



COUNTY OF EL DORADO COMMUNITY DEVELOPMENT AGENCY
TRANSPORTATION DIVISION

Mt. Murphy Road Bridge

At the South Fork of the American River

ENVIRONMENTAL UPDATE

Public Meeting – Project Update

January 12, 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





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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



Retrofit Piers

**Replace all
Diagonals**

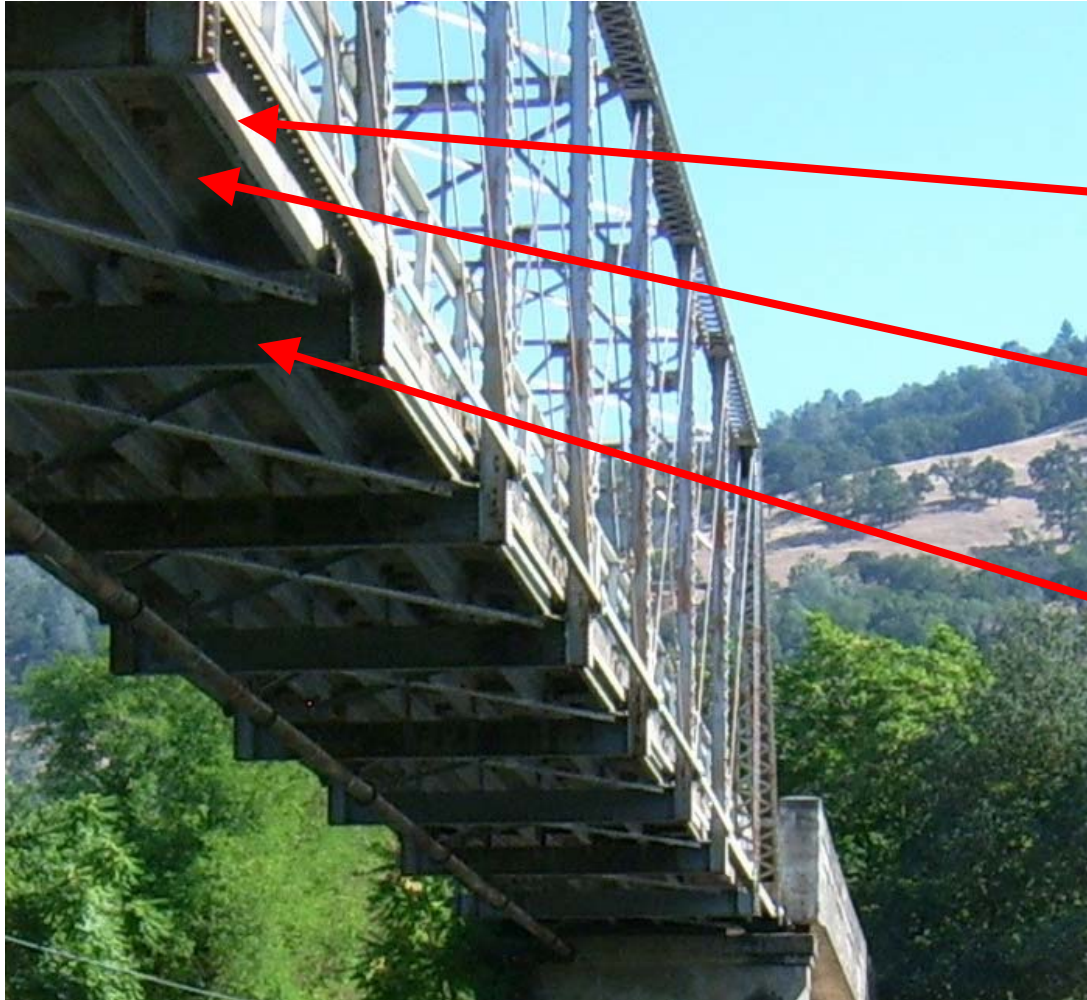
**Replace Upper
and Lower
Chords**

**Replace
Barriers**



Basis of Development

↳ Structural Analysis and Rehabilitation Feasibility Study



**Replace
Stringers**

**Replace
Deck**

**Replace
Floorbeams**



AGENDA

→ Welcome / Introductions

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→ Basis of Project Development

→ **Overview of Alternatives**

WHERE WE ARE

→ Impacts and Complexities

WHERE WE'RE GOING

→ Environmental "Look Ahead"

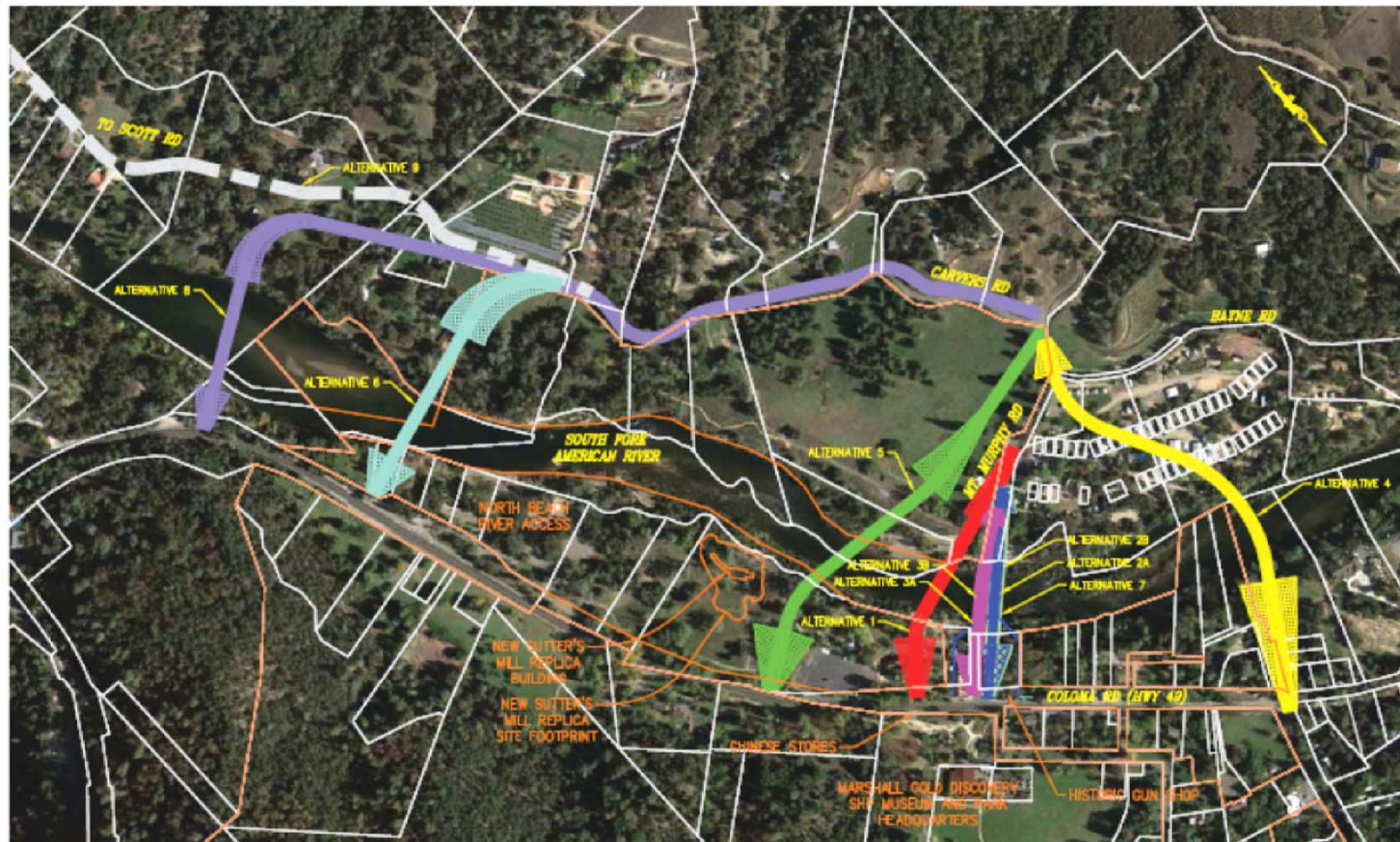
→ Questions





Overview of Alternatives

→ 9 Alternatives Considered



LEGEND

- | | |
|----------------|----------------------------------|
| ALTERNATIVE 1 | ALTERNATIVE 5 |
| ALTERNATIVE 2A | ALTERNATIVE 6 |
| ALTERNATIVE 2B | ALTERNATIVE 7 |
| ALTERNATIVE 3A | ALTERNATIVE 8 |
| ALTERNATIVE 3B | ALTERNATIVE 9 |
| ALTERNATIVE 4 | INDICATES EMBANKMENT FILL (TYP.) |
| | INDICATES SHP BOUNDARY |

FOR REDUCED PLANS 0 200 400 ORIGINAL SCALE IS IN INCHES

MT. MURPHY ROAD BRIDGE ALTERNATIVES EXHIBIT





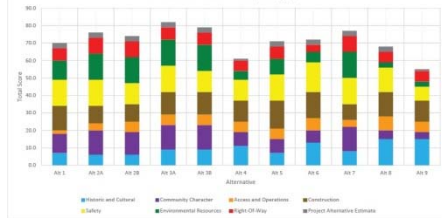
Overview of Alternatives

➔ 3 Corridors for Analysis

Mt. Murphy Road Screening Criteria - Scores by Category

Items	Alt. 1	Alt. 2A	Alt. 2B	Alt. 3A	Alt. 3B	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8
Historic and Cultural	7.0	6.0	6.0	3.0	9.0	11.0	7.0	13.0	9.0	15.0
Community Character	11.0	14.0	13.0	14.0	14.0	8.0	8.0	7.0	14.0	5.0
Access and Operations	2.0	4.0	6.0	6.0	6.0	6.0	6.0	7.0	8.0	6.0
Construction	14.0	10.0	10.0	13.0	13.0	12.0	16.0	10.0	9.0	12.0
Safety	15.0	15.0	12.0	15.0	12.0	12.0	15.0	17.0	15.0	14.0
Environmental Resources	11.0	15.0	15.0	15.0	15.0	5.0	9.0	6.0	15.0	3.0
Right Of Way	7.0	9.0	9.0	7.0	7.0	6.0	7.0	4.0	9.0	6.0
Project Alternative Estimate	3.0	3.0	3.0	3.0	3.0	1.0	3.0	3.0	3.0	1.0
TOTAL SCORE <i>(Weighted Score = 100)</i>	70.0	76.0	74.0	82.0	79.0	61.0	71.0	72.0	77.0	68.0

Total Score Contribution by Category





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Alternative Considerations

➔ Overview





Alternative Considerations

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

PRELIMINARY

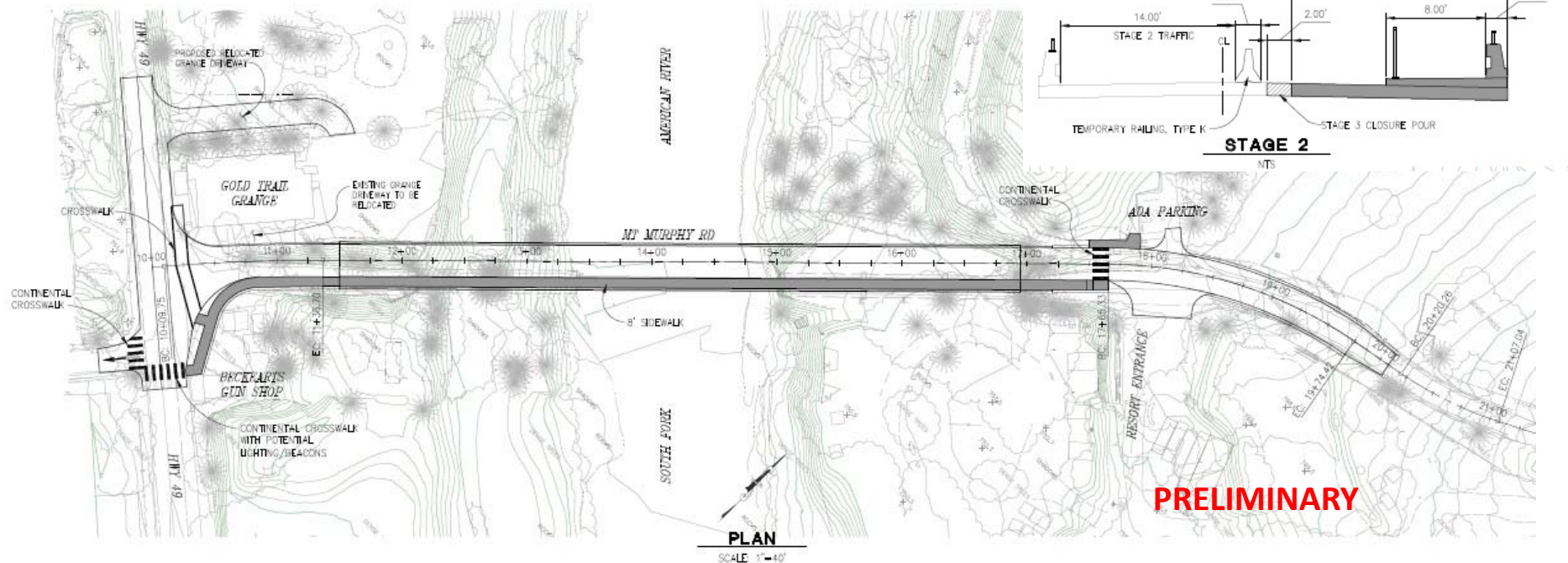
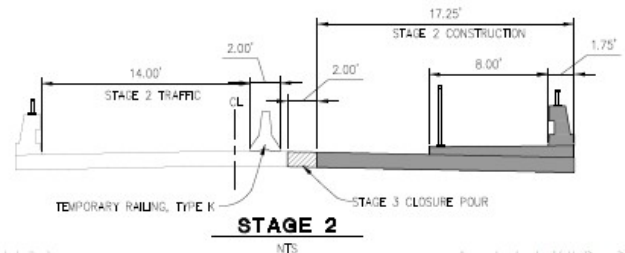
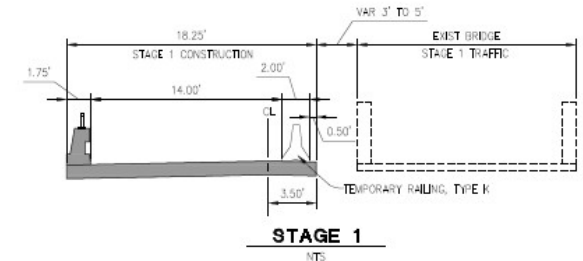
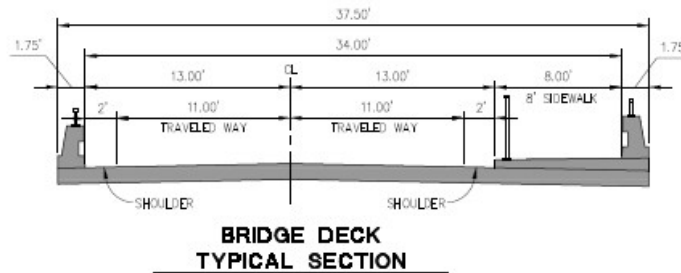




Alternative Considerations

➔ Alternative 1 (Corridor 1) – “On Alignment” Plan Sheet

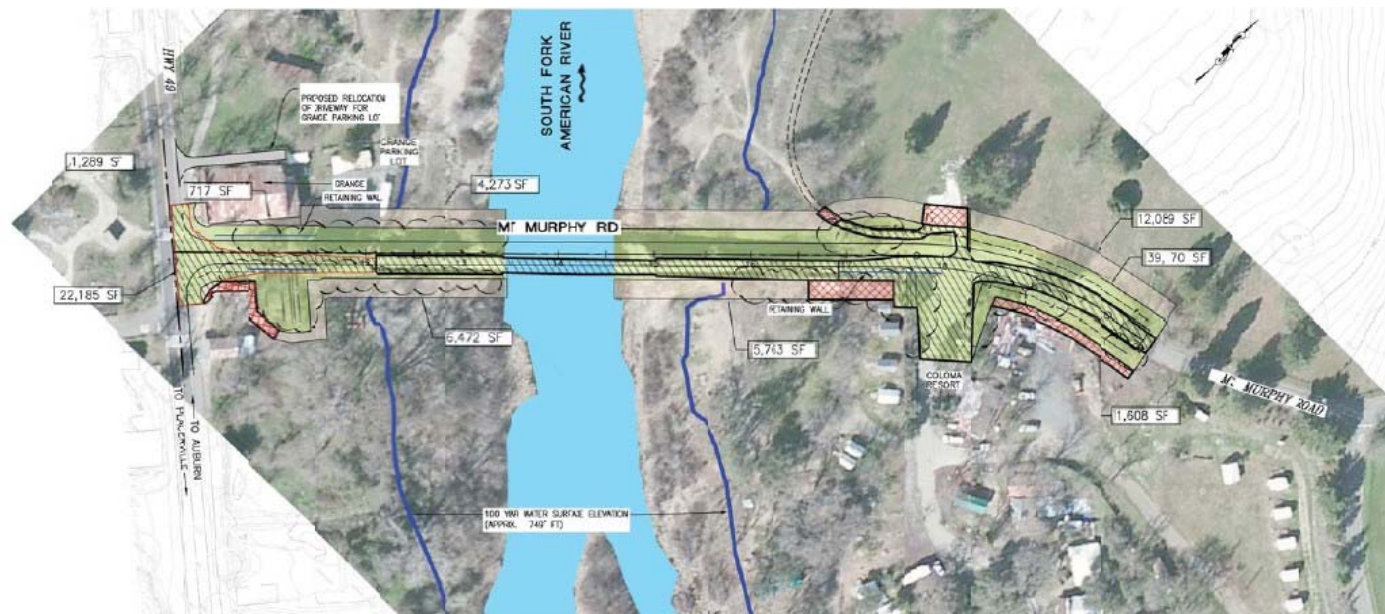
➔ 540’ Span, 34’ Width, 500’ Total Approach Roadway





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)



PLAN
1"=50'

LEGEND		IMPACT TO DEVELOPED AREA	UNDEVELOPED AREA
	TEMPORARY CONSTRUCTION DISTURBANCE AREA, 10,922 SF, 0.1 Ac.	1,507 SF 18%	25,414 SF 82%
	PERMANENT CONSTRUCTION DISTURBANCE AREA, 51,355 SF, 1.11 Ac.	29,792 SF 58%	31,563 SF 52%
	100 YEAR WATER SURFACE ELEVATION (APPROX 749' FT)		
	PROPERTY LINE		
	PROJECT STUDY LIMITS		
	FILLS IN WATERS OF THE UNITED STATES (WOUS) 0.00 SF, 0.0 Ac.		
	TREE REMOVAL AREAS APPROX. 36,439 SF, 0.83 Ac.		

PRELIMINARY

PRELIMINARY-SUBJECT TO REVISION

CORRIDOR 1
CONCEPTUAL DISTURBANCE AREAS
SCALE : 1" = 50'



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



PLAN
SCALE: 1"=40'

LEGEND

	2 APN 006-164-01 IW = 1,210.91± S.F. TCE = 2,700.54± S.F.
	GRANGE APN 008-164-02 IW = 4,124.97± S.F. TCE = 2,021.94± S.F.
	4 APN 006-111-01 IW = 1,596.63± S.F. TCE = 4,505.83± S.F. S&D = 2,367.01± S.F.

	02 APN 006-163-02 RW = 3,759.36± S.F. TCE = 10,244.12± S.F.
	COBBLESTONE APN 008-162-07 RW = 7,701.32± S.F. TCE = 12,716.6± S.F. S&D = 1,029.05± S.F.
	COBBLESTONE APN 006-162-01 RW = 636.4± S.F. TCE = 224.0± S.F.

SLOPE & DRAINAGE EASEMENT
3,429± S.F. (TOTAL)

TEMPORARY CONSTRUCTION EASEMENT
30,458± S.F. (TOTAL)

RIGHT OF WAY (PERMANENT ACQUISITION)
11,817± S.F. (TOTAL)

PRELIMINARY-SUBJECT TO REVISION

CORRIDOR 1
CONCEPTUAL EASEMENTS AND RIGHT OF WAY
SCALE: 1" = 50'

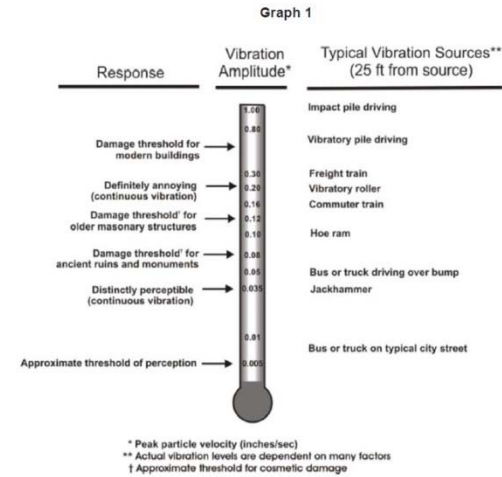
PRELIMINARY



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
COLD TRAIL GRANGE	28' ±
BECKHART'S GUN SHOP	108' ±
SUTER'S HILL REPLICA	236' ±
SUTER'S HILL TAVERN	181' ±
GOLD DISCOVERY MUSEUM	359' ±
WAR HOP STORE & MAN LEE EXHIBIT	283' ±

PRELIMINARY



Alternative Considerations

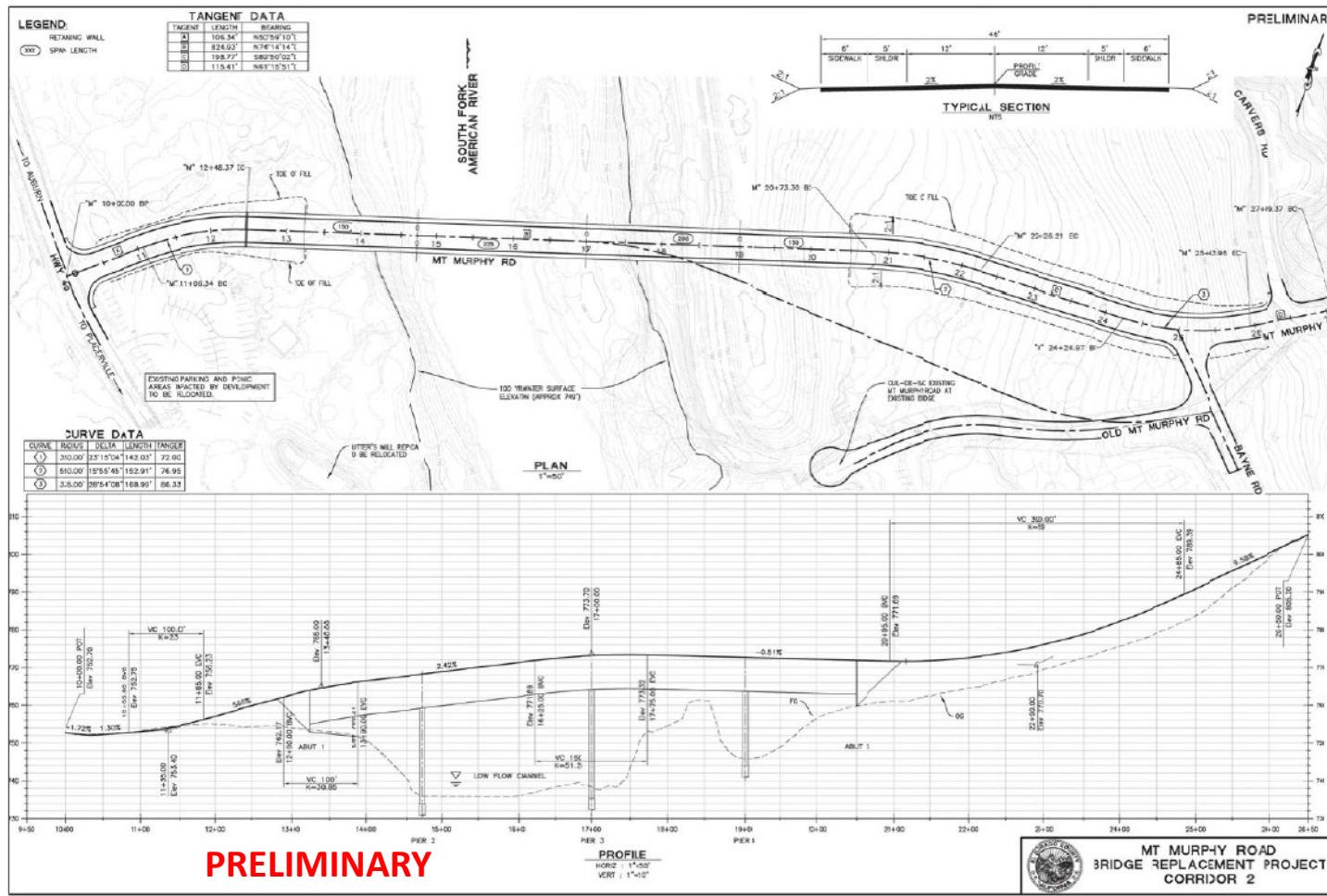
→ Alternative 2 (Corridor 2) – “Mid-Stream” Overview





Alternative Considerations

- Alternative 2 (Corridor 2) – “Mid-Stream” Plan Sheet
- 535’ Span, 46’ Width, 1,325’ Total Approach Roadway

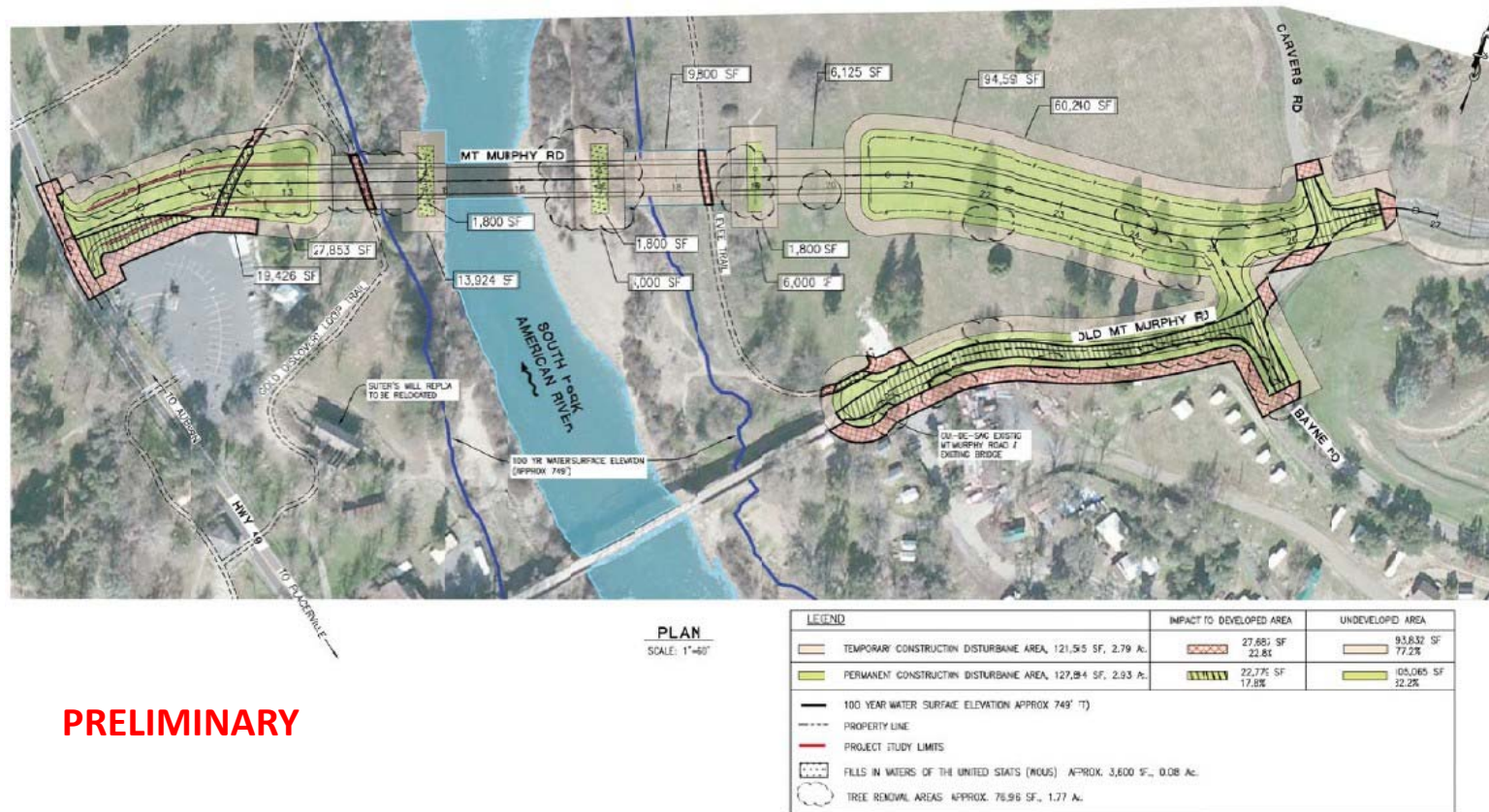




Alternative Considerations

➔ Alternative 2 (Corridor 2) – “Mid-Stream” Conceptual Disturbance Areas

- ➔ Permanent: 2.93 Acres (82% undeveloped areas)
- ➔ Temporary: 2.93 Acres (77% undeveloped areas)



PRELIMINARY

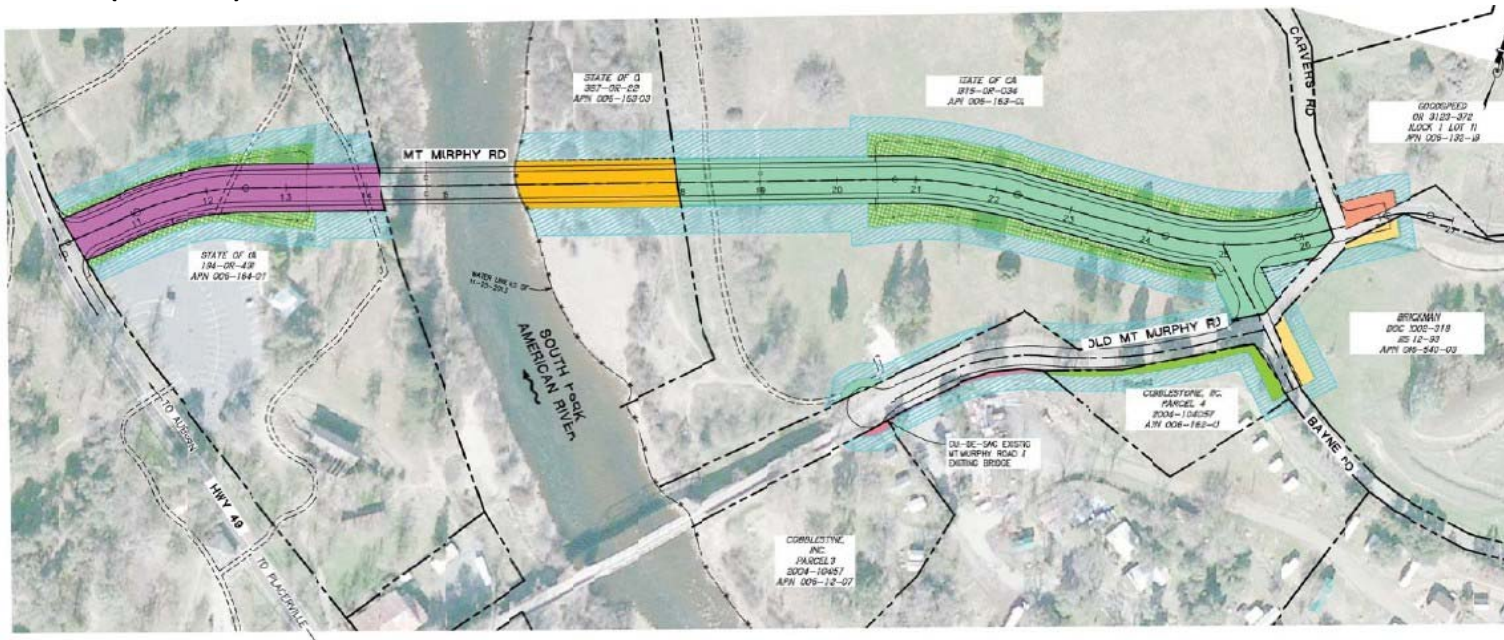
PRELIMINARY-SUBJECT TO REVISION

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



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'

LEGEND					
	CA APN 006-184-01 RW - 23,948.08± S.F. TCE - 19,072.99± S.F. S&D - 8,223.02± S.F.		GOODOOSE APN 006-182-10 RW - 296.63± S.F. TCE - 1,595.83± S.F.		COBLESTONE APN 006-182-07 RW - 1,701.32± S.F. TCE - 8,048.49± S.F.
	CA APN 006-183-03 RW - 4,124.91± S.F. TCE - 2,611.80± S.F.		BROCKMAN APN 006-40-03 RW - 1,701.32± S.F.		COBLESTONE APN 006-182-01 RW - 3,105.01± S.F. TCE - 6,405.84± S.F.
	CA APN 006-183-02 RW - 53,814.00± S.F. TCE - 48,144.54± S.F. S&D - 20,192.58± S.F.				
				SLOPE & DRAINAGE EASEMENT 3,155.87± S.F. (TOTAL)	
				TEMPORARY CONSTRUCTION TAKEMENT 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'	

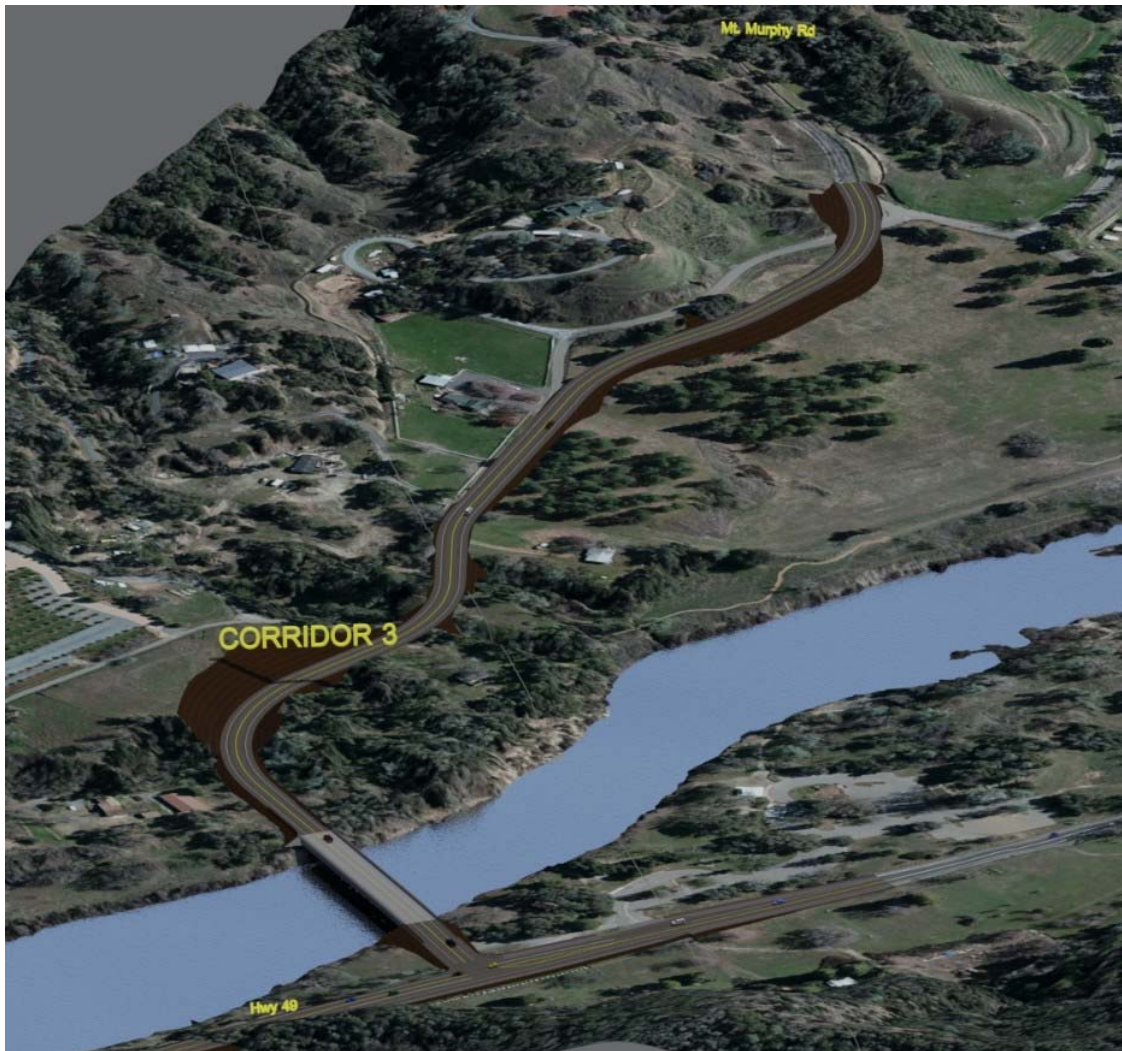
PRELIMINARY-SUBJECT TO REVISION

PRELIMINARY

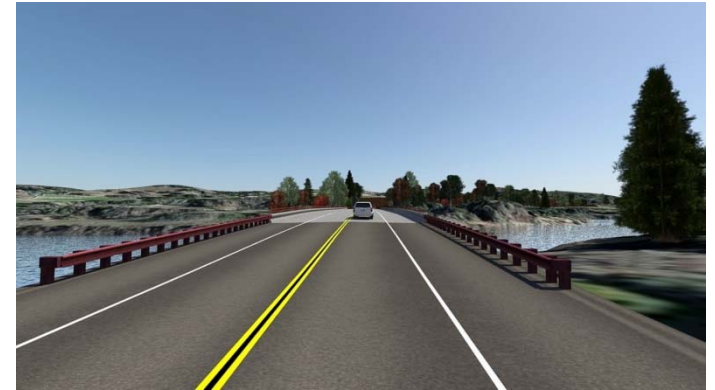


Alternative Considerations

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



PRELIMINARY

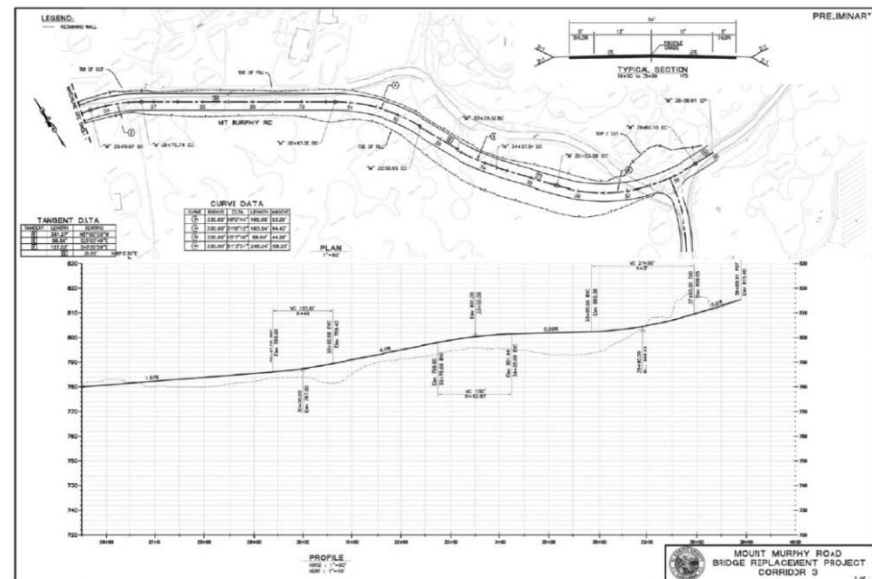
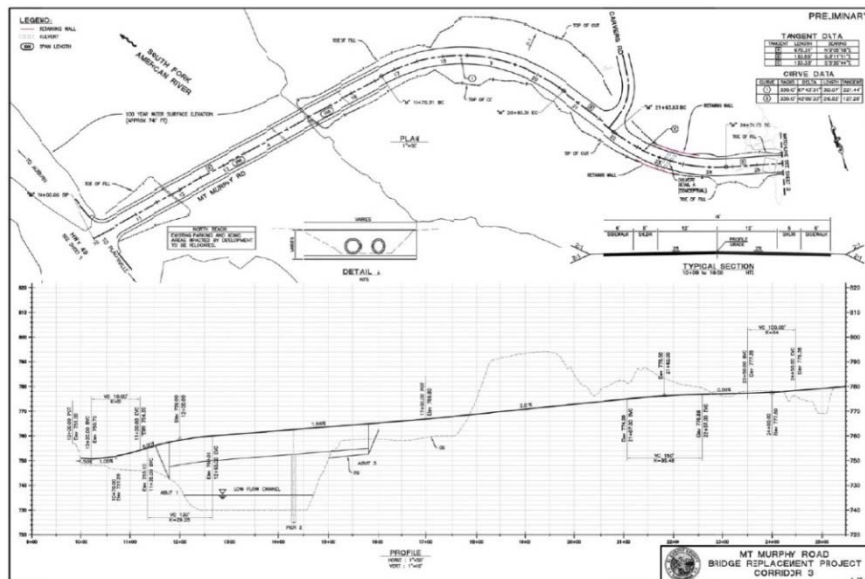
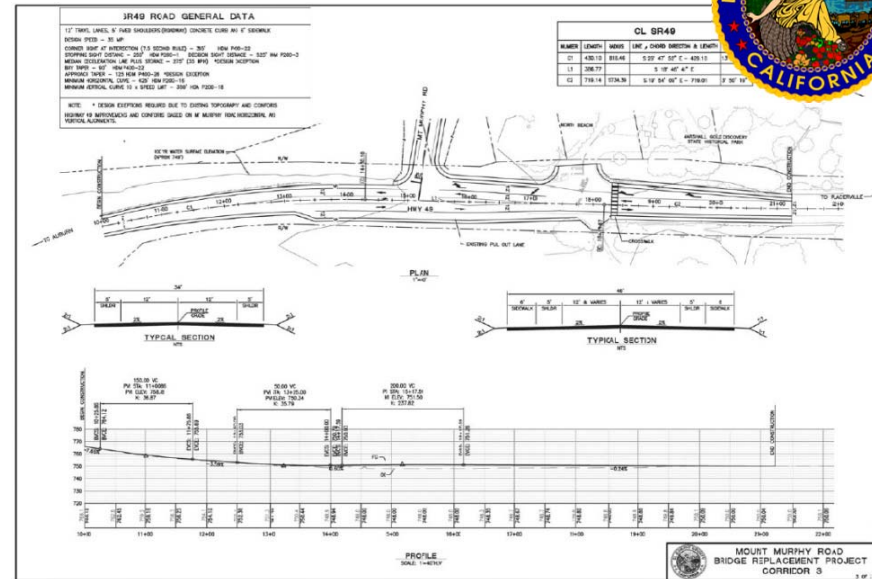




Alternative Considerations

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

PRELIMINARY

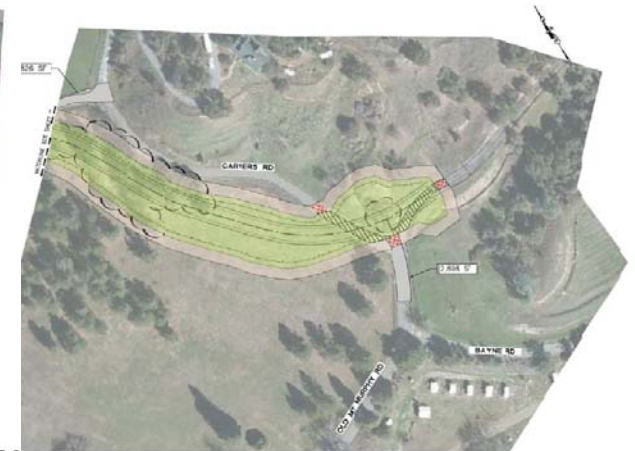
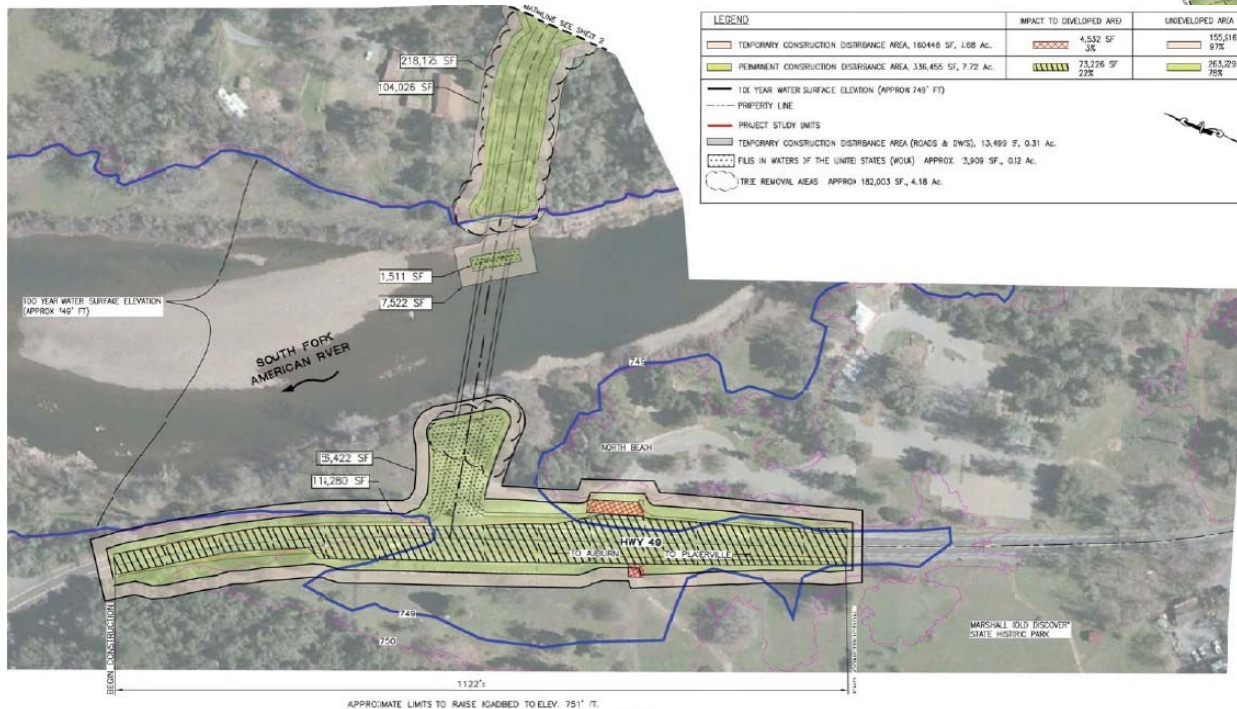
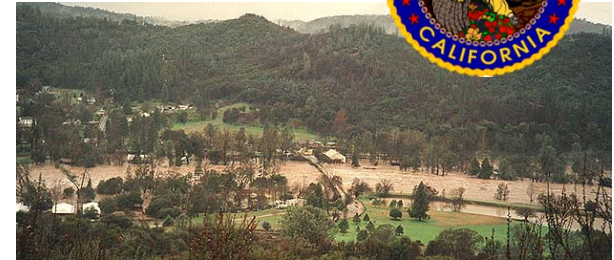




Alternative Considerations

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

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



PRELIMINARY

PLAN
1"=60'
PRELIMINARY-SUBJECT TO REVISION

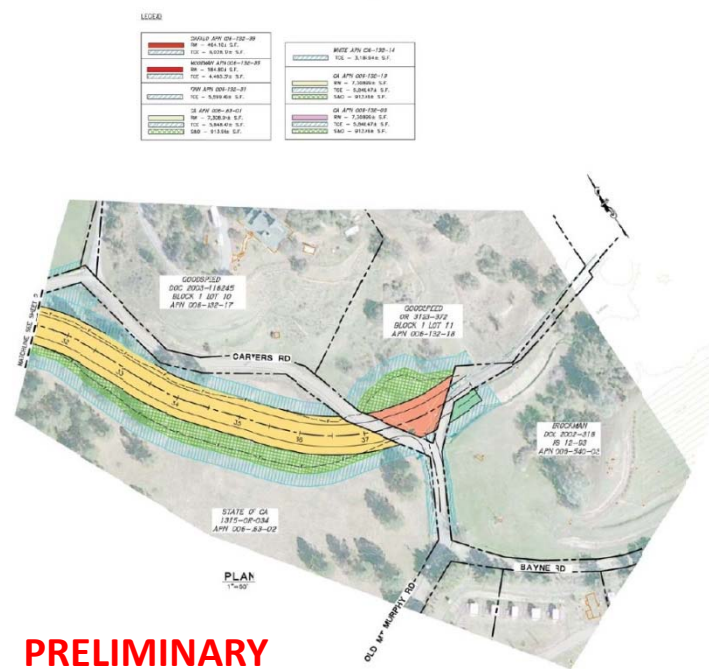
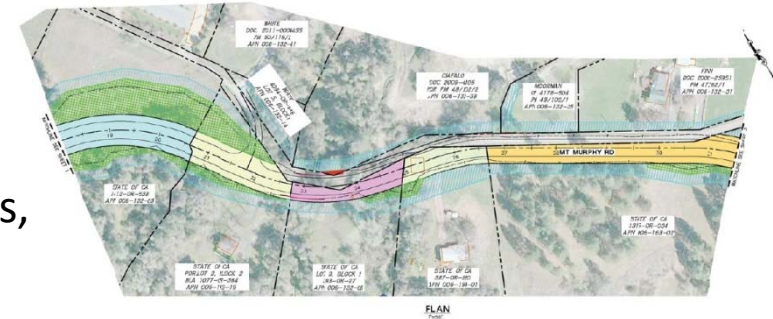
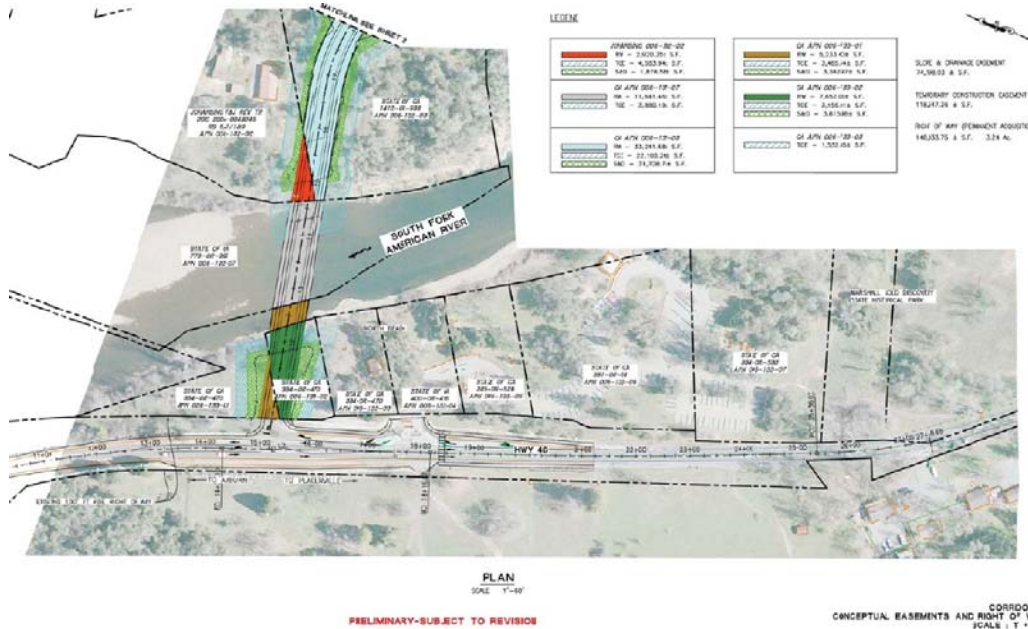
CORRIDOR 3
CONCEPTUAL DISTURBANCE AREAS
SCALE: 1" = 60'

PLAN
1"=60'



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



PRELIMINARY

PRELIMINARY-SUBJECT TO REVISION

CORRIDOR 3
CONCEPTUAL EASEMENTS AND RIGHT OF WAY
SCALE: 1" = 50'



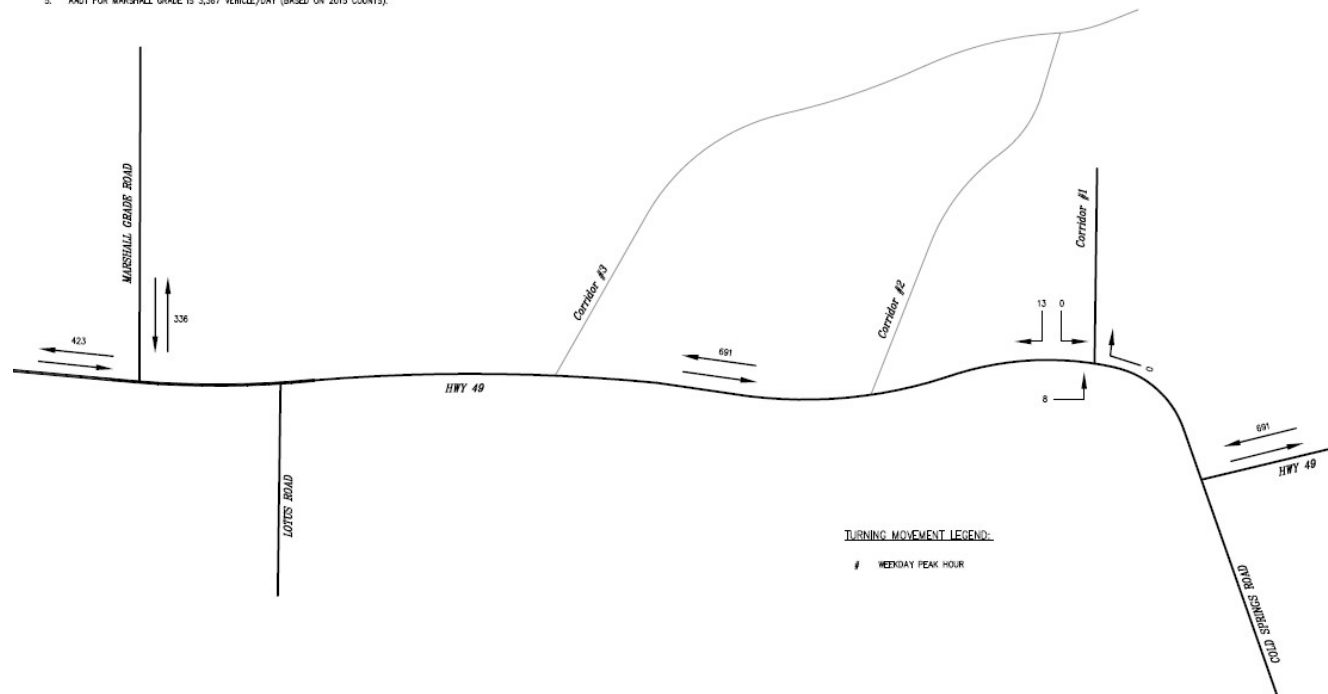
Alternative Considerations

➤ 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.**

NOTES:

1. TRAFFIC VOLUMES SHOWN FOR TURNING MOVEMENTS ARE BASED UPON TRAFFIC COUNTS ON 8/2/2015 (WEEKDAY) AND 8/5/2015 (WEEKEND).
2. TRAFFIC VOLUMES SHOWN FOR HIGHWAY 49 ARE BASED UPON CALTRANS COUNT DATA AT HIGHWAY 49 AND MARSHALL GRADE (BASED ON 2016 COUNTS FOR 7-DAYS AVERAGE).
3. ADT FOR HIGHWAY 49 IS 8,814 VEHICLE/DAY EAST OF MARSHALL GRADE. VOLUMES SHOWN ARE FOR PEAK HOUR (ESTIMATED AT 10% OF THE ADT).
4. ADT FOR MOUNT MURPHY IS 360 VEHICLE/DAY (BASED ON 2015 COUNTS).
5. ADT FOR MARSHALL GRADE IS 3,367 VEHICLE/DAY (BASED ON 2015 COUNTS).



MT. MURPHY ROAD BRIDGE
CORRIDOR #1 - YEAR 2016

PRELIMINARY



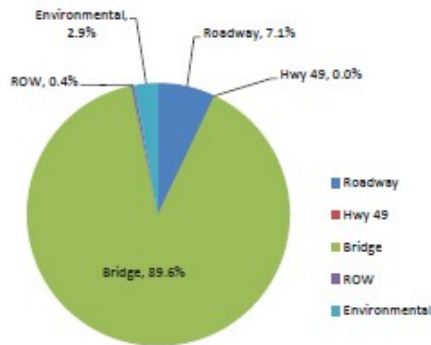
Alternative Considerations

Alternative Relative Cost Comparisons

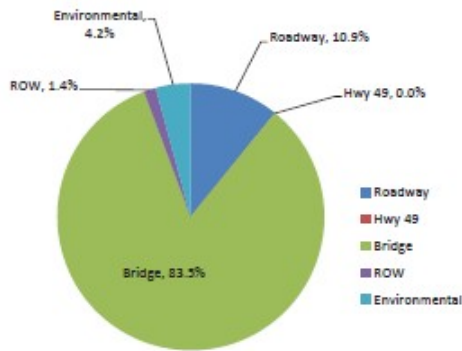
Corridor Cost Breakdowns

	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%

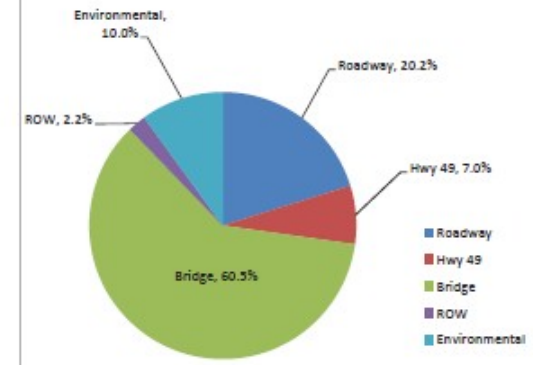
Corridor 1 - Cost Breakdown



Corridor 2 - Cost Breakdown



Corridor 3 - Cost Breakdown



PRELIMINARY

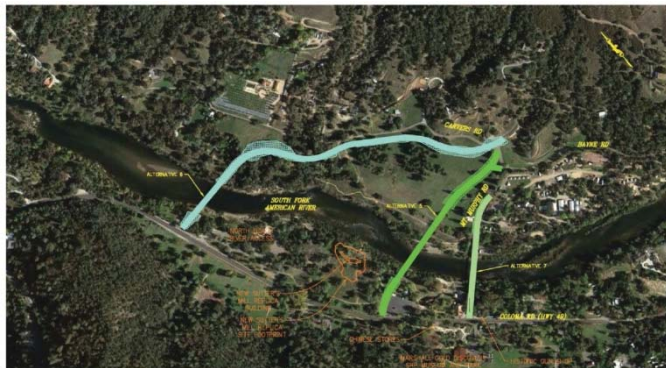


Alternative Considerations

↳ 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





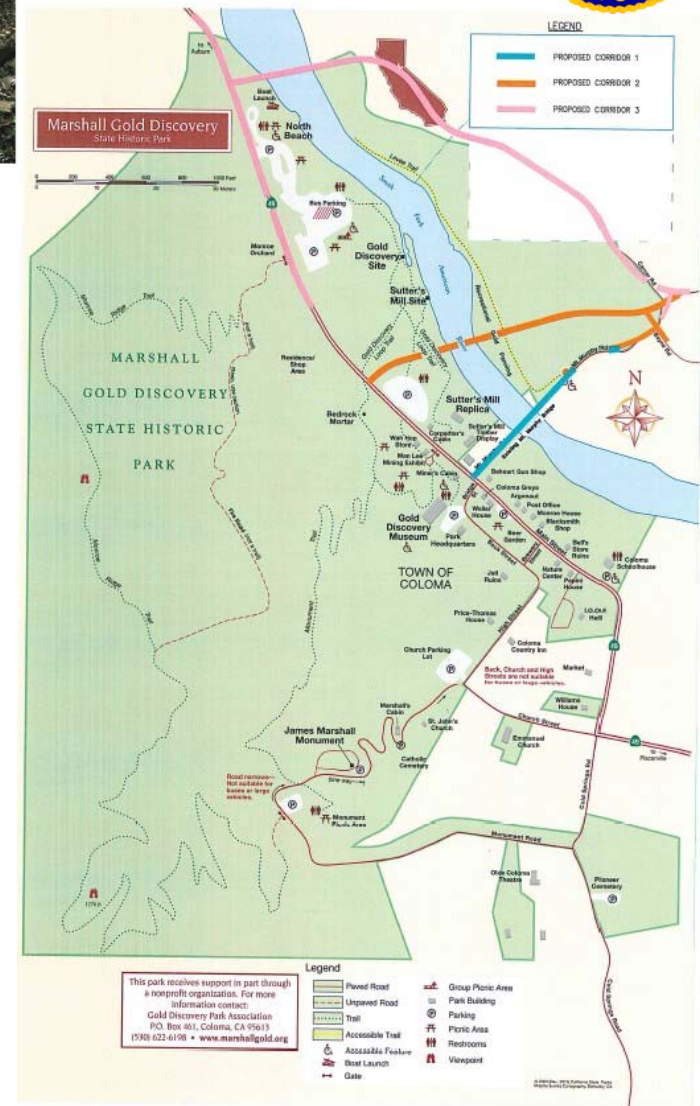
Alternative Considerations

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):

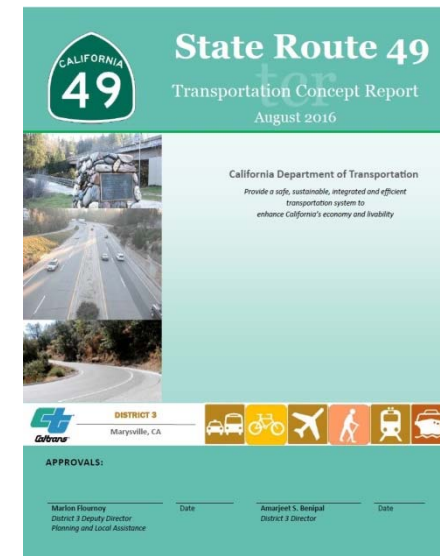
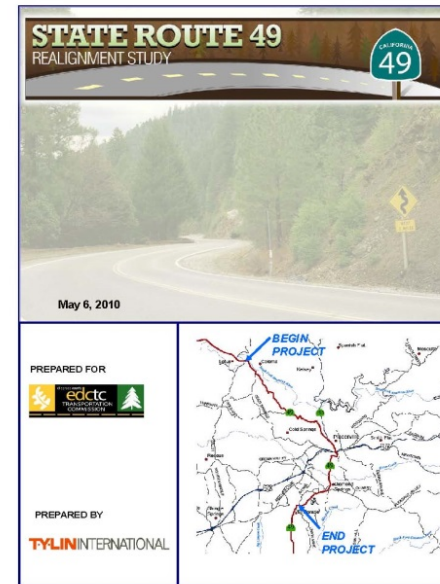


- Most Substantial Roadway Improvements, appear beyond HBP funding requirements (nearly 7.5 times length of Corridor 1, 5 times total length typical eligible for HBP funding)
- Significant Apparent Improvements to Hwy 49 which will likely require funding from other sources (approx. 1,100 lf, \$1.2 million)
- 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

- 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





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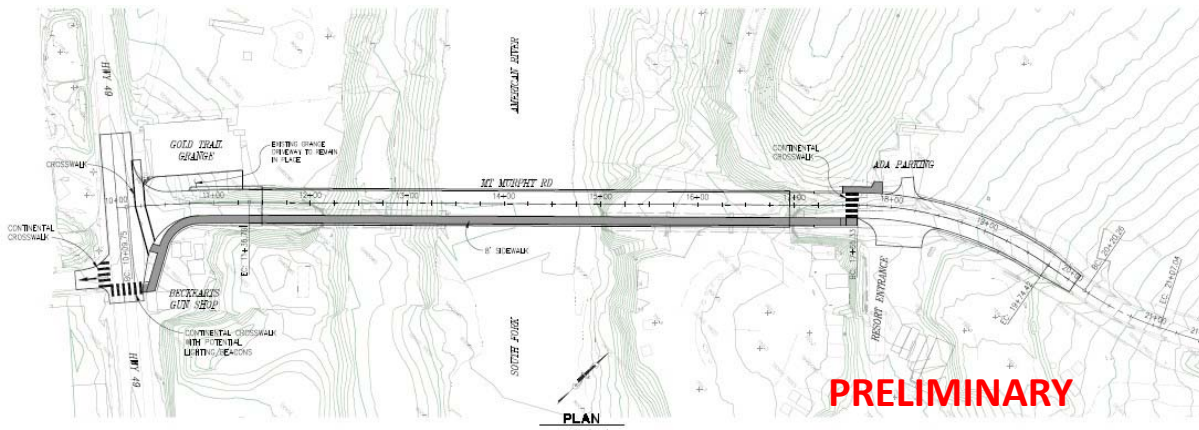
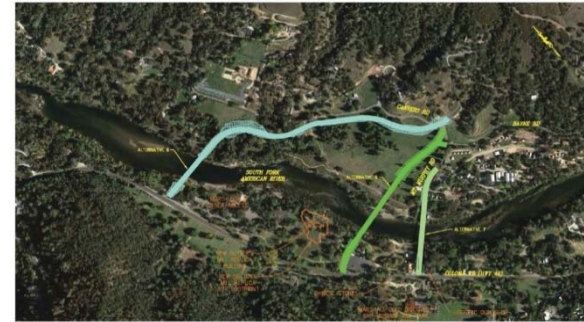
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Environmental “Look Ahead”

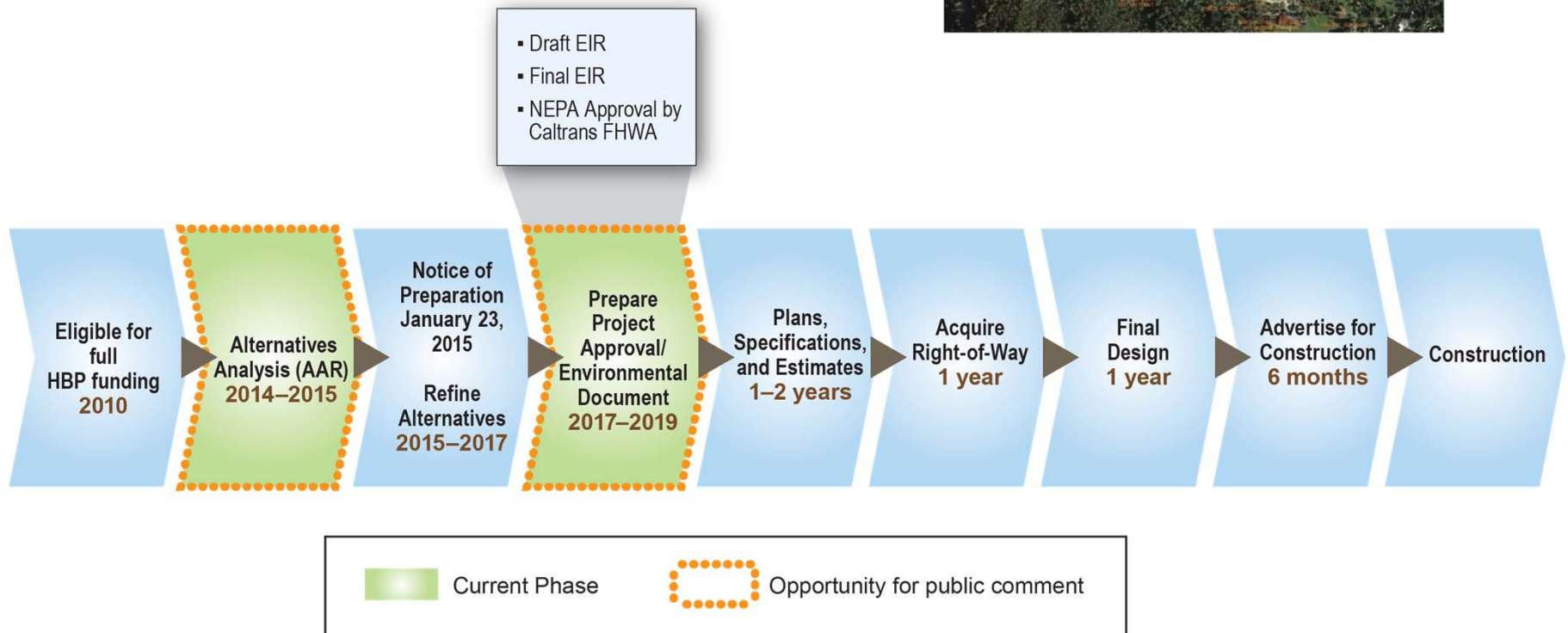
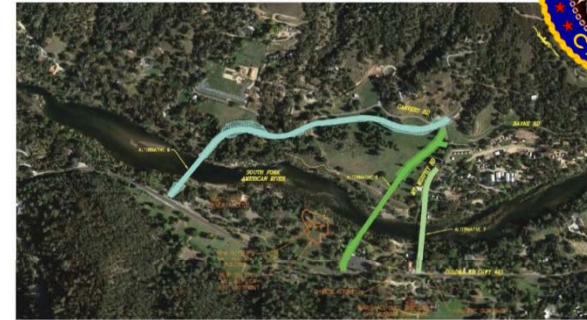
➔ Environmental Process Overview





Environmental “Look Ahead”

↳ Schedule & Development Process





Environmental “Look Ahead”

Questions



<http://www.edcgov.us/MtMurphyBridge/>

