Dotsero Bridge Replacement Project

TSIOUVARAS SIMMONS HOLDERNESS
CONSULTING ENGINEERS

March 08, 2012 - PLT Meeting

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Agenda

- Overview of the Decision Process
  - Context Statement and Critical Success Factors
  - Roadway alignment
  - Intersection options
  - Structure selection
  - I-70 Mountain Corridor CSS design variances
- CM/GC Contractor
- Next Steps

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I-70 Mountain Corridor
Context Sensitive Solutions Approach

- Establish a Project Leadership Team
- Engage stakeholders early and continuously
- Define the context for the project
- Develop an evaluation process that reflects stakeholder values
- Make decisions in a fair and transparent manner

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Context Statement

US 6 at Dotsero serves as a hub for a wide array of recreational uses, including river sports, hunting, bicycling, hiking, fishing, and numerous camps upstream along the Colorado River.

Dotsero represents a gateway into and out of Eagle County, and the interchange with I-70 and the Colorado River Road provides critical access for commerce, residents, ranches, emergency response and truck parking.

Dotsero is steeped in Colorado history as a winter camp for the Utes, important link in the expansion of the railroad, and multiple generations of western slope ranching.

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Critical Success Factors

- Meet CDOT design and safety standards
- Do not preclude future improvements to interchange
- Minimize environmental impacts
- Accommodate all users, including bicycles and pedestrians
- Accommodate emergency access during and after construction
- Minimize noise and disruptions to homeowners and businesses during construction
- Accommodate river access in partnership with Eagle County
- Maintain traffic during construction
- Meet schedule and budget

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Applying the Critical Success Factors

Critical Success Factor	Measurement	Considerations
Meet CDOT design standards	Best, better, good	Address existing deficiencies
Accommodate the 100-year flows	Best, better, good	FEMA flood data and 2011 observations, 4' of freeboard
Minimize environmental impacts	Best, better, good	Avoid, minimize, mitigate environmental impacts (permanent & temporary structures)
Minimize impacts to affected homeowners	Best, better, good	Rights-of-way and easements Construction impacts Alignment changes
Provide for safe access for properties in the vicinity of the bridge	Best, better, good	Maintain or improve access and sight-distance at driveway accesses
Maintain traffic during construction	Best, better, good	Work zone speed Construction duration
Meet schedule and budget	Best, better, good	Cost Construction completion

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Evaluating Alignment and Intersection Alternatives

- Alignment
  - Maintain alignment
  - New alignment north of existing US 6
  - New alignment south of existing US 6
- Intersection with Colorado River Road
  - 2-way stop
  - Roundabout

Existing Bridge

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Proposed Roadway Alignment

- Least construction impacts
- Lowest cost
- Within the existing right-of-way
- Minimal utility impacts
- Minimal disruptions to the traveling public
- Moved Cotton Lane connection west to provide better sight distance

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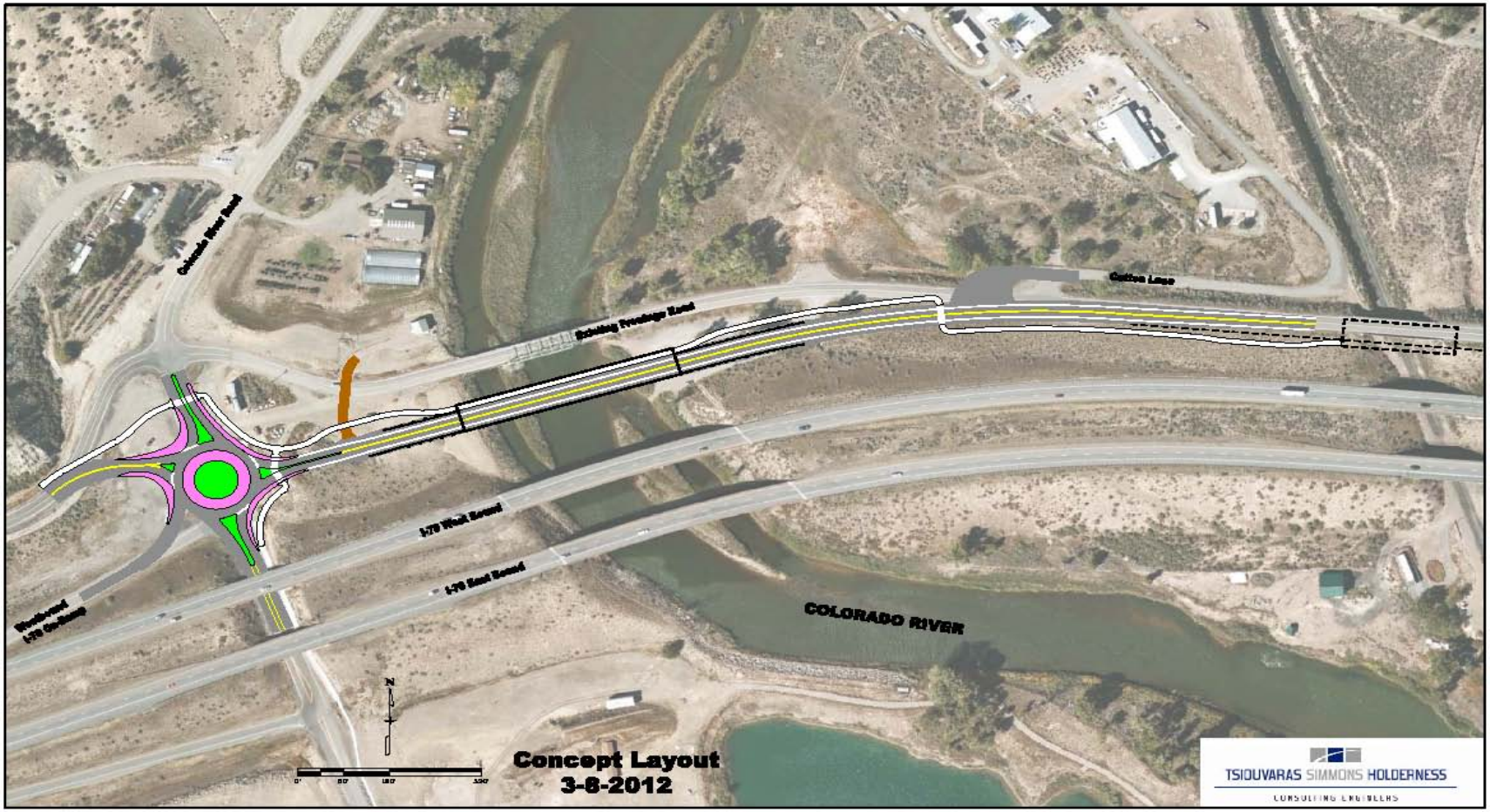
Proposed New Bridge Alignment



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Proposed Roundabout at Colorado River Road

- Partnership between Eagle County and CDOT
- A long-term safety improvement
- Flexibility adapting to new alignment
- Trucks entering WB I-70 leave the intersection at about 10mph to 15mph
- Splitter island offers pedestrian refuge and better sight distance for planned trail connection

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Structure Alternatives

- **Option B: 3-Span BT72, simple made continuous**
  - **Center Span 140’ End Spans 105’**
- **Option C: 3-Span concrete U72**
  - **Center Span 140’ End Spans 105’**
- **Option D: 3-Span Spliced BT84**
  - **Center Span 200’ End Spans 75’**
- **Option G: 3-Span Variable Depth Steel Anchored End Span**
  - **Center Span 210’ End Span 70’**

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Proposed Structure

- 3-span bridge based on Option C
  - 143 foot center span
  - 87 foot west end span
  - 120 foot east end span
- Best fit for critical success factors
  - Minimizes impacts to Colorado River
  - Commonly built - few constructability issues
  - One of the lowest cost options
  - Minimizes risks and constructability issues
  - Considers CSS aesthetic guidance

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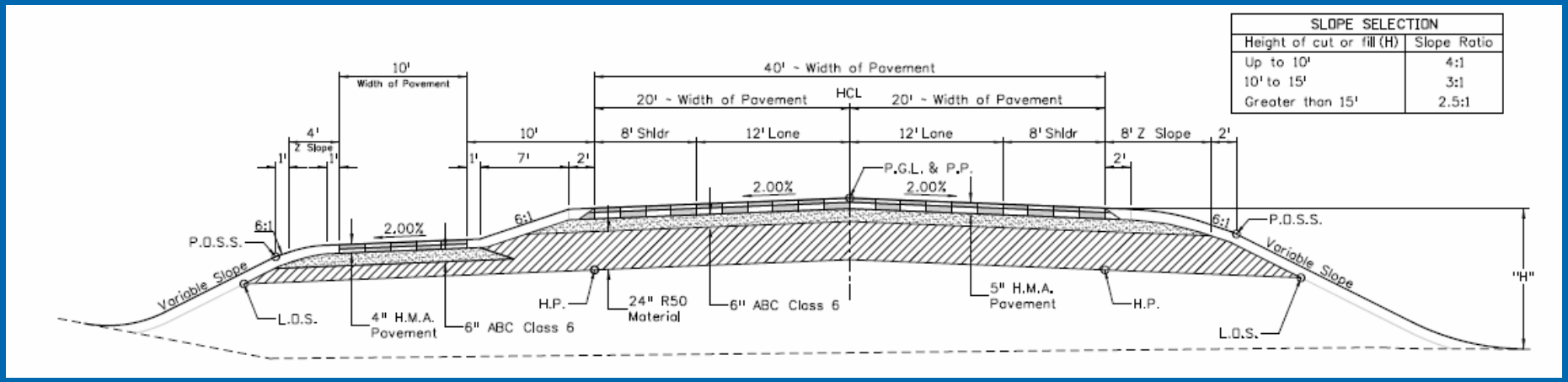
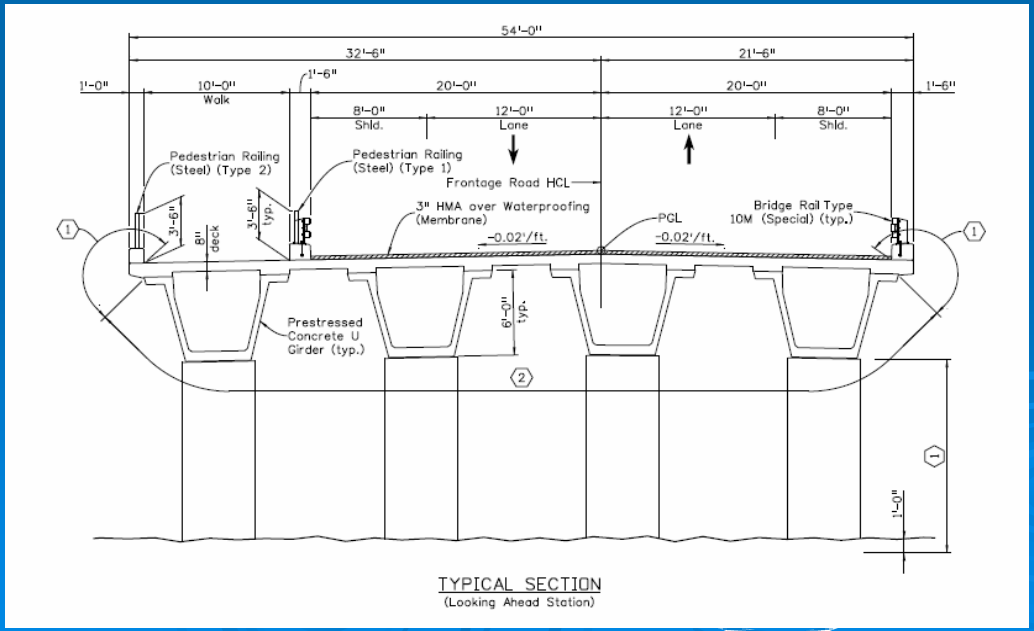
Example of Tub Girder Structure

Cross Section with Trail





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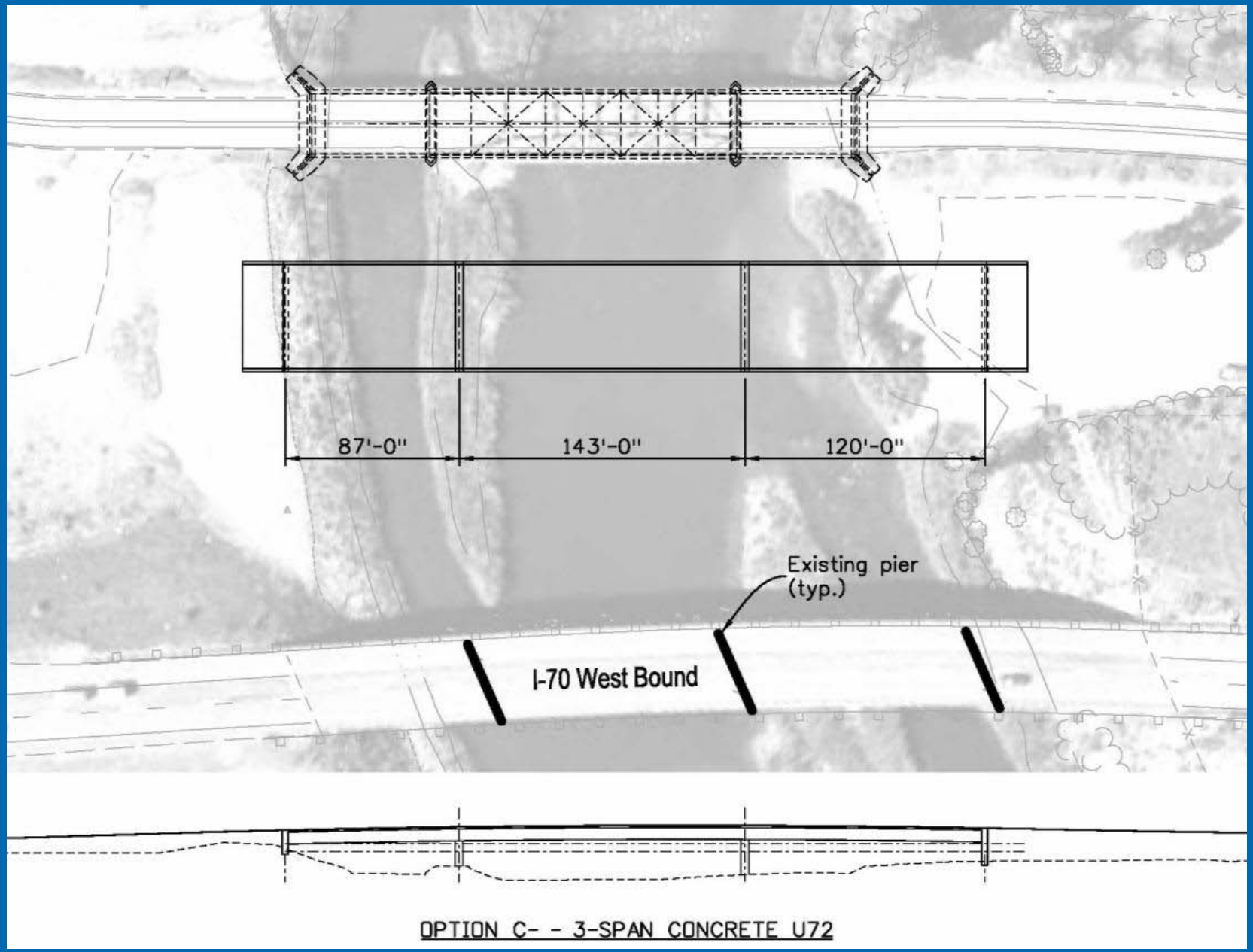
CSS Design Exceptions

- Utilize closed end abutment designs with a minimum vertical height of 8’
- Incorporate thoughtful and deliberate shadow patterns on super structures and abutments - overhang of the bridge deck equal to 2/3 the height of the girder
- Avoid locating piers in a stream or river where scour could occur

Location of Piers



CM/GC

- Construction Management/ General Contractor
- Worked with the Project Staff and Technical Team to review constructability issues and provide value engineering

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Next Steps

- Final design – June 2012
- Construction start – Fall 2012
- Completion – Fall 2013

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Questions?

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Dotsero Bridge Replacement

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