

**ST. CROIX RIVER CROSSING PROJECT SUPPLEMENTAL DRAFT EIS**  
**CHAPTER 3**  
**DESCRIPTION OF ALTERNATIVES**

**3.0 INTRODUCTION**

This chapter describes the Build Alternatives (Alternatives B-1, C, D, and E) to be evaluated in the SDEIS and the No-Build Alternative to which they are compared. The alignments of the SDEIS Build Alternatives in relation to the Lift Bridge are shown on Figure 3-1. During the development of this project, the Stakeholder Resolution Process (see Chapter 15) considered a broad range of alternatives (described in Section 3.9). The Build Alternatives presented in this SDEIS were further refined, in collaboration with the Stakeholder Group, to meet federal and state design guidelines. The chapter also summarizes the alternatives documented in the 1987 Scoping Decision Document, the 1990 Draft EIS, the 1995 Final EIS, the 1999 Amended Scoping Decision Document, and the 2004 Amended Scoping Decision Document.

The Stakeholder Group discussed a series of bridge concepts for each Build Alternative that appeared to be feasible and constructible. These bridge types covered a range of cost options and aesthetic approaches. Sketches (refer to Chapter 7) were developed for each bridge type considered for the Build Alternatives. Bridge types evaluated for the Build Alternatives included:

- Alternative B-1: cable stay (1,900-foot span with 450-foot towers), cable stay (1,500-foot span with 350-foot towers), suspension, extradosed girder (cables on both sides of bridge or single set of cables in middle of bridge), haunched concrete box girders.
- Alternative C: haunched concrete box girders, concrete deck tied arch with back spans and box girder approaches, extradosed girder.
- Alternative D: steel thru trusses, steel bowstring main span with haunched concrete girders, concrete arches, concrete thru arch with concrete arches.
- Alternative E: steel thru trusses, bowstring trusses, steel bowstring truss with flush haunched concrete box girders.

Two of these bridge concepts are no longer being evaluated for Alternative B-1 due to technical feasibility issues: the suspension bridge and the 1,900-foot span cable stay bridge. The suspension bridge type may not be suitable given the curved Minnesota approach alignments and cable tie downs would result in significant bluff impacts in both Minnesota and Wisconsin. Poor soil conditions also contribute to tower constructability concerns. Overcoming these issues raises cost concerns, particularly as the cost of this bridge type substantially exceeds that of a cable-stay structure. Given these concerns, the suspension bridge type was eliminated from further consideration. The 1,900-foot span cable stay bridge approaches the maximum theoretical extent

**Figure 3-1 – St. Croix River Crossing Build Alternatives (8.5x11 – b/w)**

of the span for this bridge type, as the maximum span on “state of the art” cable-stay bridges currently constructed in the United States is 1,500 feet. Exceeding this 1,500-foot length raises feasibility, constructability and maintenance concerns, and therefore, the 1,900-foot span was eliminated from further discussion.

The final bridge type will be identified as part of the Preferred Alternative in the Supplemental Final EIS.

A fully automated Anti-Icing System will be considered for the Build Alternative river crossing if selected as the Preferred Alternative. The proposed Anti-Icing System would utilize a Potassium Acetate product for anti-icing and deicing, compared to the chloride-based products that would be used if the traditional methods of anti-icing and deicing were employed on a new river crossing. Potassium Acetate is much less corrosive to the bridge structure itself compared to chloride-based products, and is also typically considered to be a more environmentally benign product compared to chloride-based products. Utilizing this chemical and minimizing the exposure of a new river crossing to chloride-based products will extend the life of the new river crossing.

The proposed St. Croix River crossing would be maintained by the Oakdale Truck station, which is located several miles west from the project area and the St. Croix River. It is possible that bare pavement conditions would not be achieved at this crossing for 1-3 hours or more in a snow and ice event. An Anti-Icing System would allow Mn/DOT Maintenance to treat the bridge for icing conditions, both automatically and manually, thereby greatly increasing the response time and safety on a new river crossing during snowy, icy, or frosty surface conditions on the new river crossing and approaches. The use of an Anti-Icing system on a new river crossing would be determined following selection of a bridge type for the Preferred Alternative.

### **Lift Bridge Options**

One of three options in regards to the Lift Bridge would apply to the Build Alternatives:

1. Continued limited vehicular use of the Lift Bridge for local traffic (i.e., no semi-trucks) (Alternatives B-1 and C);
2. Conversion of the Lift Bridge to a pedestrian/bicycle facility (Alternatives B-1, C, and D); and
3. Continued use of the Lift Bridge for vehicular traffic for two lanes of one-way westbound traffic from Wisconsin (Alternative E). The Lift Bridge would remain on the trunk highway system.

Continued vehicular use of the Lift Bridge for local traffic or conversion of the Lift Bridge to a pedestrian/bicycle facility is equally applicable to Alternative B-1 and Alternative C. However, this scenario is only being studied under Alternative B-1 for the SDEIS (sub-Alternatives B-1<sub>a</sub> and B-1<sub>b</sub>; see Section 3.3.3). The traffic operations and related results (e.g., noise impacts, air quality impacts) from Alternative B-1 could be assumed to be similar for Alternative C. Conversion of the Lift Bridge to a pedestrian/bicycle facility is the only option applicable to Alternative D.

In addition to a potential change of use, a change of ownership, either to a local government or a non-profit entity, will be considered with any non-trunk highway use of the Lift Bridge (Alternatives B-1, C and D). Issues related to any ownership transfer, including stable financial resources for continued operation and maintenance of the Lift Bridge, will be examined in the Lift Bridge Management Plan currently in preparation. This Management Plan will be completed following selection of a Preferred Alternative for the project.

### **Project Mitigation**

Potential mitigation items applicable to the Build Alternatives is presented in Chapter 14. Upon identification of a Preferred Alternative, a mitigation package appropriate to the level of impacts will be presented in the Supplemental Final EIS.

Layouts of the Build Alternatives illustrated in Chapter 3 and throughout the SDEIS do not represent final design and FHWA approval of SDEIS should not be construed as design approval of substandard design elements and design exceptions. A formal design review of the layouts by Mn/DOT, Wis/DOT and FHWA will occur following completion of the environmental review.

Final identification of a Preferred Alternative for the project as a whole will not be made until all project impacts and public and agency comments on the SDEIS have been fully evaluated.

### **Project Termini**

The western (Minnesota) project terminus has changed since the 1990 DEIS, the 1995 Final EIS and the 1999 Amended Scoping Decision Document published as part of the Braun Facilitation Process. The proposed project in the 1990 DEIS would have terminated at the intersection of County State Aid Highway (CSAH) 15 (Manning Avenue), about 0.9-mile west of the current western terminus. The project at that time included the reconstruction of the Trunk Highway (TH) 5/36 intersection, which has since been completed under a separate environmental review process. The 1995 FEIS would have terminated at the intersection of TH 36 and Norell Avenue/Washington Avenue. The proposed project in 1999 would have terminated approximately 0.2-mile east of the intersection of Norell and Washington Avenues on TH 36 in Minnesota.

The project terminus in Wisconsin near 150th Street has also changed since the 1995 Final EIS and the 1999 Amended Scoping Decision Document. The proposed project in 1995 and 1999 would have terminated approximately 1,400 feet northeast of 150th Street along State Trunk Highway (STH) 35/64 in St. Croix County. This section of STH 35/64 from 150th Street to the northeast is being completed as a separate project.

## **3.1 NO-BUILD ALTERNATIVE**

The No-Build Alternative for this SDEIS assumes continued operation and maintenance of the Lift Bridge and approach roadways. Social, environmental, and economic impacts of the No-Build Alternative are analyzed where relevant and compared to the impacts of the Build Alternatives.

### 3.2 DESIGN ELEMENTS COMMON TO ALL BUILD ALTERNATIVES – TRUNK HIGHWAY (TH) 5 TO OSGOOD AVENUE

The TH 36 Partnership Study was conducted from January to December 2002 to explore design concepts for TH 36 between TH 5 and Osgood Avenue. This study was conducted by Mn/DOT, in partnership with the Cities of Oak Park Heights and Stillwater and Washington County. A grade-separated concept with two interchanges and overpasses was recommended for further study by the Policy Advisory Committee established for the project. The findings from the TH 36 Partnership Study culminated in the release of TH 36 Partnership Study Final Report in December 2002.<sup>1</sup> This recommendation, and further clarification that the buttonhook interchange concept (then referred to as Concept F) be the specific subject of further study was supported by the Oak Park Heights and Stillwater City Councils in the spring of 2003 as well as the Washington County Board in the summer of 2003. Refinement of the location of the buttonhook interchanges, and frontage road connections and overpasses were evaluated in the fall of 2003 and winter of 2004 by a Technical Advisory Group (or TAG), which consisted of members of the previous study's Policy Advisory Committee with the addition of the Stillwater Area Chamber of Commerce.

The TAG provided input into the further refinement of the buttonhook concept, which directs access ramps to and from TH 36 to the frontage road system rather than the cross streets. The concept recommendations developed with the input of the TAG have been incorporated into the Minnesota approach of the SDEIS Build Alternatives. In addition, opportunities for minimizing business and property impacts as well as staging considerations were studied during the SDEIS development in cooperation with the TH 36 Partnership Study partners and a recently-formed "TH 36 Business Owners Group".

Given the Partnership Study's recommendations and the refinements, TH 36 from TH 5 to the new river bridge would be converted to a grade-separated facility. The following list describes the modifications to TH 36, local roads, and the frontage roads parallel to TH 36 that would be included with the Build Alternatives. Figure 3-2 includes an illustration of the concept of frontage road alignments, buttonhook interchanges, and overpass locations for TH 36. The following bullets describe the modifications for this segment.

Four-lane urban section with 12-foot travel lanes, variable-width (6 feet to 12 feet) inside shoulders, and 10-foot outside shoulders. A 12-foot wide auxiliary lane would be provided on both east- and westbound TH 36 between the buttonhook interchanges and from the buttonhook interchanges at Osgood Avenue to the TH 36/95 interchange (see Figures 3-2 and 3-3a);

- The at-grade crossings of TH 36 with Washington/Norell Avenues and Osgood Avenue (County Road 24) would be removed and replaced with overpasses and buttonhook interchanges. A typical section for the buttonhook ramps is shown on Figure 3-3b;
- The at-grade crossing of TH 36 at Oakgreen/Greeley would be replaced with an overpass;

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<sup>1</sup> The TH 36 Partnership Study Final Report is available on the Mn/DOT Website at <http://www.dot.state.mn.us/metro/projects/stcroix/documents.html>.

- Realigning and widening of the existing north and south frontage roads to include a 12-foot travel lane in each direction, and between the western terminus and Osgood Avenue, a 12-foot continuous turn lane or median divided turn lane in the center. Both shoulders would be 6 feet wide. Local roads would be accessible from the realigned frontage roads. Buttonhook ramps would connect the TH 36 mainline to the north and south frontage roads (see Figure 3-2). Two left-turn lanes (12 and 14 feet wide) from the frontage roads at the buttonhook interchanges for access to TH 36 would be provided. Two left-turn lanes would also be provided at the top of the buttonhook interchanges for access to the frontage roads;
- Realignment of Oakgreen/Greeley to the east of the existing alignment between the north and south frontage roads;
- Proposed traffic signals, if warranted, at the intersection of the buttonhook ramps with the north and south frontage roads. Traffic signals, if warranted, would also be installed at the intersections of Washington Avenue, Greeley Avenue, and Osgood Avenue with the north frontage road, and the intersections of Norell Avenue, Oakgreen Avenue, and Osgood Avenue with the south frontage road. Dedicated right- and left-turn lanes would be constructed at each intersection on both the frontage roads and intersecting streets;
- The St. Croix Mall parking lot would be reconfigured to accommodate the south frontage road near its intersection with Osgood Avenue;
- The existing south frontage road would be constructed as a cul-de-sac near Norell Avenue and east of Osgood Avenue but would maintain access to the proposed south frontage road. Local connections would be provided to the new south frontage road. A local road connection would also be constructed from the south frontage road, under the Oakgreen/Greeley overpass to the west of realigned Oakgreen/Greeley for access to businesses and residences;
- Construction of cul-de-sacs and local road connections to the north and south frontage roads (e.g., south frontage road and Norell Avenue; south frontage road and west of Oakgreen Avenue; south frontage road and Osgood Avenue), as well as reconstruction of access points and driveways to the north and south frontage road;
- Construction of 10-foot pedestrian/bicycle trails along both the north and south frontage roads would provide both local and regional trail connectivity;
- Construction of stormwater detention ponds and dry pond storage along TH 36 at the buttonhook interchanges; and
- A design speed of 55 miles per hour (mph). The anticipated posted speed is 45 miles per hour (mph), dependent upon the results of a speed study.

**Figure 3-2 – Minnesota TH 36 (TH 5 to Osgood Avenue) (11x17 – color)**

BACK

**Figure 3-3a – Minnesota TH 36 Typical Sections (11x17 – b/w)**

BACK

**Figure 3-3b – Minnesota TH 36 Typical Sections (8.5x11 – b/w)**

### 3.3 ALTERNATIVE B-1

Alternative B-1 consists of a four-lane river crossing bridge and approach roadways in Minnesota and Wisconsin. The proposed project improvements under this alternative would extend from approximately 700 feet east of the Trunk Highway (TH) 5/36 interchange on TH 36 in Minnesota to a point approximately 100 feet southwest of 150th Avenue on STH 35/64 in Wisconsin. The total distance for Alternative B-1 is approximately 6.7 miles (see Figure 3-1).

Detailed layouts of Alternative B-1 are shown in the following three figures.

- Figure 3-2 Minnesota TH 36 (TH 5 to Osgood Avenue)
- Figure 3-4 Alternative B-1 Minnesota TH 36 (Osgood Avenue) to TH 36/TH 95 Interchange and River Bridge
- Figure 3-5 Alternative B-1 Wisconsin STH 64 and STH 35/64

#### 3.3.1 Minnesota Approach Roadways – Alternative B-1

From its starting point near the TH 5/36 interchange, the Minnesota approach for Alternative B-1 to the river crossing would follow the existing TH 36 alignment in Oak Park Heights and Stillwater east to a new interchange with TH 95 in Oak Park Heights (see Figure 3-4). The new bridge crossing would begin at the east end of this interchange and cross the St. Croix River to Wisconsin. Changes to TH 95 north and south of the interchange are also included. The major physical characteristics of the proposed Minnesota approach roadways are summarized below.

##### 3.3.1.1 TH 36 (TH 5 to Osgood Avenue) – Alternative B-1

TH 36 from TH 5 to Osgood Avenue would be converted to a grade-separated facility in the same manner described in Section 3.2. Figure 3-2 includes the design of the frontage road alignments and interchange locations for the TH 36 reconstruction. Figures 3-3a and 3-3b illustrate typical roadway cross-sections for TH 36.

##### 3.3.1.2 TH 95 – Alternative B-1

TH 95 will be reconstructed for approximately 3,050 feet north and 3,550 feet south of the TH 36/95 interchange. The alignment of TH 95 would be relocated to the west of the existing alignment to accommodate the new interchange of TH 36 and TH 95. The following bullets describe the modifications being considered along TH 95 with Alternative B-1 and shown on Figure 3-4 and Figure 3-6:

- Two-lane urban section north and south of the TH 36/95 interchange expanding to a four-lane urban section adjacent to the interchange with 12- to 14-foot travel lanes. A raised median and curb will separate northbound and southbound TH 95 traffic on the four-lane section;



**Figure 3-4 – Alternative B-1 Minnesota TH 36/95 Interchange Area (11x17 – color)**

BACK

**Figure 3-5 – Alternative B-1 Wisconsin STH 35/64 (11x17 – color)**

BACK

- A six- to ten-foot wide paved shoulder will be constructed at various locations along both sides of TH 95 north and south of the TH 36/95 interchange;
- A 14-foot wide right (northbound traffic) and left-turn lane (southbound traffic) will be provided from TH 95 for access to the relocated entrances for the Sunnyside Marina and Condominiums and the Metropolitan Council Environmental Services (MCES) wastewater treatment plant access;
- Realign the CSAH 28 (Pickett Avenue) intersection with TH 95 to the south (150 feet) of its existing alignment, consolidating access points on TH 95 with the Xcel Energy King Power Plant main entrance. If justified, a signal will be installed at the intersection of TH 95, CSAH 28 (Pickett Avenue), and the King Power Plant entrance;
- Construction of a left-turn lane and right-turn lane from both north- and southbound TH 95 at the CSAH 28 (Pickett Avenue) intersection. As noted above, if justified, a signal will be included at the TH 95/CSAH 28 (Pickett Avenue)/King Power Plant entrance intersection;
- Removal of 56th Street between TH 95 west to the intersection with CSAH 28 (Pickett Avenue) for the construction of stormwater ponds. 56th Street would form a T-intersection with CSAH 28 (Pickett Avenue) near the northeast corner of the Correctional Facility property;
- Construction of stormwater ponds east of TH 95 near the Sunnyside Marina and Condominiums access road and along TH 95 south of the TH 95/CSAH 28 (Pickett Avenue) intersection as described above; and
- Construction of a 10-foot wide trail to connect local and regional trails along the east side of TH 95 connecting to the trail from the bridge to the Stillwater Municipal Barge Facility, CSAH 28 (Pickett Avenue), and Lookout Trail via the relocated Beach Road overpass.

Future traffic conditions in downtown Stillwater may warrant the construction of left-turn lanes on existing TH 36/95 (Main Street) at the Nelson Street/Main Street intersection. The addition of these turn lanes and reconstruction of the traffic signal is not a required element of Alternative B-1. However, at some time in the future, traffic operations in downtown Stillwater may deteriorate to a point where the turn lanes at Nelson and Main are necessary to improve operations. When the reconstructed signal and turn lanes are added to Main Street at the Nelson Street intersection, 18 on-street parking stalls along Main Street would be lost.

### 3.3.1.3 TH 36/95 Interchange Area – Alternative B-1

The following details are shown in Figures 3-3b, 3-4 and 3-6:

- Construction of a new standard diamond interchange with TH 36 and TH 95. Ramps from TH 36 would include two left-turn lanes and one right-turn lane at the signalized intersections with TH 95. The western ramps of the TH 36/95 interchange under Alternative B-1 would be constructed as a rural section roadway. The eastern ramps would be constructed as an urban section. A typical section of TH 36/95 interchange ramps is shown on Figure 3-3b;

**Figure 3-6 – Minnesota TH 95 Typical Sections (8.5x11 – b/w)**

- Addition of two left-turn lanes and one right-turn lane at signalized intersections on northbound and southbound TH 95 for access to TH 36. TH 95 would be reconstructed as a four-lane urban section with 12-foot through lanes for north- and southbound TH 95 (see Figure 3-6). A six-foot wide shoulder would be constructed along both sides of TH 95 between the ramp intersections;
- The Beach Road access from TH 36 would be closed and converted to an overpass and realigned to the west, intersecting with the south frontage road at a T-intersection. The south frontage road would be extended to the east along the north end of the existing Xcel Energy landfill to Stagecoach Trail. Residential streets east of the landfill would be realigned to intersect with Stagecoach Trail at T-intersections;
- Lookout Trail would be reconstructed as a cul-de-sac north of the St. Croix Overlook. Direct access to TH 36/95 from Lookout Trail would be eliminated;
- Relocation of a segment of the railroad paralleling TH 95 at the interchange area and to the north of the interchange;
- Construction of a paved 10-foot trail east of TH 95 and connecting to the bridge, to Lookout Trail, and to the Stillwater Municipal Barge Facility property;
- Construction of stormwater detention ponds in and near the TH 36/ TH 95 interchange; and
- An anticipated posted speed of 45 mph on TH 36 and 40 mph on TH 95, dependent upon the results of a speed study. The design speeds were 70 mph and 40 mph for TH 36 and TH 95, respectively.

### **3.3.2 New River Bridge – Alternative B-1**

The Alternative B-1 four-lane river bridge would cross the river approximately 80° to the center of the river, about 7,550 feet south of the Lift Bridge along the Minnesota shoreline to a point approximately 6,450 feet south of the Lift Bridge along the Wisconsin shoreline.<sup>2</sup> The location of the bridge crossing utilizes an existing ravine and was selected to minimize impacts on the Minnesota and Wisconsin bluffs and the St. Croix River (see Figures 3-4 and 3-5).

The height of the bridge deck above the normal pool elevation (675 feet above mean sea level) of the river would be about 113 feet at the Minnesota shore and about 159 feet at the Wisconsin shore, with a 1.7 percent grade. The bridge would be about 4,953 feet long, of which approximately 2,840 feet would be over water.

As noted in Section 3.0 (Introduction), three bridge types are under consideration for Alternative B-1. These bridge types include: cable stay (1,500-foot span) bridge type, extradosed girder bridge type, and a haunched concrete box girder bridge type. Sketches of these bridge types can be found in Chapter 7 of this document. The estimated total number of

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<sup>2</sup> The distance from the Lift Bridge to the Alternative B-1 alignment along the Minnesota shoreline was measured from the centerline of the Lift Bridge to the centerline of the Alternative B-1 river crossing. The distance from the Lift Bridge to the Alternative B-1 alignment along the Wisconsin shoreline was measured from the centerline of the approach roadway on the Lift Bridge causeway to the centerline of the Alternative B-1 river crossing.

bridge piers and number of piers in the St. Croix River is unknown at this time for Alternative B-1, pending the resolution of the bridge type analysis. The bridge type selection, the total number of piers and number of piers in the St. Croix River will be presented in the Supplemental Final EIS with the identification of the Preferred Alternative.

A typical bridge cross section for Alternative B-1 is shown on Figure 3-7. The four travel lanes (two in each direction) on the bridge would be 12 feet wide. Outside shoulders would be 10 feet wide; inside shoulders would be six feet wide. A 12-foot pedestrian/bicycle trail would be included on the north side of the bridge with connections to trails on both sides of the river. In this case, the total width of the bridge including travel lanes, shoulders, the pedestrian/bicycle trail, and concrete safety barriers would be 98 feet.

Additional information on the design types being considered and aesthetic treatments of the bridge are provided in Chapter 7.

### **3.3.3 Future of the Lift Bridge – Alternative B-1**

The Alternative B-1 river bridge would serve as a functional transportation replacement for the Lift Bridge, an historic two-lane bridge listed on the National Register of Historic Places. The purpose and need in Chapter 2 further discusses the existing status of the Lift Bridge and maintenance and operations needs for the Lift Bridge.

Alternative B-1 consists of two sub-alternatives (Alternative B-1<sub>a</sub> and Alternative B-1<sub>b</sub>) for evaluation in the SDEIS. Alternative B-1<sub>a</sub> and Alternative B-1<sub>b</sub> are exactly the same in all aspects with the exception of the role of the Lift Bridge. Alternative B-1<sub>a</sub> consists of a new four-lane river bridge with the Lift Bridge closed to vehicular traffic and removed from the trunk highway system. Under this sub-alternative, the Lift Bridge would be converted to a pedestrian/bicycle facility. Alternative B-1<sub>b</sub> consists of a new four-lane bridge at the same location as Alternative B-1<sub>a</sub>, but includes removal of the Lift Bridge from the trunk highway system with continued vehicular use of the Lift Bridge for local traffic. See Figure 3-4 for the new river bridge location for Alternative B-1<sub>a</sub> and Alternative B-1<sub>b</sub>.

As previously noted, under Alternative B-1, the Lift Bridge would be removed from the trunk highway system. With conversion of the Lift Bridge to a pedestrian/bicycle facility or continued vehicular use for local traffic, ownership transfer of the Lift Bridge to a local government or non-profit entity would be considered.

### **3.3.4 Wisconsin Approach – Alternative B-1**

The proposed Wisconsin approach roadway for Alternative B-1 would continue northeast from the bridge abutment for approximately 1,250 feet, turn north near an existing section line, then turn eastward, paralleling the existing STH 35/64 roadway on the north to 20th Street, where it would join the existing STH 35/64 alignment (see Figure 3-5).

Alternative B-1 includes a diamond interchange at a new STH 35 roadway and realigned County Trunk Highway (CTH) E. A typical section of the interchange ramps is shown on Figure 3-8.

**Figure 3-7 – River Bridge Typical Sections (8.5x11 – b/w)**

**Figure 3-8 – Wisconsin STH 64 Typical Sections (8.5x11 – b/w)**

Traffic signals or roundabouts would be installed at the STH 35/CTH E/ramp intersections. The proposed relocation of CTH E is included as an option to reduce potential traffic impacts on Houlton Elementary School.

Alternative B-1 would have the following features:

- STH 64 constructed as a four-lane urban section with 12-foot travel lanes, six-foot inside shoulders with a concrete median barrier, 10-foot outside shoulders through the Wisconsin bluff (Figure 3-8, urban section through the Wisconsin bluff);
- STH 64 constructed as a four-lane rural section with 12-foot travel lanes, six-foot inside shoulders, 10-foot outside shoulders, and a 60-foot-wide center median (Figure 3-8, rural section) east of the Wisconsin bluff;
- A 12-foot pedestrian/bicycle trail from the river bridge to connect with a planned future trail along STH 35;
- Construction of existing STH 35 alignment as an overpass over the new STH 64 roadway east of the bridge abutment. STH 35 would be constructed as a two-lane rural section at the overpass abutments (see Figures 3-5 and 3-9);
- Reconstruction of CTH E to the south of the existing alignment as a four-lane section with 12-foot travel lanes, a raised center median, and 10-foot aggregate shoulders adjacent to the interchange (Figure 3-9), tapering to a two-lane section east of the interchange. This segment from existing STH 35 through the interchange ramp intersections would also be designated as STH 35. The existing CTH E would be constructed as a cul-de-sac east of the school and designated as a local roadway. A new two-lane north-south roadway would be constructed between the existing CTH E and the relocated STH 35/CTH E across from Houlton Elementary School;
- Reconstruction of STH 35/relocated CTH E intersection with a signal. This new intersection could also be constructed as a non-signalized roundabout;
- The existing STH 35 roadway north of the intersection into Houlton would be converted to a local road; Where the proposed STH 35/64 roadway returns to the existing alignment, the former STH 35/64 roadway would be continued to the east as a new north frontage road paralleling STH 35/64 and connecting to Anderson Scout Camp Road. The former STH 35/64 roadway would be converted to a frontage road south of STH 35/64 to provide local access west of 20th Street;
- Local access to private property would be provided by these frontage roads; no access to private property will be allowed from the new STH 35/64; restricted access will be allowed on the reconstructed portions of STH 35 and CTH E;
- Construction of four stormwater ponds along STH 64 between the STH 35 overpass and 20th Street; and
- A posted speed of 65 mph. The design speed on STH 64 in Wisconsin for Alternative B-1 was 70 mph.

**Figure 3-9 – Wisconsin STH 35 Typical Sections (8.5x11 – b/w)**

With sub-Alternative B-1<sub>a</sub>, where the Lift Bridge is converted to a pedestrian/bicycle facility, additional construction/demolition activities associated with conversion of the roadway to a trail system would be included in Wisconsin. The existing STH 64 roadway up the Wisconsin bluff from the Lift Bridge to former STH 35 would be removed. The western end of CTH E between its intersection with STH 64 and State Street would also be removed. The existing T-intersection of State Street with CTH E would be reconstructed to provide a connection between the two roadways.

Under sub-Alternative B-1<sub>b</sub>, the Lift Bridge would continue to provide access to local roads in the Houlton area; direct access from the Lift Bridge to new STH 64 would no longer be provided. The western end of CTH E between its intersection with STH 64 and State Street would also be removed. Existing STH 35, STH 64, and STH 35/64 would function as local roads.

### 3.4 ALTERNATIVE C

Alternative C was developed as an outcome of the 1998 Braun facilitation process. The recommendations developed during the Braun process were initially proposed for further evaluation in the 1999 Amended Scoping Decision Document. Refer to Chapter 1 for a discussion of the project history and the Braun process.

Alternative C consists of a four-lane bridge and approach roadways in Minnesota and Wisconsin and includes one of two alternative roadway alignments and interchange locations for the Wisconsin approach. The total project distance is 6.7 miles (slightly less with the diagonal alignment in Wisconsin [Option 2] – refer to Section 3.4.4).

Detailed layouts of Alternative C are shown in the following figures.

- Figure 3-2 Minnesota TH 36 (TH 5 to Osgood Avenue)
- Figure 3-10 Alternative C Minnesota TH 36 from Osgood Avenue to TH 36/TH 95 Interchange and River Bridge
- Figure 3-11 Alternative C Wisconsin STH 35/64: Optional Alignment 1
- Figure 3-12 Alternative C Wisconsin STH 35/64: Optional Alignment 2

The western (Minnesota) and eastern (Wisconsin) project termini for Alternative C are described in Section 3.0.3.

#### 3.4.1 Minnesota Approach Roadways – Alternative C

From its starting point near the TH 5/36 interchange, the Minnesota approach to the river crossing for Alternative C would follow the existing TH 36 alignment in Oak Park Heights and Stillwater east to a new interchange with TH 95 in Oak Park Heights. The road would curve north, continuing on the alignment of existing TH 36/95, and then, north of Sunnyside Marina

and Condominiums, turn eastward on a new bridge across the St. Croix River to Wisconsin. (The Minnesota approach is shown in Figure 3-10.) Changes to TH 95 north and south of the new TH 36/TH 95 interchange also are included. The major physical characteristics of the proposed Minnesota approach roadways are summarized as follows.

#### 3.4.1.1 TH 36 (TH 5 to Osgood Avenue) – Alternative C

Trunk Highway 36 from TH 5 to Osgood Avenue would be converted to a grade-separated facility in the same manner described in Section 3.2. Figure 3-2 includes the design of the frontage road alignments and interchange locations for the TH 36 reconstruction. Figures 3-3a and 3-3b illustrate typical roadway cross-sections for TH 36.

#### 3.4.1.2 TH 95 – Alternative C

TH 95 north of the intersection with the TH 36/95 interchange ramps and south of the CSAH 28 (Pickett Avenue) intersection would transition to a two-lane urban section with 12-foot through lanes with six-foot paved shoulders. The entrance to the Sunnyside property and Stillwater Municipal Barge Facility property would be relocated, including left and right-turn lanes from TH 95 at the relocated entrance. TH 95 would cross under the Alternative C bridge adjacent to the relocated Sunnyside property entrance.

TH 95 south of the interchange with TH 36 would be constructed in the same manner as described for Alternative B-1 in Section 3.3.1.2. Refer to Figure 3-10 for an illustration of the roadway alignments, lane configurations, and access modifications.

#### 3.4.1.3 TH 36/TH 95 Intersection Area – Alternative C

The following details are shown in Figures 3-6 and 3-10:

- Construction of a new off-set split-diamond interchange with TH 36 and TH 95;
- Four-lane urban section with 12- to 14-foot travel lanes in both directions from the north interchange ramps to the south on TH 95;
- The Beach Road access from TH 36 would be closed and converted to an overpass and realigned to the west, intersecting with the south frontage road at a T-intersection. The south frontage road would be extended to the east along the north end of the existing Xcel Energy landfill to Stagecoach Trail. Residential streets east of the landfill would be realigned to intersect with Stagecoach Trail at T-intersections;
- Lookout Trail would be reconstructed as a cul-de-sac north of the St. Croix Overlook. Direct access to TH 36/95 from Lookout Trail would be eliminated;
- Addition of two left-turn lanes on northbound TH 95 and one right-turn lane on southbound TH 95 at the interchange ramp intersections;

**Figure 3-10 – Minnesota TH 36/95 Interchange Area – Alternative C (11x17 – color)**

BACK

**Figure 3-11 – Wisconsin STH 35/64 – Alternative C (Option 1) (11x17 – color)**

BACK

**Figure 3-12 – Wisconsin STH 35/64 – Alternative C (Option 2) (11x17 – color)**

BACK

- Relocation of the entrance to the MCES wastewater treatment facility and Dahl-Tech property with right and left-turn lanes from TH 95;
- Relocation of a segment of the railroad paralleling TH 95;
- Construction of a paved 10-foot trail east of TH 95 and connecting to the local and regional system, to the new river bridge, Stagecoach Trail, and to the future Stillwater riverfront park on the Stillwater Municipal Barge Facility property;
- Construction of stormwater detention ponds in and near the TH 36/ TH 95 interchange; and,
- Anticipated posted speed of 45 mph on TH 36 and 40 mph on TH 95, dependent upon the results of a speed study. The design speeds were 55 mph through the TH 36/95 interchange and 40 mph for TH 95.

As described for Alternative B-1 (see Section 3.3.1), future traffic conditions in downtown Stillwater may warrant the construction of left-turn lanes on existing TH 36/95 (Main Street) at the Nelson Street/Main Street intersection. The addition of these turn lanes and reconstruction of the traffic signal is also not a required element of Alternative C. However, at some time in the future, traffic operations in downtown Stillwater may deteriorate to a point where the turn lanes and reconstructed signal at Nelson and Main are necessary to improve operations. When the reconstructed signal and turn lanes are added to Main Street at the Nelson Street intersection, 18 on-street parking stalls along Main Street would be lost.

### **3.4.2 New River Bridge – Alternative C**

The Alternative C four-lane bridge would cross the river approximately perpendicularly (approximately 90° to the center of the river), about 4,450 feet south of the Lift Bridge along the Minnesota shore to a point approximately 3,600 feet south of the Lift Bridge along the Wisconsin shore.<sup>3</sup> The location of the bridge was selected to utilize an existing ravine and to minimize impacts on the Minnesota and Wisconsin bluffs and the St. Croix River.

The height of the bridge deck above the normal pool elevation of the river would be about 105 feet at the Minnesota shore and about 150 feet at the Wisconsin shore, with a 2.3 percent grade. The bridge would be about 4,040 feet long, of which approximately 2,000 feet would be over the St. Croix River.

As noted in Section 3.0 (Introduction), three bridge types are under consideration for the Alternative C crossing. These bridge types include: haunched concrete box girder bridge type, concrete deck tied arch with back spans, and an extradosed girder bridge type. Sketches of these

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<sup>3</sup> The distance from the Lift Bridge to the Alternative C alignment along the Minnesota shoreline was measured from the centerline of the Lift Bridge to the centerline of the Alternative C river crossing. The distance from the Lift Bridge to the Alternative C alignment along the Wisconsin shoreline was measured from the centerline of the approach roadway on the Lift Bridge causeway to the centerline of the Alternative C river crossing.

bridge types can be found in Chapter 7. The bridge type, the estimated total number of bridge piers and number of piers in the St. Croix River is unknown at this time pending identification of a Preferred Alternative and the resolution of the bridge type analysis.

A typical bridge cross section is shown in Figure 3-7. The dimensions of the typical bridge cross section are the same as described for Alternative B-1 in Section 3.3.2.

Additional information on the design and aesthetic treatments of the bridge are provided in Chapter 7.

### **3.4.3 Future of the Lift Bridge – Alternative C**

Use of the Lift Bridge as either a pedestrian/bicycle facility or as a vehicular facility for local traffic is possible with this Alternative. However, specific impacts related to continued vehicular use of the Lift Bridge (e.g., traffic noise, air quality) will only be studied for Alternative B-1<sub>b</sub> in this SDEIS. Due to similar traffic patterns in Alternatives B-1 and C, similar impacts to Alternative B-1<sub>b</sub> would be expected for Alternative C as well. If Alternative C is identified as the Preferred Alternative, consideration will be given for future use of the Lift Bridge as a local vehicular facility as well as for future use as a pedestrian/bicycle facility.

Similar to Alternative B-1, the Lift Bridge would be removed from the trunk highway system under Alternative C. With conversion of the Lift Bridge to a pedestrian/bicycle facility or continued vehicular use for local traffic, ownership transfer of the Lift Bridge to a local government or non-profit entity would be considered.

### **3.4.4 Wisconsin Approach Roadways – Alternative C**

The proposed Wisconsin approach roadway would follow one of two alternative alignments, Option 1 or Option 2, between the eastern end of the river bridge and the project's eastern terminus, 100 feet southwest of 150th Avenue on STH 35/64 in St. Croix County.

#### **3.4.4.1 Alternative C – Option 1**

The alignment for Alternative C Option 1 in Wisconsin would continue northeast from the eastern end of the river bridge for about 1,300 feet, turn due north along an existing section line and then turn eastward, paralleling STH 35/64 on the north until 20th Street, where it would join the existing STH 35/64 alignment (see Figure 3-11).

CTH E would be relocated to the south with a diamond interchange at the new STH 64 roadway; STH 35 would be relocated from the interchange to the existing STH 35 roadway alignment as described for Alternative B-1. The existing CTH E roadway would be reconstructed as a cul-de-sac east of Houlton Elementary School adjacent to the westbound STH 35/64 to CTH E access ramp. A local road would connect the realigned CTH E to the existing CTH E across from the elementary school. Refer to Section 3.2.4 for a description of changes to CTH E and STH 35.

Local access to private property would be provided by these local roads; no access to private property will be allowed on the new STH 35/64 roadway. Restricted access will be allowed on the reconstructed portions of STH 35 and CTH E.

Turn lanes would be constructed on the existing STH 35 at the intersection with relocated STH 35/CTH E. A traffic signal or roundabout, as with Alternative B-1, would also be installed at this intersection. The existing STH 35 and STH 35/64 roadway through Houlton would be converted to a local road.

For most of its length, the Alternative C Option 1 alignment in Wisconsin is similar to the alignment of the 1995 Final EIS Preferred Alternative and Alternative B-1. The relocation of the western end of CTH E is included as an option to reduce potential traffic impacts on Houlton Elementary School. A frontage road would be constructed along the north side of the new STH 35/64 roadway and the existing STH 35/64 would be converted to a frontage road along the south side of the new STH 35/64 roadway for local access as described for Alternative B-1 in Section 3.2.4. As with Alternative B-1, the posted speed for Alternative C - Option 1 would be 65 mph; the design speed was 70 mph.

If the Lift Bridge were to be used as a bicycle/pedestrian facility roadway, Alternative C – Option 1 would also include removal of the existing STH 64 roadway from the Lift Bridge east to STH 35. The far western end of CTH E at its intersection with STH 64 to State Street would also be removed and reconstructed as described for Alternative B-1 in Section 3.3.4.

#### 3.4.4.2 Alternative C – Option 2

The alignment for Alternative C Option 2 in Wisconsin would continue due northeast from the eastern end of the river bridge with slight curves until it meets STH 35/64, also on a northeast alignment, at about 20th Street. From there it would continue to the project terminus. Option 2 would eliminate three curves, as compared to the alignment of Option 1, which would have a positive effect on safety. Option 2 is about 0.3-mile shorter in Wisconsin than Option 1 (see Figures 3-11 and 3-12).

With Option 2, a folded diamond interchange would be located at existing STH 35. STH 35 would be constructed as a four-lane urban section at the interchange tapering to a two-lane rural section north and south of the interchange (see Figure 3-9). The new STH 35/64 roadway would overpass the existing CTH E alignment.

Both Alternative C Option 1 and Option 2 in Wisconsin would have the following features:

- Four-lane urban section through the Wisconsin bluff and a four-lane rural section with a 60-foot wide center median east of the Wisconsin bluff as described for Alternative B-1 in Section 3.2.4 (see Figure 3-8);
- A pedestrian/bicycle trail from the river bridge to connect with a planned future trail along STH 35;

- Construction of stormwater ponds along the STH 35/64 roadway between the existing STH 35 alignment and 20th Street; and
- A posted speed of 65 mph on STH 64. The design speed on STH 64 for Alternative C – Option 2 in Wisconsin was 70 mph.

If the Lift Bridge were to be used as a bicycle/pedestrian facility roadway, Alternative C would also include removal of the existing STH 64 roadway from the Lift Bridge east to STH 35. The far western end of CTH E at its intersection with STH 64 to State Street would also be removed and reconstructed as described for Alternative B-1 in Section 3.3.4.

### 3.5 ALTERNATIVE D

Alternative D consists of a four-lane river crossing bridge and approach roadways in Minnesota and Wisconsin. The western (Minnesota) and eastern (Wisconsin) project termini for Alternative D are the same as the project termini described in Section 3.0.3 (also see Figure 3-1). The total distance for Alternative D is approximately 6.7 miles.

Detailed layouts of Alternative D are shown in the following figures.

- Figure 3-2 Minnesota TH 36 (TH 5 to Osgood Avenue)
- Figure 3-13 Alternative D Minnesota TH 36/95 Roadway, TH 36/TH 95 Interchange (Oak Park Heights), TH 36/95 Interchange (Stillwater), and River Bridge
- Figure 3-14 Alternative D Wisconsin STH 35/64

#### 3.5.1 Minnesota Approach Roadways – Alternative D

From its starting point at the TH 5/36 interchange, the Minnesota approach to the river crossing for Alternative D would follow the existing TH 36 alignment in Oak Park Heights and Stillwater east to a new interchange with TH 95 in Oak Park Heights. Changes to TH 95 south of the new TH 36/95 interchange in Oak Park Heights are also included. The road would curve north, continuing on the alignment of existing TH 36/95 to just south of downtown Stillwater. At this point, a new TH 36/95 interchange would provide access to and from downtown Stillwater while Alternative D would turn eastward on a new bridge across the St. Croix River to Wisconsin. (The Minnesota approach is shown in Figures 3-2 and 3-13.) The major physical characteristics of the proposed Minnesota approach roadways are summarized as follows.

##### 3.5.1.1 TH 36 (TH 5 to Osgood Avenue) – Alternative D

Trunk Highway 36 from TH 5 to Osgood Avenue would be converted to a grade-separated facility in the same manner as described in Section 3.2. Figures 3-3a and 3-3b illustrate typical sections for the TH 36 mainline and buttonhook ramps. Figure 3-2 includes the design of frontage road alignments and interchange locations for the TH 36 reconstruction.

**Figure 3-13 – Minnesota TH 36/95 Interchange – Alternative D (11x17 – color)**

BACK

**Figure 3-14 – Wisconsin STH 35/64 – Alternative D (11x17 – color)**

BACK

### 3.5.1.2 TH 95 – Alternative D

TH 95 south of the interchange with TH 36 would be reconstructed just west of the existing roadway alignment in the same manner as described for Alternative B-1 in Section 3.3.1.2. TH 95 would be constructed as a four-lane urban section between the CSAH 28 (Pickett Avenue) intersection and the TH 36/95 interchange (see Figure 3-6). The following bullets describe local access east of TH 95, retaining walls, and trail connections for Alternative D:

- Access to the Stillwater Municipal Barge Facility property, the Sunnyside property, the MCES wastewater treatment plant, the north end of the King Power Plant, and the Dahl-Tech property will be from a frontage road constructed along the existing TH 95 roadway alignment. This frontage road will be accessible from an intersection with the ramps from the modified single point interchange with TH 36 and TH 95;
- Construction of retaining walls along the east side of the frontage road near the MCES wastewater treatment plant and King Power Plant access;
- The 10-foot-wide trail would be located on the west side of this frontage road from the Stillwater Municipal Barge Facility property to the TH 36/95 interchange. The trail would then follow the east side of TH 95 south to the CSAH 28 (Pickett Avenue) intersection and connect to Lookout Trail via the South Frontage Road and Beach Road overpass; and
- Anticipated posted speed of 40 mph on TH 95, dependant upon the results from a speed study. The design speed for TH 95 was 40 mph.

Refer to Figure 3-13 for an illustration of the roadway alignments, lane configurations, and access modifications.

### 3.5.1.3 TH 36/95 Interchange in Oak Park Heights – Alternative D

A modified single-point interchange would provide for all movements between TH 36 and TH 95. The following details are shown in Figure 3-13 and described below:

- Construction of a modified single-point interchange with TH 36 and TH 95. A signalized intersection would control all movements between TH 36, TH 95, and the frontage road to the east;
- Addition of two left-turn lanes on northbound TH 95 for access to westbound TH 36. The two TH 95 northbound through lanes would continue north via a ramp to northbound TH 36/95;
- Construction of retaining walls between the northbound TH 36/95 on-ramp and the frontage road;
- The Beach Road access from TH 36 would be closed and converted to an overpass and realigned to the west, intersecting with the south frontage road at a T-intersection. The south frontage road would be extended to the east along the north end of the existing Xcel Energy landfill to Stagecoach Trail. Residential streets east of the landfill would be realigned to intersect with Stagecoach Trail at T-intersections;

- Lookout Trail would be reconstructed as a cul-de-sac north of the St. Croix Overlook. Direct access to TH 36/95 from Lookout Trail would be eliminated;
- Relocation of a segment of the railroad paralleling TH 95;
- Construction of stormwater ponds in the interchange area; and,
- Construction of a 10-foot wide trail from the frontage road to the north to the east side of TH 95 at the interchange.

#### 3.5.1.4 TH 36/95 and the TH 36/95 Interchange near Stillwater – Alternative D

The following details are shown in Figures 3-6 and 3-13 and described below:

- Construction of TH 36/95 as four-lane, urban section highway with 12-foot through lanes, six-foot inside shoulders, and 10-foot outside shoulders from the TH 36/95 interchange in Oak Park Heights north to the Alternative D bridge crossing and the TH 36/95 interchange south of downtown Stillwater;
- Construction of retaining walls along the east side of TH 36/95 and TH 95 north of the interchange between the roadway and the shoreline of the St. Croix River;
- Construction of a directional three-level interchange with TH 36/95, the new river crossing (TH 36), and TH 95. All movements between TH 36/95, the new bridge, and TH 95 would be possible. One lane of northbound TH 95 would be constructed from TH 36/95 under the bridge abutment into downtown Stillwater. One lane of TH 95 southbound would merge with the two lanes of TH 36 westbound traffic from the new bridge at the bridge abutment to continue southbound on TH 36/95;
- Construction of two ramps for access from southbound TH 95 to the new bridge and from the new bridge to northbound TH 95 into downtown Stillwater. These ramps would extend over the St. Croix River approximately 850 and 500 feet, respectively, before merging with the new bridge;
- Construction of a trail to connect pedestrians and bicyclists from downtown Stillwater and Lowell Park to the Stillwater Municipal Barge Facility property; and,
- Construction of stormwater ponds adjacent to the interchange.

The reconstruction of existing TH 36/95 (Main Street) north of the interchange would extend into downtown Stillwater to the Nelson Street/Main Street intersection as a two-lane urban section (see Figure 3-15). Left-turn lanes would be added for both northbound and southbound traffic on Main Street at the Nelson Street/Main Street intersection. A total of 28 parking stalls would be lost along Main Street for this construction; 23 on-street parking stalls would be lost south of the Nelson Street/Main Street intersection and 5 stalls would be lost north of the intersection for re-striping the left-turn lane.

**Figure 3-15 – Minnesota TH 36 Typical Sections (8.5x11 – b/w)**

### **3.5.2 New River Bridge – Alternative D**

The Alternative D four-lane bridge would cross the river diagonally to the northeast (approximately 45° to the center of the river), about 1,900 feet south of the Lift Bridge along the Minnesota shore to a point approximately 160 feet south of the Lift Bridge along the Wisconsin shore.<sup>4</sup> The location of the bridge was selected to utilize existing roadway corridors and an existing cut in the Wisconsin bluff.

The height of the bridge deck above the normal pool elevation of the river would be about 68 feet at the Minnesota shore and 82 feet at the Wisconsin shore; the bridge grade would be 0.50 percent. The bridge would be approximately 3,974 feet long, of which approximately 2,545 feet would be over the St. Croix River.

As noted in Section 3.0 (Introduction), four bridge types are under consideration for the Alternative D crossing. These bridge types include: steel thru truss bridge type, steel bowstring main span with haunched concrete girders bridge type, concrete arches bridge type, and concrete thru arch with concrete arches bridge type. Sketches of these bridge types can be found in Chapter 7 of this document. The bridge type, the total number of bridge piers and number of piers in the St. Croix River is unknown at this time pending the resolution of the bridge type analysis.

A typical bridge cross section is shown in Figure 3-7. The four travel lanes (two in each direction) on the bridge would be 12 feet wide. Outside shoulders would be 10 feet wide; inside shoulders would be 6 feet wide. A pedestrian/bicycle trail is not included with the Alternative D bridge. Pedestrian/bicycle access between Minnesota and Wisconsin would be provided by conversion of the Lift Bridge to a pedestrian/bicycle facility. The total width of the bridge including travel lanes, shoulders and concrete safety barriers would be 85 feet.

Additional information on the design and aesthetic treatments of the bridge are provided in Chapter 7.

### **3.5.3 Future of the Lift Bridge – Alternative D**

As described in Chapter 2, the Alternative D bridge would be a functional replacement for the Lift Bridge. The Lift Bridge would be converted to a pedestrian/bicycle facility and would be removed as an operational bridge from the state trunk highway system. No local connection for limited vehicular use with Alternative D between the Lift Bridge and the reconstructed STH 64 roadway near the Lift Bridge causeway is feasible, and therefore cannot be provided.

As described for Alternatives B-1 and C, the Lift Bridge would be removed from the trunk highway system for Alternative D. With conversion of the Lift Bridge to a pedestrian/bicycle facility or continued vehicular use for local traffic, ownership transfer of the Lift Bridge to a local government or non-profit entity would be considered.

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<sup>4</sup> The distance from the Lift Bridge to the Alternative D alignment along the Minnesota shoreline was measured from the centerline of the Lift Bridge to the centerline of the Alternative D river crossing. The distance from the Lift Bridge to the Alternative D alignment along the Wisconsin shoreline was measured from the centerline of the approach roadway on the Lift Bridge causeway to the centerline of the Alternative D river crossing.

### 3.5.4 Wisconsin Approach – Alternative D

The proposed Wisconsin approach roadway for Alternative D would continue northeast from the bridge abutment along the existing STH 64 alignment for approximately 2,000 feet up the Wisconsin bluff at a 3.75 percent grade (existing STH 64 roadway grade is approximately 7.0 percent) and go under a new overpass for existing STH 35. The proposed roadway would continue northeast through Houlton, then turn eastward, paralleling the existing STH 35/64 roadway on the north to an interchange with realigned STH 35 and then continue on to 20th Street, where it would join the existing STH 35/64 alignment.

Alternative D includes a diamond interchange at realigned STH 35 northeast of Houlton (see Figure 3-14). STH 35 would be reconstructed as a two-lane rural section bypass east of Houlton with an at-grade intersection with CTH E. STH 35 would be constructed as a four-lane section with turn lanes for access to the ramps in the interchange area (see Figure 3-9). It is also possible that roundabouts could be constructed at the interchange ramp termini with STH 35. A local road connection would be constructed from the interchange north to the existing STH 35/64 roadway. The existing STH 35 roadway would be converted to a local road, forming a T-intersection with the STH 35 bypass to the south and realigned to overpass the new STH 64 roadway in Houlton.

Alternative D in Wisconsin would have the following features:

- Removal and reconstruction of the existing STH 64 roadway from the Lift Bridge to existing STH 35 as a four-lane urban section with 12-foot travel lanes, six-foot inside shoulders, and eight-foot outside shoulders along the Wisconsin bluff. The new STH 64 roadway would transition from the local road overpass in Houlton to a rural section with a 60-foot wide center median at the STH 35/64 interchange (see Figure 3-8);
- A 12-foot truck climbing lane for eastbound STH 64 traffic would be constructed from the Alternative D bridge abutment, through the STH 35/64 interchange, and tapering east of the interchange near 20th Street (see Figures 3-8 and 3-14);
- CTH E would be removed from STH 64 to State Street. A connection between CTH E and State Street would be constructed;
- Construction of retaining walls adjacent to the new STH 64 roadway and trail at the Wisconsin bluff;
- Four-lane rural sections with 12-foot travel lanes, six-foot inside shoulders, 10-foot outside shoulders, and a 60-foot-wide center median east of the STH 35/64 interchange (see Figure 3-8);
- A pedestrian/bicycle trail from the Lift Bridge to connect with a planned future trail along existing STH 35. The Alternative D bridge would not include a pedestrian/bicycle trail on the bridge;

- Frontage roads would be constructed along STH 35/64 northeast of Houlton for local access as described for Alternative B-1 in Section 3.3.4. Local access to private property would be provided by these local roads. No access to private property will be allowed on the new STH 35/64 roadway; restricted access will be allowed on the realigned portion of STH 35;
- Construction of four stormwater ponds between the Wisconsin shoreline and 20th Street; and
- A posted speed of 65 mph on STH 64. The design speed on STH 64 east of the interchange with relocated STH 35 was 70 mph.

### 3.6 ALTERNATIVE E

Alternative E consists of a one-way two-lane river crossing bridge for eastbound traffic, rehabilitation and continued vehicular use of the Lift Bridge for two lanes of westbound traffic and approach roadways in Minnesota and Wisconsin. The western (Minnesota) and eastern (Wisconsin) project termini for Alternative E are the same as the project termini described in Section 3.0.3 (see Figure 3-1). The total distance for Alternative E is approximately 6.7 miles.

Detailed layouts of Alternative E are shown in the following figures.

- Figure 3-2 Minnesota TH 36 (TH 5 to Osgood Avenue)
- Figure 3-16 Alternative E Minnesota TH 36/95 Roadway, TH 36/TH 95 Interchange (Oak Park Heights), TH 36/95 Intersection (Stillwater), and the River Bridge
- Figure 3-17 Alternative E Wisconsin STH 35/64

#### 3.6.1 Minnesota Approach Roadways – Alternative E

From its starting point at the TH 5/36 interchange, the Minnesota approach to the river crossing for Alternative E would follow the existing TH 36 alignment in Oak Park Heights and Stillwater east to a new interchange with TH 95 in Oak Park Heights. Changes to TH 95 south of this interchange in Oak Park Heights are also included. The new road would curve north, continuing on the alignment of existing TH 36/95 to just south of downtown Stillwater. At this point, a new TH 36/95 intersection would provide access to and from downtown Stillwater while the two eastbound lanes of Alternative E would turn eastward on a new one-way, two-lane bridge across the St. Croix River to Wisconsin. (The Minnesota approach is shown in Figures 3-2 and 3-16.) Westbound traffic from Wisconsin would cross the river using the Lift Bridge and continue southbound on TH 36/95 through Stillwater. The major physical characteristics of the proposed Minnesota approach roadways are summarized below.

##### 3.6.1.1 TH 36 (TH 5 to Osgood Avenue) – Alternative E

Trunk Highway 36 from TH 5 to Osgood Avenue would be converted to a grade-separated facility in the same manner as described in Section 3.2. Figure 3-2 includes the design of the frontage road alignments and interchange locations. Figures 3-3a and 3-3b illustrate typical sections for the TH 36 mainline and buttonhook ramps.

**Figure 3-16 – Minnesota TH 36/95 Interchange – Alternative E (11x17 – color)**

BACK

**Figure 3-17 – Wisconsin STH 35/64 – Alternative E (11x17 – color)**

BACK

### 3.6.1.2 TH 95 – Alternative E

TH 95 south of the interchange with TH 36 would be reconstructed west of the existing roadway alignment in the same manner as described for Alternative B-1 in Section 3.3.1.2. TH 95 would be constructed as a four-lane urban section between the CSAH 28 (Pickett Avenue) intersection and the TH 36/95 interchange.

Access to the Stillwater Municipal Barge Facility property, the Sunnyside property, the MCES wastewater treatment plant, and the Dahl Tech property would be from a frontage road constructed along the existing TH 95 alignment as described for Alternative D in Section 3.5.1.2. Similar to Alternative D, a trail would also follow the west side of this frontage road to the TH 36/95 interchange, following the east side of TH 95 south to CSAH 28 (Pickett Avenue).

Refer to Figures 3-6 and 3-16 for an illustration of the roadway alignments, lane configurations, and access modifications along TH 95 for Alternative E.

### 3.6.1.3 TH 36/95 Interchange in Oak Park Heights – Alternative E

A modified single-point interchange would provide for all movements between TH 36 and TH 95 (see Figures 3-6 and 3-16). The TH 36/95 interchange in Oak Park Heights for Alternative E is the same interchange as described for Alternative D. Refer to Section 3.5.1 for a description of the interchange components.

The Beach Road access from TH 36 would also be closed with Alternative E, converted to an overpass, and realigned to the west, intersecting with the south frontage road at a T-intersection. The south frontage road would be extended to the east along the north end of the existing Xcel Energy landfill to Stagecoach Trail. Residential streets east of the landfill would be realigned to intersect with Stagecoach Trail at T-intersections. Lookout Trail would be reconstructed as a cul-de-sac north of the St. Croix Overlook. Direct access to TH 36/95 from Lookout Trail would be eliminated.

### 3.6.1.4 TH 36/95 Intersection near Stillwater – Alternative E

A signalized intersection would be provided approximately 800 feet north of the new, two-lane bridge abutment for access to the new bridge from southbound TH 95 and downtown Stillwater. The following details are shown on Figures 3-3a and 3-16:

- Construction of TH 36/95 as four-lane, urban section highway with 12-foot through lanes from the TH 36/95 interchange in Oak Park Heights north to the Alternative E bridge and the TH 36/95 intersection south of downtown Stillwater (see Figure 3-3a);
- Two through lanes for TH 36/95 southbound traffic from downtown Stillwater and one through lane for TH 36/95 northbound traffic into downtown Stillwater between the intersection and Chestnut Street. This would remove all on-street parking along Main Street (TH 36/95) from Chestnut Street to south of Nelson Street in downtown Stillwater – a loss of 49 parking stalls along Main Street. A typical section of TH 36/95 for Alternative E through downtown Stillwater is shown on Figure 3-15;

- One 14-foot wide left-turn lane from southbound TH 36/95 to eastbound TH 36/STH 64 on the new bridge. An entrance ramp would extend east of the intersection and merge with the left lane of eastbound TH 36/STH 64 traffic over the St. Croix River approximately 450 feet from the Minnesota shoreline;
- Construction of retaining walls along the east side of TH 36/95 north and south of the river crossing between the roadway and the shoreline of the St. Croix River; and
- A 10-foot wide trail from the new bridge and entrance ramp would follow TH 36/95 north to a parking facility. From the parking facility, the trail would follow the Minnesota shoreline underneath the Alternative E bridge and entrance ramp to the Stillwater Municipal Barge Facility property.

### 3.6.2 New River Bridge – Alternative E

The Alternative E new two-lane bridge for one-way eastbound traffic is located along a similar alignment as the Alternative D four-lane bridge. The Alternative E bridge would cross the river diagonally to the northeast (approximately 45° to the center of the river), about 2,000 feet south of the Lift Bridge along the Minnesota shore to a point approximately 200 feet south of the Lift Bridge along the Wisconsin shore.<sup>5</sup> The location of the bridge was selected to utilize existing roadway corridors and an existing cut in the Wisconsin bluff.

To maintain the minimum Coast Guard clearance requirements, the height of the bridge deck above the normal pool elevation of the river would be about 61 feet at both the Minnesota and Wisconsin shore; the bridge grade from Minnesota to Wisconsin would be +1.8 percent/-1.5 percent, with a crest vertical curve occurring over the river's navigational channel. The bridge would be approximately 2,987 feet long, of which approximately 2,530 feet would be over the St. Croix River.

As noted in Section 3.0 (Introduction), three bridge types are under consideration for the Alternative E crossing. These bridge types include: steel thru trusses bridge type, bowstring trusses bridge type, and steel bowstring truss with flush haunched concrete box girders bridge type. Sketches of these bridge types can be found in Chapter 7 of this document. The bridge type, the total number of bridge piers and number of piers in the St. Croix River is unknown at this time pending the resolution of the bridge type analysis.

A typical bridge cross section for Alternative E is shown on Figure 3-7. The two travel lanes on the bridge would be 12 feet wide. Outside shoulders would be 10 feet wide (south side of bridge) and six feet wide (north side of bridge). A 12-foot pedestrian/bicycle trail would be included on

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<sup>5</sup> The distance from the Lift Bridge to the Alternative E alignment along the Minnesota shoreline was measured from the centerline of the Lift Bridge to the centerline of the Alternative E river crossing. The distance from the Lift Bridge to the Alternative E alignment along the Wisconsin shoreline was measured from the centerline of the approach roadway on the Lift Bridge causeway to the centerline of the Alternative E river crossing.

the north side of the new bridge with connections to local and regional trails on both sides of the river. The total width of the bridge including travel lanes, shoulders, the pedestrian/bicycle trail, and concrete safety barriers would be 56 feet.

The entrance ramp for southbound TH 95 traffic from downtown Stillwater to eastbound TH 36/STH 64 on the new bridge crossing would include one 12-foot wide through lane with six-foot outside shoulders. The 12-foot wide trail would be located on the north side of the entrance ramp. The total width of the entrance ramp including travel lanes, shoulders, the trail, and concrete safety barriers would be 40 feet.

Additional information on the design and aesthetic treatments of the bridge are provided in Chapter 7.

### **3.6.3 Future of the Lift Bridge – Alternative E**

The Lift Bridge would remain operational for two lanes of one-way, westbound trunk highway traffic into Stillwater from Wisconsin under the ownership of Mn/DOT and Wis/DOT. The \$5 Million Lift Bridge Repair Project studied the needs of the Lift Bridge and provided routine maintenance projections and annualized costs, considering the Lift Bridge being converted to a pedestrian/bicycle facility.

Should unrestricted vehicular traffic be sustained on the Lift Bridge as proposed with Alternative E, the structure is anticipated to require additional maintenance and preservation efforts including construction of secondary and redundant structural components and/or wholesale replacement of structural components/systems including truss spans as a whole. The Lift Bridge will be unable to effectively serve meaningful transportation needs with unrestricted vehicular traffic sustained on the Lift Bridge due to the time the bridge would need to be closed to traffic to complete repairs and because the structure will have inadequate structural capacity.

With the Lift Bridge remaining on the trunk highway system, additional funds for repairs beyond the \$5 Million Lift Bridge Repair Project would be required to provide the additional necessary maintenance and preservation efforts. The Lift Bridge may no longer be functional at some point prior to the year 2020. The new river crossing facility under Alternative E would then have to be converted from a two-lane, one-way facility for eastbound traffic to a two-way facility for both eastbound and westbound traffic. This two-lane facility (one lane for eastbound traffic and one lane for westbound traffic) would not provide for adequate traffic operations between Minnesota and Wisconsin (see Chapter 4). At this point, the Minnesota and Wisconsin Departments of Transportation and FHWA would again have to revisit options for a St. Croix River crossing. Potential options at that point may include:

- 1) Replacement of the Lift Bridge in-kind. Replacement in-kind would result in a bridge that is geometrically deficient. It is also likely that a replacement structure at the existing elevation (within the 100-year floodplain) would not be permitted;
- 2) Replacement of the Lift Bridge with a geometrically sufficient facility, which, upon outward appearance, would be similar to the existing Lift Bridge. However, replacement of the Lift Bridge with a new, geometrically sufficient bridge would also encounter

regulatory constraints, such as compliance with Department of Interior Standards for Rehabilitation and floodplain permitting issues;

- 3) Construction of a new, two-lane, one-way facility for westbound traffic adjacent to the new bridge constructed for eastbound traffic with Alternative E; or
- 4) Expansion of the new bridge under Alternative E from two lanes of one-way eastbound traffic to include additional travel lanes for westbound traffic.

During Lift Bridge closures due to maintenance, repairs, and/or flooding, traffic would likely be detoured onto adjacent river crossings.

### **3.6.4 Wisconsin Approach – Alternative E**

The proposed Wisconsin approach roadway for Alternative E would continue northeast from the bridge abutment and join with westbound travel lanes about 600 feet from the easternmost extent of the Lift Bridge causeway. The new STH 64 roadway would continue up the Wisconsin bluff at a 5.0 percent grade (existing STH 64 roadway grade is approximately 7.0 percent), pass through Houlton, then turn eastward past the STH 35/64 interchange. The new STH 35/64 roadway would parallel the existing STH 35/64 roadway alignment to 20th Street, where it would join the existing STH 35/64 alignment to 150th Street.

Alternative E includes a diamond interchange at realigned STH 35 northeast of Houlton (see Figure 3-17). Similar to Alternative D, it is also possible that roundabouts could be constructed at the interchange ramp termini with realigned STH 35. The existing STH 35 would be converted to a local road through Houlton and realigned to overpass the new STH 64 roadway as described for Alternative D (see Section 3.5.4). A local road connection would be constructed from the interchange north to the existing STH 35/64 roadway.

Alternative E would have the following features:

- Removal of the existing STH 64 roadway and construction of a four-lane urban section with 12-foot travel lanes, a raised center median, and 10-foot outside shoulders along the Wisconsin bluff. The new STH 64 roadway would taper to a rural section with a variable width center median from the local road overpass in Houlton to the STH 35/64 interchange (see Figure 3-8);
- A 12-foot truck climbing lane for eastbound STH 64 traffic would be constructed from the Alternative E bridge abutment, through the STH 35/64 interchange, tapering east of the interchange near 20th Street;
- CTH E would be removed from STH 64 to State Street. A connection between CTH E and State Street would be constructed;
- Retaining walls adjacent to the new STH 64 roadway and trail at the Wisconsin bluff;
- Four-lane rural sections with 12-foot travel lanes, six-foot inside shoulders, 10-foot outside shoulders, and a 60-foot-wide center median (see Figure 3-8);

- A pedestrian/bicycle trail from the Lift Bridge to connect with a planned future trail along STH 35. The Alternative E bridge would also include a 10-foot pedestrian/bicycle trail on the new bridge;
- Frontage roads would be constructed along STH 35/64 northeast of Houlton for local access as described for Alternative B-1 in Section 3.3.4. Local access to private property would be provided by these local roads. No access to private property will be allowed on the new STH 35/64 roadway; restricted access will be allowed on the reconstructed portion of STH 35;
- Construction of four stormwater ponds between the Wisconsin shoreline and 20th Street. One stormwater pond would be located along the shoreline south of the new, two-lane eastbound bridge abutment with the Wisconsin bluff. The other three ponds would be located along the roadway northeast of Houlton; and
- A posted speed of 65 mph east of the STH 35/64 interchange. The design speed of STH 64 east of the interchange with realigned STH 35 was 70 mph.

### 3.7 TRANSIT AND HIGH OCCUPANCY VEHICLE (HOV) PROVISIONS

The transit elements, previously described in the 2003 Amended Scoping Document as Alternative A (see Section 3.9) which include park-n-ride facilities and high occupancy vehicle (HOV) provisions, are being studied under a separate feasibility study supported by Mn/DOT, Wis/DOT, and FHWA. A workshop is anticipated to assist in scoping the tasks associated with the feasibility study. The recommendations from the feasibility study in regards to need, location, and implementation (potentially as separate projects), applicable to all Build Alternatives, will be reported in the Supplemental Final EIS.

### 3.8 COSTS AND FUNDING

Funds from a variety of state and federal funding sources are anticipated for this project should agreements be reached regarding project definition, likelihood of project approvals and mitigation agreements. The project is no longer listed on either the Minnesota or Wisconsin State Transportation Improvement Program (STIP) to allow funding reserved for the St. Croix River Crossing Project to be transferred to other critical projects while the project process proceeds. The project remains on Mn/DOT Metropolitan Division's Transportation System Plan (TSP). Upon determination of a Preferred Alternative, project funding will be sought from both federal and state sources. Minnesota and Wisconsin will split the cost of the bridge and bridge-related mitigation items, and each state will fund its respective costs for the approach roadways. Estimated costs for the project are shown in Table 3-1.

**TABLE 3-1  
BUILD ALTERNATIVES COST ESTIMATES**

	Estimated Costs (millions of dollars) <sup>(1)</sup>			
	Alternative B-1	Alternative C	Alternative D	Alternative E <sup>(2)</sup>
<b>PROJECT TOTAL</b> <sup>(3), (4), (5), (6)</sup>	\$230 to \$355	\$230 to \$285	\$245 to \$310	\$230 to \$275

<sup>(1)</sup> In 2004 dollars.

<sup>(2)</sup> Does not include costs for replacement or future repair costs for the Lift Bridge.

<sup>(3)</sup> Includes costs for construction of TH 36 from TH 5 to Osgood Avenue (all Build Alternatives [see Section 3.2]), TH 36/95 interchange (Oak Park Heights [all Build Alternatives]), TH 36/95 interchange (Stillwater [Alternative D]), TH 36/95 intersection (Stillwater [Alternative E]) and STH 35/64 or CTH E/STH 64 interchange (all Build Alternatives).

<sup>(4)</sup> Estimates for right-of-way costs are included in the project total. These estimated do not include dollars spent on property acquisition in Minnesota and Wisconsin as part of the 1995 Final EIS Preferred Alternative.

<sup>(5)</sup> The mitigation cost estimate acknowledges there will be costs associated for mitigation items across all Build Alternatives. Specific costs for potential mitigation items appropriate to the level of impacts will be developed with the identification of a Preferred Alternative and release of the SFEIS.

<sup>(6)</sup> Minnesota and Wisconsin will pay for their own approach and right-of-way costs. The bridge and related mitigation items are assumed to be split 50/50 between the two states.

Estimated costs for the river bridge are presented as a range for each Build Alternative based on the bridge types currently under consideration. Estimated costs for mitigation will be provided with the refinement of mitigation options and identification of a Preferred Alternative in the Supplemental Final EIS. Costs to address future maintenance needs of the Lift Bridge for either vehicular traffic or conversion to a pedestrian/bicycle facility are not included.

### 3.8.1 Major Investment Study (MIS) Process

Requirements of the Major Investment Study (MIS) process, including evaluation of financial feasibility, were fulfilled as part of the 1995 Final EIS. No additional analysis is required for this SDEIS.

## 3.9 ALTERNATIVES CONSIDERED IN PAST STUDIES

St. Croix River Crossing alternatives (not including the Build Alternatives discussed in this SDEIS) considered in past studies, dating back to 1987, are shown on Figure 3-18 and described below.

### 3.9.1 1987 Scoping Decision Document Alternatives

The 1987 Scoping Decision Document/Final Study Outline described four broad corridors for the proposed river crossing that were carried into the scoping process: the North Corridor, the Central Corridor, the Central Corridor Alternate, and the South Corridor. No-Build Alternatives, including Replacement on Site, were also part of the study proposal. North Corridor, Central Corridor, and South Corridor alternatives and several No-Build Alternatives were retained for study in the 1990 Draft EIS.

**Figure 3-18 – St. Croix River Crossing: Alternatives Studied 1985-2004 (8.5x11 – color)**

BACK

### **3.9.2 1990 Draft EIS Alternatives**

The 1990 Draft EIS analyzed river crossing alternatives in three major corridors and several No-Build Alternatives. The Build Alternatives included North Corridor bridge and tunnel alignments, a Central Corridor bridge alignment, and three bridge alignments and a tunnel alternative in the South Corridor (see Figure 3-18).

The No-Build Alternatives included No Action and various options to maximize use of the existing transportation system, collectively designated as the Transportation System Management (TSM) alternative. A detailed discussion of the alternatives considered is provided in the 1990 Draft EIS.

### **3.9.3 1995 Final EIS Preferred Alternative**

The north alignment of the South Corridor was identified as the Preferred Alternative (see Figure 1-2) in the 1995 Final EIS. The decision resulted from consideration of transportation objectives, safe design standards, applicable environmental laws and regulations, and the potential social, economic, and environmental impacts of the proposed action. The 1995 Final EIS Preferred Alternative consisted of a four-lane concrete box girder or steel plate girder bridge extending between the City of Oak Park Heights, Minnesota, and the Town of St. Joseph, Wisconsin; approach roadway work in Minnesota and Wisconsin; and related improvements. The crossing location was about 6,300 feet south of the Lift Bridge. A full description of the alternative and the reasons for its selection as the Preferred Alternative are documented in the 1995 Final EIS.

### **3.9.4 1999 Amended Scoping Decision Document Alternatives**

A two-lane river bridge option was studied as part of the 1999 Amended Scoping Decision process. After consideration of travel forecasts and information related to safety and roadway design, it was concluded that a two-lane alternative was not a reasonable and prudent alternative to meet the project need and travel forecasts and would not be studied further. A complete discussion of this issue is provided in the February 1999 Amended Scoping Decision Document. A four-lane river crossing, known as the Consensus Alternative, was recommended for study in a Supplemental Draft EIS. This Supplemental Draft EIS was completed in 2001 but not released for publication.

In the summer of 2000, a river crossing alternative known as the “3 Architects Proposal” was developed by three architects from Stillwater and Marine-on-St. Croix, Minnesota. The 3 Architects Proposal consisted of a new two-lane bridge near the Lift Bridge for one-way eastbound traffic and would preserve the Lift Bridge for two lanes of one-way westbound traffic. The 3 Architects Proposal was later carried forward into the 2003 Amended Scoping Document and 2004 Amended Final Scoping Decision Document as Alternative E, and was recommended for evaluation in this SDEIS (see Section 3.6).

### **3.9.5 2003 Amended Scoping Document and 2004 Amended Final Scoping Decision Document Alternatives**

Three alternatives considered during the 2003-2004 scoping process and documented in the 2003 Amended Scoping Document (2003 ASD) and 2004 Amended Final Scoping Decision Document (2004 AFSDD) are not studied as part of the SDEIS. These alternatives are described below.

## **Alternative A**

Alternative A included the permanent rehabilitation and continued vehicle use of the Lift Bridge. Needed mobility would be provided through a combination of transit and emergency vehicle advantages, new transit travel options, use of advanced technologies to enhance mobility, and regional policy changes. Alternative A was determined to not meet the purpose and need of the project through analyses of the travel demand forecasting results. Refer to the 2003 ASD and the 2004 AFSDD for a detailed discussion of the items included in Alternative A and the detailed discussion of why Alternative A was determined not to meet the purpose and need of the project.

However, travel demand forecasts did indicate a potential market for transit both within St. Croix County and between western Wisconsin and Minnesota in the Twin Cities area. Examination of potential transit markets, routes and modes, and transit opportunities will be addressed by Mn/DOT, Wis/DOT and FHWA in a separate evaluation process with a workshop and feasibility study.

## **Alternative B**

Alternative B (1995 Final EIS Preferred Alternative alignment) was eliminated from further consideration because of the previous determination under Section 7(a) of the Wild and Scenic Rivers Act by the National Park Service. In 1996, the National Park Service evaluated the project under Section 7(a) and found that the project, as then proposed (Alternative B alignment but with a higher profile), would have a direct and adverse effect on the outstandingly remarkable scenic and recreational values for which the Lower St. Croix River was included in the National Wild and Scenic Rivers System. As a result of this finding, federal permits from the U.S. Army Corps of Engineers and the U.S. Coast Guard could not be issued for the project, and the project was not allowed to proceed. In April 1998, the U.S. District Court upheld the NPS determination that a river crossing alignment at this location is not acceptable.

In the Scoping Phase, Alternative B was considered to include alternatives representing a wide range of locations and configurations. However, through the Scoping Phase, support for this alignment waned because of the uncertainty of the ability to achieve a positive Section 7(a) finding from the NPS. Thus, Alternative B was not considered for evaluation in this SDEIS.

## **Alternative D (as presented in the 2003 ASD)**

Alternative D as presented in the 2003 ASD was eliminated from further consideration because of concerns from the Stakeholder Group for the substantial cut impacts to the Wisconsin bluff. Alternative D in the 2003 ASD included a local connection to the Lift Bridge from the reconstructed STH 64 roadway along the Wisconsin bluff. Alternative D was modified prior to the release of the 2004 AFSDD to remove this local road connection and incorporate an interchange along the Minnesota shoreline to provide for access between the new, four-lane bridge and downtown Stillwater. It was then recommended that the modified Alternative D be evaluated as part of this SDEIS.