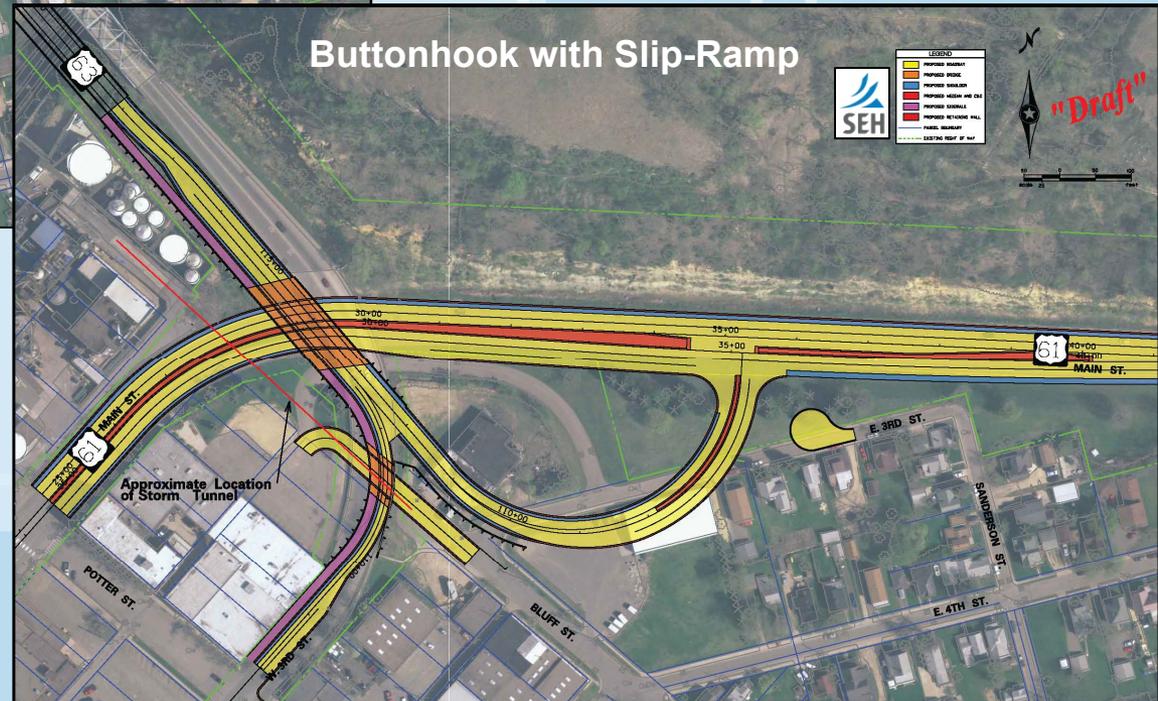
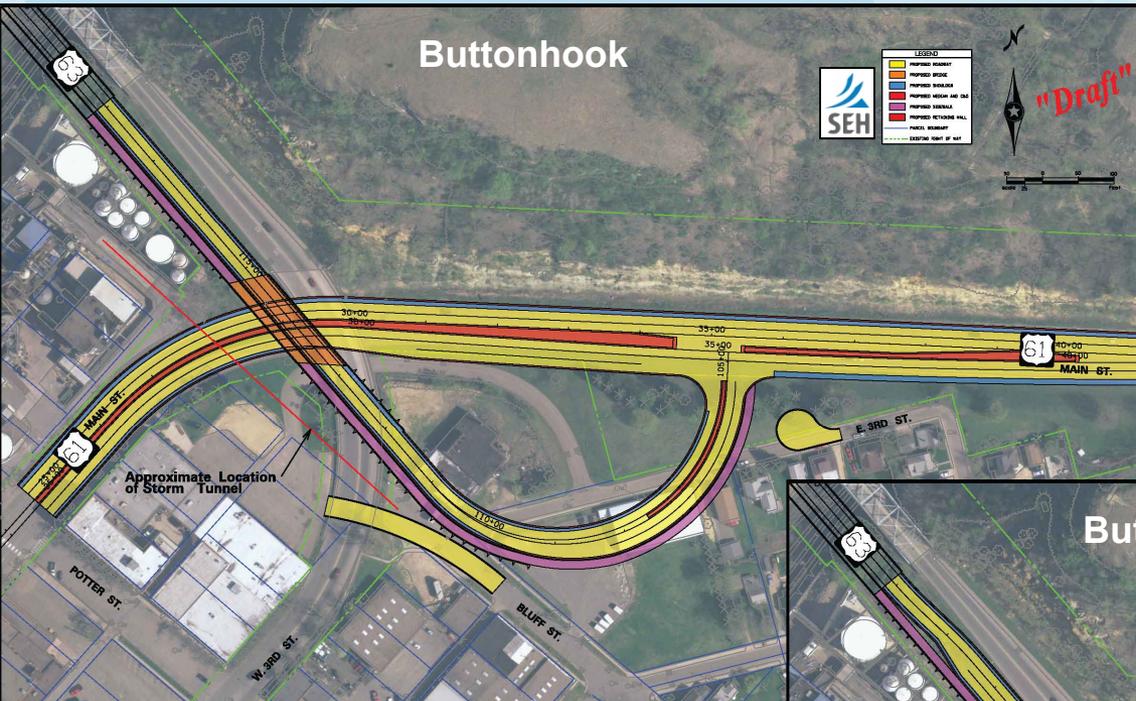




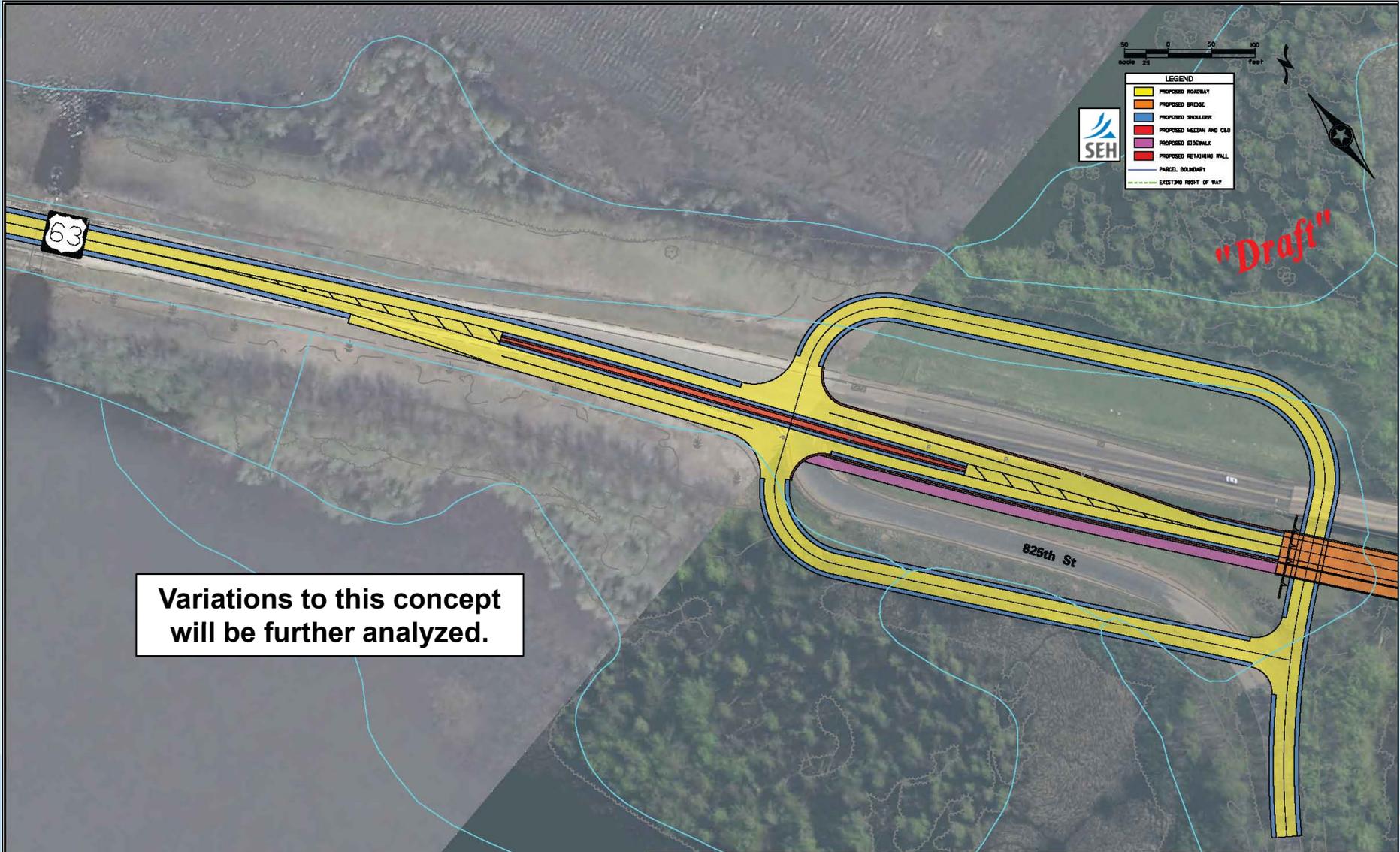


# BRIDGE 9103 OPTIONS





# WISCONSIN APPROACH



# Bridge 9040 Rehabilitation or Replacement

## 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 ADA compliant;
- Allows pretreatment of water runoff prior to being discharged into the Mississippi River;
- Lower life-cycle costs than rehabilitation alternative.



Moderate corrosion and staining



Spalled concrete and exposed rebar



Surface rust and spalled concrete



Missing rivets



Girder support piles and concrete added to accommodate movement

## Four Alternatives Removed from Consideration

### Alternate 2 | Simple Span Truss



### Alternate 3 | Three-Span Continuous Truss



### Alternate 4 | Extradosed Bridge



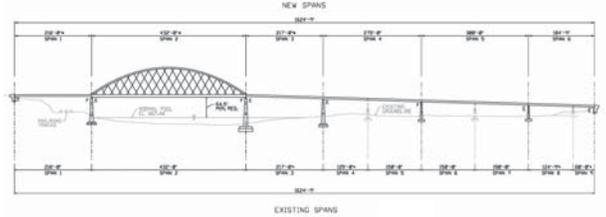
### Alternate 5 | Cable-Stayed Bridge



## Three Alternatives Carried Forward for Further Consideration

### Alternate 1 | Tied Arch

Alternate 1 Design Drawing

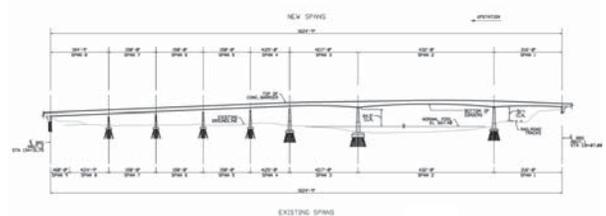


Similar Bridge Design to Alternate 1



### Alternate 6 | Concrete Segmental Box Girders

Alternate 6 Design Drawing

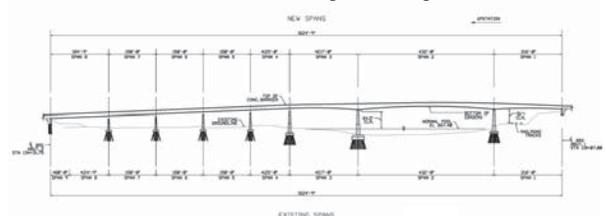


Similar Bridge Design to Alternate 6



### Alternate 7 | Steel Box Girders

Alternate 7 Design Drawing

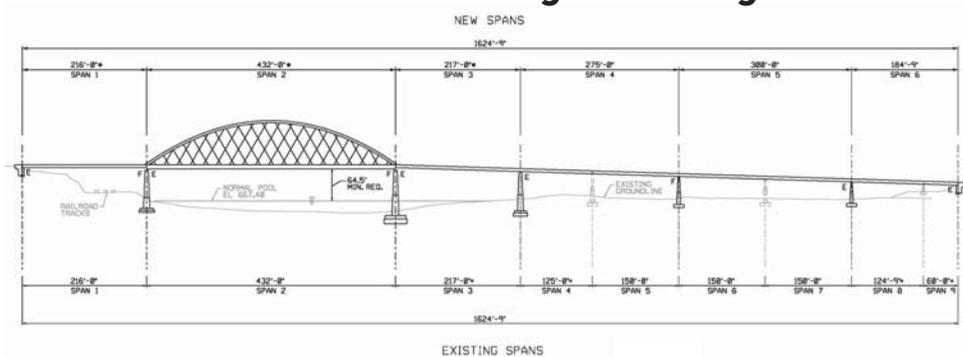


Similar Bridge Design to Alternate 7



## Alternate 1 | Tied Arch

### Alternate 1 Design Drawing



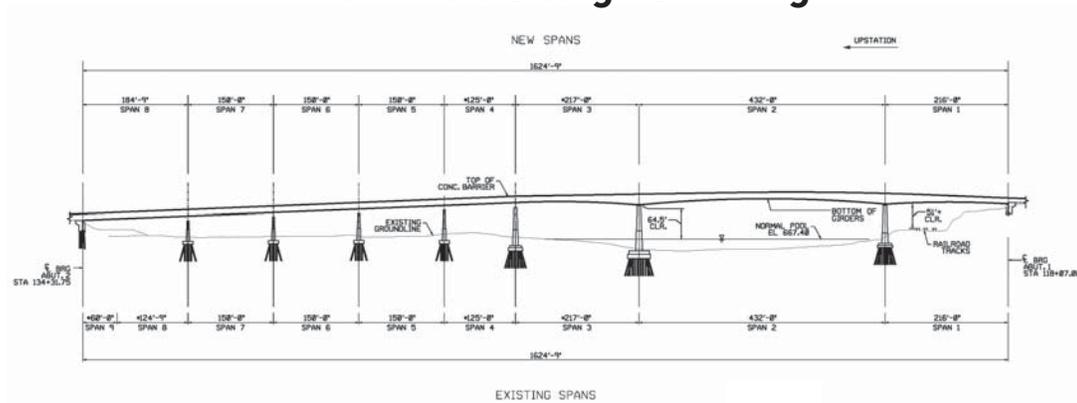
### Similar Bridge Design to Alternate 1



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

## Alternate 6 | Concrete Segmental Box Girders

### Alternate 6 Design Drawing



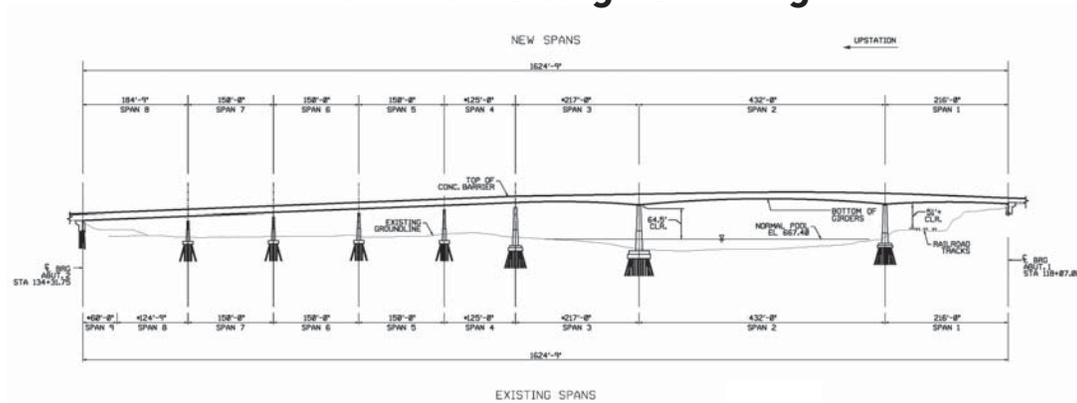
### Similar Bridge Design to Alternate 6



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

## Alternate 7 | Steel Box Girders

### Alternate 7 Design Drawing



### Similar Bridge Design to Alternate 7



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

## The current bridge is in need of repair or replacement

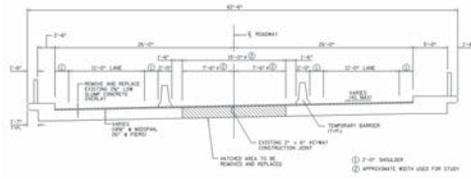


### Quick Facts

- Bridge 9103 is eligible for the National Register of Historic Places.
- Following the new MnDOT - FHWA process for studying historic bridges.
- The goal of the rehabilitation study is to determine if there is a feasible rehabilitation alternative that meets federal Standards for the Treatment of Historic Properties.
- Feasible rehabilitation alternatives that meet the Standards will be considered in the overall Project Alternatives Analysis.

## Rehabilitation Alternatives for Bridge 9103

### Alternative 1



- Remove and replace an approximately 15'-wide strip along centerline for entire length of bridge
- Patch deck and substructures
- Replace expansion joints at ends of bridge and repair slope paving
- Design exceptions are needed for strength, height, and opening size in rail
- Design exception is needed for vertical clearance over Highway 61 or include option to lower Highway 61
- Also has an option to include cathodic protection (a system to mitigate future corrosion)

### Alternative 2



- All items in Alternative 1
- Add a rail on the inside of the sidewalk that meets new crash requirements (see rendering above)
- Design exceptions are needed for height and opening size in rail
- Design exception is needed for vertical clearance over Highway 61 or include option to lower Highway 61
- Also has an option to include cathodic protection (a system to mitigate future corrosion)

### Alternative 3

- Full deck replacement
- Patch substructures and repair slope paving
- Include rail on inside of sidewalk that meets new crash requirements
- Design exception is needed for vertical clearance over Highway 61 or include option to lower Highway 61
- Longer estimated service life
- Does not meet federal Standards for the Treatment of Historic Properties

### Alternative 4

- All items in Alternative 3
- Widen 18' to provide 4-lane section
- Widening has to be to the west due to Barn Bluff
- Widening to the low side of the curve has vertical clearance impacts
- Does not meet federal Standards for the Treatment of Historic Properties



# SCHEDULE



- Alternatives development and evaluation
  - Through Late 2013
- Preliminary design and environmental documentation
  - Through Late 2014
- Final design
  - 2014 to 2017
- Construction
  - Multi-year project beginning in Summer 2018 (proposed)