US 64/491 OVER
THE SAN JUAN RIVER

CN 5101010
June 24th, 2020
US64/491 San Juan Bridge Crossing in Shiprock, NM CN: 5101010

Introductions

— NMDOT Team
  • Estevan Gonzales, P.E. – PDE North Region Design
  • Javier Martinez, P.E. – ADE District 5
  • Kim Coleman, P.E. – NMDOT Bridge Bureau

— Design Team
  • Howard Cake, P.E. – T.Y. Lin, Project Manager
  • Paul Barricklow – Lee Engineering, Traffic
  • Eric Johnson – NV5, Environmental
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Agenda

– Project Overview
– Phase A/B Recommendations
– Phase C Investigation
– Schedule
– Comments & Questions
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- Phase A/B Study
- Phase C - Environmental
- Phase D – Preliminary Design
- Final Design
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Project Overview
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Bridge #1792 & #7148

- Bridge #1792 – Historic Steel Truss Bridge
- Bridge #7148 – Concrete Girder Bridge
Public Meetings

- 3 Total Meetings
- 1st Meeting Was Held September 27, 2017
- 2nd Meeting Was Held November 14, 2019
- Current Meeting June 24, 2020
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Comment Highlights

- Pedestrian Access on South Side of Proposed Bridge
- Pedestrian Fencing
- Alignment of roadway (North vs South of historic bridge)
- Intersection at Truck Route Road
- Bicycle Lanes at Intersections
- Pedestrian Access Under the Bridge
- Bridge Lighting
- Shiprock Bypass
- Alternative Bridge Locations
- Multiple Bridge Styles
Revised Bridge Section

Bridge Section at November 27, 2019 Meeting
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Identified Alternatives

• Seven bridge alternatives
• Three roadway alignment alternatives
• Three unique intersection alternatives
# Bridge Alternatives

<table>
<thead>
<tr>
<th>Metric</th>
<th>Widen Br. #7148</th>
<th>2 Ln P/S Girder Bridge</th>
<th>4 Ln P/S Girder Bridge</th>
<th>2 Ln Steel Plate Girder Bridge</th>
<th>4 Ln Steel Plate Girder Bridge</th>
<th>4 Ln P/S Segmental Girder Bridge</th>
<th>4 Ln Cable Stayed Bridge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Functional Requirements</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Spans</strong></td>
<td>12</td>
<td>12</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>Cost</strong></td>
<td>Lower</td>
<td>Lowest</td>
<td>Moderate</td>
<td>Low</td>
<td>High</td>
<td>Higher</td>
<td>Highest</td>
</tr>
<tr>
<td><strong>Future Maintenance</strong></td>
<td>High</td>
<td>Moderate to High</td>
<td>Minimal</td>
<td>Low to Moderate</td>
<td>Lowest</td>
<td>Low</td>
<td>Moderate requires special inspection of cables</td>
</tr>
<tr>
<td><strong>Construction Feasibility</strong></td>
<td>Partial bridge closure</td>
<td>Both bridges open during construction</td>
<td>Partial Bridge Closure</td>
<td>Both Bridges open during construction</td>
<td>Partial Bridge Closure Fewer Piers in river</td>
<td>Partial Bridge Closure Less common bridge type</td>
<td>Has not been done in New Mexico Cables to be imported</td>
</tr>
<tr>
<td><strong>Cultural Resources</strong></td>
<td>No Impacts Anticipated</td>
<td>Impacts historic bridge</td>
<td>No Impacts Anticipated</td>
<td>Impacts historic bridge</td>
<td>No Impacts Anticipated</td>
<td>No Impacts Anticipated</td>
<td>No Impacts Anticipated</td>
</tr>
<tr>
<td><strong>Scour</strong></td>
<td>Maintains existing scour pools</td>
<td>Creates additional scour pools</td>
<td>Reduces scour pools</td>
<td>Creates additional scour pools</td>
<td>Reduces scour pools</td>
<td>Reduces scour pools</td>
<td>Reduces scour pools</td>
</tr>
</tbody>
</table>

*Note: The table above provides a comparison of different bridge alternatives based on various metrics such as functional requirements, spans, cost, future maintenance, construction feasibility, cultural resources, and scour.*
## Bridge Alternatives

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<th>Metric</th>
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<th>2 Ln Steel Plate Girder Bridge</th>
<th>4 Ln Steel Plate Girder Bridge</th>
<th>4 Ln P/S Segmental Girder Bridge</th>
<th>4 Ln Cable Stayed Bridge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wildlife &amp; Habitat</td>
<td>Impacts wetlands at bank</td>
<td>Impacts Wetlands at Bank</td>
<td>Impacts Wetlands at Bank</td>
<td>Impacts Wetlands at Bank</td>
<td>Impacts Wetlands at Bank</td>
<td>Impacts wetlands at bank</td>
<td>Impacts wetlands at bank</td>
</tr>
<tr>
<td></td>
<td>Minor impacts to river</td>
<td>Greatest disruption to river</td>
<td>Reduces disruption to river</td>
<td>Increases disruption to river</td>
<td>Reduces disruption to river</td>
<td>Reduces disruption to river</td>
<td>Requires significant drilling for construction</td>
</tr>
<tr>
<td>Pier Debris</td>
<td>No impact</td>
<td>Increased</td>
<td>Reduced</td>
<td>Increased</td>
<td>Reduced</td>
<td>Reduced</td>
<td>Reduced</td>
</tr>
<tr>
<td>Visual Resources</td>
<td>Maintains current look</td>
<td>Adverse impact</td>
<td>Similar to current appearance</td>
<td>Multiple bridges types</td>
<td>Similar to current appearance</td>
<td>Similar to current appearance</td>
<td>Unique bridge profile</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Multiple bridges types</td>
<td>Fewer piers improves river view</td>
<td>Additional piers impact views</td>
<td>Improved views due to fewer piers</td>
<td>Improved views due to fewer piers</td>
<td>Visually impressive landmark</td>
</tr>
</tbody>
</table>
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4 Lane Steel Plate Girder Bridge – Recommended Alternative

- Moderate Initial Cost
- Lowest Maintenance Costs
- Fewer Piers in the Water (Environmental Benefit)
- Fewer Bridges Cluttering the River
## Roadway Alignment Alternatives

<table>
<thead>
<tr>
<th>Metric</th>
<th>4 Lane Roadway South of Bridge #1792</th>
<th>2 Lane Roadway South of Bridge #7148</th>
<th>4 Lane Roadway North of Bridge #1792</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right-of-Way Takes (ROW)</td>
<td>Least ROW Needs</td>
<td>Moderate ROW Needs</td>
<td>Most ROW Needs</td>
</tr>
<tr>
<td></td>
<td>Minimal Impacts to Existing Structures</td>
<td>Impacts Structures to South (West of the Bridge)</td>
<td>Impacts Structures to North (East of the Bridge)</td>
</tr>
<tr>
<td>Cost</td>
<td>Moderate Cost</td>
<td>Lowest Cost</td>
<td>Highest Cost</td>
</tr>
<tr>
<td>Constructability</td>
<td>Most Complex</td>
<td>Least Complex</td>
<td>Least Complex</td>
</tr>
<tr>
<td>Cultural</td>
<td>No impacts</td>
<td>Impact to historic bridge</td>
<td>Potential to impact</td>
</tr>
<tr>
<td>Utilities</td>
<td>No Impacts</td>
<td>No Impacts</td>
<td>Impacts Existing Utilities North of the Bridge</td>
</tr>
<tr>
<td>Nizholi Park</td>
<td>No impact (60’ away)</td>
<td>No impact (40’ away)</td>
<td>No impact – further away than existing</td>
</tr>
<tr>
<td>Noise</td>
<td>Maintains greatest distance from roadway to properties</td>
<td>Roadway comes close to existing properties</td>
<td>Roadway comes close to existing properties</td>
</tr>
<tr>
<td>Wildlife &amp; Habitat</td>
<td>Improves critical habitat</td>
<td>Greatest impact to critical habitat</td>
<td>Greatest impact to floodplain and wetland habitat</td>
</tr>
<tr>
<td>Wetlands</td>
<td>Moderate Impact</td>
<td>Moderate Impact</td>
<td>Greatest Impact – Wetlands occur primarily north of bridge</td>
</tr>
</tbody>
</table>
Roadway Alignment Alternatives

4 Lane Roadway South of Bridge #1792—Recommended Alternative

• Least Right-of-Way Impact
• No Impacts to Existing Structures
• No Impacts to Exiting Utilities
• Least Impact to Wildlife & Habitats
• No Impact to Existing Park
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Recommended Alignment—New 4 Lane Bridge Near South Bridge CL Alignment

West of the River Crossing
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Recommended Alignment – New 4 Lane Roadway South of Bridge #1792

East of the River Crossing
# Intersection Alternatives

<table>
<thead>
<tr>
<th>Metric</th>
<th>Enhanced Signal</th>
<th>Enhanced Signal with High-T</th>
<th>Roundabout</th>
</tr>
</thead>
</table>
| Level of Service   | Hesperus Peak/US 491 (LOS C)  
                      San Francisco Blvd/US 64 (LOS B) | Hesperus Peak/US 491 (LOS D)  
                      San Francisco Blvd/US 64 (LOS C) | Hesperus Peak/US 491 (LOS D)  
                      San Francisco Blvd/US 64 (LOS C) |
| ROW Impacts        | Lowest Impact   | Lowest Impact               | Greatest Impact  |
| Environmental      | Low Impact      | Low Impact                  | Greatest Impact  |
| Pedestrian/Bicycles| Meets Requirements | Meets Requirements         | Meets Requirements |
| Cost               | $685,000        | $1,380,000                  | $1,375,000       |
| Safety             | Meets Requirements | Meets Requirements         | Meets Requirements |

**Enhanced Signal – Recommended Alternative**

- **Best Level of Service**
- **Least ROW Impact**
- **Least Expensive**
- **Meets Requirements for Safety, Pedestrian, and Cyclists.**
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Enhanced Signal Intersection Alternative at San Francisco Peak Blvd.
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Enhanced Signal Intersection Alternative at Hesperus Peak Boulevard
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Environmental Process

- National Environmental Policy Act (NEPA)
- NMDOT Location Study Procedures
- Categorical Exclusion
- Decision
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Physical Environment

- Geology
- Soils
- Water
- Air
- Noise
Biological Environment

- Vegetation
- Noxious weeds
- Wildlife
- Migratory birds
- Threatened and endangered species
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Wildlife & Fish
- San Juan River Provides Variety of Habitats
- Defined by Navajo Nation Heritage Program as Highly Sensitive
- Permanent Water Source
- Bridges Provide Potential Roosting Habitat

Northern Leopard Frog
Razorback Sucker
Colorado Pikeminnow
Human Environment

- Archaeological sites
- Historic properties
- Socioeconomics
- Environmental justice
- Visual resources
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Cultural Resources

- 17 Historic Sites Previously Recorded Within 0.3 Miles
- 2 Historic Properties Documented Within Study Limits
- No Historic Districts Present
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Project Schedule & Costs

• Phase A/B Report Draft and Final Report January 2020
• Phase C (Environmental) Summer, 2020
• Phase D (Preliminary Design) Summer, 2020
• Construction in 2025
• Estimated Project Costs - $20 Million
How to Comment

• Comment form
  – Return via email or US mail
    NV5
    Attn: Eric Johnson
    4374 Alexander Blvd. NE, Suite K
    Albuquerque, NM 87107

• Email your comments to us:
  – Eric.Johnson@nv5.com

• Deadline for comments is July 8, 2020

https://dot.state.nm.us/content/nmdot/en/ProjectsD5.html#5101010
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Project Contacts

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