

## Diagonal Bridge Concept – MnDOT Review

August 2011

The diagonal bridge concept proposed as the “Sensible Stillwater Bridge Partnership Alternative” is an idea that has a long history with the project. A similar concept, first proposed by a group of three architects in 1999, was given thoughtful review and rejected. During the Stakeholder and Environmental Impact Statement process (2002-06), two alternatives were developed based on the three architects’ concept; they were both thoroughly studied and ultimately dismissed from further consideration. The current diagonal concept proposed by this group has been modified from earlier concepts, but the location of the diagonal crossing and many of the impacts to protected resources remain similar to the 1999 concept and the alternates studied in the Stakeholder/EIS process.

The St. Croix River Association, Sierra Club and the Minnesota Center for Environmental Advocacy are supporting the diagonal bridge concept. Each also had representation in the Stakeholder process.

The Stakeholder/EIS process found that the various version of the diagonal crossing concept will not adequately meet the expected transportation needs of the project and may have more detrimental impacts to natural and cultural resources than the planned project.

### Current diagonal concept compared to previous alternatives – general overview

Diagonal Concept	Previous Alternatives
The diagonal concept bridge crosses the river at about a 45 degree angle from near Oasis Café in Minnesota to the existing Wisconsin Hwy 64 bluff cut.	This is the same diagonal crossing location as the 1999 concept and Alternates D and E studied in Stakeholder/EIS process.
The diagonal concept provides a three-lane bridge with a center-lane that is reversible, using electronic lane control.	The 1999 concept and alternate E had two westbound lanes on the lift bridge and two eastbound lanes on a new diagonal bridge. Alternate D had a new four-lane diagonal bridge.
The diagonal concept has a two-lane roundabout on the Minnesota shoreline for the Hwy 36/95 intersection.	Alternates D and E evaluated interchange and at-grade signal options.
A 40 mph speed is suggested for the diagonal concept.	The design speed for alternates D and E in the EIS were 40 mph; the design speed for the planned crossing is 55 mph across the bridge.
The diagonal concept proposes a lower river crossing, the bridge deck is 40-55’ above the river and the high point on overhead truss is 110’ above the river.	The planned project’s bridge deck is 119’ - 160’ and the high point on the towers is 171’ – 210’ above the river.

## Four areas of concern

The diagonal concept has the following four key areas of concern:

1. **Significant Additional Environmental Impact** - The area where the diagonal concept is proposed to cross the river has protected natural and cultural resources. The diagonal concept impacts are greater on historic properties (Section 106 protected), park properties (Section 4(f) protected), bluff areas (Section 7(a) protected), floodplains, wetlands, commercial properties, and endangered mussel habitat. Even with the current diagonal concepts modifications from previous alternates that were studied, the concept will likely impact many of the same protected resources that led to rejection of the other alternatives.
2. **Lengthy Schedule Delay** - The diagonal concept will require full environmental review, public input, federal and state agency coordination, continued stakeholder involvement and a new National Park Service Section 7(a) evaluation. Permitting, approvals, funding, congressional action and potential legal challenges are all additional time-consuming issues that will have to be addressed. The environmental process for the diagonal concept could take four to six years. Design and property acquisition will take an additional three years. Under this scenario, if the project survives the environmental process, the soonest construction of a new crossing could begin in 2019.
3. **Concept Cost Savings Overstated** – A review of the cost estimate for the diagonal concept suggests that costs are either under-estimated or not addressed. As a result of this review it does not appear that the cost of the diagonal concept would not yield significant cost savings compared to the planned project. There will be additional roadway improvements needed above and beyond the diagonal estimate.
  - The diagonal concept bridge, although shorter and narrower than the planned project, will be about the same length over the river.
  - There will be additional roadway improvements beyond what is included in the diagonal proposal, including the Oakgreen/Greeley intersection in Minnesota and 150<sup>th</sup> Street in Wisconsin.
  - There will be right of way costs in Minnesota and Wisconsin for the diagonal concept. The diagonal concept currently includes no cost for right of way.
  - Additional environmental review could cost \$10 million- \$15 million.
  - Mitigation costs are hard to estimate, but could be significant due to the number of environmental impacts the diagonal concept would have.
  - Inflation due to delaying the start of construction six or more years will significantly affect the cost. Current expectations are that inflation over this time period might add 25 percent to the project cost.
  - High level estimates for the total cost for the diagonal concept are likely to be in the same cost range as the currently planned project, rather than the \$236 million-\$283 million currently estimated for the project.

4. **Wild and Scenic River Act - Section 7(a):** The concept will be subject to National Park Service review under Section 7(a). A positive Section 7(a) review seems unlikely given past issues raised by the NPS that contributed to the elimination of the (similar) alternatives D and E from further consideration during the Stakeholder/EIS process. A negative Section 7(a) finding for the concept would also require congressional action to exempt the concept from the Act.

### **Significant Short Comings of the “Sensible Bridge” concept**

The diagonal concept focuses primarily on the river bridge and does not thoroughly consider the needed roadway improvements in Minnesota or Wisconsin leading up to the bridge. Roadway improvements are needed in both states to address transportation needs. Those improvements will have significant impacts from cost and environmental standpoints that cannot be overlooked.

- Minnesota approach roadways (Hwy 36 and 95)
  - Infrastructure and roadway improvements are needed between the diagonal bridge and the Oakgreen/Greeley intersection.
  - The Beach Road Bridge over Hwy 36 will need to be replaced due to its age.
  - Hwy 95 will need to be four lanes south of the roundabout, creating a potential for extensive retaining wall construction, and bluff park area, and river-way impacts.
  - The roundabout at the west end of the bridge is located in an environmentally and historically sensitive area. The limited space between the river and bluff in this area means it is likely that bluff, archeological, historic, park and river-way impacts will occur.
  - A roundabout at the intersection Hwy 36/95 in Oak Park Heights, instead of an interchange, may not be able to handle anticipated traffic volumes.
  - The two-lane roundabout at the end of the diagonal bridge is also the proposed transition area for the three lanes on the bridge to the four lanes along the Minnesota shoreline. The complexity of this configuration could cause safety, operational and congestion problems.
  
- Wisconsin approach roadway
  - Infrastructure and roadway improvements are needed between the diagonal bridge and 150<sup>th</sup> Street.
  - The three-lane reversible section on the bridge would be continued up the hill, and the CR E and the CR E/Hwy 64 intersection will need to be removed.
  - A two-lane roundabout is proposed at the Hwy 64/35 intersection at the top of the hill. Like the Minnesota end of the bridge, the transition from three to four lanes would be complex.
  - Hwy 35/64 will have to be rebuilt and widened to four lanes from the Hwy 35 roundabout to 150<sup>th</sup> St.
  - Access control may be implemented, so no residential or commercial driveways are allowed to have direct access on to Hwy 35/64. In this situation, some frontage and/or backage roads would be needed.
  - The concept will impact historic property, a park and the bluff near the Wisconsin shoreline.
  
- Diagonal bridge crossing

- A three-lane bridge with a reversible center lane may have greater traffic issues than a four-lane bridge.
  - Bluff and river impacts near each shoreline will occur with the diagonal crossing.
  - Protected mussel habitat along the Wisconsin shoreline may be impacted.
  - The navigation channel for larger boats is provided under the overhead truss span along the Wisconsin side of the river rather than under the lift span on the Stillwater bridge near the Minnesota side, where it currently runs.
- Water quality not addressed with the diagonal concept
    - Water quality in the St. Croix River is a critical issue for the resource agencies and other river interests. The planned project provides extensive storm water ponding in Minnesota and Wisconsin to address these concerns. The diagonal concept does not address this critical concern. Trying to construct storm water ponds along the shorelines in each state will very likely cause additional park, historic property, river and bluff impacts. Data from earlier reviews suggest that there is insufficient space for adequate storm water ponding.