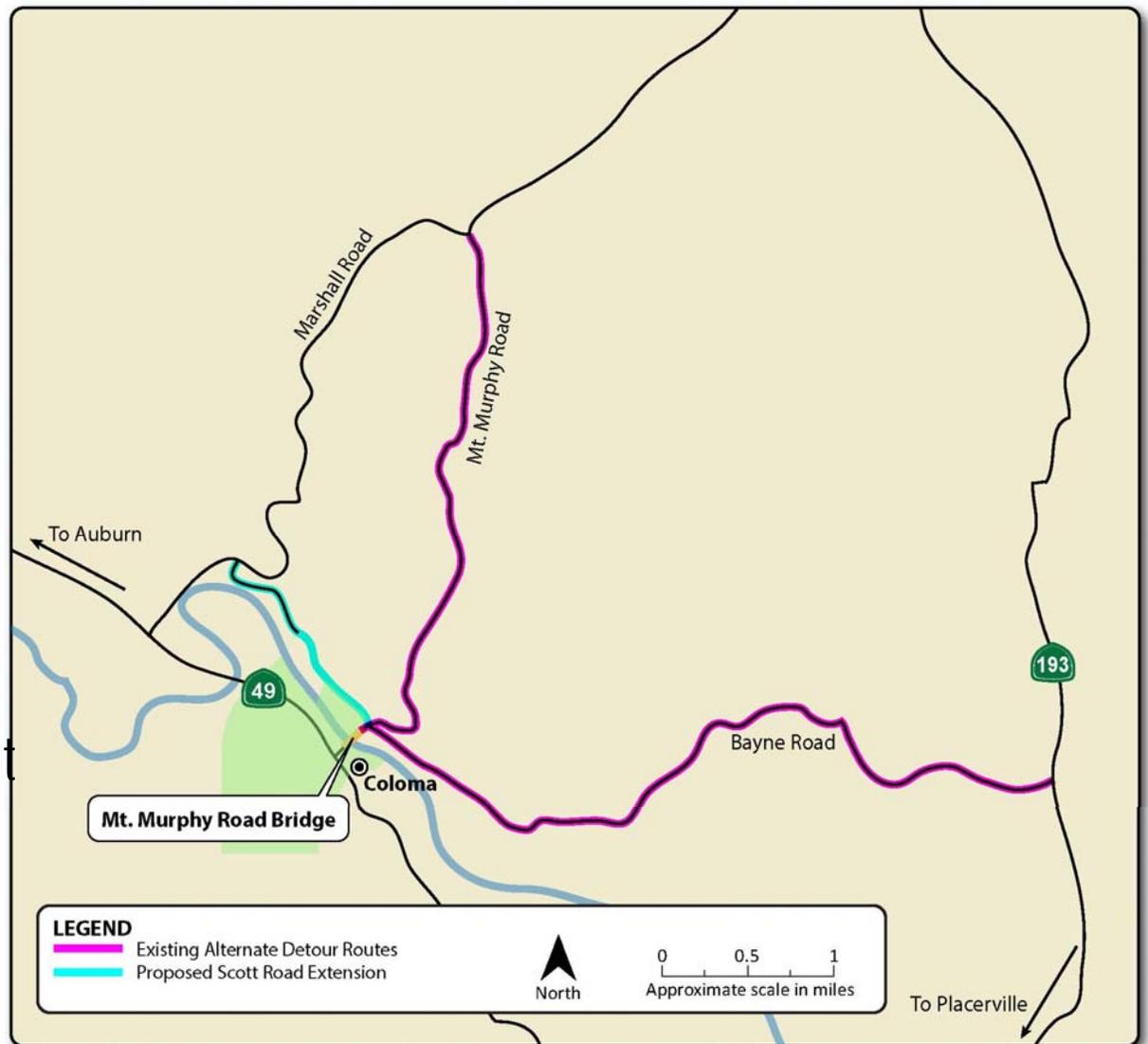
**Replace  
Stringers**

**Replace  
deck**

**Replace  
Floorbeams**

# Access

- Closure required for rehabilitation
- 20+ mile detour results in need for temporary bridge
  - Impacts to adjacent land, \$\$



# Historic Considerations

- Built in 1915 – not considered part of Marshall Gold historic era
- Rehabilitation compromises historic eligibility



NANCY VERNON POSES WITH TWO DONKEYS IN FRONT OF THE FOOTBRIDGE BUILT IN 1881  
BY ROGER COX, A RANCHER ON THE NORTH SIDE OF THE RIVER.  
(COURTESY OF RITA ARCHIE, PHILIP FANCHER, AND VICKIE LONGO.)

# State Park Consultation

- Met with Gold Discovery State Park in September 2013:
  - They do not want to own the bridge
  - Pedestrian safety is #1 concern
  - Improvements to bridge capacity creates more opportunity for park to use both sides of river
  - Willing to negotiate on right-of-way issues
  - Maintain historic context of the park

# Caltrans Consultation

- Met with Caltrans Local Assistance November 2013:
  - Rehabilitation will need to improve pedestrian safety
  - Bridge must accommodate emergency vehicle access (includes during construction)
  - SHPO and FWHA will decide if design exceptions are acceptable
  - Detour costs will be considered
  - FHWA and Caltrans will need to approve any rehabilitation or replacement option

## Costs (Excluding ROW, ED/Design/CM)

- Rehabilitation
  - Bridge scenarios range from \$6.5 - \$14.2 million (\$700/sf - \$1,550/sf)
  - County may be required to pay for all or a portion of the fix
  - Higher future maintenance costs for inspection and painting, shorter life span than a new bridge
- Replacement - assumes 2-lane, shoulders, pathway
  - \$1.7 million to keep old bridge as pedestrian only bridge plus \$15.3 million (\$555/sf) for a replacement bridge

County does not need to contribute to funding of new bridge, but would have to pay for keeping the old bridge for use as a pedestrian bridge

# Recommendation

- Move to dismiss rehabilitation options due to:
  - 1. Risk of no funding if not all functionally obsolete issues are addressed
  - 2. Cost of rehabilitation is 1.5X to 3X cost of replacement on a per square foot basis
  - 3. Historic value of structure is lost with rehabilitation
- Move to Initiate Phase 1B of the Alternatives Analysis Study
- Explore options for using old bridge for non-vehicular travel during next phase