# Mt. Murphy Road Bridge Project

## Public Workshop, Thursday, February 7, 2013

### Gold Trail Grange Hall, 319 State Highway 49, Coloma


**PRESENTED BY:**
County of El Dorado
Community Development Agency
Transportation Division

**Matthew Smeltzer, P.E.**
Deputy Director of Engineering

**Adam Bane, P.E.**
Senior Civil Engineer

**Janet Postlewait**
Principal Planner

**Anne Novotny**
Senior Planner

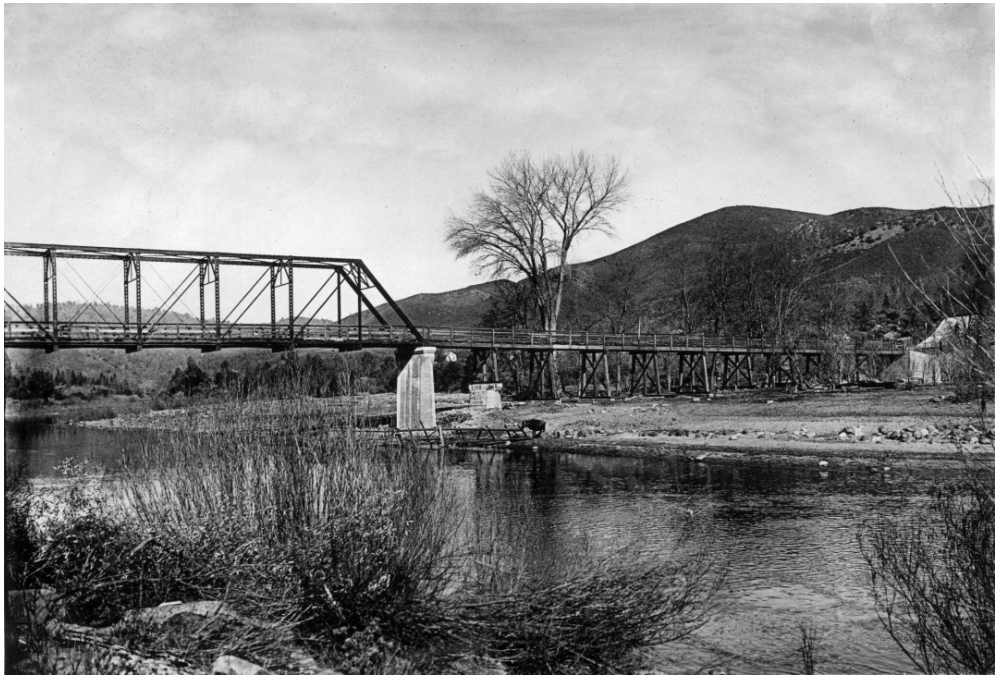

# Why Are We Here Today?

1. Mt. Murphy Bridge has existing deficiencies that need to be addressed
2. To provide information and to listen to **You – the community**
3. This public meeting is the beginning of the initial planning process to determine whether to repair or replace existing bridge
4. Community input throughout this process

# Workshop Agenda

1. **Welcome & Introduction** – Anne Novotny
2. **Bridge Facts / Current Conditions** – Matt Smeltzer
3. **Highway Bridge Program Funding** – Matt Smeltzer
4. **Mt. Murphy Bridge Project Study Report** – Adam Bane
5. **Environmental Process** – Adam Bane
6. **Previous Plans/Studies in Project Area** – Adam Bane
7. **Bridge Design Examples** – Matt Smeltzer
8. **Next Steps for Public Input** – Anne Novotny
9. **Open Question & Discussion Period**

# Mt. Murphy Road Bridge Facts



*Courtesy of Vickie Longo*

- Current bridge built in 1915 – 98 years old
- 10.5 foot wide one-lane steel truss structure
- 160-ft long span over South Fork Amer. River
- Two concrete approaches (140-ft & 60-ft long)
- 280 Vehicles/Day (2012 traffic counts)
- 1 of 77 bridges maintained by County

# Existing Caltrans Sufficiency Issues

- Routine inspections every 2 years by Caltrans
- Rated on 140 elements; Score of 0 to 100
- Sufficiency Rating (SR) < 80 = eligible for rehabilitation
- Sufficiency Rating (SR) < 50 = eligible for replacement
- 2006 SR = 2.0; 2011 SR = 0.00 (lowest rating of all County maintained bridges)
- Structurally Deficient (per 2011 SR)
- Functionally Obsolete (per deck geometry rating of 2; less than 3 is “FO”)
- Structure has Fracture Critical (FC) members; FC inspections by Caltrans annually

# Highway Bridge Program (HBP)

## Federal Funding

- Federal Highway Administration (FHWA) safety funding program for bridge maintenance, rehab and replacement
- 100% Reimbursement Bridge Program (Off System Roads)
- No Local Match (County General Fund will NOT be used)
- Funds projects that either rehabilitate or replace (not both)
- Aug 2010 – County submitted HBP request to Caltrans
- Sept 2011 – County received federal authorization for $600K for preparation of Project Study Report and Environmental Document

# Mt. Murphy Bridge Maintenance

- Routine maintenance by County bridge crew – as recommended per Caltrans inspection reports
- Sept 2007 – crew found one deck section slid 4 inches sideways; required immediate inspection and repair
  - Deck moved back into place by jacking the concrete slab against temporary bracing and beams below
  - Emergency repair cost $90K, took about 3 weeks of 530 man hours to complete

# Mt. Murphy Bridge Emergency Deck Repair, Sep-Oct 2007



# Mt. Murphy Bridge Emergency Deck Repair, Sep-Oct 2007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# Mt. Murphy Bridge Emergency Deck Repair, Sep-Oct 2007

# Mt. Murphy Bridge Project Study Report

## Purpose of the PSR

- Define Project Purpose & Need
- Identify alternatives to repair/rehabilitate or replace existing bridge and cost estimates
- Assess environmental impacts
- Develop quantitative matrix to evaluate and rank preferred alternatives

# Example of Evaluation Criteria Matrix

| CRITERIA | | ALTERNATIVE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | 2 | | 3 | | 4 | | 5 | |
| | Importance Factor | Rating | Weighted Score | Rating | Weighted Score | Rating | Weighted Score | Rating | Weighted Score | Rating | Weighted Score |
| BRIDGE | | | | | | | | | | | |
| (1) INITIAL COST | 10 | 5 | 50 | 4 | 40 | 1 | 10 | 1 | 10 | 5 | 50 |
| (2) MAINTENANCE COST | 6 | 5 | 30 | 5 | 30 | 3 | 18 | 3 | 18 | 5 | 30 |
| (3) AESTHETICS | 6 | 3 | 18 | 4 | 24 | 4 | 24 | 4 | 24 | 4 | 24 |
| ROADWAY | | | | | | | | | | | |
| (4) APPROACH ROAD COST | 10 | 5 | 50 | 1 | 10 | 3 | 30 | 5 | 50 | 5 | 50 |
| (5) MAINTENANCE COST | 6 | 2 | 12 | 2 | 12 | 4 | 24 | 5 | 30 | 2 | 12 |
| (6) REHABILITATION / REPLACEMENT COST | 6 | 1 | 6 | 2 | 12 | 3 | 18 | 5 | 30 | 1 | 6 |
| (7) DEFICIENCIES / SAFETY | 9 | 1 | 9 | 2 | 18 | 4 | 36 | 5 | 45 | 1 | 9 |
| (8) VEHICLE OPERATING SAVINGS | 8 | 1 | 8 | 2 | 16 | 5 | 40 | 5 | 40 | 1 | 8 |
| (9) RIGHT OF WAY COSTS | 5 | 5 | 25 | 5 | 25 | 2 | 10 | 2 | 10 | 5 | 25 |
| (10) ENVIRONMENTAL ISSUES / PERMITTING (STUDY AREA) | 5 | 2 | 10 | 4 | 20 | 4 | 20 | 4 | 20 | 2 | 10 |
| (11) RECREATIONAL USES | 4 | 1 | 4 | 3 | 12 | 4 | 16 | 4 | 16 | 1 | 4 |
| (12) COMMUNITY ACCEPTANCE | 9 | 2 | 18 | 3 | 27 | 5 | 45 | 5 | 45 | 1 | 9 |
| (13) EMERGENCY VEHICLE ACCESS | 10 | 1 | 10 | 1 | 10 | 5 | 50 | 5 | 50 | 1 | 10 |
| (14) IMPACT ON GENERAL PLAN | 5 | 4 | 20 | 4 | 20 | 4 | 20 | 4 | 20 | 4 | 20 |
| TOTAL | | | 270 | | 276 | | 361 | | 408 | | 267 |

Ratings: 1 = Low; 5 = High

*1993 Mosquito Road Bridge Replacement Study*

**TABLE 9-6 - CRITERIA MATRIX**

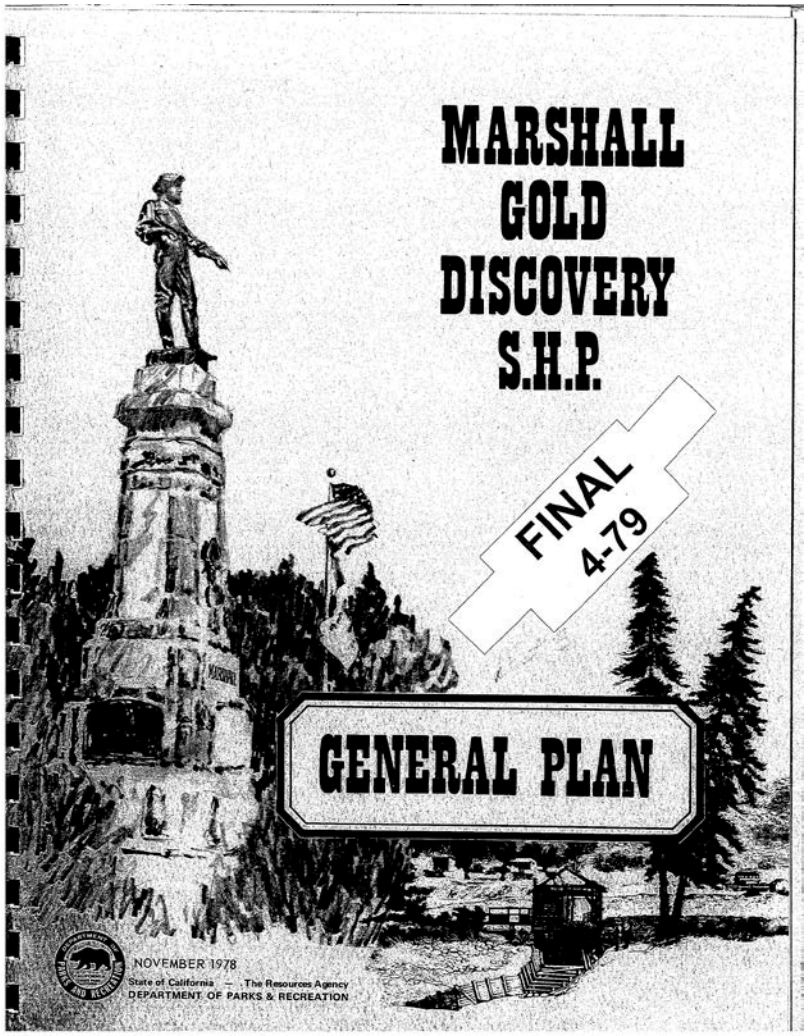
# Possible Evaluation Criteria

- Community Acceptance
- Public Safety
- Historic / Rural Preservation
- Aesthetics / Architectural Design
- Bicycle / Pedestrian / Emergency Vehicle Access
- Environmental Issues
- Recreational Uses
- Costs – Bridge Construction, Approach Roadway, Right of Way Acquisitions, Maintenance/Rehab
- Access during Construction

# PSR / Environmental Process

- Public Input throughout the planning process
- Stakeholder Advisory Committee
- Establish evaluation criteria & alternatives
- Draft Project Study Report (PSR)
- Return to public with Draft PSR for review/comments
- Finalize PSR – Anticipated Completion by 2014
- Environmental Review – begin CEQA/NEPA process

# Previous Plans/Studies in Project Area




## Land Use Circulation Element

- Recommended improvements to reduce impacts of motor vehicle traffic on the park's historic area and improve circulation
- The complete plan is available on the CA State Parks website: http://www.parks.ca.gov/pages/21299/files/marshall_gold_discovery_shp_gp.pdf

# Previous Plans/Studies in Project Area


- In May 2010, a State Route 49 Realignment Study from Coloma to El Dorado was completed by the El Dorado County Transportation Commission
- The complete study is available on the EDCTC website: http://www.edctc.org/3/SR49Realignment.htm

# Bridge Design Examples

## *Prestressed Concrete Box Girder*

**Current Chili Bar Bridge over South Fork American River at State Hwy 193 in El Dorado County**

**Built in 1993, replaced historic bridge pictured below.**

The bridge built in 1922, was designed by John B. Leonard, a pioneering proponent of the use of reinforced concrete in California. He designed many of the earliest reinforced concrete arch bridges in the state.

# Bridge Design Examples

## *Concrete Box Girder Design*
## Lake Natoma Crossing, Folsom

Post-tensioned concrete box girder, with false deck arches; 4 traffic lanes; opened in 1999; designed to mimic key features of the original historic Rainbow bridge; includes pedestrian walkways with outlook areas, decorative vintage looking railing and lights.

## *Concrete Arch Design*
## Rainbow Bridge, Folsom

208' long main concrete arch span with open spandrel columns and 7 span north and 4 span south T-girder approaches totaling 511' in length. Built in 1917, underwent major reconstruction in 1969. Was the only means of crossing the American River in the City of Folsom until 1999 when the Lake Natomas Crossing was completed.

# Bridge Design Examples

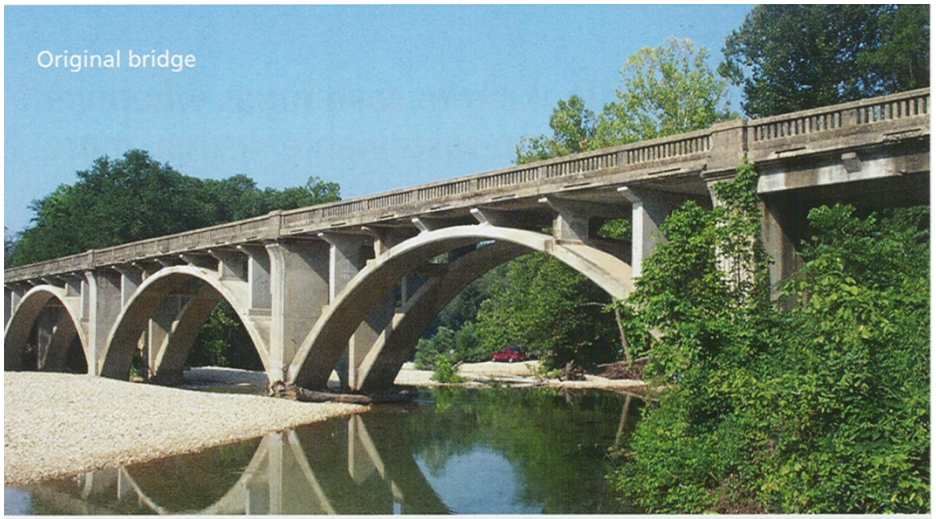
## *Bowstring Truss in London, Ontario, Canada*

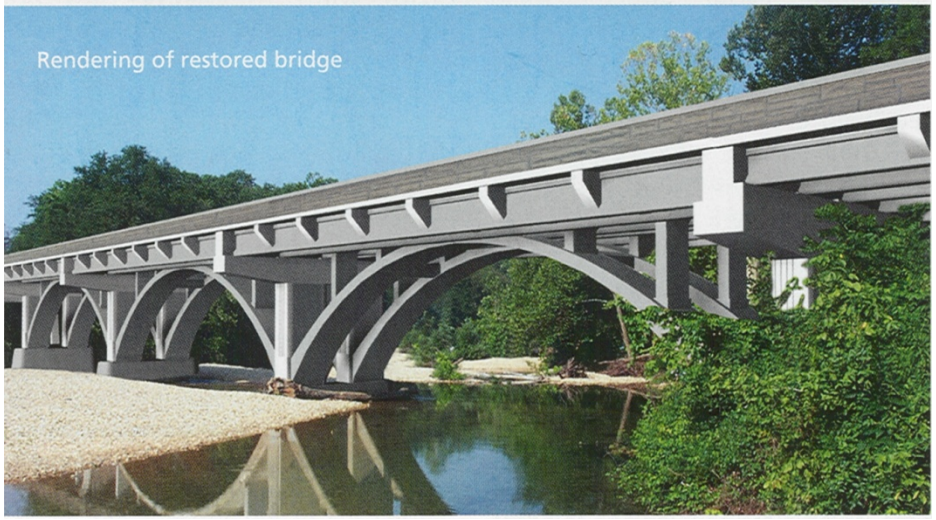
# Bridge Design Examples

## *Precast Concrete*

**Sinking Creek Bridge, Ozark Scenic Riverways National Parkland**

Precast concrete solution allows attractive arches on the bridge to remain in place which appearing to support the bridge loads.



# Bridge Design Examples

***Suspension Cable***

**Guy A. West Memorial Bridge, Sacramento**

Spans the American River between Sacramento State University and Campus Commons. Built in 1966, the pedestrian bridge is 1,144-ft long and 16-ft wide.

***New Steel Truss at Wentworth Springs/Gerle Creek***

# Next Steps for Public Input

- **Q & A Session** – ***What are your primary concerns?***
- **Evaluation Criteria – *What are your priorities?***
- **Visit the project website at**: **www.edcgov.us/bridgeprojects/**
- **Sign-In Sheet** – provide your email address to receive project updates
- **Comment Cards**
- **Stakeholder Advisory Committee**
- **Follow-up Public Workshops**

# Questions or Comments

**Email:** mtmurphybridge@edcgov.us

**Mail:** El Dorado County Transportation Div.
Attn: Anne Novotny
2850 Fairlane Court
Placerville, CA 95667

**Phone:** (530) 621-5900

***Thank you for attending this workshop.***
***Your input is important to us.***


Levee Trail
Mt Murphy Rd
Bayne Rd
Bridge St
Golden Chain Highway
Coloma, CA
Back St
Brewery St
49
New River Rd
Beakart Ln
High St