

Mount Murphy Road Bridge At the South Fork of the American River

Community Development Agency
Transportation Division

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February 7, 2017



AGENDA

→ Welcome / Introductions

WHERE WE'VE BEEN

→ Basis of Project Development

→ Overview of Alternatives

WHERE WE ARE

→ Alternative Considerations

WHERE WE'RE GOING

→ Environmental “Look Ahead”

→ Questions



Basis of Development

- Current bridge built in 1915
- 10.5 ft wide one-lane truss structure
- 160 ft long span
- 360 Vehicles/Day (2015 Traffic Count)
- **Sufficiency Rating (SR) = 0.00 (2011), 13.5 (2014), 2.0 (2016), one of the Lowest Rating of ALL County Maintained Bridges**
- Structurally Deficient (has Fracture Critical Members, FC inspections by Caltrans annually)



Courtesy of Vickie Longo

Basis of Development

- Emergency Repair (Sept. 2007)
- Deck Section Slid 4" Sideways
- Jacked Deck Back Into Place
- Emergency Repair: 3 weeks, \$90k



Basis of Development

- Structural Analysis and Rehabilitation Feasibility Study (completed in January 2014)
- Concluded Bridge Replacement would be Needed:
 - Functionally Obsolete
 - Substandard Geometry
 - Structurally Deficient



Retrofit Columns

Retrofit Footings

Strengthen Beams and Slabs

Basis of Development

→ Structural Analysis and Rehabilitation Feasibility Study



Retrofit Piers

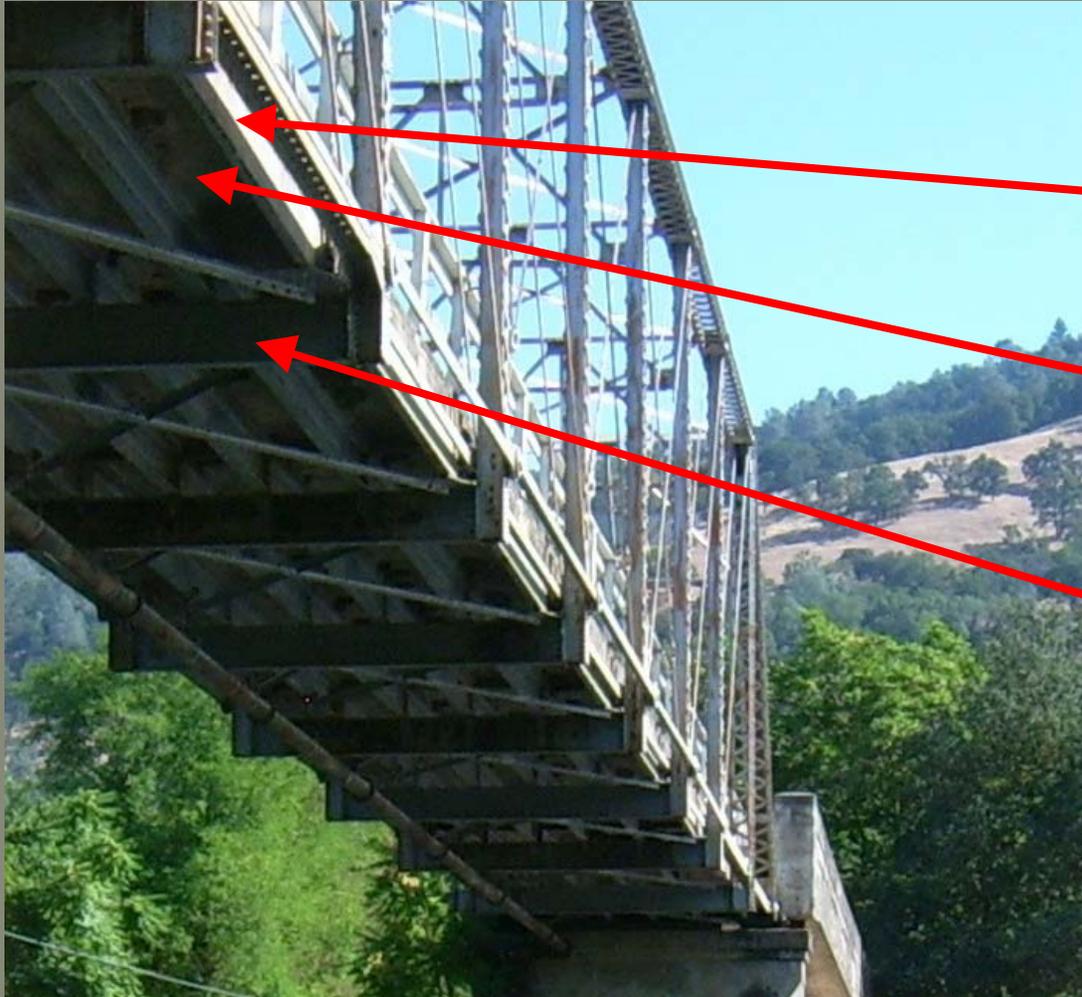
Replace all
Diagonals

Replace Upper
and Lower
Chords

Replace
Barriers

Basis of Development

→ Structural Analysis and Rehabilitation Feasibility Study



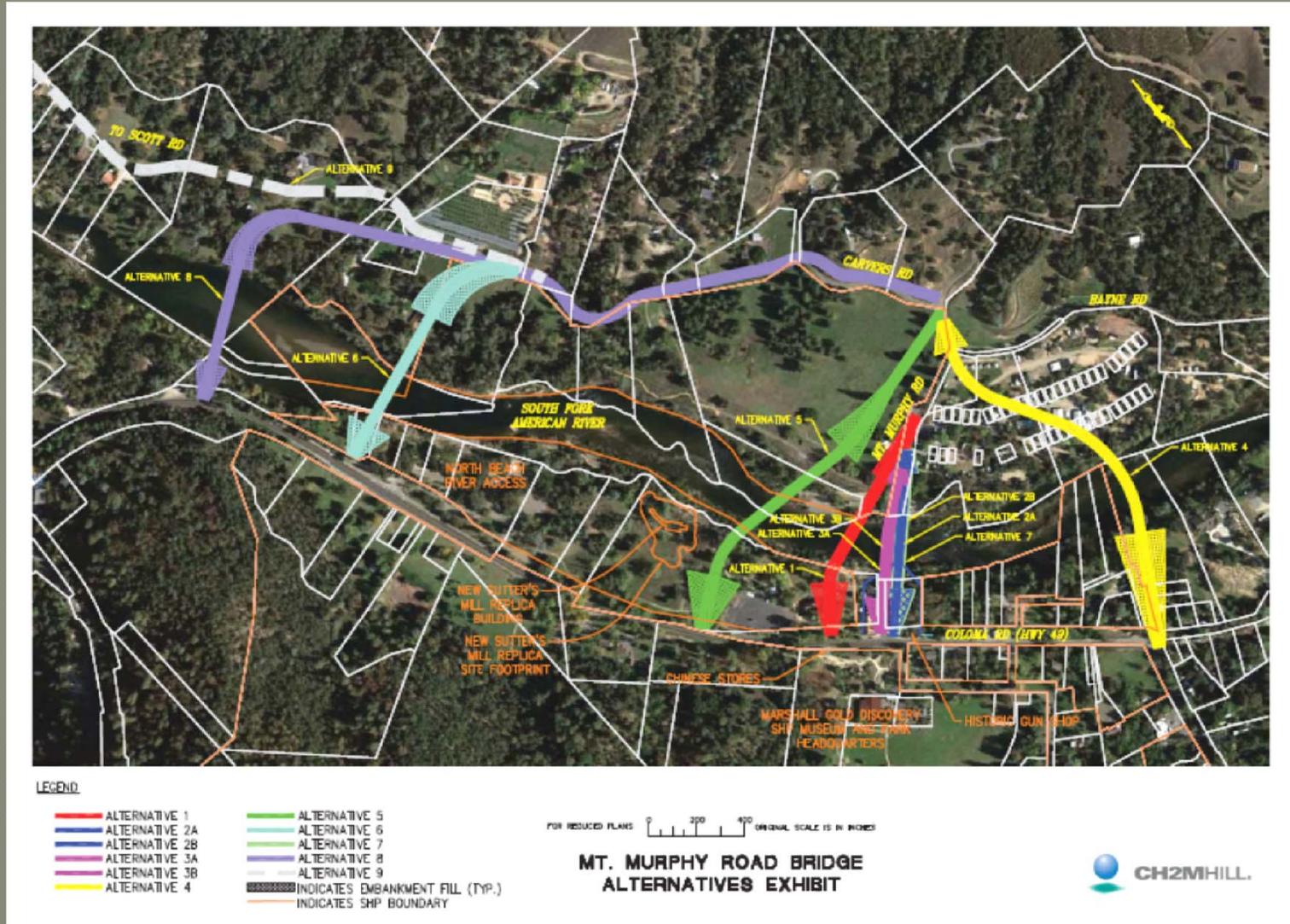
Replace
Stringers

Replace
Deck

Replace
Floorbeams

Overview of Alternatives

→ 9 Alternatives Considered



Overview of Alternatives

- ➔ Alternatives Reduced to 3 Corridors for Analysis Based on Performance Criterion



Alternative Considerations

→ Overview



Alternative Considerations

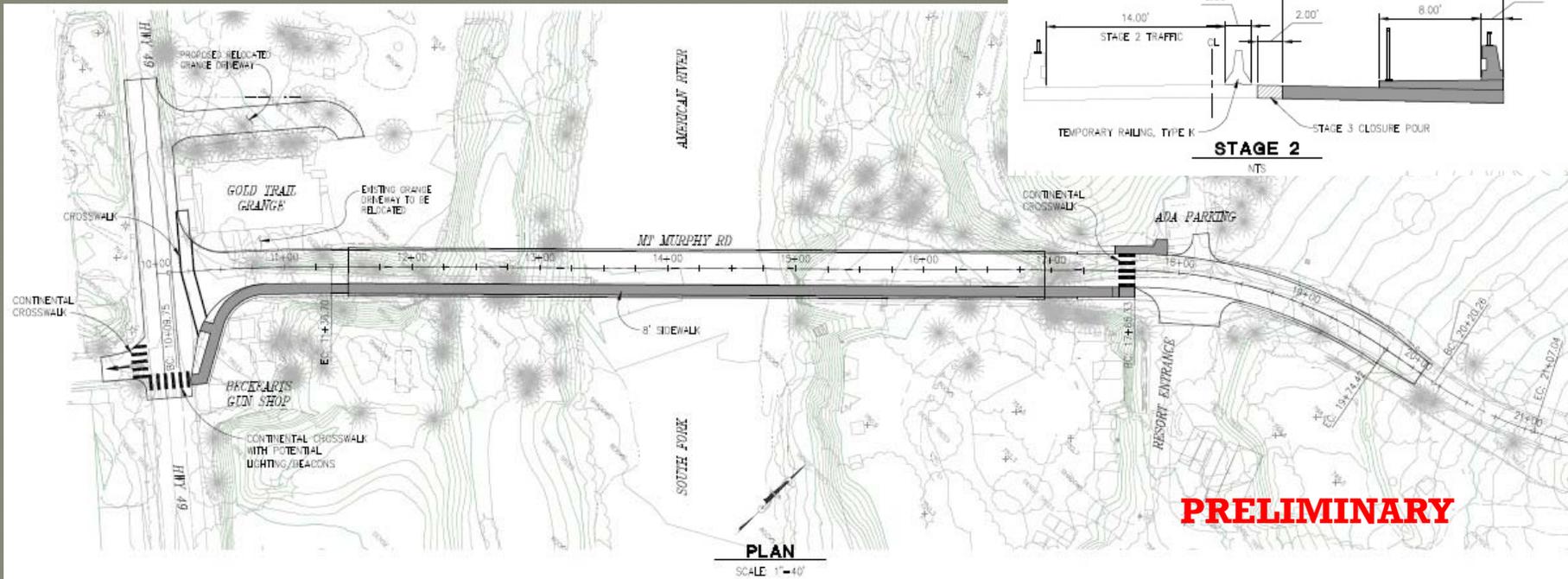
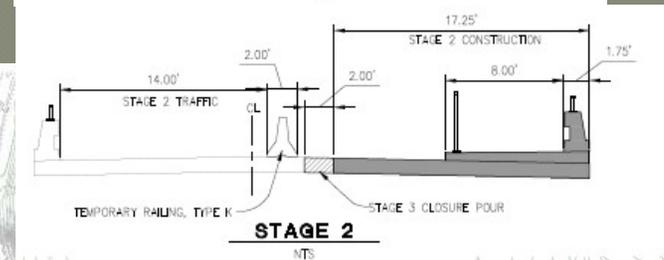
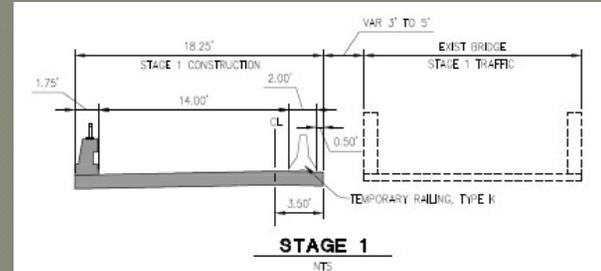
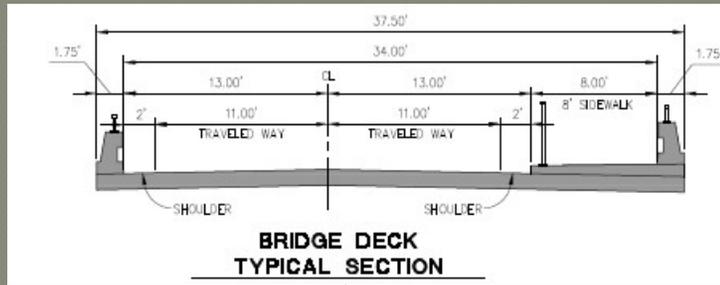
→ Alternative 1 (Corridor 1) – “On Alignment” Video



PRELIMINARY

Alternative Considerations

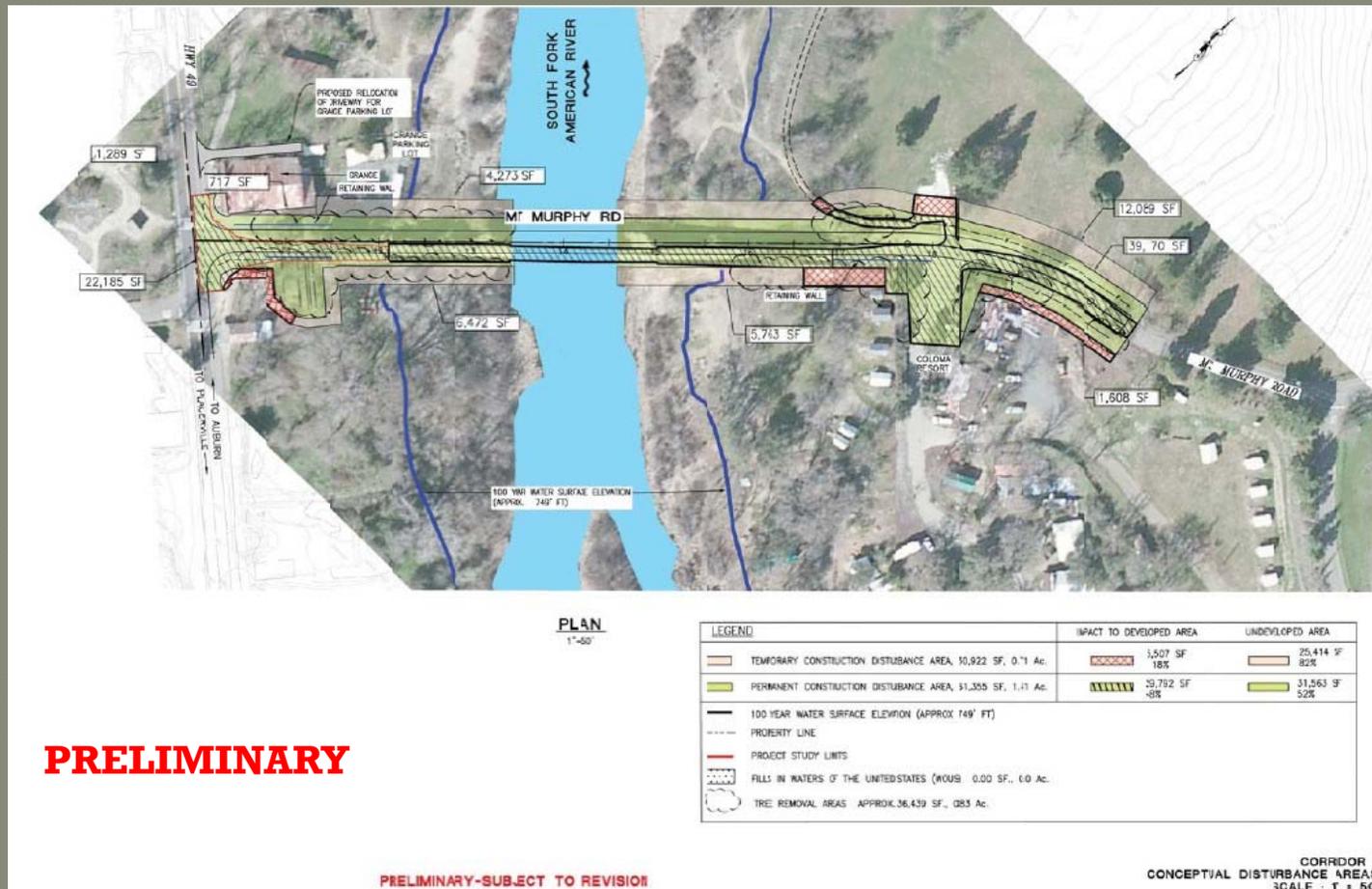
- Alternative 1 (Corridor 1) – “On Alignment” Plan Sheet
 - 540' Span, 34' Width, 500' Total Approach Roadway



Alternative Considerations

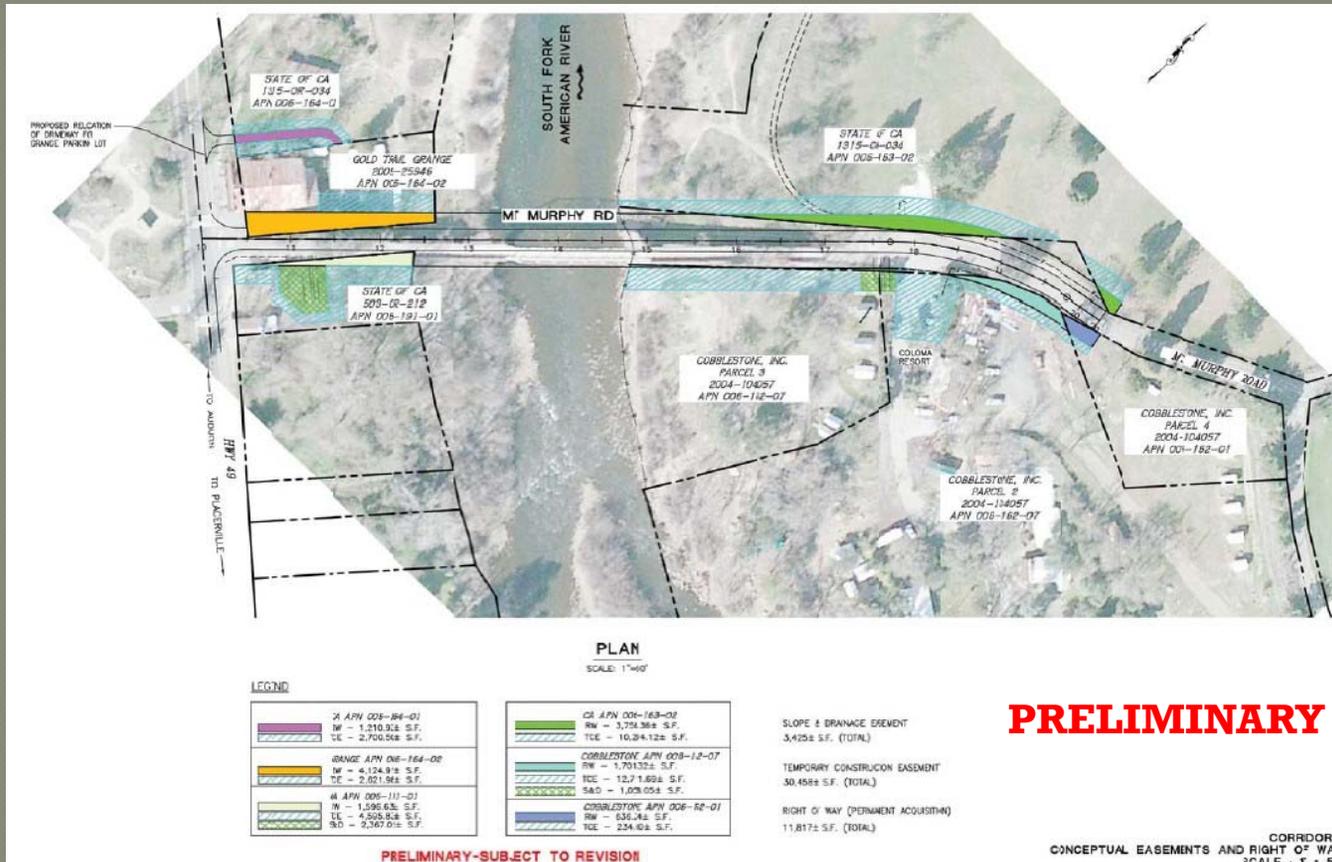
➤ Alternative 1 (Corridor 1) – “On Alignment” Conceptual Disturbance Areas

- Permanent: 1.41 Acres (52% in undeveloped areas)
- Temporary: 0.71 Acres (82% in undeveloped areas)



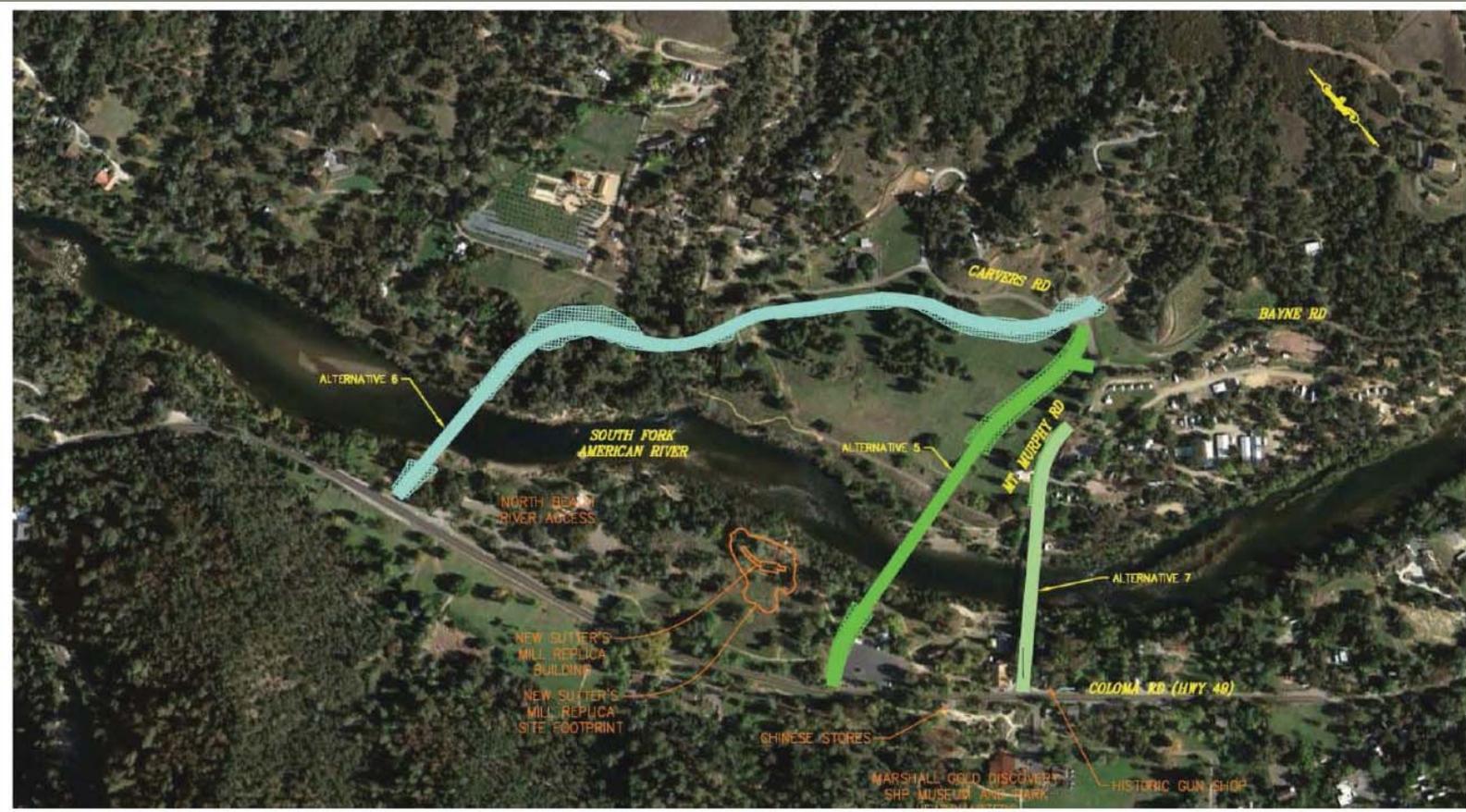
Alternative Considerations

- **Alternative 1 (Corridor 1)** – “On Alignment” Conceptual Right of Way
 - 6 Parcels (3 State Parks, In-Fee: 0.15 Acres, TCE: 0.40 Acres, S&D: 0.05 Acres)
 - (Totals) In-Fee: 0.30 Acres, TCE: 0.76 Acres, S&D: 0.08 Acres



Alternative Considerations

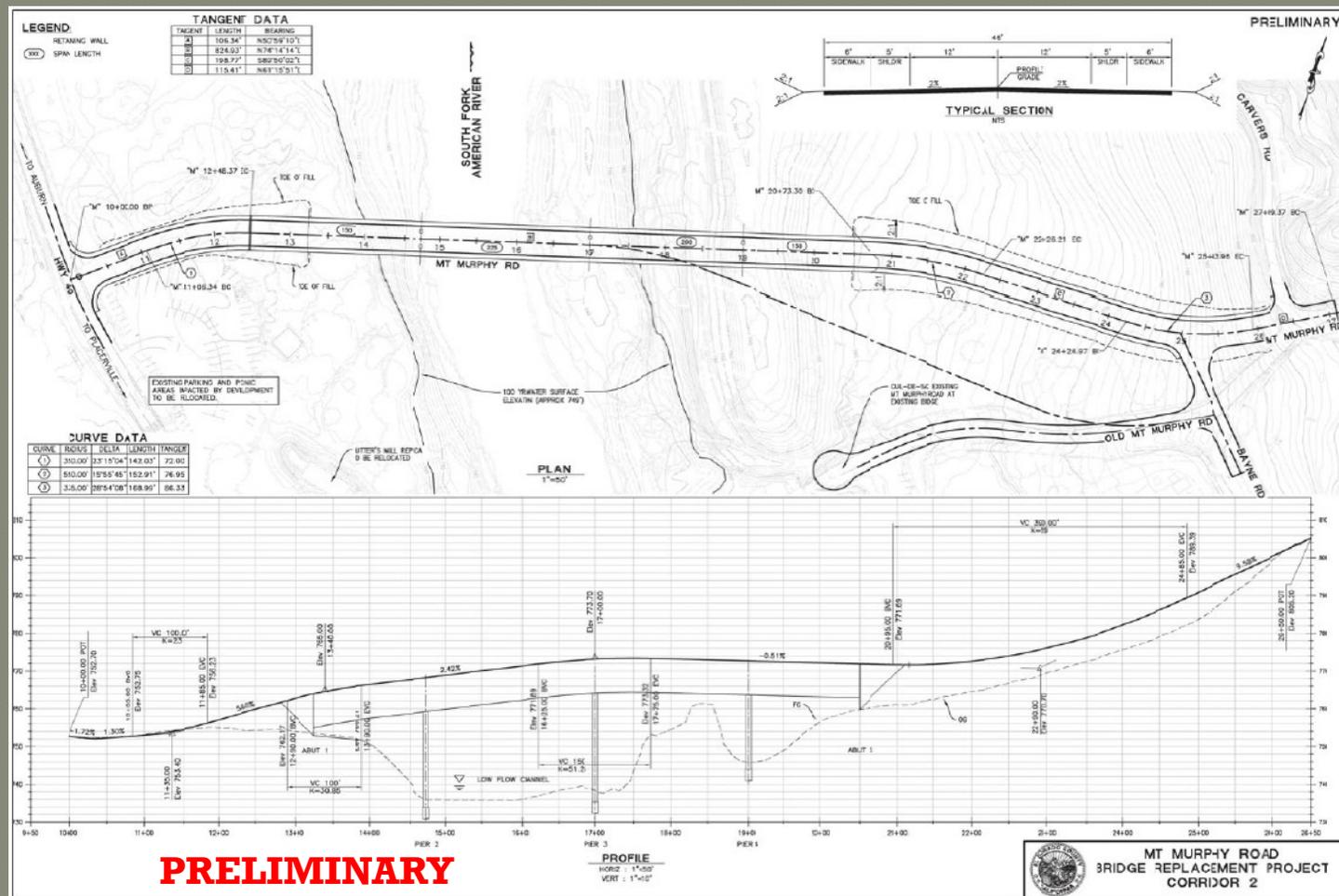
➔ Alternative 2 (Corridor 2) – “Mid-Stream” Overview



Alternative Considerations

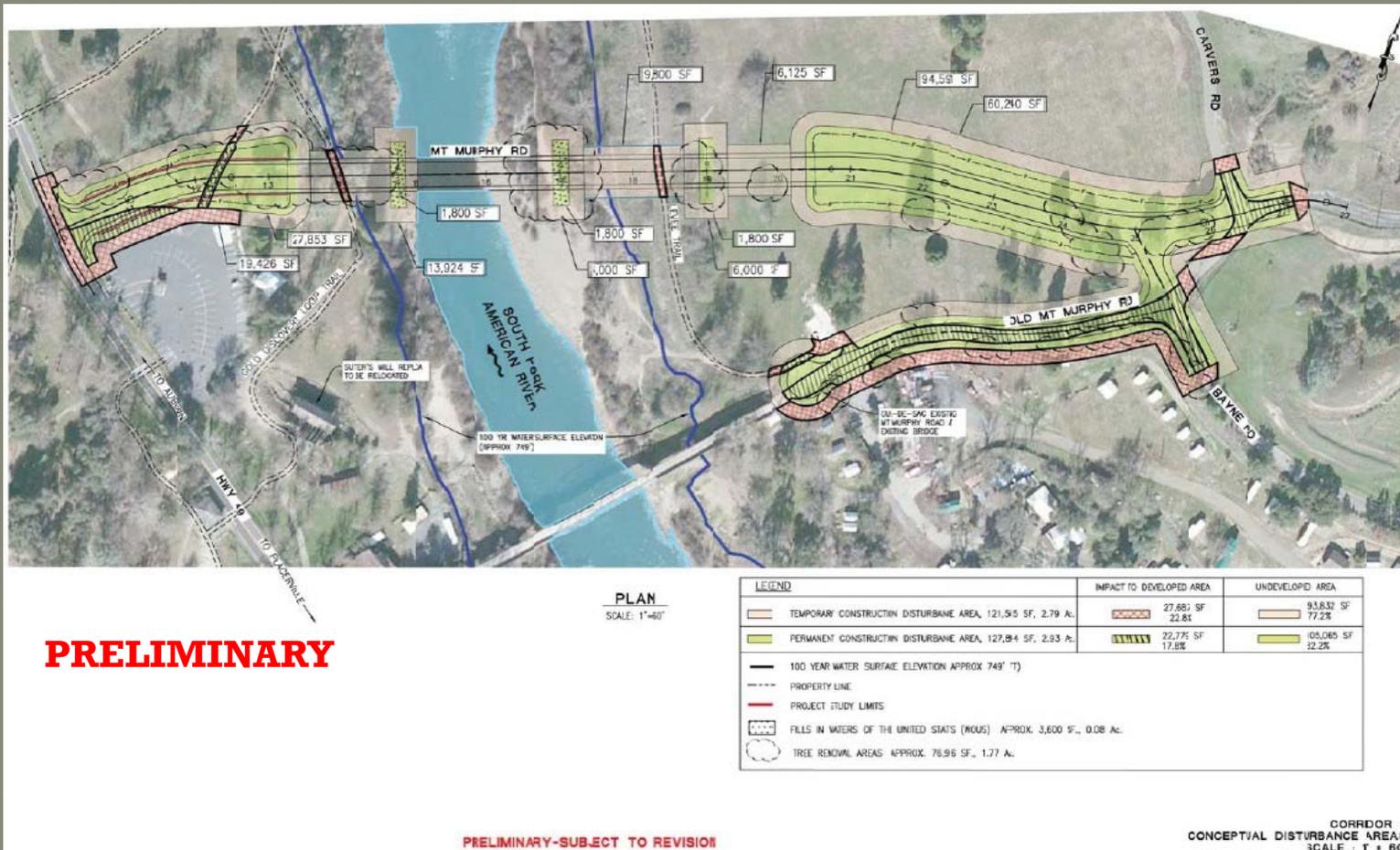
➤ Alternative 2 (Corridor 2) – “Mid-Stream” Plan Sheet

➤ 535' Span, 46' Width, 1,325' Total Approach Roadway



Alternative Considerations

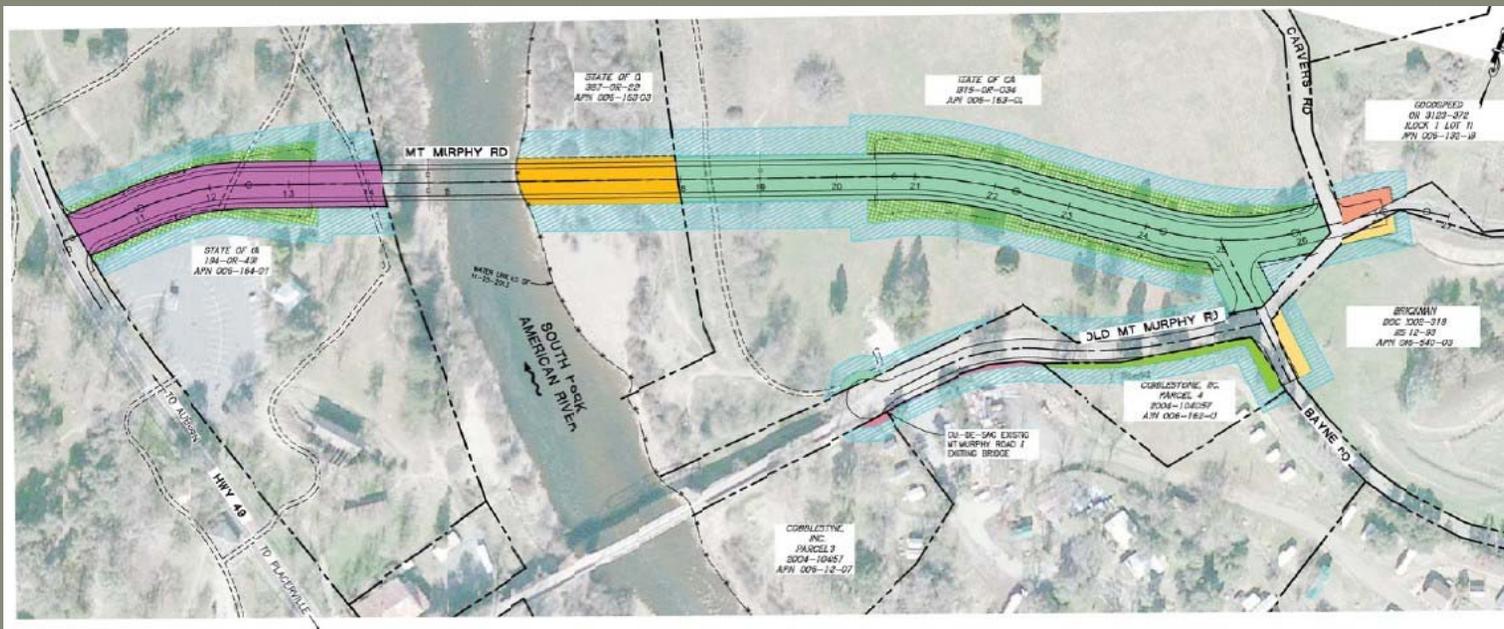
- **Alternative 2 (Corridor 2) – “Mid-Stream” Conceptual Disturbance Areas**
 - Permanent: 2.93 Acres (82% undeveloped areas)
 - Temporary: 2.93 Acres (77% undeveloped areas)



Alternative Considerations

Alternative 2 (Corridor 2) – “Mid-Stream” Conceptual Right of Way

- 7 Parcels (3 State Parks, In-Fee: 2.06 Acres, TCE: 1.85 Acres, S&D: 0.67 Acres)
- (Totals) In-Fee: 2.26 Acres, TCE: 1.88 Acres, S&D: 0.67 Acres



PLAN
SCALE: 1"=60'

PRELIMINARY

LEGEND											
<table border="1"> <tr> <td>CA APN 006-164-01</td> <td>RW = 23,540.03± S.F.</td> </tr> <tr> <td>TCE = 19,472.99± S.F.</td> <td></td> </tr> <tr> <td>S&D = 8,223.29± S.F.</td> <td></td> </tr> </table>	CA APN 006-164-01	RW = 23,540.03± S.F.	TCE = 19,472.99± S.F.		S&D = 8,223.29± S.F.		<table border="1"> <tr> <td>GOODSPEED APN 006-192-14</td> <td>RW = 298.63± S.F.</td> </tr> <tr> <td>TCE = 1,595.83± S.F.</td> <td></td> </tr> </table>	GOODSPEED APN 006-192-14	RW = 298.63± S.F.	TCE = 1,595.83± S.F.	
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PRELIMINARY-SUBJECT TO REVISION

SLOPE & DRAINAGE EASEMENT
 3,155.87± S.F. (TOTAL)

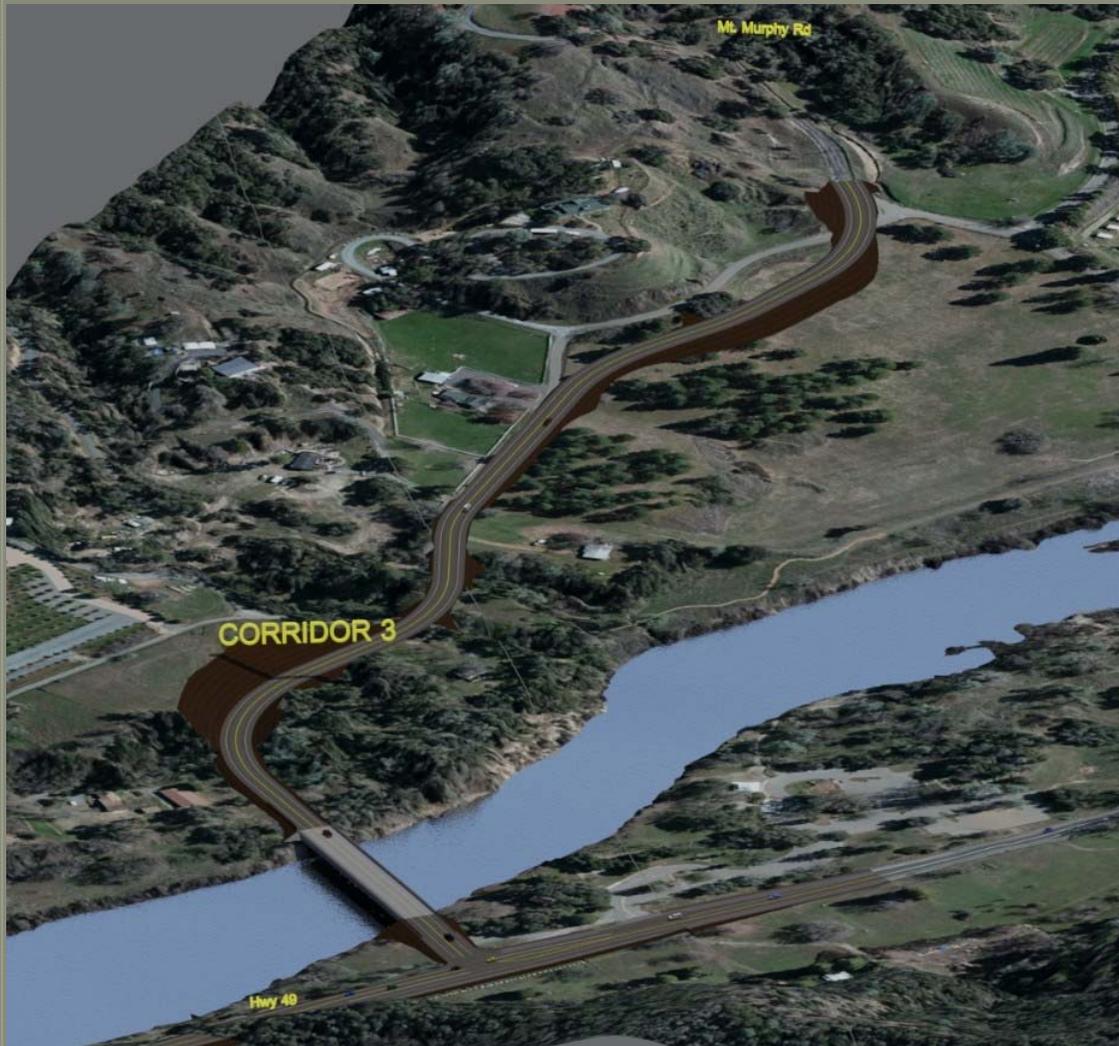
 TEMPORARY CONSTRUCTION EASEMENT
 90,893.78± S.F. (TOTAL)

 RIGHT OF WAY PERMANENT ACQUISITION
 8,565.79± S.F. (TOTAL)

CORRIDOR 2
CONCEPTUAL DISTURBANCE AREAS
SCALE: 1" = 60'

Alternative Considerations

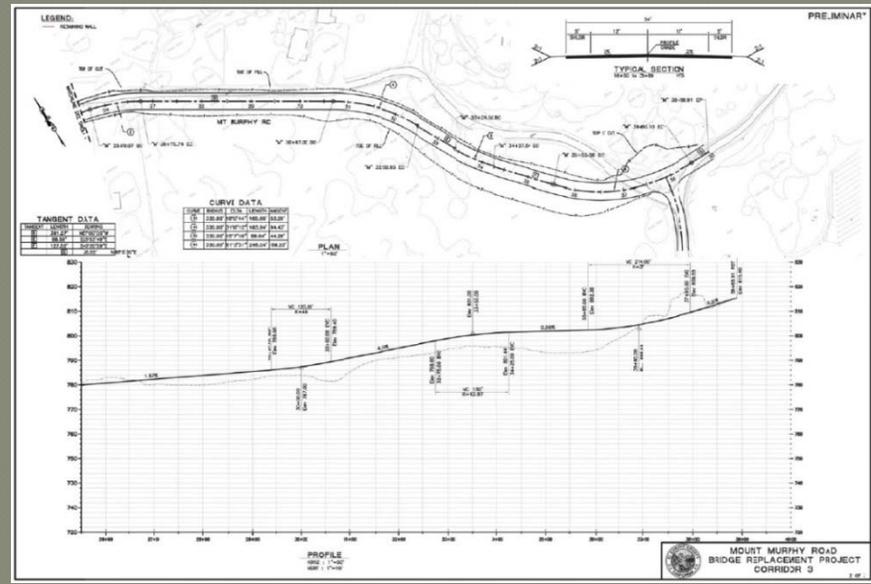
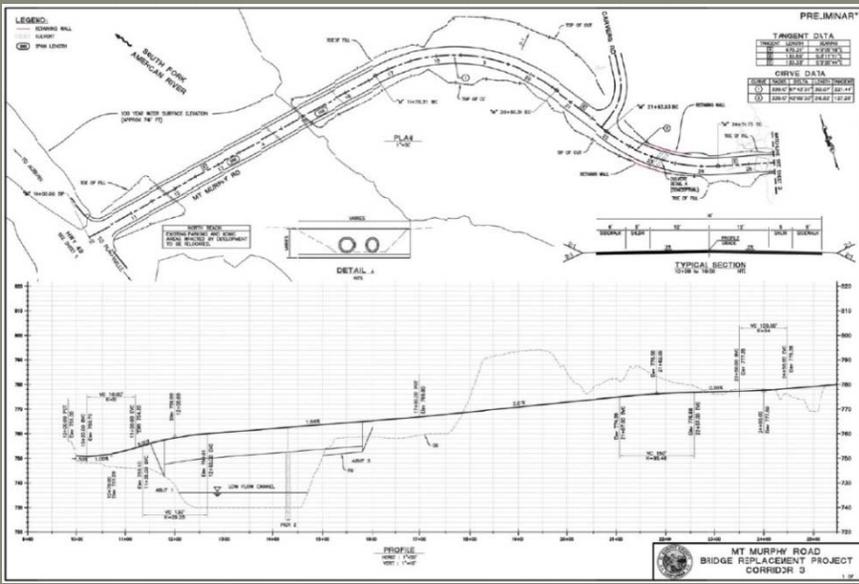
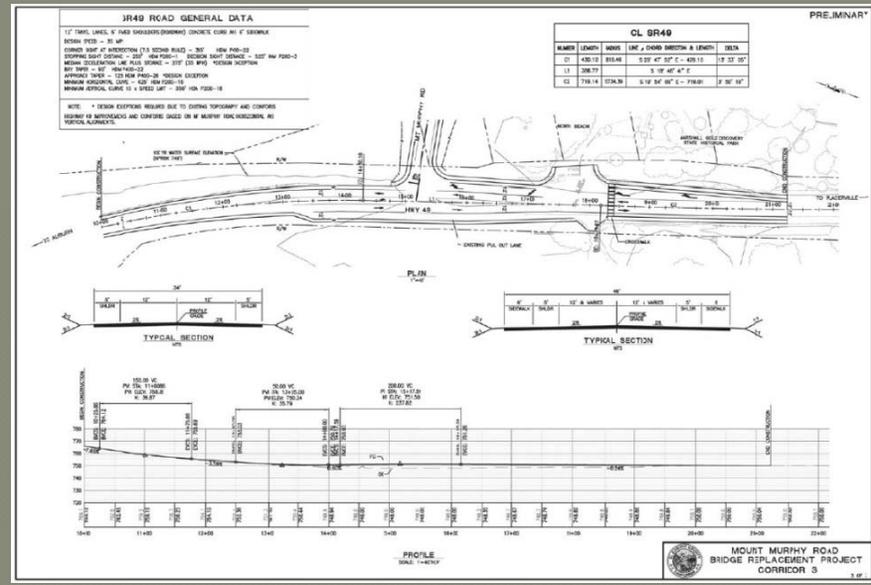
➔ Alternative 3 (Corridor 3) – “Downstream” Video



PRELIMINARY

Alternative Considerations

- ➔ Alternative 3 (Corridor 3) – “Downstream” Plan Sheet
- ➔ Approx. 400' Span, 46' Width, 3,690' Approach Roadway (includes 1,100' Hwy 49 Improvements)

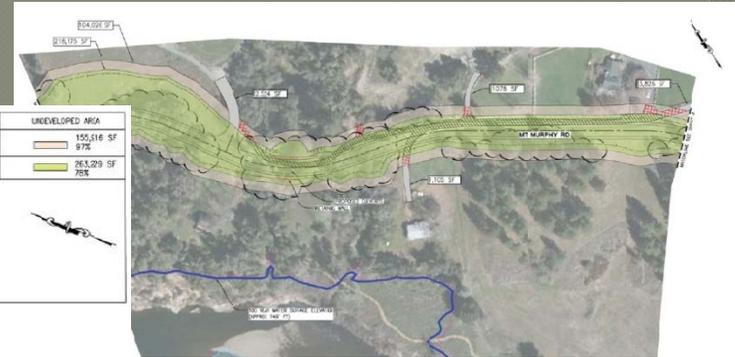
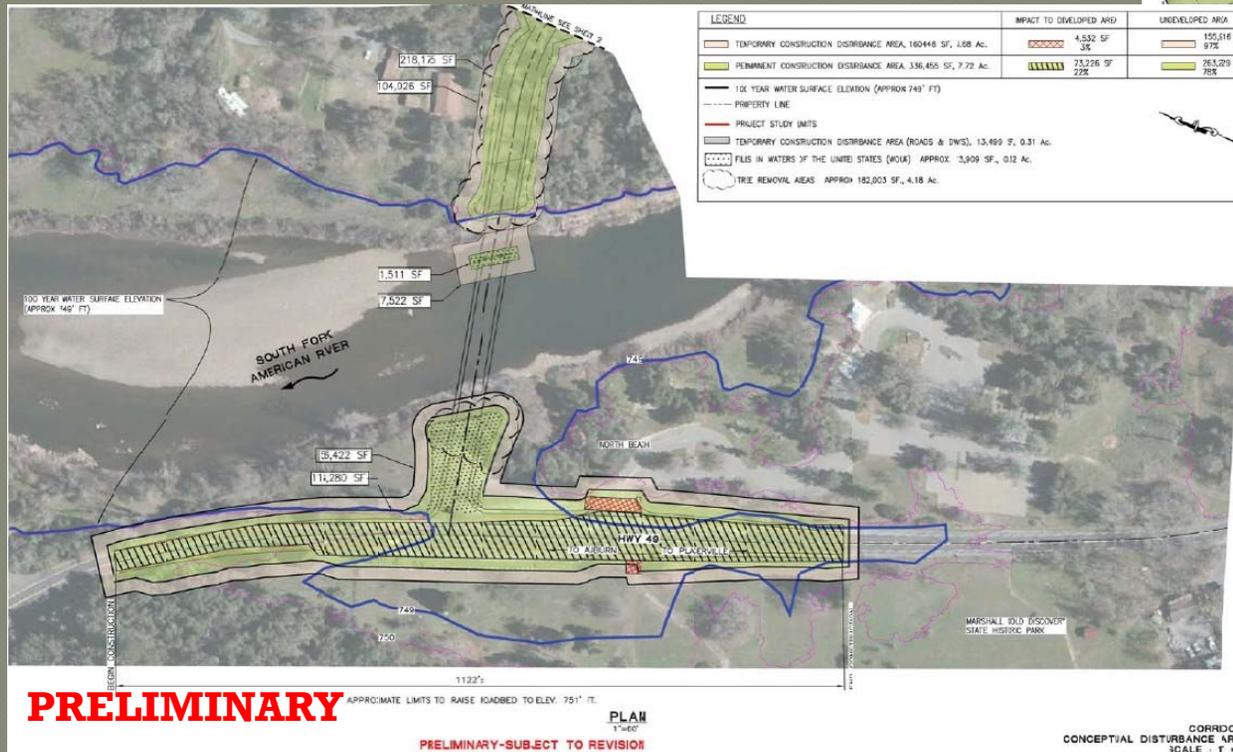


PRELIMINARY

Alternative Considerations

➤ Alternative 3 (Corridor 3) – “Downstream” Conceptual Disturbance Areas

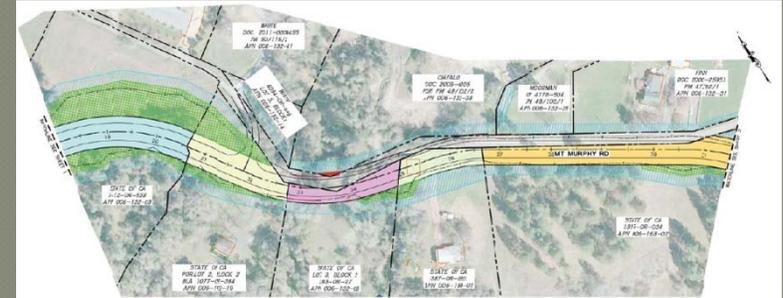
- Permanent: 7.72 Acres (78% undeveloped areas)
- Temporary: 3.68 Acres (97% undeveloped areas)



Alternative Considerations

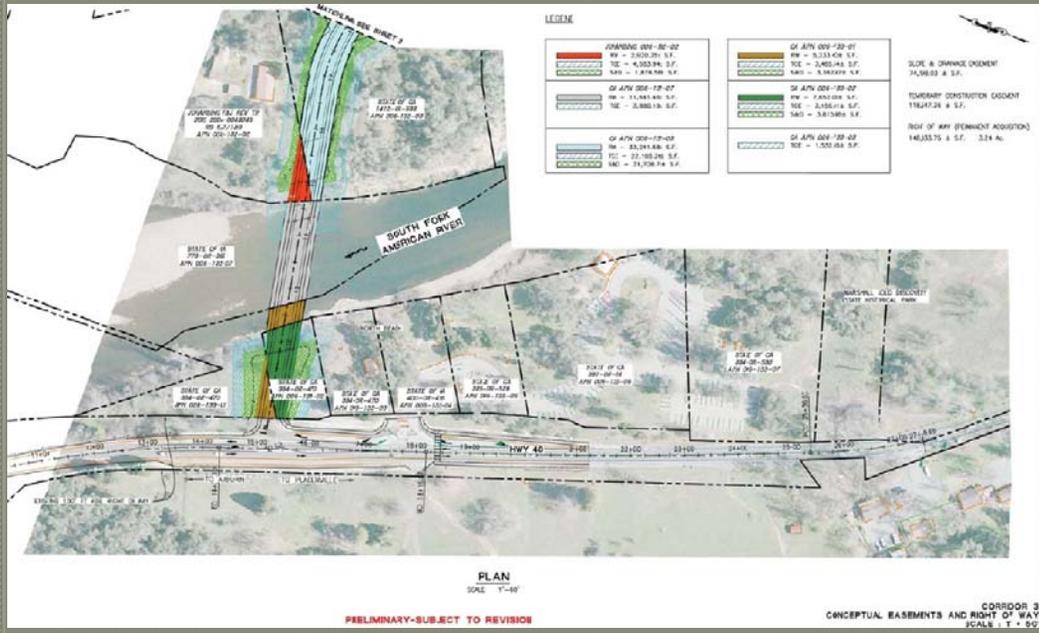
Alternative 3 (Corridor 3) – “Downstream” Conceptual Right of Way

- 16 Parcels (9 State Parks)
- State Parks: In-Fee: 3.06 Acres, TCE: 2.0 Acres, S&D: 1.35 Acres
- (Totals) In-Fee: 3.40 Acres, TCE: 2.72 Acres, S&D: 1.70 Acres



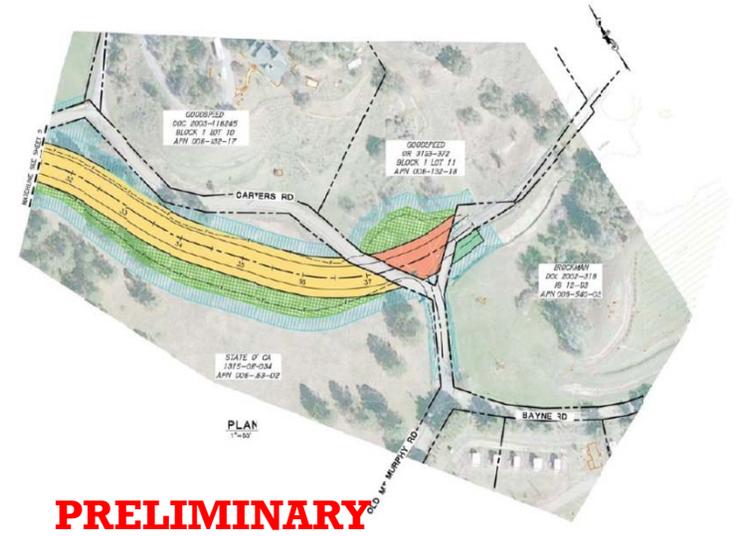
LEGEND

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PRELIMINARY

PRELIMINARY-SUBJECT TO REVISION

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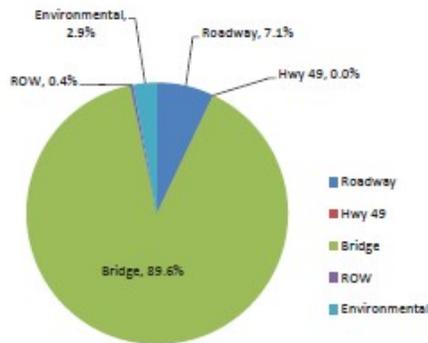
Alternative Considerations

Alternative Relative Cost Comparisons

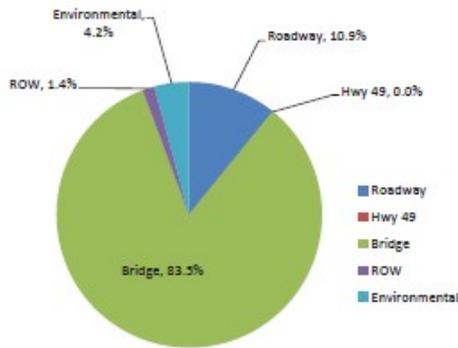
Corridor Cost Breakdowns

	Corridor 1		Corridor 2		Corridor 3	
Construction Costs						
Roadway	\$ 755,563	7.1%	\$ 1,772,955	10.9%	\$ 3,405,468	20.2%
Hwy 49	\$ -	0.0%	\$ -	0.0%	\$ 1,181,244	7.0%
Bridge	\$ 9,573,120	89.6%	\$ 13,633,940	83.5%	\$ 10,193,600	60.5%
ROW	\$ 40,402	0.4%	\$ 234,692	1.4%	\$ 374,122	2.2%
Environmental	\$ 312,075	2.9%	\$ 690,675	4.2%	\$ 1,682,950	10.0%
Total	\$ 10,681,160	100.0%	\$ 16,332,262	100.0%	\$ 16,837,384	100.0%

Corridor 1 - Cost Breakdown

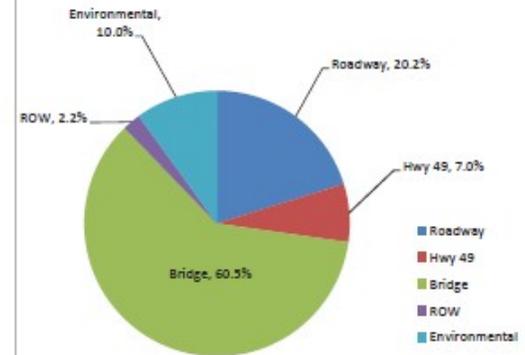


Corridor 2 - Cost Breakdown



PRELIMINARY

Corridor 3 - Cost Breakdown

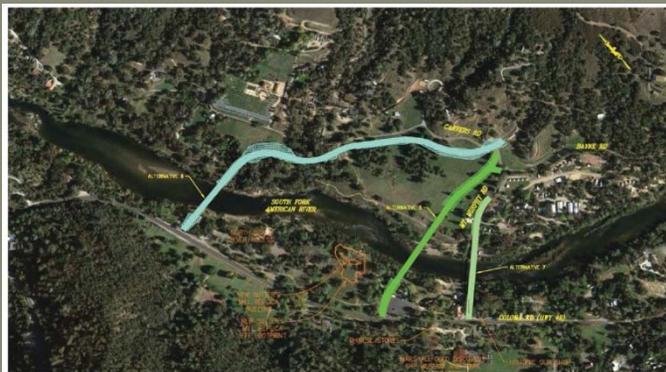


Alternative Considerations

→ Summary of Considerations:

→ Alternative 1 (Corridor 1):

- Most Closely Meets HBP Funding Requirements
- Most Cost and Schedule Effective Solution
- Least roadway expansion
- Least apparent ROW impacts (including impacts to State Parks or MGDSP)
- Least disturbance areas
- Community identity can be preserved by replacing bridge with similar style structure that meets current safety standards

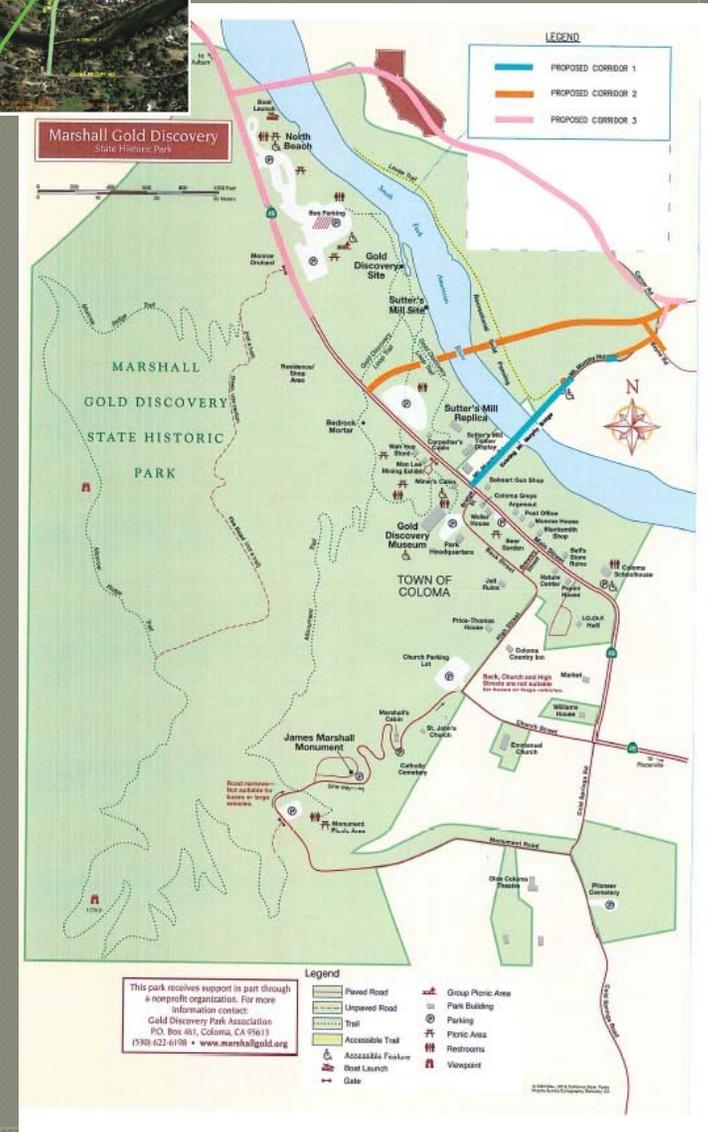


Alternative Considerations

Summary of Considerations:

Alternative 2 (Corridor 2):

- Considerable Roadway Improvements, appear beyond HBP funding requirements (nearly 3 times length of Corridor 1)
- Considerable Construction Costs (over 150% costs of Corridor 1, not including additional PE costs)
- Considerable physical environmental impacts (nearly 3.5 times permanent disturbance area in undeveloped locations compared to Corridor 1).
- Largest apparent cultural and historical resource impacts to MGDSP (center of Gold Discovery Park)



Alternative Considerations

→ Summary of Considerations:

→ Alternative 3 (Corridor 3):

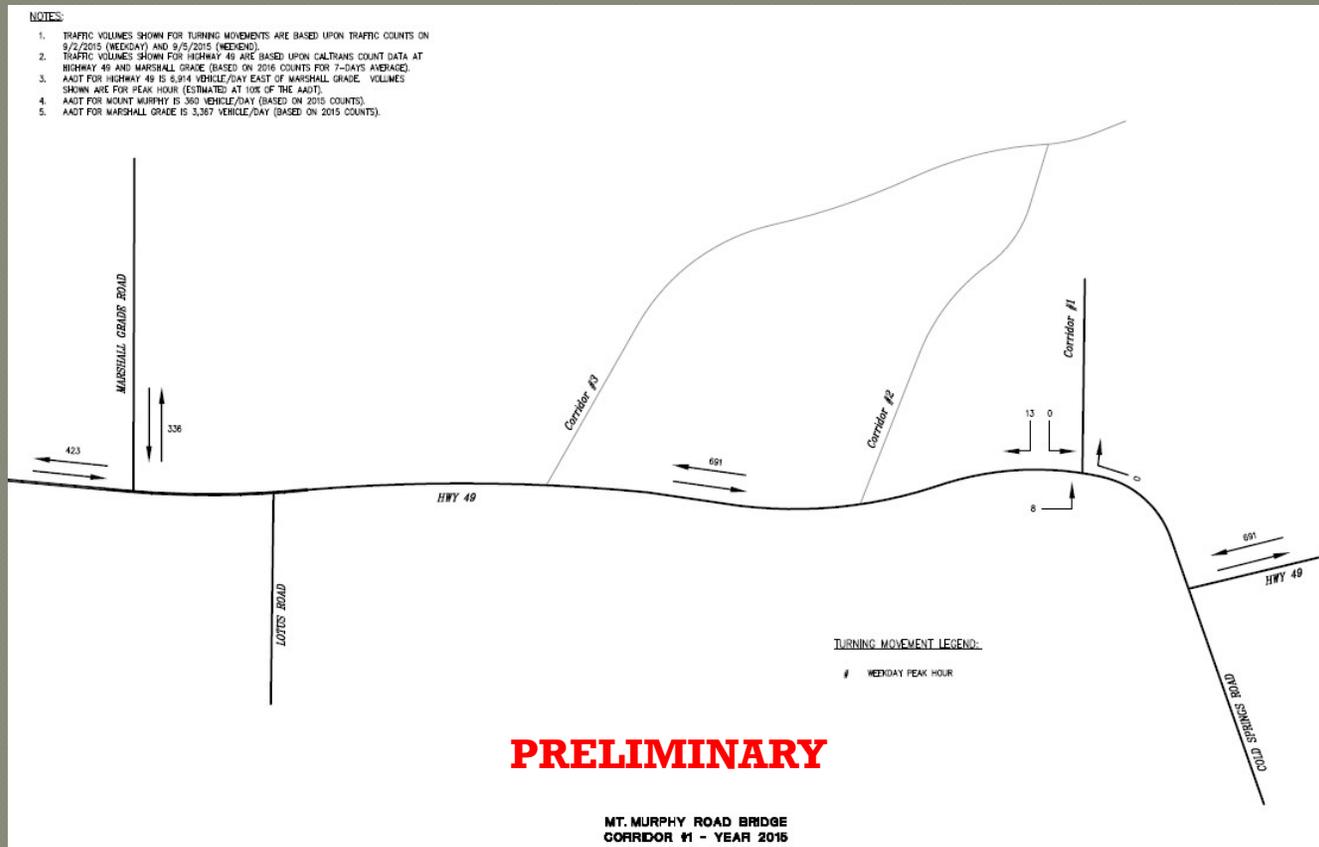
- Most Substantial Roadway Improvements, appear beyond HBP funding requirements (nearly 7.5 times length of Corridor 1, 5 times total length typical eligible for HBP funding)
- Significant Apparent Improvements to Hwy 49 which will likely require funding from other sources (approx. 1,100 lf, \$1.2 million)
- Highest Costs and Schedule to Construct (over 150% costs of Corridor 1, not including additional PE costs)
- Greatest Physical Environmental Impacts (approx. 8.6 times permanent disturbance area in undeveloped locations and waterways compared to Corridor 1)
- Potential for Cultural/ Historical Resource Impacts (over 20 times the area of ROW acquisition from State Parks, significant potential for buried historic Impacts)



Alternative Considerations

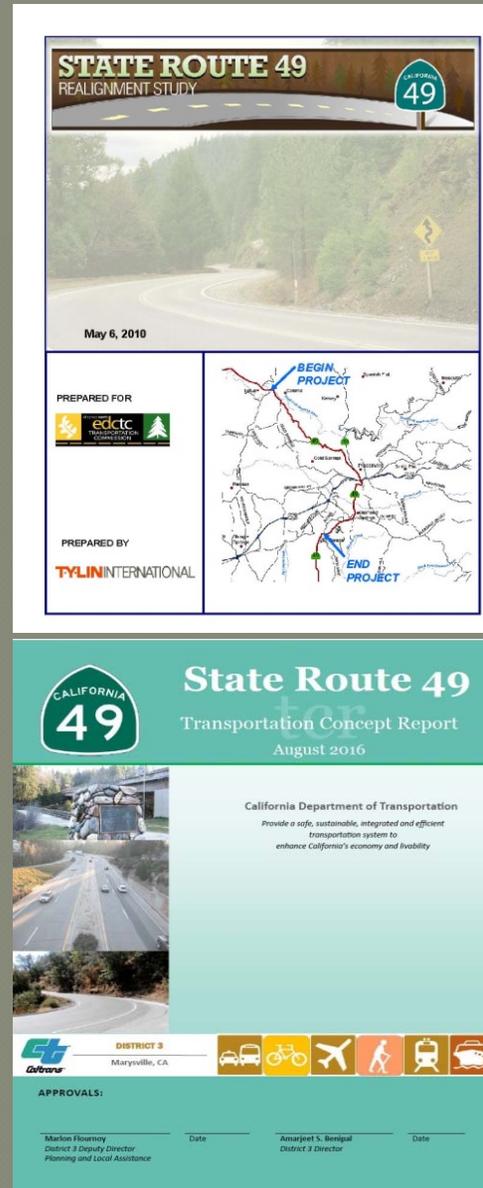
→ Traffic Studies

- Based on Traffic Studies, only approx. 3% of the Hwy 49 Traffic accesses Mt. Murphy Road during peak hours of weekdays. **Based on ADT, Mt. Murphy Road is approx. 5% the counts of Hwy 49.**



Alternative Considerations

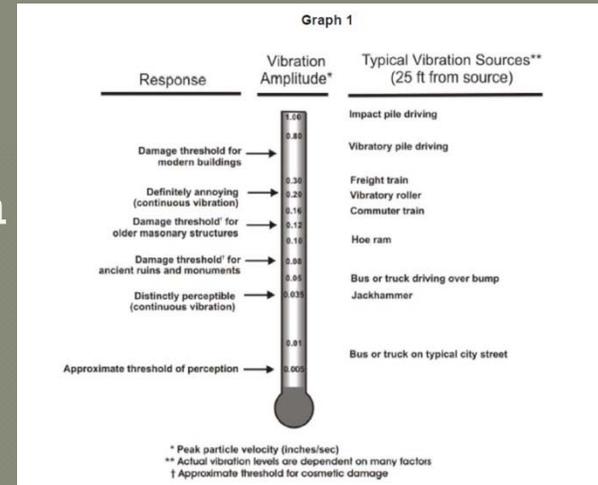
- Summary of Considerations:
- **Alternative 3 (Corridor 3)** is considered infeasible by EDCTC in SR 49 Realignment Study (2010) based on inability to meet key goals and significant resource impacts.
- **Alternative 1 (Corridor 1)** appears to be a preferred solution and is consistent with the EDCTC SR 49 Realignment Study and Caltrans TCR for SR 49



Alternative Considerations

Alternative 1 (Corridor 1) Vibration Studies

- By conditioning the use of driven piles and vibratory rollers, vibration impacts associated with Corridor 1 construction should be below the threshold for damages to historic structures



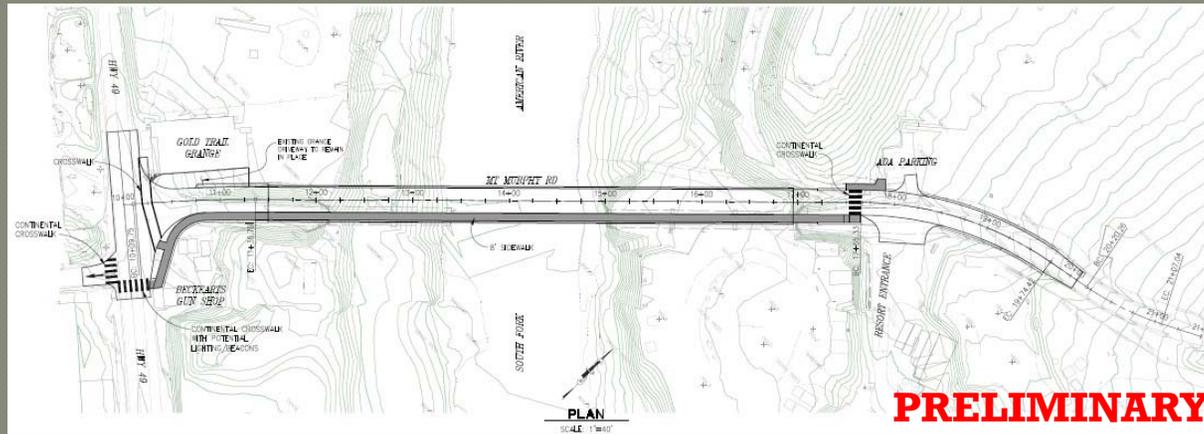
SIGNIFICANT LOCATION OF CONSIDERATION

STRUCTURE	RADIUS/DISTANCE FROM SOUTH ABUTMENT
GOLD TRAIL GRANGE	38' ±
BECKHART'S GUN SHOP	105' ±
SUTTER'S MILL REPLICA	236' ±
SUTTER'S MILL TABERS	161' ±
GOLD DISCOVERY MUSEUM	355' ±
WAX HOP STORE & WAY LEE EXHIBIT	283' ±

PRELIMINARY

Environmental “Look Ahead”

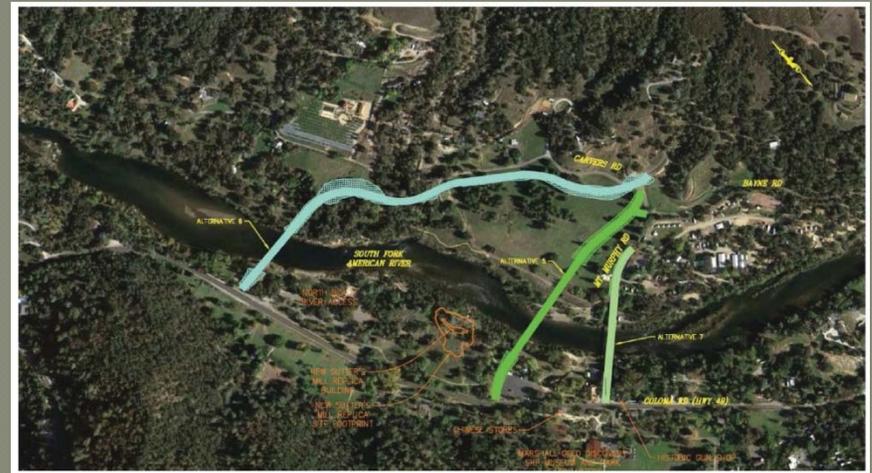
→ Environmental Process Overview



Environmental “Look Ahead”

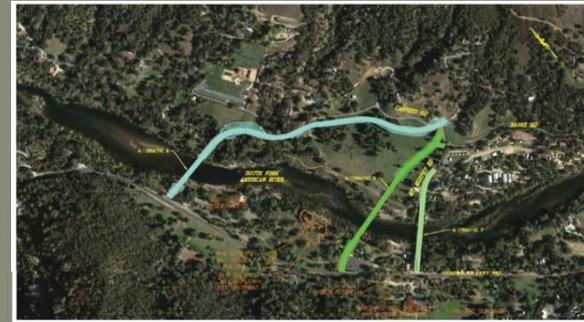
→ Environmental Process Overview

- Notice of Preparation (NOP) released January 2015
- Evaluation of Alternatives (Technical and Environmental Studies)
- Draft EIR distribution (45 days for public input)
- Final EIR (includes public comments and responses)
- NEPA Approval by Caltrans and FHWA
- Resource Agency Permits (USACE, USFWS, CDFW, RWQCB, etc.)



Environmental “Look Ahead”

➔ Schedule & Development Process



- Draft EIR
- Final EIR
- NEPA Approval by Caltrans FHWA



