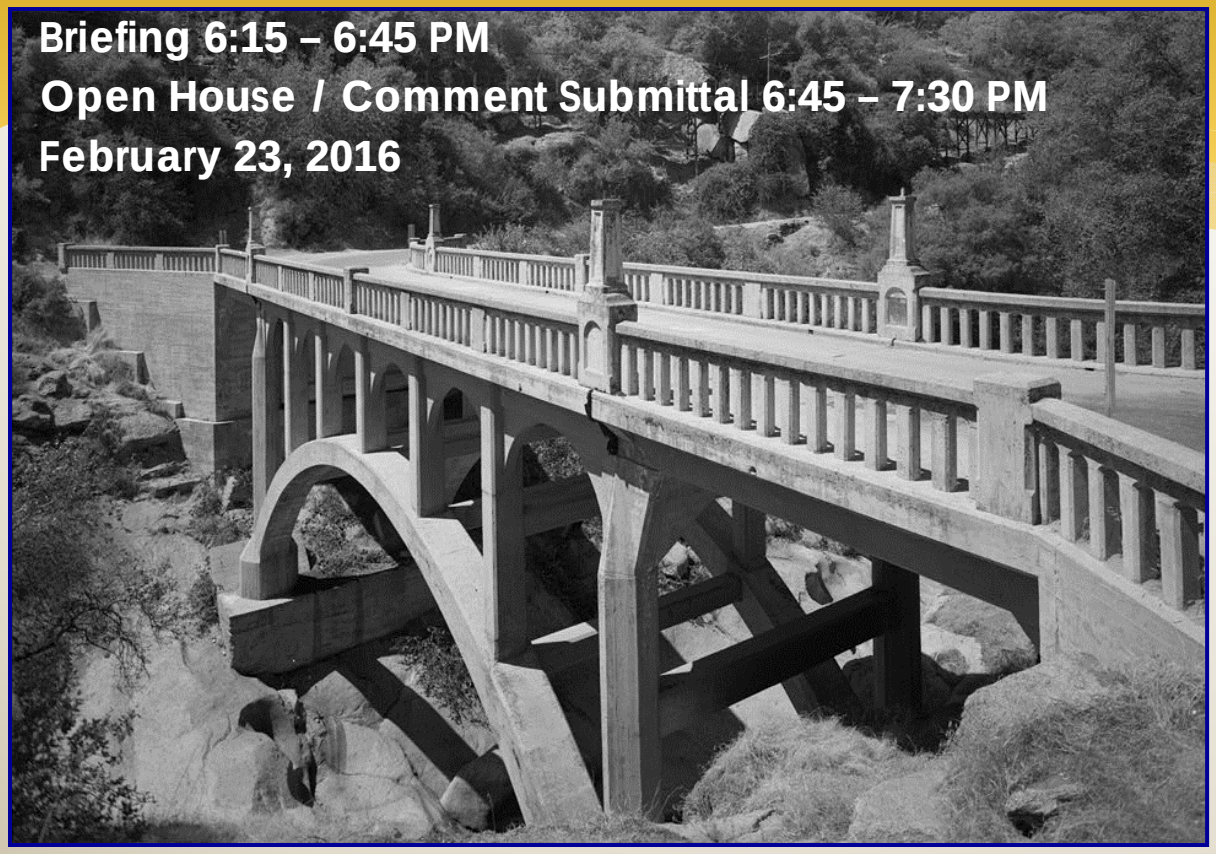
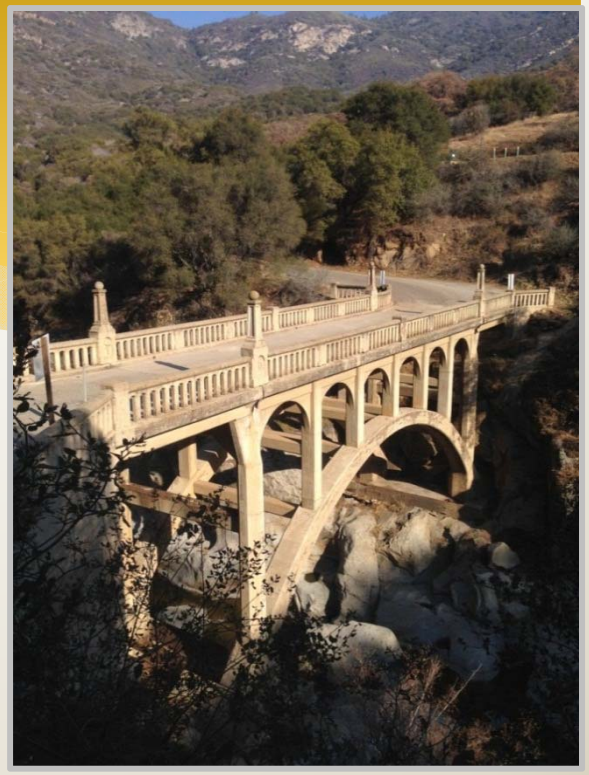
HISTORIC OAK GROVE BRIDGE

ENVIRONMENTAL SCOPING MEETING

Briefing 6:15 – 6:45 PM
Open House / Comment Submittal 6:45 – 7:30 PM
February 23, 2016





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AGENDA

- **PROJECT BRIEFING**
  - **Introduction**
  - **Proposed Project Features**
  - **Environmental Review Process**
  - **Public Involvement**
- **OPEN HOUSE**
  - **Four Workshop Stations**
  - **Comment Cards**

ENVIRONMENTAL SCOPING

What is Scoping?

- Define the Proposed Project
- Define proposed Project Alternatives
- Define major issues for environmental analysis
- Identify potential impacts/issues of concern

What is Your Role?

- Early involvement/participation
- Provide comments/relevant information
- Stay involved

PROJECT INTRODUCTION

Why Are We Here?

- Bridge Constructed in 1923
- Sufficiency Rating = 71.7
  - Structurally Deficient
- Programmed for Federal HBP Funding
  - 100% Federally Funded
  - Must Fix **All** Deficiencies

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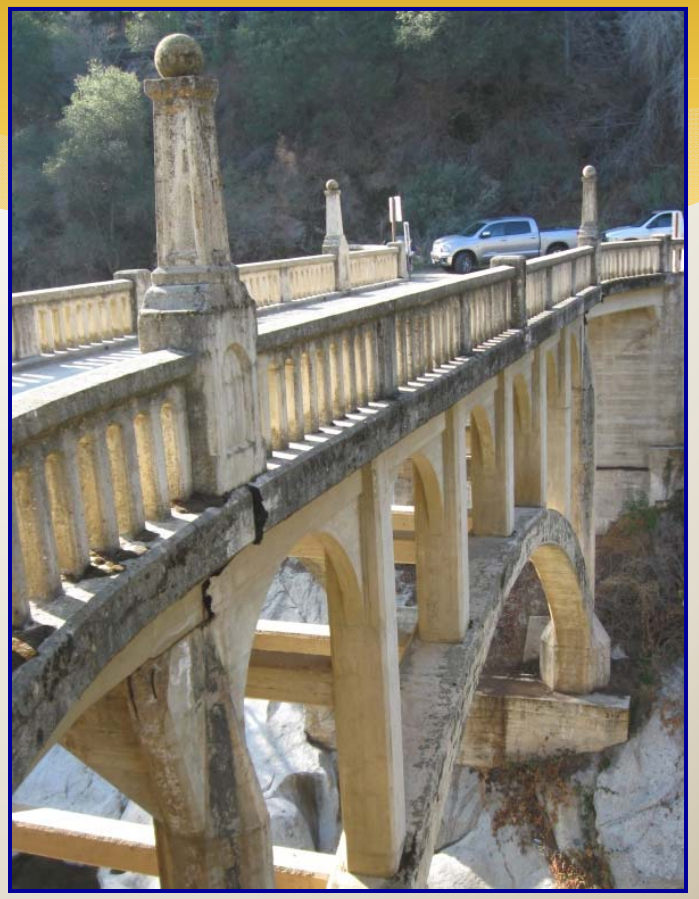
HISTORICAL SIGNIFICANCE

Oak Grove Bridge - A Gateway to History

- Eligible for National Register of Historic Places
  - Not currently listed
- Representative of Reinforced Concrete Open Spandrel Arch Bridges Constructed in the 1920's and 30's
- Identification of Historic Elements
  - Arches
  - Spandrel Columns and Beams
  - Barrier Rail and Monuments



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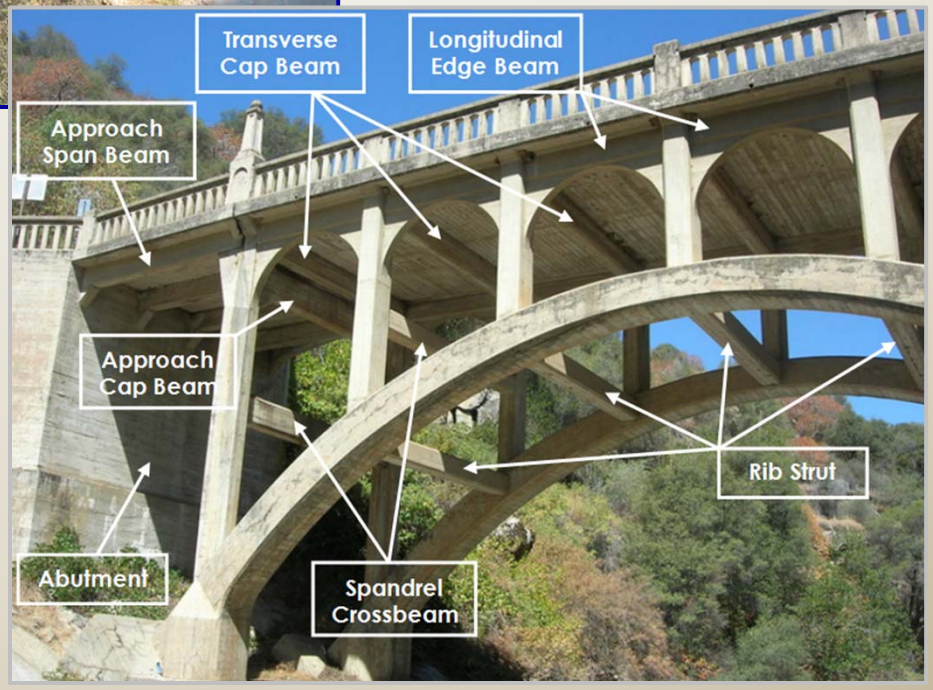
ARCH BRIDGE NOMENCLATURE



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BRIDGE INVESTIGATION

Detailed Field Investigation

- Completed January 6, 2015
- Caltrans, Cornerstone, & County Staff
- Visual Inspection & Concrete Sounding
  - Caltrans UBIT Truck – Additional Access
- Material Samples
  - 5 Concrete Cores
  - 1 Rebar Sample

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BRIDGE INVESTIGATION

Material Testing Program

- Concrete Strength Tests
- Reinforcing Strength Tests
- Concrete Petrographic Tests

Engineering Analysis

- Vertical Load Analysis
- Seismic Analysis

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BRIDGE DEFICIENCIES

Inadequate Load Capacity

- Deficient Deck & Deck Support Beams
- Bridge Requires Load Posting
  - Posting being Coordinated with Caltrans
  - Public Hearing
- Correction will Require Significant Impacts

NATIONAL BRIDGE RATING LOADS		
Bridge Element	**Federal Standard**	**Oak Grove Bridge**
Deck	36 Tons	14 Tons
Support Beams	36 Tons	30 Tons

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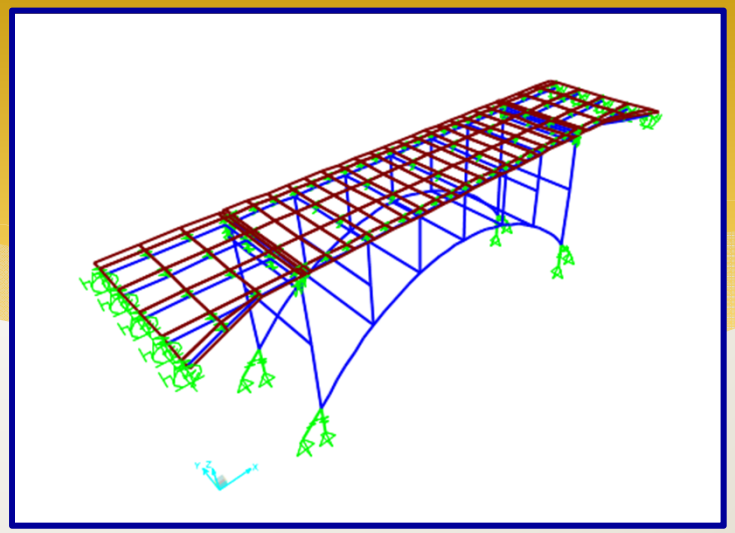
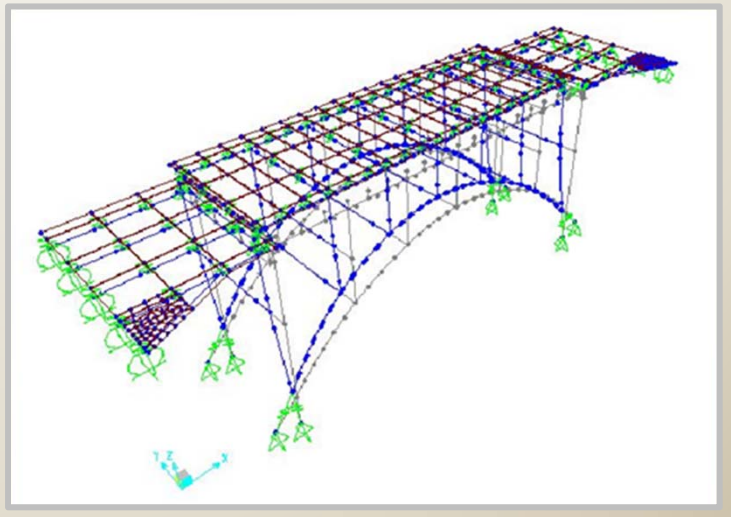
BRIDGE DEFICIENCIES

Seismically Vulnerable

- Deficient Spandrel Columns
- Likely Collapse During Design Earthquake





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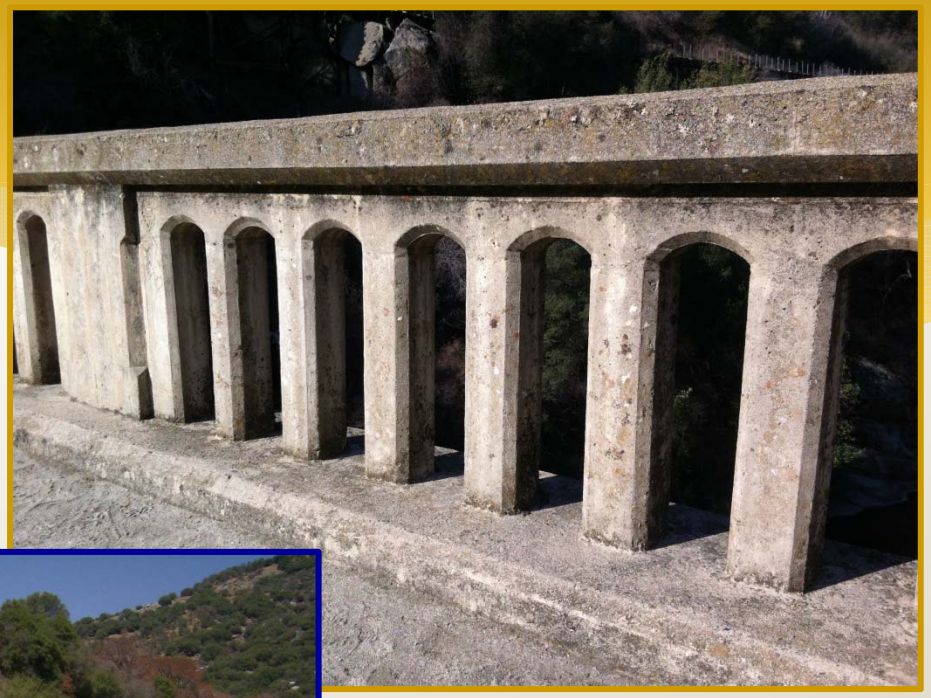
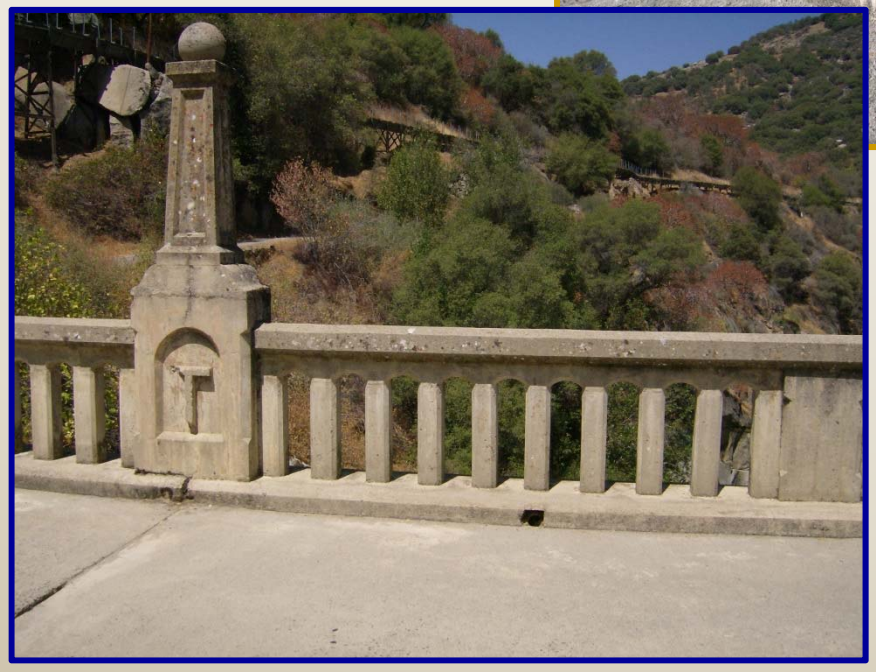
BRIDGE DEFICIENCIES

Deficient Barriers

- Weak Impact Resistance
- Deteriorated Concrete
- Requires Replacement with FHWA Approved Crash Tested Barrier
- End Post Monoliths Could be Reincorporated





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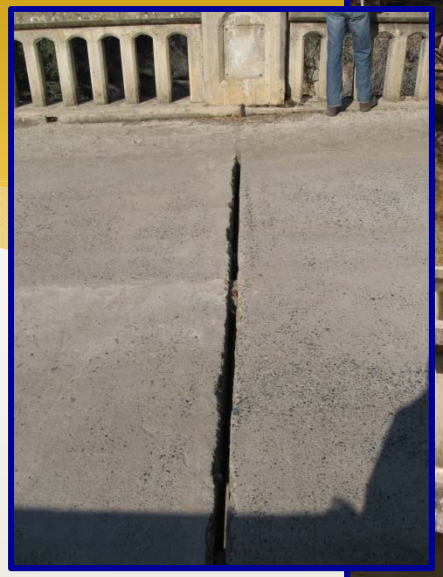
BRIDGE DEFICIENCIES

Joint and Drain Failure

- Open Joint
- Water Drains onto Bridge



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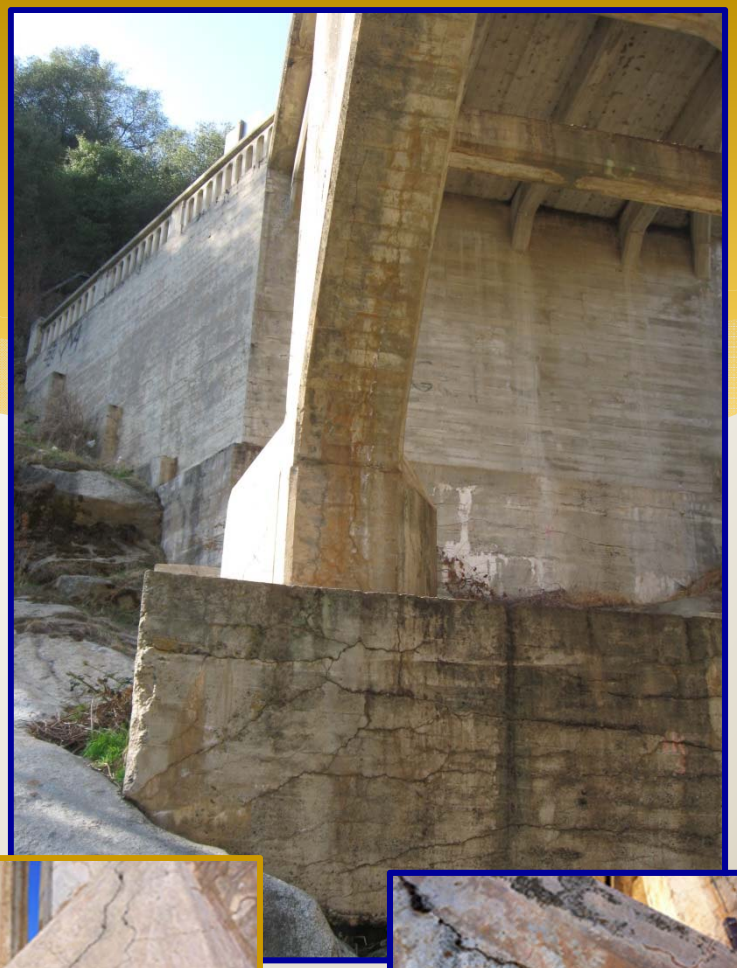
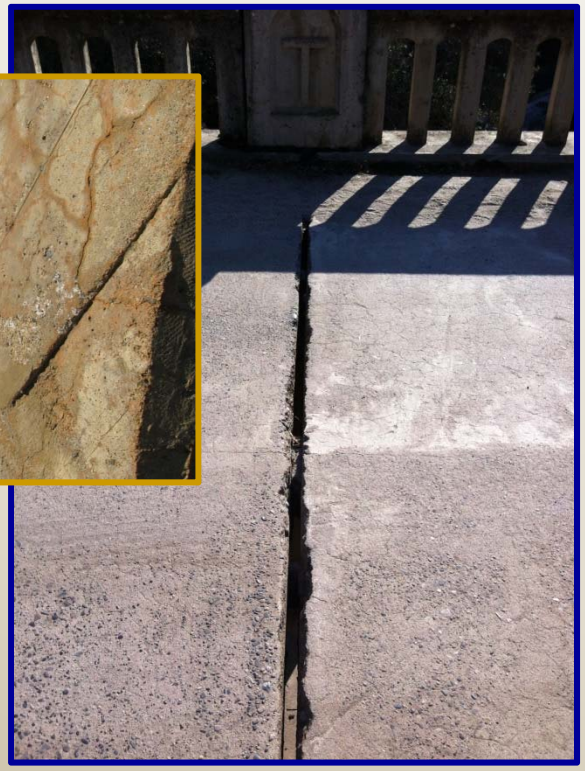
BRIDGE DEFICIENCIES

Concrete Deterioration

- Cracks Throughout Bridge
  - Concentrated Where Water Collects and in Shadowed Areas
  - Large Cracks (>1/4”) in Arches
- Deck Cracks in Main Span
- Delamination Starting





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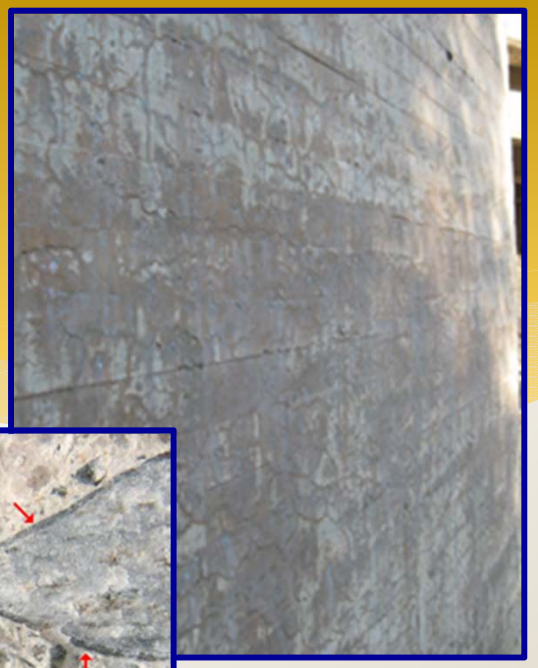
BRIDGE DEFICIENCIES

Concrete Deterioration

- Causes of Deterioration
  - Age
  - Alkali-Silica Reaction (ASR)
  - Carbonation



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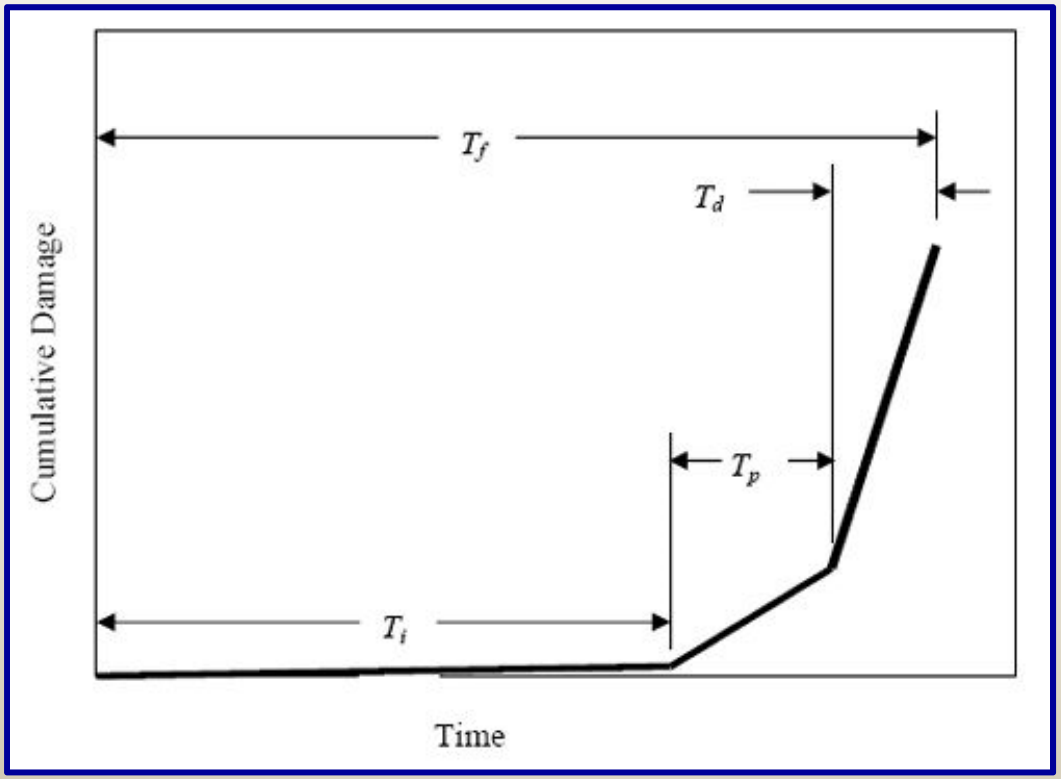
BRIDGE DEFICIENCIES

Concrete Deterioration

- Reinforcing in Concrete is a Blessing and a Curse
  - Increases Efficiency But…Steel Corrodes (i.e. Rusts)
- Concrete Protects Reinforcing
  - Protection Is Compromised by Cracking, Chlorides, & Carbonation



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SUMMARY OF BRIDGE DEFICIENCIES

- **Inadequate Load Capacity**
- **Seismically Vulnerable**
- **Deficient Barriers**
- **Joint & Drain Failure**
- **Concrete Deterioration – Nearing End of Useful Life**

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ALL CONSIDERED ALTERNATIVES

- **Alternative 1: Retrofit/Rehabilitate Existing Bridge**
- **Alternative 2A: Replace with Arch Bridge Upstream (Remove Existing Bridge)**
- **Alternative 2B: Replace with Girder Bridge Upstream (Preserve Existing Bridge)**
- **Alternative 3: Hybrid Rehab/Replacement**
- **Alternative 4A: Replace with Arch Bridge Downstream (Remove Existing Bridge)**
- **Alternative 4B: Replace with Girder Bridge Downstream (Preserve Existing Bridge)**
- **Alternative 5: New East Alignment (Preserve Existing Bridge)**
- **Alternative 6: New West Alignment (Preserve Existing Bridge)**
- **Alternative 7: Do Nothing**

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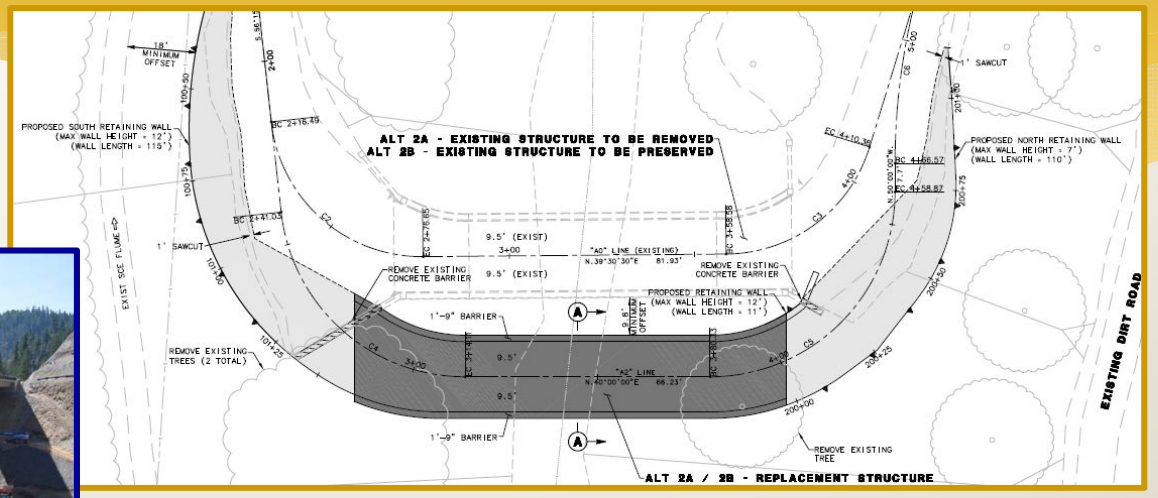
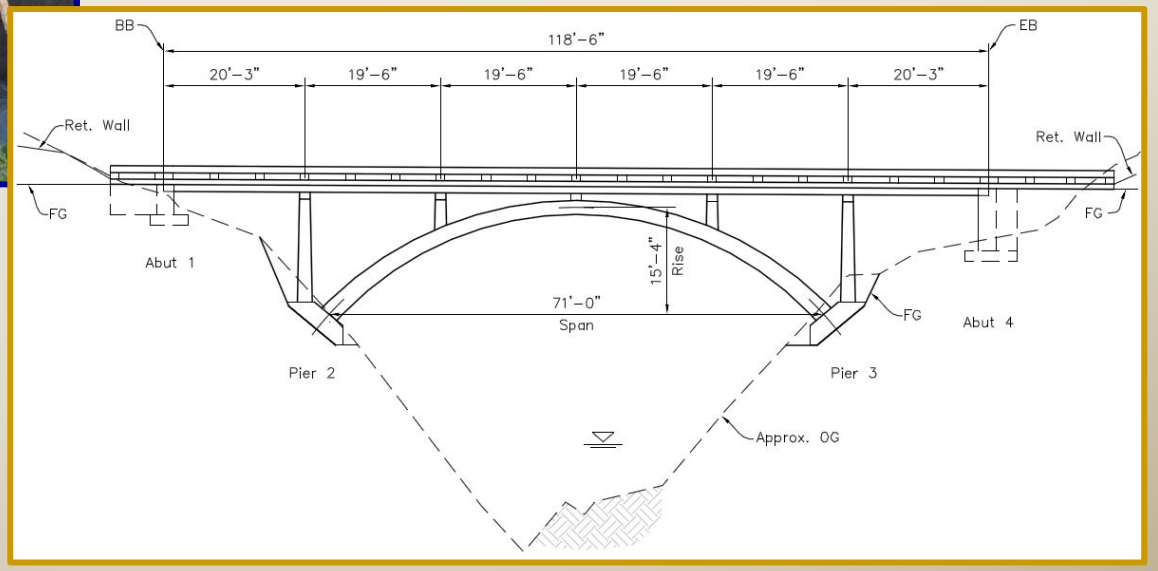
CONSIDERED BUT REMOVED ALTERNATIVES

Alternative 2A – Replacement Arch Bridge Upstream

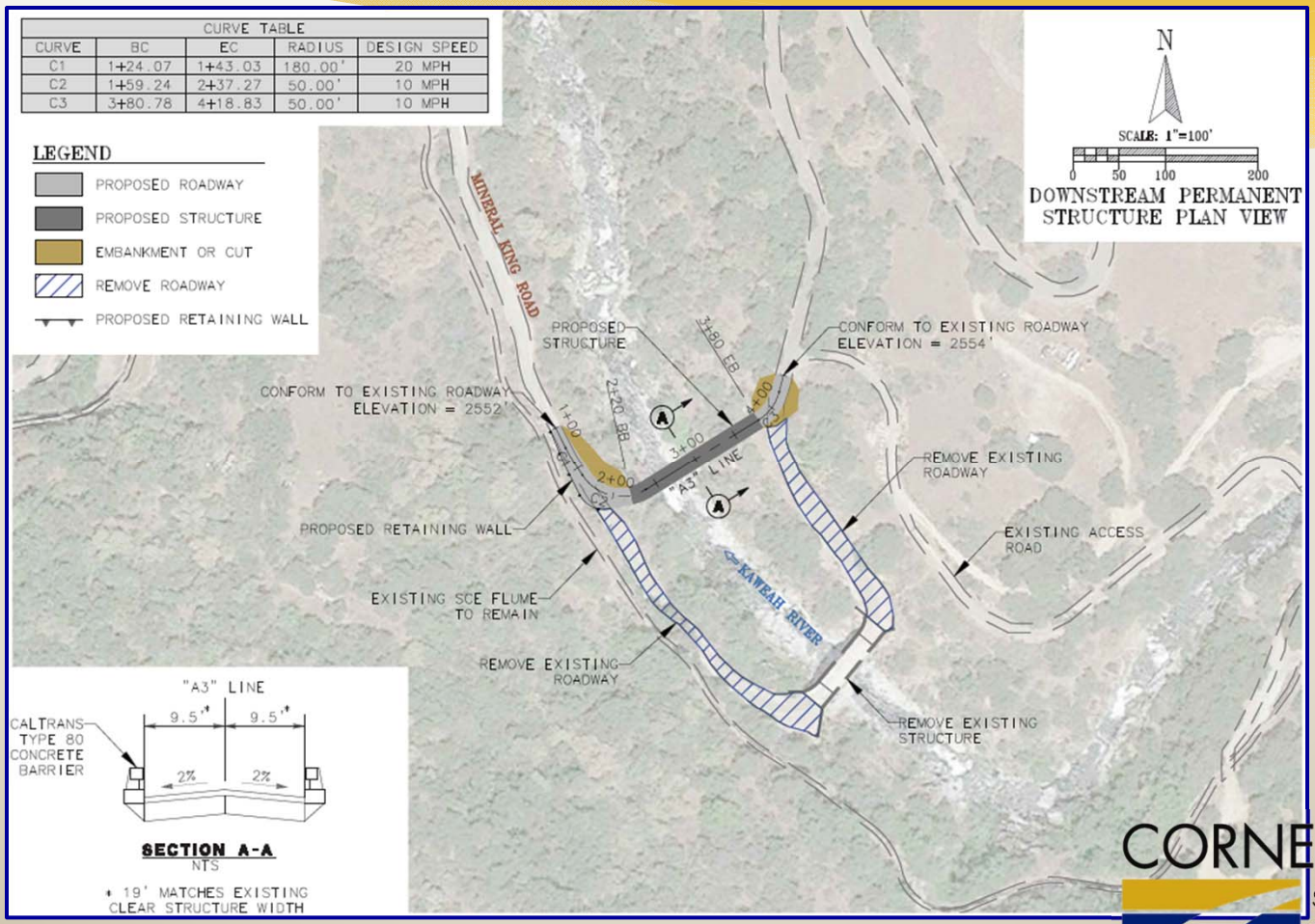




CONSIDERED BUT REMOVED ALTERNATIVES

Alternative 4A – Replacement Arch Bridge Downstream

Alternative 4B – Replacement Girder Bridge Downstream



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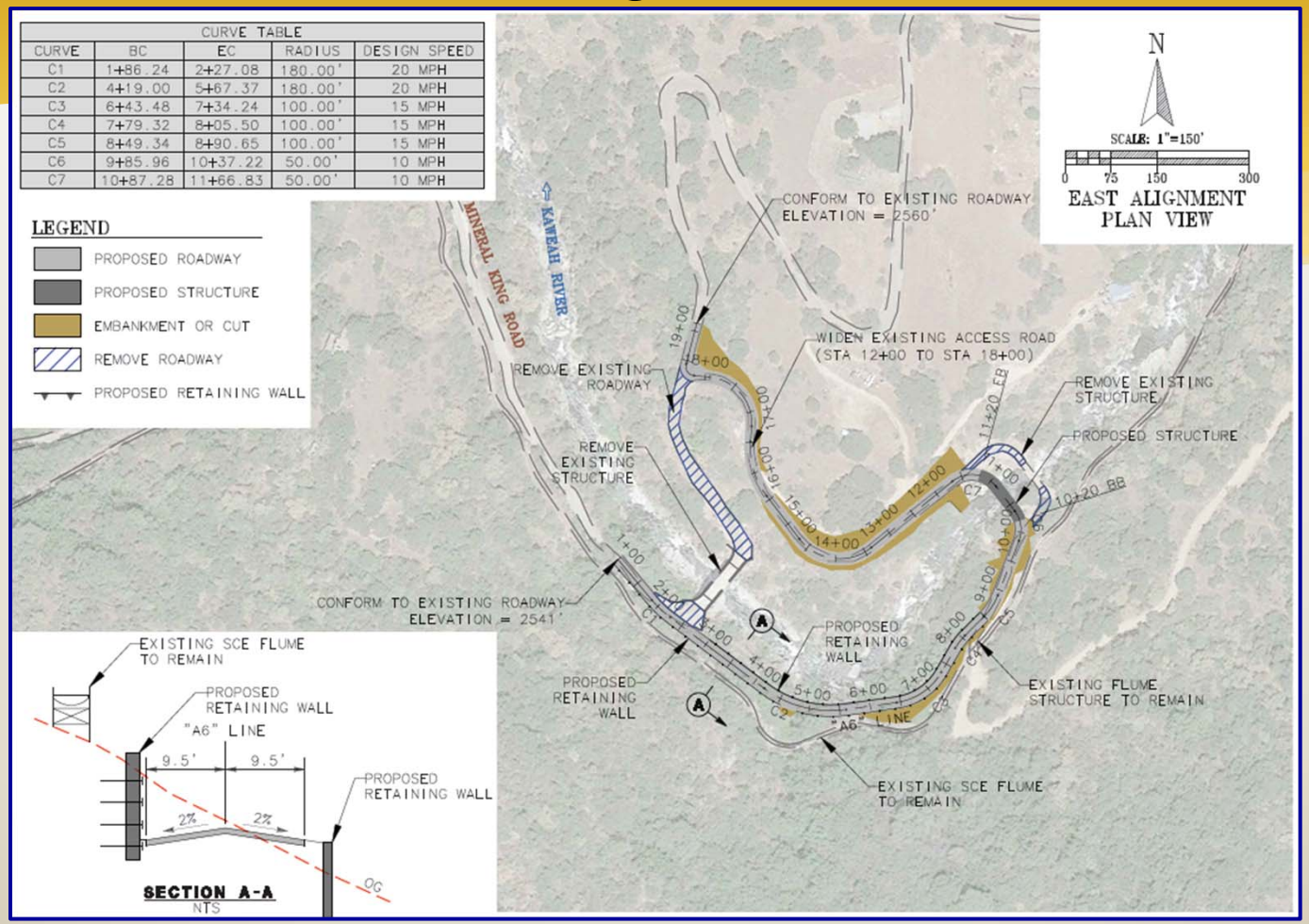
CONSIDERED BUT REMOVED ALTERNATIVES

Alternative 5 – New East Alignment



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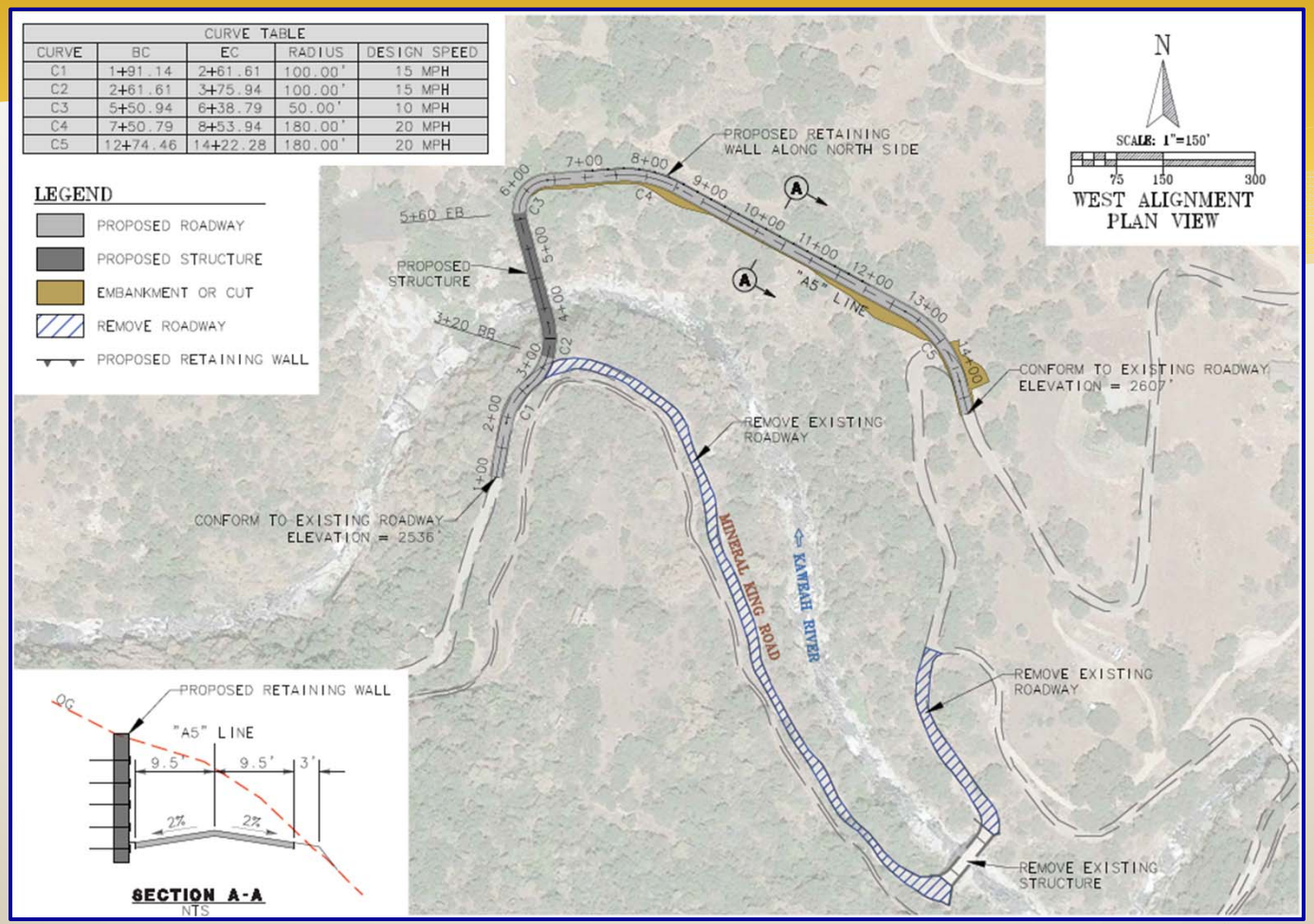
CONSIDERED BUT REMOVED ALTERNATIVES

Alternative 6 – New West Alignment



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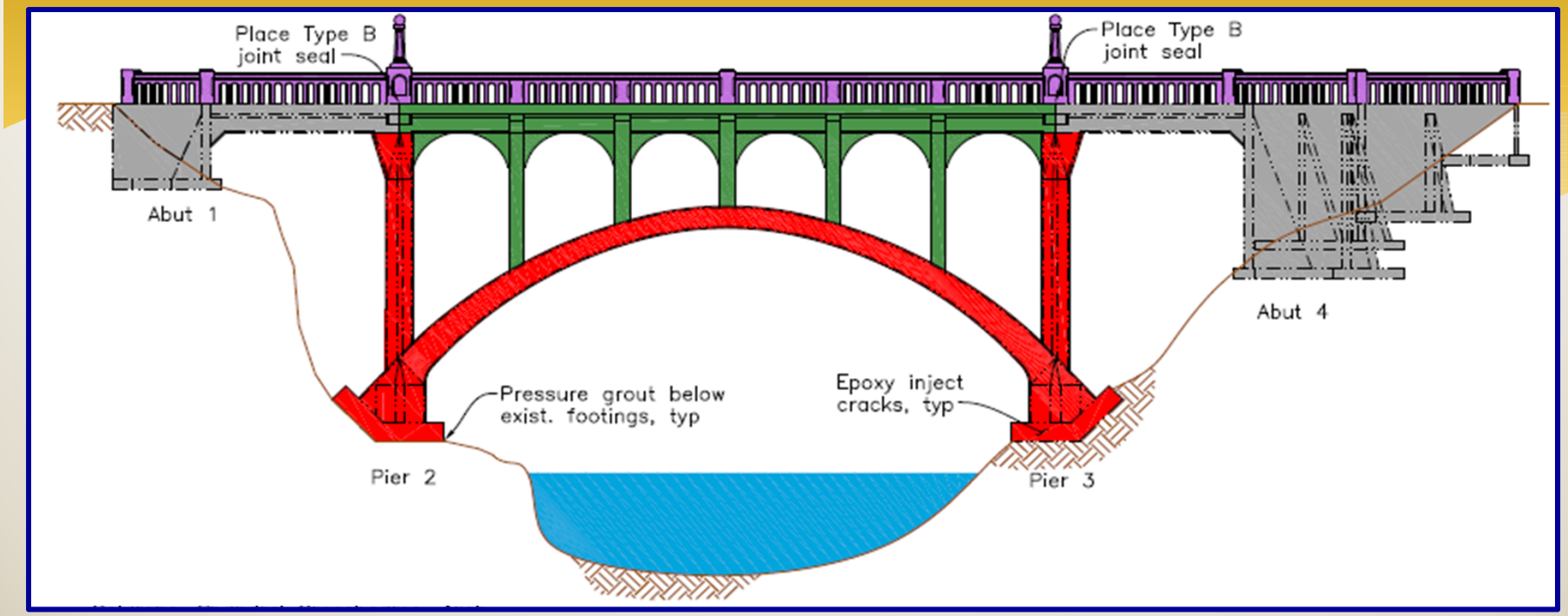
ALTERNATIVES CURRENLTY UNDER CONSIDERATION

Alternative 1 – Retrofit/Rehabilitate Existing Bridge



DEFICIENCY	ADDRESSED BY:
Inadequate Load Capacity	Replace Deck
Seismically Vulnerable	Replace Spandrel Columns
Deficient Barriers	Replace Barriers
Joint & Drain Failure	Replace Joints & Drains
Concrete Deterioration	Replace Carbonated Concrete
	Epoxy Inject Cracks
	Silane Treatment

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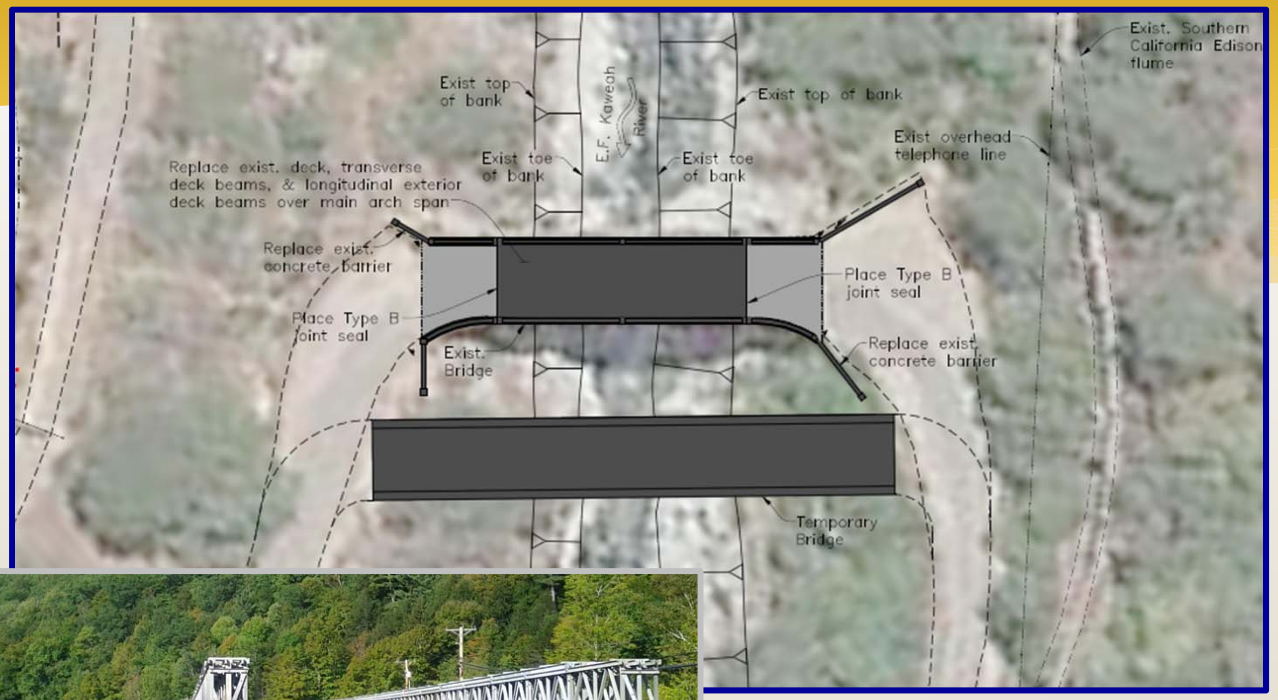
ALTERNATIVES CURRENLTY UNDER CONSIDERATION

Alternative 1 – Retrofit/Rehabilitate Existing Bridge



Temporary Bridge

Texas Classic Type T411 Bridge Barrier Rail

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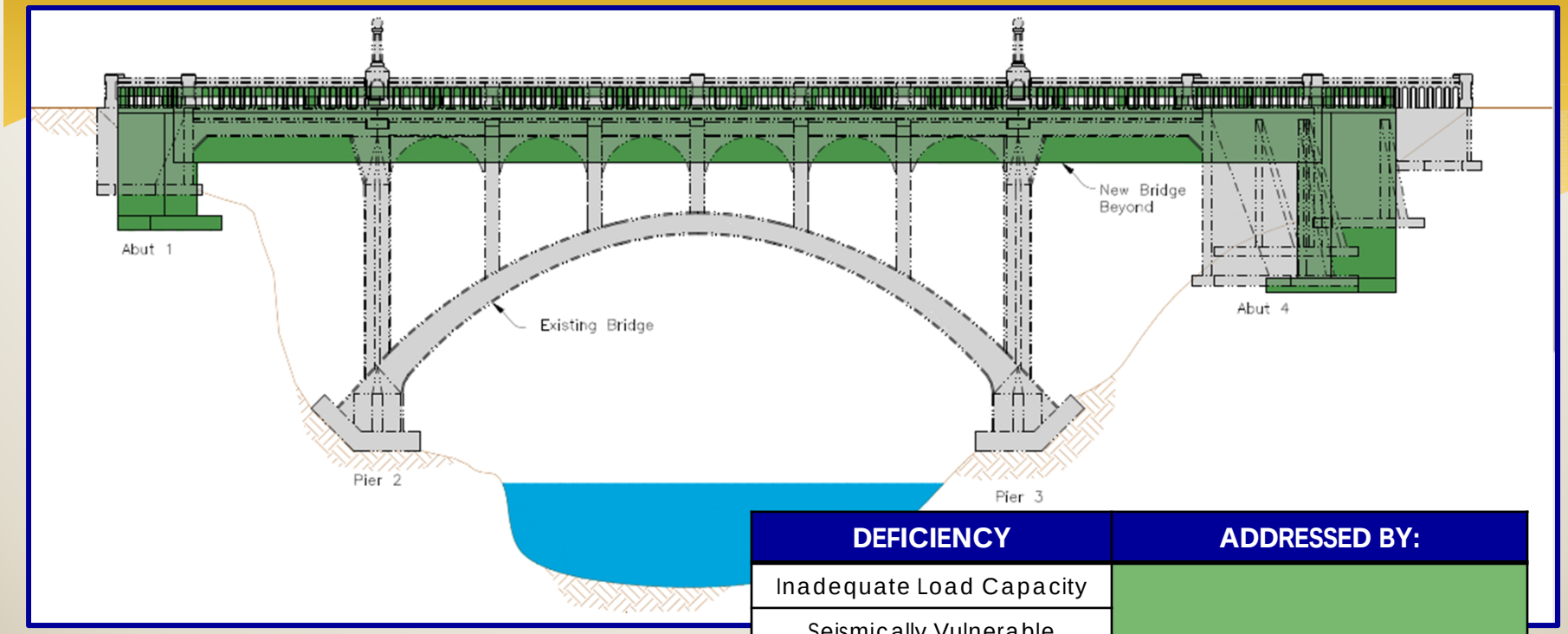
ALTERNATIVES CURRENLTY UNDER CONSIDERATION

Alternative 2B – Replace with Girder Bridge Upstream



DEFICIENCY	ADDRESSED BY:
Inadequate Load Capacity	New Bridge Upstream
Seismically Vulnerable	
Deficient Barriers	
Joint & Drain Failure	
Concrete Deterioration	
Concrete Deterioration	Epoxy Inject Cracks Silane Treatment Methacrylate Deck

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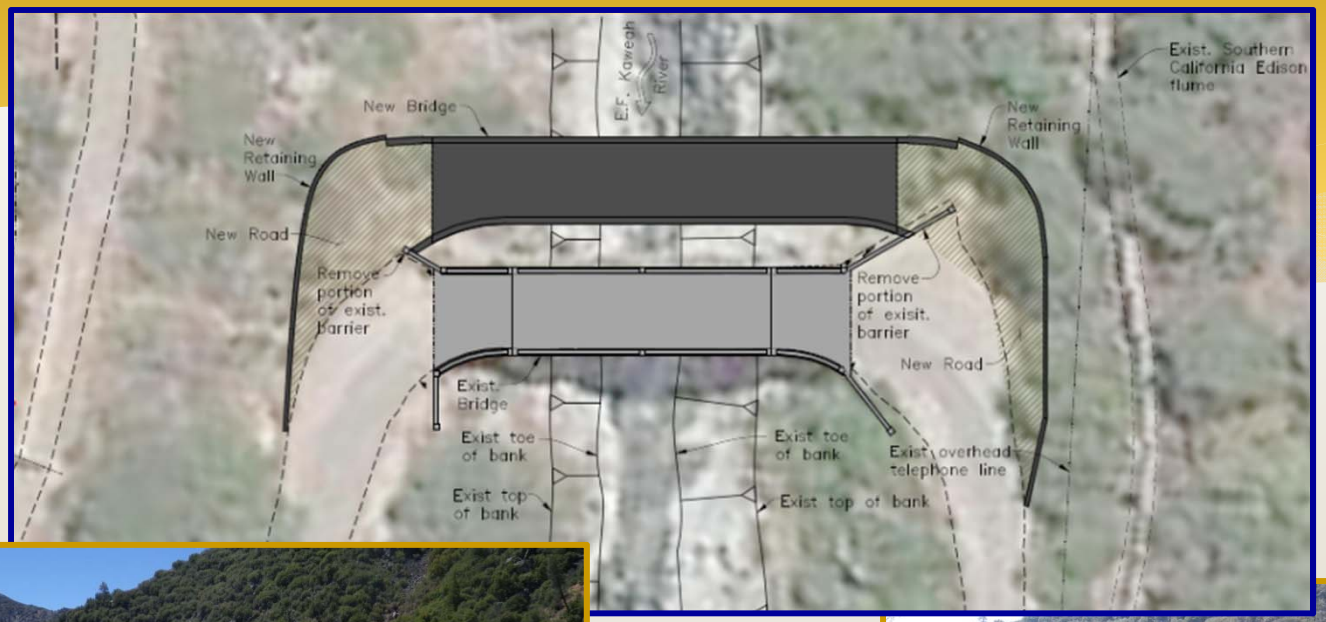
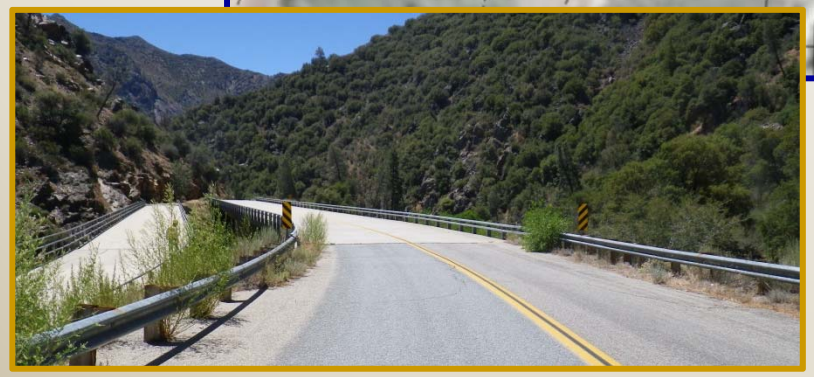
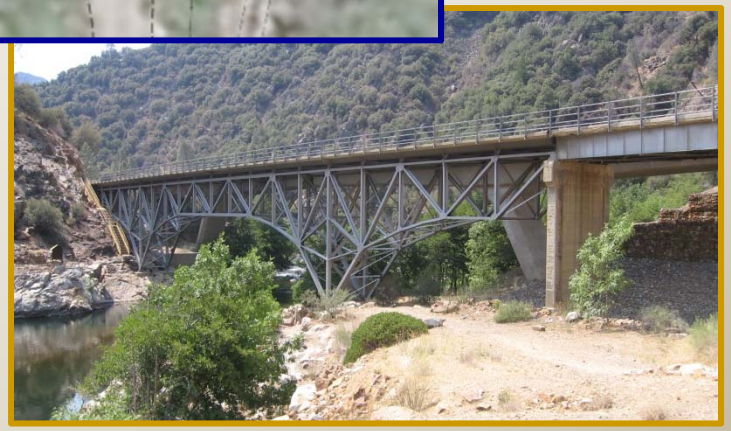
ALTERNATIVES CURRENLTY UNDER CONSIDERATION

Alternative 2B – Replace with Girder Bridge Upstream







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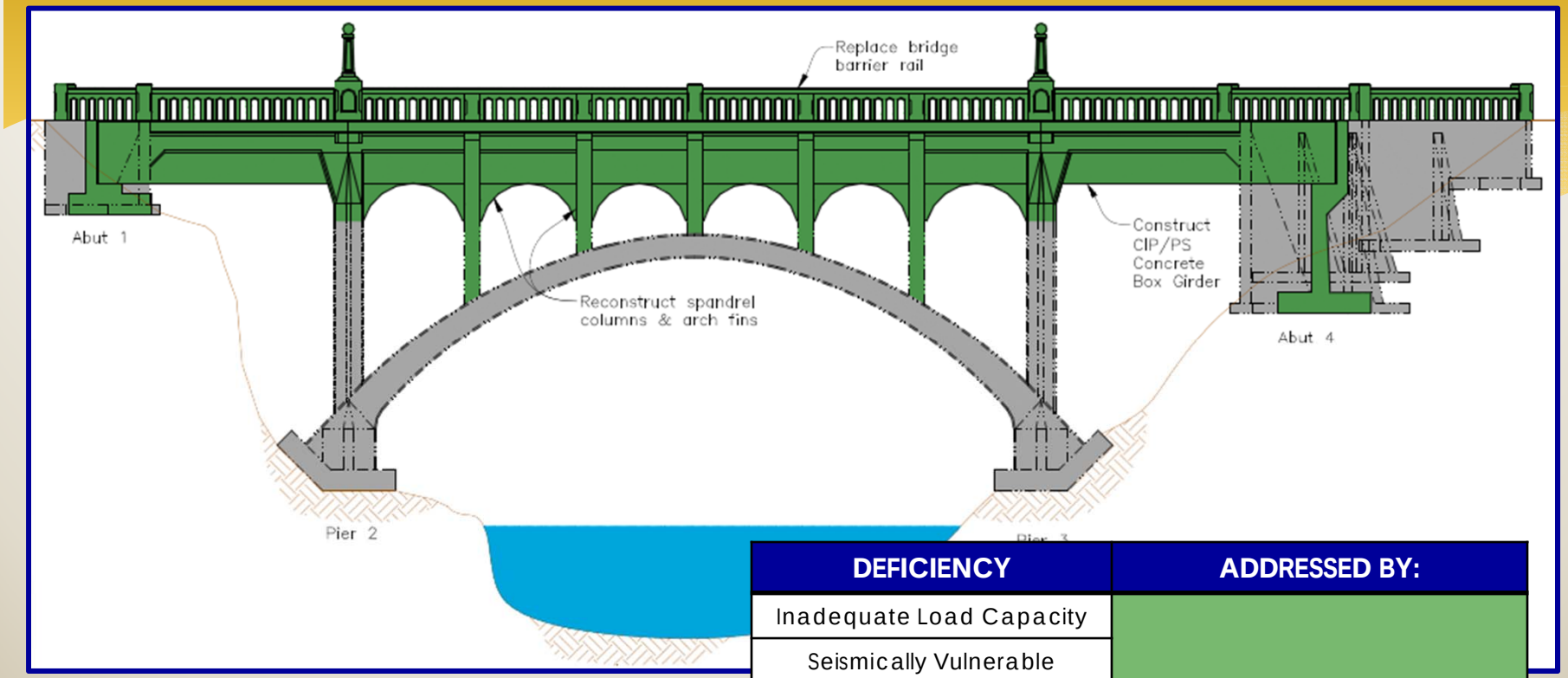
REMAINING PROJECT ALTERNATIVES

Alternative 3 – Hybrid Rehab/Replacement



DEFICIENCY	ADDRESSED BY:
Inadequate Load Capacity	New Bridge Built Over Existing Bridge
Seismically Vulnerable	
Deficient Barriers	
Joint & Drain Failure	
Concrete Deterioration	
Concrete Deterioration	Epoxy Inject Cracks Silane Treatment

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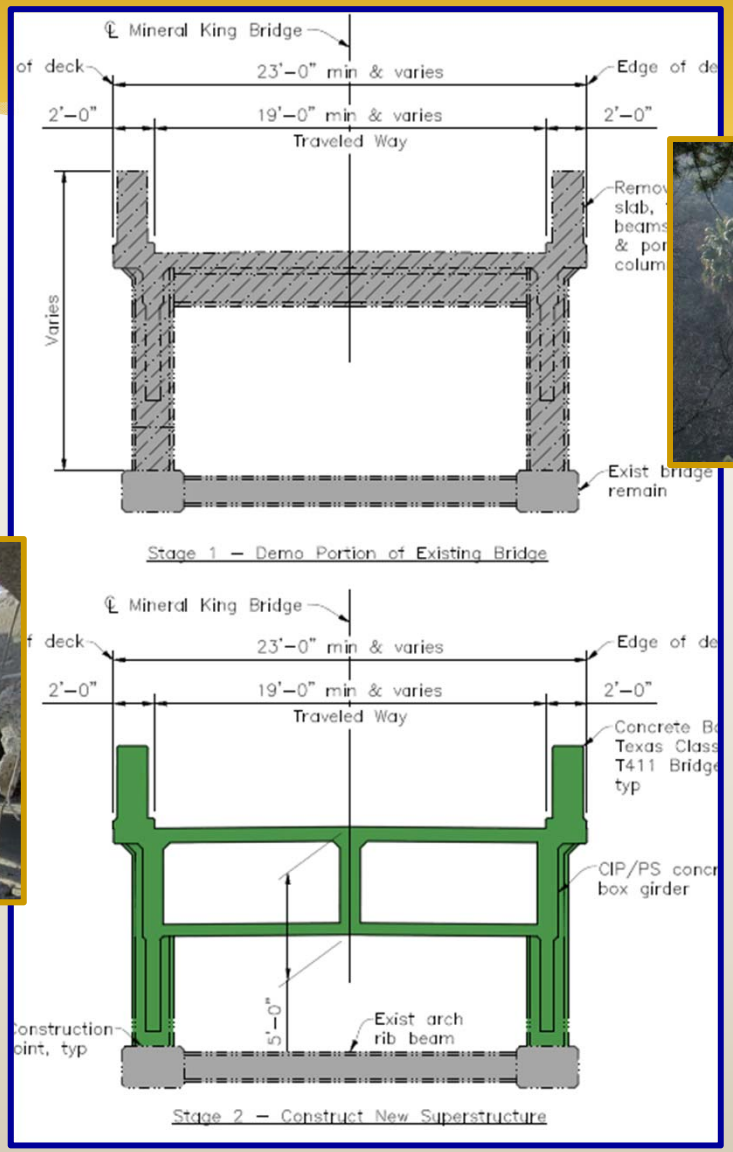
REMAINING PROJECT ALTERNATIVES

Alternative 3 – Hybrid Rehab/Replacement



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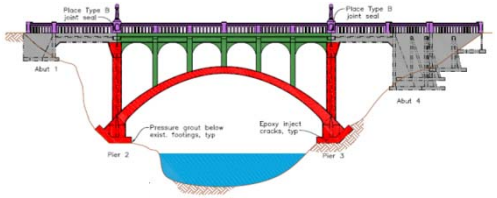
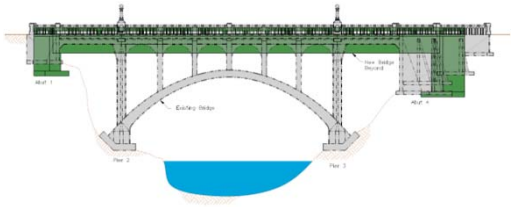
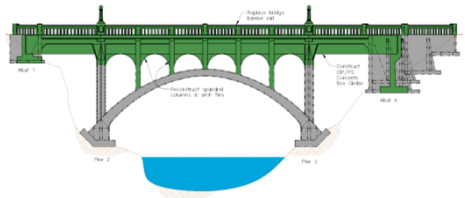
SUMMARY OF REMAINING ALTERNATIVES

Alternative	Estimated Cost	PROS	CONS
Alternative 1 Retrofit/Rehabilitate Existing Bridge 	$4.5 Million	• Preserves Original Structure • Preserves Existing Aesthetics • Maintains Existing Alignment	• High Initial Cost • High Engineering Risk • High Risk of Unknowns During Construction • High Risk of Increasing Construction Costs • High Future Maintenance Costs • Short Design Life • Requires Temporary Bridge • Requires Significant Retrofit/Rehab Work • Requires Replacement of Barrier
Alternative 2B Replace with Girder Bridge Upstream 	$4.0 Million	• Provides New, Low Maintenance Bridge • Preserves Existing Bridge • Preserves View Shed of Existing Bridge • Lower Cost • Low Risk of Unknowns During Construction • Low Risk of Increasing Construction Costs	• Requires Maintenance on Two Bridges • Existing Bridge No Longer Eligible for Federal Funding • Requires Right-of-Way • More Environmental Impact • Requires New Retaining Walls
Alternative 3 Hybrid Rehab/Replacement 	$5.0 Million	• Essentially Preserves Existing Aesthetics • Provides New, Low Maintenance Bridge • Only One Bridge • Lower Maintenance Costs • Maintains Existing Alignment • Minimizes Environmental Impact • Minimal Road Work	• Requires Temporary Bridge • High Construction Cost • Replaces Existing Bridge • Medium Risk of Unknowns During Construction • Medium Risk of Increasing Construction Costs

OTHER CONSIDERATIONS

Site Access

- Route Survey Completed by Reeve Trucking
- 28 ft. Long flat-bed Trailers
- 265-ton All-Terrain Crane
- Concrete from CEMEX plant in Farmersville, CA
- Cal Fire Dozer Transport

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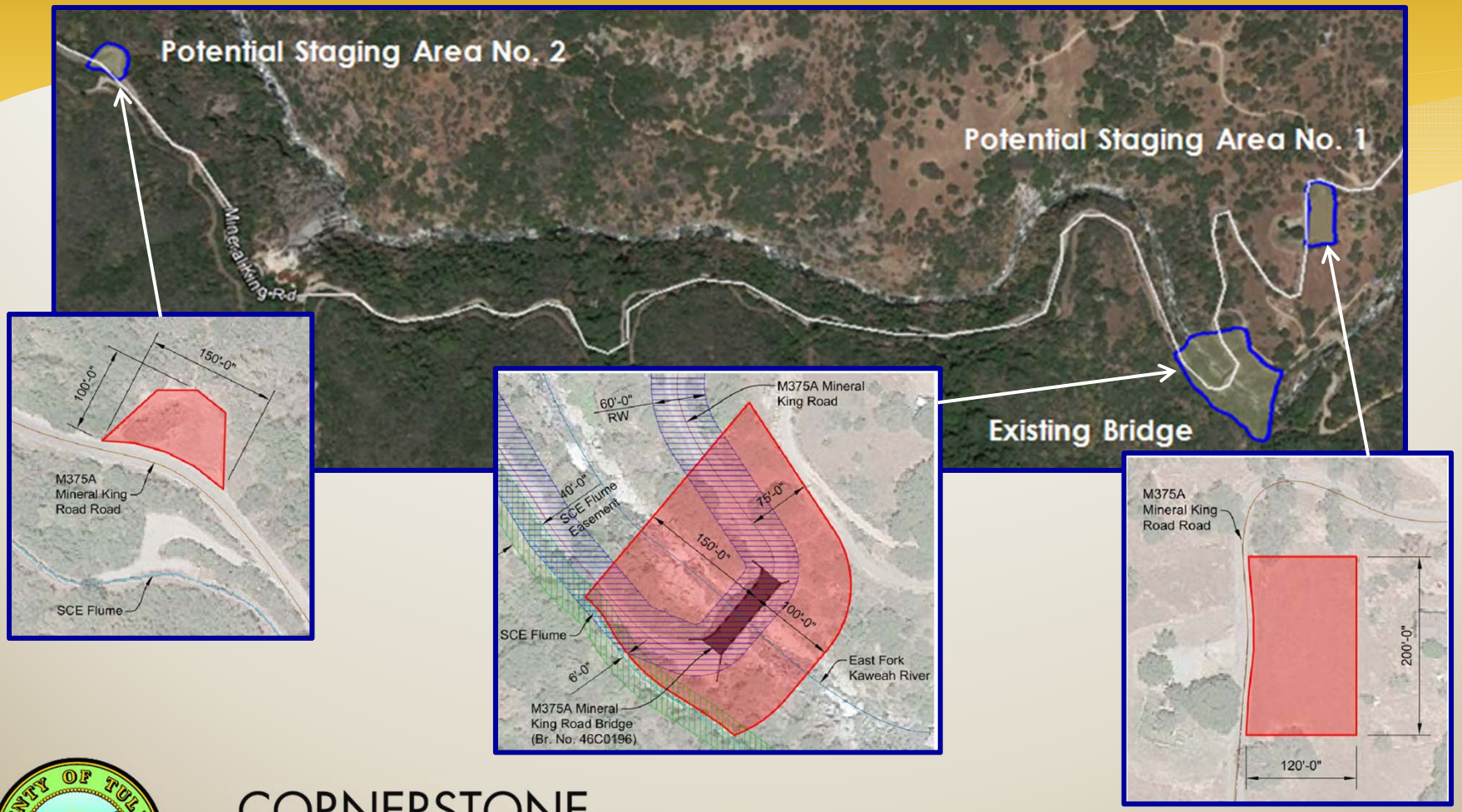
OTHER CONSIDERATIONS

Area of Potential Effects



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ENVIRONMENTAL LAWS

California Environmental Quality Act (CEQA)

- Initial Study (IS) and Environmental Impact Report (EIR)
- County is CEQA lead agency

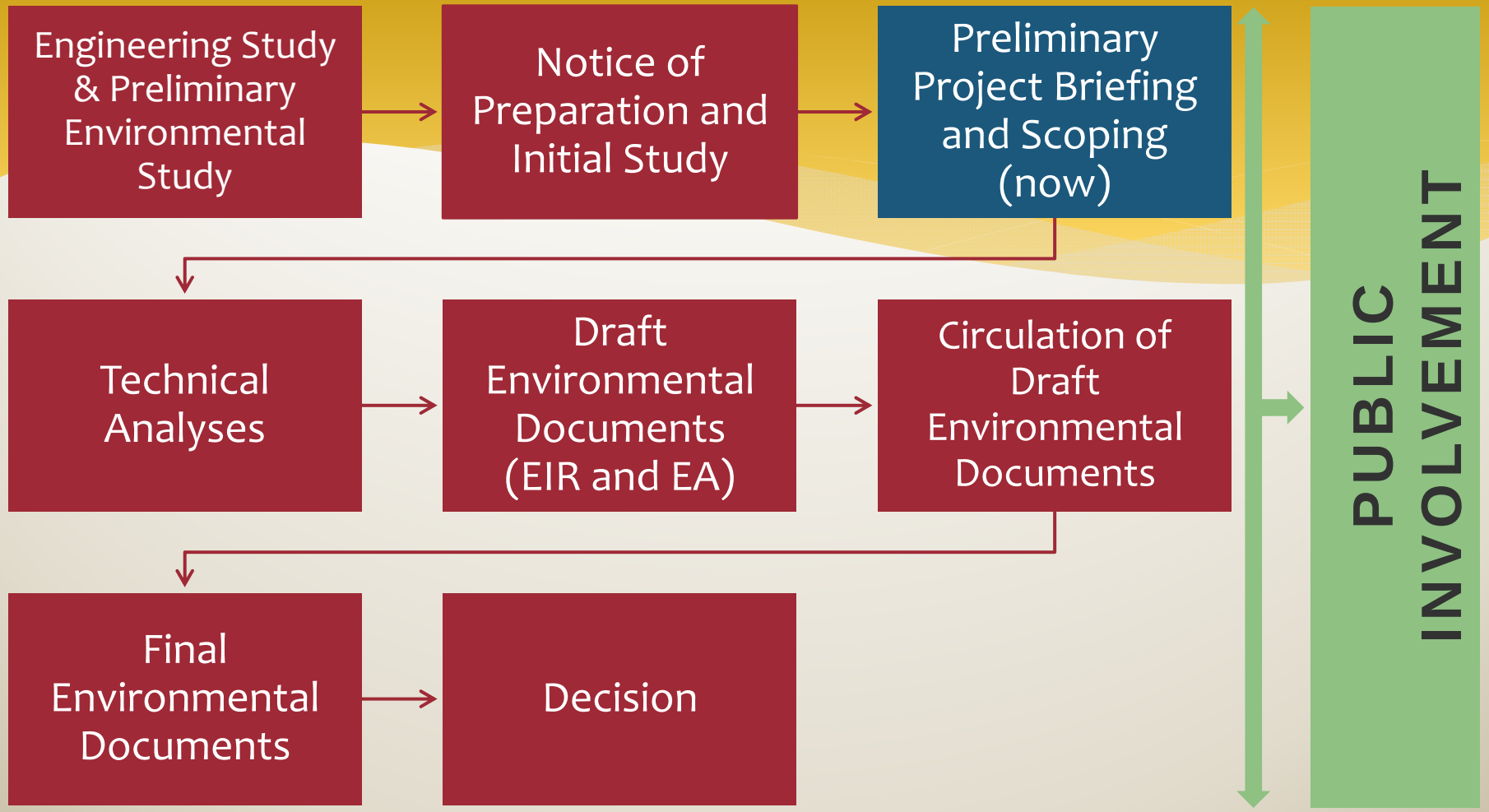
National Environmental Policy Act (NEPA)

- Preliminary Environmental Study (PES) and Environmental Assessment(EA)
- Caltrans is NEPA Lead Agency

Technical Studies

- Biological Resources
- Water Quality
- Visual Resources
- Historic & Archeological Resources
- Hazardous Materials

ENVIRONMENTAL REVIEW PROCESS



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PUBLIC INVOLVEMENT

Public Scoping Meeting → February 23rd, 2016

Circulation of Draft EIR → Anticipated Early 2017

Please submit comments by **March 23rd, 2016**

- Submit a comment card: Welcome Table
- Send via postal mail to:

  Jason Vivian
  Tulare County RMA Public Works – Design
  5961 S. Mooney Boulevard
  Visalia, CA 93277

- Or send via e-mail to: JVivian@co.tulare.ca.us