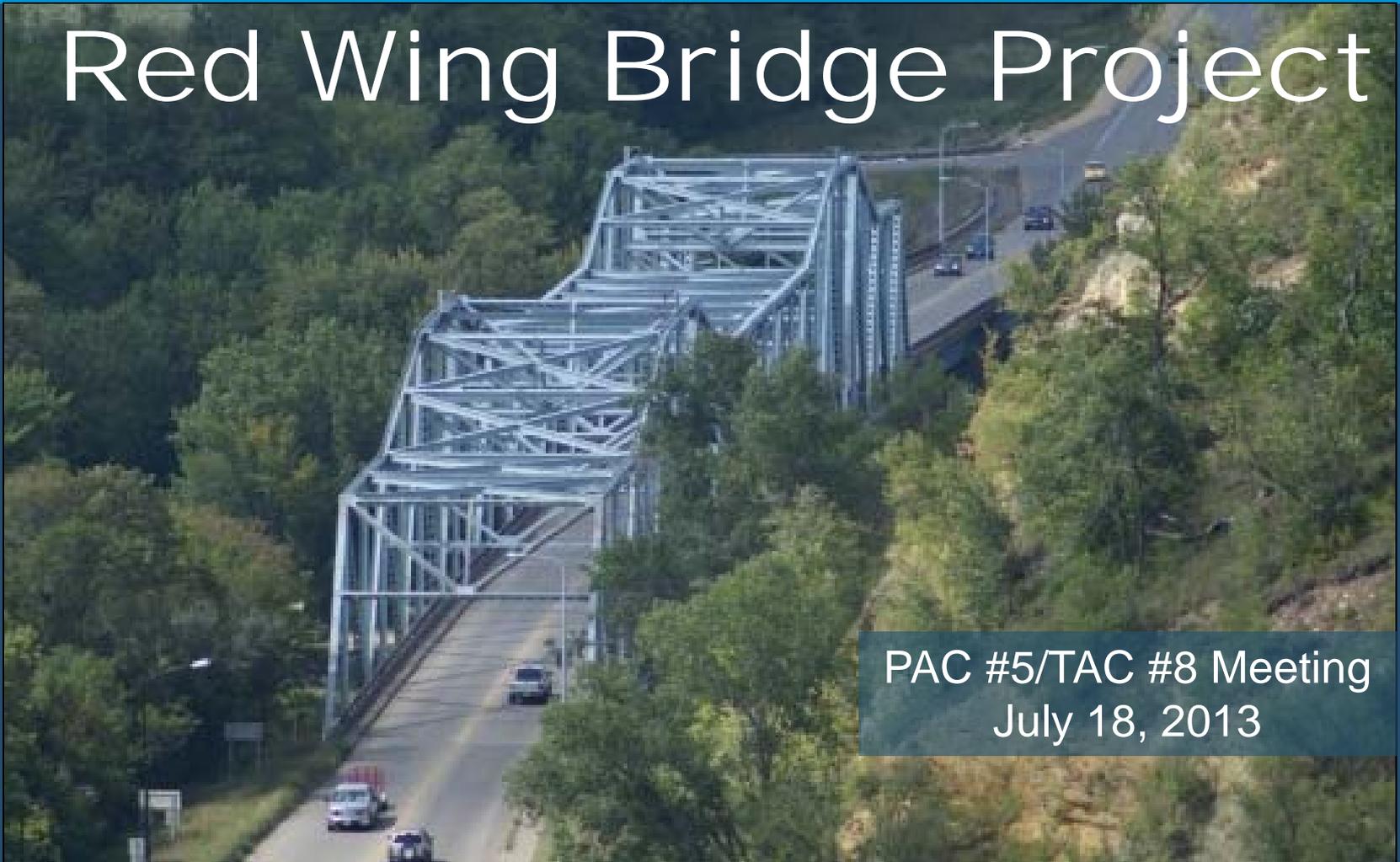




Red Wing Bridge Project



PAC #5/TAC #8 Meeting
July 18, 2013

Your Destination...Our Priority





Agenda

- Alternatives Analysis
 - Overview of Past Progress
 - Progress Since April PAC
 - Bridge 9103 Rehabilitation Study
 - Bridge 9040 Rehab vs. Replacement
 - River Bridge Types Recommended for Further Consideration
 - Next Steps in the Analysis Process
- Public Outreach Update
- Upcoming Meetings



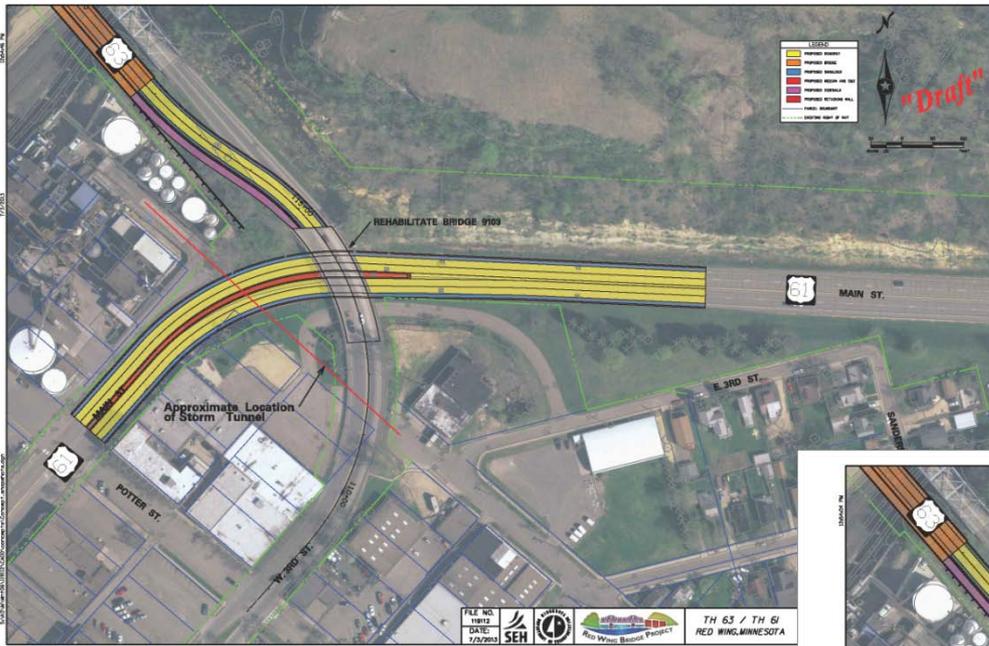


Overview of Past Progress

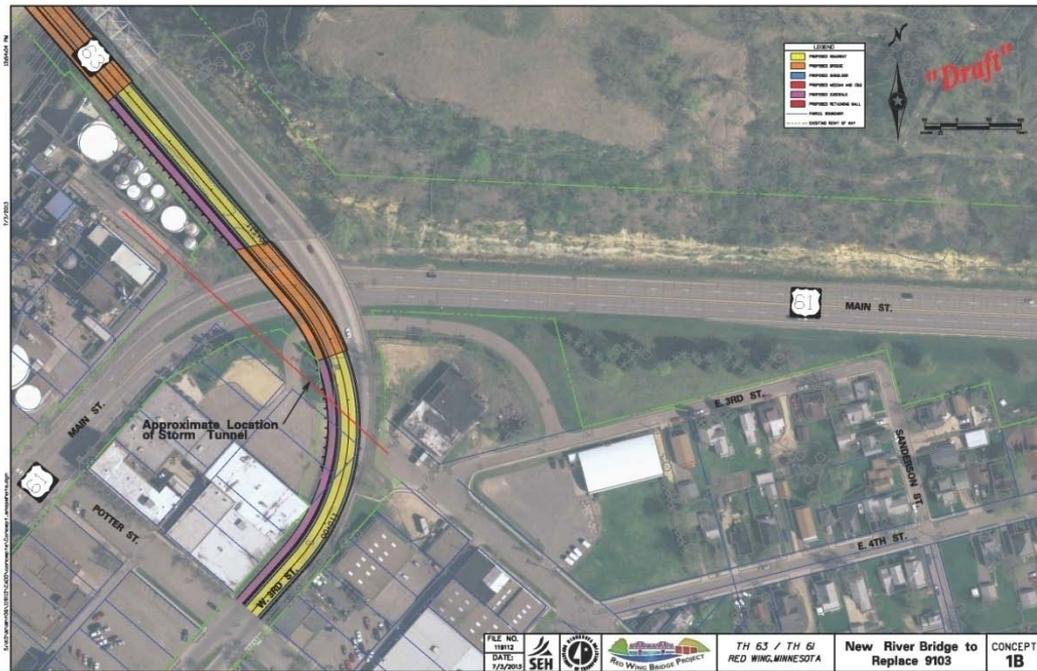
- Determined the river crossing will be kept at current location
- Identified a preferred range of concepts for the Minnesota and Wisconsin approach roadways
- Identified four river crossing options and seven bridge types
- Decided to proceed with two-lane option



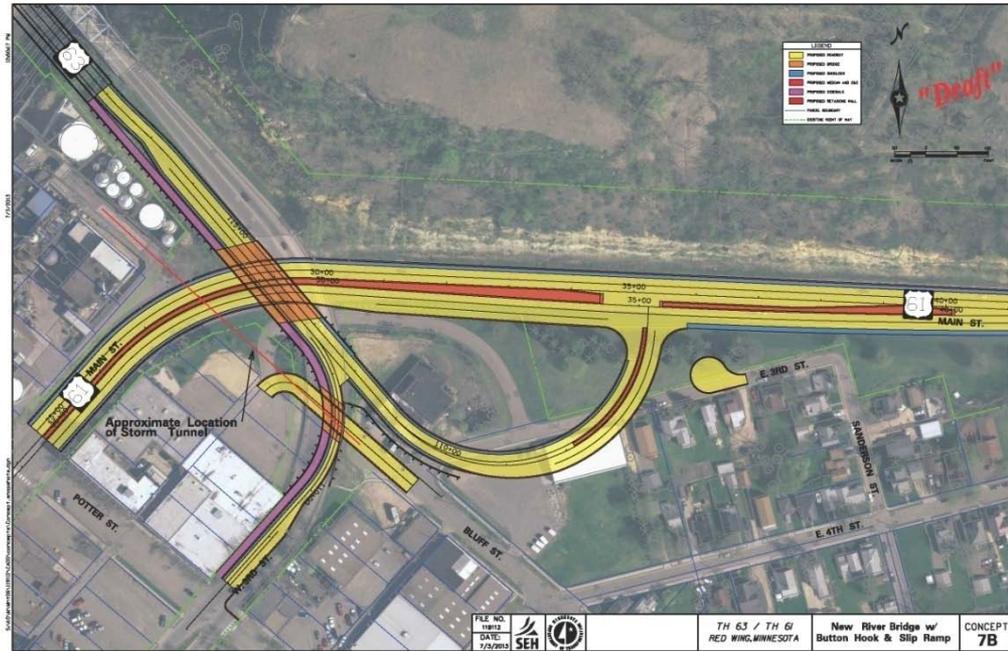
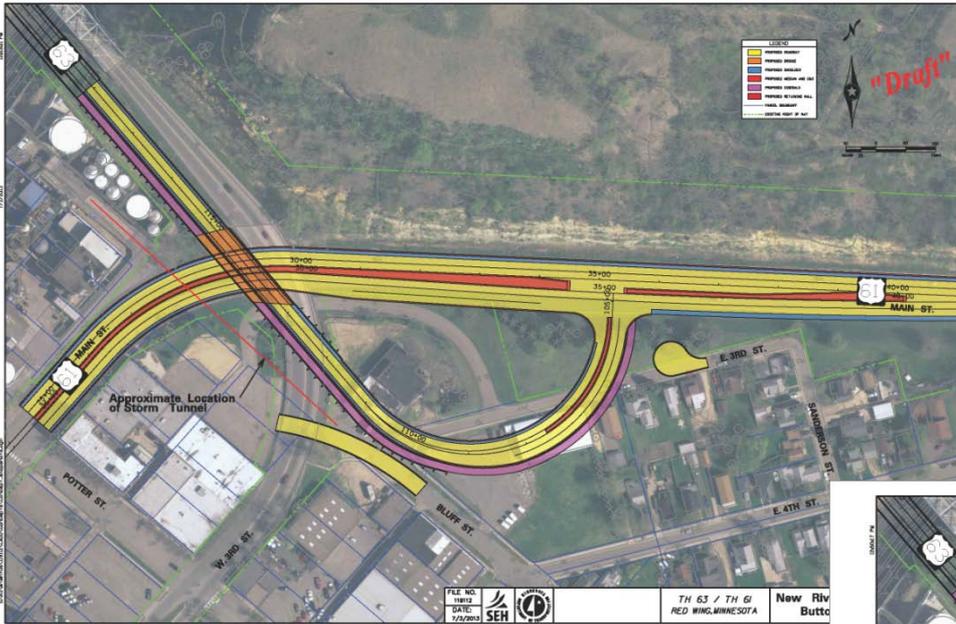
Rehab Bridge 9103



Replace Bridge 9103 In-Place



Buttonhook



Buttonhook with Slip-ramp





LEGEND

Yellow	PROPOSED ROADWAY
Orange	PROPOSED MEDIAN
Blue	PROPOSED SHOULDER
Red	PROPOSED MEDIAN AND CURB
Purple	PROPOSED SIDEWALK
Red	PROPOSED RETAINING WALL
Black	PARCEL BOUNDARY
Green Dashed	EXISTING RIGHT OF WAY

"Draft"





Bridge 9040 Replacement Types

Type 1 – Tied Arch



- Grade Raise will be minimal
- Similar to new Hastings Bridge
- Non-redundant but would be designed with criteria so it is not Fracture Critical





Bridge 9040 Replacement Types

Type 2 – Simple Span Truss



- Grade Raise will be minimal
- Similar to existing bridge but only one span
- Fracture Critical members would require unique special designs





Bridge 9040 Replacement Types

Type 3 – Three-Span Continuous Truss



- Grade Raise will be minimal
- Similar to existing bridge
- Fracture Critical members would require unique special designs





Bridge 9040 Replacement Types

Type 4 – Extradosed Bridge



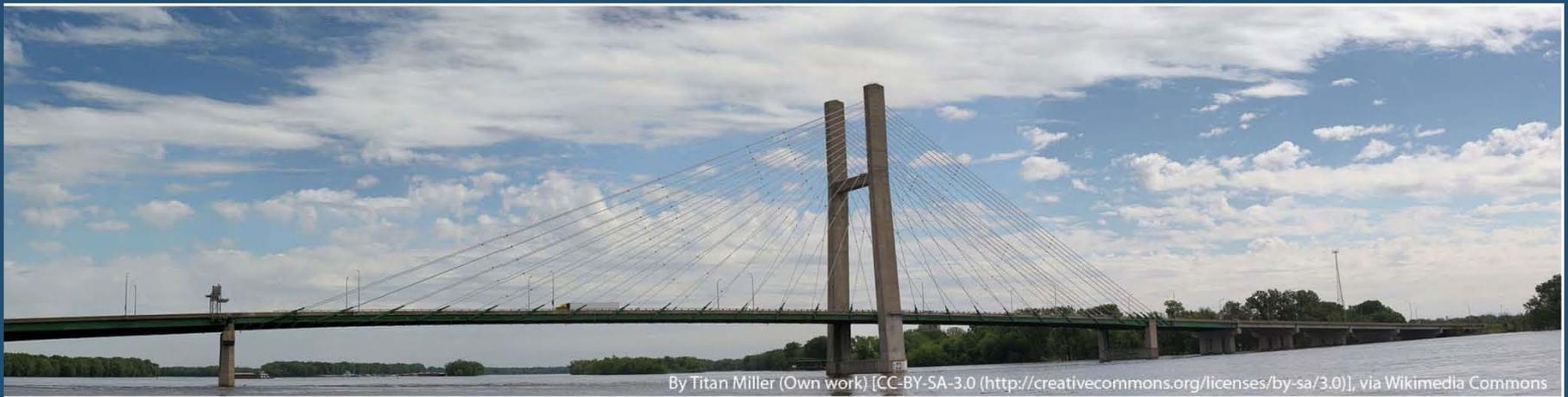
- Grade Raise will be about 10'
- Similar to new St. Croix Bridge
- High costs and construction complexity





Bridge 9040 Replacement Types

Type 5 – Cable-Stayed Bridge



- Grade Raise will be minimal
- Tall towers will have large visual impact
- High costs and construction complexity





Bridge 9040 Replacement Types

Type 6 – Concrete Segmental Box Girders



- Grade Raise will be the greatest
- No Redundancy or Fracture Critical issues
- One of the lowest cost options





Bridge 9040 Replacement Types

Type 7 – Steel Box Girders



- Grade Raise will be about 10'
- Multiple girder lines provide Redundancy
- One of the lowest cost options





River Crossing: Proceed with the Two Lane Option

- Need for additional capacity is not anticipated for approximately 20 years
- WisDOT does not anticipate widening Highway 63 in the next 10-15 years
- Provisions can be made to ensure the ability to expand to four lanes is retained





Progress Since April PAC/TAC



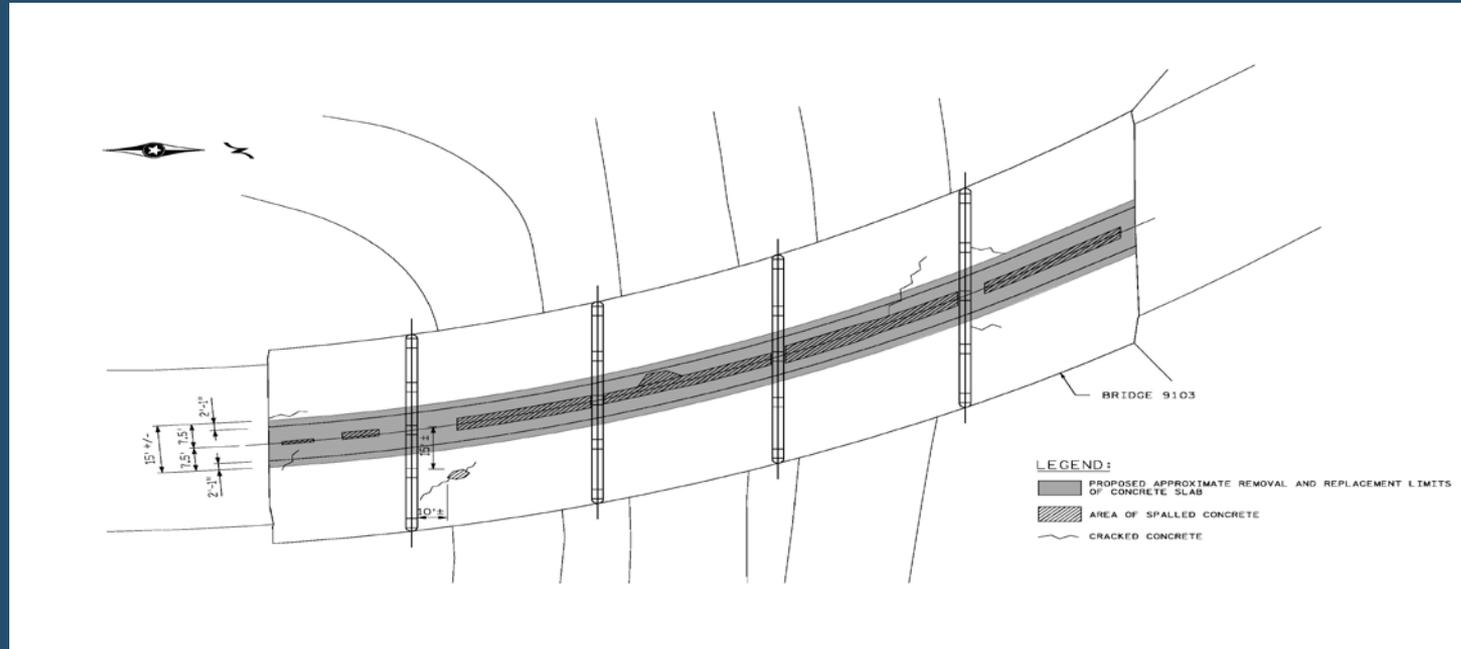


Bridge 9103 Rehabilitation Study

- Bridge 9103 is eligible for the National Register of Historic Places
- Followed new MnDOT-FHWA historic bridge process
- Goal was to determine if there are feasible rehab alternatives that meet historic standards
- Two feasible alternatives were identified
- Study Report has been reviewed by SHPO and FHWA



Alternative 1



- Remove & replace a center strip. Patch deck. Replace joints
- Patch substructures and repair slope paving
- Requires a Design Exception for Railing
- Also options to lower TH 61 & add Cathodic Protection





Alternative 2

- Includes all of the work included in Alternative 1
- Adds a railing on the inside of the sidewalk





Alternatives Screening

River Crossing Decisions





River Crossing – Rehab Alternative

- Option to add 6-foot cantilevered sidewalks on each side
- Retains a non-redundant, fracture critical structure
- Retains existing condition and visual setting
- Significant maintenance of traffic (MOT) considerations assuming bridge remains open to traffic during construction





River Crossing – Replacement Alternatives

- Assume new two-lane bridge immediately upstream from existing river bridge
- Involve minimal MOT issues
- Some options are structurally redundant
- Greater structure depth (approach considerations)





River Crossing Decision: Proceed with Replacement Alternative

- Substantially less construction period impacts, especially related to maintenance of traffic and emergency services;
- All bridge types can tie into either the rehabilitation or replacement of Bridge 9103;
- Provides options that are structurally redundant and/or non-fracture critical;
- Provides a separate pedestrian trail and will be designed to be fully ADA compliant;
- Allows pretreatment of water runoff prior to being discharged into the Mississippi River;
- Lower life-cycle costs than rehab alternative.





New River Crossing Bridge Type Screening



Tied-Arch

- Shallower bridge deck limits increases in the approach roadway grades;
- Can be designed to not be fracture critical;
- Does not preclude ability for future capacity expansion.





New River Crossing Bridge Type Screening



Concrete Segmental Box Girder

- Lower construction cost
- Structurally redundant, not fracture critical
- Lowest future maintenance costs
- Does not preclude ability for future capacity expansion





New River Crossing Bridge Type Screening



Steel Box Girder

- Lower cost
- Structurally redundant, not fracture critical
- Does not preclude ability for future capacity expansion





Next Steps in the Analysis Process

- Identify the preferred approach roadway option(s)
- Conduct detailed analysis on the remaining project alternatives
- Select Preferred Alternative(s) to analyze in the Environmental Assessment (EA)





Next Steps – continued

- Evaluation of Alternatives Will Center on the Following:
 - Cost
 - Construction cost
 - Life-cycle cost
 - Service life
 - Primary Needs
 - Structurally sound crossings
 - Secondary Needs
 - Continuity of US 63
 - Connection to Hwy 58 and US 61
 - Adequate capacity, operations, and safety
 - M.O.T.
 - Access to Trenton Island
 - Pedestrian and bicyclist accommodations





Next Steps – continued

Evaluation of Alternatives Will Center on the Following:

– Other Considerations

- Structural redundancy
- Geometrics
- Economic development
- Parking
- Change in downtown traffic
- Traffic circulation changes
- Truck routing changes
- Section 106 compliance
- Parkland/Section 4(f) compliance
- Navigational channel

— Social, Economic, and Environmental

- Right-of-way
- Property access
- Social/community
- Floodplains
- Natural resources
- Water quality
- Hazardous materials
- Noise and air quality
- Visual quality





Public Outreach Update

- Three Listening Sessions Held to Date:
 - May 17, 2012
 - September 20, 2012
 - February 21, 2013
- Open House #2 – July 25th – 4:30 p.m. to 6:30 p.m. at the Red Wing Library
- Newsletter #2 – Issued Early July
- Project Presentation Opportunities
- Website: <http://www.dot.state.mn.us/d6/projects/redwing-bridge/index.html>





Next Meetings

- TAC #9 – August 15th 1:00 p.m. to 3:00 p.m. – Red Wing Library
- PAC #6 – September 19th 1:00 p.m. to 3:00 p.m. – Red Wing Library





Questions / Comments



Chad Hanson, P.E.
Senior Design Engineer
MnDOT – Rochester
507-286-7637
chad.hanson@state.mn.us

