

Highway 101/169



HIGHWAY 101/169 CORRIDOR PLAN



Moving Minnesota

Corridor Management Plan

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April 2002

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- C CMP Endorsements
- D Highway Improvement Project Evaluations and Cost Analyses



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City of Onamia	Mille Lacs County Board
City of Otsego	Mille Lacs County Planning Commission
City of Pease	Milo Township
City of Princeton	Minnesota Department of Natural Resources
City of Rogers	Minnesota Department of Transportation
City of St. Michael	Minnesota Pollution Control Agency
City of Zimmerman	Onamia Township
Dailey Township	Page Township
East Central Regional Development Commission	Princeton City Council
Federal Highway Administration	Princeton Township
Hassan Township Board	Sherburne County
Hennepin County	Sherburne County Zoning
Hennepin County Department of Transportation	Wright County
Livonia Township	

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Acronyms

AADT	Annual average daily traffic
BNSF	Burlington Northern Santa Fe
CMP	Corridor Management Plan
CR	County Road
CSAH	County State-Aid Highway
EA	Environmental Assessment
EAW	Environmental Assessment Worksheet
EIS	Environmental Impact Statement
IRC	Interregional corridor
LOS	Level of service
MFFTC	Minnesota Federation of Field Trail Clubs
MNRRA	Mississippi National River and Recreational Area
Mn/DOT	Minnesota Department of Transportation
mph	miles per hour
PAC	Policy Advisory Committee
SAC	Subarea Advisory Committee
SDC	State Demographic Center
STIP	State Transportation Improvement Program
TAC	Technical Advisory Committee
TDM	Transportation Demand Management
TH	Trunk Highway
TSM	Transportation System Management
WMAs	Wildlife Management Areas





Executive Summary

Executive Summary

In February 1999, the Minnesota Department of Transportation (Mn/DOT) began identifying key state transportation corridors and ultimately adopted the interregional corridor (IRC) system in January 2000. As part of the State Transportation Plan, the goal of the IRC system is to enhance the economic vitality of the state by providing safe, timely, and efficient movement of goods and people between and among regional trade centers.

This Corridor Management Plan (CMP) for Trunk Highway (TH) 101-TH 169 between Rogers and Garrison represents a first step toward optimizing the corridor’s long-term safety and performance. Early in 2001,

Mn/DOT, TH 101-TH 169 corridor communities and other agencies, the CMP “partners,” began work on this plan to address the goals of the Mn/DOT IRC program. The process of developing this plan was broken down into three major steps: (1) identify issues; (2) develop improvement alternatives; and (3) plan for project implementation.

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-

The **Vision Statement** (see box below) was developed by the corridor partners and established the basic goals of the corridor planning process. Performance goals for 2025 and the roles that Mn/DOT and the corridor partners can expect to play as the planning process moves toward implementation are also included in the vision statement.

TH 101 – TH 169 Corridor Vision Statement

1. CORRIDOR MANAGEMENT PLAN GOALS

The CMP will be developed to achieve a balance between the needs and visions of individual communities and the safe and efficient movement of people and goods. Specifically, the planning process will strive to minimize adverse community effects while maintaining or improving both interregional and local traffic operations.

2. HIGHWAY PERFORMANCE GOALS

Mn/DOT and its corridor partners have established the future highway performance goals (2025) for the TH 101-TH 169 IRC as follows:

- Improve travel time performance and predictability to meet the target speed of 60 mph for the High Priority segment from Rogers to Zimmerman, minimizing delays on TH 101-TH 169 and on intersecting roadways.
- Maintain or improve travel time performance and predictability to meet the target speed of 55 mph for the Medium Priority segment from Zimmerman to Garrison, minimizing delays on TH 169 and on intersecting roadways.
- Improve safety to achieve crash rates better than the statewide average, limiting conflicts between the various vehicle types and pedestrians.

3. IMPLEMENTATION APPROACHES AND ROLES

These goals will be achieved by focusing highway project investments, guiding future land use patterns, and managing highway access points. Mn/DOT and its corridor partners will provide leadership toward the achievement of corridor goals by sharing their visions, promoting projects or initiatives, and protecting or enhancing community image and natural resources.



Plan Organization

Below is a summary of the purpose of each chapter in this CMP.

- **Chapter 1—Introduction and Corridor Vision:** Establishes the CMP purpose and objectives; reviews the planning context and background; and states the long-term corridor vision
- **Chapter 2—Corridor Background:** Provides corridor-specific background information, including trends and forecasts for population and land use
- **Chapter 3—Existing and Future Transportation Performance:** Describes the highway’s existing and future transportation performance if no improvements were made, including traffic volume and safety (crash rate) analyses
- **Chapter 4—Alternative Strategies to Achieve the Vision:** Discusses the possible alternative strategies that can be implemented to preserve corridor mobility and states the principal findings of this CMP
- **Chapter 5—Action Plan for Corridor Management:** Addresses the principal recommendations of this CMP
- **Appendices:** Includes (a) agency and public involvement information; (b) inventory of corridor issues; (c) CMP partner endorsements; and (d) highway projects evaluations and cost analyses

Corridor Description

The statewide IRC program emphasizes planning to maintain reliable travel speeds under normal weekday peak hour conditions and to improve highway safety. For this plan, the IRC speed performance goals are based on the IRC priority, shown in Table 1 and on the map that follows.

TABLE 1
IRC Priority Ranking and Speed Performance Goals

IRC Priority	Applicable Segments of TH 101-TH 169	Target Speed	Actual Speed (2001)
High Priority IRC	TH 101-TH 169 from I-94 in Rogers to CSAH 4 in Zimmerman	60 mph	52 mph
Medium Priority IRC	TH 169 from CSAH 4 in Zimmerman to TH 18 in Garrison	55 mph	67 mph

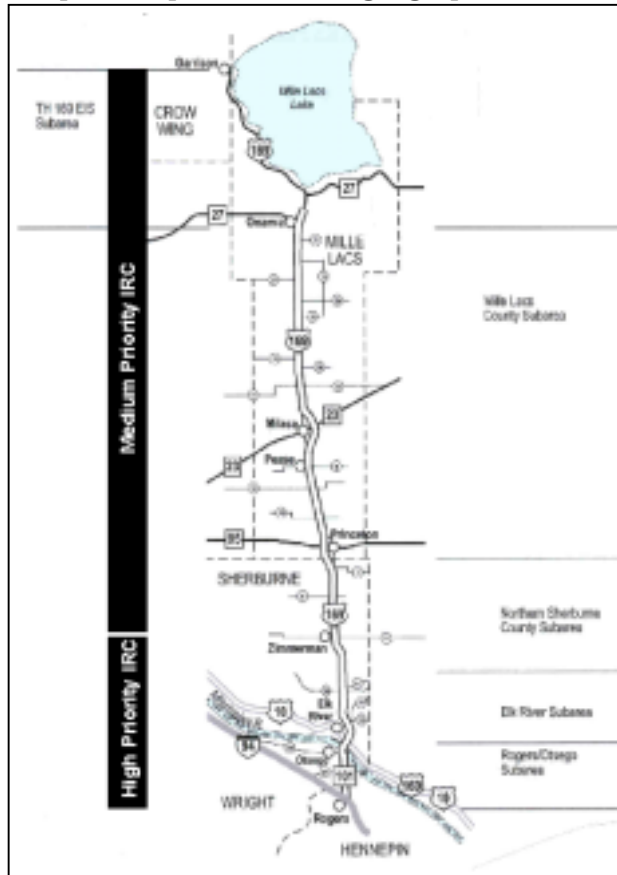
The TH 101–TH 169 corridor provides an essential connection between the Minneapolis-St. Paul (Twin Cities) metropolitan area and central Minnesota. It is also an important Mississippi River crossing. TH 101 is a four-lane signalized suburban expressway serving commuter traffic between I-94 in Rogers and TH 10 in Elk River (7 miles), which includes eight traffic signals. TH 169 runs north and south in the study area from TH 10 in Elk River to TH 18 in Garrison; it is a four-lane rural expressway between TH 10 and TH 27 in Onamia (55 miles) and a two-lane highway north of TH 27 to Garrison (20 miles). There are currently four traffic signals on TH 169 in the 2.5 miles through Elk River, as well as traffic signals at CSAH 4 in Zimmerman and at the Grand Casino north of Onamia.



The 83-mile study corridor was divided into five subareas in order to gather detailed input on issues and concerns from key decisionmakers and the general public, specific to their geographic area.

These subareas are:

- **Rogers/Otsego** – TH 101 between I-94 and TH 10 (7 miles)
- **Elk River** – TH 169 between TH 10 and the north Elk River city limit, at 229th Avenue (7 miles)
- **Northern Sherburne County** – TH 169 between the north Elk River city limit and the south end of the LaGrande Avenue interchange near Princeton (11 miles)
- **Mille Lacs County** – TH 169 between the south end of the LaGrande Avenue interchange near Princeton and TH 27 in Onamia (38 miles)
- **Mille Lacs and Crow Wing Counties Environmental Impact Statement (EIS)** – TH 169 between TH 27 in Onamia and TH 18 in Garrison (20 miles), being addressed in a separate, project level EIS



Forecast Conditions

Growth and Development

- The Metropolitan Council population forecasts estimate the city of Rogers almost doubling its population in the next twenty years. Sherburne County is also projected to have the highest percentage population increase in the state (92 percent in the next 25 years).
- The actual population growth along the TH 101-TH 169 corridor has often exceeded the State Demographer's trend forecast (1998).
- It is forecasted that by 2025, nearly all of the adjacent land south of the Mississippi River will be developed along with most of the land in Elk River.

Future Traffic Volumes

Table 2 (next page) shows the recent average daily traffic volumes (1998) and forecasted traffic for 2015 and 2025. At a minimum, traffic volumes along the corridor are expected to double. Greater increases will occur in the most developed areas—Rogers, Elk River, Zimmerman, and Princeton.

TABLE 2
Existing and Forecasted Traffic Volumes

Location	1998	2015	2025	% Growth (1998 to 2025)
I-94 (Rogers) to Crow River Bridge (Otsego)	34,500	83,000	95,000	175%
Crow River Bridge (Otsego) to TH 10 (Elk River)	34,500	56,200	72,000	109%
TH 10 (Elk River) to CSAH 21	32,400	65,600	83,950	159%
CSAH 21 to TH 95 (Princeton)	23,900	43,300	55,400	132%
TH 95 (Princeton) to TH 23 (Milaca)	13,800	23,700	29,500	114%
TH 23 (Milaca) to TH 27 (Onamia)	9,900	15,450	18,900	91%
TH 27 (Onamia) to TH 18 (Garrison)	10,200	16,650	20,800	104%

Note: Reflects unconstrained traffic volumes. It was assumed that other dependent corridors can accept existing and future traffic volumes from TH 101-TH 169.

Key Findings and Need for Action

In order to realize the corridor vision, multiple transportation issues and needs must be addressed. Considering IRC objectives, Mn/DOT and its corridor partners need to develop an action-oriented plan to improve and protect the highway so that it will continue to play a vital role in the state's economy as the area keeps growing. Below is a list of key findings that were developed through the CMP process.

Key Findings of the Corridor Management Plan

- The speed and safety performance goals stated in the corridor vision cannot be achieved without highway capacity improvements.
- The speed performance goals stated in the corridor vision can be achieved by improving the highway to a freeway from Rogers through Elk River.
- The safety performance goal stated in the corridor vision can be most readily achieved by eliminating signalized intersections and by addressing crash problems at other selected intersections.
- Proper management of TH 169 as a four-lane expressway between Princeton and Onamia is sufficient to achieve the speed goals stated in the corridor vision.
- Upgrading TH 169 to a four-lane rural expressway between Onamia and Garrison is necessary to achieve the safety and speed objectives stated in the corridor vision.
- The corridor partners have worked together to reach consensus that upgrading TH 101-TH 169 to a freeway between Rogers and Princeton is strongly supported as a long-term vision.



The findings noted above all relate to specific corridor needs that initially prompted the need for this CMP. The general corridor needs are related to the following issues:

- Interregional Mobility
- Proliferation of Traffic Signals
- Proliferation of Access Points
- Increasing Congestion
- Safety
- Internal Community Connections
- Intermodal Planning
- Highway Corridor Land Use Planning

Alternatives Considered

Four corridor management alternatives were analyzed:

- The No-Build scenario, as well as other system management strategies
- Upgrade to a six-lane signalized expressway
- Upgrade to a four-lane freeway
- Upgrade to a six-lane freeway (Rogers through Elk River only)

The overall performance evaluation of the CMP found that upgrading to a four-lane freeway from Rogers through Elk River will satisfy 2025 performance goals while the alternative of expanding the highway to a six-lane signalized expressway will not. Even though analysis shows that performance targets would be met with a 4-lane freeway from Rogers through Elk River, corridor partners reached a general consensus that the best approach to achieve the long-term corridor vision was to focus on 4-lane freeway expansion from Rogers to Princeton. The corridor partners believe that extending the 4-lane freeway beyond what is necessary to achieve performance goals will maintain continuity of highway design, meet driver expectations, and meet performance goals beyond the analysis period. Additionally, improvements should also be made to the existing four-lane expressway from Princeton to Onamia. Below are the recommendations that have been developed to achieve this corridor vision.

Corridor Plan Recommendations and Project Prioritization

The vision statement was referred to throughout the planning process and was key in developing the recommendations that require follow-up actions or projects. The recommendations were structured to identify the highest priorities for follow-up actions. There are no specific timeframes implied; however, as Mn/DOT programs projects, and possibly earmarks funds, the most promising highway improvement projects identified for TH 101–TH 169 may receive further attention.

The process involved in improving the corridor includes identification of recommended projects. These projects are included in Chapter 5, with more information included in Appendix D. Table 3 is a summary of prioritization of the projects by funding categories. Based on considerations within the CMP, the most favorable projects for achieving the IRC vision (listed in order from south to north) are:

- **Rogers through Elk River** –Chapter 5 identifies eight potential projects to upgrade from the four-lane expressway to a four-lane freeway. These projects include new interchanges, reconstruction of the existing interchanges at I-94 and TH 10, and construction of frontage roads.



TABLE 3
TH 101 – TH 169 Corridor Management Plan Project Prioritization by Funding Category

FUNDING CATEGORY	Estimated Schedule of Improvements as Programmed (Category I) or as Needed to Meet Target Performance (Category II)			
	Priority A (2002-2010)	Priority B (2011-2018)	Priority C (2019-2025)	Priority D (Beyond 2025)
Category I. Fiscally Constrained Improvement	CR 33 Interchange Project #7 CSAH 9 Interchange Project #12 Upgrade to 4-lane expressway between Onamia and Garrison CSAH 11 Intersection Safety Improvement SUB-TOTAL = \$67 M - \$117 M			
Category II. Strategic Improvements				
A. Target Speed Performance	Four-Lane Freeway Conversion Project #s 1, 5, 6 & 7 (Rogers and Elk River) SUB-TOTAL = \$124 M	Four-Lane Freeway Conversion Project #s 2,3 & 4 (Wright County) SUB-TOTAL = \$44 M		
B. Safety Performance	Zimmerman CSAH 4 Interchange Project # 10 SUB-TOTAL = \$21 M			
Category III. Unconstrained Improvements				Development Nodes – Access and land use management from Princeton to Onamia Upgrade To Six-Lane Freeway Project #s 1 to 7 (Rogers through Elk River) Four-Lane Freeway Conversion Project #s 8, 9, 11, 12, and 13 (Northern limits of Elk River to Princeton) SUB-TOTAL = \$178 M
Key to Projects Identified Above (with estimated project costs in \$million)				
#1 Rogers – Improved and new interchanges from I-94 to CSAH 144 (4-lane freeway conversion = \$66; Upgrade to 6-lane freeway = \$15)		#9 South of Zimmerman – New interchange at CR 36/CR 45 (4-lane freeway conversion = \$15)		
#2 St. Michael – New interchange at CSAH 36 (4-lane freeway conversion = \$16; Upgrade to 6-lane freeway = \$4)		#10 Zimmerman – New interchange at CSAH 4 (4-lane freeway conversion = \$21; Funding not identified)		
#3 Otsego A – New interchange at CSAH 37; overpass at CSAH 42 (4-lane freeway conversion = \$17; Upgrade to 6-lane freeway = \$6)		#11 North of Zimmerman – New interchange at 277th Ave (4-lane freeway conversion = \$17)		
#4 Otsego B – New interchange at CSAH 39 (4-lane freeway conversion = \$11; Upgrade to 6-lane freeway = \$3)		#12 South of Princeton A – Future CSAH 9 interchange (\$4 let cost; 4-lane freeway conversion = \$7)		
#5 Elk River A – Improved interchange at TH 10 (4-lane freeway conversion = \$29; Upgrade to 6-lane freeway = \$5)		#13 South of Princeton B – New interchange at CR 38 (4-lane freeway conversion = \$9)		
#6 Elk River B – New interchange at Main Street; overpass at School Street (4-lane freeway conversion = \$13; Upgrade to 6-lane freeway = \$3)		CSAH 11 Safety Improvement – Intersection design alternatives have been developed (2002 letting; \$1)		
#7 Elk River C – CR 33 interchange (2003 letting; \$12) New interchange at Jackson/197th (4-lane freeway conversion = \$16; Upgrade to 6-lane freeway = \$6)		Development Nodes – The consolidation of access points toward primary and secondary intersections with TH 169, where development is occurring or likely to occur in the future (\$76)		
#8 Elk River D – New interchange at 221st Ave (4-lane freeway conversion = \$12)		Upgrade to four-lane expressway from Onamia (TH 27) to Garrison (TH 18) – An upgrade from the current two-lane design of TH 169 to four-lanes (2006-2010 construction); EIS is underway and some funding for the improvement has been designated (project cost estimates range from \$50 to \$100)		



The CMP also recommends that currently programmed projects should be completed including the current CR 33 interchange project.

- **Elk River to Princeton** – Consistent with the consensus of the corridor partners there are five potential projects identified to achieve highway design continuity and upgrade to a four-lane freeway from Elk River to Princeton. While a freeway from Elk River to Princeton is a long-range vision, a new interchange at CSAH 4 is the highest priority project in this segment, in order to address a very poor safety record at the existing intersection. Also recommended is the completion of the currently programmed CSAH 9 interchange project.
- **Princeton to Onamia** – The potential projects for the corridor north of Princeton include future planning of development nodes and consolidation of access points to maintain highway performance in Mille Lacs County. Discussion with the Mille Lacs County Subarea Committee helped identify key locations where development is either occurring or likely to occur in the future. Also recommended is the completion of the currently programmed CSAH 11 safety improvement project.
- **Onamia to Garrison** – The CMP recommends upgrading the highway from the current two-lane design to a four-lane expressway (a separate Environmental Impact Statement is currently underway for this segment and funding is designated in the District 3 Project Work Plan/Project Studies Plan).

Corridor Management Strategies

Along with the recommended highway improvement projects a number of Corridor Management Strategies were identified. These strategies include continuing ongoing project development, strategies for preserving the corridor, Intelligent Transportation Systems opportunities, and access management tools.

Partnership Planning Studies

Mn/DOT and the corridor partners should complete ongoing project development work. Several projects currently underway along the TH 101-TH 169 corridor should be completed, including:

- Construction of the CSAH 9 interchange in Sherburne County
- Completion of environmental documentation necessary for construction of the County Road (CR) 33 interchange in Sherburne County
- Complete study and implementation of safety improvement at CSAH 11 in Mille Lacs County
- Frontage road improvements between South Diamond Lake Road and CR 144 in Rogers
- Completion of the EIS from Onamia to Garrison
- Additional progress toward implementation of the Northstar commuter rail service

Mn/DOT and corridor partners should plan for the phased development of highway improvement projects. Along with completing current projects and beginning scoping work proposed for the corridor, it is recommended that Mn/DOT and corridor partners begin planning for the development of selected highway improvement projects. The highest priority corridor projects should be based primarily on ability to improve the highway's performance. Some of the key performance measures identified through the corridor planning process include the potential to:



- Maintain or increase average peak-hour travel speeds
- Eliminate traffic signals
- Improve local traffic operation
- Resolve safety problems

An example of such a partnership project is the development of a new interchange at CSAH 4 in Zimmerman.

Soon after the CMP is completed, Mn/DOT should develop the appropriate level of National Environmental Policy Act (NEPA) review. This recommendation concerns the “next steps” for project development and CMP implementation along the TH 101-TH 169 corridor as a whole. All projects that Mn/DOT and corridor partners wish to build must go through documentation of environmental effects. Project “Scoping” is employed during the initial phases of project investigations that may require an environmental impact statement (EIS), but is not required to proceed with an environmental assessment (EA). However, a multiple-project scoping document analysis is under consideration for the corridor to help Mn/DOT and corridor partners establish the list of independently justified projects, the geographic limits, and the appropriate levels of environmental study needed to develop each project.

Corridor Preservation Strategies

Local governments should update comprehensive plans and should consider updating local zoning ordinances. Achieving the TH 101-TH 169 corridor vision will depend, in part, on the working relationships that have been formed between Mn/DOT and other corridor partners. While Mn/DOT is the agency with the greatest amount of responsibility for the state TH system, land use planning and zoning actions taken by counties and communities along the corridor also influence the corridor’s characteristics and the highway’s future performance. Controlling development at key locations can positively impact the cost and feasibility of future projects. Specific examples of how communities can show support for the TH 101-TH 169 CMP include:

- Pass official resolutions of support or endorsement for CMP recommendations
- Update local land use, comprehensive, and transportation plans to reflect the conclusions of the CMP
- Ensure that local roads are being planned and built in a coordinated manner with the long-term vision of an upgraded TH 101-TH 169
- Assume leadership for interim local projects involving maintenance or access management, such as frontage road projects, turn lanes, or acceleration lanes
- Continue to work in partnership with Mn/DOT to advance the key projects necessary to achieve the long-term corridor vision
- Ensure development patterns that recognize and plan for future highway projects

Access Management Strategies

To maintain highway performance in Mille Lacs County (from Princeton to Onamia), planning should be focused on primary and secondary development nodes. In addition to the preservation strategies discussed above, this recommendation relates to key locations that have been identified where development is occurring or is likely to occur in the future. Consolidation of access points to these “development nodes” will help maintain highway performance between Princeton and



Onamia. Development nodes (typically at county road intersections with TH 169) were prioritized as primary or secondary according to the location's level of development and crossroad functions.

Intelligent Transportation System Strategies

All highway improvements impacting both the TH 101-TH 169 mainline and the crossroads would be assessed for consistency and inclusion with the state-wide and regional ITS architecture. This includes provisions for traffic detection, advanced traffic signalization, ramp metering, incident management, and traveler information.

Modal Strategies

Mn/DOT and corridor partners should seek opportunities to enhance multimodal opportunities along the corridor. A variety of multimodal issues and opportunities exist along the TH 101-TH 169 IRC, including the following:

Transit Services - Northstar corridor feeder bus connections; possible northwest busway service (CSAH 81 to a potential western terminus of Rogers); general capacity improvements and bus-on-shoulder operations; and park-and-ride transit services

Freight/Shipping - Separation of traffic at the I-94/TH 101 interchange and elimination of traffic signals; and other truck-related access considerations including adequate turning radius treatments and adequate acceleration-deceleration distances—particularly in the area from Rogers through Elk River

Unresolved Issues

The following is a list of some issues that have emerged as requiring further consideration and investigation in order to resolve the many details and questions that naturally flow from this CMP and the planning process completed to date:

- Funding
- Coordination with Other IRCs and Other Nearby Projects
- Project Development and Corridor Right-of-Way Preservation
- Supporting Local Roadway Network

The above list is not intended to be comprehensive, but rather the major themes that will require further consideration. These issues are discussed further in section 5.5.

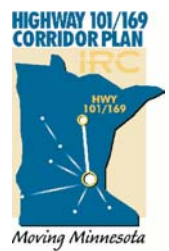
Plan Endorsement

The successful implementation of the TH 101-TH 169 corridor vision is dependent on a cooperative relationship between Mn/DOT and the corridor partners. Support of this plan by all corridor partners is essential for preserving the corridor, securing needed funding to pursue the vision, and developing a plan of action for the projects presented in this plan. Mn/DOT has sought endorsement of the CMP by corridor partners to gain this needed support. Appendix C contains endorsement resolutions passed before publication of this document and a status report on all other known endorsement issues.





Chapter 1 - *Introduction & Corridor Vision*



Introduction and Corridor Vision

This chapter establishes this plan’s purpose and objectives and reviews the planning context and background. It also states the long-term corridor vision, as determined through the Minnesota Department of Transportation’s (Mn/DOT) work with corridor partners—in particular, the counties, cities, and townships through which the Trunk Highway (TH) 101-TH 169 interregional corridor (IRC) is routed.

Chapter 2 provides corridor-specific background information, including trends and forecasts for population and land use. Chapter 3 describes the highway’s existing and future transportation performance if no improvements are made, including traffic volume and safety (crash rate) analyses. Chapter 4 discusses the possible alternative strategies that can be implemented to preserve corridor mobility and states the principal findings of this Corridor Management Plan (CMP). Chapter 5 addresses the principal recommendations of this CMP. Additional supporting information is located in the appendices.

1.1 Statewide Framework for Interregional Corridors

In February 1999, Mn/DOT began identifying key transportation corridors and ultimately adopted the IRC system in January 2000 as part of the State Transportation Plan. The goal of the IRC system is to enhance the economic vitality of the state by providing safe, timely, and efficient movement of goods and people. The emphasis of the system is on providing efficient connections from the metro out to, and between regional trade centers.

The IRC system is comprised of 2,930 miles of highways, representing only 2 percent of all roadway miles in the state (see Figure 1-1). However, this small percentage of highways accounts for one-third of all vehicle miles traveled, and the use of these highways is increasing. Traffic volumes on the IRC system have risen by 50 percent in the last 10 years and are expected to double by the year 2020. This growth trend and the resulting congestion further threatens the efficient movement of goods and people between trade centers.

In response to the possible performance threats and safety issues associated with the increase in traffic, the Minnesota State Legislature allocated \$459 million to Mn/DOT to address IRC and bottleneck needs on the state trunk highway system in the 2000 session. The goals of projects funded through this *Moving Minnesota* funding package are to address the “ABCs” of transportation problems in Minnesota. The ABCs are:

- Provide **A**dvantages for transit,
- Remove **B**ottlenecks, and
- Improve interregional **C**orridors.

IRC studies fall under the last ABC goal, which is to address needs and to preserve mobility throughout the critical corridors.

Statewide, seven key IRCs were identified as being at risk of not meeting basic performance objectives, such as weekday travel speeds. Figure 1-1 shows the entire IRC system, including the seven corridors that are part of the *Moving Minnesota* IRC studies, which include:

- TH 101–TH 169 between I-94 and Garrison
- I-94 between Collegeville and I-494
- TH 10 -TH 24 between Little Falls and I-94
- TH 52 between I-494 and Rochester
- TH 169 between Mankato and I-494
- TH 212 between South Dakota State Line and I-494
- TH 10 between Clear Lake and I-35W

1.2 Corridor Management Plan Purpose and Structure

This CMP represents the first step toward optimizing the long-term safety and performance of the TH 101-TH 169 IRC. Early in 2001, Mn/DOT and its corridor partners began work on this plan to address growth and development and related traffic congestion and safety issues from Rogers to Garrison. The statewide IRC program emphasizes planning to maintain reliable travel speeds under normal, weekday peak hour conditions and improving highway safety (see also Section 1.1). Statewide target speed performance goals for IRC segments were set based on the designation of segments as either High or Medium Priority. These target speeds are shown below in Table 1-1 and Figure 1-2 for the applicable segments of the TH 101-TH 169 corridor.

This CMP represents the first step toward optimizing the long-term safety and performance of the TH 101-TH 169 IRC.

TABLE 1-1
IRC Priority Ranking and Speed Performance Goals

IRC Priority	Applicable Segments of TH 101-TH 169	Target Average Speed	Actual Average Speed (2001)
High Priority IRC	TH 101-TH 169 from I-94 in Rogers to CSAH 4 in Zimmerman	60 mph	52 mph
Medium Priority IRC	TH 169 from CSAH 4 in Zimmerman to TH 18 in Garrison	55 mph	67 mph

Traffic volumes on the TH 101-TH 169 corridor are expected to increase significantly due to the fast rate of community growth (particularly in Sherburne, Wright, and Hennepin Counties), as well as the steady growth and demand for recreational activities farther north (see Chapters 2 and 3 for more detailed information). Today, the High Priority IRC segment is performing at an average travel speed of 52 miles per hour (mph), and hence functions below target; the Medium Priority IRC segment is performing above target at an average travel speed of 67 mph. On average, the entire TH 101-TH 169 IRC is performing at 63 mph (at target for a High Priority IRC).

CANADA

NORTH DAKOTA

SOUTH DAKOTA

IOWA

WISCONSIN

LEGEND

State Trunk Highway System

Interregional Corridors

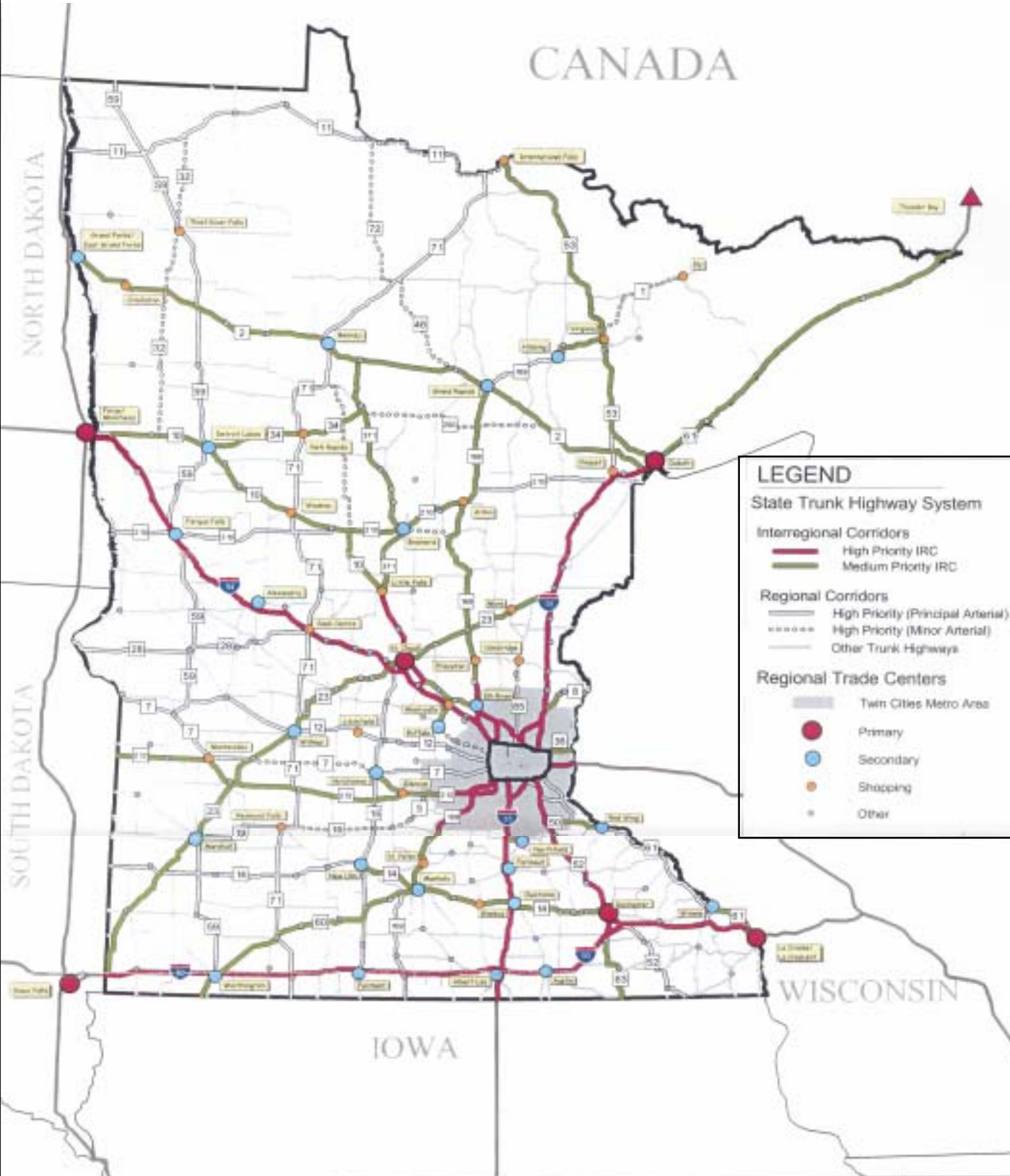
- High Priority IRC (Red line)
- Medium Priority IRC (Green line)

Regional Corridors

- High Priority (Principal Arterial) (Dashed line)
- High Priority (Minor Arterial) (Dotted line)
- Other Trunk Highways (Thin solid line)

Regional Trade Centers

- Twin Cities Metro Area (Grey shaded area)
- Primary (Red circle)
- Secondary (Blue circle)
- Shopping (Orange circle)
- Other (Small black dot)



Interregional Corridors

Figure 1-1



1.2.1 Study Organization and Process

Development of this CMP was the result of collaboration between Mn/DOT and other state agencies and the corridor partners, including representatives from counties, cities, and townships. The primary goals for the organization of the study were to maximize the availability of timely, accurate, and useful information and to gain input from both key decisionmakers and the general public.

1.2.1.1 Subareas

The 83-mile study corridor was divided into five subareas in order to gather detailed input on issues and concerns from key decisionmakers and the general public, specific to their geographic area, as shown in Figure 1-2. These subareas are:

- **Rogers/Otsego**—TH 101 from I-94 to TH 10 (7 miles)
- **Elk River**—TH 169 from TH 10 to the north Elk River city limit, at 229th Avenue (7 miles)
- **Northern Sherburne County**—TH 169 from the north Elk River city limit and the south end of the LaGrande Avenue interchange near Princeton (11 miles)
- **Mille Lacs County**—TH 169 between the south end of the LaGrande Avenue interchange near Princeton and TH 27 in Onamia (38 miles)
- **Mille Lacs and Crow Wing Counties Environmental Impact Statement (TH 169 EIS)**—TH 169 between TH 27 in Onamia and TH 18 in Garrison (20 miles), being addressed in a separate, detailed planning study (EIS)¹

1.2.1.2 Corridor Management Plan Development Process

The process of developing this CMP was broken down into three major steps:

- **Identify issues**—Corridor issues were identified through an analysis of existing and forecast traffic conditions and through extensive input received from the Subarea Advisory Committees (SACs) and the Policy Advisory Committee (PAC). The CMP study team also reached out to the general public and special groups by releasing news and by holding public open houses (August 2001 and March 2002). Issues discussed included land use, environmental, highway operations/capacity, and highway safety. Chapters 2 and 3 and Appendix B include more information and mapping related to corridor issues.
- **Develop improvement alternatives**—After corridor issues were identified, improvement alternatives were developed and evaluated, including: (1) system and demand management strategies and (2) highway capacity improvements. Sketches of potential new or improved interchanges were often used at this point to visualize the alternatives. The evaluation of improvement alternatives is discussed primarily in Chapter 4.

The process of developing this plan was broken down into three major steps:

- (1) identify issues;
(2) develop improvement alternatives; and
(3) plan for project implementation.*
-

¹ The TH 169 EIS subarea is the focus of a separate Environmental Impact Statement (EIS), begun in 1999. Relevant information from that EIS has been incorporated into this CMP.



- **Plan for project implementation**—An implementation plan, or “Action Plan,” was developed to identify and prioritize potential corridor improvement projects. Chapter 5 provides information on the potential projects.

1.2.1.3 Advisory Committee Structure

Most of the public involvement for this plan came from partnerships that were formed early in the planning process with local professionals and elected officials. The structure of these committees is described below and illustrated in Table 1-2. More details are also provided in Appendix A.

TABLE 1-2
Study Committee Structure

Project Management Team	Policy Advisory Committee	Subarea Advisory Committee
Mn/DOT Project Management Team County Engineers Consultant Team	Mn/DOT Project Management Team Mn/DOT District/Division Team Reps. FHWA Minnesota Dept. of Natural Resources Minnesota Pollution Control Agency County Commissioners City Council Members Township Supervisors State Legislators	Mn/DOT Project Management Team Metropolitan Council Regional Development Commission 7E County Commissioners County Engineers County Planners City Council Members City Engineers City Planners Township Supervisors Mille Lacs Band of Ojibwe

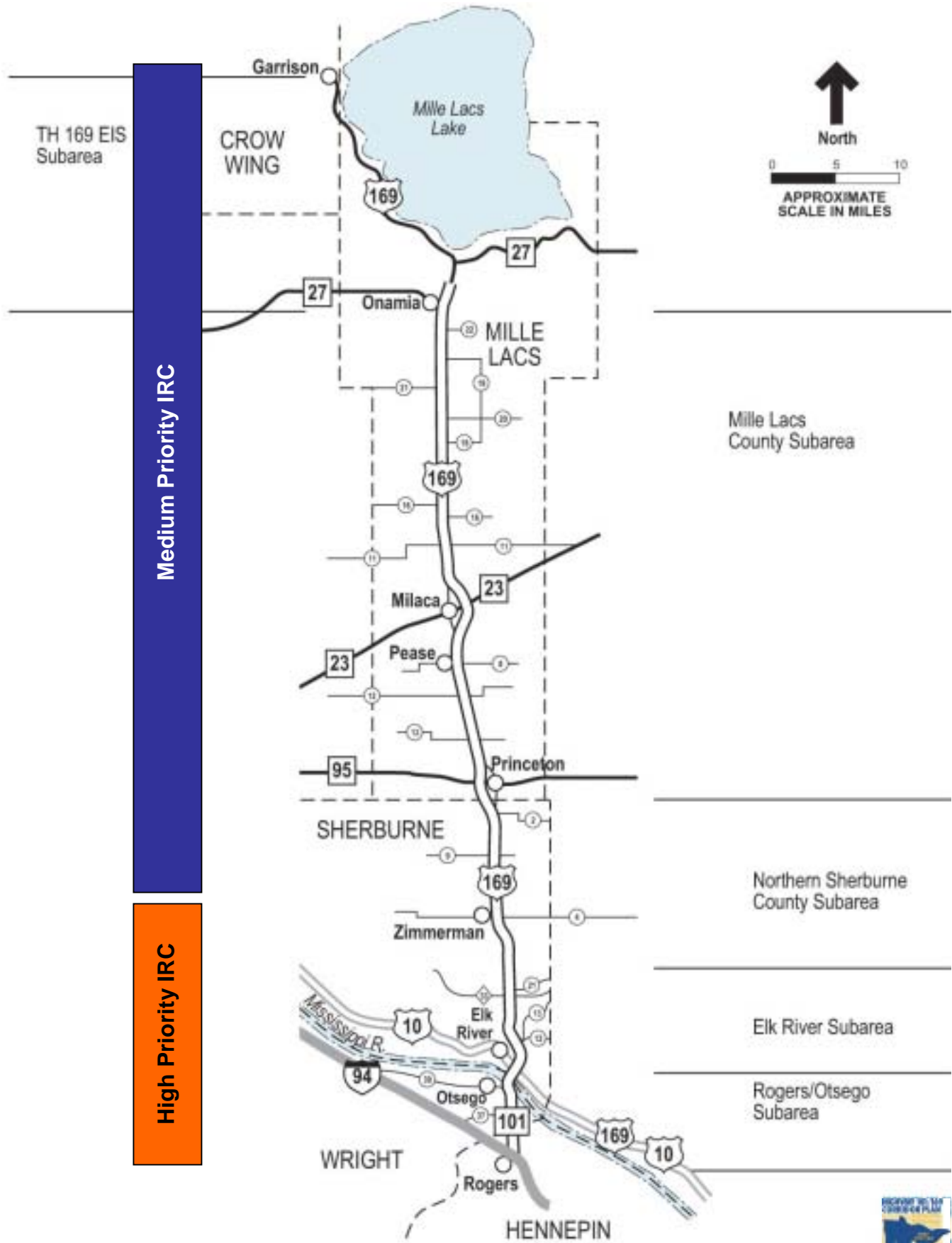
Subarea Advisory Committees. One SAC was formed for each of four subareas: Rogers/Otsego, Elk River, Northern Sherburne, and Mille Lacs (a SAC was not necessary for the TH 169 EIS subarea because the separate EIS study process provides for all the appropriate input opportunities). Each SAC met periodically to provide technical assistance and detailed input on issues and concerns primarily affecting their specific subarea. The SACs were largely composed of county, city, or township professional staff within the subarea.

Policy Advisory Committee. A PAC consisting of elected officials from communities along the corridor and representatives of state environmental resource agencies was also formed for this study. The PAC provided guidance and input to the project team, and also provided input on the issues and recommendations reflected in this plan.

1.2.1.4 Public Information Open Houses

The project team interacted with the public during Open House meetings that provided information on the progress of the study and also gave the project team an opportunity to gather input from the public. The first round of public open houses was held August 6-9, 2001 at four locations: Rogers, Elk River, Princeton and Milaca. The second round of public open houses was held March 18 and 19, 2002 at two locations: Princeton and Elk River. Members of the CMP project team were available at each meeting to answer questions and obtain input.





Medium Priority IRC

High Priority IRC

Corridor Map with Subareas

Figure 1-2



1.3 Corridor Vision Statement and Need for Action

1.3.1 Corridor Vision Statement

Developing a corridor vision for 2025 involved several steps, including the early development of a **Vision Statement** (see box below). The **Vision Statement** established the basic goals of the corridor planning process, included 2025 performance goals, and outlined the roles that Mn/DOT and other corridor partners can expect to play as the planning process moves toward implementation.

The vision statement was developed with input from the corridor partners after a process of issue identification, preliminary traffic forecasting, and early performance predictions. The corridor partners considered how the highways serve their communities, what they perceived as an acceptable level of service, and what they felt was an acceptable level of impact to local and through transportation systems. Corridor partners desires and concerns about future performance of the corridor were addressed through a continual refinement of the vision statement. The following steps outline the process used to refine the vision statement:

- Review corridor issues, deficiencies, and objectives
- Identify alternative strategies or improvement concepts
- Analyze and discuss advantages and disadvantages of the improvement concepts
- Determine short- and long-term consensus approaches by corridor partners

TH 101 – TH 169 Corridor Vision Statement

1. CORRIDOR MANAGEMENT PLAN GOALS

The CMP will be developed to achieve a balance between the needs and visions of individual communities and the safe and efficient movement of people and goods. Specifically, the planning process will strive to minimize adverse community effects while maintaining or improving both interregional and local traffic operations.

2. HIGHWAY PERFORMANCE GOALS

Mn/DOT and its corridor partners have established the future highway performance goals (2025) for the TH 101-TH 169 IRC as follows:

- Improve travel time performance and predictability to meet the target speed of 60 mph for the High Priority segment from Rogers to Zimmerman, minimizing delays on TH 101-TH 169 and on intersecting roadways.
- Maintain or improve travel time performance and predictability to meet the target speed of 55 mph for the Medium Priority segment from Zimmerman to Garrison, minimizing delays on TH 169 and on intersecting roadways.
- Improve safety to achieve crash rates better than the statewide average, limiting conflicts between the various vehicle types and pedestrians.

3. IMPLEMENTATION APPROACHES AND ROLES

These goals will be achieved by focusing highway project investments, guiding future land use patterns, and managing highway access points. Mn/DOT and its corridor partners will provide leadership toward the achievement of corridor goals by sharing their visions, promoting projects or initiatives, and protecting or enhancing community image and natural resources.

The IRC planning process and the above corridor vision are aimed at achieving or maintaining good highway performance through 2025. To accomplish this Mn/DOT and its corridor partners need to develop a plan for the rapidly growing communities along the TH 101-TH 169 corridor—especially from Rogers to Zimmerman, where traffic volumes will more than double by 2025. This segment of the highway includes 13 traffic signals and passes through several communities and townships that are active in providing the infrastructure needed to serve and manage growth and new development (water, sewer, and local roadways).

1.3.2 Purpose of and Need for Action

In order to realize the vision, multiple transportation issues and needs must be addressed. One key purpose of this current plan is to respond to Minnesota’s general IRC objectives (see also Section 1.2). In that context, the TH 101-TH 169 corridor is one of seven key IRCs between greater Minnesota and the Twin Cities at risk of not meeting basic Mn/DOT mobility objectives. Because of current and forecasted rapid growth, Mn/DOT and its corridor partners need to develop long-term, broadly-based options to help improve and protect the highway so that it will continue to play a vital role in the state’s economy.

In order to realize the corridor vision, multiple transportation issues and needs must be addressed.

The following is a list of specific corridor needs that have been identified and addressed throughout this report:

Considering IRC objectives, a plan is needed to improve and protect the highway so that it will continue to play a vital role in the state’s economy.

- **Interregional Mobility**—The TH 101–TH 169 corridor is an essential connection between the Twin Cities metropolitan area and central Minnesota, including several regional trade centers between the Rogers-Otsego-Elk River area and Grand Rapids. There is a need to preserve or enhance interregional mobility between the Twin Cities metropolitan area and central Minnesota for a wide range of trip purposes, including freight movement, recreational travel, commuting, shopping, and other business trips.
- **Proliferation of Traffic Signals**—There are currently 13 traffic signals between Rogers and Zimmerman, which have increased the travel time between the two communities.
- **Proliferation of Access Points**—Mn/DOT’s Access Category System and Spacing Guidelines, dated January 28, 2002, recommend one to two access points per mile. There are 415 access points along the 83-mile corridor from Rogers to Garrison. This sum averages to five access points per mile—well above Mn/DOT’s guideline.
- **Increasing Congestion**—There is a need to address existing and projected peak period congestion (of both commuter and recreational origins) resulting from inadequate highway capacity and/or operational problems such as traffic signal proliferation from Rogers to Zimmerman. Development and growth over the past decade has significantly increased traffic volumes. More information regarding growth and future traffic is provided in Chapters 2, 3, and 4; but the Mn/DOT team generally found that peak-period congestion will become severe by 2025 in the southernmost 25 miles of the corridor, from Rogers through Elk River.

- **Safety**—There is a need to address safety issues along the corridor by defining and examining crash problem areas and determining potential solutions. A detailed discussion of safety (crash) data is presented in Chapter 3. But in general:
 - While several of the intersection crash problems occur at traffic signals, nearly half of the problem intersections are unsignalized.
 - Nearly all of the intersection crash problems occur in the southern third of the corridor, with rear end crashes as the most common type.
 - Locations that have been defined as having safety problems include County State-Aid Highway (CSAH) 4 in Zimmerman; the traffic signals through Elk River; and the intersections at CSAH 2 in Sherburne County, CSAH 42 in Wright County, and CSAH 38 and 11 in Mille Lacs County.
- **Internal Community Connections**—There are many communities that are divided by the corridor. Crossing TH 101-TH 169 is sometimes difficult and poses safety issues for motorists, pedestrians, and bicyclists. There is also a need to improve connectivity across the corridor while minimizing adverse community effects.
- **Highway Corridor Land Use Planning**—In order to achieve the corridor vision, there is a need to identify and preserve land for future highway improvements. While Mn/DOT is the agency with the greatest amount of responsibility for the state trunk highway system, land use planning and zoning actions taken by communities along the corridor also greatly influence the corridor's characteristics and the highway's future performance.
- **Intermodal Planning**—There is a need to coordinate plans for various travel modes and related land use objectives, including passenger (transit-, pedestrian-, or bicycle-oriented) and freight (rail-, truck-, and air-oriented) facilities or land use areas.



Chapter 2 - *Corridor Background*

Corridor Background

This chapter provides baseline information about the TH 101-TH 169 study area. This includes historic and projected population and growth and a summary of the surrounding environment.

2.1 Trends and Forecasts

2.1.1 Population

The high rate of population and economic growth along the TH 101-TH 169 corridor along with the resulting growth in traffic volumes and congestion led to the identification of this corridor as “at risk” for signal proliferation and further performance degradation. Much of this growth is related to the dynamics of the Minneapolis-St. Paul (Twin Cities) metropolitan area.¹ The Twin Cities grew by over 350,000 people from 1990 to 2000—faster than any other decade in the area’s history. While the entire metro area is growing, a large share of the growth is taking place in the northwest metro area and adjacent counties, including Hennepin, Sherburne, and Wright Counties. This growth trend also extends outward from the Twin Cities, as evidenced by the high rate of growth in the St. Cloud area, a regional trade center within a 1-hour drive from the study area (under a free-flow traffic condition).

A summary of the population data for the counties and cities located in the corridor study area is shown in Table 2-1. Additionally, Figure 2-1 depicts the historic and projected county growth rates along the corridor. According to the 2000 census, Sherburne County grew by 22,472 residents (54 percent) and Wright County grew by 21,276 residents (31 percent) between 1990 and 2000. These two counties are expected to continue growing rapidly and to be among the fastest growing counties in Minnesota over the next 25 years (Minnesota Planning and the State Demographic Center, *Faces of the Future*). Sherburne County is projected to grow by 63 percent and Wright County is projected to grow by 31 percent—increases in population of 40,694 and 27,576, respectively. Mille Lacs County has also had a healthy rate of growth over the past decade, with 4,660 new residents added (a 20 percent growth rate) between the 1990 and 2000 census. Mille Lacs County is projected to grow by another 15 percent through 2025—a 3,392 increase in population.

Hennepin County grew by 83,769 residents (8 percent) from 1990 to 2000. While Minnesota Planning projects that Hennepin County’s growth rate will slow dramatically through 2025, portions of Hennepin are growing rapidly, including the Rogers and Hassan Township area. The city of Rogers grew by over 400 percent from 1990 to 2000 (from 698 to 3,588). Additionally, Hassan Township grew by 26 percent (from 1,951 to 2,463). This development trend is occurring as the Twin Cities metropolitan area grows and residents choose to live in previously undeveloped areas, including the “collar counties” that lie immediately outside the seven-county Twin Cities metropolitan area.

¹ The seven-county Minneapolis-St. Paul metropolitan area includes Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington Counties as defined by the Metropolitan Council.



TABLE 2-1
City and County Historic and Projected Population Growth

County/Subdivision	1970 ^a	1980 ^a	1990 ^a	2000 ^a	2015 ^b	2025 ^b	Percent Change (2000 to 2025)
Hennepin County	960,080	941,411	1,032,431	1,116,200	1,144,039	1,120,716	0.40%
Hassan Township	917	1,766	1,951	2,463	7,363 ^c	9,500 ^c	
City of Rogers	544	652	698	3,588	7,000 ^c	7,000 ^c	
Wright County	38,933	58,681	68,710	89,986	107,564	117,562	31%
City of Otsego	1,526	4,769	5,219	6,389	7,637	8,347	
City of St. Michael	1,021	1,519	2,506	9,099	10,876	11,887	
Sherburne County	18,344	29,908	41,945	64,417	89,996	105,111	63%
Baldwin Township	1,099	2,412	2,909	4,672	6,527	7,623	
City of Elk River	2,252	6,785	11,143	16,447	22,978	26,837	
Livonia Township	705	1,655	2,288	3,917	5,472	6,391	
City of Zimmerman	495	1,074	1,350	2,851	3,983	4,652	
Mille Lacs County	15,703	18,430	18,670	23,330	25,269	26,722	15%
Bogus Brook Township	761	860	876	1,038	1,124	1,189	
Dailey Township	186	213	193	246	266	282	
Kathio Township	693	901	930	1,309	1,418	1,499	
City of Milaca	1,940	2,104	2,182	2,580	2,794	2,955	
Milaca Township	813	957	999	1,189	1,288	1,362	
Milo Township	920	957	999	1,076	1,165	1,232	
City of Onamia	670	691	676	847	917	970	
Onamia Township	427	516	517	583	631	668	
Page Township	444	456	440	600	650	687	
City of Pease	187	174	178	163	177	187	
City of Princeton ^d	2,531	3,144	3,719	3,947	4,280	4,528	
Princeton Township	1,294	1,625	1,601	1,947	2,109	2,230	
South Harbor Township	583	691	563	885	959	1,014	

Sources:

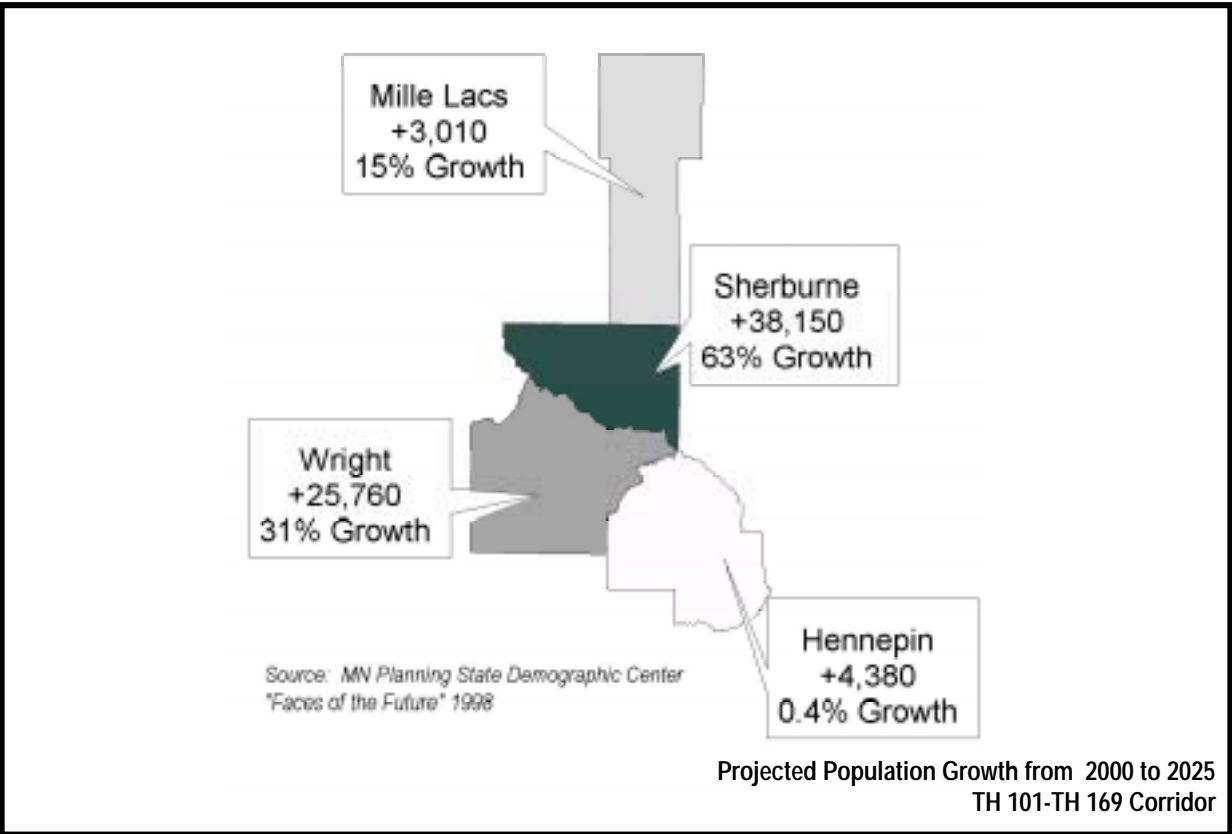
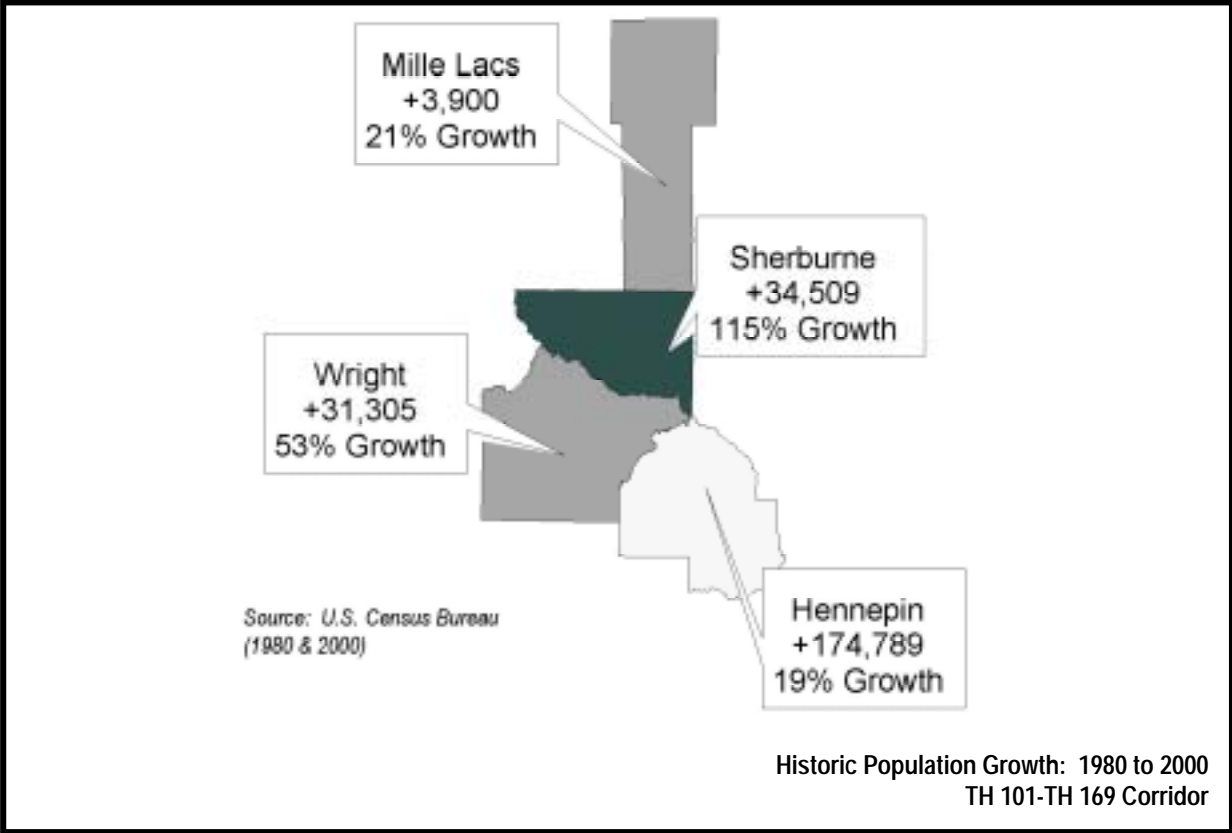
^a 2000 census, U.S. Bureau of the Census

^b Projected numbers were determined based on the 2000 census as a baseline and applying the percent growth from the projected figures in *Faces of the Future: Minnesota County Population Projections 1995-2025*, State Demographic Center.

^c Hassan Township and the City of Rogers provided specific input on forecasted population (see further discussion in text below).

^d The City of Princeton is located in both Sherburne and Mille Lacs Counties. The larger portion of the City of Princeton is located in Mille Lacs County. The figures presented are the combined populations from both Sherburne and Mille Lacs Counties.





Historic and Projected Population Growth

Figure 2-1



Most of the 2025 population forecasts listed in Table 2-1 have been adjusted by the corridor study team to reflect the same percent growth rate from 2000 to 2025 as was used by the State Demographic Center (SDC) in its 1998 forecasts (with 2000 census figures used as the base). This was done because, in many cases, previous forecasts for areas along the corridor through 2000 were exceeded by census results. Similarly, Mn/DOT and the SDC are now re-evaluating growth forecasts for the metro area and areas to the northwest. Some of the current work shows the potential for even faster growth than reflected in Table 2-1, especially in Hennepin, Wright, and Sherburne Counties.

The methodology used to determine the 2015 and 2025 population forecasts (Table 2-1) is based on distributing county-wide growth forecasts to the various cities and townships, except for Hassan and the City of Rogers. The Rogers-Hassan Township area is located at the southern end of the TH 101-TH 169 IRC, in Hennepin County. While Hennepin County as a whole is not expected to experience a high percentage growth rate, much of the growth is expected occur in the northwest part of the county. Input received from the City of Rogers indicates that it should be fully developed within a few years, supporting 7,200 to 7,500 persons (Table 2-1 simply reflects a forecast of 7,000). Hassan Township has recently prepared population growth estimates that the corridor study team used to forecast the 2015 and 2025 population.

Population forecasts for corridor counties and cities are being re-evaluated in light of 2000 census data. Some of the current work shows the potential for even faster population growth than reflected in this plan, especially in Hennepin, Wright, and Sherburne Counties.

Hassan Township essentially surrounds the City of Rogers, and the two communities are currently exploring the potential to merge into one city. The combined forecasted growth in Table 2-1 reflects a population increase from 6,051 in 2000 to 16,500 in 2025—a 273 percent increase.²

2.1.2 Employment

TH 101-TH 169 plays an important role in providing regional mobility for employment purposes. The employment data shown in Table 2-2 exemplifies how many 1990 residents lived in counties along the corridor and traveled within the four-county study area for employment. Over 65 percent of Sherburne County residents and over 50 percent of Wright County residents traveled to jobs outside their home counties. Over 85 percent of Wright County commuters traveling to work outside of their county of residence traveled to Hennepin, Sherburne, or Mille Lacs Counties. The high percentage of commuters leaving their home county for work indicates a long commute and the apparent importance of state highways as high capacity routes. Among state highways, IRCs are the most important routes carrying the highest volumes along the most direct route.

² Sources: Gary Eitel, Rogers City Administrator; Gary Morrison, Hassan Township Administrator (February 2002).



TABLE 2-2
Commuting Patterns in Study Area by County of Residence

Counties Along TH 101-TH 169 Corridor	Total Number of Commuters per County	Commuters Traveling to Job Within County of Residence (%)	Commuters Traveling to Job Outside County of Residence (%)	Commuters Traveling Outside County of Residence to a County Along Corridor
Hennepin	561,081	478,582 (85%)	82,499 (15%)	1,959 (0.4%)
Wright	33,514	15,658 (47%)	17,856 (53%)	15,283 (46%)
Sherburne	20,178	6,513 (32%)	13,665 (68%)	6,946 (34%)
Mille Lacs	7,799	5,313 (68%)	2,486 (32%)	1,258 (16%)

Sources: Minnesota WorkForce; 1990 census data. Table 143: Geographic Mobility, Commuting, and Veteran Status. Percents are of total number of commuters per county.

2.1.3 Land Use

Land use along TH 101-TH 169 varies significantly from the southern to the northern portions of the corridor. The southern portion—specifically between Rogers and Elk River—contains a great deal of commercial and retail development in addition to significant residential growth. This trend of increasingly suburban land use will likely continue given the rapid population growth rate that is occurring in the southern portion of Sherburne County. The portion of the corridor from Livonia Township to Garrison is more rural and does not show the same general development level. There are pockets or nodes of development pressure at cities and key intersections, however.

Present and future land uses will influence corridor performance. Local land use maps and comprehensive plans for the cities of Rogers, St. Michael, Otsego, and Elk River were examined to show how communities from Rogers through Elk River are planning for growth (see Figure 2-2). Planned land uses are only shown for communities through Elk River because of the large amount of commercial, retail, and residential development that is occurring in this area. Development north of Elk River is not as rapid, nor is it expected to be as varied as the portion of the corridor south of Elk River.

While it is impossible to definitively predict future land uses, it is possible to estimate how land along the corridor will be developed or “absorbed” by 2025. An analysis was performed to estimate future land absorption rates for two segments of the corridor: the first from Rogers to Zimmerman, and the second from Zimmerman to Onamia. Below is a brief discussion regarding the two land absorption methodologies used and the findings of the analyses.

2.1.3.1 Rogers to Zimmerman

Land absorption rates were developed through a comparison of aerial photographs taken between 1990 to 2000 from I-94 in Rogers to 257th Avenue—the southern city limit of Zimmerman. The percentage of land that appeared to be absorbed between 1990 and 2000 was calculated. This percentage was then used as an estimate for future growth.

The land absorption analysis showed that over a third of the available land within a one-mile area on either side of the corridor is currently developed from I-94 to Zimmerman (see Table 2-3 and

Figure 2-3). It is forecasted that by 2025, nearly all of the adjacent land south of the Mississippi River will be developed along with most of the land in Elk River. Development north of Elk River from 205th Avenue to the City of Zimmerman may depend somewhat on the speed of development in the southern region. If the land from I-94 to Elk River is developed quickly, development will likely push farther north through Elk River and on to Zimmerman within the period of the analysis.

The TH 101 and I-94 intersection along the corridor is one area that is experiencing a great deal of growth. Currently, the intersection of TH 101 and I-94 has several businesses including a truck stop/gas station, restaurants, a bank, a motel, and various small retail establishments. In addition to these businesses, a large development containing a Super Target as well as other retail and restaurants is scheduled to open in the summer of 2002.

TABLE 2-3
Land Absorption Analysis

Location	Available Land (acres)	Developed Before 1990 (acres)	Developed Between 1990 and 2000 (acres)	% Land Developed from 1990-2000	Estimated Land Developed by 2025
I-94 to Crow River	3700	730	1450	39%	All 3700 acres
Crow River to Mississippi River	4790	370	1390	29%	All 4790 acres
Mississippi River to 205th Avenue (Elk River)	5550	1670	590	11%	4120 acres
205th Avenue to 257th Avenue (southern city limit of Zimmerman)	8400	870	Very little development	0%	100 acres or more

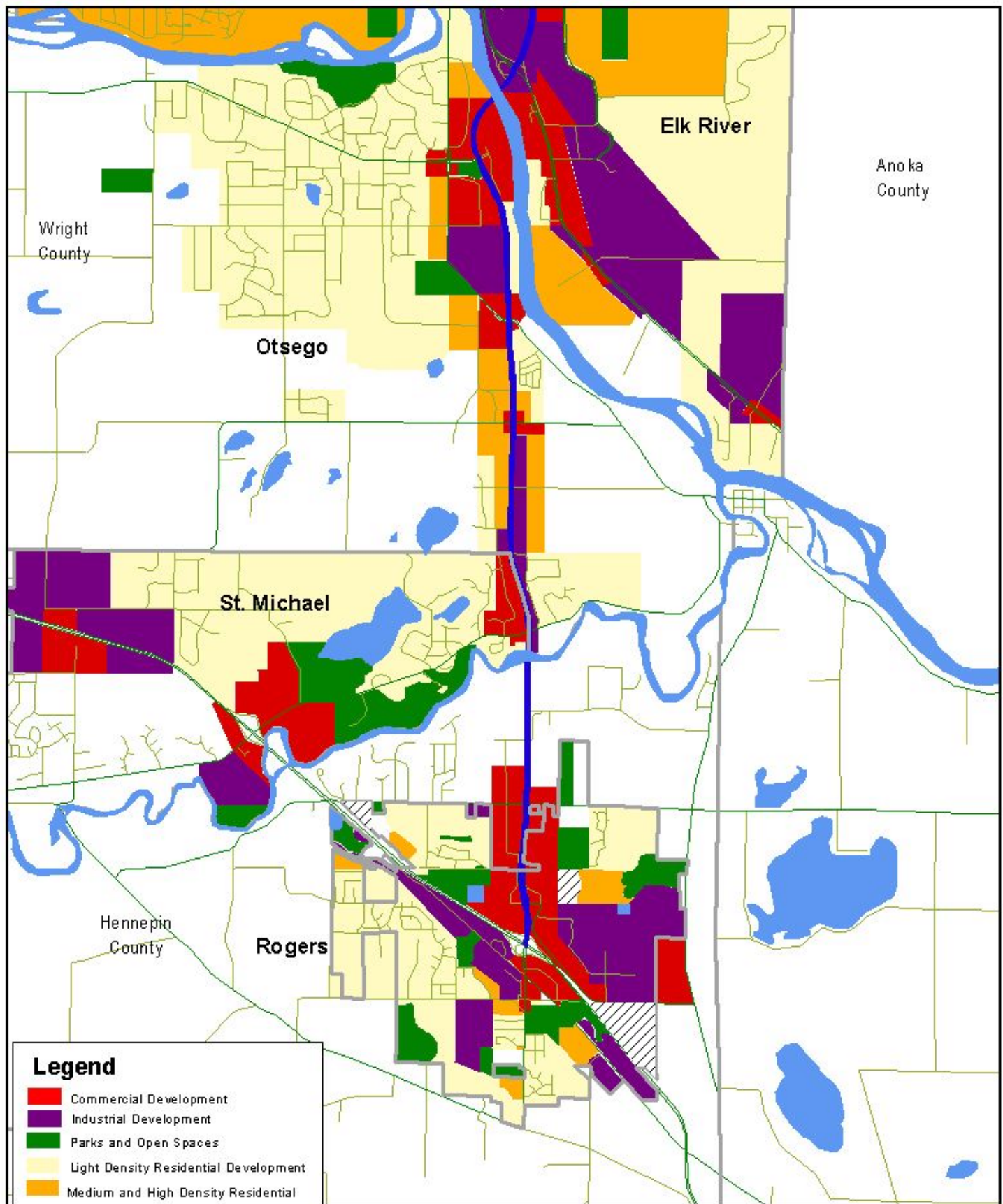
2.1.3.2 Zimmerman to Onamia

A simplified version of land use analysis was used for Zimmerman to Onamia. It was necessary to use different methodologies because recent aerial photographs were not available for the northern portion of the study area (from south of Zimmerman through the remaining study area). Additionally, the magnitude of growth from Zimmerman to Onamia is less than from Rogers to Zimmerman.

Analysis of land use north of Zimmerman was based on “development nodes,” which are locations where development is planned or expected to occur. Development nodes were identified in order to predict future land use for this segment. Figure 2-4 shows the location of the development nodes. These locations were determined through:

- Discussions with public officials and local representatives
- Examination of current land use, current traffic volumes, and projected future conditions
- Examination of the future development and the growth boundary for the cities of Zimmerman and Princeton as identified in comprehensive plans and by city officials
- Examination of the potential growth/urban service boundary in Milaca





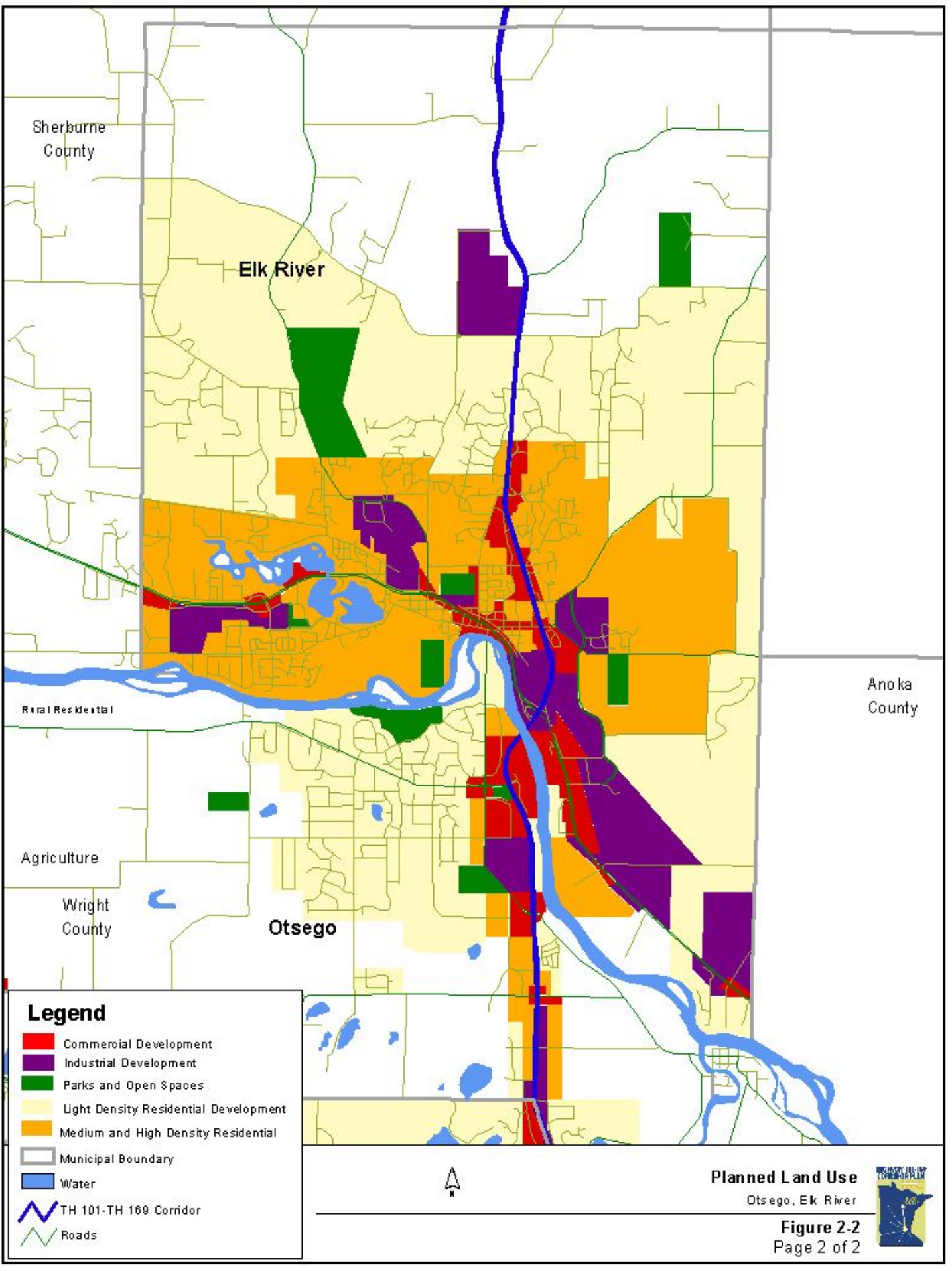
Legend

- Commercial Development
- Industrial Development
- Parks and Open Spaces
- Light Density Residential Development
- Medium and High Density Residential
- Municipal Boundary
- Water
- TH 101-TH 169 Corridor
- Roads

Planned Land Use
Rogers, St. Michael, Otsego

Figure 2-2
Page 1 of 2





Sherburne County

Elk River

Anoka County

Rural Residential

Agriculture

Wright County

Otsego

Legend

- Commercial Development
- Industrial Development
- Parks and Open Spaces
- Light Density Residential Development
- Medium and High Density Residential
- Municipal Boundary
- Water
- TH 101-TH 169 Corridor
- Roads

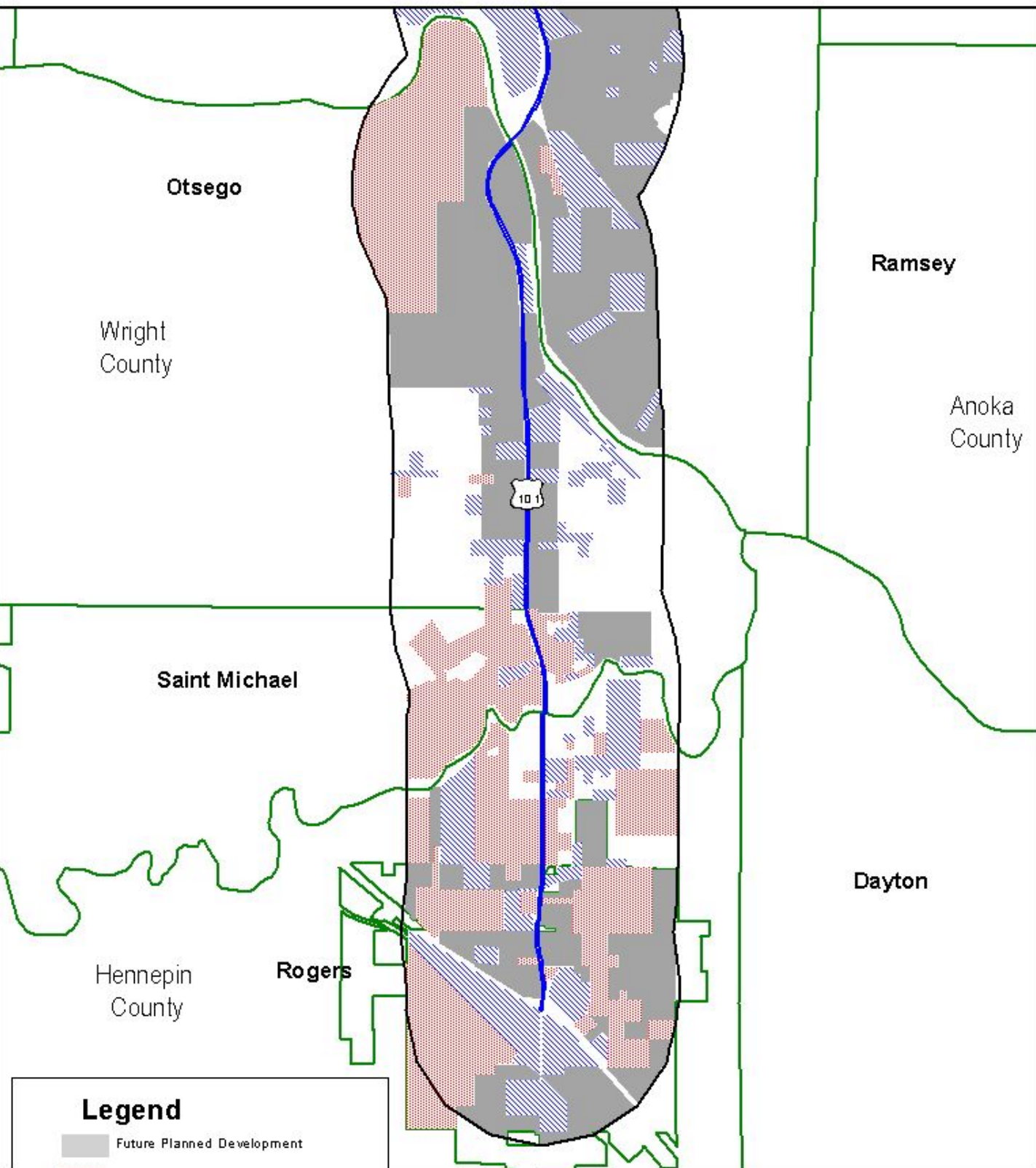


Planned Land Use

Otsego, Elk River

Figure 2-2
Page 2 of 2





Legend

- Future Planned Development
- Land Developed between 1992 and 2000
- Land Developed before 1992
- Municipal Boundary
- 1 mile buffer
- TH 101-TH 169 Corridor

Land Absorption

I-94 in Rogers to the Crow River

Figure 2-3
Page 1 of 2



Zimmerman

Isanti
County







Sherburne
County

Anoka
County

Elk River

Crow River

Legend

-  Future Planned Development
-  Land Developed between 1992 and 2000
-  Land Developed before 1992
-  Municipal Boundary
-  1 mile buffer
-  TH 101-TH 169 Corridor



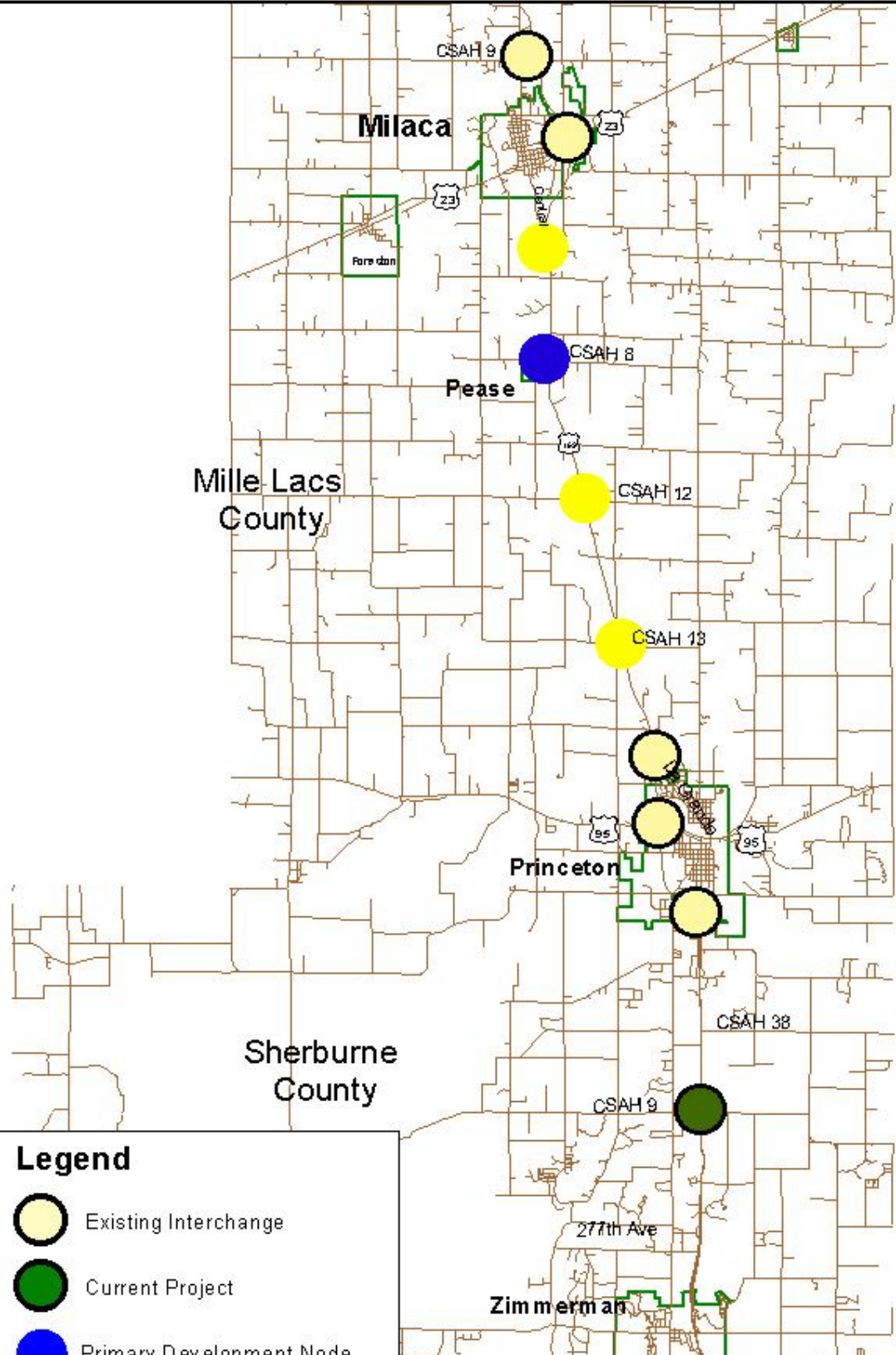
0.6 0 0.6 1.2 Miles










Land Absorption
Crow River to Zimmerman

Figure 2-3
Page 2 of 2





Legend

-  Existing Interchange
-  Current Project
-  Primary Development Node
-  Secondary Development Node
-  TH 101-TH 169 Corridor
-  Municipal Boundary
-  Roads

Development Nodes
Zimmerman to Milaca



Garrison

Onamia

Mille Lacs County



Legend

-  Existing Interchange
-  Current Project
-  Primary Development Node
-  Secondary Development Node
-  TH 101-TH 169 Corridor
-  Municipal Boundary
-  Roads

Current Safety Improvement
 Current project to address crashes and sight distance deficiencies.



Development Nodes
Milaca to Onamia



2.2 Environmental and Recreational Issues

This section contains a preliminary discussion of various natural resource issues located along the corridor. As further planning and project development work progress, a more comprehensive inventory reflecting natural and recreational resources will be compiled, particularly in the vicinity of planned major interchanges, development nodes, and other improvement projects. Items that may be included in future corridor mapping efforts include information related to: the Natural Heritage Database, public waters, the National Wetlands Inventory (NWI), Federal Emergency Management Agency (FEMA) designated floodplains, trout streams, wild and scenic river segments, state parks, trails, boat accesses, and wildlife management areas. The emerging Minnesota Land Cover Classification System (MLCCS) Natural Resource Inventory can also be considered as environmental impact analyses progress.

This section contains a preliminary discussion of various natural resource issues located along the corridor. As further planning and project development work progress, a more comprehensive inventory reflecting natural and recreational resources will be compiled.

2.2.1 State Parks and Wildlife Management Areas

Several state-owned Wildlife Management Areas (WMA) are located adjacent to TH 169. Many of these are used for recreational purposes such as hunting and fishing. Table 2-4 provides the locations and brief descriptions of the WMAs adjacent to TH 169. Additionally, the Mille Lacs-Kathio State Park is located along the southeastern shore of Lake Mille Lacs. The northern edge of the park is bounded in part by TH 169. Locations of the parks and wildlife management areas are shown on the issues maps in Appendix B.

TABLE 2-4
List of Wildlife Management Areas and State Parks Adjacent to TH 169

Wildlife Management Areas
<ul style="list-style-type: none"> • Vietnam Veterans Memorial WMA—Adjacent to the east side of TH 169, approximately 4 miles south of Princeton, MN. Roughly 80 acres open for hunting. • Mille Lacs WMA—Approximately 2 miles east of TH 169 near Onamia, MN. Over 31,000 acres open for hunting. • Onamia WMA—Adjacent to the west side of TH 169 in the most northeastern corner of Lake Onamia. Approximately 68 acres open for hunting.
State Parks
<ul style="list-style-type: none"> • Kathio State Park—Located along the southeastern shore of Lake Mille Lacs. The north edge of the park is bounded in part by TH 169.

2.2.2 Four Brooks Dog Trial Grounds

Four Brooks Trial Grounds is the first official dog training, testing, and trialing site in Minnesota; it is located 13.5 miles north of Milaca, adjacent to TH 169’s west side and north of Marsh Road, south of CSAH 20. The Minnesota Federation of Field Trial Clubs (MFFTC) currently leases 640



acres of publicly owned land from the Minnesota Department of Natural Resources (Mn/DNR). This site is used for various dog competitions. The 640-acre MFFTC site is classified as a public recreation area and is part of the Mille Lacs Wildlife Management Area.

2.2.3 Sherburne National Wildlife Refuge

The Sherburne National Wildlife Refuge is located five miles to the west of TH 169 on CSAH 9, near the City of Zimmerman (17076 293rd Avenue). The 30,600 acres of land are managed by the U.S. Fish and Wildlife Service and provide opportunities for hiking and wildlife oriented recreation.³

2.2.4 State Forests

There are 58 state forests in Minnesota established to produce timber, provide outdoor recreation, protect watersheds, and perpetuate rare and distinctive native plant species. Two of these forests located near TH 101-TH 169 are discussed below.

- **Rum River State Forest** begins about two miles east of TH 169 just south of Kathio State Park. This state forest consists of over 16,500 acres and provides opportunities for hunting, fishing, hiking, and cross-country skiing. There are also 15 miles of trails for hiking and five miles of snowmobiling trails.
- **Sand Dunes State Forest** is located about five miles west of TH 169 on CSAH 4 between Zimmerman and Orrock. The sand dunes consist of oak forest, prairie, and 2,700 acres of pine plantation. The forest areas provide for a variety of recreational activities, such as horseback riding, snowmobiling, hunting/shooting, swimming, camping, hiking, and cross country skiing.

2.2.5 Rivers

2.2.5.1 State Wild, Scenic, and Recreational Rivers

The Minnesota State Wild and Scenic Rivers Program was established in 1973 to protect rivers that have outstanding natural, scenic, geographic, historic, cultural, and recreational values. Each wild, scenic, and recreational river segment within the state of Minnesota has a management plan that outlines rules and goals for that waterway. The rules are meant to work in coordination with local zoning ordinances to protect the rivers from pollution, erosion, over-development, and degradation.⁴ Six rivers in Minnesota have segments that are designated as wild, scenic, or recreational under the state program, including the two that are adjacent to TH 101-TH 169, as discussed below.

Mississippi River. The Mississippi River is classified as scenic from the University Bridge (connecting Michigan Avenue and 10th Street South) in St. Cloud to the Clearwater River between Stearns and Wright Counties, and the TH 24 bridge near Clearwater. The Mississippi River is classified as recreational from the Clearwater River to the northwestern boundaries of the cities of Anoka and Champlin. Downstream of this area, the Mississippi River does not have a state wild, scenic, and recreational river designation.

³ <http://www.co.sherburne.mn.us/econdevl/wildlife.htm>

⁴ <http://www.dnr.state.mn.us/waters/wsivers/intro.html>



Rum River. A portion of the Rum River that runs through Mille Lacs, Sherburne, Isanti, and Anoka Counties is designated as scenic. The designation applies to the river from the Mille Lacs CSAH 20 bridge to the Mille Lacs CSAH 9 bridge and from the Mille Lacs CSAH 13 bridge to the southern border of the Anoka County fairgrounds. The Rum River is designated as recreational from the TH 27 bridge in Onamia to the Mille Lacs CSAH 20 bridge, from the Mille Lacs CSAH 9 bridge to the Mille Lacs CSAH 13 bridge, and from the southern border of the Anoka county fairgrounds in the city of Anoka to a line crossing the river between the center lines of Madison Street and Rice Street.⁵

2.2.5.2 Other River Designations

State Critical Area. The Mississippi River is designated as a Mississippi River Critical Area Corridor from the northern borders of the cities of Dayton and Ramsey to the southern boundary of Dakota County. This boundary corresponds with the Mississippi National River and Recreational Area (MNRRA) boundary (see below). In 1979, Executive Order 79-19 was issued, requiring that all local units of government and regional agencies within the critical area adopt critical area plans and regulations that comply with the standards found within the executive order. Development within the corridor must be in accordance with those adopted plans and regulations.

Mississippi National River and Recreational Area Designation. The MNRRA program is a joint federal (National Park Service), state, and local program, which provides coordination for 72 miles of the Mississippi River. The boundaries of the Mississippi River critical area are synonymous with MNRRA boundaries throughout the entire project area. The reach of the Mississippi River from the city of Ramsey north to the Anoka—Sherburne county line is designated as a “Rural Open Space District,” which has the primary goal of maintaining scenic open space. The reach of the Mississippi River from Ramsey south to Fridley is designated as an “Urban Developed District,” with management fostering primarily residential development goals.

2.2.6 Boat Accesses

As a recreational corridor, large numbers of recreational vehicles frequently travel on TH 101-TH 169. While the Mille Lacs Lake area has become a year-round recreational destination, this is most apparent during the summer (See Section 3.2 for more discussion on recreational traffic).

Boat accesses adjacent to the project area are present at several locations along the TH 101-TH 169 corridor. Trailered boats turning off or on to the TH 101-TH 169 corridor can pose a safety issue. Table 2-5 summarizes the location and characteristics of boat accesses along the corridor.

⁵ See. <http://www.dnr.state.mn.us/waters/wsivers/classify.html#table>



TABLE 2-5
List of Public Boat Accesses adjacent to TH 101-TH 169

Public Boat Accesses	Location
Mississippi River	Northwest quadrant of TH 101 and TH 10
Rum River	At Rum River rest area (~11 miles north of Milaca)
Mille Lacs Lake	TH 169 in Garrison; many private resort controlled lake access points along TH 169; and on Shah-bush-kung Bay of Mille Lacs Lake

2.2.7 Snowmobile Trails

A network of grant-in-aid funded snowmobile trails is located along TH 169 from Elk River (north of CSAH 12) to the south side of Princeton. The trails are designed to operate southbound along the west side and northbound along the east side of the corridor. The snowmobile trails cross TH 169 in six at-grade locations including the northern and southern termini of the grant-in-aid trails. These locations pose the greatest safety risk for snowmobiles due to the volume and speed of the TH 169 traffic. Locations and descriptions of snowmobile trail crossings are provided in Table 2-6. The grant-in-aid trails continue to run parallel with the highway (after a disconnect in Princeton) from TH 95 north to Milaca. Past Milaca the trail heads further east into the Rum River State Forest until CR 20 where it again runs parallel with TH 169 through Onamia and on to Garrison.

Impacts of potential roadway improvements on snowmobile trails will be investigated in Chapters 4 and 5 of this document. Current policy prohibits the use of right-of-way along freeways for snowmobile trails.

TABLE 2-6
List of Snowmobile Crossings on TH 169

Crossing Location	Description
TH 169 and CSAH 12 (Elk River)	One-way crossing, eastbound across TH 169
TH 169 and 253rd Avenue (South of Zimmerman)	Two-way crossing
TH 169 and 273rd Avenue (North of Zimmerman)	Two-way crossing
TH 169 and 1/8 mile south of 283rd Avenue (North of Zimmerman)	Two-way crossing
TH 169 and CSAH 9 (North of Zimmerman)	Two-way crossing
TH 169 and 313th Avenue (South of Princeton)	One-way crossing. Westbound across TH 169

2.2.8 Environmental Justice

One goal of the CMP process is to follow the guidelines of environmental justice, which are to avoid, minimize, or mitigate disproportionately high and adverse health, environmental, social, and economic effects on low-income and minority communities.⁶ A more detailed environmental justice analysis will be necessary as part of follow-on studies and project development. Below is a brief description of groups that should be given consideration relative to environmental justice issues.

⁶ See <http://www.fhwa.dot.gov/environment/ej2000.htm>



Mille Lacs Band of Ojibwe. Approximately 1,000 members of the Mille Lacs Band of Ojibwe live in Mille Lacs County.⁷ The Mille Lacs Band of Ojibwe Reservation, the Mille Lacs Band Government Center, and the Grand Casino Mille Lacs are located in Mille Lacs County. The Grand Casino Mille Lacs is located on the western shore of Mille Lacs Lake in Onamia, just north of TH 27, the northern boundary of the TH 101-TH 169 corridor.

Mobile Home Residents. Mobile homes provide affordable housing to many low-income individuals. Therefore, mobile home parks located near the TH 101-TH 169 corridor may indicate an environmental justice issue relative to low-income housing. There is one mobile home park located on the east side adjacent to TH 169 between TH 37 and TH 42 in the city of Otsego. The city of Otsego recognizes that mobile homes provide affordable housing and sees a need to protect property values within these areas (City of Otsego Comprehensive Plan, September 1998). There is also a small mobile home park at TH 169 and CR 22 and a larger mobile home park just south of TH 169 and TH 27, both in Mille Lacs County.

2.3 Related Plans, Policies, and Studies

2.3.1 General

Planning efforts have continually recognized the value of prior or parallel planning studies that are related to the corridor and portray the current as well as future conditions. The following is a list of plans and studies that were consulted as a part of the corridor planning process:

- TH 169 Scoping Documents and preliminary work on the Environmental Impact Statement: TH 27 in Onamia to TH 18 in Garrison
- TH 169 Corridor Study between TH 27 in Onamia and TH 18 in Garrison (1998)
- Preliminary and Final Design for the TH 169/Sherburne CR 33 Interchange
- Preliminary and Final Design for the TH 169/Sherburne CSAH 9 Interchange
- I-94 IRC Management Plan
- TH 10 (South) IRC Management Plan
- Mn/DOT Metro Division Transportation System Plan
- City and County Comprehensive Plans, Zoning Ordinances, and Transportation Plans
- District 3 Long-Range Transportation Plan (2000)
- Northstar Corridor Major Investment Study – Alt. 5 (new Mississippi River Crossing Study between TH 101 in Elk River and TH 169 in Anoka)
- Metropolitan Council Blueprint 2030
- Metropolitan Council Transportation Policy Plan

2.3.2 Possible New Parallel Highway - Northwest Metro Corridor & River Crossing

A Scoping Study is currently underway for the Northwest Metro Corridor and River Crossing—a long-proposed new highway and Mississippi River crossing that, if approved, would be routed

⁷ Districts II and IIa near the cities of McGregor and Isle; District III near the city of Hinckley, where the Grand Casino Hinckley is located. For more information, see <http://www.millelacsobjibwe.org/>.



parallel to TH 101 to the east. Figure 2-5 shows the study area, including I-94 and TH 10—the highways that are the southern and northern boundaries for the new corridor study area. The Scoping Document and the follow-on Tier 1 EIS will provide answers to the following questions:

- Is there a need for a new north-south trunk highway corridor and river crossing in the study area and, if so, where should the corridor be located?
- Either with or without a new corridor and river crossing:
 - Should the existing trunk highways crossing the Mississippi River be improved?
 - Should other transportation network improvements be made within the study area to maintain good trunk highway operations or to improve local connectivity to the trunk highway system?

The proposed action is the location approval of coordinated projects to improve north-south mobility across the Mississippi River and in the surrounding area. A preferred alternative will be documented in the Final EIS and Record of Decision (ROD), and would advance one of the following alternatives:

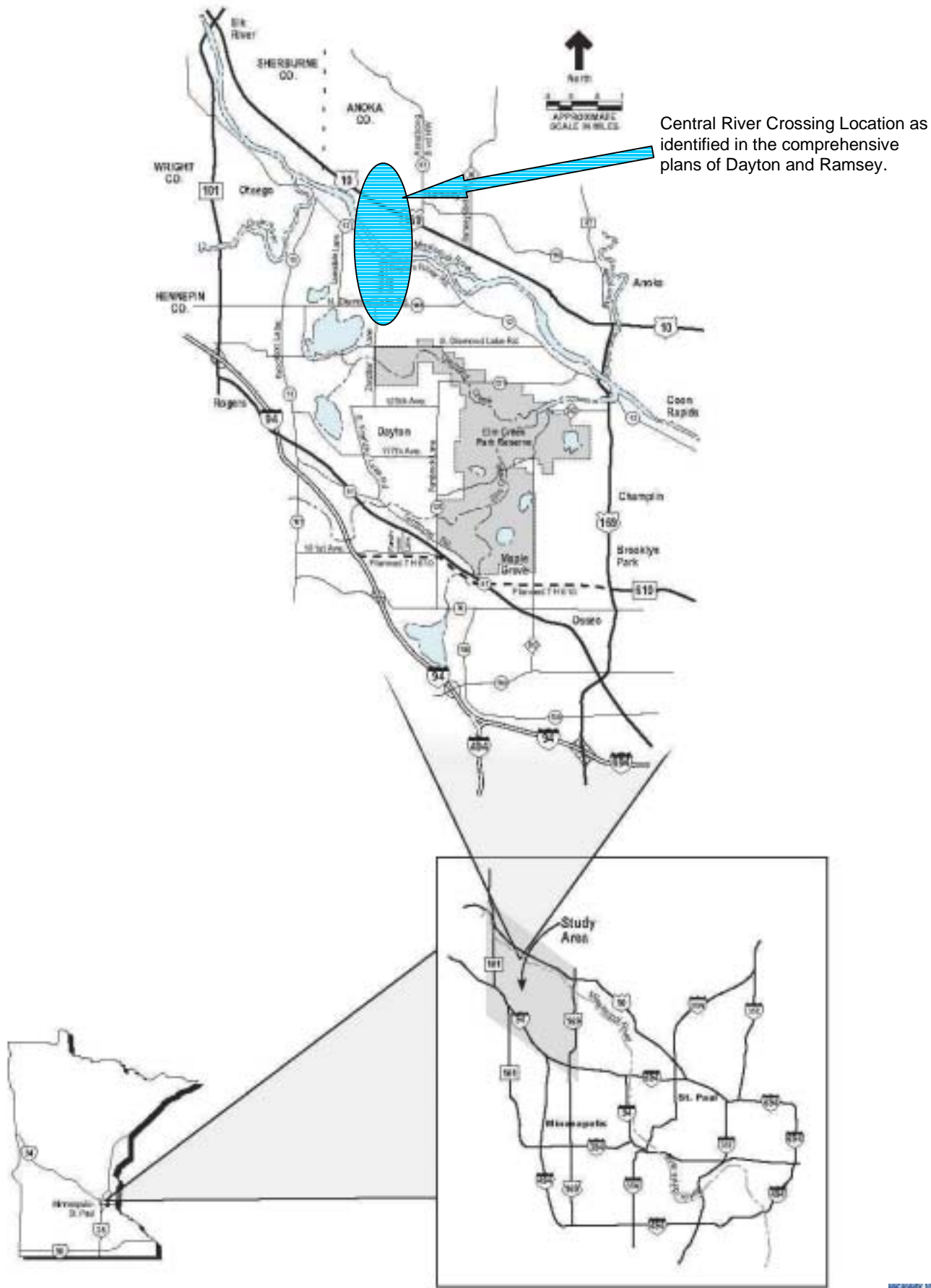
- No Build
- Improvements to the existing north-south trunk highways crossing the Mississippi River in the study area (TH 169 through Champlin-Anoka and TH 101 through Otsego-Elk River) or other improvements to enhance trunk highway operations or local connectivity
- Official mapping of a new trunk highway corridor and river crossing location between I-94 or the future extension of TH 610 to the south and TH 10-TH 169 to the north, including a new river crossing location⁸
- A combination of improvements to the existing north-south highways and official mapping for a new highway corridor

An initial corridor traffic model has only recently been completed. However, initial findings show that a new river crossing could potentially serve between 43,000 and 68,000 vehicles per day by 2040. This ongoing study, and possibly other studies, will include further consideration of potential improvements to TH 101-TH 169.⁹

⁸ “Official mapping” in this context refers to the establishment of a highway corridor location on a local government’s land use and zoning map.

⁹ For additional information related to the Northwest Metro Corridor and River Crossing Study visit the study website at <http://projects.dot.state.mn.us/ch2m/nwstudy/>.





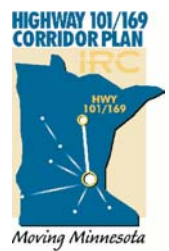
NW Metro Corridor & River Crossing Study Area Location

Figure 2-5





Chapter 3 - *Existing & Future Transportation Performance*



Existing and Future Transportation Performance

This chapter summarizes the existing and future performance of TH 101-TH 169 in light of the expectation for continued population growth in the area, as described in Chapter 2. The future transportation conditions assume a “No-Build” scenario, meaning only maintenance and spot improvements are made to the highway. No additional capacity would be added to the system under No-Build.¹

3.1 Roadway Function and Cross Section

The TH 101–TH 169 corridor provides an essential connection between the Minneapolis-St. Paul (Twin Cities) metropolitan area and central Minnesota. In the CMP study area, TH 101 is a state trunk highway and is classified as a minor arterial. It is currently configured as a four-lane, signalized suburban expressway serving commuter traffic between I-94 in Rogers and TH 10 in Elk River (7 miles). TH 169 (also known as US 169)—running north and south in the study area from TH 10 in Elk River to TH 18 in Garrison—is part of the National Highway System and is classified as a principal arterial. TH 169 is a four-lane rural expressway between TH 10 and TH 27 in Onamia (56 miles) and currently a two-lane highway north of TH 27 to Garrison (20 miles).

There is a minimum of 75-feet between centerlines throughout the corridor. With a few exceptions, the TH 101-TH 169 corridor south of TH 27 (Onamia) offers at least 250 to 300 feet of existing state-owned right-of-way.

There are eight traffic signals on TH 101 from I-94 to TH 10 and six signals on TH 169 from TH 10 to TH 18. There is a minimum of 75-feet between centerlines throughout the corridor. With a few exceptions, the TH 101-TH 169 corridor south of TH 27 (Onamia) offers at least 250 to 300 feet of existing state-owned right-of-way.

3.2 Analysis of Existing and Future Traffic Performance

Analyses were conducted to determine the existing performance of the TH 101-TH 169 corridor. Historic growth in traffic volumes were then used to project 2015 and 2025 traffic; and the future performance of the corridor was also determined. As described above, projections have been made based on the No-Build scenario, in which no additional capacity is provided on the corridor.

3.2.1 Traffic Volumes

Existing traffic volumes along TH 101-TH 169 are highest at the southern end of the corridor. This segment of the highway is at the northwestern edge of the Twin Cities metropolitan area. The 1998 traffic volumes ranged from about 34,500 annual average daily traffic (AADT) through Hennepin and Wright Counties and the city of Elk River to 9,900 AADT near Onamia in Mille Lacs County.

¹ Chapter 4 of this CMP recognizes that there are two highway improvement projects in final stages of project development (adding new interchanges to Sherburne CR 33 and CSAH 9) as well as planning and programming for improvements from Onamia to Garrison. However, in evaluating the No-Build scenario in this chapter, the benefits of these projects are not addressed.

Traffic volumes throughout the corridor are forecasted to double or more by 2025. The highest increases in traffic volumes will be in the section of the corridor with the greatest levels of growth and development (between Rogers and Elk River). Figure 3-1 and Table 3-1 summarize the existing and forecasted traffic volumes.

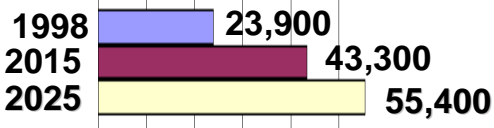
TABLE 3-1
Existing and Forecasted Traffic Volumes

Location	1998	2015	2025	% Growth (1998 to 2025)
I-94 (Rogers) to Crow River Bridge (Otsego)	34,500	83,000	95,000	175%
Crow River Bridge (Otsego) to TH 10 (Elk River)	34,500	56,200	72,000	109%
TH 10 (Elk River) to CSAH 21	32,400	65,600	83,950	159%
CSAH 21 to TH 95 (Princeton)	23,900	43,300	55,400	132%
TH 95 (Princeton) to TH 23 (Milaca)	13,800	23,700	29,500	114%
TH 23 (Milaca) to TH 27 (Onamia)	9,900	15,450	18,900	91%
TH 27 (Onamia) to TH 18 (Garrison)	10,200	16,650	20,800	104%

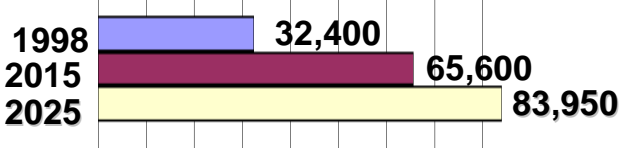
The TH 101-TH 169 IRC intersects two parallel IRCs, the I-94 and TH 10 corridors. The I-94 corridor forecasts an increase in traffic of approximately 100-125 percent by 2025 in the vicinity of the TH 101 intersection. The TH 10 IRC forecasts about a 90 percent increase in traffic near the TH 101-TH 169 intersection. As with the TH 101-TH 169 corridor, the increases anticipated on the other IRC corridors will be the result of increases in through traffic as well as local traffic associated with continual development along the corridor.

3.2.1.1 Crossroad Volumes

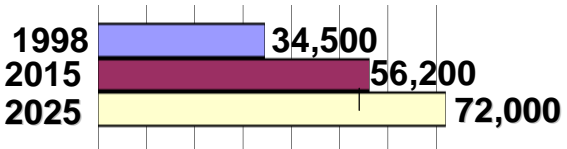
Crossroad traffic volumes were examined for the Mille Lacs County segment of the corridor to determine signal risk and identify the potential locations of development nodes. The two factors used to determine the need for a signal—mainline volumes and crossroad volumes—were not high enough to warrant a signal at any intersection in Mille Lacs County. In addition, future cross traffic volumes cannot be expected to be significantly higher, based on general traffic growth trends. But as the volume of the mainline traffic increases, the crossroad volumes will have more impact on the safety of the corridor. Also, development at the intersections may cause the crossroad volumes to increase enough to warrant a signal in the future. Table 3-2 summarizes the crossroad volumes for Mille Lacs County.



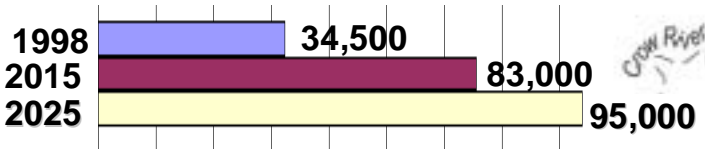
132% increase
(31,500 vehicles)



159% increase
(51,550 vehicles)



109% increase
(37,500 vehicles)



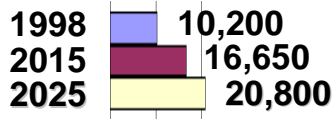
175% increase
(60,500 vehicles)

Legend

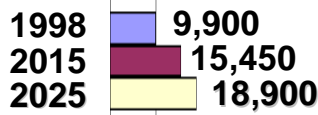
..... Growth Area Boundary

Existing and Forecasted Daily Traffic
High Priority Segment

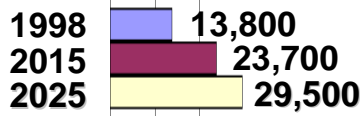




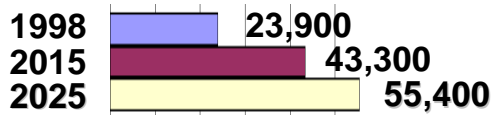
104% increase
(10,600 vehicles)



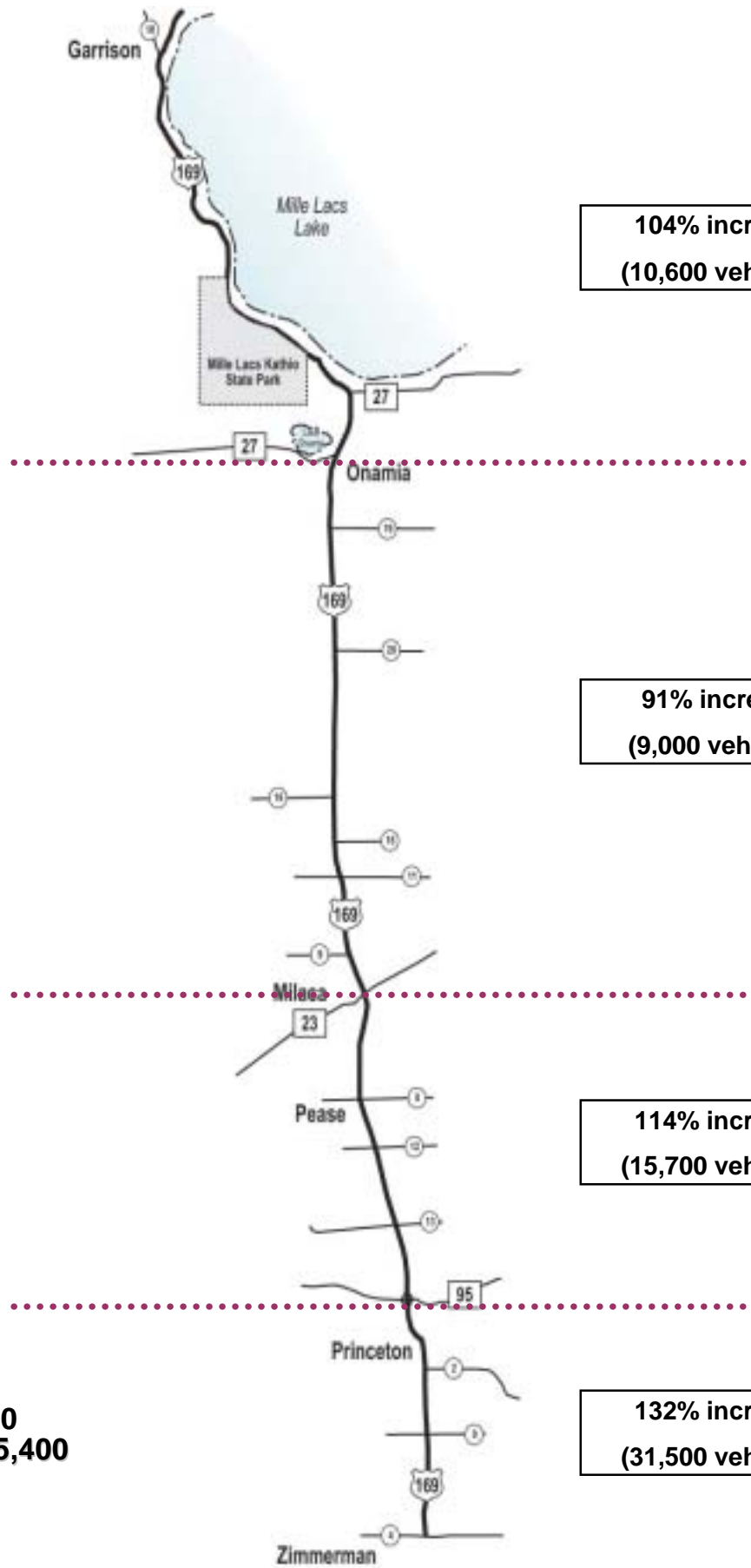
91% increase
(9,000 vehicles)



114% increase
(15,700 vehicles)



132% increase
(31,500 vehicles)



Legend

..... Growth Area Boundary

Existing and Forecasted Daily Traffic
Medium Priority Segment



TABLE 3-2
Existing Crossroad Traffic Volumes for Mille Lacs County

Crossroad	2001 Average Daily Traffic of Crossroad
Primary Development Nodes (TH 169 Intersections)	
CSAH 8 (Pease)	670
CSAH 11 (North of Milaca)	1100
CSAH 16 (North of Milaca, North Intersection)	495
CSAH 21 (South of Onamia)	810
CSAH 22 (South of Onamia)	400
TH 27 (Onamia)	2300
Secondary Development Nodes (TH 169 Intersections)	
CSAH 13 / 55th Street (North of Princeton)	580
CSAH 12 / 80th Street (North of Princeton)	325
CSAH 36 (Milaca, South Intersection)	2650
CSAH 16 (North of Milaca, South Intersection)	115
Mille Lacs CR-9 (North of Milaca)	1750
Mille Lacs CR 103 (South of Onamia)	200
CSAH 22 (South of Onamia)	400
Existing Interchanges	
CSAH 29 (South Princeton Interchange)	1450
TH 95 (Princeton)	5000
CSAH 29 (North Princeton Interchange)	1450
TH 23 (Milaca)	4900

Source: Mn/DOT AADT Maps

3.2.1.2 Recreational Traffic Peaks

In addition to carrying a large amount of truck and commuter traffic, the TH 101-TH 169 corridor carries significant recreational traffic. Recreational traffic peaks on weekends during the summer, as many travelers go north to take advantage of recreational opportunities, especially in the northern portion of the study area which has many lakes (including Lake Mille Lacs) and forests.

Recreational traffic peaks have a significant impact on the road system, however, there is a lack of data that reflects seasonal, recreational traffic volumes along the TH 101-TH 169 corridor. The area

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just north of the corridor demonstrates the impact of recreational traffic. The 1997 ADT volume along TH 169 between Grand Casino and the City of Garrison was 9,700. The 1997 ADT for the TH 169 segment between TH 27 and Grand Casino was 10,200. Traffic is not evenly distributed throughout the year. The Friday ADT in June 1997 was approximately 15,900. The summer recreational traffic was roughly twice as high as the January and February ADTs.

The traffic segments discussed above are two-lane and have lower capacity than the four-lane segment of TH 169 south of Onamia. However, the congestion experienced on the two-lane section north of the corridor does backup on the four-lane section of the corridor. This congestion is further complicated by the high number of access points along the TH 169 corridor.

Safety issues arise when slower moving recreational travelers are in the presence of commercial truckers and commuters. Recreational users generally drive slower than truck drivers and commuters who want to move through an area quickly. There are more accidents and dangerous situations during the spring, summer and fall seasons, and on Fridays or Sundays when recreational traffic is at its highest. If peak, recreational demand for TH 169 continue to grow, the times of heavy congestion will occur more frequently and spill-over to non-peak travel times.

3.2.2 Travel Speed Performance and Predictability

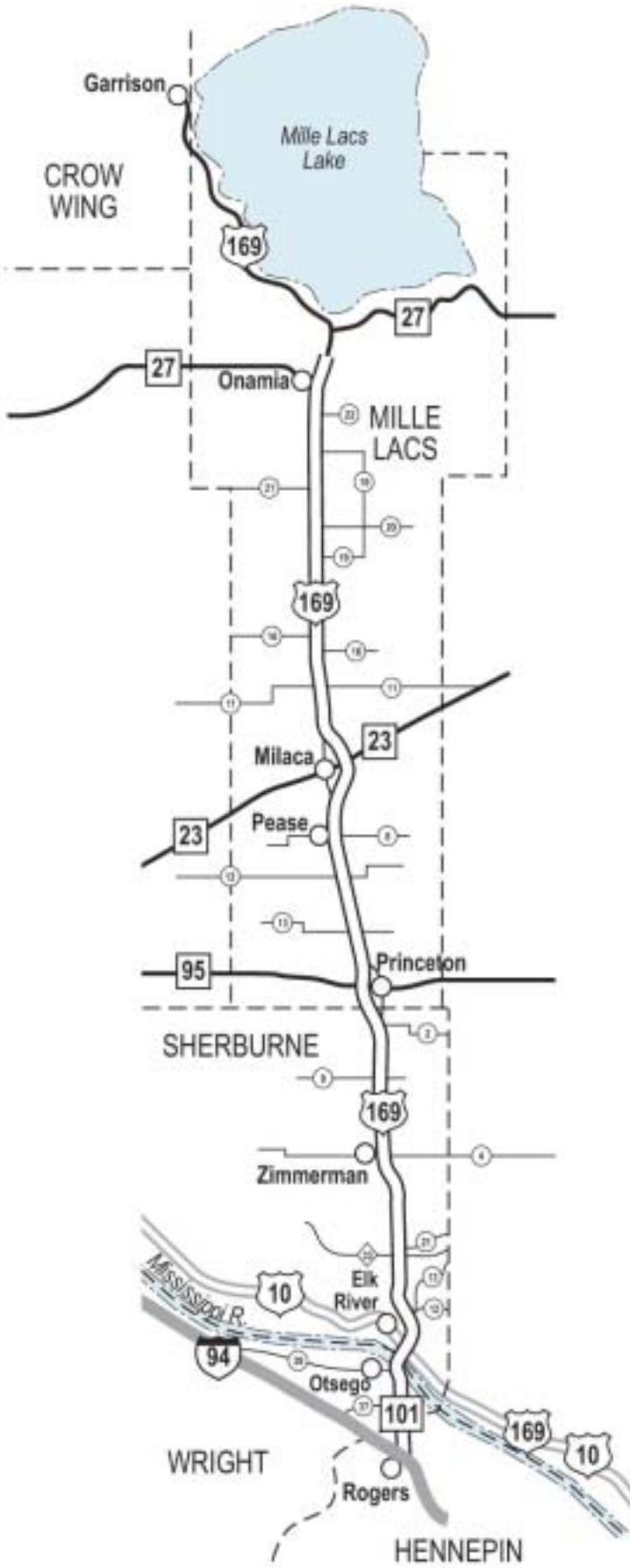
In order to compare the current performance of the corridor to the goals of the vision statement, the travel speed performance and predictability were determined. To obtain representative travel speeds, a Mn/DOT test vehicle made a series of runs through the IRC corridor (Rogers to Garrison) during peak-period conditions. The test driver focused on safely travelling at the typical speeds of surrounding vehicles. This sometimes resulted in speeds that exceeded the posted speed limit between Elk River and Onamia, which reflected actual conditions. The corridor was segmented into 16 growth areas (depicted with a dotted line in Figure 3-1) for this analysis. The segmentation methodology considered land use area types (*Urban Growth Area; Planned Growth Area; Rural Area; and Small Rural Center*), major highway design changes (e.g., two to four lanes), and traffic volume changes.

3.2.2.1 Peak-Period Travel Speed Performance

The results of the existing and future travel speed performance are summarized in Figure 3-2 and Table 3-2. Most of the growth areas in the Medium Priority IRC segment currently perform above the peak-hour target speed of 55 mph, typically because of lower traffic volumes and lack of traffic signals. In the High Priority IRC segment, however, several of the growth areas currently perform well below the target of 60 mph. In the three growth areas from I-94 to 197th Avenue in Elk River, there are several sections with speed limits below 55 mph. These segments also contain 12 signalized intersections, which help account for the lower speeds. Additionally, the two growth areas surrounding Zimmerman and the Grand Casino (between Onamia and Garrison) each contain a signalized intersection and perform below their target speeds.



Year 2001



Year 2025

Peak Period Weekday Travel Speed Performance

Figure 3-2



TABLE 3-3
Existing and Future Travel Speed Performance by Growth Area

Growth Area Limits	Length (miles)	Year 2001			Year 2025		
		Travel Time (mins)	Space Mean Speed	Performance Category	Travel Time (mins)	Space Mean Speed	Performance Category
High Priority Interregional Corridor – Target Speed = 60 mph							
South I-94 to Crow River Bridge	2.5	4.1	37.7	Below	42.6	3.6	Below
Crow River Bridge to TH10 Overpass	4.9	5.5	53.1	Below	25.8	11.4	Below
TH 10 Overpass to Warning flasher north of 197th Avenue	2.7	4.4	36.5	Below	18.2	8.9	Below
Warning flasher north of 197th Avenue to North Elk River City Limits	1.1	1.0	65.6	Above	1.0	64.4	Above
North Elk River city limits to warning flasher south of Zimmerman	7.2	6.3	68.9	Above	6.3	68.6	Above
Warning flasher south of Zimmerman to warning flasher north of Zimmerman	0.6	0.6	52.0	Below	1.1	32.1	Below
Cumulative – High Priority IRC	19.0	22.0	52.0	Below	94.7	12.0	Below
Medium Priority Interregional Corridor – Target Speed = 55 mph							
Warning flasher north of Zimmerman to CSAH 2 / 313th Avenue	6.5	5.4	71.9	Above	5.6	69.6	Above
CSAH 2 / 313th Avenue to Baxter Road	5.4	4.4	72.6	Above	4.7	69.6	Above
Baxter Road to South Jct. of Central Avenue (CR 36)	9.0	7.5	72.2	Above	7.7	70.0	Above
South Jct. of Central Avenue (CR 36) to North Jct. of Central Avenue (CR 36)	4.1	3.5	71.7	Above	3.5	70.0	Above
North Jct. of Central Avenue (CR 36) to Rum River Bridge near South Jct. TH 27	20.0	16.7	72.0	Above	17.1	70.0	Above
Rum River Bridge near South Jct. TH 27 to North Jct. TH 27	3.6	3.2	67.1	Above	3.2	67.1	Above
North Jct. TH 27 to end of 4-lane section south of Grand Casino	7.8	7.8	59.9	At	10.1	46.1	Below
End of 4-lane section S. of Grand Casino to end of 4-lane section N. of Grand Casino	2.0	2.5	48.7	Below	3.3	37.5	Below
End of 4-lane section N. of Grand Casino to end of 4-lane section S. of Garrison	6.9	7.1	58.3	At	9.2	44.8	Below
End of 4-lane section south of Garrison to Jct. TH 18	1.6	1.8	54.3	Below	24.9	52.8	Below
Cumulative – Medium Priority IRC	66.9	59.9	67.1	Above	66.7	60.1	Above
Overall Corridor Performance	85.9	81.9	63.0	At (High)	161.4	31.9	Below

Although the Medium Priority IRC segment north of Zimmerman to Garrison currently performs above target (67 mph), the High Priority IRC segment south of Zimmerman performs below target (52 mph). Currently, the entire corridor between Rogers and Garrison is performing at the High Priority IRC target during peak travel periods, with a space mean speed of 63 mph.

By 2025, the entire corridor between Rogers and Garrison is expected to perform below the High Priority IRC target during peak travel periods, with a speed of 31.9 mph. Although the Medium Priority IRC segment north of Zimmerman to Garrison is expected to perform at the target (60 mph), the High Priority IRC segment south of Zimmerman is expected to perform dramatically below the target, at 12 mph. The 13 signalized intersections from Rogers to Zimmerman and the large increase in daily traffic are primary factors for this low speed. In addition, the presence of the Mississippi River crossing gives many travelers no reasonable alternative route, making them “captive” to the highway’s congestion.

By 2025, the High Priority IRC segment south of Zimmerman is expected to perform at an average 12.0 mph, dramatically below the peak-hour target speed.

In addition, the presence of the Mississippi River crossing gives many travelers no reasonable alternative route, making them “captive” to the highway’s congestion.

3.2.2.2 Travel Speed Predictability

An analysis of the existing travel speed predictability was also conducted. If a travel speed varies by more than 15 mph, it is considered unpredictable according to IRC guidance. Currently, the overall corridor between Rogers and Garrison has a relatively predictable travel speed during peak travel periods, with a 6.2-mph range in travel speed. While the Medium Priority IRC segment north of Zimmerman currently has predictable travel speed (6.4-mph range), the High Priority IRC segment south of Zimmerman is nearing the unpredictable level (12.1-mph range).

A review of the speed ranges for the individual growth areas reveals that most of the growth areas in the Medium Priority IRC segment have predictable travel speeds, typically because of higher speed limits and lack of traffic signals. In the High Priority IRC segment, however, several of the growth areas have unpredictable travel speeds. The traffic signal issue noted in the discussion of target performance and the shorter length of those growth areas are also factors in travel speed predictability.

3.2.3 Intersection Capacity Analysis

Peak hour turning movement counts were used to estimate levels of service (LOS) for each of the 13 signalized intersections from Rogers to Onamia, listed below:

- South Ramp I-94 in Rogers
- North Ramp I-94 in Rogers
- CSAH 49 (Rogers Drive) in Rogers
- CSAH 144 (South Diamond Lake Road) in Rogers
- CSAH 36 in St. Michael
- CSAH 42 in Otsego
- CSAH 39 in Otsego
- TH 10 in Elk River
- Main Street in Elk River
- School Street/Elk Hills Drive in Elk River
- 193rd Avenue/Jackson Avenue in Elk River
- 197th Avenue in Elk River
- CSAH 4 in Zimmerman

LOS is a standard measurement used by transportation professionals to assess roadway operations experienced by motorists during peak (rush) hour. LOS consists of six levels, each with a letter designation ranging from A to F. LOS A represents the best operating conditions and LOS F the

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worst. The LOS D/E boundary is the industry’s generally accepted criterion for defining congestion in urban and suburban areas. That is, LOS D is considered minimally acceptable, while LOS E conditions are considered congested and deficient. The LOS at an unsignalized or signalized intersection declines as vehicle delay increases at the intersection. Intersections with LOS A have very little delay with most cars going through the intersection without stopping. LOS F means long delays for cars stopping at the light, and some cars that were waiting for the light may go through one or more cycles before actually passing through the intersection.

By 2025, almost all signalized intersections along the corridor will be at LOS F during both a.m. and p.m. peak periods. In fact, many of the signalized intersections are expected to reach LOS F by 2015.

Table 3-4 summarizes the existing and future LOS for each of the signalized intersections from Rogers to Onamia. Most signalized intersections within the study area currently operate at a minimally acceptable LOS D or higher during both the a.m. and p.m. peak periods. The exceptions are at CSAH 144, CSAH 36, and CSAH 39 with an operation of LOS E or F in one or both of the peak periods. By 2025, almost all signalized intersections (except CSAH 4 and the I-94 South Ramp) will be at LOS F during both a.m. and p.m. peak periods. In fact, many of the signalized intersections are expected to reach a LOS F by 2015.

TABLE 3-4
TH 101-TH 169 Existing and Future Signalized Intersection Capacity Under No-Build Conditions

Signalized Intersection	Existing LOS	No-Build Scenario LOS	No-Build Scenario LOS
	(a.m./p.m.) 2000	(a.m./p.m.) 2015	(a.m./p.m.) 2025
I-94 South Ramp	A/A	B/D	C/F
I-94 North Ramp	A/D	F/F	F/F
CSAH 49	B/B	F/F	F/F
CSAH 144	E/E	F/F	F/F
CSAH 36	D/F	F/F	F/F
CSAH 42	B/C	D/F	F/F
CSAH 39	D/F	F/F	F/F
TH 10	A/B	F/F	F/F
Main Street	C/D	F/F	F/F
School Street/Elk Hills Drive	D/C	F/F	F/F
Jackson Avenue	B/D	F/F	F/F
197th Avenue	B/B	E/F	F/F
CSAH 4	B/B	B/C	C/E

3.2.4 Mainline Capacity Analysis

The peak period LOS of mainline segments was also determined by use of AADT for each segment. These LOS estimates and the corresponding speeds vary depending on the type of roadway. For any facility, both the LOS and travel speed decline with increases in traffic volumes. Again, the D/E boundary is generally recognized as the minimally acceptable LOS.

Currently all of the segments are performing at LOS B or better. By 2025, the limits of the corridor that will perform at LOS F would be from I-94 to 197th Avenue in Elk River. Given this performance, it can be stated that south of Elk River the corridor is at full capacity with no room for more vehicles. North of Elk River, the roadway can still perform well even with an increase in traffic volumes. To preserve the performance of TH 169 north of Elk River (at a minimum), measures to consolidate access and preclude further signal proliferation should be explored. The existing and future LOS of the mainline segments is summarized in Table 3-5.

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TABLE 3-5

TH 101-TH 169 Existing and Future Mainline Corridor Performance Under No-Build Conditions

Mainline Segment	Existing LOS 2000	No-Build Scenario LOS 2025
I-94 (Rogers) to Crow River (Hennepin County Border)	B	F
Crow River to TH 10 (Elk River)	A	F
TH 10 (Elk River) to Elk River City Limits	B	F
Elk River City Limits to TH 95 (Princeton)	A	C
TH 95 (Princeton) to TH 23 (Milaca)	A	B
TH 23 (Milaca) to TH 27 (Onamia)	A	A
TH 27 (Onamia) to 4-Lane South of Casino	D*	F*
4-Lane North of Casino to CR 26	C*	E*

*Information from TH 169 Scoping Document (TH 27 to TH 18), December 2000, for Existing LOS in the year 1997 and Future LOS in the year 2030.

3.3 Access Inventory

A summary of access points along the corridor was developed through review of Mn/DOT right-of-way maps, field visits, and review of previous studies. There are currently 415 access points from I-94 in Rogers to TH 18 in Garrison.

As part of this IRC study, a detailed access inventory was created for the segment of the corridor from I-94 in Rogers to the north TH 27 intersection located north of Onamia. The analysis of access issues from Onamia to Garrison is being completed separately for the EIS evaluating improvements for that segment. The EIS improvements being considered include possible expansion to a four-lane facility, which could dramatically change the access conditions, so it was not analyzed in this study. Of the 267 access points in the segment from Rogers to north of Onamia, 148 are “full access,” meaning there is a median break and it is possible to make left and right turns. There are 119 “right in/right out” access points, meaning that left turns cannot be made. Table 3-6 summarizes these access points for this segment of the corridor.

TABLE 3-6

Existing Access Summary on TH 101-TH 169 – I-94 in Rogers to the north TH 27 intersection located north of Onamia

Type of Access	Full Access	Right In / Right Out	
Trunk Highways/Interstates	6	0	
State Aid Highways	22	2	
Local and County Roads	55	8	
Private Access	56	97	
Field Entrances	2	12	
Median Crossovers	7	0	
TOTALS	148	119	267

3.3.1 Access Spacing Review

Mn/DOT’s *Access Category System and Spacing Guidelines* document (March 20, 2002) recommends the maximum number of access points per mile, depending on the characteristics of access points, the roadway type, and IRC classification. Table 3-7 summarizes the recommended access spacing for both High and Medium priority interregional corridors.

The category assigned to a segment of roadway depends on the surrounding area (rural, urban, bypass), functional classification (principal arterial, minor arterial, collector) and facility type (freeway, full grade separation). Since TH 101-TH 169 is a High Priority IRC from I-94 in Rogers to CSAH 4 in Zimmerman, the goal for this segment of the corridor is category 1A-F. This means the guidance recommends having only full grade separations (interchanges) for access. The access category goals for the remaining Medium Priority IRC segments from Zimmerman to Onamia ranged from 2A-F to 2B. A comparison of the existing access to the recommended guidelines is shown in Table 3-8.

TABLE 3-7
Summary of Recommended Access Spacing

Category	Area or Facility Type	Typical Functional Class	Intersection Spacing		Signal Spacing	Private Access Spacing
			Primary Full Movement Intersection	Conditional Secondary Intersection		
1 High Priority Interregional Corridors						
1F	Freeway	Principal Arterials	Interchange Access Only		⊘	⊘
1A-F	Full Grade Separation		Interchange Access Only		⊘	⊘
1A	Rural, ExUrban, & Bypass		1 mile	1/2 mile	INTERIM ONLY By Deviation Only	By Deviation Only
2 Medium Priority Interregional Corridors						
2A-F	Full Grade Separation	Principal Arterials	Interchange Access Only		⊘	⊘
2A	Rural, ExUrban, & Bypass		1 mile	1/2 mile	STRONGLY DISCOURAGED By Deviation Only	By Exception or Deviation Only
2B	Urban Urbanizing		1/2 mile	1/4 mile	STRONGLY DISCOURAGED By Deviation Only	By Exception or Deviation Only
2C	Urban Core		300 – 660 feet dependent upon block length		1/4 mile	Permitted Subject to Conditions

Source: Mn/DOT *Access Category System and Spacing Guidelines*



TABLE 3-8
Mn/DOT IRC Access Spacing Categories and Existing Conditions

Location	IRC Guidelines Access Category	Length and Signals		Full Movement Access			Conditional Secondary Access (right-in/out)			Currently Meets IRC Guidelines
		Number of Traffic Signals	Length (miles)	Number of Access	Accesses per Mile	Guideline (access / mile)	Number of Access	Accesses per mile	Guideline (access / mile)	
I-94 to Hennepin – Wright County Line	1A-F	4	2.0	4	2.0	0*	2	1	0*	
Hennepin – Wright County Line to Wright – Sherburne County Line	1A-F	3	4.1	4	1.0	0*	0	0	0*	
Wright – Sherburne County Line To TH 10	1A-F	1	0.8	1	1.2	0*	0	0	0*	
TH 10 to 197th Avenue	1A-F	3	2.3	4	1.7	0*	2	0.9	0*	
197th Avenue to S. City Limit of Zimmerman	1A-F	1	4.0	11	2.8	0*	3	0.8	0*	
S. City Limit of Zimmerman To Oak Street	2B	1	5.1	17	3.3	2	7	1.4	4	
Oak Street To SB Ramp of CSAH 29	2A	0	7.1	17	2.4	1	20	2.8	2	
SB Ramp of CSAH 29 To Sherburne – Mille Lacs County Line	2A-F	0	0.9	0	0	0*	0	0	0*	X
Sherburne – Mille Lacs County Line To Baxter Road	2A-F	0	3.3	4	1.2	0*	0	0	0*	
Baxter Road To South Jct. of TH 27	2A	0	32.6	75	2.3	1	85	2.6	2	
South Jct. of TH 27 To TH 18	2A	1	20.8	NA	NA	1	NA	NA	2	

*Guidelines recommend interchange access only, no at-grade intersections

Shaded locations meet Mn/DOT's Draft Access Spacing Guidelines

In summary, only one segment (the Princeton Bypass from the south bound ramp of CSAH 29 to the Sherburne – Mille Lacs County line) currently meets all of Mn/DOT's Access Category System and Spacing Guidelines as applied to High and Medium Priority IRCs. Some of the other segments in the southern part of the corridor meet the guidelines for number of access points, but do not meet all of the guidelines because they have signals as discussed in 3.3.3, Traffic Signal Review.

While the IRC access guidelines can give us a long-term vision of the corridor, total consistency with the guidelines in the future may or may not be appropriate depending on local circumstances. For the High Priority IRC, the need to address access spacing will depend on performance characteristics and cost the effectiveness of implementing changes to meet the guidelines. Alternatives examined in Chapter 4 include options that would meet the access guidelines.

3.3.2 Access Risk Review

To determine the potential for additional access points along the corridor, a risk assessment between I-94 in Rogers and TH 27 in Onamia was conducted. Mn/DOT right-of-way maps were reviewed to compare the number of potential access points with the number currently in existence. As described above, 267 access points exist along the corridor from Rogers to Onamia. However, 37 additional potential (currently unused) access points have been identified, nearly 15 percent. The two growth area segments with the greatest access risk are in northern Sherburne and Mille Lacs county between 283rd Avenue and CSAH 2 (south of the Princeton Bypass) and between Baxter Road and 122nd Street (Princeton Bypass to Milaca). Those two segments account for 25 of 37 granted access points currently not in use.

3.3.3 Traffic Signal Review

A traffic signal spacing analysis of the corridor between I-94 in Rogers and TH 27 in Onamia was conducted to determine if the number of existing traffic signals along the corridor is consistent with Mn/DOT's recommended access guidelines. Mn/DOT traffic volume maps were reviewed to compare the number of potential traffic signals by segment and compare the traffic signal density to the guideline. Although the section of the corridor north of Zimmerman to TH 18 in Garrison satisfies Mn/DOT's recommended access guidelines for traffic signals, the signal at the Grand Casino is inconsistent. In order to satisfy these guidelines from Zimmerman southward the existing traffic signals should be considered interim, with a strategy developed for their eventual replacement with interchanges or bypasses. From Onamia northward, the role of traffic signals in the future is best addressed within the context of the ongoing EIS. Considerations will include the possible re-routing of the highway in this segment, environmental impacts, and local roadway design.

3.4 Safety

The number and location of crashes were analyzed to identify safety issues along the highway. Crash rates for both segments and intersections (crashes per million vehicle miles) were determined and compared to similar facilities. Different measures such as severity rate, crash density and costs along the TH 101-TH 169 corridor were compared to the statewide median values. Additionally, the areas where blowing and drifting snow problems occur were examined.

3.4.1 Segment Crash Analysis

Mn/DOT's roadway segment crash database was used to examine segments of the corridor. This database summarizes the data in pre-defined segments that do not correspond to the IRC growth area boundaries used in other analyses. The following crash database segments experienced crash and severity rates greater than the statewide median value:

- I-94 to 0.2 mile north of the I-94 interchange in Rogers
- TH 10 to School Street in Elk River
- TH 27 in Onamia to Mille Lacs CSAH 26
- Garrison city limit to TH 18

Table 3-9 summarizes the severity distribution of the crashes for each study area segment and their crash rates. Figure 3-3 depicts the location of the segments and their corresponding crash rate and severity distributions.

TABLE 3-9
TH 101- TH 169 Corridor Crash Data Between Rogers and Onamia

Segment Number	Location	Length (miles)	Crash Type			Total Crashes
			Fatal	Injury	Personal Damage	
1	I 94 to 0.2 mile north of I-94 (Rogers)	0.2	0	8	32	40
2	0.2 mile north of I-94 to CSAH 144	0.9	0	9	25	34
3	CSAH 144 to 0.4 mile north of CSAH 39	5.5	2	55	82	139
4	CSAH 39 to TH 10	0.3	0	2	6	8
5	TH 10 to School Street (Elk River)	1.6	0	47	73	120
6	School Street to 0.8 mile south of CR 33	1.3	0	26	26	52
7	0.8 mile south of CR 33 to begin of Princeton Bypass	15.5	4	120	182	306
8	Begin to End of Princeton Bypass	3.6	0	9	29	38
9	End of Princeton Bypass to Begin of Milaca Bypass	9.5	2	24	36	62
10	Begin to End Milaca Bypass	3.2	2	6	17	25
11	End of Milaca Bypass to 0.2 mile south of TH 27	23.2	4	62	106	172

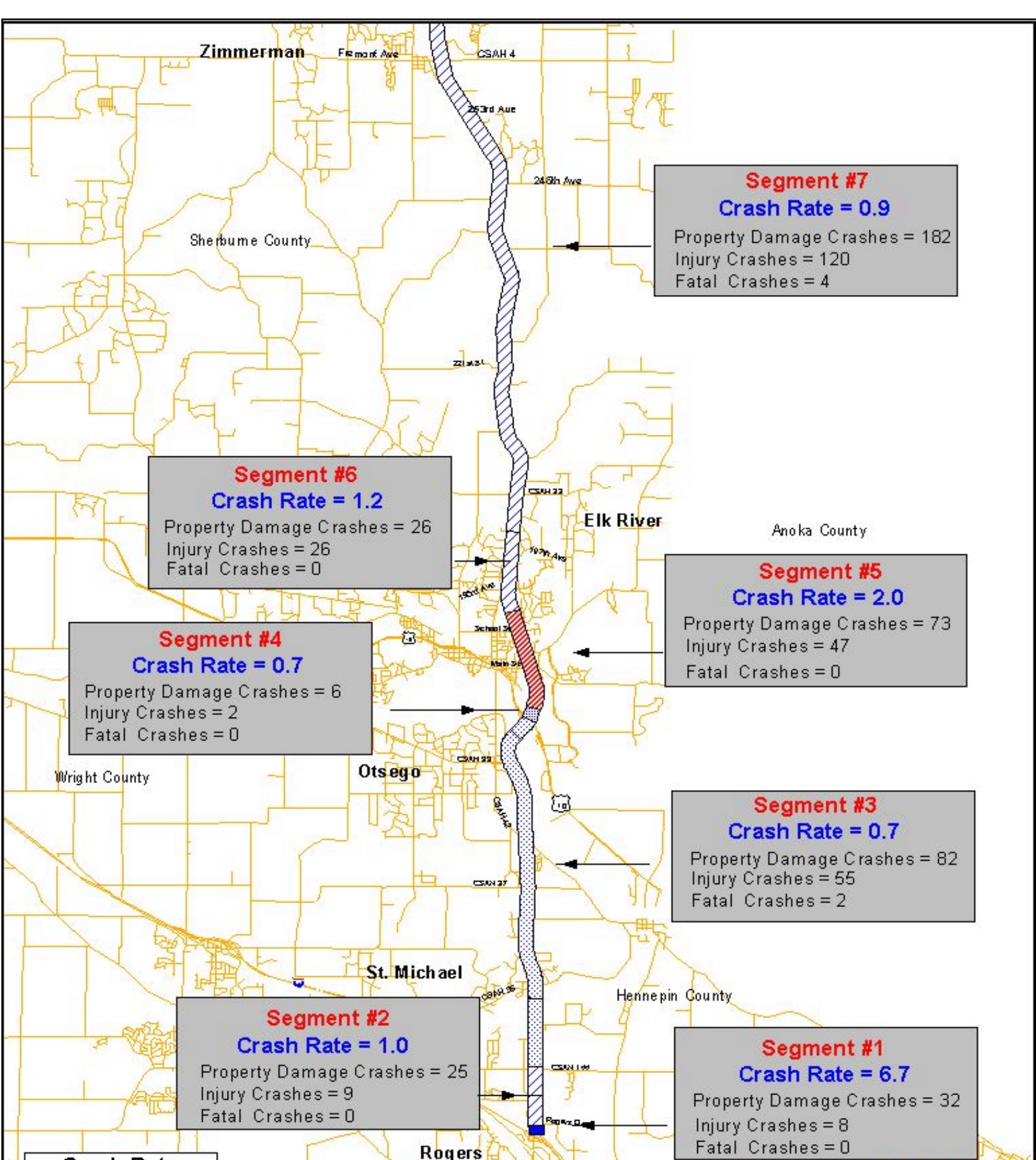
Source: Mn/DOT Crash Data (1997-1999)

**See Figure 3-4 for segments 12-16 crash rates from TH 27 Onamia to TH 18 in Garrison.

3.4.2 Intersection Crash Analysis

Mn/DOT's roadway intersection crash database summarizes the data for pre-defined intersections. Figure 3-4 depicts the intersections with the highest crash rates of the 26 intersections included in the database with their crash severity distributions. The intersections with the most crashes were CSAH 4 in Zimmerman, as well as the Elk River intersections at Main, School, and Jackson streets. These





Crash Rates

- < 0.4
- 0.4 - 0.8
- 0.8 - 1.2
- 1.2 - 2
- 2 <
- Roads



Segment Crash Rates and Crash Severity Distribution

(1997-1999)

I-94 in Rogers to CSAH 4 in Zimmerman

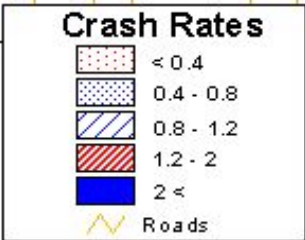
Figure 3-4



Segment #9
Crash Rate = 0.4
 Property Damage Crashes = 36
 Injury Crashes = 24
 Fatal Crashes = 2

Segment #8
Crash Rate = 0.8
 Property Damage Crashes = 29
 Injury Crashes = 9
 Fatal Crashes = 0

Segment #7
Crash Rate = 0.9
 Property Damage Crashes = 182
 Injury Crashes = 120
 Fatal Crashes = 4

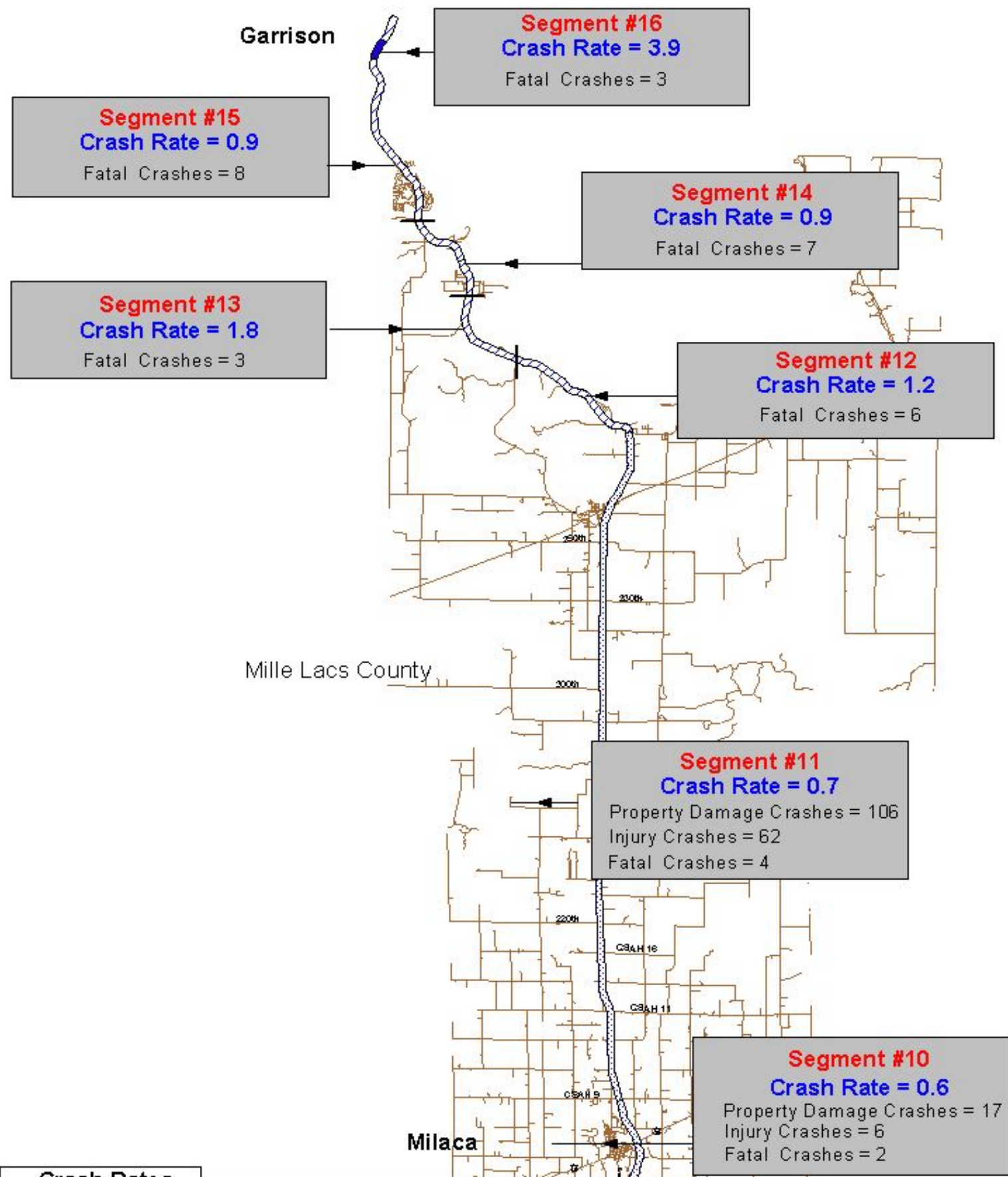


Segment Crash Rates and Crash Severity Distribution (1997-1999)

CSAH 4 in Zimmerman to TH 23 in Milaca

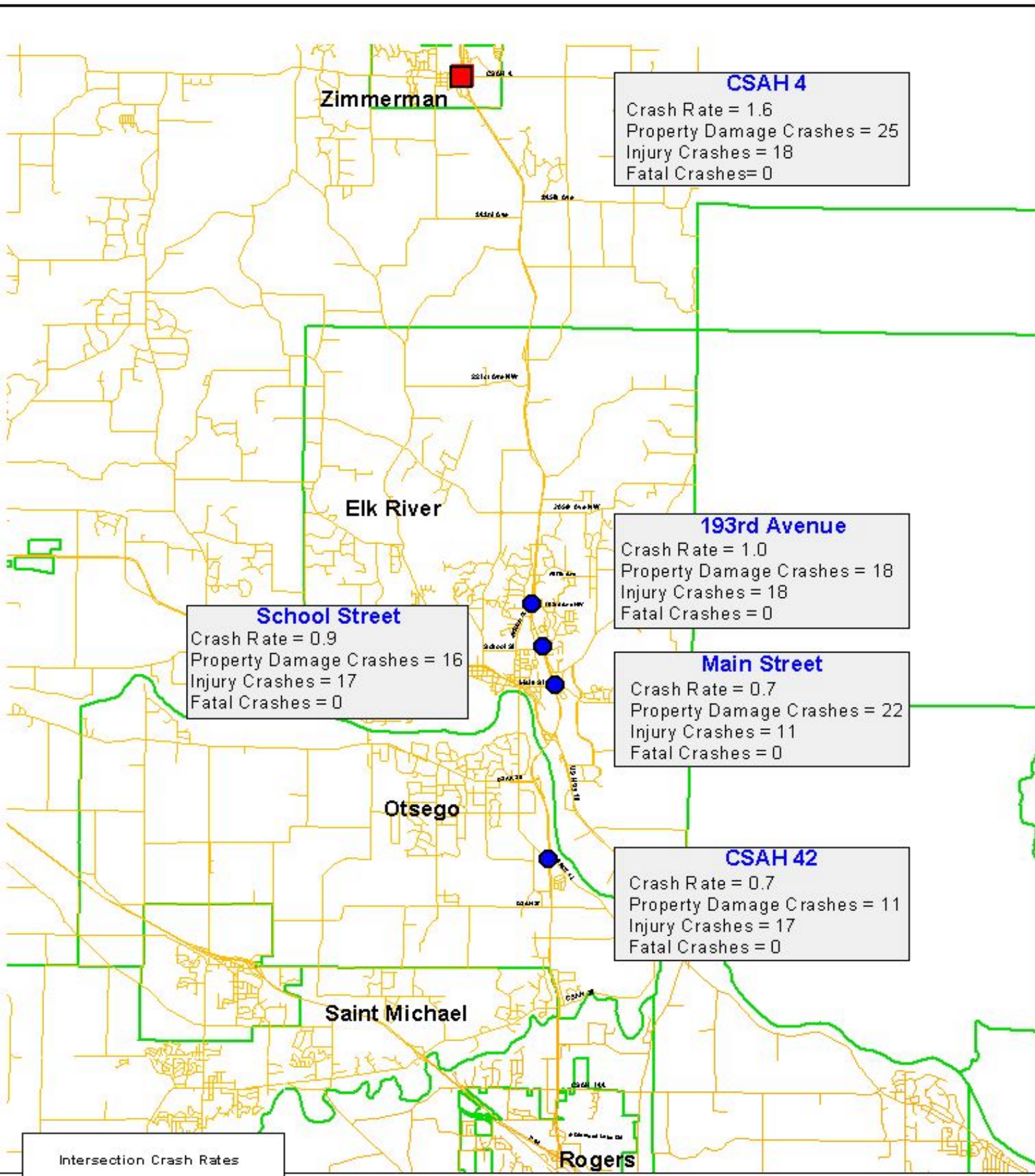
Figure 3-4





Segment Crash Rates and Crash Severity Distribution
(1997-1999)
TH 23 in Milaca to TH 18 in Garrison





Intersections with High Crash Rates (1997-1999)
 High Priority Corridor Segment
 I-94 in Rogers to CSAH 4 in Zimmerman



Figure 3-5
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CSAH 38
 Crash Rate = 1.0
 Property Damage Crashes = 4
 Injury Crashes = 5
 Fatal Crashes = 1

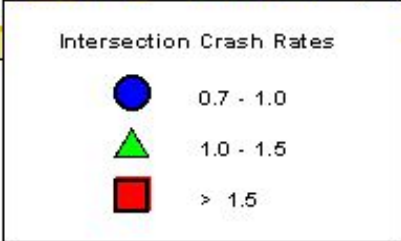
CSAH 22
 Crash Rate = 0.7
 Property Damage Crashes = 3
 Injury Crashes = 4
 Fatal Crashes = 0

CSAH 11
 Crash Rate = 1.1
 Property Damage Crashes = 4
 Injury Crashes = 9
 Fatal Crashes = 0

CSAH 2
 Crash Rate = 0.7
 Property Damage Crashes = 5
 Injury Crashes = 6
 Fatal Crashes = 2

CSAH 9
 Crash Rate = 1.0
 Property Damage Crashes = 10
 Injury Crashes = 9
 Fatal Crashes = 0

CSAH 4
 Crash Rate = 1.6
 Property Damage Crashes = 25
 Injury Crashes = 18
 Fatal Crashes = 0



Intersections with High Crash Rates (1997-1999)
 Medium Priority Corridor Segment
 CSAH 4 in Zimmerman to TH 27 in Onamia



four intersections experienced 145 crashes from 1997 to 1999, none of which were fatal. These four intersections combined account for nearly 40 percent of the 397 crashes in the Mn/DOT intersection database for the TH 101-TH 169 corridor.

The different measures (crash rate per million vehicle miles, and severity rate) used in crash analyses for each of the intersections in the database along the corridor were first compared to the statewide ranking of intersection crash statistics. The following intersections experience crash and severity rates (i.e., crash costs) greater than the statewide median value:

- CSAH 42 in Otsego
- CSAH 39 in Otsego (only severity rate is greater)
- Main Street in Elk River
- School Street in Elk River
- 193rd/Jackson Avenue in Elk River
- CSAH 4 in Zimmerman
- CSAH 9 in Sherburne County
- CSAH 2 in Sherburne County
- CSAH 11 in Mille Lacs County
- CSAH 22 in Mille Lacs County
- CSAH 38/Pine Street in Onamia

All intersections in Mn/DOT's crash database between CSAH 49 (Rogers Drive) in Rogers through 193rd Avenue in Elk River experienced a greater number of crashes and higher crash costs than the statewide median. By any number of measures, the intersection with CSAH 4 in Zimmerman presents one of the greatest safety challenges in the corridor. This intersection is notable for its high crash rate and severity rate. Its ranking was above the 90th percentile statewide. The isolation of the traffic signal and the high speeds of approaching traffic on TH 169 at the intersection are factors likely attributable to the high crash rate at CSAH 4.

Crashes have also increased significantly in the last three years at the northbound exit ramp for TH 95 in Princeton. Almost 35 percent of the crashes were at right angles. This is evidence of the problem, brought up by SAC committee members, of motorist having difficulties seeing eastbound traffic when making left turns onto TH 95.

3.4.3 Snow Trap Inventory

Mn/DOT's Office of Environmental Services prepared TH 101-TH 169 snow trap inventory showing the beginning and ending sections of highway that encounter blowing and drifting snow problems. (See Figure B-2, *Snow Trap Inventory Map*, in Appendix B for the results of the snow trap inventory). The information from the inventory might be used to aid in deciding how to deal with blowing and drifting snow problems along the corridor. Solving snowdrift problems will require:

- Working with adjacent property owners, where applicable, to acquire snow fence easement or temporary easement for backsloping
- Determining what type of treatment (e.g., earthwork, living snow fences, structural snow fences, or a combination of methods) should be used to solve the problem
- Incorporating blowing and drifting snow control measures into additional corridor studies to aid in improving the corridor during the winter seasons



3.5 Intermodal Issues/Uses

Transit and other intermodal operations are present and, in some cases, are currently being improved along the TH 101-TH 169 corridor. While transit system improvements can remove some auto trips from the corridor, community growth will continue to result in higher roadway traffic volumes that cannot be absorbed by transit or by other alternative modes. Furthermore, the role of transit in serving trips has already been adequately accounted for in the traffic and congestion forecasts for the study area (discussed in the sections above). Some of the current intermodal issues and projects are discussed below.

3.5.1 Future Northstar Commuter Rail Service

The Northstar commuter rail line is a long-studied transportation improvement project, led by Mn/DOT. Northstar will use the existing Burlington Northern Santa Fe (BNSF) rail line adjacent to TH 10 to provide public transit along an 80-mile route between Rice (north of St. Cloud) and downtown Minneapolis. Northstar commuter rail stations in the vicinity of the TH 101-TH 169 corridor will be located in Ramsey, Elk River, and Big Lake. The Elk River station is already partially constructed (see Section 3.5.2 below) and is located 0.5 mile east of the TH 10/169-TH 101 interchange and north of TH 10, on 171st Avenue (Tyler Street). The Elk River Northstar station will ultimately have a capacity of 700 parking stalls. The 2020 forecast in the Northstar Corridor Draft Final EIS indicates that 10,829 riders are expected to use Northstar each day. Over 1,900 of these riders (18 percent) are expected to come from Elk River.

3.5.2 Northstar Commuter Coach Service

On October 1, 2001, Mn/DOT launched the Northstar commuter coach program. The commuter coach originates from the Elk River Northstar station and travels to downtown Minneapolis eight times each weekday morning and returns in the evening. The commuter coach also stops at a park-and-ride lot in Coon Rapids on Northdale Boulevard. The bus project is intended to reduce trips on TH 10 and provide an alternative to those travelling from the quickly growing cities in the northwest metropolitan area. Preliminary results indicate that actual use of the commuter coach is surpassing projections. Since January 2002, the Northstar commuter coach has served an average of 430 commuters per day.

3.5.3 Possible Northwest Corridor Busway Service

Metro Transit, which serves the Twin Cities region, is currently studying potential express transit service improvements south of the Mississippi River, with emphasis on a potential busway. The proposed busway corridor would run parallel to CR 81 between Minneapolis and Rogers. The Metropolitan Council hopes to integrate highway reconstruction with a major transit facility. Hennepin County, along with other study partners, is currently conducting a market study for redevelopment sites. Thus far, Hennepin County has committed \$27 million toward the Northwest Corridor project.²

²See http://www.metrocouncil.org/directions/transit_busways.htm



3.5.4 Regional Transit Services

Two regional transit agencies (the Heartland Express and the River Rider) provide on-demand city bus service and regularly scheduled city-to-city connections for several communities along the TH 101-TH 169 corridor. The Heartland Express serves the cities of Princeton, Milaca, and Onamia with door-to-door on-demand bus service. The Heartland Express also makes one or two scheduled trips each month from Princeton to Elk River, Brainerd, and St. Cloud. In August 2001, the Heartland Express had a monthly ridership of 1,245 passengers.

The River Rider is the general public transit system serving Sherburne and Wright Counties, including the cities of St. Michael, Albertville, Otsego, and Elk River. River Rider provides door-to-door, on-demand bus service. A one-day advance notice is required for reservations on the River Rider. There are two regularly scheduled trips per month from Elk River to St. Cloud, and one trip per week from Elk River to Buffalo is also available. With the growth of the communities served, as well as the introduction of the Northstar Corridor service, River Rider staff now anticipate increasing ridership.

Sherburne and Wright Counties each administer a Volunteer Driver Program. These programs are intended strictly for lower income passengers or enrollees in social services requiring a visit to a health care office. Common destinations of the Volunteer Driver Program are within the Twin Cities metropolitan area.

Anoka County also operates a public bus transit system, the Anoka Traveler, which provides both on-demand and fixed route bus services within Anoka County, which is east of the TH 101-TH 169 IRC study area and north of the Mississippi River. While close to the IRC study area, the Anoka Traveler bus service area does not operate within the TH 101-TH 169 corridor itself.

3.5.5 Interstate Bus Service

There are five buses that depart from St. Cloud to Minneapolis and return every day. Of these five, two stop in Elk River on their way to and from Minneapolis. One bus makes a daily round trip from Garrison south to Princeton on TH 169 and on to Minneapolis.

3.5.6 Park-and-Ride Lots

Metro Transit also provides commuter parking along the corridor. In addition to the Northstar Station lot, (discussed above) the city of Elk River has a Metro Transit park-and-ride lot east of TH 169 and south of the Main Street intersection. Mn/DOT has sufficient right-of-way to more than double the current spaces at the Elk River park-and-ride lot, but access is poor to the location. Mn/DOT should look for opportunities to improve access or location of this lot. Another Metro Transit park-and-ride lot is located in the city of Rogers at the TH 101/I-94 interchange. Zimmerman has a park-and-ride lot along East 2nd Street, south of Main Street, and Princeton also has a lot in the southwest quadrant of the TH 169 and LaGrande interchange. The Zimmerman park-and-ride lot is 50 percent utilized and the city has enough right-of-way to triple capacity as the need increases. Currently, only the Northstar Commuter Coach provides bus service from the Elk River park-and-ride lot. Bus service is not provided at the other Elk River lot, or the lots in Rogers and Zimmerman. However, these lots provide a meeting location for individuals participating in van/carpools.



3.5.7 Freight Movement and Truck Issues

TH 101-TH 169 is an important route for freight transport and thus plays a significant role in the state's economy by linking regional trade centers to the Twin Cities. Given the role of TH 101-TH 169 and other IRCs in the state's economy, it is important to improve road safety and the ability for people and goods to be moved in a timely and efficient manner. Because of the highway's relatively high capacity, and its Mississippi River crossing, this IRC serves as a major north-south truck route between the Twin Cities and several points to the northwest, as far north as Grand Rapids.

In completing traffic counts for this study, peak hour truck traffic percentages as high as 16 percent were observed south of the Mississippi River (at TH 101 and CSAH 36). At its junction with I-94, the TH 101 interchange in the Rogers area also serves as a major hub for trucks. This area includes truck stop facilities and major retail and other truck-oriented businesses in the growing Rogers Industrial Park. Another noteworthy truck operational issue relates to landfill, as well as sand and gravel mining operations just north of Elk River. These businesses result in a high volume of trucks entering and exiting the highway. Because of this, some of the driveways include acceleration and deceleration lanes.

Mn/DOT's Office of Freight, Rail, and Waterways held a series of focus groups from June to August 2001 to gather the opinions of freight carriers regarding corridor issues and what future improvements are needed to improve IRC performance. The focus group for freight carriers from the TH 101-TH 169 corridor was held on June 6, 2001, in the city of Milaca. In general, shippers felt that delays on all seven IRCs are related to congestion, traffic signal proliferation, construction, and snowstorms. Relative to TH 101-TH 169, shippers noted that signal proliferation and higher traffic volumes in the southern portion of the corridor (Rogers to Elk River) result in congestion, which in turn contributes to delivery delays. Areas that currently experience high congestion include the intersections of TH 101 and I-94, and along TH 169 at CR 32, CR 33 and CR 2.

Shippers on the TH 101-TH 169 corridor have shifted their schedules to avoid predictable times of high traffic congestion, especially on Fridays. When travelling in or near the Twin Cities, shippers tailor schedules so that first pick-ups are done early in the day to avoid delay. Shippers also noted difficulty entering onto the highway corridor from county roads during high traffic periods because of the lack of entrance ramps and acceleration lanes designed to allow slower trucks to merge with flowing traffic.

Specific comments regarding TH 101-TH 169 that were received during the June 6, 2001, focus group meeting included:

- TH 169 should operate at a minimum of 60 mph; however, during peak hours, today's travel speeds are often closer to 25 mph.
- Cars and trucks should move at the same speed to increase vehicle operating safety.
- Overpasses should replace traffic lights along TH 169 to avoid stop and go traffic and reduce rear end accidents.
- The number of crossing or access points along all IRCs, and especially TH 169, should be reduced to enhance the flow of traffic.
- Improved traffic light timing along TH 101-TH 169 might serve to increase traffic flow in the interim (before improvements are made to eliminate signals).

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- Safety and road efficiency might also be improved by installing advanced warning (yellow flashing) lights indicating when a traffic light ahead is about to change.
- Driver education is needed for cars to interact more safely with trucks.

3.5.8 Municipal Airports

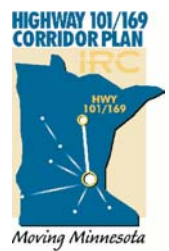
Two airports are located along the corridor. The Princeton Municipal Airport is located approximately 0.5 mile west of TH 101-TH 169. The Milaca Municipal Airport is located approximately 0.5 mile east of the corridor. These airports are small and do not contribute or relieve any significant traffic demand to the highway.

3.6 Mobility Risks

The traffic analysis completed and summarized in this Chapter confirms that by 2025 the series of signalized intersections from Rogers through Elk River will not be able to accommodate the increased traffic volumes. This means that delays will continue to increase and congestion will become more severe and will occur more often. Chapter 4 addresses alternative measures to mitigate these potential problems, including potential highway capacity improvements.



Chapter 4 - *Alternative Strategies to Achieve the Vision*



Alternative Strategies to Achieve the Vision

Chapters 1 through 3 of this CMP describe the corridor partners' vision for the future of TH 101-TH 169 and establish the need for action. This chapter discusses the corridor management alternatives examined during the planning process and each alternative's potential to achieve the goals of the TH 101-TH 169 Corridor Vision Statement. A summary of the Key Findings is presented below. Each finding is also discussed in more detail in this chapter, followed by identification of the consensus approach supported by the corridor partners.

The Key Findings Discussed in this Chapter

- The speed and safety performance goals stated in the corridor vision cannot be achieved without highway capacity improvements.
- The speed performance goals stated in the corridor vision can be achieved by improving the highway to a freeway from Rogers through Elk River.
- The safety performance goal stated in the corridor vision can be most readily achieved by eliminating signalized intersections and by addressing crash problems at other selected intersections.
- Proper management of TH 169 as a four-lane expressway between Elk River and Onamia is sufficient to achieve the speed performance goals stated in the corridor vision.
- Upgrading TH 169 to a four-lane rural expressway between Onamia and Garrison is necessary to achieve the safety and speed performance goals stated in the corridor vision.
- The corridor partners have worked together to reach consensus that upgrading TH 101-TH 169 to a freeway between Rogers and Princeton is strongly supported as a long-term vision.

4.1 Corridor Alternatives

Four corridor management alternatives were analyzed:

- The No-Build scenario, as well as transportation management strategies
- Upgrade to a six-lane signalized expressway from Rogers through Elk River and maintain four-lane rural expressway between Elk River and Onamia
- Upgrade to a four-lane freeway from Rogers through Elk River and maintain four-lane rural expressway between Elk River and Onamia
- Upgrade to a six-lane freeway from Rogers through Elk River, upgrade to a four-lane freeway from Elk River to Princeton, and maintain four-lane rural expressway between Princeton and Onamia

The No-Build scenario is addressed in detail in Chapter 3. Further discussion of the No-Build and transportation management strategies is provided below. This chapter emphasizes comparison of the "Build" alternatives, consisting of potential highway capacity improvements.



4.1.1 No-Build and Transportation Management Strategies

While a No-Build scenario means that no capacity improvements would be built along the corridor, there would still be some strategies that could be implemented to improve highway performance. These strategies include transportation system management (TSM) and transportation demand management (TDM).

4.1.1.1 Transportation System Management

TSM strategies would contribute to the attainment of short-term speed and performance goals by implementing relatively low-cost spot improvements, such as adding turn lanes at intersections. This approach is similar to how the highway has been managed until recently. In the past, traffic signals and turn lanes were thought to provide useful solutions to transportation problems (in Elk River, for example).

By mid-year 2002, Mn/DOT will be installing Advanced Warning Flashers (AWF) at several intersections along the corridor. These devices are designed to provide motorists advance warning that an approaching signal light will turn yellow and then red for their direction of travel on the state highway. The extra warning is intended to reduce the number of accidents at the intersections and give commercial vehicles, such as semi-trailer trucks, more time to prepare to stop. The following are the locations of the intersections receiving the flashers:

- Main Street (Elk River)
- School Street (Elk River)
- Jackson Street (Elk River)
- 197th Avenue (Elk River)
- CSAH 4 (Zimmerman)

Since these TSM strategies are not sufficient to satisfy long-term corridor performance goals south of Princeton, more capital-intensive investments providing more comprehensive transportation solutions (such as the new interchanges at Sherburne County's CSAH 9 and CR 33) are more appropriate.

4.1.1.2 Transportation Demand Management

Policies, strategies, or low-cost projects to reduce traffic demands along the highway are part of an overall TDM strategy. This may include planning restrictions to slow the area's growth and development and/or investment in mass transit services to provide travel alternatives. One type of TDM strategy involves local community land use controls. Land use planning and zoning actions taken by communities can greatly influence the characteristics of the corridor and future highway performance. Potential local land use controls are discussed further in Chapter 5.

Similar to TSM, the level of transit investment required is also significant. As discussed in Section 3.5 of this CMP, transit is one TDM strategy that is being implemented along the TH 101-TH 169 corridor, such as the Northstar commuter coach and commuter rail services. While transit system improvements can remove some auto trips from the corridor, community growth will continue to result in higher roadway traffic volumes that cannot be absorbed by transit or by other alternative modes. Furthermore, the role of transit in serving trips has already been adequately accounted for in the traffic and congestion forecasts for the study area (Chapter 3).



4.1.1.3 No-Build Analysis

Mn/DOT’s analysis, discussed in Chapter 3, shows that the No-Build scenario will not address the expected increase in traffic volumes and will lead to a significant decline in future corridor performance. As previously established, much of this future congestion is related to generally strong growth trends in corridor communities, as well as within the Twin Cities. Without improvements, peak-period travel speeds and the future Level of Services (LOS) are expected to decrease dramatically along mainline segments. Safety issues would also not be addressed. Therefore, the speed and safety performance goals stated in the corridor vision cannot be achieved without highway capacity improvements.

4.1.2 Highway Capacity Improvements—Rogers to Onamia

Highway capacity improvements involve increasing the overall highway capacity through the addition of continuous travel lanes and/or the replacement of traffic signals with interchanges. Various highway improvement concepts were evaluated for different parts of the corridor. Below is a discussion of the capacity improvements that were considered.

4.1.2.1 Six-lane Signalized Expressway Alternative (Rogers to Elk River)

Under this alternative, the segment of the corridor from Rogers through Elk River, which includes 12 traffic signals, would be expanded to a six-lane signalized expressway and the currently non-signalized at-grade access points would be eliminated. The corridor north of Elk River would be maintained as a four-lane rural expressway. The existing traffic signal in Zimmerman (at CSAH 4) would also be maintained.

Table 4-1 shows the expected LOS for signalized intersections if the road is upgraded to a six-lane signalized expressway. Even with the additional lanes, nearly all of the existing signalized intersections would experience severe congestion (LOS “F”) during normal weekday peak hours in 2025.

TABLE 4-1
TH 101-TH 169 Six-lane Signalized Intersection Capacity Analysis from Rogers to Zimmerman

Signalized Intersections	Six-lane Expressway LOS (a.m./p.m.) 2025	Signalized Intersections	Six-lane Expressway LOS (a.m./p.m.) 2025
I-94 South Ramp	B/C	TH 10	F/F
I-94 North Ramp	F/F	Main Street	F/F
CSAH 49	F/F	School Street/Elk Hills Drive	F/F
CSAH 144	F/F	Jackson Avenue	F/F
CSAH 36	F/F	197th Avenue	E/F
CSAH 42	C/F	CSAH 4	Not Applicable
CSAH 39	F/F		



Table 4-2 shows the future 2025 LOS for the mainline segments if this alternative is implemented.

TABLE 4-2
TH 101-TH 169 Six-lane Signalized Alternative Mainline Capacity Analysis from Rogers to Elk River

Mainline Segment	Six-lane Expressway LOS 2025
I-94 (Rogers to Crow River)	F
Crow River to TH 10 (Elk River)	B
TH 10 (Elk River) to Elk River city limits	C

When considering the LOS results in Table 4-2, it is important to note that LOS is a measure that is applied to a specific roadway function. Therefore, different peak period LOS speed standards can be applied to the same section of roadway, depending on the free-flow speed and the type of intersection design (traffic signal vs. interchange). As shown in Figure 4-1, the same level of traffic for different facilities can yield widely differing peak period speeds. For example, a six-lane signalized expressway through Elk River is expect to operate at LOS C in 2025, with a peak period speed of 37 mph. While the same volume of traffic on a 4-lane freeway would operate at a lower LOS (D), the peak period travel speed of 61 mph is much greater than a six-lane signalized arterial. Since the top free-flow speed of a signalized arterial is generally acknowledged as 45-55 mph, it is not possible for this type of roadway to meet the IRC speed performance goal.

As noted earlier, the corridor is being studied to achieve these speed performance goals:

- 60 mph for the High Priority IRC segment from Rogers to Zimmerman
- 55 mph for the Medium Priority IRC segment from Zimmerman to Garrison

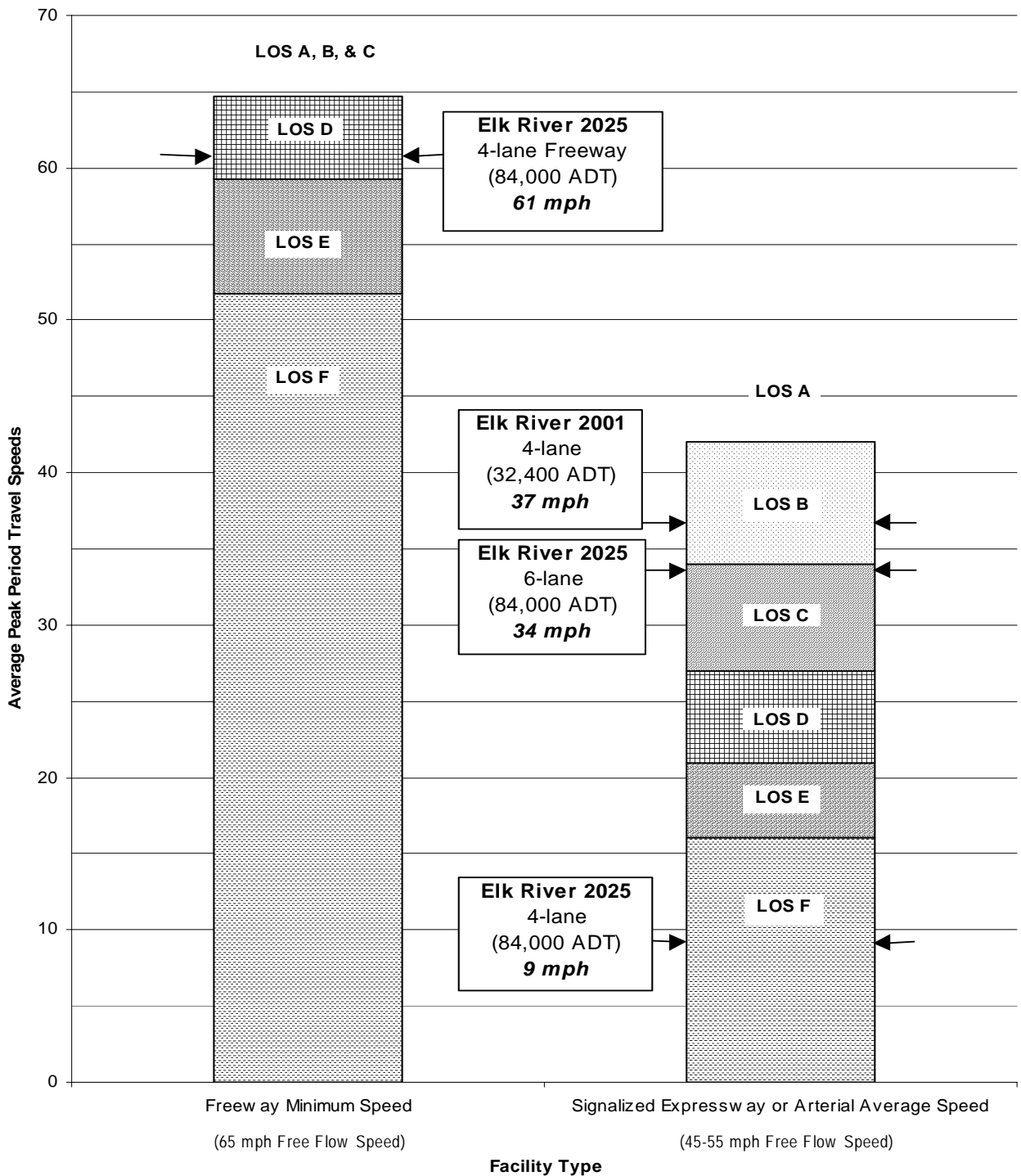
An expanded signalized expressway would fail to satisfy the visions of improved safety and improved local traffic operations. The desired performance simply cannot be achieved by expanding the highway while leaving the signals in place.

This section’s analyses shows that these speed objectives cannot be achieved with a six-lane signalized expressway. Furthermore, the results show that almost every signalized intersection along the corridor would operate very poorly (LOS “F”) by 2025, even if the highway was expanded to six lanes. This improvement would fail to satisfy the visions of improved safety and traffic operations (both interregional and local). To conclude, most of the corridor’s major performance problems are caused by traffic signals; therefore, the desired performance simply cannot be achieved by expanding the highway while leaving the signals in place.

4.1.2.2 Four-lane Rural Expressway (Princeton to Onamia)

Under all of the freeway alternatives discussed below, the portion of the corridor from Princeton to Onamia would be maintained as a four-lane rural expressway. The forecasted traffic volumes can be adequately accommodated by the lane additions constructed on TH 169 over the past 20 years. Interchanges should be constructed at key crossroads to preclude traffic signals and improve safety. In addition, at-grade access points should be consolidated. There is more discussion on the performance of the four-lane expressway in Chapter 3.





Source: Highway Capacity Manual, 2000

Estimated Peak Period Level of Service for Different Facility Types

Figure 4-1



4.1.2.3 Four-lane Freeway Alternative (Rogers through Elk River)

Under this alternative, the corridor from Rogers through Elk River would be upgraded to a four-lane freeway. This option includes interchanges or grade separations at key crossroads and the elimination of all at-grade access points. The northern portion of the corridor from the northern Elk River city limits to Onamia would be maintained as a four-lane rural expressway.

4.1.2.4 Six-lane Freeway (Rogers through Elk River) and Four-lane Freeway (Elk River to Princeton)

Under this option, the corridor from Rogers through Elk River would be upgraded to a six-lane freeway. From the northern city limits of Elk River to Princeton, the existing four-lane highway would be upgraded to a four-lane freeway. This option includes interchanges or grade separations at key crossroads and the elimination of all at-grade access points. The northern portion of the corridor from Princeton to Onamia would be maintained as a four-lane rural expressway.

4.1.2.5 Freeway Alternatives Analysis

Table 4-3 depicts the expected LOS in 2025 of the four-lane freeway alternative and the six-lane freeway alternative. Since the six-lane freeway concept terminates at Elk River’s northern city limit, an LOS was not calculated for the segment of the highway from Elk River north to Princeton.

TABLE 4-3
Analysis of Freeway Alternatives

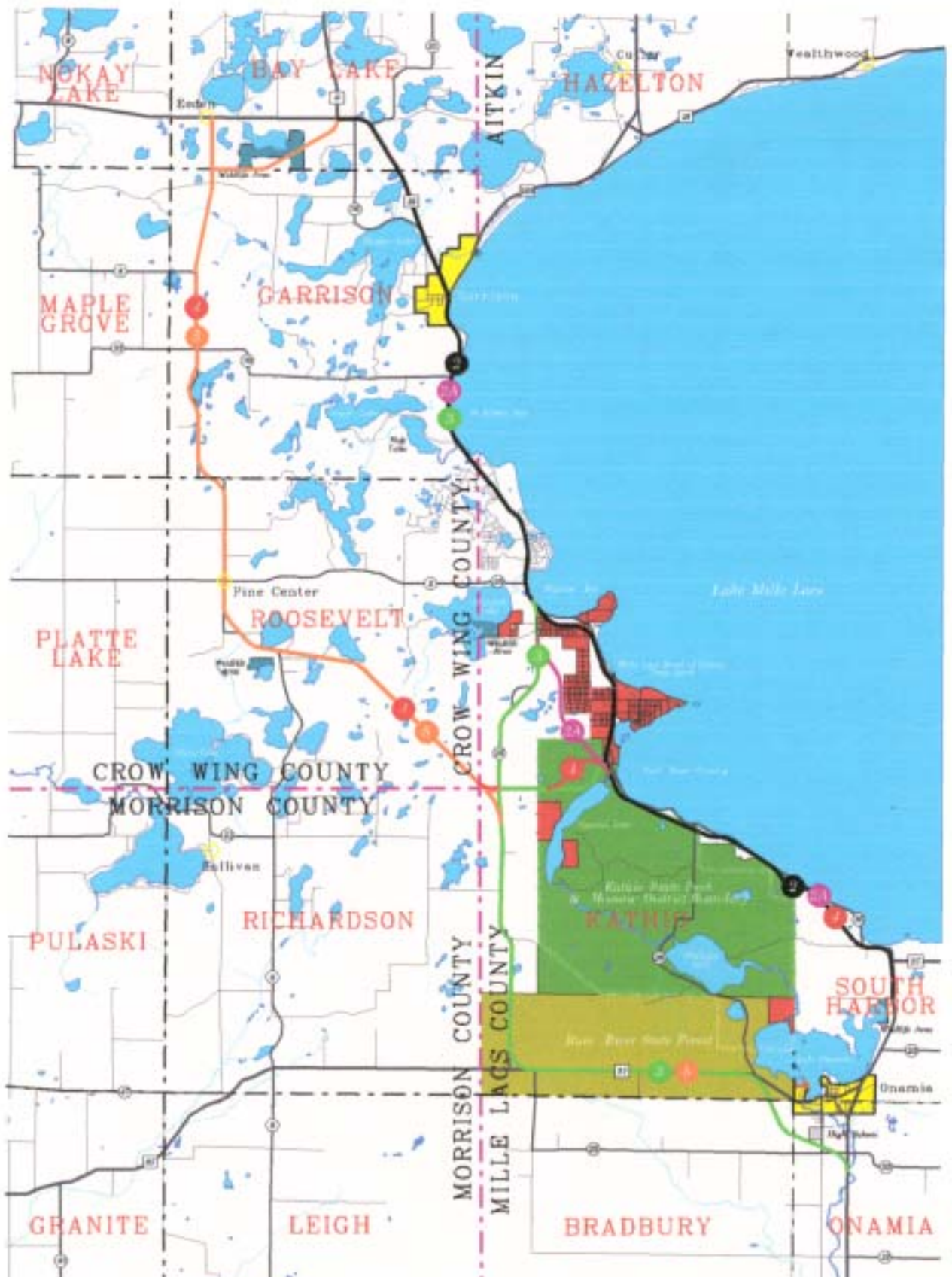
Mainline Segment	Four-lane Freeway Alternative LOS 2025	Six-lane Freeway Alternative LOS 2025
I-94 (Rogers) to Crow River	E	C
Crow River to TH 10 (Elk River)	D	B
TH 10 (Elk River) to Elk River City Limits	D	C
Elk River City Limits to TH 95 (Princeton)	C	Not Applicable

Table 4-3 shows that there is potential for an unacceptable LOS in 2025 (LOS “E” in the Rogers area). Therefore, a performance review for the six-lane alternative was appropriate. The six-lane alternative would completely address the congestion forecasted to occur with the four-lane alternative, particularly in the segment closest to Rogers, where the LOS would improve from E to C. However, the travel speed associated with either freeway alternative (regardless of LOS) will meet the speed performance goals established for the corridor. Thus, the conversion of the existing signalized expressway to a four-lane freeway is a reasonable first step to address long-term mobility needs. Section 4.2 contains greater detail regarding the speed performance associated with the freeway alternatives.

4.1.3 TH 169 Improvement Project—Onamia to Garrison

The July 2001 Scoping Decision Document (SDD) for the reconstruction of TH 169 between TH 27 in Onamia to TH 18 in Garrison addressed the need to accommodate traffic volumes and to correct safety problems. The SDD identified five, four-lane expressway alternatives to address these problems (see Figure 4-2). These alternatives were carried into a Draft EIS for further analysis.





Draft EIS Alignment Alternatives
TH 169 Improvement Project

Figure 4-2



4.2 Comparison of Alternatives

A comparison of the alternatives based on the LOS as well as the performance goals stated in the vision statement helped to determine which alternative will best fit the needs of the corridor.

4.2.1 Level of Service

The LOS was first used to compare the performance of each alternative. Figure 4-3 compares the mainline segment peak period LOS for each alternative. Key findings:

- The six-lane signalized expressway is not a good alternative. The mainline from I-94 to the Crow River operates at LOS F and all but one signalized intersection operate at LOS F, which means severe congestion in 2025.
- The four-lane freeway alternative from I-94 to the Elk River city limits would operate at LOS E or better. While this alternative would be a possible option for improving the corridor, there could still be some congestion in 2025.
- The six-lane freeway alternative from I-94 to the Elk River city limits would operate at LOS C or better. Therefore, this would be a possible option for improving the corridor with less congestion in 2025.

The travel speeds associated with either freeway alternative (four-lane or six-lane) will help meet the speed performance goals established for the corridor. Thus, the conversion of the existing signalized expressway to a four-lane freeway is a reasonable first step to address long-term mobility needs.

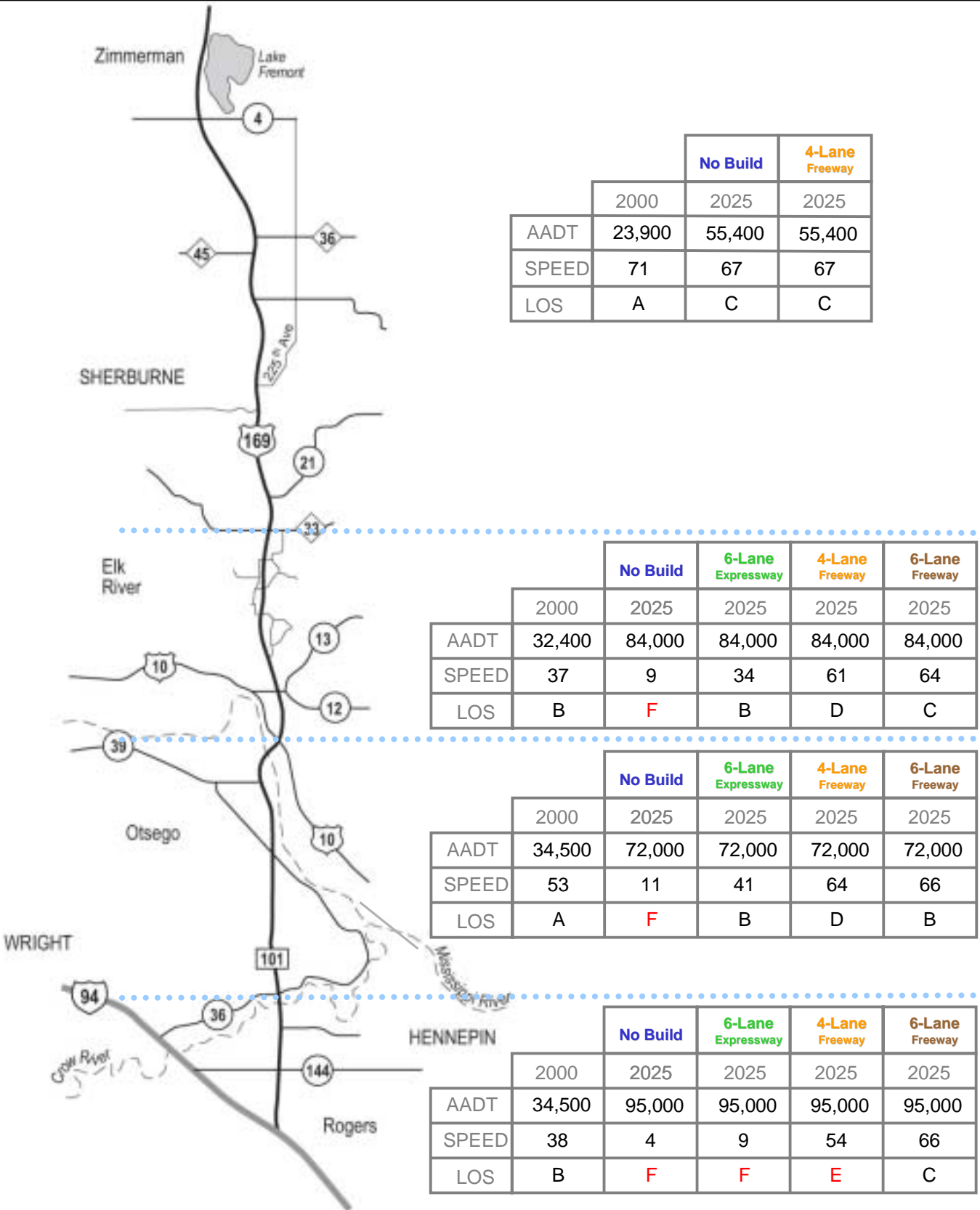
4.2.2 Speed Performance

By comparing the travel speed produced by various alternatives to the target corridor speeds (60 mph for the High Priority corridor and 55 mph for the Medium Priority corridor) the alternatives most worth pursuing can be determined (Table 4-4). Figure 4-3 shows the breakdown of travel speeds by growth areas.

TABLE 4-4
Comparison of Future (2025) Speed Performance for Various Alternatives

Alternative	2025 Normal Weekday Peak Period Speed (mph)		
	High Priority IRC Segment	Medium Priority IRC Segment	Total Corridor
No-Build	12	60	32
Build EIS improvements from Onamia to Garrison (assumed to occur within the next several years)	12	65	33
...add: build six-lane signalized expressway from Rogers through Elk River	31	65	52
...or add: build four-lane freeway from Rogers through Elk River	61	65	64
...or add: build four-lane freeway between Rogers and the Princeton Bypass	61	65	64
...or add: build six-lane freeway from Rogers through Elk River and a four-lane freeway between Elk River and the Princeton Bypass	64	65	65





		No Build	4-Lane Freeway
	2000	2025	2025
AADT	23,900	55,400	55,400
SPEED	71	67	67
LOS	A	C	C

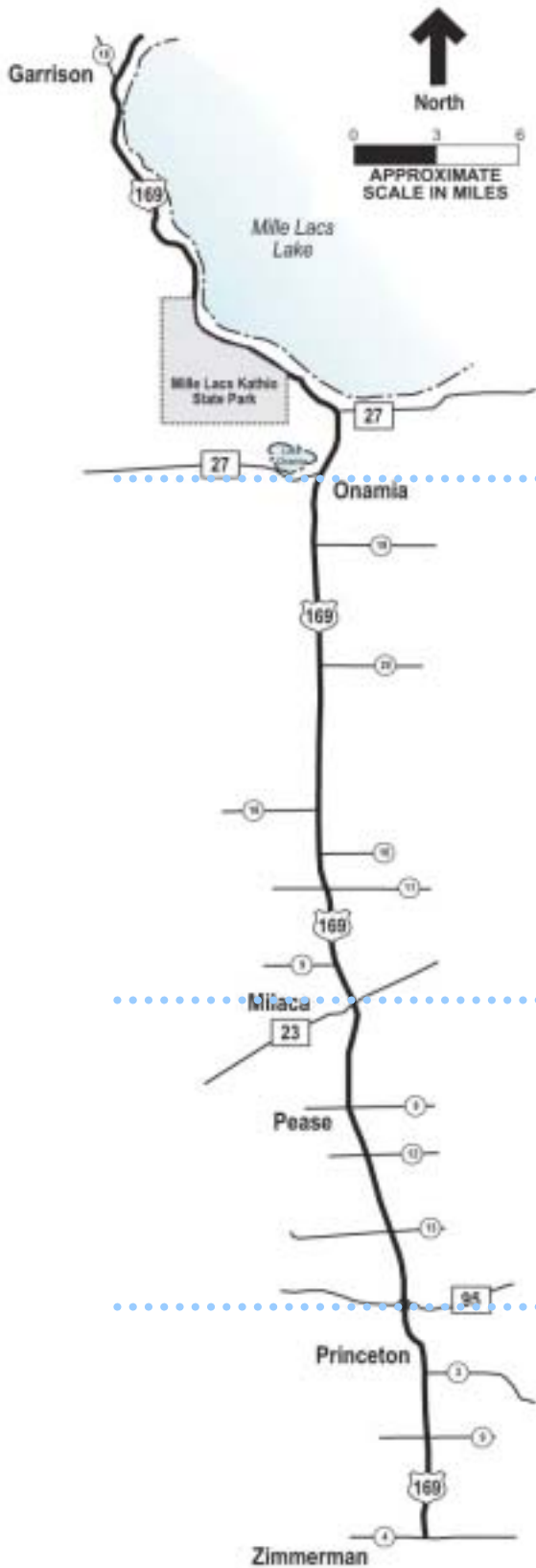
		No Build	6-Lane Expressway	4-Lane Freeway	6-Lane Freeway
	2000	2025	2025	2025	2025
AADT	32,400	84,000	84,000	84,000	84,000
SPEED	37	9	34	61	64
LOS	B	F	B	D	C

		No Build	6-Lane Expressway	4-Lane Freeway	6-Lane Freeway
	2000	2025	2025	2025	2025
AADT	34,500	72,000	72,000	72,000	72,000
SPEED	53	11	41	64	66
LOS	A	F	B	D	B

		No Build	6-Lane Expressway	4-Lane Freeway	6-Lane Freeway
	2000	2025	2025	2025	2025
AADT	34,500	95,000	95,000	95,000	95,000
SPEED	38	4	9	54	66
LOS	B	F	F	E	C

Existing and Forecasted Mainline Traffic Volumes and Performance
High Priority Segment





	No Build	
	2000	2025
AADT	9,900	18,900
SPEED	72	70
LOS	A	A

	No Build	
	2000	2025
AADT	13,800	29,500
SPEED	71	70
LOS	A	B

		No Build	4-Lane Freeway
	2000	2025	2025
AADT	23,900	55,400	55,400
SPEED	71	67	67
LOS	A	C	C

Existing and Forecasted Mainline Traffic Volumes and Performance
Medium Priority Segment

Figure 4-3
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From this comparison, it can be concluded that the speed performance goals stated in the corridor vision can be achieved by:

- Improving the highway to a four-lane freeway from Rogers through Elk River;
- Maintaining the highway as a four-lane expressway between Elk River and Onamia; and
- Building the four-lane expressway from Onamia to Garrison.

Figure 4-4 depicts the impact of these target improvements on speed performance over time. Table 4-5 provides additional detail by breaking down the entire study corridor into the 16 growth areas. This breakdown will help guide Mn/DOT and the corridor partners toward answers concerning which projects (or project combinations) may provide the greatest performance benefits, based on normal peak hour speed performance.

Table 4-5 breaks future speed performance down into the 16 growth areas. This information can help to determine which projects (or project combinations) may provide the greatest speed performance benefits. Chapter 5 and Appendix D describe potential highway improvement projects, including potential project phases.

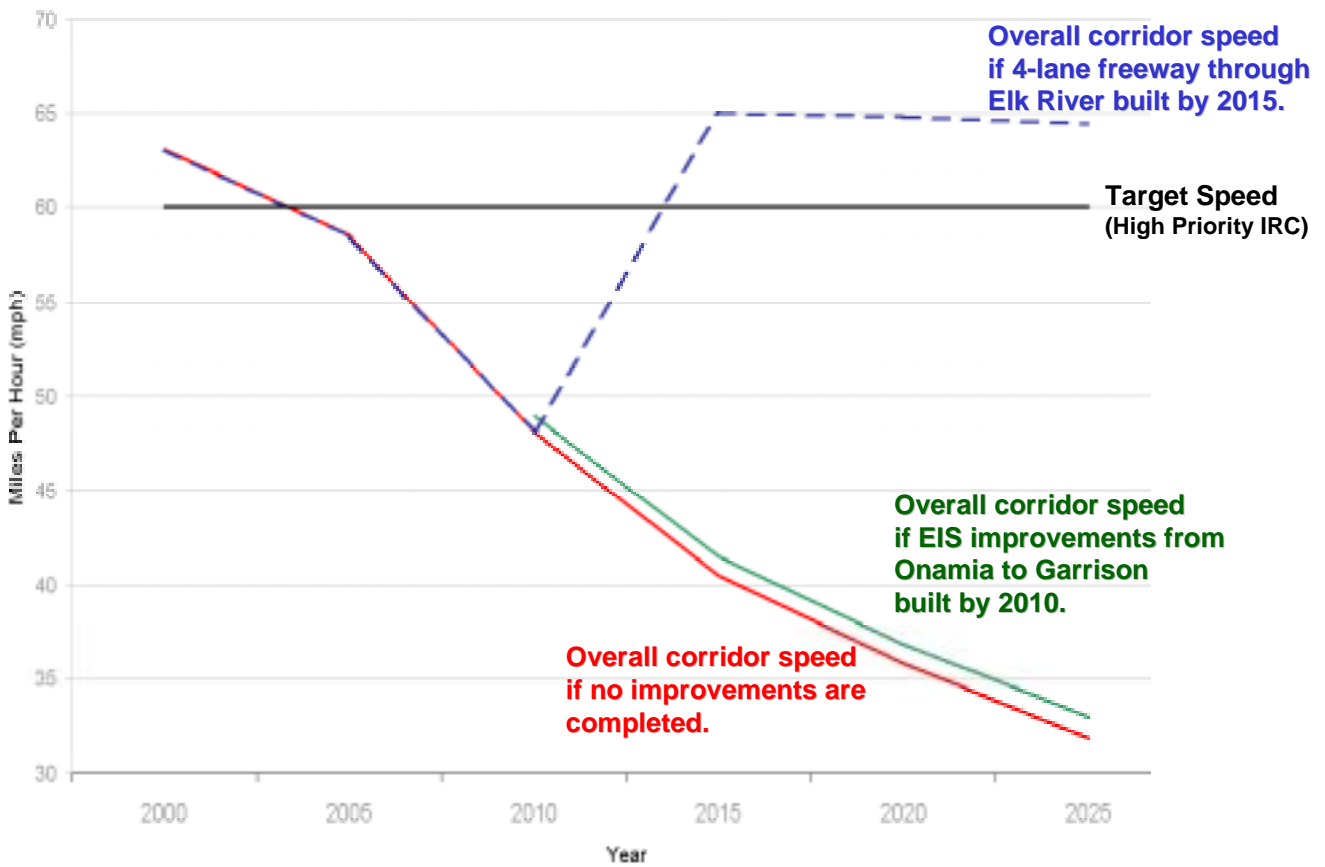
While not entirely reflected by the speed performance summary, there may be some operational benefits associated with constructing a six-lane freeway south of the Crow River near Rogers. The significant disruption caused by construction could also be consolidated by constructing the six-lane freeway in conjunction with possible major interchange improvements from I-94 to CSAH 144. Chapter 5 and Appendix D describe potential highway improvement projects, including potential project phases.

4.2.3 Safety Performance

Based on analyses discussed in Section 3.4.2, the intersection of CSAH 4 in Zimmerman is the most critical, with a crash ranking above the 90th percentile statewide. In addition, seven of the nine signalized intersections between CSAH 49 (Rogers Drive) in Rogers and 193rd Avenue in Elk River experience a higher crash rate than the statewide median. Other non-signalized intersections that have high crash rates include CSAH 9 in Sherburne County and CSAH 11 in Mille Lacs County. The safety performance goal stated in the corridor vision can be most readily achieved by:

- Installing interim Advanced Warning Flashers (AWFs) at signalized intersections with higher crash rates such as CSAH 4 and intersections in Elk River. This short-term improvement would help reduce crashes at these intersections.
- Improving the highway to a four-lane freeway from Rogers through Elk River; eliminating the signalized intersections from Rogers through Elk River will greatly enhance safety.
- Maintaining the highway as a four-lane expressway between Elk River and Onamia; eliminating the CSAH 4 intersection in Zimmerman will greatly enhance safety; the reduction of at-grade access points and selective construction of interchanges at key locations will greatly enhance safety along this section of the corridor.
- Building the four-lane expressway from Onamia to Garrison; this improvement will greatly improve safety in the section of the corridor with the greatest fatalities.





Overall Corridor Performance with 4-lane Freeway from Rogers through Elk River

Figure 4-4



TABLE 4-5
Future (2025) Speed Performance by Growth Area

Growth Area Segment	Year 2001 Speed	No-Build Speed					Upgrade to 4-lane	Year 2025 Potential Projects and Resulting Average Speeds																			All Category II Projects
		Year 2005	Year 2010	Year 2015	Year 2020	Year 2025		Upgrade to Freeway																		Consolidate Access 9-12	
								13-16	1 (4-lane)	1 (6-lane)	2 (4-lane)	2 (6-lane)	3 (4-lane)	3 (6-lane)	2-3 (4-lane)	2-3 (6-lane)	1-3 (4-lane)	1-3	4	5	6	7	8				
	Project Category						I	II	III	II	III	II	III	II	III	II	III	II	III	I, III	III	II	III	I, III	III		
1	37.7	24.7	7.9	4.7	4.1	3.6		53.0	65.4								53.0	65.4								53.0	
2	53.1	47.8	32.9	22.0	15.1	11.4				64.2	66.4			64.2	66.4	64.2	66.4	64.2	66.4							64.2	
3	36.5	29.4	21.8	18.6	12.0	8.9						60.9	64.0	60.9	64.0	60.9	64.0	60.9	64.0							60.9	
4	65.6	64.4	64.4	64.4	64.4	64.4													67.0							67.0	
5	68.9	68.6	68.6	68.6	68.6	68.6															NC					NC	
6	52.0	43.8	40.2	37.1	34.4	32.1																67.0				67.0	
High Priority	52.0	44.0	26.0	18.2	14.5	12.0	12.0	20.3	20.9	15.5	15.5	14.4	14.4	19.6	19.7	61.7	64.6	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	64.6	
7	71.9	69.6	69.6	69.6	69.6	69.6																		NC		NC	
8	72.6	69.6	69.6	69.6	69.6	69.6																		NC		NC	
9	72.2	70.0	70.0	70.0	70.0	70.0																					
10	71.7	70.0	70.0	70.0	70.0	70.0																					
11	72.0	70.0	70.0	70.0	70.0	70.0																					
12	67.1	67.1	67.1	67.1	67.1	67.1																					
13	59.9	56.5	53.5	50.8	48.3	46.1	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	
14	48.7	46.0	43.5	41.3	39.3	37.5	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	
15	58.3	55.0	52.0	49.4	47.0	44.8	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	
16	54.3	51.2	48.5	46.0	43.8	41.8	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	
Medium Priority	67.1	64.6	63.4	62.3	61.2	60.1	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	
Overall Corridor	63.0	58.5	48.1	40.5	35.8	31.9	33.0	44.2	44.4	38.2	38.2	36.6	36.6	43.1	43.2	64.5	65.2	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	64.5	

Growth Area/Project Segments	
1	Rogers—South I-94 Ramps to Crow River (I-94, CSAH 144 interchanges)
2	St. Michael/Olsego—Crow River to TH10 (CSAH 36, CSAH 37, CSAH 39 interchanges, CSAH 42 overpass)
3	Elk River—TH10 to 197th Avenue (TH 10, Main Street, Jackson/197th interchanges, School Street overpass)
4	Elk River—197th Avenue to North City Limit (221st Street, CR 33 interchange)
5	South of Zimmerman—North City Limit to South Zimmerman (Flasher) (CR36/CR45 interchange)
6	Zimmerman—South Zimmerman (Flasher) to North Zimmerman (Flasher) (CSAH 4 interchange)
7	North of Zimmerman—North Zimmerman (Flasher) to CR 2 / 313th Ave (277th Avenue, CSAH 9, CR 38 interchanges)
8	Princeton—CR 2 / 313th Ave to Baxter Road (CSAH 9, CR 38 interchange)
9	North of Princeton—Baxter Road to South Jct. of Central Ave/CR 36
10	Milaca—South Jct. Of Central Ave/CR 36 to Rum River Bridge
11	North of Milaca—North Jct. of Central Ave/CR 36 to Rum River Bridge
12	South of Onamia—Rum River Bridge to Jct. TH 27
13-16	Onamia to Garrison—TH 27 to TH 18

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4.3 Consensus Alternative

The analysis of alternatives determined that in order to meet the target speed performance of 60 mph, the High Priority segment of the corridor should be upgraded to a four-lane freeway from I-94 in Rogers through 197th Avenue in Elk River. To meet safety goals, the length of corridor upgraded to a four-lane freeway would logically extend through Zimmerman to address the high crash rate at CSAH 4, consolidate access within a high-growth area, and to provide highway design continuity. Additionally, in order to maintain continuity of the corridor and meet driver expectations the freeway design would need to be completed from Zimmerman north to the Princeton Bypass (where TH 169 is already a freeway). Again, the rate of development in the area and risk of future access and safety problems support this alternative.

Considering the above factors, the corridor partners worked together to reach consensus that upgrading TH 101-TH 169 to a freeway between Rogers and Princeton is strongly supported as the long-term vision for an improved corridor. Through more than 30 meetings, all of the corridor improvement alternatives were discussed with the PAC and SAC participants, along with sketch plans showing interchange layouts. The next chapter (Chapter 5, *Action Plan for Achieving the Vision*) discusses the recommendations and potential projects that can be implemented to achieve the consensus alternative.



Chapter 5 - *Action Plan for Corridor Management*



Action Plan for Corridor Management

Chapters 3 and 4 of this plan analyze the need for capacity expansion along the corridor, as well as various alternatives. Chapter 4 concludes that IRC speed performance goals can be achieved by converting the highway to a four-lane freeway from Rogers through Elk River. Considering long-term highway design continuity and future growth, the corridor partners have also worked together to reach consensus that upgrading TH 101-TH 169 to a freeway between Rogers and Princeton is strongly supported. This chapter discusses recommendations for continued action in order to achieve the corridor vision. The “action plan” recommendations are summarized below.

Recommendations Discussed in This Chapter

- Mn/DOT and the corridor partners should complete ongoing project development work.
- Local governments should update comprehensive plans and should consider updating local zoning ordinances.
- Soon after this CMP is completed, Mn/DOT should develop a scoping document, to apply the appropriate early level of National Environmental Policy Act (NEPA) review, capture the CMP effort, and conduct an agency input and review cycle.
- Mn/DOT and corridor partners should plan for the phased development of highway improvement projects.
- To maintain highway performance on the existing four-lane expressway in Mille Lacs County (from Princeton to Onamia), planning should be focused on development patterns at primary and secondary development nodes.
- Mn/DOT and corridor partners should seek opportunities to enhance multimodal opportunities along the corridor, including transit services, freight operations, and other multimodal opportunities.

5.1 The Vision in Action

The value of this plan will be as a foundation for further action. Developing a long-term corridor vision involved several steps, beginning with the creation of a vision statement (Chapter 1). That vision statement helped structure much of the corridor planning process. Going forward, the corridor vision must be linked to follow-up actions, or this plan will not achieve its goals.

“Vision without action is merely a dream. Action without vision just passes the time. Vision with action can change the world.” *Joel Barker*

The vision statement has been referred to throughout this CMP and was key in developing the recommendations listed above that require follow-up actions or projects. The recommendations have been structured to identify the highest priorities for follow-up actions to be taken as the planning process concludes. There are no specific timeframes implied; however, as Mn/DOT programs its projects and possibly receives funds from federal and state sources, the most promising highway improvement projects identified for TH 101-TH 169 may receive further attention. This CMP identifies many potential “projects” for the first time—and at a very



conceptual level of detail. The process of advancing projects from concept to construction involves many levels of additional planning, including the programming of funds and priority treatment for engineering design study (see box below). The recommendations (including the preliminary prioritization of all potential projects/actions) have been discussed with the Policy Advisory Committee (PAC) and Subarea Advisory Committees (SACs).

Mn/DOT's Highway Project Planning and Programming Process

The following items briefly describe Mn/DOT's process for taking a project from planning to construction.

Long-Range Transportation Plan (20- to 25-year plan) The need for additional highway capacity on a system-wide basis exceeds the ability of Mn/DOT to fund all of the improvements. To determine which projects best merit funding, Mn/DOT periodically develops a fiscally-constrained long-range transportation plan. Based on districtwide population growth trends and traffic forecasts, the long-range transportation plan identifies corridors that hold the greatest risk for congestion and the resultant safety problems. Prepared on a district-wide basis, this plan identifies expansion projects that could be reasonably completed by Mn/DOT during the course of the 20- to 25-year planning horizon. Mn/DOT's District 3 and Metro Division both stratify these planned investments into three different implementation periods.

Project Studies Plan (7- to 10-year plan)

Annually, Mn/DOT reviews the long-range transportation plan and system condition data to develop a fiscally-constrained list of all projects tentatively scheduled to begin construction 7 to 10 years later. The Project Studies Plan identifies those major projects whose studies must be started well ahead of less complex projects in order to complete environmental review on schedule.

Project Work Plan (4- to 6-year plan)

Annually, Mn/DOT reviews the long-range transportation plan and the project studies plan to develop a fiscally-constrained list of all projects tentatively scheduled to begin construction 4 to 6 years later. The Project Work Plan is the typical time frame to start the review and design process for major projects.

State Transportation Improvement Program ("STIP" – 1- to 3-year program)

Each year, Mn/DOT is required to prepare a fiscally-constrained list of all planned highway project expenditures for the next 3 years. Newly identified projects are typically identified for funding in the third year of the STIP. For expansion projects, all preliminary design and environmental documentation should have been completed. Due to the length of time required to design an expansion project and purchase required right-of-way, final engineering design is typically underway before the project is included in the STIP. In addition, routine preservation and safety projects are identified. Since these types of projects typically involve less extensive activities, they hold less potential for impacts requiring detailed environmental study. Depending on the size and phasing of the project, the funding may be allocated in more than one fiscal year.

The next phase in the CMP process is to determine what steps are necessary to achieve the corridor vision. The recommendations summarized on the previous page are the basis for outlining the remaining study process. The recommendations include efforts to:

- Identify corridor management actions and potential improvement projects; and
- Evaluate and prioritize actions based on the potential to improve corridor performance and other considerations.

5.2 Identification of Highway Improvement Projects

As discussed in Chapter 4, upgrading to a four-lane freeway from Rogers through Elk River will satisfy the IRC speed performance goals, while expanding the highway to a six-lane signalized

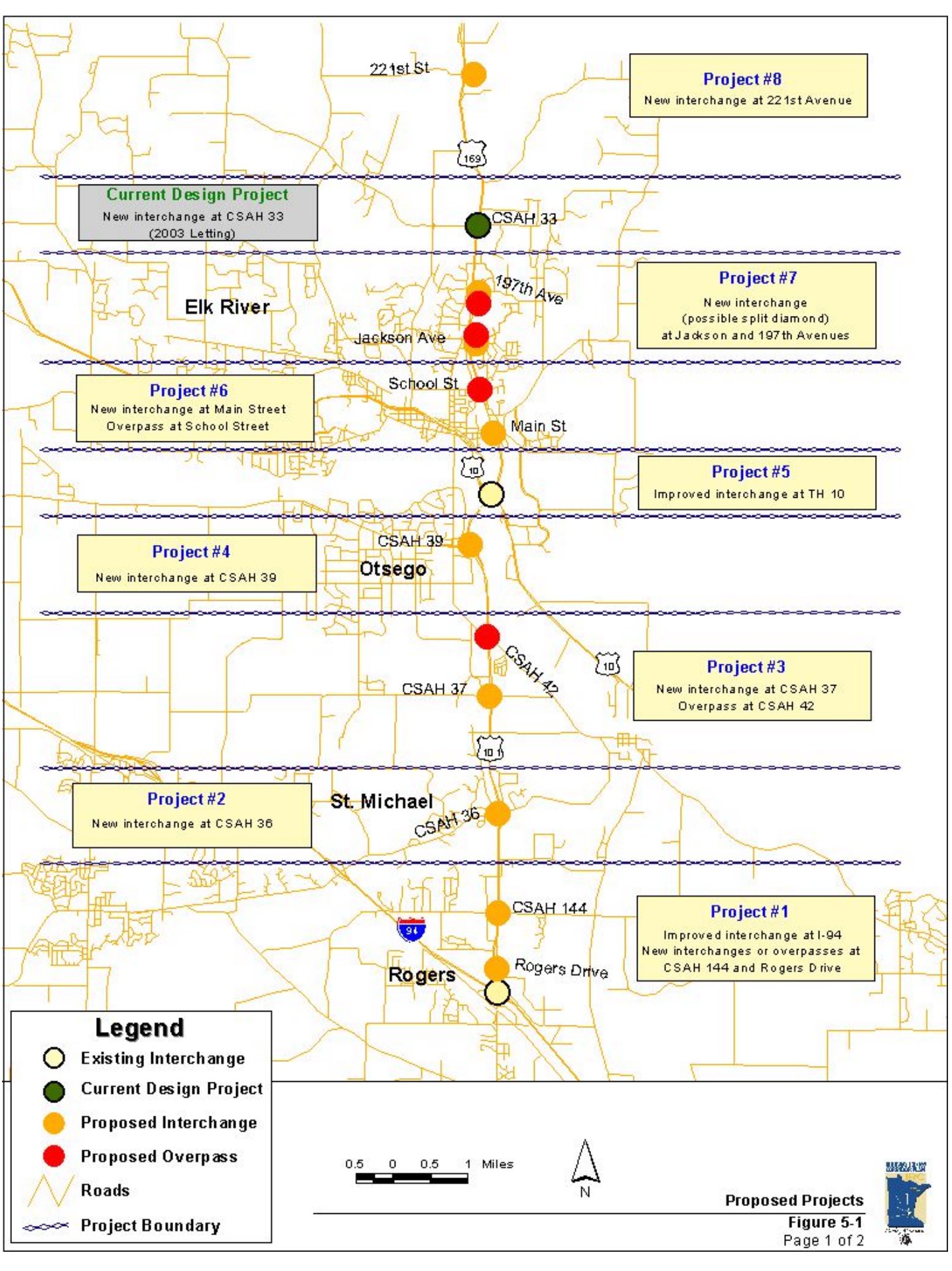


expressway will not. CMP corridor partners also reached consensus that the best long-term approach to achieve the corridor vision is to pursue a four-lane freeway conversion from Rogers to Princeton while managing the existing four-lane expressway from Princeton to Onamia. It will likely take many years to upgrade the highway into the corridor partners' vision. To determine the priority for implementing this vision, 13 possible highway improvement projects (based on appropriate endpoints) were identified for design and construction between Rogers and Princeton. Table 5-1 and Figure 5-1 highlight these projects, with additional details discussed later in this chapter and in Appendix D. Table 5-1 lists new interchange projects. In addition to new interchanges, conversion of the highway to a four-lane freeway will also include closing access points and building frontage roads.

TABLE 5-1
Potential Highway Capacity Improvement Projects

Project Number and Name	Project Location	Project Description
1: Rogers (growth area 1)	I-94 to 147th Avenue	Improved interchange at I-94; new interchange at CR 144
2: St. Michael (growth area 2)	Near CSAH 36	New interchange at CSAH 36
3: Otsego A (growth area 2)	Near CSAH 37 and CSAH 42	New interchange at CSAH 37; overpass at CSAH 42
4: Otsego B (growth area 2)	Near CSAH 39	New interchange at CSAH 39
5: Elk River A (growth area 3)	TH 10 Interchange	Improved interchange at TH 10
6: Elk River B (growth area 3)	Near Main and School streets	New interchange at Main Street; overpass at School Street
7: Elk River C (growth area 3)	Near Jackson and 197th Avenue	New interchange (possible split diamond concept) at Jackson/197th Avenue, south of future CR 33 interchange
8: Elk River D (growth area 4)	CSAH 21 to 225th Avenue	New interchange at 221st Avenue
9: South of Zimmerman (growth area 5)	225th Avenue to 247th Avenue	New interchange at CR 36/CR 45
10: Zimmerman (growth area 6)	Near CSAH 4	New interchange at CSAH 4
11: North of Zimmerman (growth area 7)	Near 277th Avenue	New interchange at 277th Avenue
12: South of Princeton A (growth area 8)	283rd Avenue to 303rd Avenue	Future CSAH 9 interchange (under construction)
13: South of Princeton B (growth area 8)	303rd Avenue to CSAH 2 and CSAH 29	New interchange at CR 38





221st St

Project #8
New interchange at 221st Avenue

Current Design Project
New interchange at CSAH 33
(2003 Letting)

169

CSAH 33

Elk River

Project #7
New interchange
(possible split diamond)
at Jackson and 197th Avenues

197th Ave

Jackson Ave

Project #6
New interchange at Main Street
Overpass at School Street

School St

Main St

10

Project #5
Improved interchange at TH 10

Project #4
New interchange at CSAH 39

CSAH 39

Otsego

Project #3
New interchange at CSAH 37
Overpass at CSAH 42

CSAH 37

CSAH 42

10

Project #2
New interchange at CSAH 36

St. Michael

CSAH 36

10

Project #1
Improved interchange at I-94
New interchanges or overpasses at
CSAH 144 and Rogers Drive

CSAH 144

Rogers

Rogers Drive

94

Legend

- Existing Interchange
- Current Design Project
- Proposed Interchange
- Proposed Overpass
- Roads
- Project Boundary

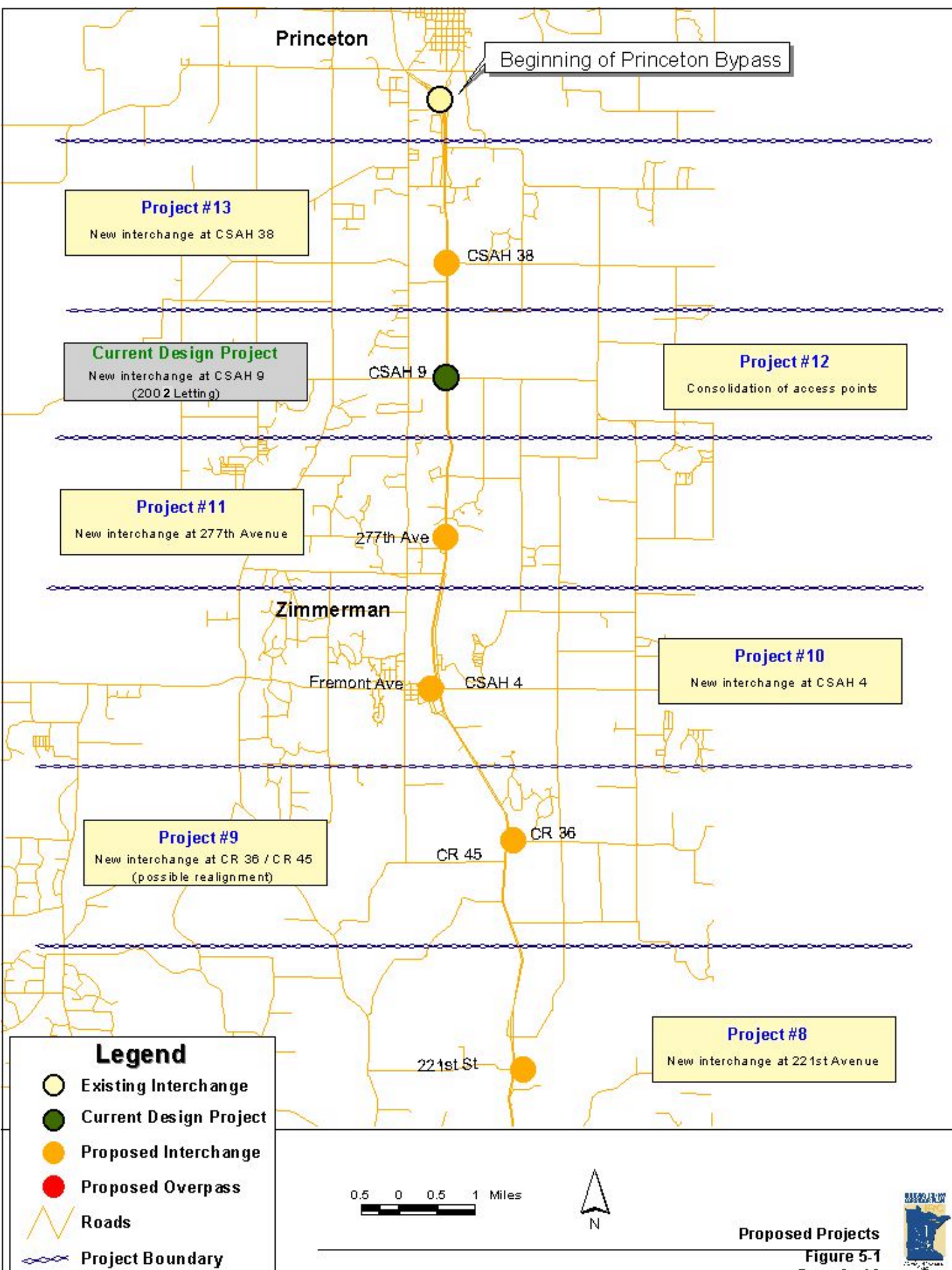
0.5 0 0.5 1 Miles



Proposed Projects

Figure 5-1
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Princeton

Beginning of Princeton Bypass

Project #13

New interchange at CSAH 38

CSAH 38

Current Design Project

New interchange at CSAH 9
(2002 Letting)

CSAH 9

Project #12

Consolidation of access points

Project #11

New interchange at 277th Avenue

277th Ave

Zimmerman

Project #10

New interchange at CSAH 4

Fremont Ave

CSAH 4

Project #9

New interchange at CR 36 / CR 45
(possible realignment)

CR 45

CR 36

Project #8

New interchange at 221st Avenue

221st St

Legend

-  Existing Interchange
-  Current Design Project
-  Proposed Interchange
-  Proposed Overpass
-  Roads
-  Project Boundary

0.5 0 0.5 1 Miles



Proposed Projects

Figure 5-1

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5.3 Evaluating and Prioritizing Corridor Actions and Projects

When the list of the 13 potential projects was finalized, an evaluation and prioritization process was developed to determine how implementation of the corridor vision should be organized and prioritized.

5.3.1 Project Performance Evaluation

The potential performance of each project was evaluated based on criteria developed by corridor partners. Corridor partners ranked these criteria on their own merit, that is, without consideration of the candidate projects. The three criteria that participants ranked as the most important (in order) were: (1) support from local governments; (2) improvement of safety; and (3) better local and crossroad traffic operations.¹ Complete results of this ranking process are found in Appendix D, *Project Evaluation Factor Rankings*. The committees' ranking of the criteria helped Mn/DOT to appropriately weight the improvement of safety and local traffic operations as factors in evaluating the projects.

Project performance criteria and the goals of each criterion are shown below. Appendix D provides detailed information regarding the evaluation criteria that were used, as well as how the corridor partners selected the criteria.

- Safety
 - Resolves specific safety problem
 - Contributes to overall corridor safety improvement
- Signal risk
 - Eliminates signal
 - Lessens risk of new signals
- Speed/performance
 - Essential to achievement of target
 - Supports achievement of maintenance of target
- Access
 - Eliminates or consolidates commercial access
 - Eliminates or consolidates residential access
- Local connectivity
 - Improves local traffic operations
 - Potential community benefit for bike/pedestrian system

The criteria listed above represent a variety of highway safety and performance issues relative to the corridor. Those projects that were considered most capable of increasing travel speeds, improving safety, improving local traffic operations, and eliminating signals were considered among the best based on the performance evaluation. Evaluation criteria that are not directly related to highway performance and safety, but that were also considered throughout the evaluation process include:

¹ This ranking was developed by both local government representatives and state agency representatives present at a combined PAC-SAC meeting on October 30, 2001.



- Highway design continuity (see also Section 4.3)
- Cultural and environmental effects
- Potential to foster protection/preservation of resources
- Socio-economic impacts
- Environmental justice impacts
- Support from local governments

5.3.2 Project Prioritization

The potential for a project or action to enhance performance is considered a very important basis for identifying project priorities (Chapter 4). It is also important to consider the project's cost and other implementation factors such as fiscal constraints, expected economic benefits, as shown in a benefit-cost analysis, and the project's ease of delivery. These additional factors are discussed in the following sections. The results of the prioritization process are discussed in Section 5.4 under Recommendation 4. More information is shown in Table D-3 of Appendix D, including a complete listing of prioritization and evaluation criteria.

5.3.2.1 Project Costs and Fiscal Constraints

There will not be enough money available to develop and construct all of the potential corridor projects in the immediate future. Therefore, it is important to consider fiscal constraints to give projects that offer the largest improvement for the smallest investment a high priority. A summary of the costs of the potential highway projects for the TH 101-TH 169 corridor is provided in Table 5-2. A more detailed breakdown of corridor improvement project cost estimates can be found in Table 5-3.

TABLE 5-2

Highway Improvement Project Cost Summary

	Cost (million)
Upgrade to four-lane freeway from I-94 (Rogers) to 197th Avenue (Elk River)	\$57
Upgrade to four-lane freeway from 197th Avenue (Elk River) to TH 95 (Princeton)	\$97
System Interchanges at I-94 and TH 10	\$95
Subtotal (four-lane freeway from Rogers to Princeton; system interchanges, freeway conversion, and frontage roads)	\$249
Expand to six-lane freeway from I-94 through Elk River	\$42
Subtotal (six-lane freeway from I-94 through Elk River, four-lane freeway from Elk River to Princeton)	\$291
Consolidate access from TH 95 (Princeton) to TH 27 (Onamia)	\$76
Subtotal (six-lane freeway from I-94 through Elk River, four-lane freeway from Elk River to Princeton, consolidation of access from Princeton to Onamia)	\$367
Upgrade to four-lane expressway between TH 27 (Onamia) to TH 18 (Garrison)	*
TOTAL FOR CORRIDOR (excluding Onamia to Garrison)	\$367

* \$48 million is the budgeted amount for this project, however, actual estimates for this project range from \$50 to \$100 million. It is not possible to provide an accurate estimate for this project at this time given the scale of the project and the many issues associated with it.



5.3.2.2 Benefit-Cost Analysis

In addition to cost estimates, a benefit-cost analysis was completed for each of the 13 potential projects between Rogers and Princeton. Benefit-cost analysis is a systematic tool that estimates the monetary value of both advantages (benefits) and disadvantages (costs) of various highway projects. The result of a benefit-cost analysis is a ratio that indicates the economic desirability of a project from a monetary point of view. Generally, an investment is considered economically viable when the benefits exceed the costs—in other words, when the benefit-cost ratio is greater than one. While the benefit-cost ratio is a valuable tool, it is also important to weigh the results of the analysis against additional factors such as environmental, social, and other community impacts. The results of the benefit-cost analyses for the 13 potential projects are summarized in Table 5-3.

TABLE 5-3
Highway Improvement Projects Benefit-Cost Ratios and Cost Estimates

Construction Project Number and Name (all project costs include frontage roads and 20% of project cost right-of-way estimate)	4-lane Freeway Conversion		Upgrade to 6-lane Freeway	
	Cost Estimate (million \$)	Benefit – Cost Ratio	Cost Estimate (million \$)	Benefit – Cost Ratio
1: Rogers (growth area 1) – Improved and new interchanges from I-94 to CSAH 144	\$66	5.3	Add \$15 million	4.4
2: St. Michael (growth area 2) – New interchange at CSAH 36	\$16	19.4	Add \$4 million	15.0
3: Otsego A (growth area 2) – New interchange at CSAH 37; overpass at CSAH 42	\$17	8.0	Add \$6 million	5.9
4: Otsego B (growth area 2) – New interchange at CSAH 39	\$11	6.8	Add \$3 million	5.2
5: Elk River A (growth area 3) – Improved interchange at TH 10	\$29	3.3	Add \$5 million	2.8
6: Elk River B (growth area 3) – New interchanges at Main Street; overpass at School Street	\$13	9.1	Add \$3 million	7.38
7: Elk River C (growth area 3) – New interchange (possible split diamond concept) at Jackson/197th, south of future CR 33 interchange	\$16	15.4	Add \$6 million	10.61
8: Elk River D (growth area 4) – New interchange at 221st Avenue	\$12	0.8		
9: South of Zimmerman (growth area 5) – New interchange at CR 36/CR 45	\$15	0.9		
10: Zimmerman (growth area 6) – New interchange at CSAH 4	\$21	2.7		
11: North of Zimmerman (growth area 7) – New interchange at 277th Avenue	\$17	0.5		
12: South of Princeton A (growth area 8) – Future CSAH 9 interchange	\$7	1.4		
13: South of Princeton B (growth area 8) – New interchange at CR 38	\$9	0.8		



Detailed information regarding the computation of the benefit-cost analysis can be found in Appendix D. As shown in Table 5-3, the projects located in the southern portion of the corridor—from I-94 in Rogers to Jackson/197th Avenue in Elk River—all had high benefit-cost ratios for both the 4-lane freeway and 6-lane freeway upgrade. With the exception of a new interchange at CSAH 4 and the future interchange at CSAH 9, all other projects located north of CSAH 21 had benefit-cost ratios less than one. Since these short segments do not involve the removal of existing traffic signals, the calculated benefits are rather small. When viewed as part of an overall corridor improvement, however, the combined benefit-cost ratio for the 13 potential projects within the entire corridor was calculated to be 5.3.

5.3.2.3 Project Deliverability

The ease of delivering projects was also considered for project prioritization. Projects that will require little right-of-way and may cause minimal community disruption were generally given higher priority. Questions that relate to project deliverability include:

- Are all required studies and design steps completed?
- Are all required studies and design steps scheduled to be completed?
- Will the project require significant unprogrammed study?
- Is funding programmed (either for necessary study or for construction)?

The results of the preliminary project performance evaluation and prioritization are discussed further, with emphasis on key projects/actions, under the various recommendations below—especially under Recommendations 1 and 4.

5.3.2.4 Project Prioritization Results

The results of the benefit-cost analysis, and consideration of other project prioritization factors, support focusing initially on: (1) the section from Rogers through Elk River to achieve speed performance; and (2) the CSAH 4 intersection in Zimmerman due to a localized safety problem. In regard to speed performance, see the analyses in Chapter 4, Section 4.2.2 (especially Figure 4-4, which shows that by 2010 peak period speed performance, on average, will drop below 50 mph in the High Priority IRC segment from Rogers to Zimmerman). The crash rate and crash severity problems at the CSAH 4 intersection in Zimmerman are discussed in Section 3.4.2. Further planning for these highest-priority projects should begin as soon as possible because:

- Performance and safety problems are already evident in the High Priority segment.
- The normal timeframes to fund and develop these projects will delay implementation until growth causes congestion and crash problems to worsen.

A later phase of project staging would include improving the highway design continuity of the segment from Elk River to Princeton. Planning to upgrade this portion of the highway to a freeway would: provide highway design continuity, provide a basis for land use planning and

The prioritization results support focusing initially on the section from Rogers through Elk River and on the CSAH 4 intersection in Zimmerman. Further planning for these highest-priority projects should begin as soon as possible



development reviews, and prevent new signals from being installed. A possible final stage of project development would be the 6-lane segment from north of Rogers to Elk River. Planning for this last phase would begin in 15 to 20 years.

To further its project prioritization work for multiple IRCs, Mn/DOT has categorized various IRC projects as follows (with reference to the projects identified in this CMP):

- **Category I Projects.** Already Programmed—includes: (a) the Sherburne CR 33 interchange project, (b) the Sherburne CSAH 9 interchange project, (c) safety improvements at Mille Lacs CSAH 11, and (d) the upgrade of TH 169 to four lanes from Onamia to Garrison. These projects are already included in the State Transportation Improvement Program (STIP) or the Work and Studies Plan.
- **Category II Projects.** Strategic Projects to Reach IRC Performance Targets—includes: (a) seven potential projects to upgrade TH 101-TH 169 to a 4-lane freeway from I-94 in Rogers through Jackson/197th Street in Elk River; and (b) the development of a new interchange at CSAH 4 in Zimmerman. As previously discussed, these projects are considered the top priorities for further study and development because they will be necessary to achieve IRC speed and safety performance targets.
- **Category III.** Long-Term Vision Projects to Achieve Other Goals—includes: (a) potential expansion of a future four-lane freeway to six lanes from Rogers through Elk River; (b) five potential future upgrades (new interchanges) to achieve a continuous freeway from Elk River to Princeton; and (c) access consolidation and related actions along unsignalized expressway from Princeton to Onamia.

The above-referenced projects are also listed individually by category, with estimated cost, in Appendix D—see Table D-4, page D-10. The recommended process to actually manage the corridor in the future, discussed in Section 5.4 below, is built around the project priorities.

5.4 Corridor Management Recommendations

Several recommendations have been developed based on preliminary project performance evaluations and prioritization work. The recommendations are structured to identify the highest priorities for follow-up actions to be taken as the planning process concludes.

The responsibilities of corridor partners relative to each of these recommendations are also discussed. Mn/DOT will play the largest role in the implementation of these recommendations; however, the corridor vision could not have been successfully developed, nor can it be successfully implemented, without the cooperation of city, county, and township governments. Additionally, environmental stakeholders, such as the Minnesota Department of Natural Resources and the Minnesota Pollution Control Agency, have participated in the CMP process and will undoubtedly continue to do so in the future.



Recommendation 1: Mn/DOT and the corridor partners should complete ongoing project development work.

A number of ongoing project development actions are already underway along the TH 101-TH 169 corridor. Recommendation 1 confirms the need to complete these current projects. The specific immediate-term actions include:

- Mn/DOT complete construction of the new Sherburne CSAH 9 interchange (construction began in 2001)
- Mn/DOT complete the environmental documentation and proceed toward construction of the Sherburne CR 33 interchange (planned to be let for construction in 2003)
- Mn/DOT complete study and implementation of safety improvement at CSAH 11 in Mille Lacs County (planned for construction in 2004)
- City of Rogers, with Mn/DOT cooperation, complete permitting and begin construction of frontage road improvements between South Diamond Lake Road and CR 144 (North Diamond Lake Road)
- Mn/DOT, Federal Highway Administration, and other corridor partners complete the EIS from Onamia to Garrison and begin construction
- Mn/DOT and project partners continue to take steps leading to the construction and operation of the Northstar commuter rail service

Recommendation 2: Local governments should update comprehensive plans and should consider updating local zoning ordinances.

Achieving the TH 101-TH 169 corridor vision will depend, in part, on the working relationships that have been formed between Mn/DOT and other corridor partners. While Mn/DOT is the agency with the greatest amount of responsibility for the state TH system, land use planning and zoning actions taken by counties and communities along the corridor also influence the corridor's characteristics and the highway's future performance. Controlling development at key locations can positively impact the cost and feasibility of future projects. Specific examples of how communities can show support for the TH 101-TH 169 CMP would be to:

- Pass official resolutions of support or endorsement for CMP recommendations
- Update local land use, comprehensive, and transportation plans to reflect the conclusions of the CMP
- Ensure that local roads are being planned and built in a coordinated manner with the long-term vision of an upgraded TH 101-TH 169
- Assume leadership for interim local projects involving maintenance or access management, such as frontage road projects, turn lanes, or acceleration lanes
- Continue to work in partnership with Mn/DOT to advance the key projects necessary to achieve the long-term corridor vision
- Ensure development patterns that recognize and plan for future highway projects



The need for consistent building setback requirements along TH 101-TH 169 corridor was an issue identified by the local partners during the development of this plan. Setbacks by themselves are not a suitable right-of-way preservation tool; however, communities are encouraged to review those setbacks to determine their adequacy from a general health, safety, and welfare perspective.

In order to plan for future transportation projects and generally support the preservation of right of way, local communities are also encouraged to include the vision for parallel/frontage roads and interchanges in their comprehensive plans and/or in official mapping. These tools are important for establishing the intent to improve the highway and can literally serve as “blueprints” for further project development—even in the absence of funding to construct projects.

Official mapping of the lands needed for transportation projects can be an effective tool for preserving right-of-way. This approach is specifically authorized by state statute for right-of-way preservation and it generally allows both the public agency and a private property owner to adjust their building plans equitably before too many investments are made by either party.¹

If the goal is to ensure that adequate access spacing is provided along a highway, the most effective approach would be to incorporate certain standards into ordinances governing the subdivision or platting new development or redevelopment. For example, the following general policy guidance may be considered for new developments and subdivisions:

- The lots should be designed to take access from an existing interior or intersecting road
- If the only access option is directly to the trunk highway, the lots should be served from a single, common access
- Provisions should be made for future access for properties abutting the subdivided lands by stubbing streets or requiring the dedication of access easements

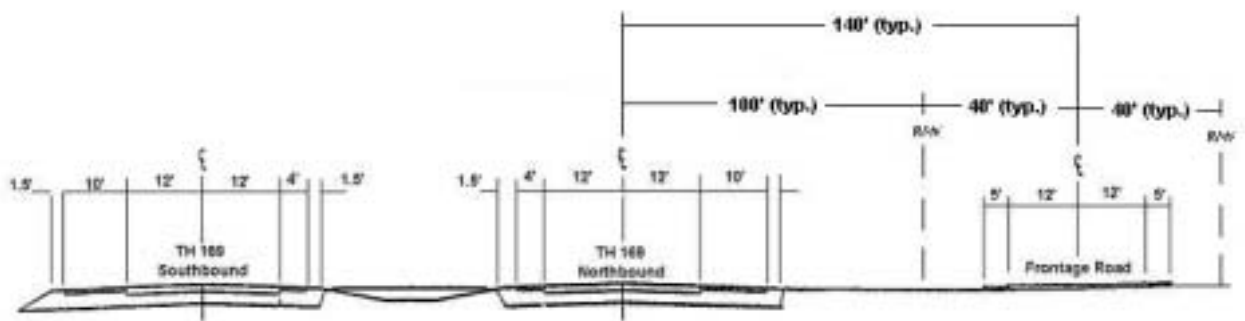
Land preservation steps should be considered at locations where this CMP recommends development of an interchange or at potential long-term development nodes (where there is a long-term potential for an interchange or frontage road). In CMP Recommendation 3 (below) Mn/DOT recognizes that this may involve taking further steps in additional project review under the National Environmental Policy Act (NEPA), and a scoping study is under consideration to begin that process.

As additional information, the minimum distance requirements for frontage roads and interchanges in rural areas are depicted in the Figures 5-2 and 5-3, *Typical Rural TH 101-TH 169 Cross Section* and *Conventional Diamond Interchange for Rural Areas* and are listed in Table 5-4 (see also Recommendation 5, below, which states that planning in Mille Lacs County should focus on primary and secondary development nodes).²

¹ See especially MN Statutes 394.361 and 462.359.

² The graphics are representative of a typical cross section of the highway. The distances recommended are only for planning purposes and may need to be revised for each individual project.



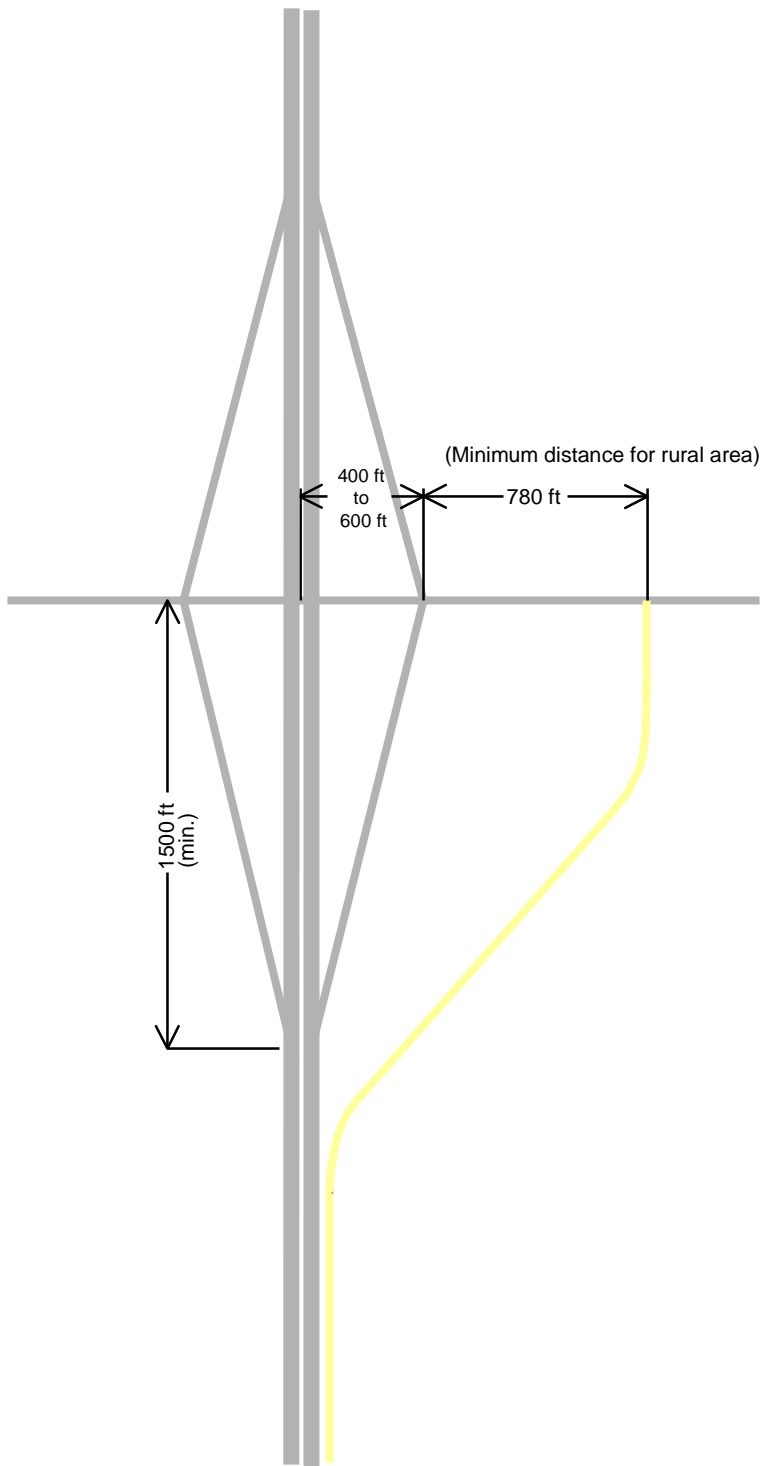


The graphics are representative of a typical cross section of the roadway. The distances recommended are for general planning purposes only and may need to be revised for each individual project.

Typical Rural TH 101 - TH 169 Cross Section

Figure 5-2





The graphics are representative of a typical cross section of the roadway. The distances recommended are for general planning purposes only and may need to be revised for each individual project.

Conventional Diamond Interchange for Rural Areas

Figure 5-3



TABLE 5-4
Typical Design Distances Recommended Along The TH 101-169 Corridor

For Frontage Roads (See also the Related Figure 5-2)	For Interchange (see also the Related Figure 5-2)
<ul style="list-style-type: none"> • 140 feet from center of closest traveled lane 	<ul style="list-style-type: none"> • 1,180 to 1,380 feet from center median of highway to frontage road (dependant on volumes and turning movements) • 780 feet from ramps to frontage roads

Recommendation 3: Soon after the CMP is completed, Mn/DOT should develop the appropriate level of National Environmental Policy Act (NEPA) review.

This recommendation concerns the “next steps” for project development and CMP implementation along the TH 101-TH 169 corridor as a whole. All projects that Mn/DOT and corridor partners wish to build must go through documentation of environmental effects. Project “Scoping” is employed during the initial phases of project investigations that may require an EIS, but is not required to proceed with an environmental assessment (EA). However, a multiple-project scoping document analysis is under consideration for the corridor to help Mn/DOT and corridor partners to further establish the list of independently justified projects, their geographic limits, and the appropriate levels of environmental study needed to develop each project.

Recommendation 4: Mn/DOT and corridor partners should plan for the phased development of highway improvement projects.

Along with completing current projects already started along the corridor (Recommendation 1) and the scoping work proposed for the corridor (Recommendation 3), it is recommended that Mn/DOT and corridor partners begin planning for the development of selected highway improvement projects. As previously noted, the highest priority corridor projects should be determined primarily based on their ability to improve the highway’s performance. Some of the key performance measures identified through the corridor planning process concern the potential to:

- Maintain or increase average peak-hour travel speeds over time
- Eliminate traffic signals
- Improve local traffic operation
- Resolve safety problems

These and other project performance characteristics are listed and evaluated in Table D-1 found in Appendix D for each potential project. Section 4.2.2 suggested answers concerning which projects (or project combinations) may provide the greatest performance benefits, based on normal peak hour speed performance.

As described in Section 5.3, other considerations include the potential cost, complexity, and delivery schedule for each project. For this purpose, it is generally observed that there are two levels of project complexity that may be expected:



- **Type A (3 to 5 years in project development)**—Type A projects can typically be studied and documented in an EA or in an environmental assessment worksheet (EAW) and may propose fewer community and natural resource impacts.
- **Type B (5 to 10 years in project development)**—Type B projects may require a complex EA or an EIS and may involve more complexity in developing alternatives, and potential for greater impacts.

As shown in Table 4-5 (Section 4.2.2), the greatest combination of speed performance benefits can be achieved by upgrading to a freeway from Rogers through Elk River (improvement projects in growth areas 1, 2, and 3) and continuing with the upgrade to four lanes north of Onamia. In addition to improving interregional corridor speed performance, this level of improvement would enhance local traffic operations and safety by separating local and interregional traffic streams. In addition, construction of a new interchange at CSAH 4 in Zimmerman would address the greatest crash/safety problem observed in the southern part of the corridor.

Based on Section 5.3 and the above considerations, the most favorable projects for achieving the IRC vision (listed from south to north) are:

- **Rogers**—Improved and new interchanges from I-94 to CSAH 144 (Type A or B project, to be determined)
- **St. Michael**—New interchange at CSAH 36 (Type A project)
- **Otsego**—New interchanges at CSAH 37, CSAH 39; overpass at CSAH 42 (Type A project)
- **Elk River**—Improved interchange at TH 10 (Type A project)
- **Elk River**—New interchanges at Main Street; overpass at School Street (Type B project)
- **Elk River**—New interchange (possible split diamond concept) at Jackson Street and 197th Avenue (Type B project)
- **Elk River**—New interchange at CR 33 (Type A project; design and environmental documentation currently being completed)
- **Zimmerman**—New interchange at CSAH 4 (Type A project)
- **Milaca Area**—Safety improvements at CSAH 11 (Type A project; design alternatives currently being studied in some detail)
- **Onamia to Garrison**—Upgrade the highway from the current two-lane design to a four-lane expressway (Type B project; but the EIS is currently underway and funding designated in the District 3 Project Work Plan/Project Studies Plan)

While Type A projects will generally take less time to develop, and involve fewer alternatives, than Type B projects, this may or may not prove to be a primary consideration as Mn/DOT and the corridor partners proceed from planning toward implementation.



Recommendation 5: To maintain highway performance in Mille Lacs County (from Princeton to Onamia), planning should be focused on primary and secondary development nodes.

Discussion with the Mille Lacs County Subarea Committee helped identify key locations where development is either occurring or likely to occur in the future. These “development nodes” (typically at CR intersections with TH 169) were prioritized as either primary or secondary according to the location’s level of development and crossroad functions. Recommendation 2 relates to the Mille Lacs County Subarea, and aims to ensure that development nodes are integrated into the overall vision of the TH 169 corridor. See Chapter 2 and Figure 2-3 for more information regarding the Mille Lacs County development nodes. Table 5-5 lists the Mille Lacs County development node locations.

TABLE 5-5
Mille Lacs County Primary and Secondary Development Nodes

Primary Development Nodes	Secondary Development Nodes
CSAH 8 (Pease)	CSAH 13 (North of Princeton)
CSAH 11 (North of Milaca)	CSAH 12 (North of Princeton)
CSAH 16 (North intersection, north of Milaca)	CSAH 36 (South of Milaca)
CSAH 21 (South of Onamia)	CSAH 9 (North of Milaca)
CSAH 22 (South of Onamia)	CSAH 16 (South intersection, north of Milaca)
TH 27 (Onamia)	CSAH 19 (South of Onamia)

Mn/DOT and Mille Lacs County are currently working together on a CSAH 11 safety improvement project, which will address recent crashes and sight distance deficiencies. Construction for the safety project is scheduled for 2004. Several concepts for an interchange at this location were developed for use in safety improvement alternatives that would not compromise or interfere with future improvements.

Recommendation 6: Mn/DOT and corridor partners should seek opportunities to enhance multimodal opportunities along the corridor.

A variety of multimodal issues and opportunities exist along the TH 101-TH 169 IRC. This IRC extends 83 miles from I-94 in Rogers to TH 18 in Garrison, including segments in Hennepin, Wright, Sherburne, and Mille Lacs Counties. TH 101-TH 169 is generally a four-lane expressway and provides a major crossing of the Mississippi River at the edge of the Twin Cities metropolitan area.

Transit Services

The facilities and current projects described in Chapter 3 provide several opportunities for improved transit services, especially if coordinated with the highway improvements needed to achieve future performance targets. Specific examples of potential transit service improvements are:

- **Northstar corridor feeder bus connections**—The Northstar commuter rail service is planned to be integrated with feeder bus services, with the details of such connections to evolve in the coming years. This presents the possibility of revising and coordinating bus routes and services in the Elk River and surrounding areas—for example, the Heartland Express, the River Rider, and the Anoka Traveler services.



- **Possible northwest busway service**—Metro Transit, which serves the Twin Cities region, is currently studying potential express transit service improvements along the south side of the Mississippi River, with emphasis on a potential busway. In the general area, the busway is proposed to follow the CSAH 81 corridor, with Rogers identified as a potential western terminus.
- **Park-and-ride transit services**—As previously noted, there are four existing park-and-ride lots adjacent to TH 101 in Rogers, and TH 169 in Elk River, Zimmerman, and Princeton. Three of these are not currently served by any bus or rail transit. There is one lot in Elk River that is served by the Northstar Commuter Coach. Future improvements could include the development of the northwest busway project to connect with the Rogers area or bus connections to the Elk River park-and-ride lot, located east of TH 169 and south of Main Street.
- **General capacity improvements and bus-on-shoulder operations**—The various highway improvement projects identified for the TH 101-TH 169 IRC would provide several opportunities to improve transit operations. Replacing signalized intersections with interchanges, for example, will enhance both through traffic operations and highway access/egress for buses. Bus-on-shoulder operations during peak hours are also best facilitated by the potential highway improvements, as all of the project cost estimates assume the adequate outside shoulder pavement depth (7-inch bituminous).

Freight/Shipping

Local and interregional traffic operations should be separated to enhance freight operations and to meet the needs of shippers using the corridor. The key opportunities to improve truck operations along the TH 101-TH 169 IRC include:

- **Separation of traffic at the I-94/TH 101 interchange**—Preliminary highway improvement concepts for this major interchange would provide separate roadways for local traffic and through trips, thus maintaining local access and helping all truck operations. Considerable coordination with the I-94 IRC study and other details will be required.
- **Elimination of traffic signals**—The long-term corridor vision includes the conversion of the corridor to a freeway, thus eliminating traffic signals. In most cases, the signalized intersections would be replaced with diamond interchanges. This type of corridor upgrade would allow travel speed performance goals to be met and maintained and would enhance travel time reliability for all traffic, including shippers.

Other truck-related access considerations for the corridor will include adequate turning radius treatments and adequate acceleration-deceleration distances—particularly in the area from Rogers through Elk River.



Other Multimodal Issues

Other multimodal issues and opportunities along the TH 101-TH 169 corridor include:

- **Pedestrian and bicycle routes**—The southernmost part of the corridor, from Rogers through Elk River, includes several locations where improved pedestrian and bicycle crossings of the highway are advisable—particularly in the Rogers and Elk River areas. In many cases, such improvements can be accommodated in connection with the development of new interchanges or overpasses.
- **BNSF rail line**—The BNSF line (along the north side of TH 10) crosses over TH 169 immediately north of the TH 10 interchange. This proximity creates some potential interchange design and reconstruction challenges; however, it may also offer some opportunities. For example, a reconstructed railroad bridge and interchange could be designed to also provide for bus lanes or a pedestrian/bicycle trail.
- **Municipal airports**—Two airports are located along the corridor. The Princeton Municipal Airport is located approximately 0.5 mile west of TH 101-TH 169. The Milaca Municipal Airport is located approximately 0.5 mile east of the corridor. These airports are small and do not contribute any significant traffic demand to the highway.

Unresolved Issues

The following is a list of some issues that have emerged as requiring further consideration and investigation in order to resolve the many details and questions that naturally flow from this CMP and the planning process completed to date:

- **Funding.** The next section (5.6 Funding the Vision) provides information on the funding options that may be available to implement various improvement projects. Other than “Category I” projects, the projects identified in this plan as needed to achieve performance targets are not currently programmed (i.e., there are no construction funds earmarked). Further issues that are generally unresolved include the availability of transportation funds, relative funding priorities, and the details of packaging projects for further planning, design, and construction.
- **Coordination with Other IRCs and Other Nearby Projects.** Coordination with other IRC studies, especially those for I-94, TH 10, is a complex issue that will require additional study. The relationship of this CMP to the Northwest Metro Corridor and River Crossing is another example of an unresolved issues that will be studied in greater detail in the near future (see also Section 2.3). Mn/DOT recognizes that all studies are interrelated, and will strive to coordinate its efforts for multiple corridors and multiple project needs.
- **Project Development and Corridor Right-of-Way Preservation.** This CMP discusses the need to implement tools to update local plans and begin the necessary steps toward project development—sometimes with an emphasis only on right-of-way preservation. While these goals and next steps are identified, the actual process of developing as-yet unfunded projects and/or preserving right-of-way will take time and will not be fully resolved until the appropriate areas have been officially mapped or other steps have been completed. Mn/DOT recognizes that growth and development trends will not stop for such additional



planning work to be finished and will thus continue to engage with corridor partners to jointly plan for the future and seek creative solutions (see also Section 5.4, especially Recommendations 2 and 3).

- **Supporting Local Roadway Network.** A local network is needed to support the trunk highway by providing alternatives for local traffic to make short trips within a municipality without having to use the trunk highway (for example, frontage or backage roads). It is not clear to what extent state TH funds may be applicable to such projects until the specific local projects are evaluated in more detail.

The above list is not intended to be comprehensive, but rather the major themes that will require further consideration.

Funding the Vision

Given the current levels of highway funding, fiscal constraints will likely limit the development and construction of all projects in the immediate future. To date, a funding source dedicated to IRC projects has not been identified. The current lack of dedicated funding may impact the timing of corridor vision implementation, however did not significantly impact the development of the corridor vision—which identified future transportation needs. Mn/DOT, along with local, county, and township governments, will play key roles in determining schedules for the as-yet unfunded improvement projects recommended in this CMP. Additionally, timing and implementation of projects will depend on other needs that occur within the state, as well as available funding. The following are brief descriptions of some of the available funding options.

Area Transportation Partnership

Area Transportation Partnerships (ATPs) are district wide partnerships of state and local transportation providers created to provide more local influence in the investment process. The ATP boundaries generally follow the Mn/DOT District State Aid boundaries. These partnerships include both elected officials and technical staff from:

- Cities
- Counties
- Townships
- Metropolitan Planning Organizations (MPOs)
- Regional Planning Commissions
- Transit Providers
- American Indian communities
- Mn/DOT

The role of the ATP is to integrate regional transportation priorities into an Area Transportation Improvement Program (ATIP). This list of fiscally constrained projects from around the state is combined into a State Transportation Improvement Program (STIP). The STIP is a document containing a list of those projects slated to begin or continue construction within the next three federal fiscal years.

Each ATP has their own unique process, but most processes include solicitation, technical ranking, and integration of project lists. During the solicitation process, the subarea facilitator (typically the MPO or Mn/DOT) invites all eligible parties to submit projects for consideration. While the governing body of most stakeholders can submit projects directly, townships and



cities under 5,000 are required to have the county submit on their behalf. Each subarea develops its own prioritized list and submits it to the ATP. After the projects have been submitted, the ATP combines these requests into a prioritized ATIP. One factor in the prioritization process is the estimated amount of federal funding for each ATP. This estimate is determined by multiple factors such as the amount of federal aid lane miles, vehicle miles traveled and future population projections of the ATP. Table 5-6 provides an overview of a typical STIP development process.

TABLE 5-6
General STIP Schedule

Activity	Timeline
Project Solicitation	Fall-Winter
Public Comment Period	March
ATIP Due in Central Office	Mid-April
Draft STIP Developed	Early May
Review Draft STIP	May–June
Public Review	May–June
Comments & Documentation Due	Early July
Final Draft STIP Developed	Mid-July
Review Final Draft TIP/STIP Due	Late July
Review & Approval of STIP	Late July
Submittal to Federal Agencies	Early August
Review & Approve STIP	August–September
Approved STIP	Late September

Local Initiative Funding

Local communities can request state participation in local projects that provide benefit to the state system. Handled through the State Aid offices in the Metro District and District 3, benefit is evaluated, project priority and funding levels decided by Mn/DOT. It is a competitive application process with the projects providing most benefit to Mn/DOT receiving highest priorities.

Special Federal and State Programs

High Priority Projects Program (HPP)

The High Priority Projects Program provides designated funding for specific projects (commonly referred to as demonstration projects) identified by Congress. These may include both state trunk highway projects as well as county/municipal projects. Minnesota is one of four states (also Alaska, Idaho, and West Virginia), that may pool these funds to use on any of their high priority projects. While there is no formal solicitation process, final funding decisions are typically made in the summer.



Transportation and Community and System Preservation Pilot (TCSP) Program

The TCSP Program provides funds for planning and implementation grants, technical assistance and research to investigate and address the relationship between transportation; community and system preservation; and private sector-based initiatives. States, local governments, metropolitan planning organizations (MPOs), and tribal governments are eligible to apply for TCSP Program funds.

State Legislature Appropriations

As the branch of state government with taxing and levying authority, the state legislature may decide to target state revenues towards a specific transportation project. An example of this type of funding is the 2000 transportation funding bill which authorized a one-time allocation of \$459 million for transportation projects. This *Moving Minnesota* funding package included the interregional corridor studies.

State-Aid Allocations

Every county and municipality with a population over 5000 creates a state aid system of roadways. The miles of roadway included in this system are limited for both the county and individual municipalities. Roads that are included in this system are eligible for funding from State Aid. This funding can only be used for improvements on roads in the state aid system.

Bonding

Municipal Bonds

Any city having a population over 5,000 or more may issue and sell its obligations for the purpose of establishing, locating, relocating, constructing, reconstructing, and improving municipal state-aid streets. The primary limitations on municipal bonding authority are self-imposed debt-limitations.

County Bonds

Any county may issue and sell its obligations, although the amount is limited in state law to equal the total of the preceding two years state-aid allotments. The county bonds may be used for the purpose of establishing, locating, relocating, constructing, reconstruction, and improving county state-aid highways and constructing buildings and other facilities for maintaining county state-aid highways.



For More Information about Funding

In addition to the Mn/DOT project managers of this Corridor Management Plan (see contact information in Acknowledgement section at beginning of plan), the following contacts and websites may provide information on funding.

Mn/DOT Metro Contact

Frank Pafko
Metro Area Manager
(651) 582-1481
Frank.Pafko@dot.state.mn.us

Mn/DOT District 3 Contact

Kelvin Howieson
District 3 State Aid Engineer
(218) 828-2475
Kelvin.Howieson@dot.state.mn.us

Frank Pafko is the metro Area Manager for work in Ramsey, Anoka and North Hennepin Counties. The eight-county Metro is divided into four geographic management areas. The managers leading each of the areas are in charge of projects from conception through planning, preliminary design, and final design to initial project construction.

Kelvin Howieson is the State Aid Engineer for Mn/DOT's District 3, which includes all or part of Aitkin, Mille Lacs, Sherburne, and Wright counties.

Websites

Additional information on funding options can be found at these websites.

State Aid Contacts

<http://www.dot.state.mn.us/stateaid/c/saroster.html>

State Transportation Improvement Program (STIP)

<http://www.oim.dot.state.mn.us/>

Office of Investment Management

<http://www.oim.dot.state.mn.us>

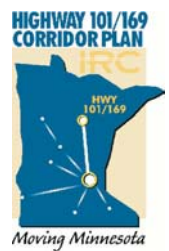
TEA 21

<http://www.fhwa.dot.gov/tea21/factsheets/index.htm>





Appendix A - *Agency & Public Involvement*



Agency and Public Involvement

Corridor partners were invited to participate in the development of the CMP primarily through attendance at Policy and Subarea Advisory Committee meetings. Included in this appendix is a list of the committee member addresses and meeting dates for each committee. One way that the public was involved with development of the CMP was through public open houses. These meetings provided information on the progress of the study and also gave the project team an opportunity to gather information from the public. This appendix includes information on the dates and locations of the public open houses and a summary of comments received at the meetings.

The following is a list of the representatives for state agencies, counties, cities, townships and other entities involved in the development of the corridor management plan.

State Agencies

Curt Eastlund, Minnesota DOT
Otto Schmid, Minnesota DOT
Richard Bautch, Minnesota DOT
Karl Weissenborn, Minnesota DOT
Mike Sobolewski, Minnesota DOT
Lisa Freese, Minnesota DOT
Brian Isaacson, Minnesota DOT
Lynne Bly, Minnesota DOT
Susan Moe, Federal Highway Administration
Tom Balcom, Minnesota DNR
Kate Drewry, Minnesota DNR
Ceil Strauss, Minnesota DNR
Dale Thompson, Minnesota PCA
Bob Bollenbeck, East Central Regional Development Commission
Don Koski, Metropolitan Council

The representatives for state agencies, counties, cities, townships and other entities are shown. The separate committees and their respective members are also listed in this appendix.

Counties

Commissioner Penny Steele, Hennepin County
Commissioner Patrick Sawatzke, Wright County
Commissioner Rachel Leonard, Sherburne County
Commissioner R.A. Knoll, Mille Lacs County
Virgil Hawkins, Assistant Wright County Engineer
Dave Schwarting, Sherburne County Engineer
Richard Larson, Mille Lacs County Engineer
Frank Courteau, Chairman, Mille Lacs County Board
Warren Porter, Hennepin County DOT
Cathryn Hanson, Sherburne County Zoning
David Anderson, Mille Lacs County Planning Commission
Gaynor Frye, Mille Lacs County Planning Commission
Gerald Herges, Mille Lacs County Planning Commission
Bob Hoefert, Mille Lacs County Planning Commission
Ronald Nelson, Mille Lacs County Planning Commission



Cities/Townships/Other Entities

Gary Eitel, Clerk-Administrator, City of Rogers
Gary Morrison, Administrator, Hassan Township Board
Tom McCrossan, Chairman, Hassan Township Board
Wayne Kessler, Mayor of St. Michael
Mark Weigle, City Planner, City of St. Michael
Larry Fournier, Mayor of Otsego
Mike Robertson, Administrator, City of Otsego
Stephanie Klinzing, Mayor of Elk River
Patrick Klaers, Administrator, City of Elk River
Terry Maurer, City Engineer, City of Elk River
Randy Hanson, Mayor of Zimmerman
Scott Young, City Engineer, City of Zimmerman
Tom Borchert, City Engineer, City of Zimmerman
Randy Piasecki, City Planner, City of Zimmerman
Jess Hall, Baldwin Township Supervisor
Louis Pfeifer, Baldwin Township
Fran Toth, Livonia Township
Don Sherper, Livonia Township
Lila Spencer, Livonia Township Clerk
John Tofte, City of Princeton
Brian Humphrey, Princeton City Council
Merlin Koopendraye, Mayor of Pease
Greg Lerud, City Manager, City of Milaca
Robert Mickus, City of Onamia
Lisa S. Rarick, Town Clerk, Princeton Township
Ted Sienko, Chairman, Bogus Brook Township
Dewey Anderson, Chairman, Milo Township
Phillip Peterson, Chairman, Milaca Township
Joe Fetters, Chairman, Page Township
Ryan Nost, Chairman, Dailey Township
James Jones, Chairman, Onamia Township
Brian Scheinost, Mille Lacs Band of Ojibwe
State Representative Bruce Anderson
State Representative Sondra Erickson
State Representative Leslie Schumacher
State Representative Arlon Lindner
State Senator Dan Stevens
State Senator Warren Limmer
State Senator Don Samuelson
State Senator Mark Ourada

Project Management Team

Mn/DOT District
1991 Industrial Park Road
Baxter, MN 56425

Lisa Freese, AICP
Mn/DOT - Metro
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Roseville, MN 55113

Lynne Bly
Mn/DOT - Metro
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1500 West County Road B2
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Brian Isaacson, AICP
Mn/DOT - Metro
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1500 West County Road B2
Roseville, MN 55113

Mike Sobolewski
Mn/DOT - Metro
Waters Edge Building
1500 West County Road B2
Roseville, MN 55113

Richard Bautch
Mn/DOT MS 070
501 S. Victory Dr.
P.O. Box 4039
Mankato, MN 56002

Otto Schmid
Mn/DOT - Metro
Waters Edge Building
1500 West County Road B2
Roseville, MN 55113

Virgil Hawkins
Assistant Wright County Engineer
1901 Highway 25 North
Buffalo, MN 55313

Dave Schwarting, County Engineer
Sherburne County Public Works Dept
13880 Hwy 10
Elk River, MN 55330

Richard Larson
Mille Lacs County Engineer
635 2nd Street NE
Milaca, MN 56353

Project Management Team Meeting Dates:

- March 9, 2001
- April 17, 2001
- June 18, 2001
- July 31, 2001
- September 17, 2001
- November 26, 2001
- February 13, 2002

Rogers/Otsego Subarea Committee

Gary Morrison
 Hassan Township
 25000 Hassan Pkwy
 Rogers, MN 55374

Warren Porter
 Hennepin County Dept. of Transportation
 1600 Prairie Center Dr
 Medina, MN 55340

Mike Robertson, Administrator
 City of Otsego
 8899 Nashua Ave NE
 Elk River, MN 55330

Mark Weigle, City Planner
 City of St. Michael
 3150 Lander Ave NE
 St. Michael, MN 55376

Rogers/Otsego Subarea Meeting Dates:

- April 18, 2001
- May 24, 2001
- June 27, 2001
- August 27, 2001
- September 26, 2001
- October 30, 2001
- November 28, 2001
- March 12, 2002

Elk River Subarea Committee

Cathryn Hanson
 Sherburne County Zoning
 13880 Hwy 10
 Elk River, MN 55330

Patrick Klaers, Administrator
 City of Elk River
 13065 Orono Parkway
 Box 490
 Elk River, MN 55330

Terry Maurer, City Engineer
 City of Elk River
 c/o: Howard R. Green
 1326 Energy Park Drive
 St. Paul, MN 55108

Elk River Subarea Meeting Dates:

- April 18, 2001
- May 24, 2001
- June 27, 2001
- August 27, 2001
- September 26, 2001
- October 30, 2001
- November 28, 2001
- March 12, 2002



Northern Sherburne Subarea Committee

Tom Borchert, City Engineer
City of Zimmerman
c/o: Earth Tech
3033 Campus Dr, Suite 175
Plymouth, MN 55441

Louis Pfeifer
Baldwin Township
9811 287th Ave
Zimmerman, MN 55398

Randy Piasecki, City Planner
City of Zimmerman
13028 Fremont Avenue
Zimmerman, MN 55398-9416

Lila Spencer
Livonia Township
23385 Hwy 169
Elk River, MN 55330

Don Sherper
Livonia Township
12275 - 239th Ave NW
Elk River, MN 55330

Scott Young, City Engineer
City of Zimmerman
c/o: Earth Tech
3033 Campus Dr, Suite 175
Plymouth, MN 55441

Northern Sherburne Subarea Meeting Dates:

- April 19, 2001
- May 24, 2001
- June 27, 2001
- August 27, 2001
- September 26, 2001
- October 30, 2001
- November 28, 2001
- March 12, 2002

Mille Lacs County Subarea Committee

David Anderson
Mille Lacs County
7554 Tailor Road
Wahkon, MN 56386

Bob Bollenbeck
East Central Regional Development Comm.
100 South Park St.
Mora, MN 55051

Gaynor Frye
Mille Lacs County
5495 77th Ave
Princeton, MN 55371

Gerald Herges
Mille Lacs County
16349 130th Ave
Milaca, MN 56353

R.A. Knoll
Mille Lacs County
13512 230th St
Milaca, MN 56353

Ronald Nelson
Mille Lacs County
17965 Skyline Dr
Garrison, MN 56450

Brian Scheinost
Mille Lacs Band of Ojibwe
Box 194
Onamia, MN 56359

John Tofte
City of Princeton
705 2nd St. N
Princeton, MN 55371-1550

Mille Lacs County Subarea Meeting Dates:

- April 19, 2001
- May 24, 2001
- June 26, 2001
- August 28, 2001
- October 18, 2001
- October 30, 2001
- November 28, 2001
- March 12, 2002

Policy Advisory Committee

Commissioner Penny Steele Hennepin County 300 South 6th St. Minneapolis, MN 55487	Gary Eitel, Clerk-Administrator City of Rogers 12913 Main St. Rogers, MN 55374	Ted Sienko, Chairman Bogus Brook Township 12037 65th Ave Milaca, MN 56353
Commissioner Patrick Sawatzke Wright County 10 2nd Street NW	Joe Fetters, Chairman Page Township 19569 155th Ave Milaca, MN 56353	Ceil Strauss Minnesota DNR 500 Lafayette Road St. Paul, MN 55155
Commissioner Rachel Leonard Sherburne County 27655 112th St	Jess Hall Baldwin Township Supervisor 13813 283rd Avenue Zimmerman, MN 55398	Dale Thompson MPCA - Metro Region 520 Lafayette Road St. Paul, MN 55155
The Honorable Randy Hanson Mayor of Zimmerman 13028 Fremont Avenue	Bob Hoefert Mille Lacs County 35445 Hwy 47 Isle, MN 56342	Fran Toth Livonia Township 22915 Hwy 169 Elk River, MN 55330
The Honorable Larry Fournier Mayor of Otsego 8899 Nashua Ave NE	Brian Humphrey Princeton City Council 506 N. 3rd St Princeton, MN 55371	Representative Leslie Schumacher 217 State Office Building 100 Constitution Avenue Saint Paul, MN 55155
The Honorable Wayne Kessler Mayor of St. Michael P.O. Box 337	James Jones, Chairman Onamia Township 11769 330th St Onamia, MN 56359	Representative Sondra Erickson 407 State Office Building 100 Constitution Avenue Saint Paul, MN 55155
The Honorable Stephanie Klinzing Mayor of Elk River 13065 Orono Parkway	Don Koski Metropolitan Council 230 E 5th St St Paul, MN 55101	Representative Bruce Anderson 411 State Office Building 100 Constitution Avenue Saint Paul, MN 55155
The Honorable Merlin Koopendrayner Mayor of Pease P.O. Box 89	Greg Lerud, City Manager City of Milaca 1205 Central Avenue N Milaca, MN 56353	Representative Arlon Lindner 417 State Office Building 100 Constitution Avenue Saint Paul, MN 55155
Dewey Anderson, Chairman Milo Township 9604 145th Ave	Tom McCrossan Chairman, Hassan Township Board 11420 Valley Drive Rogers, MN 55374	Senator Don Samuelson 121 Capitol 75 Constitution Avenue Saint Paul, MN 55155
Tom Balcom Minnesota DNR 500 Lafayette Road	Robert Mickus City of Onamia 814 Lakeshore Blvd. Onamia, MN 56359	Senator Warren Limmer 121 State Office Building 100 Constitution Avenue Saint Paul, MN 55155
Karl Weissenborn Minnesota DOT 395 John Ireland Blvd, MS 620	Susan Moe Federal Highway Administration 175 E 5th St, Suite 500 Saint Paul, MN 55101	Senator Mark Ourada 145 State Office Building 100 Constitution Avenue Saint Paul, MN 55155
Frank Courteau, Chairman Mille Lacs County Board 10654 - 390th St	Ryan Nost, Chairman Dailey Township 15083 300th St. Onamia, MN 56359	Senator Dan Stevens 105 State Office Building 100 Constitution Avenue Saint Paul, MN 55155
Kate Drewry Minnesota DNR 1200 Warner Road	Phillip Peterson Milaca Township 13827 140th St Milaca, MN 56353	



**Policy Advisory Committee
Meeting Dates:**

- April 17, 2001
- May 23, 2001
- June 26, 2001
- September 25, 2001
- October 30, 2001
- November 28, 2001
- March 12, 2002



Public Open Houses

August 2001 Public Open Houses

The first round of public Open Houses were held in August 2001 for each of the subareas. The dates and locations were as follows:

- August 6, 2001 (Rogers/Otsego Subarea - Rogers Community Room)
- August 7, 2001 (Northern Sherburne Subarea – Princeton Library)
- August 8, 2001 (Mille Lacs Subarea – Milaca City Hall)
- August 9, 2001 (Elk River Subarea – Sherburne County Government Center)

Three basic objectives were accomplished during the first series of open houses for the Highway CMP. First, the Project Team described to visitors what a CMP is and explained why one is being developed for the TH 101 – TH 169 Corridor. Second, existing and future transportation and land use conditions within the Corridor were illustrated. This was done through the use of visual displays such as Existing and Future Traffic Volumes; Travel Time Performance; Access Spacing and Crash Analysis; Corridor Issues Maps; current Land Use Maps; and the Draft Corridor Vision Statement. There was also a continuous Power Point presentation that provided an overview of the project. Lastly, the Project Team obtained input and comments regarding the corridor from open house visitors. Members of the CMP project team were available throughout each meeting to answer questions and obtain input from the public. Below is a sampling of some of the comments received:

- Concerns about development along the highway, and possible impacts of the study on this development
- Local residents with right-in, right-out only access expressed concern about safety of U-turns on corridor; Some suggested looking at interchanges left turn lanes
- Snowmobile trails along TH 169 were discussed with concerned individuals; Curt Eastlund that the only facility where snowmobiles are prohibited is on interstate freeways
- Several safety issues were discussed including specific intersections and segments of the highway
- Several people noted that they would like to see congestion along TH 101- TH 169 addressed in the Corridor Management Plan

March 2002 Public Open Houses

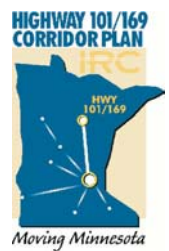
The second round of public Open Houses were held in March 2002. The dates and locations were as follows:

- March 18, 2002 (Princeton Library)
- March 19, 2002 (Sherburne County Government Center)

This series of open houses was used to inform the public about the results of the CMP process and provided another opportunity for input. Visual displays describing the recommendations of the CMP—including identified projects—were provided. Members of the CMP team were available throughout both meetings to answer questions and obtain input from the public.



Appendix B - *Corridor Issues Inventory*



APPENDIX B

Corridor Issues Inventory

This appendix includes maps that summarize issues that are present along the TH 101-TH 169 corridor. The subarea issues maps were developed in conjunction with the regularly scheduled Policy Advisory and Subarea Advisory Committee meetings. These maps were also presented at the public open houses held in August 2001.

The final map in this appendix represents data from Mn/DOT's Office of Environmental Services snow trap inventory. The areas highlighted on this map show the beginning and ending sections of highway that encounter blowing and drifting snow problems. Below is a list of all maps that are included in Appendix B.

Subarea Issues Maps

- *Figure B-1, Page 1 of 11, Rogers-Hassan Township-St. Michael*
- *Figure B-1, Page 2 of 11, Otsego-Elk River*
- *Figure B-1, Page 3 of 11, Zimmerman*
- *Figure B-1, Page 4 of 11, Princeton*
- *Figure B-1, Page 5 of 11, Pease*
- *Figure B-1, Page 6 of 11, Milaca*
- *Figure B-1, Page 7 of 11, North of Milaca*
- *Figure B-1, Page 8 of 11, Onamia*
- *Figure B-1, Page 9 of 11, Lake Onamia-Mille Lacs Lake*
- *Figure B-1, Page 10 of 11, Kathio State Park*
- *Figure B-1, Page 11 of 11, Garrison*

Other Maps

- *Figure B-2, Page 1 of 1, Snow Trap Inventory*

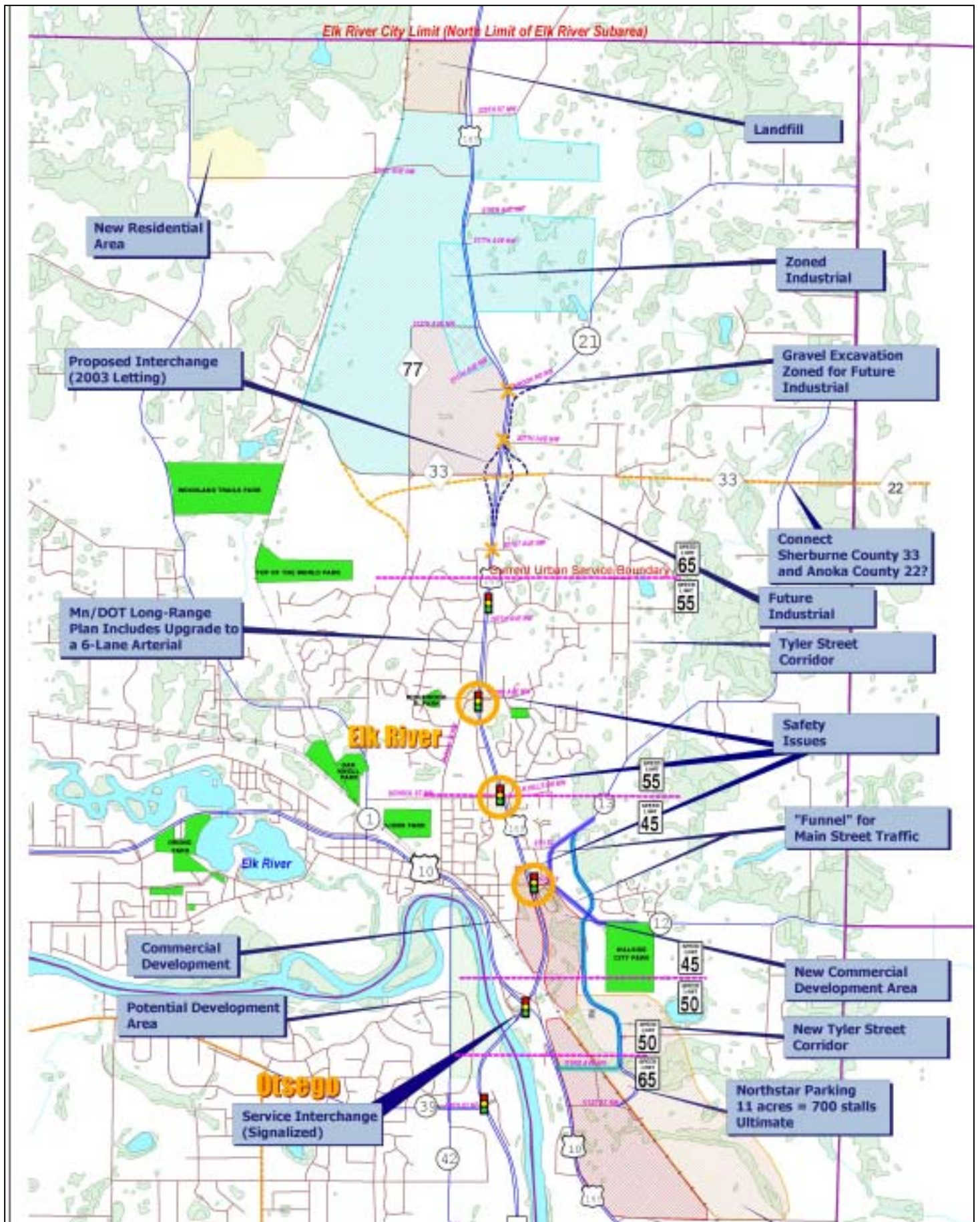
NOTE: Items that may be included in future corridor mapping efforts include information related to: the Natural Heritage Database, public waters, the National Wetlands Inventory (NWI), Federal Emergency Management Agency (FEMA) designated floodplains, trout streams, wild and scenic river segments, state parks, trails, boat accesses, and wildlife management areas, preliminary analysis of potential conflicts (and collaborative opportunities) between transportation and natural resource management goals, and the Minnesota Land Cover Classification System (MLCCS) Natural Resource Inventory and Analysis.



Subarea Issues Map
 Rogers- Hassan Township-St. Michael

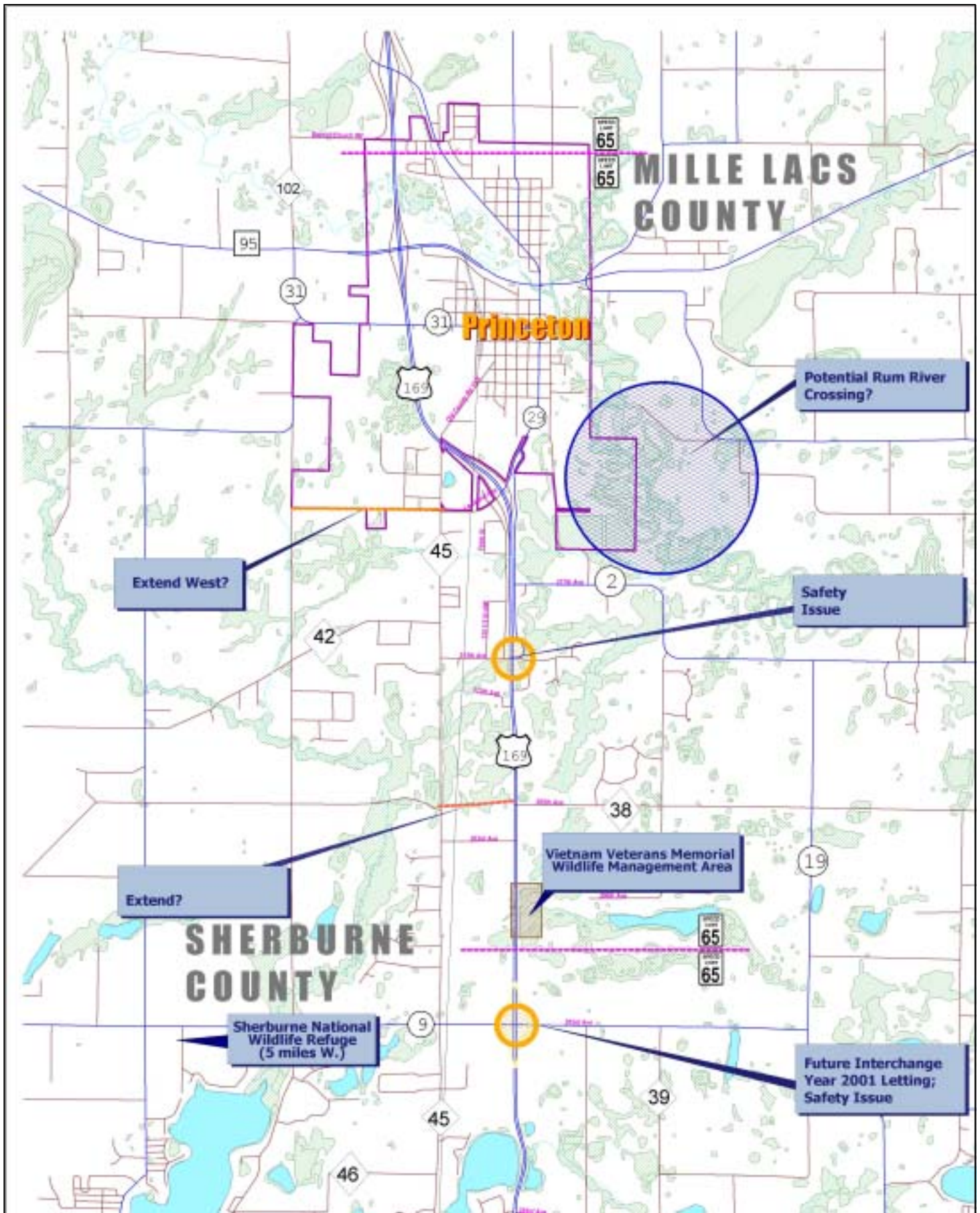
Figure B-1
 Page 1 of 11





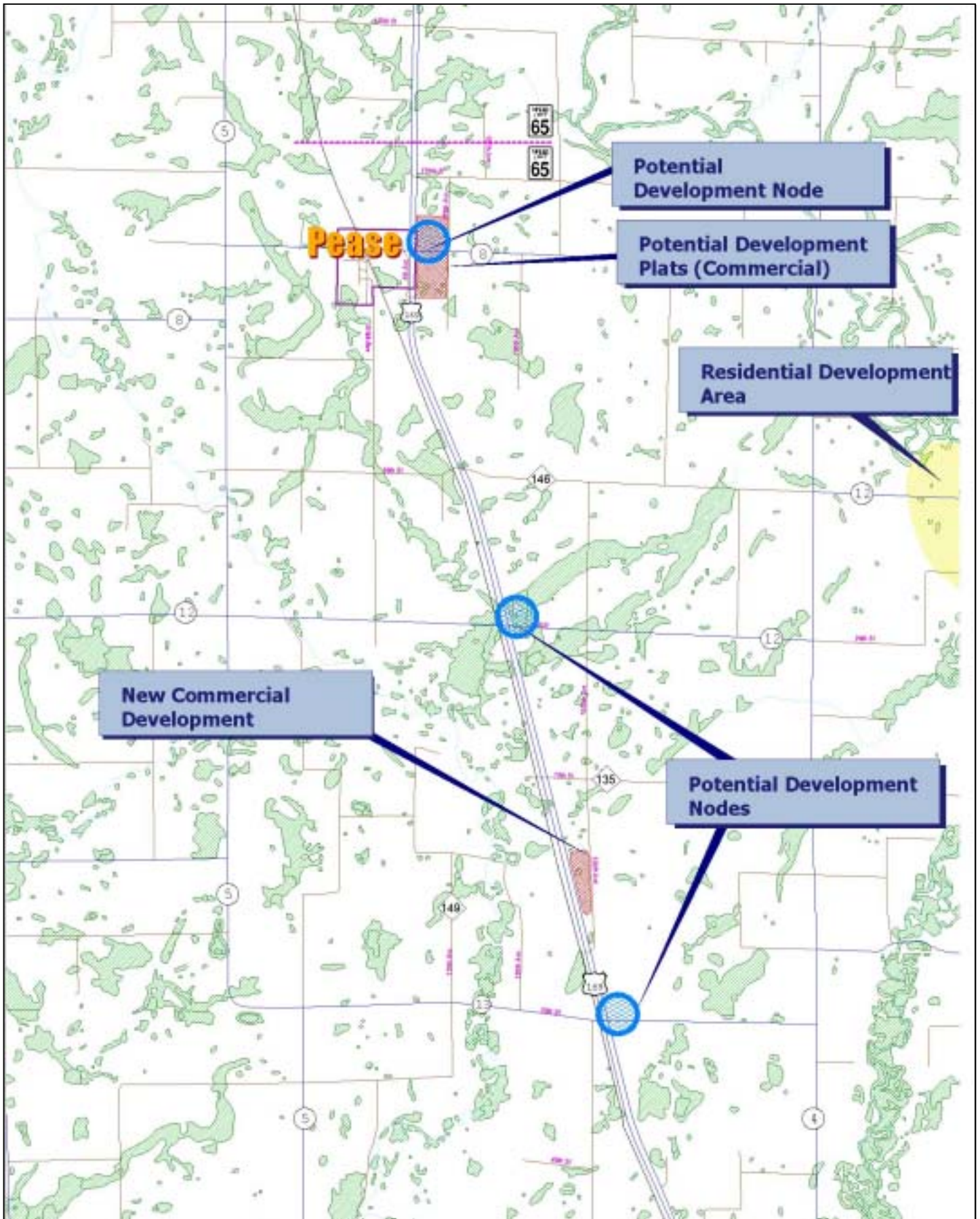
Subarea Issues Map
Otsego-Elk River

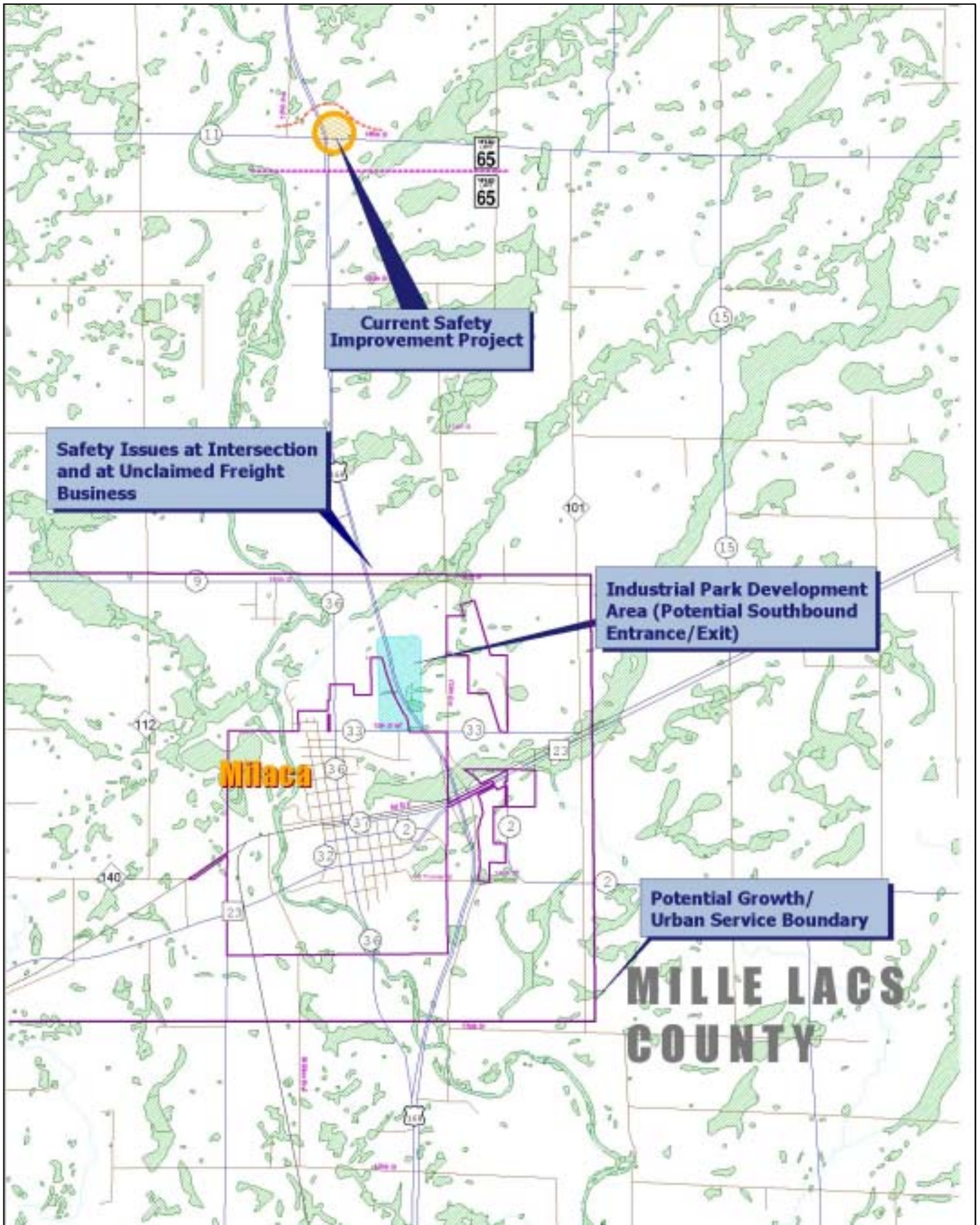




Subarea Issues Map
 Princeton
 Figure B-1
 Page 4 of 11



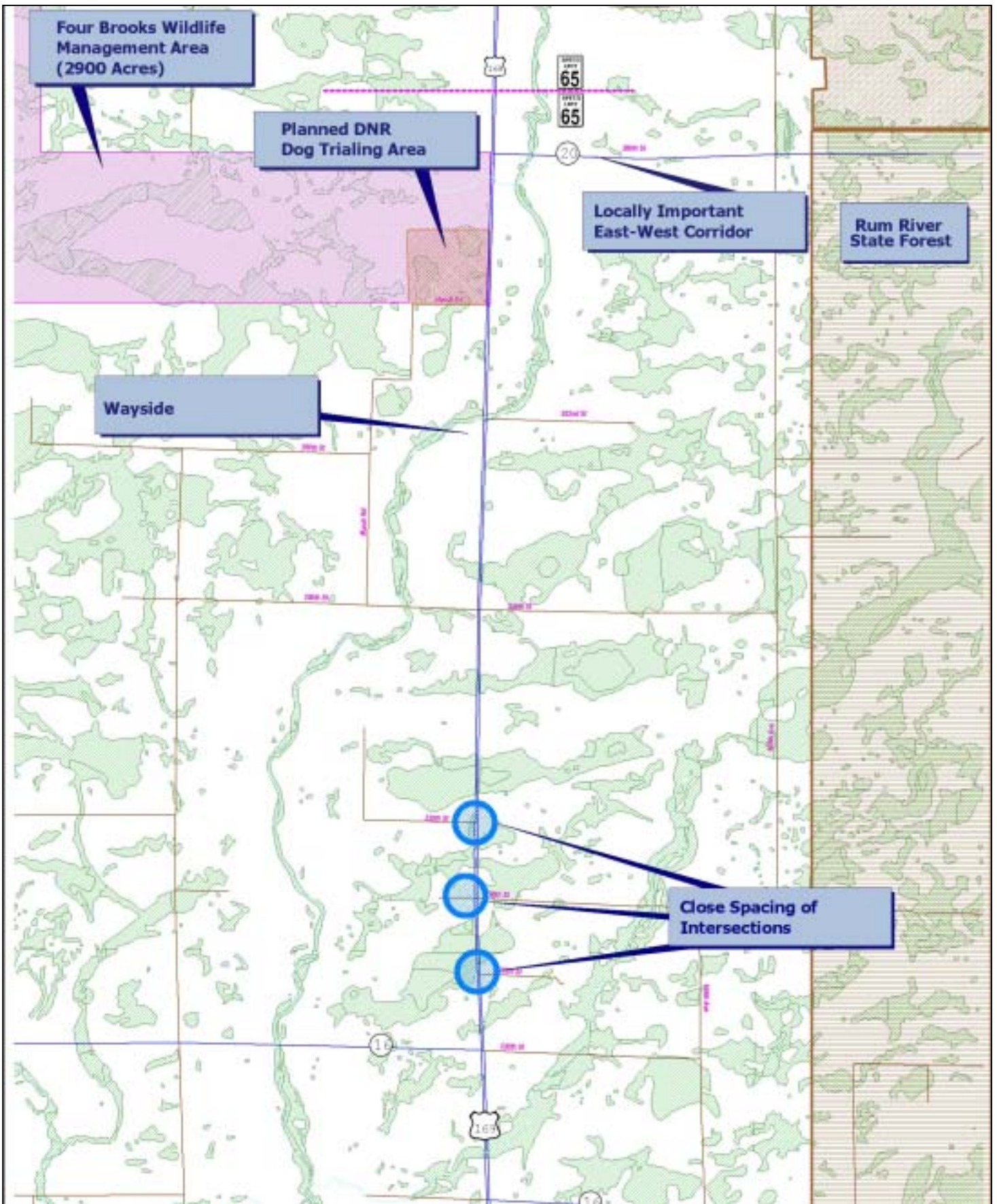




Subarea Issues Map
Milaca

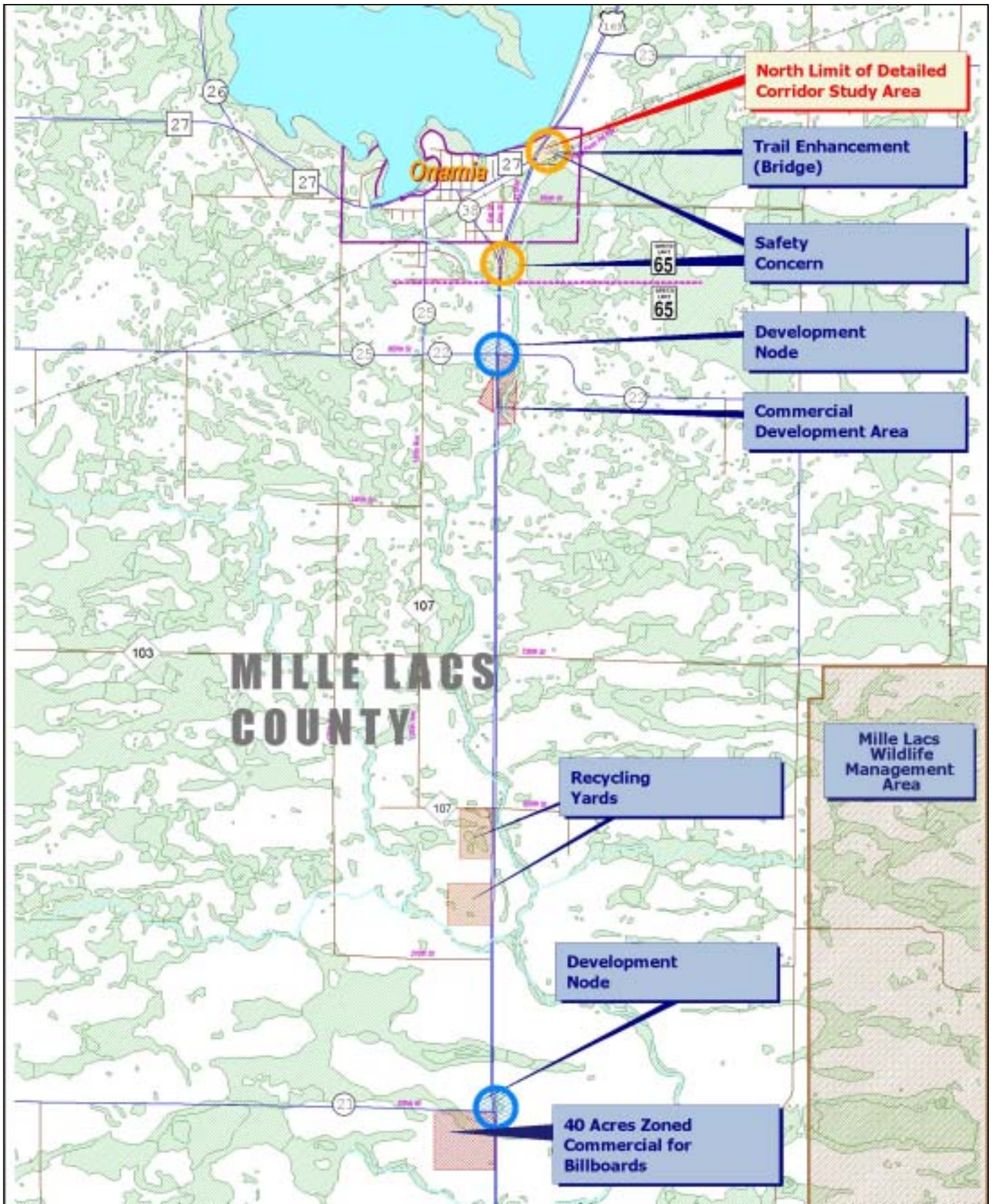
Figure B-1
Page 6 of 11

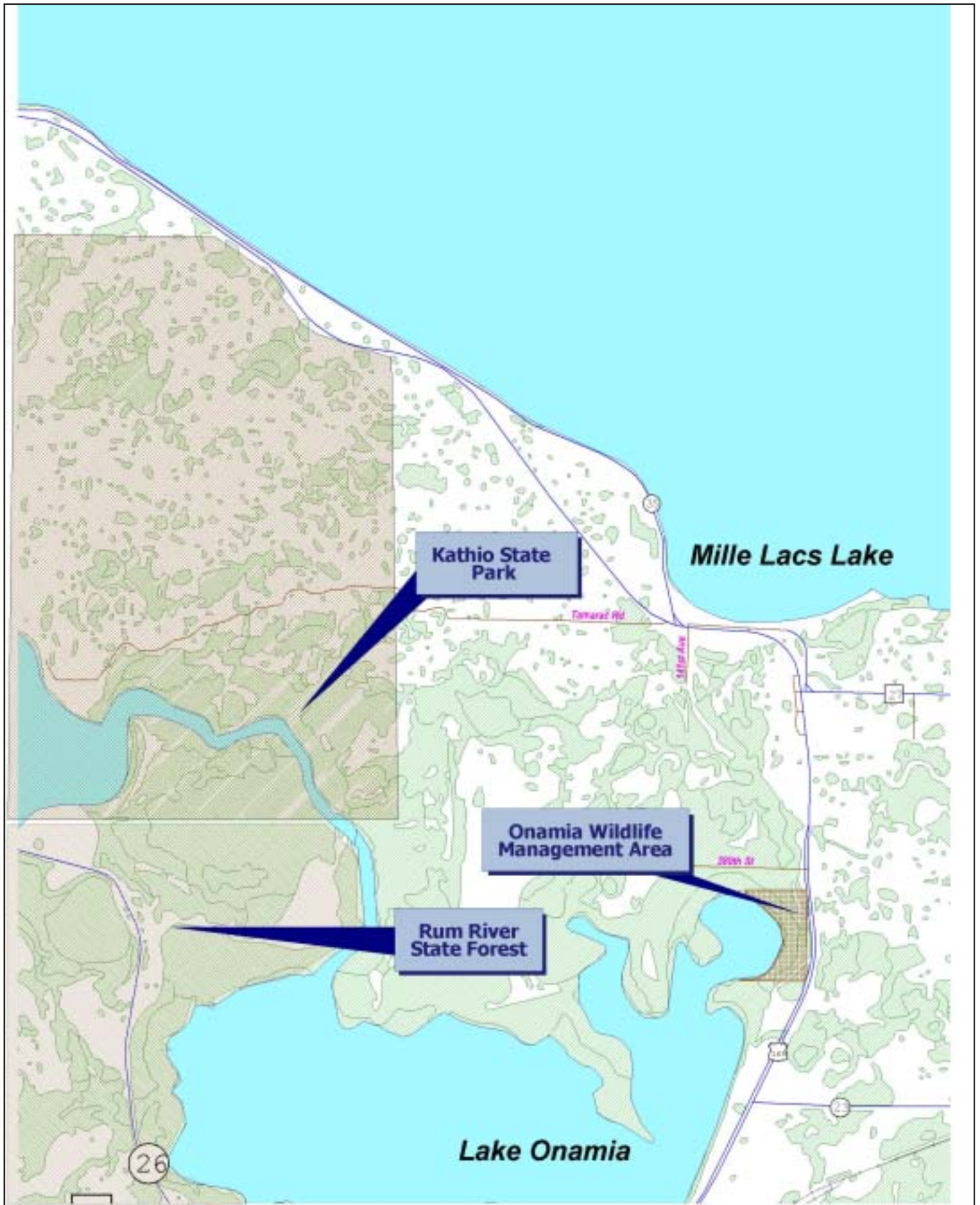




Subarea Issues Map
 North of Milaca
 Figure B-1
 Page 7 of 11

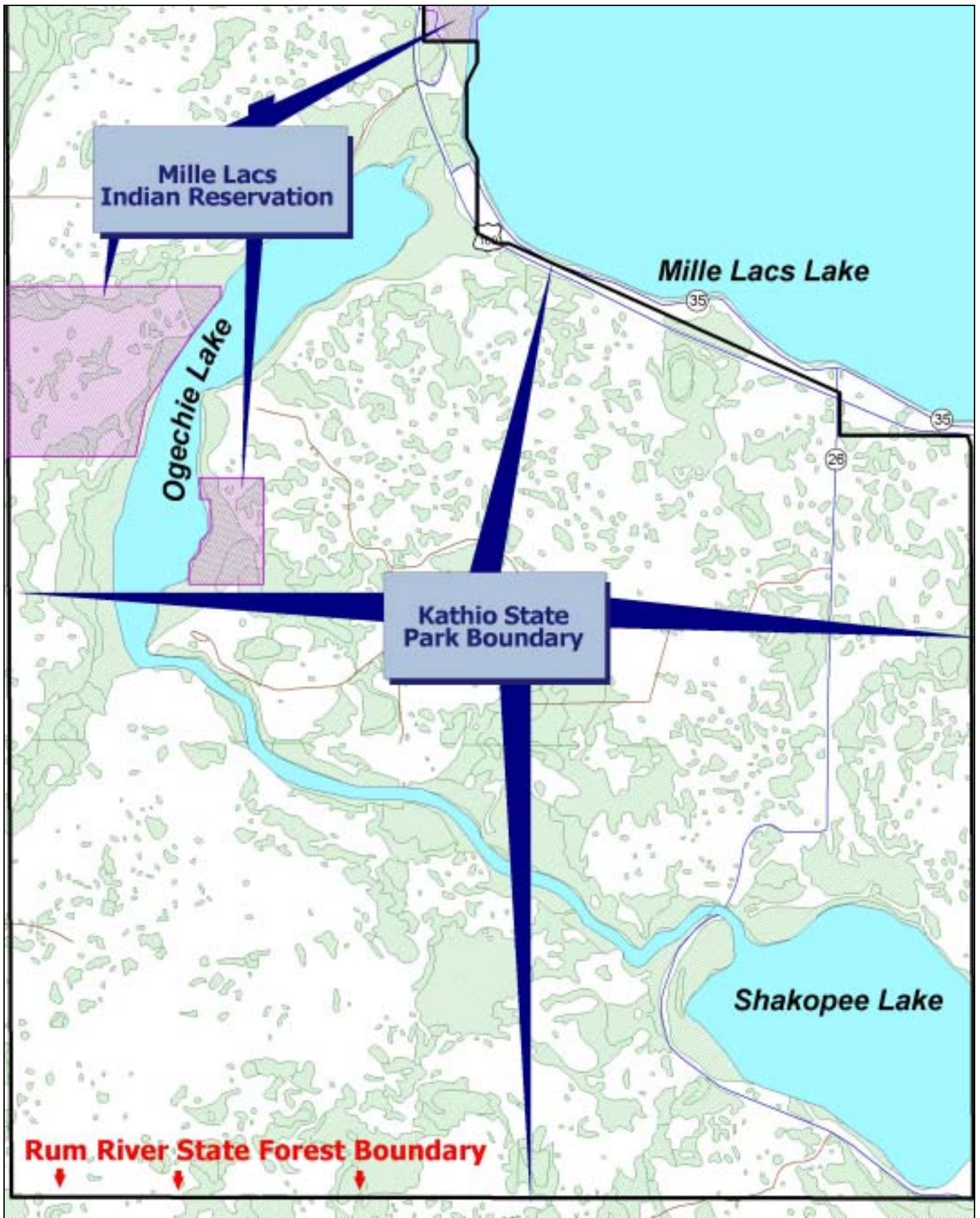






Subarea Issues Map
Lake Onamia-Mille Lacs Lake







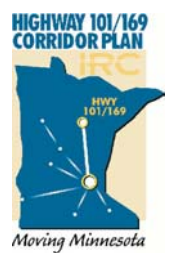
Garrison

**Mille Lacs
Indian Reservation**





Appendix C - *CMP* *Endorsements*



Corridor Management Plan Endorsements

Purpose

This appendix provides a status report (as of April 30, 2002) regarding corridor management plan resolutions passed by the corridor partners indicating their support or endorsement of the CMP findings and recommendations. All of the corridor partners involved in the creation of the plan were contacted in March and April, 2002, to determine their needs or actions regarding plan endorsement.

Many communities passed endorsements either verbally or written, and documentation of these endorsements is included in this appendix.

There are other communities that have not yet responded to Mn/DOT or its consultant regarding the endorsement process—in those cases the status of the jurisdiction’s endorsement process is unknown.

All of the corridor partners involved in the creation of the plan were contacted in March and April, 2002, to determine their needs or actions regarding plan endorsement. Many communities passed endorsements either verbally or written, and documentation of these endorsements is included in this appendix.

Table D-1 is a summary of the status of all endorsement processes including those still in progress during the final distribution of this document.

For More Information

For additional information regarding endorsements or other follow-ups to this CMP, please contact:

Curt Eastlund, P.E.
Mn/DOT - District 3
1991 Industrial Park Road
Baxter, MN 56425
(218) 855-5021

Brian Isaacson
Mn/DOT – Metro
Waters Edge Building
1500 W County Road B2
Roseville, MN 55113
(651) 582-1659

Lynne Bly
Mn/DOT – Metro
Waters Edge Building
1500 W County Road B2
Roseville, MN 55113
(651) 582-1235

Curt.Eastlund@dot.state.mn.us

Brian.Isaacson@dot.state.mn.us

Lynne.Bly@dot.state.mn.us

Table D-1. Endorsement Status	
Rogers	Resolution of support was passed on March 23, 2002.
Hassan Township	The Township Board received a presentation and expressed verbal support for the CMP on April 1, 2002.
St. Michael	The cities of St. Michael and Otsego held a joint council meeting on April 29, 2002. At the meeting the councils expressed general interest in and support for the corridor planning process and results; but the cities did not issue any formal resolution/statements.
Otsego	
Sherburne County	Resolution is on the agenda for meeting scheduled on May 14, 2002.
Elk River	A letter sent on April 25, 2002 (attached) stated the city would be holding a public meeting to gather the community's input on the plan.
Livonia Township	Support for the plan has been verbally stated at township meetings. Further investigation into possible responses to the CMP Recommendations is currently being studied.
Baldwin Township	Resolution of support not passed due to lack of a second.
Zimmerman	A meeting scheduled for May 6, 2002 with a representative from Mn/DOT presenting.
City of Princeton	Resolution of support passed on March 28th
Mille Lacs County	Resolution was tabled. Another meeting is scheduled for May 7, 2002 with a representative from Mn/DOT presenting.
Princeton Township	Status unknown
Milaca Township	Resolution not passed
City of Milaca	Resolution of support was passed on April 18, 2002
Milo Township	Resolution was on agenda for meeting on April 16, 2002. Status of endorsement unknown.
Bogus Brook Township	Status unknown
City of Pease	Resolution was on agenda for meeting on April 1, 2002. Status of endorsement unknown.
Onamia Township	Status unknown
City of Onamia	Resolution of support passed on April 10, 2002
Dailey Township	Status unknown
Page Township	Status unknown
Mille Lacs Band of Ojibwe	Status unknown

RESOLUTION NO. 2002 - 36**A RESOLUTION ENDORSING THE VISION AND CORRIDOR
MANAGEMENT PLAN FOR TH 101-TH 169**

WHEREAS, Minnesota's State Transportation Plan recognizes the significance of interregional highway corridors in providing citizens and businesses throughout the State of Minnesota with high quality access to recreational, educational, employment and health care opportunities, and to the transport of products and services produced by our local economy to regional, national and global markets; and

WHEREAS, TH 101 - TH 169 has been identified by the Minnesota Department of Transportation as a High Priority Interregional Corridor from Rogers to Zimmerman and a Medium Priority Interregional Corridor from Zimmerman to Garrison that enhances the economic vitality of the state and provides essential access for central Minnesota counties and cities to major economic markets and cultural centers including the St. Paul-Minneapolis metropolitan area; and

WHEREAS, the continued growth of the region is leading to increasing travel demand in the corridor and development pressure adjacent to the corridor which, if unmanaged, can negatively affect the level of performance, safety and congestion experienced by users of the corridor; and

WHEREAS, community leaders, motorists and road authorities have identified this growing travel demand and development pressure as a concern with potential negative consequences for mobility and safety in the corridor, with the potential to degrade the performance level now provided by the corridor, and the resulting implications for the economy and quality of life of the region; and

WHEREAS, the Minnesota Department of Transportation, recognizing the potential impact of continued growth pressure on the corridor, has completed an Interregional Corridor Management Plan in partnership with its partners along the corridor to look at the long-term role that TH 101-TH 169 will play in meeting the transportation needs of central Minnesota; and

WHEREAS, it is imperative at this critical time that a long-term vision for the type of service that the TH 101-TH 169 corridor needs to be established and that the steps are identified and initiated to:

1. Preserve the function of the corridor through advance planning, not only for the TH 101-TH 169 corridor but local supporting street systems and land use and development patterns; and
2. Secure the needed funding to pursue the vision established for the corridor; and
3. Establish a plan of action for the development of planning and programming activities that will proactively address the needs identified.

NOW THEREFORE, BE IT RESOLVED, by the City Council of the City of Rogers, Hennepin County, Minnesota, that the City Council endorsed the vision and corridor management plan for TH 101-TH 169.

FURTHERMORE BE IT RESOLVED, the City of Rogers endorsed the concept that an adequate network of supporting roads is necessary to attain the TH 101-TH 169 corridor vision and that the roadway networks identified in the TH 101-TH 169 Corridor Management Plan will be considered as interim guides until such time as refinements to these improvements are identified.

FURTHERMORE BE IT RESOLVED, the City of Rogers recognized the regional significance of the corridor in supporting the regional economy and intends to reflect the TH 101-TH 169 Corridor Management Plan vision, strategies and policies through updates to the City of Rogers land use and transportation plans as well as subdivision ordinances.

FUTHERMORE BE IT RESOLVED, the City of Rogers is committed to working in partnership with Mn/DOT and the other partners along the corridor as a member of the TH 101-TH 169 Corridor Management Team in order to achieve the vision and implement the recommendations of the TH 101-TH 169 Corridor Management Plan.

FUTHERMORE BE IT RESOLVED, the City of Rogers intends to bring forward the following issues for resolution and discussion with the TH 101-TH 169 Corridor Management Team:

1. That in the interest of promoting public safety for the pedestrians and vehicular movement associated with the junior high school, senior high school, and pro-active community planning, the Hwy. 101/Co. Rd. 144 interchange be scheduled as soon as possible.

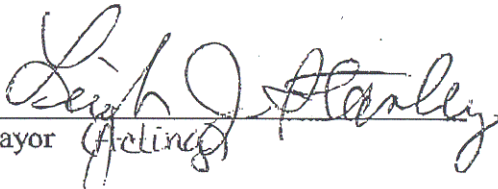
Councilmember Grimm moved, Councilmember Miller seconded the motion

The following voted in favor of said resolution: Grimm, Miller, Stanley, Smothers.

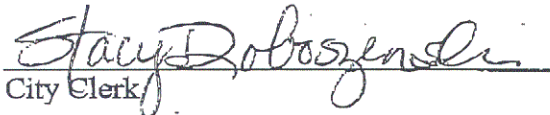
The following voted against said resolution: None.

The following abstained: None.

Adopted this 23rd day of April, 2002.


Mayor

ATTEST:


City Clerk



13065 Orono Parkway
Elk River, MN 55330



April 25, 2002
File: 809235J-0325

Mr. Doug Abere
CH2Mhill
1380 Corporate Center Curve, Ste. 200
Eagan, MN 55121-1200

RE: TRUNK HIGHWAY 169/101 INTERREGIONAL CORRIDOR STUDY

Dear Mr. Abere:

At its April 15, 2001 meeting, the Elk River City Council discussed adopting the draft resolution presented by Mn/DOT concerning the TH 169 Interregional Corridor. However, it was the consensus of the City Council that given the importance of this study, the Council could not adopt the resolution without having first received public input. The schedule for this phase of the project does not allow time to hold a public hearing for the citizens of Elk River, including the many businesses located along TH 169, so the City Council directed me to send this letter.

The City of Elk River appreciates the opportunity we had to participate in the TH 169/101 Task Force over the last twelve months. Although the City Council and city staff do not agree with all the findings and recommendations of the draft report, the city understands that this is a critical issue which must be dealt with for the future transportation needs of both the City of Elk River and the motoring public on TH 169/101. The city looks forward to working closely with your firm and Mn/DOT in the upcoming months to present your report to the citizens of Elk River and also in moving the study into the next phases of the project.

Again, thank you for the opportunity to participate in this process and I will be in contact with you soon to coordinate the public hearing meeting in Elk River.

Sincerely,

Patrick D. Klaers
City Administrator

cc: Curt Eastlund, Mn/DOT

Phone: 763.441.7420
Fax: 763.441.7425

www.ci.elk-river.mn.us

Hwy169CorrdrStdy.doc

**A RESOLUTION ENDORSING THE TRUNK HIGHWAY 101-169
CORRIDOR MANAGEMENT PLAN**

WHEREAS, Minnesota's State Transportation Plan recognizes the significance of interregional highway corridors in providing citizens and businesses throughout the State of Minnesota with high quality access to recreational, educational, employment, and health care opportunities, and to the transport of products and services produced by our local economy to regional, national and global markets; and

WHEREAS, T.H. 101-169 has been identified by the Minnesota Department of Transportation as a High Priority Interregional Corridor from Rogers to Zimmerman and a Medium Priority Interregional Corridor from Zimmerman to Garrison that enhances the economic vitality of the state and provides essential access for central Minnesota counties and cities to major economic markets and cultural centers, including the St. Paul-Minneapolis metropolitan area; and

WHEREAS, the continued growth of the region is leading to increasing travel demand in the corridor and development pressure adjacent to the corridor which, if unmanaged, can negatively affect the level of performance, safety and congestion experienced by users of the corridor; and

WHEREAS, community leaders, motorists, and road authorities have identified this growing travel demand and development pressure as a concern with potential negative consequences for mobility and safety in the corridor, with the potential to degrade the performance level now provided by the corridor, and the resulting implications for the economy and quality of life of the region; and

WHEREAS, the Minnesota Department of Transportation, recognizing the potential impact of continued growth pressure on the corridor, has completed an Interregional Corridor Management Plan in partnership with its partners along the corridor to look at the long-term role that T.H. 101-169 will play in meeting the transportation needs of central Minnesota; and

WHEREAS, it is imperative at this critical time that a long-term vision for the type of service that the T.H. 101-169 corridor needs to be established and that the steps are identified and initiated to:

1. Preserve the function of the corridor through advance planning, not only for the TH 101-169 corridor but local supporting street systems and land use and development patterns; and
2. Secure the needed funding to pursue the vision established for the corridor; and
3. Establish a plan of action for the development of planning and programming activities that will proactively address the needs identified.

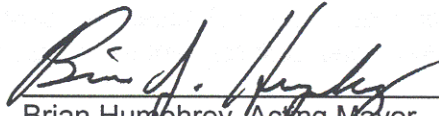
NOW, THEREFORE, BE IT RESOLVED the City of Princeton endorses the vision and corridor management plan for T.H. 101-169.

BE IT FURTHER RESOLVED the City of Princeton endorses the concept that an adequate network of supporting roads is necessary to attain the T.H. 101-169 corridor vision and that the roadway networks identified in the T.H. 101-169 Corridor Management Plan will be considered as interim guides until such time as refinements to these improvements are identified.

BE IT FURTHER RESOLVED the City of Princeton recognizes the regional significance of the corridor in supporting the regional economy and intends to reflect the TH 101-TH 169 Corridor Management Plan vision, strategies and policies through updates to the (insert name of City, County, Township etc.) land use and transportation plans as well as subdivision ordinances.

BE IT FURTHER RESOLVED the City of Princeton is committed to working in partnership with MN/DOT and the other partners along the corridor as a member of the T.H. 101-169 Corridor Management Team in order to achieve the vision and implement the recommendations of the T.H. 101-169 Corridor Management Plan.

ADOPTED this 28th day of March, 2002.



Brian Humphrey, Acting Mayor

ATTEST:



David J. Mirke, City Administrator

RESOLUTION #02 - 15RESOLUTION ENDORSING CORRIDOR MANAGEMENT PLAN FOR HIGHWAY
169

WHEREAS, Minnesota's State Transportation Plan recognizes the significance of interregional highway corridors in providing citizens and businesses throughout the State of Minnesota with high quality access to recreational, educational, employment and health care opportunities, and to the transport of products and services produced by our local economy to regional, national and global markets; and,

WHEREAS, TH 101-TH 169 has been identified by the Minnesota Department of Transportation as a High Priority Interregional Corridor from Rogers to Zimmerman and a Medium Priority Interregional Corridor from Zimmerman to Garrison that enhances the economic vitality of the state and provides essential access for central Minnesota counties and cities to major economic markets and cultural centers including the St. Paul-Minneapolis metropolitan area; and,

WHEREAS, the continued growth of the region is leading to increasing travel demand in the corridor and development pressure adjacent to the corridor which, if unmanaged, can negatively affect the level of performance, safety, and congestion experienced by users of the corridor; and,

WHEREAS, community leaders, motorists and road authorities have identified this growing travel demand and development pressure as a concern with potential negative consequences for mobility and safety in the corridor, with the potential to degrade the performance level now provided by the corridor, and the resulting implications for the economy and quality of life of the region; and,

WHEREAS, the Minnesota Department of Transportation, recognizing the potential impact of continued growth pressure on the corridor, has completed an Interregional Corridor Management Plan in partnership with partners along the corridor to look at the long-term role that TH 101-TH 169 will play in meeting the transportation needs of central Minnesota; and,

WHEREAS, it is imperative at this critical time that a long-term vision for the type of service that the TH 101-TH 169 corridor needs to be established and that the steps are identified and initiated to:

1. Preserve the function of the corridor through advance planning, not only for the TH 101- TH 169 corridor but local supporting street systems and land use and development patterns; and,
2. Secure the needed funding to pursue the vision established for the corridor; and,

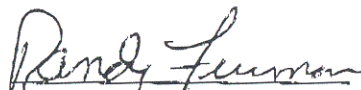
3. Establish a plan of action for the development of planning and programming activities that will proactively address the needs identified.

NOW THEREFORE BE IT RESOLVED that the City Council for the City of Milaca hereby endorses the vision of the corridor management plan for TH 101 – TH 169.


BE IT FURTHER RESOLVED that the city of Milaca endorses the concept that an adequate network of supporting roads is necessary to attain the TH 101 – TH 169 corridor vision and that the roadway networks identified in the TH 101 – TH 169 Corridor Management Plan will be considered as interim guides until such time as refinements to these improvements are identified.

BE IT FURTHER RESOLVED that the city of Milaca is committed to work in partnership with MN DOT and the other partners along the corridor as a member of the TH 101 – TH 169 Corridor Management Team in order to achieve the vision and implement the recommendations of the Corridor Management Team.

Adopted this 18th day of April, 2002.


Mayor Randy Furman

ATTEST


Greg Lerud, City Manager

Kathleen McCullum
Clerk/Treasurer
320-532-3311 Telephone

CITY OF ONAMIA
621 West Main Street
PO Box 186
Onamia, MN 56359

Larry E. Milton
Mayor
320-532-3434 Fax

RESOLUTION 041002A

WHEREAS, Minnesota's State Transportation Plan recognizes the significance of interregional highway corridors in providing citizens and businesses throughout the State of Minnesota with high quality access to recreational, educational, employment and health care opportunities, and to the transport of products and services produced by our local economy to regional, national and global markets; and

WHEREAS, TH 101-TH 169 has been identified by the Minnesota Department of Transportation as a High Priority Interregional Corridor from Rogers to Zimmerman and a Medium Priority Interregional Corridor from Zimmerman to Garrison that enhances the economic vitality of the state and provides essential access for central Minnesota counties and cities to major economic markets and cultural centers including the St. Paul-Minneapolis metropolitan area and,

WHEREAS, the continued growth of the region is leading to increasing travel demand in the corridor and development pressure adjacent to the corridor which, if unmanaged, can negatively affect the level of performance, safety and congestion experienced by users of the corridor; and,

WHEREAS, community leaders, motorists and road authorities have identified this growing travel demand and development pressure as a concern with potential negative consequences for mobility and safety in the corridor, with the potential to degrade the performance level now provided by the corridor, and the resulting implications for the economy and quality of life of the region; and,

WHEREAS, the Minnesota Department of Transportation, recognizing the potential impact of continued growth pressure on the corridor, has completed an Interregional Corridor Management Plan in partnership with its partners along the corridor to look at the long-term role that TH 101-TH 169 will play in meeting the transportation needs of central Minnesota; and

WHEREAS, it is imperative at this critical time that a long-term vision for the type of service that the TH 101-TH 169 corridor needs to be established and that the steps are identified and initiated to:

1. Preserve the function of the corridor through advance planning, not only for the TH 101-TH 169 corridor but local supporting street systems and land use and development patterns; and,
2. Secure the needed funding to pursue the vision established for the corridor; and,

3. Establish a plan of action for the development of planning and programming activities that will proactively address the needs identified.

NOW THEREFORE BE IT RESOLVED, the City of Onamia endorsed the vision and corridor management plan for TH 101-TH 169.

FURTHERMORE BE IT RESOLVED, the City of Onamia endorsed the concept that an adequate network of supporting roads is necessary to attain the TH 101-TH 169 corridor vision and that the roadway networks identified in the TH 101-TH 169 Corridor Management Plan will be considered as interim guides until such time as refinements to these improvements are identified.

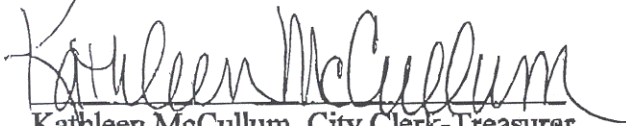
FURTHERMORE BE IT RESOLVED, the City of Onamia recognized the regional significance of the corridor in supporting the regional economy and intends to reflect the TH 101-TH 169 Corridor Management Plan vision, strategies and policies through updates to the City of Onamia land use and transportation plans as well as subdivision ordinances.


FURTHERMORE BE IT RESOLVED, the City of Onamia is committed to working in partnership with MN/DOT and the other partners along the corridor as a member of the TH 101-TH 169 Corridor Management Team in order to achieve the vision and implement the recommendations of the TH 101-TH 169 Corridor Management Plan.

BE IT FURTHER RESOLVED, the City of Onamia intends to bring forward the following issues for resolution and discussion with the TH 101-TH 169 Corridor Management Team:

1. Safety
2. Interregional Mobility
3. Increasing Congestion
4. Internal Community Connections
5. Highway Corridor Land Use Planning
6. Intermodal Planning

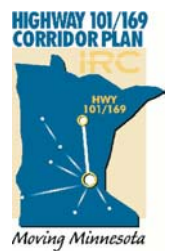
PASSED AND APPROVED, by the City Council of the City of Onamia in a meeting held on April 10, 2002.


Kathleen McCullum, City Clerk-Treasurer


Larry E. Milton, Mayor



Appendix D - *Highway Improvement Project Evaluations and Cost Analysis*



APPENDIX D

Highway Improvement Project Evaluations and Cost Analyses

Corridor partners developed the criteria that were used to evaluate and prioritize projects to determine how implementation of the corridor vision should be organized and prioritized.

Below is a list of items included in Appendix D that deal with project evaluation:

- Project Evaluation Factor Rankings (page D-2)
- Table D-1: Project Performance Evaluation which shows possible corridor projects and a project performance evaluation “checklist.” (page D-3)
- Table D-2: IRC Evaluation Criteria (page D-4)
- Table D-3: Prioritization Factors (page D-5)

In addition to evaluating a project based on how well it would improve corridor performance, project cost and other implementation factors such as fiscal constraints; the expected economic benefits as shown in the benefit-cost analysis; and deliverability of the project. Below is a list of remaining items that are included in this appendix that deal with estimated project costs:

- Length/Width/Depth (LWD) Cost Estimating Assumptions which includes information on how projects costs were estimated (page D-6)
- Table D-4: Highway Improvement Project Cost (page D-10)
- Detailed Project Descriptions (page D-11)
- Table D-5: Category II Highway Improvement Project Costs and Project Benefit Cost Analyses Results (page D-18)
- Table D-6: Category II and III Highway Improvement Project Costs and Project Benefit Cost Analyses Results (page D-19)



Project Evaluation Factor Rankings

This ranking was arrived at by both local government representatives and state agency representatives present at a combined PAC-SAC meeting on October 30, 2001. Using a total of 100, participants at the meeting were asked to assign points in multiples of 5 to the ten project evaluation factors shown below. Participants assigned more points to the factors they considered more important. There were no minimum or maximum point assignments, but the total had to equal 100. The points were then added for each factor to determine the group's ranking. The rankings ranged from 1 to 10, with 1 being the highest priority.

	<u>Ranking</u>
Achieve target speed	4
Improve safety	2
Improve Local and crossroad traffic operation	3
Satisfy IRC management goal of fewer traffic signals	7
Achieve minimum access point spacing of one/mile	10
Minimize adverse environmental impacts	8*
Minimize adverse socio-economic impacts	8*
Receive favorable benefit/cost ratio	5*
Achieve support from local government	1
Begin construction project within three years	5*

*Rankings 5 and 8 had ties.



Table D-1: Project Performance Evaluation



✓ -Primary performance evaluation criteria ✓ -Secondary performance evaluation criteria

Construction Project	Safety		Signal Risk		Speed/ Performance		Access			Local Connectivity	
	Resolves specific safety problem	Contributes to overall corridor safety improvement	Eliminate signal	Lessens signal risk	Essential to achievement of target	Supports achievement or maintenance of target	Eliminates or consolidates public access	Eliminates or consolidates commercial access	Eliminates or consolidates residential access	Improves Local Traffic Operations	Potential community benefit for bike/ped system
<i>Rogers (growth area 1) – Improved and new interchanges from I-94 to CSAH 144</i>	✓		✓		✓		✓			✓	
<i>St. Michael (growth area 2) – New interchange at CSAH 36</i>		✓	✓		✓		✓	✓	✓	✓	✓
<i>Otsego A (growth area 2) – New interchange at CSAH 37; overpass at CSAH 42</i>	✓		✓		✓		✓			✓	✓
<i>Otsego B (growth area 2) – New interchange at CSAH 39</i>		✓	✓		✓		✓			✓	✓
<i>Elk River A (growth area 3) – Improved and new interchanges at TH 10, Main Street; overpass at School Street</i>	✓		✓		✓		✓	✓		✓	✓
<i>Elk River B (growth area 3) – New interchange (possible split diamond concept) at Jackson/197th, south of future CSAH 33 interchange</i>		✓	✓		✓		✓	✓		✓	✓
<i>Elk River C (growth area 4) – New interchange at 221st Avenue</i>		✓		✓		✓	✓	✓	✓	✓	
<i>South of Zimmerman (growth area 5) – New interchange at CR 36/CR 45</i>		✓		✓		✓	✓	✓	✓	✓	
<i>Zimmerman (growth area 6) – New interchange at CSAH 4</i>	✓		✓			✓	✓	✓	✓	✓	✓



North of Zimmerman (growth area 7) – New interchange at 277 th Avenue		✓		✓		✓	✓	✓	✓	✓
South of Princeton A (growth area 8) – Future CSAH 9 interchange	✓			✓		✓	✓	✓	✓	✓
South of Princeton B (growth area 8) – New interchange at CR 38		✓		✓		✓	✓	✓	✓	✓
Princeton Bypass	Maintain freeway									
Six construction projects are located from the midpoint between CSAH 29 and T-269 to TH 27 (growth areas 9-12). Each of these projects involves the consolidation of access points toward primary and secondary “development nodes.” These frontage roads are locally funded. Primary Development Nodes CSAH 8 (Pease) CSAH 11 (North of Milaca) CSAH 16 (North Intersection– North of Milaca) CSAH 21 (North of Milaca) TH 27 (Onamia) Secondary Development Nodes CSAH 13 (North of Princeton) CSAH 12 (North of Princeton) CSAH 36 (South of Milaca) CSAH 9 (North of Milaca) CSAH 16 (South Intersection on TH 169 – North of Milaca) 330 th St. (South of Onamia)										
Upgrade to 4-lane expressway between TH 27 (Onamia) and TH 18 (Garrison) (growth areas 13-16)	✓			✓		✓	✓	✓	✓	✓



Table D-2: IRC Evaluation Criteria

<p>Safety Resolves significant safety problem Contributes to overall corridor safety improvement</p> <p>Eliminates/lessens specific modal conflicts</p> <p>Local Connectivity Improves local vehicular flow and/or lessens delay</p> <p>Separates local from through traffic Improves bike/ped options to cross corridor</p> <p>Cultural and Environmental Effects Low potential for impacts Moderate or isolated potential for impacts Significant potential for impacts</p> <p>Fosters protection/preservation of resources Likely to require EA Likely to require EIS</p> <p>Signal Risk Eliminates signal Lessens signal risk Interim signal with phase out plan</p> <p>Speed Performance Essential to achievement of target Supports achievement or maintenance of target Necessary for vision that exceeds target</p> <p>Socio-Economic Impacts Residential relocations Commercial relocations Farmland loss</p>	<p>Environmental Justice Impacts Creates development opportunities Loss of tax base</p> <p>Access Eliminates or consolidates public access Eliminates or consolidates commercial access Eliminates or consolidates residential access</p> <p>Local Support Commitment of local \$ Resolution to support project or plan Comp plan modification</p> <p>Frontage roads Ordinance/Map</p> <p>Benefit-Cost Ratio B/C > 1.0 B/C >0.5 but < 1.0 B/C <0.5</p> <p>Right of Way No ROW required Some ROW required Significant ROW required</p> <p>Deliverability Local agreement Design, EA/EIS complete Funds programmed/available</p>
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Table D-3: Project Prioritization Factors

Prioritization Factor	Significance	Application approach
Deliverability	Are all required studies and design steps completed? Are all required studies and design scheduled to be completed? Will project require significant unprogrammed study? Is funding programmed (either for necessary study or for construction)?	4 tiers: immediate near-term mid-term long-term
Continuity	Spot improvement or part of a program of continuous extension of upgrades? Will project disrupt design-type continuity?	Priority to continuity of approach except where necessary as safety solution
Equity	Intra- and inter-corridor equity considerations	Strive for consensus on priorities as well as balance
Multi-corridor benefit	Will project result in discernible benefit to other IRCs?	Higher priority to projects that have substantial multi-corridor benefits
Opportunity costs/urgency	How critical is near-term implementation? – especially to attainment/maintenance of speed or safety targets Will delay result in disproportionate cost increase?	High priority for urgent safety solutions Medium priority to projects that prevent dramatic degradation of speed performance Preference to projects that result in significant cost savings attributable to speedy action, e.g., ROW acquisition in advance of zoning change or development
Life cycle design	Interim measures planned as part of long-term solution Value in solutions that are designed with flexibility to meet identified as well as future needs	Interim solutions must include phase-out Preference to projects that retain greater flexibility to meet future (>2025) needs
Local Support	Local agreement with approach Local political will Local \$ Local use of official controls in support of project Local development of ancillary supporting systems	Do not pass Go criterion Extra credit Local cost share identified and accepted In place where needed for project In place or in CIPs
B/C	Benefits should out-weigh costs	Quantitative eval. must show positive values (>0.5) Also consider qualitative re local improvements, etc.



Length/Width/Depth (LWD) Cost Estimating Assumptions

LWD Methodology was used to develop cost estimates of proposed improvement alternatives for the TH 101 – TH 169 Corridor Management Plan. This section documents the design criteria and cost multipliers used for analysis of potential improvements along the TH 101-169 corridor, from Rogers to Onamia. Please note that only capital (construction) costs were estimated. Engineering design and project development/delivery costs will be estimated by Mn/DOT’s Project Management Unit.

Length

Length was referenced by stationing along the corridor given by the Mn/DOT Statewide Listing of Intersecting Features on Trunk Highways.

Width

Trunk Highway	
Left shoulder	10 ft (6-lane) 4 ft (4-lane)
Right shoulder	10 ft
Lane	12 ft
Ramps	
Urban Ramp	16 ft
Rural Ramp	26 ft
Urban Loop	18 ft
Rural Loop	26 ft
Cross-Street	
Left shoulder	4 ft
Right shoulder	10 ft
Lane	12 ft
Frontage Road	
Lane	12 ft
Shoulders	8 ft

Depth

Trunk Highway	Depth	
Mainline	0.917 ft	(11 in)
Shoulder	0.583 ft	(7 in)
Ramps		
Mainline	0.75	(9 in)
Crossroad		
Mainline	0.75 ft	(9 in)
Shoulder	0.583	(7 in)
Frontage Road		
Mainline	0.667	(8 in)

***Only need to take in account a new shoulder when widening the lanes. Otherwise will assume that placement of new interchanges and other projects do not affect the mainline.*

Cost Multipliers

FROM**	TO**	LWD MULTIPLIER (Used for analysis)
2 LANE HIGHWAY (RURAL)	4 LANE (RURAL)	\$60,000
4 LANE EXPRESSWAY (URBAN)	4 LANE FREEWAY (URBAN)	\$85,000
	6 LANE FREEWAY (URBAN)	\$100,000
4 LANE EXPRESSWAY (RURAL)	4 LANE FREEWAY (RURAL)	\$80,000
	4 LANE FREEWAY (URBAN)	\$85,000
4 LANE FREEWAY (URBAN)	6 LANE FREEWAY (URBAN)	\$70,000
EXISTING INTERCHANGE (URBAN)	RECONSTRUCTED. INTERCHANGE (URBAN)	\$75,000
EXISTING INTERCHANGE (RURAL)	RECONSTRUCTED INTERCHANGE (RURAL)	\$75,000
NO INTERCHANGE (FREEWAY)	NEW INTERCHANGE (FREEWAY)	\$70,000
NO GRADE SEP. (FREEWAY)	NEW GRADE SEP. (FREEWAY)	\$70,000

For the purposes of this plan, the TH 101-TH 169 corridor from Rogers through Elk River is considered “urban”, while the remainder of the corridor, north of Elk River, is “rural”.



Suggested Unit Costs for Elements to be Added to Roadway Portion of Estimate

Element	Cost
Traffic Signals (at interchanges):	\$200,000 per intersection
Traffic Incident/Management Systems:	Four-lane - \$225,000 per mile Six/Eight-lane - \$275,000 per mile
Enhanced Pavement Design (and stainless steel clad dowels)	5% of 25% of roadway costs = 0.0125
Right of Way:	20% of construction cost
Structures:	Highway Bridges = \$95/sq ft Pedestrian Bridges = \$125/sq ft Bridge Removal Cost = \$6-10/sq ft Widen Freeway Bridge = \$110/sq ft Widen River Bridge = \$125/sq ft Lengthen Railroad Bridge = \$12,000 / ln ft. (source: Manjula Louis, Mn/DOT Office of Bridges and Structures; 651-747-2156)
Engineering Design and Project Development/Delivery:	These costs will be evaluated by the Project Management Unit



Cost Assumptions

Closing of Access Assumptions	<p>Rebuild of Shoulder</p> <p>Length = 60'</p> <p>Width = 10' (right shoulder) 4' (left shoulder 4-lane) 10' (left shoulder 6-lane)</p> <p>Depth = 0.583'</p>
	<p>Cul-de-sac Assumptions</p> <p>Length = 100'</p> <p>Width = 24' mainline 4' shoulders (rural) 2' shoulders (urban)</p>
Bridge	<p>Width = 8 lanes + shoulder = $8 \times 12' + 2 \times 8' = 112'$</p> <p>Length = 200' (Service Interchanges and Overpasses)</p> <p>Square Foot = 22,400 sq. ft.</p>
Cross-Road Reconstruct at Interchange/Overpass	<p>Length = 1800' (900' on each side of structure based on change in height of 23' at 4% grade at 50 mph)</p>
Frontage Roads	<p>Only measuring new frontage roads</p> <p>Cost Multiplier = New Interchange (\$70,000)</p> <p>Length = Measured from I-94 to 201st Ave from Alternative Maps. 201st Ave and north estimated as the length of the mainline section.</p>
Mille Lacs County Frontage Roads	<p>Estimate frontage road on one side of the road the length of the corridor</p>



Table D-4: Highway Improvement Project Cost Overview

Projects	Category I	Category II	Category III
Project #1 Rogers (growth area 1) – Improved and new interchanges from I-94 to CSAH 144		\$66 million (4-lane freeway conversion)	Additional \$15 million (Upgrade to 6-lane)
Project #2 St. Michael (growth area 2) – New interchange at CSAH 36		\$16 million (4-lane freeway conversion)	Additional \$4 million (Upgrade to 6-lane)
Project #3 Otsego A (growth area 2) – New interchange at CSAH 37; overpass at CSAH 42		\$17 million (4-lane freeway conversion)	Additional \$6 million (Upgrade to 6-lane)
Project #4 Otsego B (growth area 2) – New interchange at CSAH 39		\$11 million (4-lane freeway conversion)	Additional \$3 million (Upgrade to 6-lane)
Project #5 Elk River A (growth area 3) – Improved interchange at TH 10		\$29 million (4-lane freeway conversion)	Additional \$5 million (Upgrade to 6-lane)
Project #6 Elk River B (growth area 3) – New interchanges at Main Street; overpass at School Street		\$13 million (4-lane freeway conversion)	Additional \$3 million (Upgrade to 6-lane)
Project #7 Elk River C (growth area 3) – New interchange (possible split diamond concept) at Jackson/197 th , south of future CSAH 33 interchange	\$12 million (CR 33 interchange budgeted cost)	\$16 million (4-lane freeway conversion)	Additional \$6 million (Upgrade to 6-lane)
Project #8 Elk River D (growth area 4) – New interchange at 221 st Avenue			\$12 million (4-lane freeway conversion)
Project #9 South of Zimmerman (growth area 5) – New interchange at CR 36/CR 45			\$15 million (4-lane freeway conversion)
Project #10 Zimmerman (growth area 6) – New interchange at CSAH 4		\$21 million (4-lane freeway conversion)	
Project #11 North of Zimmerman (growth area 7) – New interchange at 277 th Avenue			\$17 million (4-lane freeway conversion)
Project #12 South of Princeton A (growth area 8) – Future CSAH 9 interchange	\$4 million (CSAH 9 interchange let cost)		\$7 million (4-lane freeway conversion)
Project #13 South of Princeton B (growth area 8) – New interchange at CR 38			\$9 million (4-lane freeway conversion)
Princeton Bypass			
Six construction projects are located between Princeton and Onamia. This involves the consolidation of access points toward primary and secondary “development nodes” (See Detailed Project Descriptions for more detail)	\$1 million (CSAH 11 Safety Improvement budgeted cost)		\$76 million
Upgrade to 4-lane expressway between TH 27 (Onamia) and TH 18 (Garrison)	**		
Subtotal	\$ 17 million	\$189 million	\$178 million

** \$48 million is the budgeted amount for this project, however, actual estimates for this project range from \$50 to \$100 million. It is not possible to provide an accurate estimate for this project at this time given the sensitive nature of the area and the issues associated with the project.

Category I Currently Programmed
 Category II Strategic
 Category III Long-Term Vision

(Already in STIP or Work & Studies Plan)
 (Improvement needed to reach IRC performance targets)
 (Improvements needed to achieve draft Access Spacing Guideline and/or ultimate corridor vision)



Detailed Project Descriptions

Project #1: Improved and new interchanges from I-94 to CSAH 144

Project

Length: 1.8 miles

Description:

- I-94 system interchange
- TH 101 mainline realignment
- Mainline expansion to 6-lanes
- CSAH 144 interchange
- Reconstruct cross streets: CSAH 144 and S. Diamond Lake
- Reconstruct local TH 101
- Frontage road (1.7 miles)
- 9 traffic signals (at service interchanges)

Phasing

and Cost: Phasing would be complex; not broken down

- Total Cost: \$74 million

Project #2: New interchange at CSAH 36

Project

Length: 1.6 miles

Description:

- CSAH 36 service interchange
- Reconstruct cross street: CSAH 36
- Consolidate two access points
- Mainline expansion to 6-lanes
- Frontage road and Crow River Bridge (2.1 miles)
- 2 traffic signals at service interchange

Phasing

and Cost:

Phase A – CSAH 36 interchange with signals: \$ 6.4 million

Phase B – Frontage roads including 1 bridge over Crow River: \$ 6.5 million

Phase C – Consolidation of access points: \$ 44,000

Phase D – Expansion of mainline to 6-lanes: \$ 3.9 million

Right-of-way for complete project: \$3.4 million

Total Cost = \$ 20.2 million



Project #3: New interchange at CSAH 37; overpass at CSAH 42

Project Length: 2.0 miles

Description:

- CSAH 37 service interchange
- CSAH 42 overpass
- Reconstruct cross streets: CSAH 37 and CSAH 42
- Mainline expansion to 6-lanes
- Frontage road (2.5 miles)
- 2 traffic signals at service interchange

Phasing and Cost:

Phase A – CSAH 37 interchange with signals: \$ 6.1 million

Phase B – CSAH 42 overpass: \$ 2.7 million

Phase C – Frontage roads: \$ 5.4 million

Phase D – Expansion of mainline to 6-lanes: \$ 5.0 million

Right-of-way for complete project: \$3.9 million

Total Cost = \$ 23.1 million

Project #4: New interchange at CSAH 39

Project Length: 1.1 miles

Description:

- CSAH 39 service interchange
- Reconstruct cross street: CSAH 39
- Mainline expansion to 6-lanes
- Frontage Road (1.6 miles)
- 2 traffic signals

Phasing and Cost:

Phase A – CSAH 39 interchange with signals: \$ 5.9 million

Phase B – Frontage roads: \$ 3.3 million

Phase C – Expansion of mainline to 6-lanes: \$ 2.7 million

Right-of-way for complete project: \$ 2.4 million

Total Cost = \$ 14.3 million



Project #5: Improved interchange at TH 10**Project****Length:** 0.8 miles**Description:**

- TH 10 system interchange
- Railroad bridge length expansion
- Main Street interchange
- Mainline expansion to 6-lanes

Phasing**and Cost:**

Phasing would be complex; not broken down

Total Cost = \$33.7 million

Project #6: New interchanges at Main Street; overpass at School Street**Project****Length:** 1.0 mile**Description:**

- Main Street interchange
- Overpass at School Street
- Reconstruct cross streets: Main St. and School St.
- Consolidate one access point
- Mainline expansion to 6-lanes
- Frontage road (0.7 miles)
- 2 traffic signals at service interchange

Phasing**and Cost:***Phase A*– Main Street interchange with signals: \$ 5.3 million*Phase B*– School Street overpass: \$ 3.9 million*Phase C*– Frontage roads: \$ 1.6 million*Phase D*– Consolidation of access point: \$ 38,000*Phase E*– Expansion of mainline to 6-lanes: \$ 2.4 million*Right-of-way for complete project.* \$ 2.6 million

Total Cost = \$ 15.8 million



Project #7: New interchange (possible split diamond concept) at Jackson/197th
(south of future CSAH 33 interchange)

Project Length: 2.4 miles

Description:

- Jackson/197th split interchange
- Reconstruct cross streets: Jackson and 197th St.
- Close five public accesses
- Mainline expansion to 6-lanes
- Frontage road (1.7 miles)
- 4 traffic signals at service interchange

Phasing and Cost:

Phase A – Jackson/197th split interchange with signals: \$ 10.0 million
Phase B – Frontage roads: \$ 3.7 million
Phase C – Consolidation of access point: \$ 38,000
Phase D – Expansion of mainline to 6-lanes: \$ 5.9 million
Right-of-way for complete project: \$ 3.9 million
 Total Cost = \$ 23.5 million

Project #8: New interchange at 221st Avenue

Project Length: 1.9 miles

Description:

- 221st Avenue service interchange
- Reconstruct cross street: 221st St.
- Consolidate six access points
- Frontage road (1.9 miles)

Phasing and Cost:

Phase A – 221st Avenue interchange: \$ 5.7 million
Phase B – Frontage roads: \$ 8.3 million
Phase C – Consolidation of access point: \$ 195,000
Right-of-way for complete project: \$ 2.0 million
 Total Cost = \$ 16.2 million



Project #9: New interchange at CR 36/CR 45

Project Length: 3.1 miles

Description:

- CR 45 or CR 36 service interchange
- Reconstruct cross streets: CR45 and CR36
- Consolidate 10 access points
- Frontage road (3.1 miles)

Phasing and Cost:

Phase A – CR 45 or CR 36 service interchange: \$ 5.6 million

Phase B – Frontage roads: \$ 13.3 million

Phase C – Consolidation of access point: \$ 225,000

Right-of-way for complete project: \$ 3.8 million

Total Cost = \$22.9 million

Project #10: New interchange at CSAH 4

Project Length: 2.6 miles

Description:

- CSAH 4 service interchange
- Reconstruct cross street: CSAH 4
- Consolidate 5 access points
- Frontage road mainline (2.6 miles)

Phasing and Cost:

Phase A – CSAH 4 service interchange: \$ 5.8 million

Phase B – Frontage roads: \$ 11.0 million

Phase C – Consolidation of access point: \$ 388,000

Right-of-way for complete project: \$ 3.4 million

Total Cost = \$20.5 million



Project #11: New interchange at 277th Avenue**Project****Length:** 2.0 miles**Description:**

- 277th Avenue service interchange
- Reconstruct cross street: 277th Ave.
- Consolidate 10 access points
- Frontage road (2.0 miles)

Phasing**and Cost:***Phase A* – 277th Avenue service interchange: \$ 5.3 million*Phase B* – Frontage roads: \$ 8.5 million*Phase C* – Consolidation of access point: \$ 260,000*Right-of-way for complete project:* \$ 2.8 million

Total Cost = \$ 16.8 million

**Project #12: Consolidation of access points between 283rd Ave. to 303rd Ave.
(Location of planned CSAH 9)****Project****Length:** 2.5 miles**Description:**

- Consolidation of 10 access points
- Frontage road (2.5 miles)

Phasing**and Cost:***Phase A* – Frontage roads: \$ 6.1 million*Phase B* – Consolidation of access point: \$ 136,000*Right-of-way for complete project:* \$ 1.2 million

Total Cost = \$ 7.4 million



Project #13: New interchange at CR 38

Project Length: 1.7 miles

Description:

- CR 38 overpass bridge
- Reconstruct cross street: CR 38
- Consolidation of 10 access points
- Frontage road (1.7 miles)

Phasing and Cost:

Phase A – CR 38 overpass: \$ 3.9 million

Phase B – Frontage roads: \$ 3.6 million

Phase C – Consolidation of access point: \$ 107,000

Right-of-way for complete project: \$ 1.5 million

Total Cost = \$ 9.1 million

Project: Six construction projects are located from the midpoint between CSAH 29 and T-269 to TH 27. Each involves the consolidation of access points toward primary and secondary “development nodes.” While these improvements are not necessary to meet the IRC speed performance targets, they are necessary to meet the draft Mn/DOT Access Spacing Guidelines. These costs include frontage roads.

Project Length: 37.4 miles

Description:

- Consolidate access and build frontage road from midpoint between CSAH 29 and T-269 to T-197 (CSAH 13, CSAH 12 and CSAH 8 development nodes): \$ 17 million
- Consolidate access and build frontage road from T-197 to TH 23 (CSAH 36 development node): \$ 8 million
- Consolidate access and build frontage road from TH 23 to 200th Street (CSAH 11 development node): \$ 13 million
- Consolidate access and build frontage road from 200th Street to 250th Street (CSAH 16 (north and south intersections) and CSAH 9 development nodes): \$ 11 million
- Consolidate access and build frontage road from 250th Street to 310th Street (CSAH 19, CSAH 21 development nodes): \$ 14 million
- Consolidate access and build frontage road from 310th Street to TH 27 (CSAH 19 and CSAH 22 development nodes): \$ 13 million

Project: **Current EIS from TH 27 in Onamia to TH 18 in Garrison**

Project Length: 21.1 miles

Description: Upgrade to 4-lane expressway between TH 27 (Onamia) and TH 18 (Garrison)



Table D-5: Category II Highway Improvement Project Costs and Project Benefit Cost Analyses Results

	Project #1	Project #2	Project #3	Project #4	Project #5	Project #6	Project #7	PROJECT TOTALS
	I-94 to 147th Ave.	147th Ave. to CSAH 36-37	CSAH 36-37 to CSAH 42-39	CSAH 42/39- CSAH 39 to Mississippi River Bridge	TH 10 Interchange	New interchange at Main Street; overpass at School Street	School & Jackson St. to CSAH 21	
4-Lane Alternative Length (in miles)	1.8	1.6	2	1.1	0.8	1	2.4	10.7
Project Cost	\$65,815,342	\$15,576,743	\$17,126,904	\$11,106,730	\$28,802,003	\$12,961,278	\$16,403,396	\$ 167,792,396
Total Present Value Crash Benefits	\$19,142,627	\$23,708,171	\$21,407,004	\$11,773,852	\$4,901,972	\$12,358,614	\$8,850,862	\$ 102,143,103
Total Present Value Operating Benefits	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$ -
Total Present Value of Peak Time Benefits	\$176,084,974	\$156,519,977	\$58,511,749	\$32,181,462	\$42,830,869	\$53,538,586	\$128,492,607	\$ 648,160,225
Total Present Value of Non-Peak Time Benefits	\$69,776,565	\$62,023,613	\$31,770,780	\$17,473,929	\$21,938,355	\$27,422,944	\$65,815,065	\$ 296,221,251
Present Value of Remaining Capital Value	\$15,560,647	\$3,096,156	\$3,178,622	\$2,032,779	\$7,574,812	\$2,735,859	\$3,230,551	\$ 37,409,426
B/C Ratio	5.27	19.41	8.01	6.77	3.28	9.13	15.42	

Total Present Value of All Project Benefits	\$1,046,524,579
Total Present Value of All Project Costs minus Total Remaining Capital Value	\$130,382,970
Total Benefit-Cost Ratio for All Projects	8.03

Table D-6: Category II and III Highway Improvement Project Costs and Project Benefit Cost Analyses Results

	Project #1	Project #2	Project #3	Project #4	Project #5	Project #6	Project #7	Project #8	Project #9	Project #10	Project #11	Project #12	Project #13	PROJECT TOTALS
	I-94 to 147th Ave.	147th Ave. to CSAH 36-37	CSAH 36-37 to CSAH 42-39	CSAH 42/39- CSAH 39 to Mississippi River Bridge	TH 10 Interchange	New interchange at Main Street; overpass at School Street	School & Jackson St. to CSAH 21	CSAH 21 to 225th Ave.	225th Ave. to 247th Ave.	247th St. to CSAH 4 and T-123	CSAH 4 & T-123 and 283rd Ave.	283rd Ave. to 303rd Ave.	303rd Ave. to CSAH 2 and CSAH 29	
4-Lane Alternative Length (in miles)	1.8	1.6	2	1.1	0.8	1	2.4	1.9	3.1	2.6	2	2.5	1.7	24.5
Project Cost	\$80,472,434	\$20,278,785	\$23,088,722	\$14,387,813	\$33,728,983	\$15,884,742	\$23,536,647	\$11,981,402	\$14,935,304	\$20,690,482	\$16,870,394	\$7,427,584	\$9,199,987	\$ 292,483,279
Total Present Value Crash Benefits	\$19,142,627	\$23,708,171	\$21,407,004	\$11,773,852	\$4,901,972	\$12,358,614	\$8,850,862	\$6,512,951	\$10,626,393	\$8,912,459	\$6,855,738	\$8,569,672	\$5,827,377	\$ 149,447,693
Total Present Value Operating Benefits	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$ -
Total Present Value of Peak Time Benefits	\$181,292,869	\$161,149,217	\$59,176,298	\$32,546,964	\$43,290,075	\$54,112,594	\$129,870,226	\$1,275,047	\$66,487	\$24,078,625	\$83,088	\$103,860	\$70,625	\$ 687,115,976
Total Present Value of Non-Peak Time Benefits	\$69,776,565	\$62,023,613	\$31,770,780	\$17,473,929	\$21,938,355	\$27,422,944	\$65,815,065	\$0	\$0	\$13,730,751	\$0	\$0	\$0	\$ 309,952,001
Present Value of Remaining Capital Value	\$19,082,627	\$3,771,921	\$4,035,439	\$2,504,328	\$8,977,731	\$3,156,012	\$4,255,724	\$2,158,485	\$2,583,012	\$3,410,132	\$2,861,118	\$1,067,473	\$1,758,747	\$ 59,622,750
B/C Ratio	4.40	14.96	5.90	5.20	2.83	7.38	10.61	0.79	0.89	2.70	0.50	1.36	0.79	

Total Present Value of All Project Benefits	\$1,146,515,670
Total Present Value of All Project Costs minus Total Remaining Capital Value	\$232,860,529
Total Benefit-Cost Ratio for All Projects	4.92