

ST. CROIX RIVER CROSSING PROJECT SUPPLEMENTAL DRAFT EIS
CHAPTER 2
PURPOSE OF AND NEED FOR ACTION

2.0 INTRODUCTION

Project area and transportation facility conditions prompting this project are discussed below. The project purpose in Section 2.1 was developed through the Stakeholder Resolution process and addresses environmental, cultural, economic, and social considerations as well as transportation goals. The remainder of the chapter provides further information regarding transportation deficiencies in the area which can be broken down into two primary categories:

- Transportation mobility on a safe and efficient facility; and
- A reliable crossing of the St. Croix River

The project purpose is to improve Trunk Highway (TH) 36 between TH 5 in Stillwater, Minnesota and 150th Avenue in the Town of St. Joseph, Wisconsin to provide a safe, reliable, and efficient transportation corridor by reducing congestion, improving roadway safety, and providing an adequate level of service for forecasted 2030 traffic volumes¹. An additional project objective is to improve the transportation system in a cost-efficient manner while avoiding, minimizing, and mitigating unavoidable impacts to the area's social, economic, cultural, and natural environment.

The Lift Bridge over the St. Croix River between Stillwater, Minnesota, and Town of St. Joseph, Wisconsin, is part of a larger transportation system connecting the Minneapolis-St. Paul metropolitan area and west central Wisconsin. The Lift Bridge and its approach highways, Trunk Highways 36 and 95 in Minnesota and State Trunk Highways (STH) 35 and 64 in Wisconsin, serve the interregional movements of people and goods over long distances between the two states as well as short- to medium-distance trips between local communities in both states. The interstate and interregional connection facilitated by this crossing of the St. Croix River serves to support the economic interdependencies that exist between Minnesota and Wisconsin and the sub-regions within the states.

The importance of TH 36 within Minnesota's transportation system was recently recognized by its designation by Mn/DOT as an Interregional Corridor from the point at which it connects to the I-694 ring to its termination at the Wisconsin border. Interregional Corridors are defined as roadways connecting major regional and economic centers within and around the state. As more and more of Minnesota's population and economic activities are locating in and around regional centers, the corridors connecting them become ever more important by providing safe, timely, and efficient movement of people and goods and by ensuring economic vitality. Further reinforcing the role of TH 36 as a key transportation corridor is its designation on the National Highway System (NHS). The NHS was established by the United States Congress to designate major highways important for interstate travel, national defense, intermodal connections, and

¹ Level of Service (LOS) is a indicator of intersection operations measuring an average delay per vehicle entering an intersection using the letters A - F, with LOS A representing minimal delay and LOS F representing substantial vehicle delays.

international commerce. Wisconsin has recognized the role STH 64 plays in its state transportation system by designating STH 64 as a Multilane Connector in their *Corridors 2020* plan, a long-range highway and economic development plan. STH 64 is also designated as a principal arterial in the NHS system.

2.1 STAKEHOLDER GROUP DEVELOPED PURPOSE AND NEED

Departments of Transportation are responsible for providing mobility in a safe, reliable and cost-efficient manner and for integrating environmental, cultural, economic, and social considerations into transportation solutions. While this integration is always a necessary part of the DOTs' work, it is of particular importance and sensitivity as the DOTs in Wisconsin and Minnesota contemplate improving mobility and safety between the two states in the area of the existing crossing between Washington County, Minnesota and St. Croix County, Wisconsin.

The goal is to manage congestion and improve mobility in a reliable, safe and cost-efficient manner as part of a broader program of regional transportation improvements while avoiding (and when unavoidable, minimizing and mitigating for) impacts to the area's social, economic, cultural and environmental needs and objectives.

2.1.1 Transportation Purpose

2.1.1.1 Mobility

- The estimated (congestion-free) vehicle capacity for the current river crossing and arterial approaches is 11,200 vehicles a day. The 2002 Average Annual Daily Traffic (AADT) volumes on the river crossing are 16,300 vehicles per day and can exceed 19,000 on a summer weekday. This constraint leads to periodic daily vehicular congestion in downtown Stillwater and on the Wisconsin approach to the bridge.
- The current Metropolitan Council/Mn/DOT travel demand model² forecasts average daily vehicle traffic on the river crossing of 21,700 at an average vehicle occupancy of 1.40 persons per vehicle by the year 2030 if no new St. Croix River crossing is built, no cross-river modal alternatives are established, and Minnesota and Wisconsin projected development and programmed roadway improvements occur as planned. This predicted increase in vehicular traffic volume, if realized, will degrade traffic operations and safety in downtown Stillwater, on the river crossing and arterial approaches, and will double average delay, queue lengths and daily hours of congestion by the year 2030.
- Analysis of existing signalized intersections in downtown Stillwater indicates approximately 90 seconds of average delay per vehicle during peak hour and levels of service³ (LOS) D-F in 2002. These delays are affected by close intersection spacing, restricted geometrics and delays due to the bridge raising. For a regular peak hour commuter, this delay results in 19 hours in total delay over the course of a year.

² Current Metropolitan Council/Mn/DOT model as modified to include the project study area.

³ Level of service (LOS) is an indicator of intersection operations as measured in average delay per vehicle. Six LOSs are defined by facility type with the letters A-F designating each level, with LOS A representing the best operating conditions, and LOS F the worst. Each LOS represents a range of operating conditions and the drivers' perception of those conditions.

- Geometric and physical restrictions in downtown Stillwater limit the opportunities to improve transportation operations and management.
- The river crossing is susceptible to closures due to flooding, maintenance activities, and vehicle incidents that disrupt system connections numerous times per year.

2.1.1.2 Safety

Crash rates on two segments (one in Minnesota and one in Wisconsin) exceed the statewide averages. The severity rate⁴ for one segment in Minnesota is nearly double the statewide average. The non-fatal injury crash rate for the Wisconsin segment is 50 percent greater than the statewide average.

2.1.2 Environmental, Cultural, Economic and Social Considerations

- The area where transportation mobility and safety improvements are contemplated includes the Lower St. Croix National Scenic Riverway (the Riverway); therefore, it is necessary to protect the Riverway's Outstandingly Remarkable Values – scenic, recreational, and geologic – as guided by the Cooperative Management Plan for the Lower St. Croix National Scenic Riverway.
- It is necessary to avoid and, if unavoidable, to minimize impacts to the Riverway's channel, shoreline, bluffs, air quality and water quality.
- It is important to respect the cultural value and historic significance of the Stillwater Lift Bridge, a structure that is listed on the National Register of Historic Places.
- It is important to respect the integrity of the Stillwater Commercial Historic District and the Stillwater Cultural Landscape District: The visual/aesthetic quality, economic viability and physical integrity of these districts are critical to the preservation of these resources and to the protection of the cultural landscape and the community character.
- It is necessary to avoid, and if unavoidable, to minimize impacts to area parklands, cultural resources, threatened and endangered species and wetlands, and if impacted, provide mitigation/compensation for the adverse impacts.
- It is necessary to examine the interaction of land use and transportation, and consider the secondary and cumulative impacts of alternative methods of addressing the transportation needs (and the full impact of failing to address the transportation needs) expressed above.
- It is necessary to avoid and, if unavoidable, minimize impacts to business and property owners, residents and visitors throughout the project area.

⁴ Severity rate is a weighted average taking into account fatal crashes, personal injury crashes, and property damage crashes.

2.2 TRANSPORTATION NEEDS

The study area's transportation system includes highways and alternate modes such as transit/ridesharing, bicycle/pedestrian facilities, and navigational and recreational boating. The key regional highway facilities that support this area and surrounding communities include TH 36, and TH 95 in Minnesota, and STH 35 and STH 64 in Wisconsin. The Stillwater Lift Bridge crosses the St. Croix River linking TH 36 and Stillwater, Minnesota to STH 64 and the Town of St. Joseph, Wisconsin.

Both the existing and future No-Build transportation systems include issues substantiating roadway improvement. Figure 2-1 summarizes the key transportation issues in the study area. This section briefly describes the key issues facing the transportation system, including the ability of transportation system strategies and travel demand management to address the transportation issues. A detailed discussion of the transportation system and the mobility and safety issues facing it is located in Chapter 4.

2.2.1 Providing Safe and Efficient Mobility

Departments of Transportation seek to provide safe and efficient mobility. In providing this mobility, transportation systems must adequately serve travel demand. Travel demand in the study area consists of motor vehicle and alternate mode demand. Alternate modes include transit, ridesharing (park-and-ride, park-and-pool), bicycle/pedestrian travel, and navigational and recreational boating. The transportation system's ability to provide safe and efficient motor vehicle mobility is discussed first, followed by the system's ability to provide alternate mode mobility.

2.2.1.1 Motor Vehicle Mobility

The project area transportation system today does not adequately service motor vehicle demand. Operational issues are brought on by geometric and capacity issues throughout the system.

**FIGURE 2-2
DOWNTOWN STILLWATER CONGESTION**



Figure 2-1 – Transportation Issues Map (11x17 – b/w)

BACK

Operational issues are discussed first, followed by a discussion of the system's geometric and capacity issues.

Operational Issues

The project area transportation system poorly serves existing travel demand. Service is anticipated to deteriorate in the future. The following bullet points summarize the traffic operations issues.

- Traffic operations are problematic today. A capacity analysis was completed for the existing conditions to determine the quality of traffic flow through study area intersections. This analysis was completed for key intersections in the project area during the 2002 p.m. peak hours. Nine of 26 intersections analyzed under existing (2002) conditions operate at LOS E or F. The failing intersections are located on the TH 36 frontage roads and in downtown Stillwater. Three of the nine intersections operate with more than 300 seconds of delay per vehicle during the p.m. peak hour. Additional information is provided in Chapter 4, Section 4.1.4.
- Lift Bridge deck lifts substantially effect existing downtown Stillwater traffic operations. Two separate operations analysis were completed for the existing conditions, one including Lift Bridge activity (raising the deck once during the analysis period), and one scenario excluding it. The Lift Bridge deck raise creates a 10-minute bridge closing to accommodate larger boats using the river. With no bridge deck lift, one of the seven downtown Stillwater intersections analyzed operates at LOS F. With a bridge deck lift, six of the seven downtown intersections analyzed are at LOS E or F. The bridge deck lift causes substantial level of service problems which causes traffic queues, backups, and local traffic diversions. Additional information is provided in Chapter 4, Section 4.1.4.
- High pedestrian volumes in downtown Stillwater substantially effect traffic operations. Downtown Stillwater is a popular retail and entertainment area with high levels of pedestrian activity. In August 1998, about 400 pedestrians were counted crossing the Main Street and Chestnut Street intersection during the weekday P.M. peak hour. Pedestrians also cross Main Street at mid-block in downtown Stillwater. During seasons with high pedestrian volumes, the interaction between vehicles and pedestrians not only creates a serious safety problem, but also reduces the capacity and operating efficiency of the intersection.
- Traffic diverts to local collector streets and arterial routes in seeking to minimize delay when crossing the river. Locally, drivers attempt to minimize their delay and bypass queued traffic by traveling on alternate routes into and out of downtown Stillwater. Alternate routes include Stillwater Boulevard, Greeley Avenue, and Osgood Avenue to Nelson or Myrtle Street. Substantial queues develop on the alternate routes during afternoon peak hours. Regionally, traffic diverts to alternate river crossing locations including I-94 at Hudson, TH 243 at Osceola, and U.S. Highway (USH) 8 at St. Croix Falls.

Local traffic diversion also occurs because there is no direct TH 36 access from TH 95 south of the TH 36/95 interchange. Drivers traveling to or from TH 95 south of the TH 36/95 interchange are forced to travel a circuitous route on local streets, or make a U-turn on TH 36/95 just north of the interchange.

Traffic diversion is a concern. Locally, regional traffic occupies the local street capacity, lowering its level of service, and affecting residential neighborhoods and local commercial areas. This degradation of the local street system is unacceptable given that the purpose of the regional roadway network is to serve regional trips, while the local street system should service local trips. These diversion trips are not local trips, but rather, regional “through” trips to/from Wisconsin. Local traffic diversion also has safety implications that are discussed in the next section. Regionally, traffic diverting from the TH 36/STH 64 corridor occupies capacity on other regional corridors, including I-94. Interstate 94 provides the main highway-related freight connection between Chicago and the Twin Cities. It is the highest freight tonnage and value categories of all roadways in Minnesota. Each trip diverting from the TH 36/STH 64 corridor occupies valuable capacity on this important national trade corridor.

**FIGURE 2-3
STILLWATER SIDE STREET TRAFFIC**



- Mainline crash rates (2000 to 2002) are high on two sections of roadway within the project area as compared to averages for similar facility-types. The crash rate for TH 36 between the south junction of TH 36/TH 95 and the east end of the Lift Bridge is about 90 percent higher than the average crash rate for two-lane urban trunk highways in Minnesota. In Wisconsin, the crash rate for STH 64 is about 50 percent higher than the average crash rate for two-lane rural roadways in Wisconsin. The crash rate for the STH 64/County Trunk Highway (CTH) E and STH 64/STH 35 intersections is 70 percent higher than the average rate for comparable intersections⁵. Segments or intersections that have substantially higher crash and/or severity rates as compared to peer groups should be noted; they can indicate roadway and operational deficiencies contributing to unsafe conditions. Additional discussion on crash rates is located in Chapter 4, Section 4.1.4.3.

⁵ The STH 64 intersection crash rates were compared to statewide crash rates for comparable intersections in Minnesota. This data was not available in Wisconsin. Minnesota rates are acceptable comparisons because of the intersections' proximity to Minnesota.

- TH 36 frontage road crash frequency (2001 to 2003) is high for three of the six main cross street intersections. More than five crashes occurred per year at the TH 36 north frontage road intersections with Washington Avenue and Greeley Avenue, and the TH 36 south frontage road intersection with Osgood Avenue. According to the Minnesota Manual on Uniform Traffic Control Devices (MUTCD), traffic control alternatives (e.g. signals) should be considered at unsignalized intersections like these when five or more reportable crashes occur at the intersection with 12 months. Although the MUTCD guidelines suggest traffic signals should be considered, signals or other traffic control alternatives such as roundabouts are not feasible given the frontage road intersection proximities to TH 36. The proximities hinder signal coordination and vehicle storage opportunities (space for vehicle queuing) that adequately address mainline, cross street, and frontage road traffic movements.
- Incident Management and Emergency Response: When crashes or emergency situations occur within the project area and Western Wisconsin, the safety of victims and passersby is further compromised by the constrained geometrics of TH 36/TH 95 entering Stillwater, the Chestnut-Main intersection, and the Lift Bridge. The constrained geometrics of these facilities, exacerbated by congested peak period traffic conditions (when about 40 percent of crashes occur⁶), create difficulties for emergency vehicles in reaching the scene of an incident and in rerouting traffic around crash/incident sites until the area can be cleared.
- Conditions substantially deteriorate under future No-Build conditions as compared to the existing condition. In terms of traffic operations, twenty (20) of the 26 intersections analyzed in the No-Build Alternative were at LOS E or F as compared to nine intersections under existing conditions. Sixteen (16) of the 20 failing intersections are anticipated to operate having more than 300 seconds of delay per vehicle. The failing intersections are spread throughout the project area in the 2030 No-Build Alternative; operations are anticipated to be poor at TH 36 frontage road intersections, at TH 95 intersections, at downtown Stillwater intersections, and at Wisconsin approach roadway intersections. Additional information on local traffic operations is discussed in Chapter 4, Sections 4.1.4 and 4.3.2.

Traffic diversion also would worsen under future No-Build conditions. Modeling forecasts 2030 traffic volumes to increase by over 30 percent on Stillwater Boulevard and Greeley Avenue, by over 70 percent on Osgood Avenue, by over 100 percent on I-94 and TH 243, and by over 50 percent on USH 8 with the No-Build condition. Only part of the anticipated increases can be attributed to development; the rest is attributable to project area traffic attempting to minimize their delay when crossing the river.

Geometric and Capacity Issues

Several factors contribute to existing and forecasted future traffic operations, including geometric and capacity characteristics of the Lift Bridge, TH 36, and STH 64. This section

⁶ Based on an analysis of crashes occurring from 2001 – 2003 at TH 36 intersections in the project's Upper Bluff area.

addresses geometric and capacity issues; the issues are presented below moving from west to east along the corridor. Interruptions of service associated with the Lift Bridge also affect traffic operations and are discussed in Section 2.2.2 (Providing Uninterrupted River Crossing).

- High-volume, signalized intersections on TH 36. The posted speed limit on TH 36 is 60 mph as it approaches the TH 36 Partnership Area (TH 5 to TH 95) from the west. As it enters Stillwater and Oak Park Heights, the posted speed limit drops to 50 mph as traffic travels through one grade-separated interchange (TH 5) and three at-grade, signalized intersections: Osgood Avenue, Greeley Street, and Washington/Norell Avenues. Volumes on TH 36 traveling through these intersections are approaching capacity and are anticipated to exceed capacity by 2030.

**FIGURE 2-4
SIGNALIZED TH 36 EXPRESSWAY**



- Close TH 36 frontage road system: The distance between TH 36 mainline and frontage road intersections is very short (160 to 175 feet). The frontage road/cross street intersections are also side-street stop controlled, i.e., only the frontage road legs of the intersection are stopped. The combination of the proximity of the frontage road intersections to the mainline/cross-street intersections and the stop-controlled conditions limits the capacity of the frontage roads, encouraging short, local trips on TH 36. The inadequate spacing between mainline TH 36 and the frontage roads also creates confusion and uncertainty as to who has the right-of-way causing delays and queuing during peak periods. These conditions are anticipated to deteriorate under 2030 No-Build conditions.

**FIGURE 2-5
TH 36 FRONTAGE ROAD PROXIMITY
(TH 36 IN BACKGROUND)**



- Discontinuous, local street system: Two constraints limit the capacity of Stillwater's local road system in the TH 36 partnership area: missing links and physical constraints. There are two critical links missing between Greeley Avenue/ Northbrook Boulevard and Osgood Avenue within the project area: 62nd Street on the north side of TH 36, and 58th/57th Street on the south side. Traffic traveling between these areas is easily diverted onto TH 36, occupying valuable capacity. The Stillwater local street system is also affected by physical constraints. Downtown Stillwater sits within a topographical "bowl" at the edge of the river bluff. Ravines and steep grades at the edge of the "bowl" interrupt the street grid and provide few continuous paths into downtown Stillwater other than TH 36/95 (Main Street).

- Reduced capacity and limited access exists at the TH 36/TH 95 merge area. Reduced capacity occurs as two lanes of eastbound TH 36 traffic merge with one additional lane of northbound TH 95 traffic, and then are reduced to one lane heading north to Stillwater. The TH 36/TH 95 interchange also does not provide full access for traffic traveling to/from TH 95 south of the interchange; the interchange configuration forces drivers to travel a circuitous route on local streets or make a U-turn on TH 36/95 just north of the interchange.
- Restricted geometrics at Chestnut Street/Main Street intersection limit its capacity. This intersection is the Lift Bridge gateway on the Minnesota side of the river. The area's geometrics limit traffic flow to one lane in each direction and limit the ability of large vehicles to make turns.
- The Lift Bridge is located only 420 feet from the Chestnut Street/Main Street intersection in downtown Stillwater. Space for traffic queuing is insufficient for the existing and forecasted future traffic volumes.

**FIGURE 2-6
CHESTNUT/MAIN STREET AND LIFT BRIDGE**



- Restricted Lift Bridge geometrics limit its capacity to one travel lane in each direction. The Lift Bridge has substandard lanes (less than 12 feet wide) and no shoulders. In addition, limited lateral clearance caused by bridge trusses on both sides of the roadway encourages semi-trailer trucks and other large vehicles to crowd the centerline of the road to avoid hitting the bridge structure on the sides. These characteristics limit the capacity and travel speeds across the bridge. The geometrics of the Lift Bridge also limit its ability to manage traffic after crashes/incidents on the bridge.
- Steep STH 64 gradient (7 to 7.5 percent) from the Lift Bridge to Houlton, Wisconsin limits the speed of eastbound traffic, especially trucks. This in turn limits the capacity of this section of roadway.
- Dangerous STH 35/64 and STH 64/CTH E intersections increase the likelihood of accidents. The skew of the intersections makes attempts to

**FIGURE 2-7
STH 64/CTH E INTERSECTION**



enter or exit STH 35/64 difficult and dangerous during peak traffic periods. The crash rates for these intersections are 70 percent higher than the average rate for comparable intersections⁷.

- Limited opportunities for passing along STH 35/64 within the project area.

2.2.1.2 Alternate Mode Mobility

Existing

Transportation systems often include other modes that supplement highways and offer a transportation choice to users. In the project area, alternate mode systems include transit and taxi services, ridesharing (park-and-ride and park-and-pool lots), bicycle/pedestrian travel, and navigational and recreational boating. Section 4.1.3 in Chapter 4 provides detailed information on these facilities.

Transit service in the project area includes regular express and Dial-a-Ride bus service provided by Metro Transit and St. Croix Valley Transit. Ridership originating in Stillwater for the Metro Transit Express Bus Route 294 is about 70 people per weekday (140 total trips per weekday). There is no bus service currently provided in the Wisconsin portion of the project area, but the cities of New Richmond and River Falls do provide shared-ride taxi service operating within and just outside their city limits. Special transportation service is also available for the elderly and the handicapped in St. Croix County through the St. Croix County Department on Aging.

Ridesharing facilities (park-and-ride and park-and-pool lots) exist in the project area and ridesharing is promoted by larger employers in the area. Today there are two park-and-ride lots located in Stillwater. However, Metro Transit indicates that the lot at St. Mary's Church (15 spaces) at the corner of 5th and Pine Streets is underutilized and will be eliminated in late 2004, leaving only the lot at the St. Croix Valley Recreation Center (100 spaces) on Market Drive between Orleans and Curve Crest Boulevard). There are no existing park-and-ride lots in the Wisconsin portion of the project area (served by bus service); there is one park-and-pool lot (for carpooling) located off the I-94 north frontage road in Hudson. The locations of these lots are shown in Chapter 4 on Figure 4-1. Other park-and-pool lots are located in western Wisconsin outside of the project area. These include lots at the I-94 interchanges in or near Roberts, Baldwin, Elk Mound, and River Falls (existing interchange and at the I-94/old STH 35 south interchange), and one lot on STH 64 near New Richmond. Two of the area's major employers also promote ridesharing: 3M and Andersen Windows. Both companies have had, for many years, extensive ridesharing and transit programs for employees.

Bicycle and pedestrian trail facilities for recreational or commuter use in the project area are limited. On the Wisconsin side, there are no separate bicycle or pedestrian facilities in the project area. There are some trails on the Minnesota side, however they do not provide sufficient capacity and community connection. Trunk Highway 36 forms a bicycle/pedestrian barrier in the area because of its heavy traffic flows, high speeds, congestion, and the presence of continuous traffic movement at its intersections. High pedestrian volumes in downtown

⁷ The STH 64 intersection crash rates were compared to statewide crash rates for comparable intersections in Minnesota. This data was not available in Wisconsin. Minnesota rates are acceptable comparisons because of the intersections' proximity to Minnesota.

Stillwater conflict with vehicular traffic creating unsafe conditions for both pedestrians and motorists, and reducing roadway/intersection capacity.

Future

Under No-Build conditions, travel conditions for most alternate modes of transportation would deteriorate in the future. Transit, bicyclists, and pedestrians would find it increasingly difficult to travel through the project area. Infrastructure, delays, and congestion would affect the efficiency of the transit system. Bicyclists and pedestrians would be forced to deal with large volumes of high-speed traffic in the TH 36 partnership area (TH 5 to TH 95) and large volumes of frustrated motorists in downtown Stillwater (frustrated by long delays). Both navigational and recreational boaters would be forced to continue dealing with the obstruction created by the Lift Bridge and the fixed schedule on which its deck lifts.

2.2.2 Providing A Reliable River Crossing

The Lift Bridge is a key element affecting the quality of the transportation system in the project area. Because of the bridge deck lifts, elevation, and physical condition, the Lift Bridge cannot provide reliable service. Between 2001 and 2003, the Lift Bridge was closed on average 73 days per year (closed all or part of the day) because of maintenance activities, vehicle incidents, or flooding⁸. Deck lifts cause additional interruptions. Interruptions and unreliability are anticipated to continue or deteriorate in the future as the Lift Bridge structure ages and traffic volumes continue to grow. The following bullet points summarize the Lift Bridge characteristics.

- The Lift Bridge deck raises at scheduled times throughout the day to allow river navigation. The Lift Bridge deck is scheduled to lift 21 times daily on weekdays and 22 times daily on weekends and holidays from May 15 through October 15. Lift Bridge deck lifts cause substantial queuing throughout downtown Stillwater and up the bluff on the Wisconsin side. In the off season (October 16 – May 14), the Lift Bridge is raised upon 24 hours notice.
- The current Lift Bridge deck lift schedule has been negotiated with the Coast Guard to minimize deck lifts during peak traffic periods. Currently, the deck lifts once every 1.5 hours during the p.m. peak period; a deck lift cannot be avoided during the peak traffic period due to the peak's long duration. Under No-Build conditions, as periods of peak traffic conditions lengthen, additional bridge lifts would occur during peak periods.
- The Lift Bridge is flood prone. The Lift Bridge is closed 5 days per year (on average) due to river flooding.⁹ The 5-day

**FIGURE 2-8
FLOODED LIFT BRIDGE (2001)**



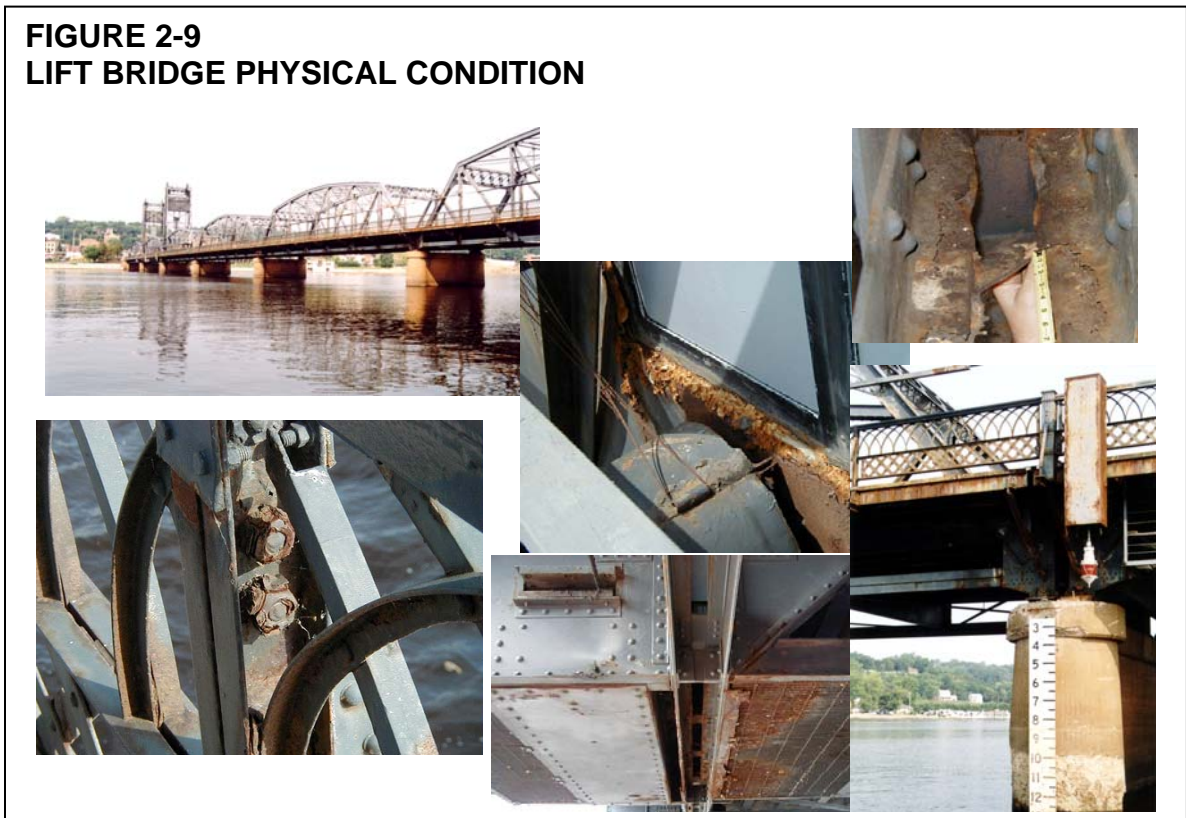
⁸ Source: Mn/DOT.

⁹ Historical data on bridge closures is not well documented. The closure estimate is based on a review of limited data from Mn/DOT, the U.S. Coast Guard, and the U.S. Army Corps of Engineers. The five-day per year estimate is documented in a memo from SRF Consulting Group, Inc, *Stillwater Lift Bridge Historical Closure Dates*, March 16, 2004.

per year estimate includes only days closed due to high water. The bridge is typically closed for additional days for inspection and needed repairs following flood events. Because of the Lift Bridge proximity to historic downtown Stillwater, elevation changes are precluded.

- **Poor Physical Condition:** At the age of 70 years, the Lift Bridge is already beyond the normal operational life of a bridge structure. Studies have raised substantial structural concerns regarding the Lift Bridge’s machinery, structure, and substructure.¹⁰ The condition of these components and recent operational experience suggest that the Lift Bridge is nearing the end of its “useful service”. Due to its structural condition, Mn/DOT has planned major Lift Bridge repairs in 2005. The 2005 repairs will not address all of the Lift Bridge’s structural deficiencies because of available funding limitations. Because of the remaining deficiencies, major rehabilitation will be needed in the future if the bridge is to serve long-term as a vehicle crossing. This rehabilitation would be needed by 2020 and would result in closing the bridge to traffic for approximately two years¹¹. The bridge is routinely closed for structure inspections.

**FIGURE 2-9
LIFT BRIDGE PHYSICAL CONDITION**



¹⁰ Studies investigating the Lift Bridge structural capacity include the following: A.G. Lichtenstein and Associates, Inc. report, *Alternates Study of Bridge Lift Expectancy for the Stillwater Lift Bridge over the St. Croix River*, May 1999; HNTB report, *Maintenance Projections and Annualized Costs: Report of Findings – Stillwater Lift Bridge*, August 6, 2003; SRF Consulting Group, Inc, *Stillwater Lift Bridge: Determination of Repairs/Replacements to Allow Continuation of Service for Vehicular Traffic Until 2055 and Beyond*, April 16, 2004.

¹¹ Estimated closure duration is documented in a memo from SRF Consulting Group, Inc, *Stillwater Lift Bridge: Determination of Repairs/Replacements to Allow Continuation of Service for Vehicular Traffic Until 2055 and Beyond*, April 16, 2004.

2.2.3 Ability of TSM/TDM Measures to Address Transportation Issues

Transportation System Management (TSM) strategies are low-cost measures that increase the capacity of the existing transportation system, reducing or postponing the need for major capital investments by making the best use of existing transportation infrastructure. Transportation Demand Management (TDM) is a subset of TSM. It includes strategies designed to reduce travel demand by changing travel behavior, with the goal of reducing the need for major capital investments in transportation infrastructure.

Existing, implemented TSM strategies within the travelshed of the Lift Bridge include¹²:

- Traffic signal modernization (signal timing optimization) in downtown Stillwater;
- “Trailblazing” signs to identify alternate routes;
- Park-and-pool lots in western Wisconsin; and,
- Modification of the Lift Bridge schedule to reduce openings during peak traffic periods.

2.2.3.1 1998 Braun Studies

Other TSM measures were explored to identify additional low-cost modifications that would better utilize the existing roadways and Lift Bridge. Any improvements to the capacity of the Stillwater crossing were determined to involve capacity improvements to the intersection of Chestnut and Main Streets. This intersection already has turn lanes and lane designations optimizing its operation within the existing curb lines. A 1990 study found that no improvements providing a long-term solution to the capacity shortage at this intersection were possible.¹³ The adding of lanes would require widening of the street, which is not feasible or desirable due to the proximity of the buildings to the street (many of which contribute to the characteristic of the surrounding Stillwater Commercial Historic District). High levels of pedestrian traffic in the downtown Stillwater area would also make it impractical to narrow existing sidewalks. Furthermore, adding roadway capacity through downtown Stillwater would negatively affect the pedestrian-oriented character of this historic area.

Capacity improvements on a broader geographic scale were also considered in an effort to seek out opportunities for more effectively using all four St. Croix River crossings. Capacity improvements to St. Croix County Highway A between New Richmond and Hudson in Wisconsin, though not currently planned or programmed, were explored to determine if such improvements would encourage greater use of the I-94 river crossing. No other effective regional roadway improvements were identified.

Travel Demand Management strategies were also examined for their potential to reduce the number of vehicles crossing the St. Croix River. Travel Demand Management strategies identified included transit service between Houlton, Somerset, New Richmond, Roberts, Hudson,

¹² These strategies are discussed in detail in the memorandum from SRF Consulting Group, Inc. entitled, *Existing TSM/TDM Measures: St. Croix River Crossing Study*, September 28, 1998.

¹³ Minnesota Department of Transportation (1990), *An Analysis of TSM actions in Downtown Stillwater*, Mn/DOT unpublished memorandum.

and metro area destinations with park-and-ride lots provided in the Wisconsin communities, employer-sponsored discounting of transit fares, and carpool incentives such as preferential parking or parking subsidies. Many of these TSM/TDM measures require extraordinary efforts by public agencies and private industry.

The effect of these TSM improvements and TDM strategies on Lift Bridge traffic volumes was estimated, using the same regional modeling process used for other travel forecasting analyses in this Supplemental Draft EIS document. A TSM/TDM alternative was determined to have a small daily effect on traffic volumes across the Stillwater Lift Bridge. Improvements to County Highway A were found to provide the greatest benefit, with an estimated daily reduction of 700 vehicles. Providing transit service improvements without other incentives was estimated to reduce traffic on the bridge by an additional 200 vehicles per day, a 0.9 percent reduction when coupled with the System Improvements (County Highway A improvements) alternative. If system improvements, transit service increases, and carpooling incentives were provided in an extensive TSM/TDM program, the total reduction would be 1,250 vehicles per day, a 5.2 percent decrease.

Peak period vehicle reductions for a TSM/TDM alternative are estimated to be approximately 15 percent. However, it was expected that these reductions would be offset during the peak hour due to “back filling” of trips. Trips that have already diverted to other crossings would revert to the Lift Bridge if there were any decreases in volumes due to implementation of TDM/TSM strategies. Therefore, peak period reductions realized by implementation of these strategies would likely not be perceptible to motorists, would not meet broader regional travel needs, and would not reduce the number of vehicles per lane in the peak hour from existing congested levels. Therefore, a TSM/TDM alternative (implementing all possible TSM/TDM strategies), while possibly resulting in some reduction in traffic volumes on the Lift Bridge, would not be sufficient to address the need for transportation system capacity improvements in the project area.

2.2.3.2 2003 Scoping Document: Alternative A

During the scoping phase of this SDEIS, Alternative A was proposed through the Stakeholder Resolution process to address transportation needs through use of transit and emergency vehicle advantages (transit and emergency vehicle lanes, park-and-ride facilities), new transit travel options (water transit service, express bus service, circulator shuttle, commuter rail lines), use of advanced technologies to enhance mobility (opticon emitters), widening STH 65 in Wisconsin from two lanes to four lanes for the purpose of redirecting more traffic to the I-94 river crossing, and regional policy changes (STH 65 commercial growth zone, restrictive zoning of STH 35, inclusion of St. Croix County in Metropolitan Council planning and research, and other policy changes).

A number of the measures identified for Alternative A addressing land use policies, zoning, transit operations are beyond the statutory authority of the Minnesota and Wisconsin Departments of Transportation, would require enabling legislation, and when necessary, appropriations from the legislatures. The transit and emergency vehicle advantages and advanced technology options are within the statutory authority of the Minnesota and Wisconsin Departments of Transportation.

Alternative A, as initially proposed during the Scoping Phase, was modified during the travel demand forecasting process to define the alternative to best meet future travel demands in a cost-effective manner. These modifications were recommended by a Peer Review Panel consisting of national travel demand experts and accepted by the Stakeholders and the DOTs. These modifications were as follows:

- Two commuter rail lines – These were eliminated upon recommendation of the Peer Review Panel because ridership forecasts were very low (300 total daily riders on two lines) and due to competition with express bus routes for the same potential transit users. The costs for two commuter rail lines were also excessively high and not justified by the forecast low ridership numbers.
- Express bus routes – Increased from two proposed routes (included in the initial proposal) to five based on the demand for this service and origin-destination patterns shown in the travel demand forecast model.
- Lift Bridge Toll – a “value pricing” toll for single-occupant vehicles on the Lift Bridge.
- Park-and-Ride lots – Increased from proposed two locations to six locations based on demand forecast by the travel demand model and upon recommendation of the Peer Review Panel.
- Widening of STH 65 – The initial proposal included widening an 11-mile segment of STH 65 from two lanes to four lanes from I-94 to New Richmond to attract trips from the Stillwater crossing to the I-94 crossing (Figure 1-1b shows the location of this roadway). Travel demand forecasting showed that traffic patterns would not be sensitive to the widening (i.e., STH 65 with two lanes demonstrated existing excess capacity, therefore a four-lane road would not attract additional trips). In addition, proposed expansion of this roadway would potentially increase environmental impacts and complicate environmental documentation without providing a transportation benefit. Therefore, this element was dropped from further consideration.

These recommendations improved the alternative’s ability to meet transportation needs, reduced potential environmental impacts, and reduced potential costs for the alternative.

Alternative A as modified was determined to not meet the purpose and need of the project through analyses of the travel demand forecasting results. The analysis indicates that Alternative A does not resolve the congestion problem, but shifts it to the I-94 corridor, which could indicate additional capacity concerns. In addition, continued use of the Lift Bridge does not address concerns of reliability associated with this bridge, which has been demonstrated to be susceptible to closures due to flooding, repairs and maintenance. The \$5 Million Lift Bridge Project¹⁴ to be let for the Lift Bridge in August of 2004 would not eliminate the bridge’s vulnerability to flooding, causing periods of traffic diversion potentially with every 10-year flood.

¹⁴ In fall of 2002, the 106th United States Congress provided \$4,989,000 in funding from the Labor, Health, and Human Services bill for the repair of the Stillwater Lift Bridge (“\$5 Million Lift Bridge Project”), to be completed as a separate but related project. An extensive list of repair needs were identified through inspection and evaluation of the Lift Bridge, including steel repairs, deck replacement, lift span motors, drive gears, cables, tender’s house repair, pier caps, abutments, along with the pedestrian walk and railing. The list was then prioritized, identifying repairs that could be completed with available funds. These repairs are scheduled to occur in spring 2005 through spring 2006.

However, travel demand forecasts do indicate a potential market for transit both within St. Croix County and between western Wisconsin and Minnesota in the Twin Cities area. Continued examination of potential transit markets is discussed in the next section, Section 2.2.3.3.

2.2.3.3 Transit Feasibility Study

While Alternative A was eliminated during the scoping phase because of its inability to fully address the area's transportation needs, travel demand forecasts did identify possible transit markets in western St. Croix County, Wisconsin. As a result, the DOTs have committed to examining the feasibility of transit services, including bus transit, park-and-ride lots, and park-and-pool facilities in a separate study. A feasibility study is proposed by the DOTs on a timeframe separate from the SDEIS, yet concurrent with it.

2.2.4 Summary of Transportation Issues

Both the existing and future No-Build transportation systems include issues substantiating roadway improvement. Figure 2-1 summarized the key transportation issues in the study area. The main issues are also summarized in the following bullet points.

- Poor traffic operations: Substantial delays and queuing are caused by insufficient roadway and intersection capacity, poor TH 36 frontage road geometrics (close proximity to TH 36 mainline), and Lift Bridge deck lifts.
- Diverting traffic volumes: Delays, queuing, and Lift Bridge conditions (flooding and maintenance) encourage traffic to use alternate routes. Diverting traffic use alternate regional, river crossing and local travel routes. Regional traffic diversion would be a particular issue in future No-Build conditions when the Lift Bridge would be closed for two years for major rehabilitation.
- High crash rates: Caused by insufficient roadway and intersection geometrics
- Delayed emergency response: For areas in both Minnesota and Wisconsin caused by poor traffic operations and Lift Bridge conditions (deck lifts, closure due to flooding and maintenance)
- Impeded access: High traffic volumes and congestion levels hamper access to properties for residents, business patrons, and pass through travelers.
- Interrupted, unreliable river crossing: The existing Lift Bridge is a two-lane bridge with substantial structural deficiencies. It cannot accommodate existing or forecasted future traffic volumes and does not provide capacity for incident management or emergency response. A rehabilitation project addressing immediate maintenance needs is planned for summer 2005; however, due to lack of available funding, this project will not address all structural deficiencies. Another major rehabilitation would be needed by 2020; this would close the bridge for approximately two years. The Lift Bridge is also flood prone and is closed an average of 5 days per year.

- Lack of bicycle/pedestrian facilities
- Transportation System Management (TSM)/Travel Demand Management (TDM) cannot fully address transportation needs in the project area. However, a possible transit market has been identified and a feasibility study is proposed.

2.3 PROJECT OBJECTIVES

Both measurable and qualitative objectives have been identified by Mn/DOT and Wis/DOT for the St. Croix River Crossing Project. These objectives will help Mn/DOT, Wis/DOT, and the public identify those alternatives meeting the project purpose and need as well as the goals and objectives identified by the community.

2.3.1 Measurable Transportation Objectives

The following objectives were identified during the scoping phase as measurements of improving transportation needs and addressing the project purpose as identified in this Chapter 2. The ability of the existing conditions and studied future alternatives to meet these objectives is discussed in Chapter 4.

- Sufficient intersection capacity and geometrics to accommodate 2030 average weekday afternoon peak hour traffic volumes at a Level of Service (LOS) B¹⁵ if possible, with a minimum LOS C.
- Reduced volumes of regional “through” traffic on local streets.
- Sufficient roadway capacity and geometrics to accommodate 2030 average annual daily traffic (AADT) volumes.
- Reduced travel times during the weekday afternoon peak hour.
- Consistency of travel times during typical conditions.
- Fewer facility closures due to weather conditions (snow, ice, flooding) or facility maintenance or repairs.
- Fewer facility closures due to vehicle crashes or other incidents.
- Crash rates at or better than state average for facility type.
- Transportation benefit/cost ratio greater than or equal to 1.0.¹⁶

¹⁵ Level of Service (LOS) is a indicator of intersection operations measuring an average delay per vehicle entering an intersection using the letters A - F, with LOS A representing minimal delay and LOS F representing substantial vehicle delays.

¹⁶ Includes measures of transportation performance such as vehicle miles traveled and vehicle hours traveled as compared to estimated project costs. Additional information regarding the Benefit/Cost analysis methodology can be found in Section 4.3.4 or the May 2004 technical memorandum entitled *St. Croix River Crossing Benefit-Cost Analysis Memorandum*.

2.3.2 Qualitative Transportation Objectives

In addition to the measurable objectives related to the Project Need listed above, the following additional transportation objectives have been identified as necessary to fulfill Mn/DOT's and Wis/DOT's agency responsibilities to providing a state transportation network. The ability of the existing conditions and studied future alternatives to meet these objectives is discussed in Chapter 4.

- Efficient access to other regional roadways (Minnesota Trunk Highway 95 and Wisconsin State Trunk Highway 35).
- Access to local arterials and collectors where appropriate.
- Provision of alternative mode facilities (bus, rail, pedestrian, bicycle) where they address a demonstrated need and are found to be cost-effective.
- TH 36/STH 64 mobility improvements should contribute to improvements in regional mobility, not simply transfer congestion problems from one location to another.
- Protect public rights to free navigation on the St. Croix River.

2.3.3 Environmental, Social and Historic Resource Objectives

While the integration of environmental, economic, social and historic resource concerns is always a necessary part of the DOT's work, it is of particular importance and sensitivity due to the unique resources present within the project area. The project area contains the unique resources of the Lower St. Croix National Scenic Riverway – a waterway nationally recognized for its remarkable scenic, recreational and geologic values – as well as numerous historic resources reflecting the area's rich history as the “birthplace” of Minnesota.

The following objectives have been identified regarding these concerns:

- Support the outstandingly remarkable values of the Lower St. Croix National Scenic Riverway (scenic, recreational and geologic).
- Maintain, or potentially enhance, the visual integrity of the Lower St. Croix National Scenic Riverway.
- Maintain, or potentially improve, the existing water quality of the St. Croix River Watershed.
- Maintain, or potentially improve, the existing air quality of the St. Croix River valley.
- Respect the integrity of area cultural resources including the Lift Bridge, the Stillwater Commercial Historic District and the Stillwater Cultural Landscape District.
- Avoid, or if not possible, minimize, impacts to area parklands including Lowell Park and Kolliner Park and future parklands at the Stillwater Municipal Barge Facility property, the St. Croix Scenic Overlook, the Cover Park/Xcel parkland dedication area, the future parkland at Second and Nelson Streets in Stillwater, and other parklands identified in the study area.

- Avoid, or if not possible, minimize impacts to the channel, shoreline and bluffs of the Lower St. Croix National Scenic Riverway.
- Avoid, or if not possible, minimize, impacts to threatened and endangered species.
- It is necessary to avoid and, if unavoidable, minimize impacts to business and property owners, residents and visitors throughout the project area.
- Avoid, or if not possible, minimize, impacts to land use plans of local communities.

The need to avoid, or if unavoidable, minimize impacts on national scenic riverways, park lands, cultural resources, wetlands, threatened and endangered species as well as other social, economic and environmental resources have been recognized by state and federal laws, regulations, and policies governing roadway design and construction. These laws, regulations and policies as well as the existing conditions and potential impacts of project alternatives are discussed in the remainder of the Supplemental Draft EIS.