Philo Greenwood Road At Navarro River Bridge Project
Agenda

• Welcome
• Introduction
• Purpose & Need
• Process
• Roadway Design
• Bridge Design
• Next Steps
• Schedule
• Breakout Session
Welcome

• Share Information and Solicit Public Input
• Project Team - Self Introductions
• History
  ▪ Constructed in 1951
  ▪ Not Currently Considered a Historic Structure
  ▪ Functionally Obsolete
  ▪ Reaching End of its Service Life
• Federal Highway Bridge Program
  ▪ 88.53% Federal HBP Dollars
  ▪ 11.47% Federal Toll Credits
Project Location

- Philo-Greenwood Road
- Bridge Site
- Hendy Woods State Park
- Navarro River
- SR128
- SR128
- Google earth

www.quincyeng.com
Purpose

Retrofit or Replace Deficient Bridge

• Provide Safe Crossing
• Reduce Maintenance

Improve Public Safety

• Bring up to Current Design Standards
• Increase Lane & Shoulder Width
• Match Adjacent Roadway
• Provide Pedestrian Access
Need - Existing Bridge

- Seismically Deficient
- Structurally Deficient
- Substandard Railing
- Functionally Obsolete (Width)
Need- Component Condition

• Timbers - Splits, Shakes, & Decay
• Trestle Footing - Cracks & Settlement
• Concrete Piers - Deterioration
Considerations

- Natural Setting
- Aesthetics
- Traffic
- Minimizing Construction Impacts
- Minimizing Permanent Environmental Impacts
- Recreational Users
- Pedestrians and Bicyclists
- Utilities
- Funding
Environmental Compliance (NEPA CE, CEQA MND)

Studies Required:

1. Noise
2. Water Quality
3. Hazardous Waste
4. Floodplain Impacts
5. Biology (Natural Environment Study and Biological Assessment)
6. Wetlands Assessment and Delineation
7. Section 4(f) De Minimis (Not adversely effecting activities or attributes of Hendy Woods SP)
8. Visual Resources
9. Construction/Encroachment on State Lands
10. Farmlands
12. Permits needed: Army Corps Section 404 Nationwide, Regional Water Quality Control Board Section 401 Water Quality Certification, CA Fish and Wildlife Section 1602 Streambed Alteration
Roadway Criteria

- Rural Minor Collector
- 418 Average Daily Traffic (2012)
- 40 MPH Proposed Design Speed (Rolling Terrain)
- 11’ Lanes, 5’shoulders, 5’ sidewalk on south side of bridge
- Meets Accepted Design Standards
Alternative 1- Existing Alignment
Alternative 2- Downstream Alignment
# Roadway Alternatives Summary

<table>
<thead>
<tr>
<th>Alt</th>
<th>Description</th>
<th>Pros</th>
<th>Cons</th>
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</thead>
</table>
| 1A  | Existing Alignment (Two Stage) | • Retain Existing Footprint  
• Minimizes Permanent Impacts  
• Minimize R/W Impacts  
• Minimize Roadway Costs  
• Minimize Visual Impacts | • Staged Traffic During Construction  
• Longer Construction Duration |
| 1B  | Existing Alignment (Two Stage) | • Retain Existing Footprint  
• Minimizes Permanent Impacts  
• Minimize R/W Impacts  
• Minimize Roadway Costs  
• Minimize Visual Impacts | • Staged Traffic During Construction  
• Longer Construction Duration |
| 2   | New Downstream Alignment | • Retain Existing Traffic Pattern  
• Isolate Traffic From Construction  
• Improve Horizontal & Vertical Geometry | • More Visual & Aesthetic Impacts  
• Higher Permanent R/W acquisition,  
• More permanent environmental impacts, More Roadway Work  
• More Costly |
Bridge Alternative 1A- Rehabilitate & Widen
Bridge Alternative 1B - Rehabilitate & Widen

[Diagram of bridge showing rehabilitation and widening details]

ALTERNATIVE 1B: ARCH RETROFIT & WIDENING WITH 4 SPAN CIP PRESTRESSED CONCRETE SLAB APPROACH
Arch Widening & Rehabilitation

- Rehabilitation of Arch Ribs and Spandrel Columns is Feasible
- Widened Arch Structure can withstand modern Vehicular and Seismic Loads
Existing Bridge Assessment

- Concrete Material Properties
  - Deck, Arch Ribs, Pier Support
- Structural Evaluation – Load Capacity
  - Deck, Spandrel Columns, Arch Rib
Existing Bridge Assessment

- Seismic Analysis
- Geotechnical Evaluation
- Hydraulic Evaluation
- Final Conclusions
Construction Staging

Arch Span Widening - Staged Construction
Sample Construction Staging
Comparison- Existing
Comparison- Retrofit
Bridge Alternative 2- Full Replacement
## Bridge Alternatives Summary

<table>
<thead>
<tr>
<th>Alternative</th>
<th>New Bridge</th>
<th>Construction Duration &amp; Traffic Handling</th>
<th>Construction Cost (in Millions)</th>
<th>Pros</th>
<th>Cons</th>
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</thead>
<tbody>
<tr>
<td><strong>1A: Retrofit &amp; Widen</strong>&lt;br&gt;On Existing Alignment</td>
<td>3 Span Cast-in-place Prestressed Concrete Box Girder&lt;br&gt;Two Seasons Staged on Existing Bridge</td>
<td>Road: $0.9M&lt;br&gt;Bridge: $4.2M&lt;br&gt;Total: $5.1M</td>
<td>• Aesthetics&lt;br&gt;• Preservation&lt;br&gt;• Small Footprint</td>
<td>• Traffic Handling</td>
<td></td>
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<tr>
<td><strong>1B: Retrofit &amp; Widen</strong>&lt;br&gt;On Existing Alignment</td>
<td>4 Span Cast-in-place Prestressed Concrete Slab&lt;br&gt;Two Seasons Staged on Existing Bridge</td>
<td>Road: $0.9M&lt;br&gt;Bridge: $4.8M&lt;br&gt;Total: $5.7M</td>
<td>• Aesthetics&lt;br&gt;• Preservation&lt;br&gt;• Small Footprint</td>
<td>• Traffic Handling&lt;br&gt;• Most Expensive</td>
<td></td>
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<tr>
<td><strong>2: Replacement</strong>&lt;br&gt;On Northern Alignment</td>
<td>2 Span Cast-in-place Prestressed Concrete Box Girder&lt;br&gt;Single Season No Staging</td>
<td>Road: $1.0M&lt;br&gt;Bridge: $3.9M&lt;br&gt;Total: $4.9M</td>
<td>• Low Traffic Impacts&lt;br&gt;• Shortest Duration</td>
<td>• Aesthetics&lt;br&gt;• Removes Arch&lt;br&gt;• Large Footprint</td>
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Next Steps

- Continue Preliminary Engineering
- Retrofit Strategy & Scope Approval
- Select Preferred Alternative
- Complete Environmental Studies
- Complete Preliminary Engineering
- Complete Environmental Clearance
- Complete Final Plans, Specifications, and Estimate
- Obtain Regulatory Permits
- Advertise, Administer, and Award Project
- Begin and Complete Construction
## Schedule

<table>
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<td><strong>Project Management</strong></td>
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