

ST. CROIX RIVER CROSSING PROJECT SUPPLEMENTAL FINAL EIS
CHAPTER 4
TRANSPORTATION SYSTEMS AND IMPACTS

4.0 INTRODUCTION

The *2004 Supplemental Draft Environmental Impact Statement* (SDEIS) is incorporated by reference and is considered to be part of this Supplemental Final EIS (SFEIS).

Chapter 4 of the SDEIS discussed the existing transportation system within the project area, how the existing systems currently function from an operations and safety perspective, future operations problems based on forecasted traffic growth, and the impacts of the Build Alternatives as they related to transportation and traffic issues. The existing transportation system was described in Section 4.1 of the SDEIS and is summarized in Section 4.1 of this SFEIS. Section 4.2 of the SDEIS summarized the alternatives considered in the SDEIS. Section 4.3 of the SDEIS described the alternatives analysis and evaluation from a transportation perspective. The SDEIS alternatives were evaluated with respect to the following eight components: travel demand forecasts; traffic operations; safety; benefit/cost; access and local road connectivity; vehicular energy consumption; alternate mode systems; and compatibility with regional plans.

4.1 INFORMATION FROM THE SDEIS THAT REMAINS UNCHANGED

As discussed in Section 4.1 of the SDEIS, the information regarding how the existing transportation systems currently function and the future operations problems based on forecasted traffic growth has remained unchanged. This information from the SDEIS is summarized below in Section 4.1.1 of this SFEIS.

4.1.1 Existing Conditions

4.1.1.1 Main Highway Corridors

Section 4.1.1.1 of the SDEIS describes the four major highway facilities that serve the study area and summarizes the deficiencies of these roadways in the project area. These highway facilities include TH 36 and TH 95 in Minnesota and STH 35 and STH 64 in Wisconsin. TH 36 is a four-lane divided expressway that connects the Twin Cities and its northern, St. Paul suburbs to Stillwater and Oak Park Heights. TH 36 is designated a principal arterial, a National Highway System (NHS) route, and is designated as one of Minnesota's Interregional Corridors.

TH 95 is a two-lane north-south minor arterial that parallels the St. Croix River between Stillwater and Oak Park Heights and I-94 to the south. While this facility provides north-south continuity to the overall system, it is not viewed by planners and engineers as a route that will serve the long-term north-south travel needs for this part of the region.

STH 64 is a two-lane, east-west highway that traverses the entire state of Wisconsin. This facility is designated as a principal arterial NHS route and as a Connector Route in the *Wisconsin Corridors 2020 State Highway Plan*. This facility is the primary connection to the Lift Bridge for communities such as Somerset and New Richmond.

STH 35 is a two-lane, north-south highway that parallels the St. Croix River in Wisconsin. It provides a connection between the unincorporated community of Houlton, the Village of North Hudson, the City of Hudson, and I-94. STH 35 and STH 64 run concurrently from the community of Houlton to the Village of Somerset, at which point they split with STH 35 going north and STH 64 continuing to the east.

4.1.1.2 Traffic Volumes

Section 4.1.1.2 of the SDEIS discusses daily traffic volumes in the vicinity of the Lift Bridge and other key facilities connecting to the Lift Bridge (e.g., TH 36; TH 95). Table 4-1 of the SDEIS showed traffic volume growth on roadways in the project area. Between 1984 and 2000, traffic on the Lift Bridge and other key facilities has grown 1.9 percent annually. Traffic on STH 35/64 has grown an average of 2.2 percent per year.

4.1.1.3 Local Traffic Diversion

Section 4.1.1.3 of the SDEIS discusses traffic diversion and traffic diversion routes through Stillwater to the Lift Bridge. Figure 4-7 of the SDEIS illustrates popular routes (e.g., County Road 12; County Road 5; Greeley Street; Osgood Avenue; TH 95 north of Stillwater) for diverting TH 36 traffic in Minnesota as there are limited alternative routes on the Wisconsin side of the river. Two of the more popular alternative routes into and out of downtown Stillwater and the Lift Bridge include TH 36 to northbound Osgood Avenue and TH 36 to northbound Greeley Street. Local traffic diversion also occurs because there is no direct TH 36 access from TH 95 south of the existing TH 36/95 interchange.

4.1.1.4 Lift Bridge

Section 4.1.2 of the SDEIS describes the Lift Bridge. This description is divided into four components: 1) facility description; 2) Lift Bridge traffic volumes; 3) Lift Bridge traffic patterns; and 4) regional traffic diversion.

Facility Description

Section 4.1.2.1 of the SDEIS describes the Lift Bridge and its role in the area's transportation system, as well as deficiencies of the Lift Bridge (e.g., limited lateral clearance for large vehicles; geometrics limit speed of traffic traveling across the Lift Bridge and its ability to manage crashes/incidents on the bridge). Currently part of the trunk highway system, the Lift Bridge spans the St. Croix River to connect TH 36 in Minnesota to STH 64 in Wisconsin. To facilitate river transportation, a portion of the bridge lifts to allow larger boats to pass through the river channel.

The Lift Bridge is regulated by the U.S. Coast Guard. A deck lift schedule has been negotiated with the Coast Guard because of the substantial motor vehicle traffic using the bridge. During the peak boating season, the bridge is scheduled to lift 21 times between 8 A.M. and 10 P.M. on weekdays, and 22 times on weekends. During peak traffic periods (2:30 P.M. to 5:30 P.M.), the negotiated schedule limits deck lifts to once every 1.5 hours. Figure 4-8 of the SDEIS summarizes the deck lift schedule negotiated with the Coast Guard.

Lift Bridge closures last an average of 6.6 minutes; however, closure times lasting 10 minutes were observed during 1998 and 2000 field data collection studies.

The Lift Bridge is already beyond the normal operational life of a bridge structure. The Lift Bridge has a low sufficiency rating and is frequently closed for maintenance and/or inspection. Refer to Section 2.2.2 of this SFEIS for a discussion of the Lift Bridge's physical condition.

Lift Bridge Traffic Volumes

Section 4.1.2.2 of the SDEIS discusses Lift Bridge daily traffic volumes, hourly traffic volumes, and truck volumes. From July and August 1998 studies, Lift Bridge daily traffic volumes ranged from 14,400 to 19,300 vehicles per day, with an average daily volume of 17,365 vehicles. This corresponds to a seasonally adjusted average daily traffic (AADT) volume of 15,100 vehicles per day.

Hourly traffic volume tube counts showed a morning peak period from 6:00 A.M. to 8:00 A.M. (westbound peak direction) and an evening peak period from 3:00 P.M. to 6:00 P.M. (eastbound peak direction). Hourly distribution of traffic on weekends revealed a steady peak period from 10:00 A.M. to 6:00 P.M. on Saturdays and 9:00 A.M. to 6:00 P.M. on Sundays. The peak direction on weekends was the westbound direction. The Lift Bridge carries approximately 1,450 vehicles during the weekday peak hour from 5:15 P.M. to 6:15 P.M.

Truck volumes on the Lift Bridge are relatively low. The 2002 Mn/DOT Traffic Flow Map indicates a heavy commercial truck percentage of 2.8 percent, less than the St. Croix River crossings at Prescott (USH 10) and Taylors Falls (USH 8). Weight limits were posted on the Lift Bridge in 1994 and permits for overweight vehicles are no longer issued for the Lift Bridge.

Lift Bridge Traffic Patterns

Section 4.1.2.3 of the SDEIS describes origin-destination (O-D) travel surveys conducted near the Lift Bridge in July to August 1998. The purpose of the O-D studies was to obtain information regarding travel patterns of motorists using the Lift Bridge. The results of the survey indicate the following travel patterns.

- The Lift Bridge serves local communities¹. Seventy percent of weekday trips on the Lift Bridge (55 percent of weekend trips) begin or end in the surrounding, local communities.

¹ For the purposes of the origin-destination study, "local" is defined as trips beginning or ending in Houlton, New Richmond, Somerset, Bayport, Oak Park Heights, or Stillwater. All other origins or destinations were defined as "regional."

- A substantial amount of weekend Lift Bridge traffic has no local destination (regional-regional). Forty-five percent of weekend bridge trips begin and end outside the local area, and have no intermediate destination in the local area (30 percent on weekdays) (see Table 4-2 of the SDEIS).
- A trip is more likely to be regional-local on weekdays (60 percent of trips) than weekends (45 percent). The lower percentage on weekends is due to the recreational component of trips going to lake areas in Wisconsin on weekends.
- Stillwater is the largest, single Minnesota area of origin/destination on both weekdays and weekends.
- Houlton, Somerset, and New Richmond are the largest Wisconsin areas of origin/destination on weekdays. Somerset is the largest single Wisconsin trip generator/attraction on weekends, reflecting its recreational nature.

Regional Traffic Diversion

Section 4.1.2.4 of the SDEIS discusses regional traffic diversion in the project area. Regional traffic diversion occurs when the Lift Bridge is out of operation or severely congested. These times occur during crashes/incidents on the Lift Bridge or TH 36/95, maintenance activities, during summer peak recreational times, and seasonal flooding. Figure 4-11 of the SDEIS summarizes regional trip diversions when the Lift Bridge is not operating and provides an indication of what would happen if bridge issues are not addressed. When the Lift Bridge is not in operation, most drivers, based on O-D survey results, indicated they would cross the St. Croix River at I-94 in Hudson. This trend is supported by Mn/DOT April 2003 traffic counts, which showed that the I-94 daily traffic volumes increased by 12,000 to 17,000 vehicles per day on weekdays when the Lift Bridge was closed.

4.1.1.5 Multi-Modal Systems

Section 4.1.3 of the SDEIS describes the existing multi-modal system in the project area, including existing and planned transit services, park-and-ride lots, High Occupancy Vehicle facilities, pedestrian and bicycle systems, navigational and recreational boating, and employer promotion of multi-modal systems. Following is a summary of the existing multi-modal system in the project area.

Existing and Planned Transit Services

Transit service in the project area includes regular express and Dial-a-Ride bus service provided by Metro Transit and St. Croix Valley Transit. Metro Transit currently provides local and express service between Stillwater and downtown St. Paul. As part of Metro Transit's *Transit 2020 Master Plan*, TH 36 west of TH 5 has been identified as a future, bus-only shoulders facility.

St. Croix Valley Transit currently provides a Dial-a-Ride transit service, known as the St. Croix Circulator, in the cities of Bayport, and portions of Stillwater and Oak Park Heights. Prior to September 2003, St. Croix Valley Transit had operated fixed-route transit service in this area, but this was discontinued due to budget constraints, low ridership, and high subsidies. Long-range plans are to continue to match service with changing needs of area residents and businesses.

There is no bus service currently provided in the Wisconsin portion of the project area, although 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 for the elderly and the handicapped in St. Croix County is coordinated through the St. Croix County Department on Aging. St. Croix County's *Development Management Plan* does reference the desirability of investigating commuter transit options into the Minneapolis-St. Paul metropolitan area.

Park-and-Ride Lots

Two park-and-ride lots are located in Stillwater, of which only one is currently utilized: 1) at the St. Croix Valley Recreation Center on Market Drive between Orleans and Curve Crest Boulevard, and 2) at St. Mary's Church at the corner of 5th and Pine Streets. According to Metro Transit, the lot at 5th and Pine was in operation until the end of 2004, but because of underutilization, was shut down after that time.

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. Other park-and-pool lots are located in western Wisconsin outside of the project area².

HOV Facilities

Section 4.1.3.3 of the SDEIS discusses High Occupancy Vehicle (HOV) facilities. Currently, there are no HOV facilities in the project area.

Pedestrian and Bicycle Systems

There are limited bicycle and pedestrian trail facilities for recreational or commuter use in the project area. On the Wisconsin side, there are no separate bicycle or pedestrian facilities in the project area. CTH E is the area's only designated bicycle route; the existing facility is a shared roadway. Users travel on the shared roadway over substantial grades (13 to 14 percent) through the Wisconsin bluff area.

On the Minnesota side, trails are located on County Roads 5, 12, 64 and an area south of TH 36 in Oak Park Heights (refer to Figure 4-12 of the SDEIS). Trail connectivity is an issue for area bicyclists and pedestrians. There are few routes or trails that connect the upper bluff areas in Stillwater with the downtown area. Once in the upper bluff area, TH 36 is viewed as a barrier for bicycles and pedestrians because the at-grade intersections with close frontage roads along TH 36 are not conducive for bicycle/pedestrian crossings between TH 95 and TH 5. For pedestrians, sidewalks are present along most downtown Stillwater streets.

This project provides the opportunity to develop connections and continuity to existing regional trail systems or trail systems under development.

² Source: Memorandum from SRF Consulting Group, Inc., *Existing TSM/TDM Measures: St. Croix River Crossing Study*, September 28, 1998.

Pedestrian Volumes

Section 4.1.3.4 of the SDEIS also describes pedestrian volumes in downtown Stillwater. Pedestrian counts were collected at the intersection of Main Street and Chestnut Street in downtown Stillwater on a weekday and weekend in August 1998. Over 1,200 pedestrians crossed the Main Street/Chestnut Street intersection during the peak weekend hour. About 400 pedestrians crossed this intersection during the weekday P.M. peak hour. There are no counts of pedestrians crossing TH 36 between TH 5 and TH 95 in Oak Park Heights and Stillwater.

Navigational and Recreational Boating

The St. Croix River is actively used for both navigational and recreational boating. Recreational boating studies have been conducted by the former Minnesota-Wisconsin Boundary Area Commission (MWBAC) since 1983 through biennial aerial surveys. The 1997 Recreational Boating Study provides the most recent information on trends in recreational boating use on the Riverway. The Riverway study area was divided into 17 use zones. The Preferred Alternative is located in Zone 11.

The 1997 Recreational Boating Study results indicate the popularity of recreational boating in Zone 11. Zone 11 is one of the four river zones where most of the weekend and holiday peak use was recorded. Refer to Section 4.1.3.5 of the SDEIS for additional information on recreational boating in Zone 11.

Employer Promotion of Multi-Modal Systems

Two of the area's major employers promote use of multiple travel modes: 3M and Andersen Windows. For many years, both companies have had extensive ridesharing and transit programs for employees.

4.1.1.6 Existing Service and Operations

Section 4.1.4.1 of the SDEIS describes the background and analysis methodology for the traffic operations analysis conducted for existing P.M. peak hour conditions at each of the existing corridor's key intersections to determine how traffic currently operates within the project area. A detailed discussion of the analysis methodology and results can be found in the *St. Croix River Crossing Project 2004 Supplemental Draft Environmental Impact Statement (SDEIS) Traffic Operations Analysis* (May 21, 2004) technical memorandum.

Existing Levels of Service

Section 4.1.4.2 of the SDEIS describes the existing (year 2002) P.M. peak hour intersection Level of Service (LOS) analysis for 27 intersections in the project area. Level of Service is an indication of the quality of traffic flow through an intersection. Intersections are assigned a ranking from LOS A to LOS F. LOS A indicates the best traffic operation, with vehicles

experiencing minimal delays. LOS F indicates an intersection where demand exceeds capacity, or a breakdown of traffic flow. LOS E indicates that an intersection is operating at, or very near its capacity and that vehicles experience substantial delays.

The results of this analysis are shown in Table 4-1 on Page 4-8 of this SFEIS. This analysis indicates that 9 of the 27 intersections analyzed are operating at unacceptable levels (LOS E or worse). Three of these intersections are located along the TH 36 corridor in Oak Park Heights; 6 of the intersections operating at LOS E or worse are located in downtown Stillwater.

Two separate operations analysis were completed for existing conditions, one including raising the Lift Bridge deck once during the analysis period, and another excluding a deck lift. Table 4-5 of the SDEIS shows a LOS comparison of downtown Stillwater and Wisconsin intersections with and without a deck lift. With no deck lift, only one intersection in downtown Stillwater and none of the Wisconsin intersections operated at LOS E or worse. With a deck lift, six downtown Stillwater intersections operated at LOS E or worse. The STH 64/CTH E intersection on the Wisconsin bluff operated at LOS D, whereas two intersections in Houlton operated at LOS A.

Safety

Section 4.1.4.3 of the SDEIS describes the safety analysis for the project area. The safety analysis was divided into two areas: 1) the Lift Bridge and regional approach roadways; and 2) the TH 36 frontage roads.

TH 36/95 in Minnesota and STH 64 in Wisconsin in the project area have higher than average mainline crash rates. The crash rate on TH 36/95 between the Lift Bridge and the TH 36/95 interchange is 4.4 (crash rate per million vehicle miles traveled), approximately 90 percent greater than the average crash rate (2.3 per million vehicle miles traveled) for two-lane urban trunk highways in Minnesota. The crash rate for STH 64 in Wisconsin between the Lift Bridge and 150th Avenue is about 50 percent greater than the average crash rate for two-lane rural roadways in Wisconsin.

An analysis completed for the *2002 TH 36 Partnership Study*³ found an average of 53 crashes per year over the past five years at the three at-grade intersections on the TH 36 mainline between TH 5 and Osgood Avenue. When considering the frontage roads with the TH 36 mainline intersections, the area's crash rate was two to three times the state average.

Crash data for the TH 36 frontage road/cross street intersections range from 0 crashes per year (south frontage road/Norell Avenue intersection) to 6.5 crashes per year (north frontage road/Washington Avenue intersection) between 2001 and 2003 (refer to Table 4-7 of the SDEIS). Frontage road geometrics, frontage road/cross street intersection control, and the close spacing between the frontage road/cross street and TH 36 mainline/cross street intersections contribute to safety concerns for this segment of roadway.

³ Source: memo from SRF Consulting Group, Inc., *TH 36 IRC Partnership Study: Summary of Findings to Date*, February 6, 2002.

**TABLE 4-1
EXISTING (2002) INTERSECTION OPERATIONS – P.M. PEAK HOUR⁽⁷⁾**

	Map No. (1)	Traffic Control (2) (3)	Intersection	Delay per Vehicle (4) (seconds)	Level of Service (5) (6)
TH 36 Commercial Area	2	Signal	CR 5 and Curve Crest Blvd	27	C
	3	Signal	TH 36 North Ramps and CR 5/Stillwater Blvd	14	B
	4	Signal	TH 36 South Ramps and TH 5/Stillwater Blvd	19	B
	5	Signal	TH 5 and 58 th Street	20	B
	6	Signal	TH 36 and Norell Avenue/Washington Avenue	31	C
	7	Unsig	TH 36 N Frontage Road and Norell Ave./Washington Avenue	30	D/F WB
	8	Unsig	TH 36 S Frontage Road and Norell Ave./Washington Avenue	15	C/F EB
	9	Signal	TH 36 and Oakgreen Avenue/Greeley Street	34	C
	10	Unsig	TH 36 N Frontage Road and Oakgreen Ave/Greeley Street	80	F/F WB
	11	Unsig	TH 36 S Frontage Road and Oakgreen Avenue/Greeley Street	98	F/F EB
	12	Signal	TH 36 and Osgood Avenue/County Road 24	40	D
	13	Unsig	TH 36 N Frontage Road and Osgood Avenue/County Road 24	>300	F/F WB
	14	Unsig	TH 36 S Frontage Road and Osgood Avenue/County Road 24	12	B/F WB
	TH 95	15	Unsig	TH 36 WB On Ramp and Beach Road	5
16		Unsig	TH 36 EB Off Ramp and Beach Road	3	A/B EB
17		Unsig	TH 95 and 56th Street	6	A/B EB
Downtown Stillwater	18	Signal	Main Street and Nelson Street	82	F
	19	Unsig	Main Street and Olive Street	36	E/F EB
	20	Signal	Main Street and Chestnut Street	53	D ⁽⁸⁾
	21	Signal	Main Street and Myrtle Street	122	F
	22	Unsig	3rd Street and Olive Street	>300	F/F WB
	23	Unsig	3rd Street and Chestnut Street	141	F/F SB
	24	Unsig	3rd Street and Myrtle Street	>300	F/F EB
Wisconsin	25	Unsig	STH 64 and CTH E	28	D/F WB
	26	Unsig	STH 64 and STH 35	6	A/C WB
	27	Unsig	STH 35 and CTH E	4	A/A EB

(1) See Figure 4-13 for Location Map

(2) Signal = Traffic Signal Controlled Intersection

(3) Unsig = Unsignalized Intersection with Stop Sign Control

(4) Intersection delay estimates (in seconds).

(5) Level of Service for Signalized intersection is shown as overall intersection LOS.

(6) Level of Service for Unsignalized intersections is shown as overall intersection = LOS X/LOS X NB for the worst approach.

(7) Includes one bridge deck lift during the analysis period.

(8) LOS D reflects the presence of a metering effect at the Main/Nelson Street and Main/Myrtle Street intersections. The adjacent intersections limit the traffic volume reaching the Main/Chestnut Street intersection; yielding better LOS results than anticipated. Refer to the traffic operations technical memorandum for additional information.

4.1.1.7 Summary of Issues Affecting Existing Transportation System Operations

Section 4.1.5 and Figure 4-14 of the SDEIS summarizes the key transportation issues in the study area. This figure is included as Figure 2-1 of this SFEIS; the main transportation issues in the study area are summarized in Section 2.2.3 of this SFEIS.

4.2 CHANGES IN THE SETTING OR TECHNICAL ANALYSIS SINCE THE SDEIS

Since the release of the SDEIS, the Preferred Alternative has been defined to include at-grade improvements at the Oakgreen Avenue/Greeley Street intersection instead of the grade-separated design proposed for the TH 5 to Osgood Avenue segment of the SDEIS Alternative B-1_a. While this change will result in reduced capacity in this segment, the revision was made to address concerns regarding right-of-way needs for the grade-separated design. Discussions with local communities will continue to determine an appropriate long-term solution for this segment (see Section 4.2.3 of this SFEIS). These improvements include the TH 36 improvements approved with the 1995 FEIS Preferred Alternative as described in Chapter 3 of this SFEIS.

The following describes the transportation and traffic analysis and evaluation of the Preferred Alternative improvements to TH 36. The eight components which were used to evaluate the Build Alternatives in Section 4.3 of the SDEIS are included below for the analysis of the Preferred Alternative.

4.2.1 Preferred Alternative

Chapter 3 of this SFEIS provides a detailed description of the Preferred Alternative. Since the issuance of the SDEIS, the Preferred Alternative TH 36 design has been modified to provide additional turn lanes at cross street intersections with TH 36, pulled-back frontage roads at Oakgreen Avenue/Greeley Street, and a continuous left-turn lane on the north and south frontage roads. The existing TH 36 at-grade intersections at Norell/Washington Avenues and Osgood Avenue will remain. Section 4.1 of the SDEIS summarizes the main characteristics of the transportation system in the Preferred Alternative.

4.2.2 Roadway Travel Demand Forecasts

Due to the potentially reduced capacity of the Preferred Alternative TH 36 segment, the travel demand forecast model was rerun to assess effects to year 2030 forecast traffic volumes. Results show a minor reduction in year 2030 traffic volumes when comparing SDEIS Alternative B-1_a (TH 36 grade-separated facility) to the Preferred Alternative described in this SFEIS with TH 36 at-grade intersections.

Table 4-2 summarizes average daily traffic (ADT) volumes for the river crossings in the region, including TH 36/STH 64, USH 8, TH 243, and I-94. Traffic volume forecasts show a 200 vehicle reduction for the Preferred Alternative (with TH 36 at-grade intersections described in Section 3.3.2 of this SFEIS) compared to SDEIS Alternative B-1_a (TH 36 as a grade-separated facility) and a 3,000 ADT increase compared to the No-Build Alternative.

**TABLE 4-2
EXISTING AND 2030 AVERAGE DAILY VEHICLE CROSSINGS FOR ST. CROIX
RIVER CROSSINGS**

Alternative	US 8 - Taylors Falls	STH 243 - Osceola	TH 36/STH 64 - Stillwater		I-94 - Hudson	TOTAL
			Lift Bridge	New Bridge		
Existing (2000)	14,900	4,400	16,300	(1)	77,000	112,600
2030 No- Build Alternative	23,500	9,500	21,700	(1)	140,700	195,400
2030 Alt B-1 _a (3)	21,700	6,600	NA (2)	50,100	120,200	198,600
2030 Preferred Alternative (4)	22,500	6,900	NA (2)	48,000	121,000	198,400

(1) There is no new bridge in the existing condition or year 2030 No-Build Alternative.

(2) The Lift Bridge is not used to carry motor vehicular traffic under the Preferred Alternative.

(3) Grade separated facility along TH 36 (TH 5 to Osgood Avenue).

(4) TH 36 (TH 5 to Osgood Avenue) at-grade intersections.

Figures 4-1 and 4-2 show the forecast year 2030 average daily traffic volumes for the Preferred Alternative. The average daily traffic volume for TH 36 between TH 5 and TH 95 ranges from 45,000 to 55,000 vehicles under the Preferred Alternative compared to 30,000 and 47,000 vehicles for the No-Build Alternative (No-Build average daily traffic volumes are illustrated on Figure 18 of the *St. Croix River Crossing Project, 2004 Supplemental Draft Environmental Impact Statement Travel Demand Forecasts Technical Memorandum*, June 17, 2004). The Preferred Alternative shows a demand of 1,755 vehicles per lane per hour in year 2030 on the Preferred Alternative river crossing bridge. The forecast demand on the river crossing bridge is lower than its capacity of approximately 2,000 vehicles per lane. The Preferred Alternative value is also lower than SDEIS Build Alternative B-1_a due to the restricted throughput on TH 36 between TH 95 and TH 5.

The estimated year 2010 river crossing average daily traffic volumes for the Preferred Alternative is 34,700 vehicles. The Preferred Alternative is not substantially different from the No-Build Alternative or SDEIS Alternative B-1_a in terms of total St. Croix River crossings (see Table 4-2 for a listing of crossings) or crossings at the TH 36/STH 64 bridge near Stillwater.

Refer to Section 4.3.1 of this SFEIS for a discussion of regional daily vehicle hours traveled (VHT), vehicle miles traveled (VMT), regional vehicle miles traveled for heavily congested roadways, and daily hours of congestion.

Refer to the technical memorandum, *St. Croix River Crossing Project, 2005 Supplemental Final Environmental Impact Statement, Technical Memorandum Supplement for the Preferred Alternative, Travel Demand Forecasts*, May 12, 2005, for a detailed discussion of the travel demand forecasts.

4.2.3 Local Traffic Operations Analysis

Local traffic operations analysis was conducted to examine short-term operational impacts resulting from the reduced capacity on the TH 5 to Osgood Avenue segment of TH 36 immediately after construction (year 2010) as well as long-term (year 2030). Peak hour volumes did not change substantially at other locations; therefore additional analysis was not warranted. This section summarizes the results of the analysis and makes comparisons between the Preferred Alternative and the No-Build Alternative. Section 4.1.4.1 of the SDEIS and the technical memorandum, *St. Croix River Crossing Project, 2005 Supplemental Final Environmental Impact Statement, Traffic Operations Analysis*, May 18, 2005, provide additional detail on traffic operations analyses and methodology conducted for the Preferred Alternative.

Tables 4-3 and 4-4 illustrate the intersection level of service (LOS) for the Preferred Alternative compared to the No-Build Alternative for years 2010 and 2030, respectively. There are 15 key intersections along the TH 36 segment from TH 5 to Osgood Avenue that were analyzed for the Preferred Alternative and No-Build Alternative. Results showed that five of the intersections will operate at LOS E or F in year 2010 under the Preferred Alternative. Two of these critical intersections would exhibit average intersection control delays over 300 seconds per vehicle. The problem areas are generally at the frontage roads intersections along TH 36 in the Oak Park Heights and Stillwater commercial area.

Under year 2030 Preferred Alternative conditions, 9 of the 15 key intersections would operate at LOS E or F. However, only two of these critical intersections would exhibit average intersection control delays over 300 seconds per vehicle, compared to six intersections for the No-Build Alternative. Similar to the year 2010 condition, the problem areas are generally at the frontage roads intersections along TH 36 in the Oak Park Heights and Stillwater commercial area.

An analysis was also conducted to evaluate the operational “life-span” of improvements to the TH 5 to Osgood Avenue segment of TH 36 before unacceptable levels of service were encountered (e.g., LOS degradation over time). Results showed that the average intersection delay at TH 36/Washington Avenue exceeds the LOS F threshold in year 2012. The TH 36 intersection at Oakgreen Avenue/Greeley Street would not exceed the LOS F threshold until year 2025. The TH 36 intersection at Osgood Avenue would not exceed the LOS E threshold until year 2027 (see Figure 4-3 at the top of page 4-14 of this SFEIS).

**TABLE 4-3
YEAR 2010 INTERSECTION TRAFFIC OPERATIONS ANALYSIS – P.M. PEAK HOUR**

	Map No. (1)	Traffic Control (2)	Intersection	Existing Conditions (2002)		Preferred Alternative (2010)	
				Delay per Vehicle ⁽³⁾	Level of Service (4) (5)	Delay per Vehicle ⁽³⁾	Level of Service (4) (5)
TH 36 Commercial Area	2	Signal	CR 5 and Curve Crest Blvd	27	C	28	C
	3	Signal	TH 36 North Ramps and CR 5/Stillwater Blvd	14	B	17	B
	4	Signal	TH 36 South Ramps and TH 5/Stillwater Blvd	19	B	18	B
	5	Signal	TH 5 and 58 th Street	20	B	22	C
	6	Signal	TH 36 and Norell Avenue/Washington Avenue	31	C	61	E
	7	Unsig	TH 36 N Frontage Road and Norell Ave./Washington Avenue	30	D/F WB	238	F/F WB
	8	Unsig	TH 36 S Frontage Road and Norell Ave./Washington Avenue	15	C/F EB	>300	F/F EB
	9	Signal	TH 36 and Oakgreen Avenue/Greeley Street	34	C	49	D
	10	Unsig/Signal	TH 36 N Frontage Road and Oakgreen Ave/Greeley Street	80	F/F WB	15	B
	11	Unsig/Signal	TH 36 S Frontage Road and Oakgreen Avenue/Greeley Street	98	F/F EB	26	C
	12	Signal	TH 36 and Osgood Avenue/County Road 24	40	D	44	D
	13	Unsig	TH 36 N Frontage Road and Osgood Avenue/County Road 24	>300	F/F WB	165	F/F EB
	14	Unsig	TH 36 S Frontage Road and Osgood Avenue/County Road 24	12	B/F WB	>300	F/F EB
	TH 95	15	Signal	TH 36 WB Ramps and TH 95	NA	NA	11
16		Signal	TH 36 EB Ramps and TH 95	NA	NA	13	B

(1) See Figure 3 of traffic operations analysis technical memorandum for Location Map.

(2) Signal = Traffic Signal Controlled Intersection; Unsig = Unsignalized Intersection with Stop Sign Control.

(3) Intersection delay estimates (in seconds) taken from the SimTraffic micro-simulation model results (averaged from three simulation runs).

(4) Level of Service for Signalized intersection is shown as overall intersection LOS.

(5) Level of Service for Unsignalized intersections is shown as overall intersection = LOS X/LOS X NB for the worst approach.

**TABLE 4-4
YEAR 2030 INTERSECTION TRAFFIC OPERATIONS ANALYSIS – P.M. PEAK HOUR**

	Map No. (1)	Traffic Control (2)	Intersection	No-Build Conditions (2030)		Preferred Alternative (2030)	
				Delay per Vehicle ⁽³⁾	Level of Service (4) (5)	Delay per Vehicle ⁽³⁾	Level of Service (4) (5)
TH 36 Commercial Area	2	Signal	CR 5 and Curve Crest Blvd	98	F	32	C
	3	Signal	TH 36 North Ramps and CR 5/Stillwater Blvd	22	C	13	B
	4	Signal	TH 36 South Ramps and TH 5/Stillwater Blvd	21	C	34	C
	5	Signal	TH 5 and 58 th Street	>300	F	32	C
	6	Signal	TH 36 and Norell Avenue/Washington Avenue	133	F	273	F
	7	Unsig	TH 36 N Frontage Road and Norell Ave./Washington Avenue	>300	F/F WB	155	F/F WB
	8	Unsig	TH 36 S Frontage Road and Norell Ave./Washington Avenue	>300	F/F EB	>300	F/F EB
	9	Signal	TH 36 and Oakgreen Avenue/Greeley Street	36	D ⁽⁶⁾	90	F ⁽⁶⁾
	10	Unsig/Signal	TH 36 N Frontage Road and Oakgreen Ave/Greeley Street	>300	F/F WB	61	E
	11	Unsig/Signal	TH 36 S Frontage Road and Oakgreen Avenue/Greeley Street	>300	F/F EB	80	E
	12	Signal	TH 36 and Osgood Avenue/County Road 24	47	D ⁽⁶⁾	56	E ⁽⁶⁾
	13	Unsig	TH 36 N Frontage Road and Osgood Avenue/County Road 24	>300	F/F WB	127	F/F EB
	14	Unsig	TH 36 S Frontage Road and Osgood Avenue/County Road 24	196	F/F EB	>300	F/F EB
	TH 95	15	Signal	TH 36 WB Ramps and TH 95	NA	NA	12
16		Signal	TH 36 EB Ramps and TH 95	NA	NA	15	B

(1) See Figure 3 of traffic operations analysis technical memorandum for Location Map.

(2) Signal = Traffic Signal Controlled Intersection; Unsig = Unsignalized Intersection with Stop Sign Control.

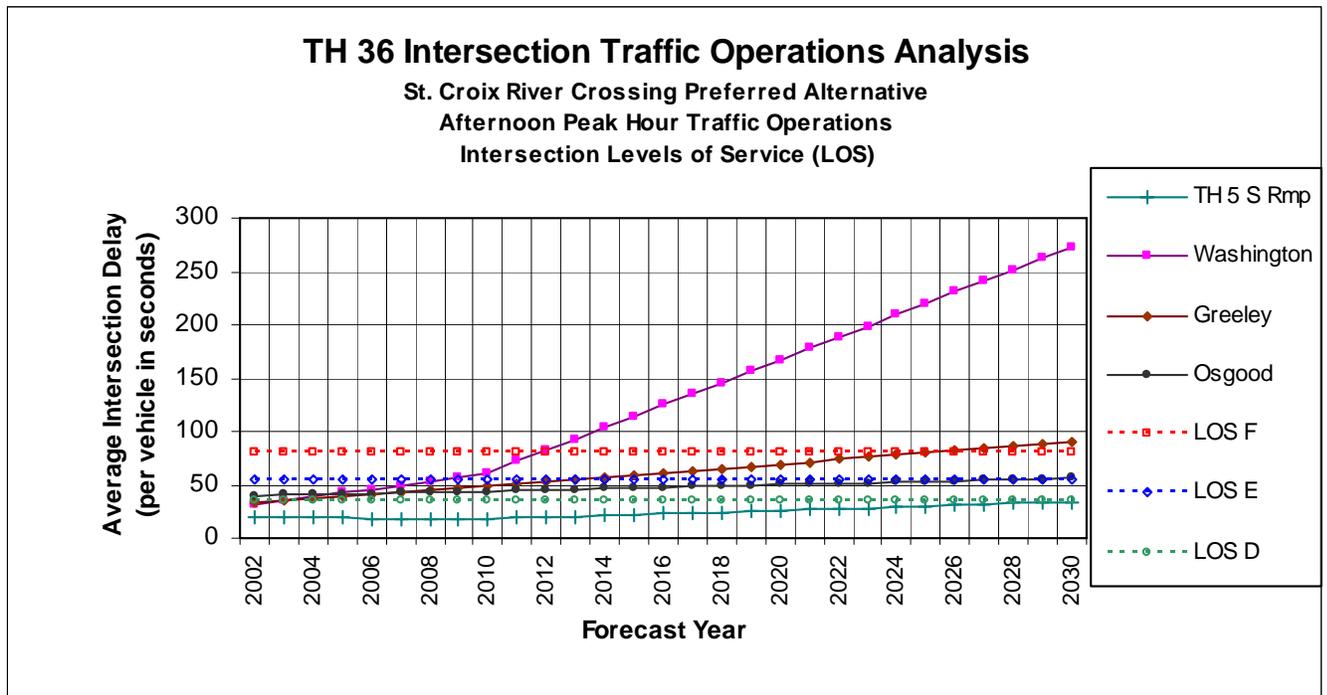
(3) Intersection delay estimates (in seconds) taken from the SimTraffic micro-simulation model results (averaged from three simulation runs).

(4) Level of Service for Signalized intersection is shown as overall intersection LOS.

(5) Level of Service for Unsignalized intersections is shown as overall intersection = LOS X/LOS X NB for the worst approach.

(6) The model reflects a better LOS than expected due to a queue gating effect. The adjacent intersections limit the traffic volume reaching the intersection yielding better LOS results than anticipated.

FIGURE 4-3
TH 36 TRAFFIC OPERATIONS ANALYSIS – LOS DEGRADATION OVER TIME



Refer to the technical memorandum, *St. Croix River Crossing Project, 2005 Supplemental Final Environmental Impact Statement Traffic Operations Analysis*, May 18, 2005, for a detailed discussion of the local traffic operations.

4.2.4 Safety

4.2.4.1 Crashes

For the 20-year period from 2011 to 2030, the estimated number of crashes decreases by 1,200 crashes for the Preferred Alternative compared to the No-Build Alternative. Refer to Section 4.3.3.1 of this SFEIS for additional discussion. The change in number of crashes was used to evaluate the Preferred Alternative as part of the benefit-cost analysis (see Section 4.2.5 of this SFEIS).

The Preferred Alternative also addresses other safety concerns through the following roadway improvements.

- Improving mainline TH 36/frontage road intersection spacing at Oakgreen Avenue/Greeley Street.
- Construction of pedestrian/bicycle facilities along the south frontage road from Oakgreen Avenue to Stagecoach Trail and the loop trail system at the TH 36/95 interchange.

4.2.5 Benefit-Cost Analysis

The benefit-cost analysis was revised to compare the Preferred Alternative to the No-Build Alternative from an overall transportation perspective. Refer to Section 4.3.4 of this SFEIS for a discussion of the Preferred Alternative benefit-cost analysis.

4.2.6 Access and Local Road Connectivity

As a result of design revisions in the TH 5 to Osgood Avenue segment of TH 36, some driveway access to the frontage roads may be reconfigured, particularly at the Oakgreen Avenue/Greeley Street/frontage road intersection. The existing access to the frontage roads and TH 36 mainline will remain unchanged from existing conditions.

4.2.7 Vehicular Energy Consumption

The analysis of vehicular energy consumption remains unchanged from the discussion in Section 4.3.6 of the SDEIS under the Preferred Alternative.

4.2.8 Multi-Modal Systems

4.2.8.1 Transit

The Preferred Alternative includes no direct changes to the transit system. While the Preferred Alternative TH 36 at-grade intersection design does not include bus-only shoulders on TH 36, the design also does not preclude construction at such time as needed. Additional study of transit issues will be completed as a separate transit feasibility study. Refer to Section 15.4.1.2 of this SFEIS for details of the transit feasibility study.

4.2.8.2 Bicycle/Pedestrian System

The Preferred Alternative along TH 36 includes a trail system on the south frontage road only from Oakgreen Avenue east to Osgood Avenue. Sidewalks are also provided on both sides of Oakgreen Avenue/Greeley Street and Osgood Avenue between the north and south frontage roads. Signals and at-grade pedestrian crossings will be provided at the Oakgreen Avenue/Greeley Street and Osgood Avenue intersections with TH 36. Signals and at-grade pedestrian crossings will also be provided at the Oakgreen Avenue/south frontage road intersection and the Greeley Street/north frontage road intersection.

The trail along the south frontage road east of Osgood Avenue will connect with a trail at the Beach Road overpass and continue east to TH 95, connecting with the trail on the north side of the new river crossing and the loop trail system between Minnesota and Wisconsin (see Chapter 15 of this SFEIS).

4.2.8.3 Navigational and Recreational Boating

The discussion of navigational and recreational boating remains unchanged from the SDEIS. Construction of the Preferred Alternative at-grade intersections on TH 36 will not impact navigational and recreational boating on the St. Croix River.

4.2.9 Compatibility with Regional Transportation Plans

4.2.9.1 Roadways

TH 36 is identified as a medium priority interregional corridor (IRC) in the Minnesota Interregional Corridor system. Consistency of the Preferred Alternative is less clear with the goals and objectives in respect to the proposed TH 36 design from TH 5 to Osgood Avenue through Oak Park Heights and Stillwater. Under the Preferred Alternative TH 36 at-grade intersection design, TH 36 would have difficulty in meeting Minnesota performance targets for medium priority IRCs, although examination of a larger segment of the TH 36 corridor, including portions of STH 64 (e.g., I-694 to New Richmond, Wisconsin) would likely improve its performance. Refer to Section 4.3.8.1 of this SFEIS for additional discussion of compatibility of the Preferred Alternative to regional transportation plans.

The Preferred Alternative is consistent with regional transportation plans east of Osgood Avenue and into Wisconsin as described in Section 4.3.8.1 of the SDEIS.

4.2.9.2 Multi-Modal Systems

The City of Stillwater *1995 Comprehensive Plan* calls for bicycle/pedestrian facilities along TH 36 in Stillwater between CSAH 5 east to TH 95. The Preferred Alternative is not compatible with the Comprehensive Plan because it provides pedestrian facilities only on the south frontage road between Norell Avenue/Washington Avenue and Osgood Avenue.

Without additional right-of-way impacts along the frontage road system, construction of bikeways along the north frontage road in Stillwater is impractical with the Preferred Alternative.

4.3 IMPACTS ASSOCIATED WITH THE PREFERRED ALTERNATIVE

The impacts of the Preferred Alternative on TH 36 west of Osgood Avenue are described above in Section 4.2. The remainder of Section 4.3 of this SFEIS describes the impacts associated with the Preferred Alternative east of Osgood Avenue in Minnesota to the eastern project terminus at 150th Avenue in Wisconsin.

4.3.1 Roadway Travel Demand Forecasts

Traffic volume forecasts show year 2030 average daily traffic (ADT) volumes on the Preferred Alternative river crossing bridge of 48,000 vehicles, and a year 2030 ADT of 198,400 vehicles for St. Croix River crossings (USH 8, TH 243, TH 36/STH64, and I-94). This is a 3,000 ADT increase for St. Croix River crossings compared to the No-Build Alternative (195,400 vehicles). These Preferred Alternative volumes are not substantially different compared to average daily vehicle crossings for SDEIS Alternative B-1_a (grade-separated TH 36 facility).

Figures 4-1 and 4-2 show the forecast year 2030 average daily traffic volumes for the Preferred Alternative. The average daily traffic volume for TH 36 between TH 5 and TH 95 ranges from 45,000 to 55,000 vehicles under the Preferred Alternative.

The Preferred Alternative shows a demand of 1,755 vehicles per lane per hour on the Preferred Alternative river crossing bridge. The forecast demand on the Preferred Alternative river crossing bridge is lower than its capacity of approximately 2,000 vehicles per lane. The Preferred Alternative would have sufficient capacity to accommodate forecasted year 2030 demands with minimal congestion on the river crossing links. Under the No-Build Alternative, growth in traffic would cause congestion to extend to at least six hours per day as drivers adjust their travel times in attempts to avoid the heaviest periods of congestion. This extension of peak travel times is referred to as peak hour spreading.

Estimated year 2010 river crossing ADT volumes for the Preferred Alternative TH 36/STH 64 crossing is 34,700 vehicles. With completion of the Preferred Alternative, year 2010 average daily vehicle crossings for the St. Croix River at USH 8, STH 243, TH 36/STH64, and I-94 are estimated to be 134,900 vehicles. This is slightly greater than the No-Build Alternative (134,600 vehicles at St. Croix River crossings), but very similar to SDEIS Build Alternative B-1_a (135,000 vehicles at St. Croix River crossings).

The Preferred Alternative reduces regional daily vehicle hours traveled (VHT) by 25,000 vehicle hours per day compared to the No-Build Alternative. The Preferred Alternative also reduces daily vehicle miles traveled (VMT) by 83,000 vehicle miles per day compared to the No-Build Alternative. For heavily congested roadways⁴, the reduction in daily regional vehicle miles traveled is 189,000 vehicle miles per day compared to the No-Build Alternative; however, this reduction is less than the reduction achieved under SDEIS Alternative B-1_a with the grade-separated TH 36 design. The lower reduction with the Preferred Alternative comes in part due to increased congestion on TH 36 between TH 5 and TH 95.

These results indicate that the Preferred Alternative substantially reduces regional congestion (based on VHT results) and substantially reduces regional traffic diversion (based on VMT results) compared to the year 2030 No-Build condition. However, in both cases (VHT and VMT) the regional congestion and regional traffic diversion reduction is less under the Preferred Alternative compared to SDEIS Build Alternative B-1_a.

Refer to the technical memorandum, *St. Croix River Crossing Project, 2005 Supplemental Final Environmental Impact Statement, Technical Memorandum Supplement for the Preferred Alternative, Travel Demand Forecasts*, May12, 2005, for a detailed discussion of the travel demand forecasts.

4.3.2 Local Traffic Operations Analysis

Section 4.2.3 of this SFEIS discusses local traffic operations analysis for the TH 36 segment of the Preferred Alternative, and Tables 4-3 and 4-4 illustrate the intersection LOS for the Preferred Alternative for years 2010 and 2030, respectively. Results showed that five of the intersections

⁴ Vehicle miles traveled experiencing congested conditions (Level of Service E or F)

will operate at LOS E or F in year 2010, with two of these critical intersections exhibiting average intersection control delays over 300 seconds per vehicle.

Under year 2030 conditions, 9 key intersections would operate at LOS E or F. However, only two of these critical intersections would exhibit average intersection control delays over 300 seconds per vehicle, compared to six intersections for the No-Build Alternative. Under both year 2010 and 2030 conditions, the problem areas are generally at the frontage roads intersections along TH 36 in the Oak Park Heights and Stillwater commercial area.

Traffic operations at other key intersections in the project area (e.g., TH 36/95 interchange ramp intersections; STH 64/35/CTH E ramp intersections; new STH 35/old STH 35 intersection; old STH 35/CTH E intersection) are anticipated to operate at acceptable LOS in year 2030. Removal of vehicular traffic from the Lift Bridge, removal of Wisconsin approach roadways to the Lift Bridge (STH 64; CTH E) and completion of the loop trail will eliminate the existing STH 64/CTH E intersection from the Wisconsin bluff.

Under the Preferred Alternative, there are still three intersections in the downtown Stillwater area that are expected to operate at an overall LOS E or F in year 2030 (3rd Street intersections with Olive Street, Myrtle Street, and Chestnut Street). However, the delays at these intersections are improved substantively compared to the No-Build Alternative. All intersections are anticipated to operate with delays well below 300 seconds per vehicle. Table 4-5 summarizes level of service results for the Preferred Alternative.

**TABLE 4-5
TRAFFIC OPERATIONS ANALYSIS – PREFERRED ALTERNATIVE SUMMARY**

	Number of Key Intersections Analyzed	Number of Over Capacity Intersections⁽¹⁾	Delay Greater than, At, or Approaching 300 seconds/vehicle
Project Area Network – TH 36 Segment (TH 5 to Osgood Avenue)			
Existing Conditions (2002)	15	3	1
2010 Preferred Alternative	15	5	2
2030 No-Build Alternative	15	9	6
2030 Preferred Alternative	15	9	2
Project Area Network – East of Osgood Avenue, Downtown Stillwater, Wisconsin			
Existing Conditions (2002)	13	6	2
2030 No-Build Alternative	13	11	10
2030 Preferred Alternative	16	3	0

⁽¹⁾ LOS E and F indicate intersections are over capacity.

The Preferred Alternative shows acceptable levels of service for all merge/diverge/weave movements for the freeway segment of the project east of Osgood Avenue.

4.3.3 Safety

4.3.3.1 Crashes

Traffic safety throughout the region will be affected by the Preferred Alternative. Freeway facilities (e.g., portion of the Preferred Alternative east of the TH 36/Osgood Avenue intersection and in Wisconsin), have lower crash rates than non-freeway facilities. Freeway type facilities generally also have lower severity rates (i.e., types of injury are less severe). This is due to a very limited number of conflicts (lower number of access points) and the fact that turning movements are low severity types (merging/weaving).

For the 20-year period from 2011 to 2030, the estimated number of crashes under the Preferred Alternative decreases by more than 1,200 crashes compared to the No-Build Alternative. This decrease is largely due to the construction of the new freeway east of Osgood Avenue and the new rural freeway in Wisconsin, the decrease in traffic volumes in downtown Stillwater and the decrease in traffic volumes on existing TH 95 between downtown Stillwater and the TH 36/95 interchange (TH 36/95 has an existing crash rate approximately two times the state average; see Section 4.1.4.3 of the SDEIS). The change in number of crashes was used to evaluate the Preferred Alternative as part of the benefit-cost analysis (see Section 4.2.5 of this SFEIS).

The Preferred Alternative also addresses other safety concerns through the following roadway improvements:

- Improving TH 36 mainline/frontage road intersection spacing at Oakgreen Avenue/Greeley Street.
- Reducing potential pedestrian/bicycle conflict with motor vehicles in downtown Stillwater (reduced forecasted traffic volumes in downtown Stillwater).
- Provision for dedicated pedestrian/bicycle facilities with completion of the loop trail system in Minnesota and Wisconsin, connecting to pedestrian/bicycle facilities along the south frontage road from the TH 36/95 interchange area to Oakgreen Avenue.

4.3.3.2 Incident Management and Emergency Response

Both incident management and emergency response will be affected by the Preferred Alternative. Incident management refers to the clearing of crashes and management of traffic during that time. Emergency response relates to medical, fire, and police services, among others. Conditions through the TH 36 portion of the project area in Oak Park Heights and Stillwater are not anticipated to improve under the Preferred Alternative compared to existing conditions. Conditions will improve substantially with the construction of a new river crossing under the Preferred Alternative in regards to emergency response times in Wisconsin.

4.3.4 Benefit-Cost Analysis

As discussed in Section 4.2.5 above, the benefit-cost analysis was revised to incorporate the Preferred Alternative TH 36 (TH 5 to Osgood Avenue) portion of the project. The purpose of a benefit-cost analysis is to bring all of the direct effects of a transportation investment into a

common measure (dollars), and to allow for the fact that transportation benefits accrue over a long period of time while construction costs are incurred primarily in the initial years. The primary elements that can be monetized are travel time (hours traveled), changes in vehicle operating costs (miles traveled), vehicle crashes, and remaining capital value. Travel time (vehicle hours traveled), miles traveled (vehicle miles traveled), and crashes were discussed in Sections 4.2.4 and 4.3.1 of this SFEIS.

The benefit-cost analysis can provide an indication of the economic desirability of an alternative, but decision-makers must weigh the results against other considerations, effects, and impacts of the project. A benefit-cost ratio of 1.0 is considered the minimum for justifying an improvement. The larger the ratio number, the greater the benefits per unit cost. Additional detail on the benefit-cost analysis can be found in the May 2005 memorandum entitled *St. Croix River Crossing Project, Benefit-Cost Analysis Memorandum – Preferred Alternative*, May 5, 2005.

This benefit-cost analysis evaluated the marginal difference in transportation user costs between the No-Build and Preferred Alternative. The Preferred Alternative has a benefit-cost ratio of 6.0. This result shows the Preferred Alternative is beneficial from an economic viewpoint (as compared to the No-Build Alternative), as the marginal benefit-cost ratio is greater than 1.0.

4.3.5 Access and Local Road Connectivity

The following sections describe the changes to access and local road connectivity to be implemented in Minnesota and Wisconsin with the Preferred Alternative.

4.3.5.1 Minnesota Approach Roadways

As a result of design revisions in the TH 5 to Osgood Avenue segment of TH 36, some driveway access to the frontage roads may be reconfigured, particularly at the Oakgreen Avenue/Greeley Street/frontage road intersection. The existing access to the frontage roads and TH 36 mainline will remain unchanged from existing conditions. Specific access changes associated with the Preferred Alternative east of Osgood Avenue in Minnesota include:

- Closure of the Beach Road access from TH 36. Under the Preferred Alternative, Beach Road is converted to an overpass and relocated to the west of the existing Beach Road alignment, forming a T-intersection with the new south frontage road. The existing ramps from Beach Road to TH 36 will be removed and no direct access to TH 36 from Beach Road will be available.
- Reconstruction of Lookout Trail as a cul-de-sac. North of the St. Croix Overlook-South, Lookout Trail will be converted to a cul-de-sac under the Preferred Alternative. The existing left-turn from northbound TH 95 to Lookout Trail will be eliminated, and a one-lane, one-way road from southbound TH 95 to the Lookout Trail cul-de-sac and the St. Croix Overlook-South will be constructed with the Preferred Alternative.
- Access changes on TH 95 north and south of the TH 36/95 interchange. Under the Preferred Alternative, several access changes are proposed to improve traffic operations along the TH 95 corridor adjacent to the TH 36/95 interchange. These improvements consolidate

access points and add features such as dedicated turn lanes or traffic signals. The access changes on TH 95 are summarized below:

- Relocated entrances for the Sunnyside Marina and Condominiums, MCES treatment plant, and Dahl Tech property with dedicated right- and left-turn lanes from TH 95. Access to the Stillwater Municipal Barge Facility property will be from the Sunnyside entrance;
- Realignment of Pickett Avenue to the south, across from the Xcel Energy King Plant entrance. If justified, a signal will be constructed at this intersection with TH 95;
- Removal of the 56th Street “slip ramp” and intersection with TH 95.
- TH 36/95 interchange. A diamond interchange will provide access between TH 36 and TH 95. Traffic signals are anticipated to be justified on TH 95 at the interchange ramp terminals.
- Downtown Stillwater. Access to downtown Stillwater will be available from both eastbound and westbound TH 36 through the TH 36/95 interchange and northbound TH 95. Vehicular access to downtown Stillwater via the Lift Bridge will be eliminated under the Preferred Alternative as the Lift Bridge will be converted to a pedestrian/bicycle facility following completion of the new river crossing and loop trail system. Section 15.4.1.5 and the Amended Section 106 MOA in Appendix G of this SFEIS discuss roadway signage from TH 36 to the Stillwater Commercial Historic District.

Pedestrian and bicycle access to downtown Stillwater from TH 36, the new river crossing, and Wisconsin will be provided by the loop trail system. The loop trail system is described in detail in Section 15.4.1.2 of this SFEIS. Trails along TH 95 and through the Stillwater Municipal Barge Facility property will enter downtown Stillwater near Lowell Park. A bicycle and pedestrian trail along the existing STH 64 approach roadway and conversion of the Lift Bridge to a pedestrian/bicycle facility will provide access to downtown Stillwater from Wisconsin. A parking area is also planned to be completed with the loop trail system at the top of the bluff near existing STH 35 in Houlton.

4.3.5.2 Wisconsin Approach Roadways

The Preferred Alternative includes a new STH 64 controlled-access freeway in Wisconsin. Specific access changes associated with the Preferred Alternative in Wisconsin include:

- STH 35 and CTH E. A new STH 35 roadway will be constructed between existing STH 35 and the Preferred Alternative STH 64/35/CTH E interchange. This new STH 35 will provide access between existing STH 35 and STH 64. The intersection between the new STH 35 roadway and existing STH 35 will include a traffic signal or be constructed as a roundabout. Existing STH 35 through the unincorporated community of Houlton will be converted to a local road. A new local road will be constructed between new STH 35 and existing CTH E across from Houlton Elementary School.

CTH E will be bisected by the new STH 64 roadway. Existing CTH E will be realigned to the south and overpass the new roadway. CTH E west of the new interchange will be constructed as a cul-de-sac.

- STH 64/35/CTH E interchange. A diamond interchange will provide access between the controlled-access STH 64, STH 35 and CTH E. Traffic signals, if justified, or roundabouts will be constructed at the ramp terminals.
- Existing STH 35/64 roadway and new frontage roads. A new frontage road will be constructed north of the new STH 35/64 roadway northeast of Houlton while existing STH 35/64 will be converted to a south frontage road to serve for local land access. No access to private property will be allowed on the new STH 35/64 roadway.

4.3.6 Vehicular Energy Consumption

Roadway projects consume energy both directly and indirectly. Energy is directly consumed by vehicles traveling the roadway as well as fuel that would be consumed by vehicles using alternate routes in the corridor. Indirect impacts are defined as the energy required to construct and maintain the roadway, the energy required to manufacture and maintain vehicles using the roadway, and the energy required to convert land to transportation use.

The Preferred Alternative is expected to generate shifts in traffic patterns between the I-94 and TH 36/STH 64 crossings of the St. Croix River. Potential transportation energy consumption impacts of the Preferred Alternative were based on results from regional traffic forecasting.

Regional energy consumption would be reduced for the Preferred Alternative. This energy decrease would result from reduced daily hours of congestion at the Preferred Alternative St. Croix river crossing as compared to the No-Build Alternative (refer to Section 4.3.1 of this SFEIS) and fewer vehicle miles of travel overall; traffic would use a less circuitous route for river crossings (i.e., TH 36/STH 64 instead of I-94) as compared to No-Build conditions. In other words, the energy savings that would result from decreased use of circuitous routes would outweigh the increased energy by the increase in traffic drawn back to the improved roadway.

Although the Preferred Alternative would result in indirect energy use (e.g., from new construction) that would not result from the No-Build Alternative (maintenance only), this energy use would be offset by the direct (operational) energy savings from the Preferred Alternative. Operational savings result from fewer vehicle hours and/or fewer vehicle miles being traveled under the Preferred Alternative conditions as compared to No-Build Alternative conditions (see Section 4.3.1 of this SFEIS). As a result, the Preferred Alternative is expected to result in long-term net indirect energy savings over the life of the project when compared to the No-Build Alternative.

4.3.7 Multi-Modal Systems

4.3.7.1 Transit

The Preferred Alternative includes no direct changes to the transit system. However, the transit system does operate on the roadways; roadway infrastructure and congestion have effects on transit. Infrastructure, delays, and congestion in the No-Build Alternative would adversely affect the efficiency of the transit system. The Preferred Alternative substantially improves traffic flow and congestion, thereby providing favorable roadway conditions for transit. Although the Preferred Alternative design does not include bus-only shoulders on TH 36, the design also does not preclude construction at such time as needed.

A transit and land use workshop was held in December 2004 to define the scope of a future St. Croix River Valley Transit Feasibility Study. Additional study of transit issues will be completed as part of the Transit Feasibility Study as discussed in Section 15.4.1.3 of this SFEIS.

4.3.7.2 Pedestrian/Bicycle Systems

The bicycle/pedestrian-oriented infrastructure associated with the Preferred Alternative along the TH 36 frontage road system is described in Section 4.2.8.2 above. Bicyclists and pedestrians would continue to interact with large volumes of high-speed traffic in the TH 36 area at Washington/Norell Avenues, Oakgreen Avenue/Greeley Street, and Osgood Avenue. However, the Preferred Alternative routes TH 36 through traffic outside of downtown Stillwater, decreasing traffic volumes compared to the No-Build Alternative. The potential for pedestrian/vehicle conflict decreases correspondingly. The Preferred Alternative will also improve bicycle/pedestrian infrastructure through the completion of the loop trail system between Minnesota and Wisconsin (see Section 15.4.1.2 of this SFEIS).

The Preferred Alternative provides trail connectivity through a portion of Oak Park Heights with the trail along the south frontage road. This trail connects with a proposed trail along the Beach Road overpass and a proposed trail along TH 95, eventually connecting with the Preferred Alternative river crossing and loop trail system in the Stillwater Municipal Barge Facility property.

The Preferred Alternative improves bicycle/pedestrian safety in the area of the Houlton Elementary School on the Wisconsin side of the project by directing traffic from the new STH 64 roadway to existing STH 35 via a new STH 35 roadway south of existing CTH E and Houlton Elementary School.

4.3.7.3 Navigational and Recreational Boating

Under the Preferred Alternative, the Lift Bridge will remain in place and be converted to a pedestrian/bicycle facility. The existing lift schedule (see Figure 4-8 of the SDEIS) will remain in effect following construction of the new river crossing and conversion of the Lift Bridge to a pedestrian/bicycle facility.

The Preferred Alternative river crossing bridge will not impede navigational and recreational boating but the bridge piers will present a new navigational obstruction in the Riverway that currently does not exist.

4.3.8 Compatibility with Regional Transportation Plans

4.3.8.1 Roadways

The Preferred Alternative was reviewed with respect to its compatibility with established regional transportation plans. TH 36 is a principal arterial on the National Highway System (NHS) route and a medium priority interregional corridor (IRC) in the Minnesota Interregional Corridor system. The portion of STH 64 that is within the project area is designated as a principal arterial NHS route and a Multilane Connector Route in the *Wisconsin 2020 State Highway Plan*, indicating that it plays an important role in connecting key local communities and regional economic centers to the main highway system.

Each of the roadway designations includes performance criteria. According to the Metropolitan Council, traffic traveling on principal arterials should travel at a minimum of 45 miles per hour (mph). According to the Minnesota Interregional Corridor plan, traffic traveling on medium priority IRCs should travel at average speeds of 55+ mph. And, according to the WisDOT Corridors 2020 Plan, *“The highest level of service thresholds are applied to the Corridors 2020 system in recognition of its importance from a mobility and economic development perspective. On Corridors 2020 routes, only ‘minimal’ congestion is allowed, except on Connectors within urbanized areas, where slightly higher levels are permitted.”*

The consistency of the Preferred Alternative is unclear with these goals and objectives in respect to TH 36 through Oak Park Heights and Stillwater. Under the Preferred Alternative TH 36 at-grade intersection design, TH 36 would likely have difficulty in meeting Minnesota performance targets, although an examination of a longer segment of the TH 36 corridor, including portions of STH 64 (e.g., I-694 to New Richmond, Wisconsin), would likely improve its performance. Traffic traveling on TH 36 in the project area would likely have difficulty achieving the 45 mph operational speed set by the Metropolitan Council for principal arterials, although speeds on the TH 36 corridor from I-694 to the St. Croix River crossing may or may not average 55 mph (Mn/DOT’s medium priority IRC target, depending on improvements made in other parts of the corridor). With the Preferred Alternative being constructed as a rural, limited access freeway in Wisconsin, STH 64 is consistent with regional transportation plans.

Mn/DOT anticipates updating the TH 36 IRC Management Plan for the corridor (regional center to regional center) after the completion of the St. Croix River Crossing Project.

4.3.8.2 Multi-Modal Systems

The Preferred Alternative is less compatible with regional transportation plans for multi-modal systems of transportation on TH 36 but more compatible along other portions of the project corridor. Specifically, the Preferred Alternative is not compatible with proposed bicycle/pedestrian facilities identified for TH 36 in the City of Stillwater *1995 Comprehensive Plan*. The plan shows a City Pathway/Bikeway located on the north frontage road parallel to TH 36. The close proximity of TH 36 and its frontage roads, the high speeds and traffic

volumes, and the confusing cross street intersections make construction of a city bikeway within the TH 36 corridor impractical in the No-Build and Preferred Alternative condition.

The completion of the loop trail system with the Preferred Alternative (refer to Section 15.4.1.2 of this SFEIS) is compatible with the *1995 St. Croix County Bicycle Plan*.

4.4 MITIGATION MEASURES

4.4.1 Roadway Travel Demand Forecasts

There are no impacts associated with the travel demand forecasts. Therefore, no mitigation is necessary.

4.4.2 Local Traffic Operations Analysis

There are no impacts associated with the local traffic operations analysis. Therefore, no mitigation is necessary.

Alternatives for the reconstruction of TH 36 to a grade-separated facility through Oak Park Heights and Stillwater may be evaluated through future studies. Mn/DOT will work with both cities and Washington County to evaluate potential long-term alternatives. Any future changes to TH 36 will be evaluated through a separate environmental documentation process.

4.4.3 Safety

No mitigation is needed as the Preferred Alternative is anticipated to result in an overall decrease in the number of accidents in the study area.

4.4.4 Benefit-Cost Analysis

The Preferred Alternative benefit/cost ratio is estimated to be 6.0, above the economically desired result of 1.0 established by Mn/DOT. Therefore, no mitigation in regards to benefit-cost is necessary.

4.4.5 Access and Local Road Connectivity

No mitigation measures, other than those incorporated into the design of the Preferred Alternative (see Chapter 3 of this SFEIS), are proposed for access.

4.4.6 Vehicular Energy Consumption

No mitigation measures are needed because the Preferred Alternative is expected to result in a decrease in energy consumption as discussed in Sections 4.2.7 and 4.3.6 of this SFEIS.

4.4.7 Multi-Modal Systems

4.4.7.1 Transit

Mitigation measures are not necessary with respect to the regional transit system, as no adverse impacts are anticipated because the Preferred Alternative includes no direct changes to the existing transit system.

As part of the Preferred Alternative mitigation package, Mn/DOT, in cooperation with the Metropolitan Council, will conduct a transit feasibility study to determine transit goals and objectives and examine potential transit markets (including non-traditional transit services) in western Wisconsin. The study will also examine operations/maintenance strategies, institutional impediments and potential funding sources. The Transit Feasibility Study will determine transit goals and objectives and examine potential transit markets (including non-traditional transit services) in western Wisconsin that preserve transportation capacity on existing river crossings and avoid or delay additional future impacts to the St. Croix resulting from expansion of existing crossings. Refer to Section 15.4.1.3 of this SFEIS for a discussion of the Transit Feasibility Study.

4.4.7.2 Bicycle/Pedestrian Systems

No mitigation measures are necessary with respect to bicycle and pedestrian systems, as no adverse impacts are anticipated under the Preferred Alternative.

However, to provide mitigation for the impacts of a new river crossing on the recreational values of the Lower St. Croix National Scenic Riverway, a loop trail system has been incorporated into the Preferred Alternative mitigation package. The Preferred Alternative will result in the construction of trails connecting commercial land uses in Oak Park Heights (trail along the TH 36 south frontage road from Oakgreen Avenue to TH 95), the St. Croix Overlook-South, the Preferred Alternative river crossing, downtown Stillwater, and the Town of St. Joseph. A trail will be constructed on the north side of the new river crossing bridge and the Lift Bridge will be converted to a pedestrian/bicycle facility. The loop trail system, described in Section 15.4.1.2 of this SFEIS and the Riverway Memorandum of Understanding in Appendix H of this SFEIS, will provide a continuous pedestrian/bicycle system through the project area between Minnesota and Wisconsin. The loop trail system will also connect to regional trails in the project area.

4.4.7.3 Navigational and Recreational Boating

As noted above in Section 4.3.7.3, the new river crossing piers will introduce a new navigational obstruction in the Riverway, although the piers will not impede navigation and recreational boating.

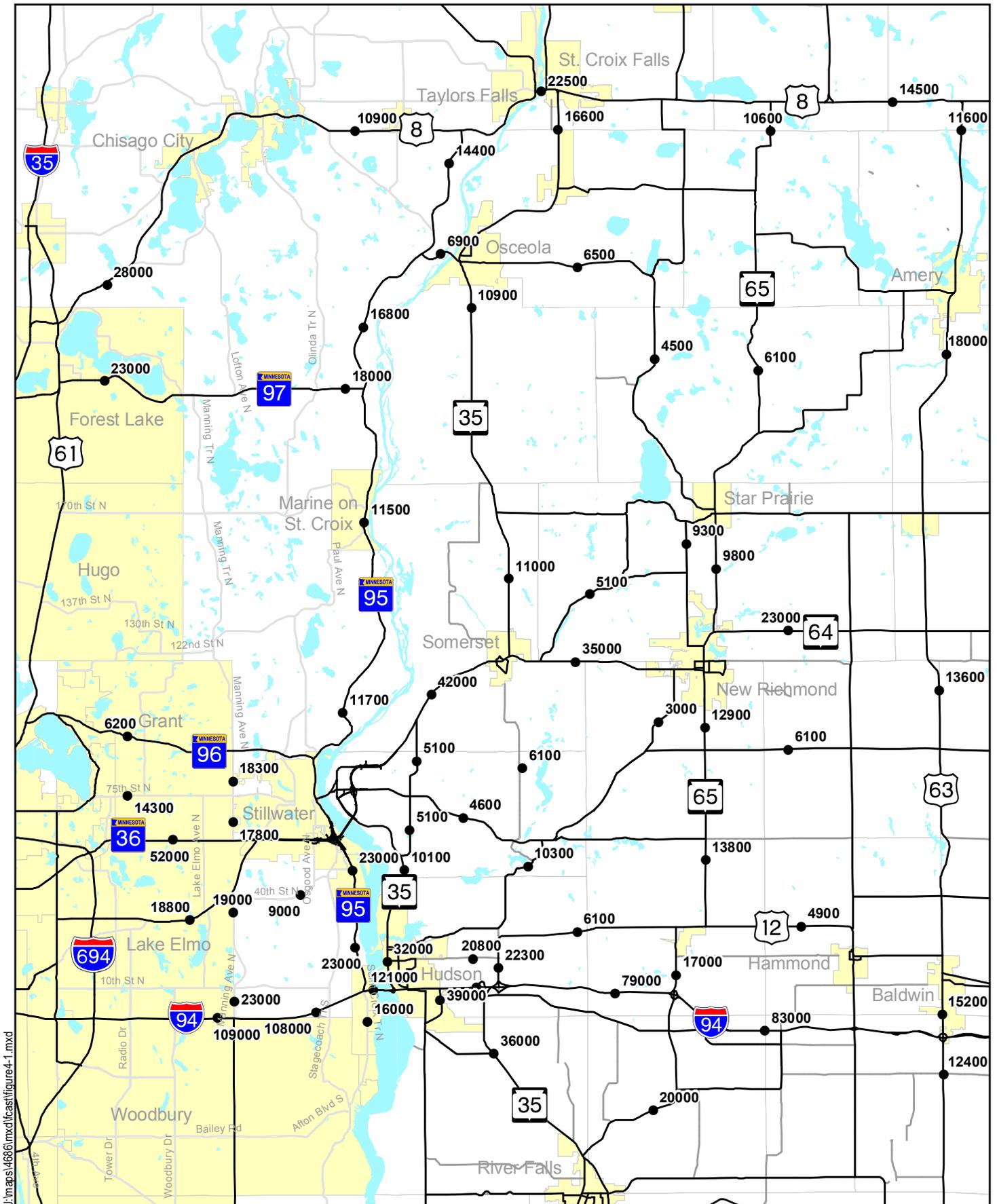
To address the impacts of a new river crossing on the recreational values of the Lower St. Croix Riverway, funds will be included as part of the Preferred Alternative mitigation package for the construction of a new public boat access. The location of this public boat access will be determined by MnDNR. Refer to Section 15.4.1.2 of this SFEIS and the Riverway

Memorandum of Understanding in Appendix H of this SFEIS for additional information on the public boat access mitigation item.

4.4.8 Compatibility with Regional Transportation Plans

As noted above in Section 4.3.8 of this SFEIS, Mn/DOT anticipates updating the TH 36 IRC Management Plan following construction of a new river crossing.

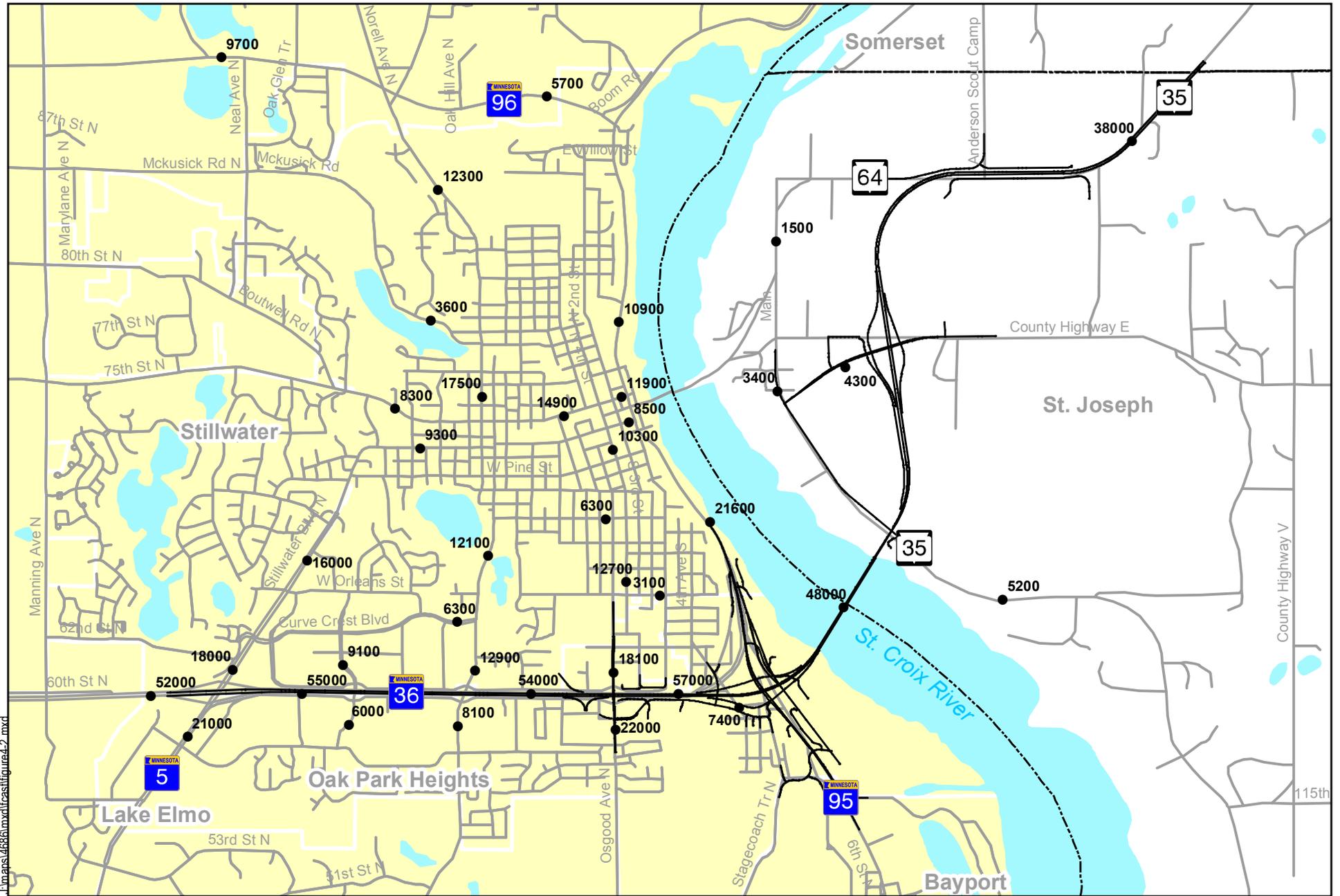
Construction of STH 64 as a rural freeway is consistent with *Wisconsin Corridors 2020 Plan*, therefore no mitigation is necessary.



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Preferred Alternative Average Daily Traffic Volumes (2030)

Figure 4-1



Preferred Alternative Average Daily Traffic Volumes (2030)

Figure 4-2