CONNECTIONS

# 2030

Statewide
Long-Range
Transportation
Plan

Wisconsin Department of Transportation

**Wisconsin Department of Transportation**
www.dot.wisconsin.gov

Jim Doyle
Governor

Frank J. Busalacchi
Secretary

**Office of the Secretary**
4802 Sheboygan Ave.
P O Box 7910
Madison, WI 53707-7910

Telephone: 608-266-1113
FAX: 608-266-9912
E-mail: sec.exec@dot.state.wi.us

October 2009

Dear Transportation Partner:

I am pleased to announce that the Wisconsin Department of Transportation has adopted *Connections 2030*, the state's long-range multimodal transportation plan. *Connections 2030* identifies ways to make all transportation modes work better as an integrated transportation system. The plan establishes policies to help transportation decision-makers when evaluating programs and projects.

*Connections 2030* was developed to help Wisconsin maintain and enhance its transportation system to meet the needs of the 21st century and fulfill the state's transportation vision to provide:

> *An integrated multimodal transportation system that maximizes the safe and efficient movement of people and products through the state, enhancing economic productivity and the quality of Wisconsin's communities while minimizing impacts to the natural environment.*

I want to personally thank you for your participation in the planning process. Hundreds of Wisconsin residents came to the public information meetings and public hearings held around the state to offer their ideas about the future direction of transportation in Wisconsin. Your participation and input ensured that *Connections 2030* reflects the need and desires of Wisconsin residents.

Sincerely,

Frank J. Busalacchi

Frank J. Busalacchi
Secretary

# APPROVAL

## System-Plan Environmental Evaluation (SEE)

## for

## *Connections 2030*

Submitted by the

State of Wisconsin, Department of Transportation

For the Wisconsin Department of Transportation 10/6/09 Date

Comments on *Connections 2030* were accepted from July 24, 2009 until August 31, 2009.

For additional information about this document, contact:

Sandy Beaupré, Director
Bureau of Planning & Economic Development
Wisconsin Department of Transportation
P.O. Box 7913, Madison, Wisconsin, 53707
(608) 266-7575

Eugene Johnson, Director
Bureau of Equity and Environmental Services
Wisconsin Department of Transportation
P.O. Box 7913, Madison, Wisconsin, 53707
(608) 267-9527

# ACKNOWLEDGEMENTS

*Connections 2030* was prepared by the Wisconsin Department of Transportation, Division of Transportation Investment Management, Bureau of Planning & Economic Development. The final plan was developed in collaboration with the other divisions within WisDOT.

WisDOT extends its appreciation to the many citizens of Wisconsin who attended public meetings or submitted comments during the development of *Connections 2030*. In addition, WisDOT also thanks:

» Federal and state environmental resource agencies and the Wisconsin tribal governments for participating in the environmental consultation process.

» Wisconsin metropolitan planning organizations and Wisconsin regional planning commissions for working with WisDOT Bureau of Planning & Economic Development staff in reviewing the corridor maps.

# TABLE OF CONTENTS


## CHAPTER 1: Introduction

**Understanding and using the plan ..... 1-2**
The plan's theme chapters ..... 1-2
The plan's 37 policies ..... 1-3
**Plan development process ..... 1-4**
SAFETEA-LU ..... 1-4
Wisconsin's comprehensive planning legislation ..... 1-4
Trends and challenges ..... 1-5
Public involvement ..... 1-5
**Linking plan to project-level activities ..... 1-5**

## CHAPTER 2: Profile of Wisconsin's Transportation System

**Airports ..... 2-1**
**Highway and local road system ..... 2-2**
**Transit ..... 2-3**
**Fixed-guideway transit ..... 2-5**
**Freight rail ..... 2-6**
**Intercity passenger rail ..... 2-7**
**Intercity bus ..... 2-9**
**Ports and harbors ..... 2-10**
**Ferries ..... 2-11**
**Bicycle ..... 2-12**
**Pedestrian ..... 2-12**

### CHAPTER 2 FIGURES

Figure 2-3: Amtrak's Hiawatha Service ridership ..... 2-7

### CHAPTER 2 MAPS

Map 2-1: State Airport System Plan airports by airport classification ..... 2-1
Map 2-2: State trunk highway system ..... 2-2
Map 2-3: Wisconsin's transit systems ..... 2-4
Map 2-4: Wisconsin Metra users by origin ..... 2-5
Map 2-5: Wisconsin railroads by operator ..... 2-6
Map 2-6: Wisconsin Amtrak rail routes and ridership ..... 2-8
Map 2-7: Current intercity bus network ..... 2-10
Map 2-8: Ferries in Wisconsin ..... 2-11

# CHAPTER 3: Trends

**Population ..... 3-1**
Summary of population trends ..... 3-1
Population growth ..... 3-1
Age demographic changes ..... 3-3
Minority population changes ..... 3-3
Household size ..... 3-4
**Travel patterns ..... 3-4**
Summary of travel patterns ..... 3-4
Commuting patterns ..... 3-5
Drivers 65 years and older ..... 3-6
**Modal choice ..... 3-6**
Summary of modal share trends ..... 3-6
Transit ..... 3-7
Intercity bus ..... 3-7
Intercity passenger rail ..... 3-8
Bicycle and pedestrian travel ..... 3-9
Aviation ..... 3-9
**Transportation safety ..... 3-10**
Summary of trends ..... 3-10
**Economic activity ..... 3-10**
Overall economic conditions ..... 3-13
Regional conditions ..... 3-13
Freight shipping patterns ..... 3-13
Wisconsin's top trading partners ..... 3-13
Overhead freight ..... 3-16
Freight modal distribution ..... 3-16
Labor force factors ..... 3-16
**Regional travel patterns and economies ..... 3-17**
'Megaregions' ..... 3-18
**Energy and environment ..... 3-19**
Summary of energy trends ..... 3-19
Fuel prices ..... 3-20
Transportation alternative fuel use ..... 3-21
Private and public sector response to rising fuel prices ..... 3-22
Environment ..... 3-23
**Trends summary and implications for Wisconsin's transportation system ..... 3-28**
Population ..... 3-28
Travel patterns ..... 3-28
Modal share ..... 3-28
Transportation safety ..... 3-28
Economic activity ..... 3-28
Energy and the environment ..... 3-28

**CHAPTER 3:** Trends, *continued*

### CHAPTER 3 FIGURES

Figure 3-2: Minority populations increases in Midwestern states (1980-2000) ..... 3-4
Figure 3-3: Greyhound bus passenger trip purpose ..... 3-8
Figure 3-5: Wisconsin fatality rate vs. U.S. fatality rate (1992-2006) ..... 3-11
Figure 3-6: Wisconsin fatality rate vs. vehicle miles traveled (1992-2006) ..... 3-11
Figure 3-8: Wisconsin motor gasoline and diesel fuel retail prices, 1970-2007 ..... 3-20
Figure 3-7: Wisconsin energy use (2007)(trillions of Btu and percent of total) ..... 3-20
Figure 3-9: World oil prices in three future scenarios, 1980-2030 (2005 dollars/barrel) ..... 3-21
Figure 3-10: Wisconsin transportation energy use by type of fuel, 1970-2007 (trillions of Btu) ..... 3-22

### CHAPTER 3 MAPS

Map 3-1: Wisconsin total population growth (2000 – 2030) ..... 3-2
Map 3-2: Wisconsin projected increases for population 65 years and older (2000- 2030) ..... 3-6
Map 3-3: Projected 2020 freight rail density ..... 3-16
Map 3-4: Proximity of regional economies to Wisconsin ..... 3-17
Map 3-5: Ten U.S. emerging megaregions ..... 3-19
Map 3-6: Change in total number of properties between 1991 and 2001 (commercial, manufacturing, residential) ..... 3-26

### CHAPTER 3 TABLES

Table 3-1: Wisconsin population summary (in thousands) ..... 3-3
Table 3-2: Means of transportation to work in Wisconsin, 2000 (percent) ..... 3-5
Table 3-3: Mode use by trip purpose in Wisconsin, 2001 (percent) ..... 3-7
Table 3-4: Wisconsin industries with largest percentage output growth, 2005-2030 ($ billions, 1992 dollars) ..... 3-12
Table 3-5: Wisconsin industries with largest projected output, 2030 ($ billions, 1992 dollars) ..... 3-12
Table 3-6: Top 10 largest employment sectors, 2005 and 2030 ..... 3-12
Table 3-7: Forecast economic growth, 2000-2015 ..... 3-13
Table 3-8: Top Wisconsin trading partners, 2002 and 2035 ..... 3-13
Table 3-9: Top destinations of Wisconsin international exports (millions of dollars) ..... 3-14
Table 3-10: Top Wisconsin international export products (millions of dollars) ..... 3-14
Table 3-11: Wisconsin freight shipments by weight, 2002 and 2035 (millions of tons) ..... 3-15
Table 3-12: Wisconsin freight shipments by value, 2002 and 2035 (millions of dollars) ..... 3-15

## CHAPTER 4: Public Involvement

**WisDOT's process ..... 4-1**
Phase 1: Early planning ..... 4-1
Phase 2: Pre-draft plan ..... 4-3
Phase 3: Draft plan ..... 4-5
Phase 4: Final plan ..... 4-12
Changes to Final Draft ..... 4-14

### CHAPTER 4 MAPS

Map 4-1: Draft *Connections 2030* public information meeting dates, locations and attendance ..... 4-8

**CHAPTER 4:** Public Involvement, *continued*

**CHAPTER 4 TABLES**

Table 4-1: Newspapers in which display ads for the draft Connections 2030 public information meetings were published ..... 4-6
Table 4-2: Online calendar posting of public information meetings ..... 4-6
Table 4-3: Targeted outreach meetings held for the draft Connections 2030 ..... 4-7
Table 4-4: Stakeholder presentations provided for the draft Connections 2030 ..... 4-9
Table 4-5: Public hearings held for the final draft Connections 2030 ..... 4-13

## CHAPTER 5: Preserve and Maintain Wisconsin's Transportation System

**Challenges ..... 5-2**
Challenges with funding and increasing costs ..... 5-3
Reduced availability of transportation options ..... 5-3
**Activities ..... 5-4**
▶ ***Implement cost-effective maintenance activities on Wisconsin's state trunk highway system infrastructure ..... 5-5***
Background ..... 5-5
Initiate a formal, ongoing preventive maintenance process ..... 5-5
Promote and implement sound environmental practices for all highway maintenance activities ..... 5-8
Implement proven maintenance management practices ..... 5-8
▶ ***Preserve Wisconsin's state trunk highway system infrastructure ..... 5-11***
Background ..... 5-11
Continue using a performance-based approach to identify preservation needs on the state trunk highway system, including development of a bridge asset management system ..... 5-15
Refine and expand a state-of-the-art process to prioritize needs and identify cost-effective state trunk highway construction alternatives ..... 5-18
Pursue sufficient funding to address state trunk highway system preservation needs ..... 5-19
▶ ***Preserve Wisconsin's airport system infrastructure ..... 5-21***
Background ..... 5-21
Continue to implement Airport Improvement Program preservation projects ..... 5-23
Update the State Airport System Plan to identify long-term needs ..... 5-23

**CHAPTER 5 FIGURE**

Figure 5-6: Following the pavement preservation steps can lead to a 50- to 60-year roadway life before complete replacement is needed ..... 5-16

**CHAPTER 5 MAP**

Map 5-1: The updated Corridors 2030 routes include two new Backbone routes and eight new Connector routes ..... 5-14

**CHAPTER 5 TABLE**

Table 5-1: Continuing department minimization and mitigation practices ..... 5-8

## CHAPTER 6: Promote Transportation Safety

**Challenges** ..... **6-1**
**Opportunities** ..... **6-2**
**Wisconsin's role in transportation safety** ..... **6-2**
▶ ***Modify driver behavior*** ..... ***6-5***
Background ..... 6-5
Address safety in transportation planning and programming activities ..... 6-5
Continue to use and improve safety design and planning tools ..... 6-6
Continue to refine the collection, analysis and application of data to improve planning and design for future transportation projects ..... 6-6
Continue to address the issues identified in the current *Strategic Highway Safety Plan* and future updates of the plan ..... 6-6
Use Highway Safety Improvement Program funds to improve safety across the state ..... 6-7
Incorporate Safety Conscious Planning into all activities ..... 6-7
Educate the public about traffic safety ..... 6-7
Enforce and strengthen traffic laws ..... 6-9
▶ ***Improve standards for infrastructure*** ..... ***6-11***
Engineer infrastructure to be safe ..... 6-11
Maintain infrastructure for safe operation and use ..... 6-13
▶ ***Improve emergency response*** ..... ***6-15***
Improve emergency/incident response ..... 6-15
▶ ***Support innovative, comprehensive safety programs*** ..... ***6-17***
Support innovative, comprehensive safety programs ..... 6-17

### CHAPTER 6 FIGURES

Figure 6-2: Number of crashes on all Wisconsin state roads ..... 6-3
Figure 6-3: Number of fatalities on all Wisconsin state roads ..... 6-3

## CHAPTER 7: Foster Wisconsin's Economic Growth

**Challenges** ..... **7-2**
**Opportunities: Wisconsin's role in fostering economic growth** ..... **7-5**
***Preserve and Maintain Wisconsin's Transportation System*** (Chapter 5) ..... 7-6
***Promote Transportation Safety*** (Chapter 6) and ***Promote Transportation Security*** (Chapter 11) ..... 7-6
***Provide Mobility and Transportation Choice*** (Chapter 8) ..... 7-6
***Promote Transportation Efficiencies*** (Chapter 9) ..... 7-6
***Preserve Wisconsin's Quality of Life*** (Chapter 10) ..... 7-6
▶ ***Partner with stakeholders to ensure that freight movements are safe and reliable and provide positive environmental and community impacts*** ..... ***7-7***
Background ..... 7-7
Establish a freight focus within WisDOT ..... 7-7
Assume the role of facilitator and advocate for freight between public and private interests ..... 7-9
Collect and analyze data to support freight planning ..... 7-9
Conduct an all-mode freight study ..... 7-9
▶ ***Improve airport facilities and infrastructure to create more business airplane-capable airports*** ..... ***7-11***
Background ..... 7-11
Use the Airport Improvement Program to help Wisconsin airports accommodate business airplanes ..... 7-11
Support the needed airport system infrastructure, including inclement weather capability, to enable and sustain jet aircraft and related activity ..... 7-13

**CHAPTER 7:** Foster Wisconsin's Economic Growth, *continued*


▶ ***Maintain and improve waterways critical to Wisconsin's transportation system ..... 7-15***
Analyze how the Wisconsin Airport System can best accommodate potential increased use of very light jets ..... 7-14
Background ..... 7-15
Advocate for federal funding of navigation and environmental improvements for the Upper Mississippi River-Illinois River Waterway System and for the construction of a new lock in Sault Ste. Marie..... 7-18
▶ ***Ensure that freight rail remains a viable transportation mode for Wisconsin shippers ..... 7-21***
Background ..... 7-21
Work with railroads to ensure that appropriate rail service is provided to all shippers statewide ..... 7-22
Acquire lines into public ownership, when appropriate, to preserve essential railroad service..... 7-22
Fund track and bridge upgrades for publicly owned rail corridors..... 7-23
Continue to preserve corridors for future transportation use ..... 7-24
▶ ***Provide loan assistance to Wisconsin businesses and communities ..... 7-27***
Background ..... 7-27
Transportation Economic Assistance program..... 7-27
Freight Rail Infrastructure Improvement Program ..... 7-28
▶ ***Continue and improve the performance of the Major Highway Development Program ..... 7-31***
Background ..... 7-31
Complete the currently enumerated Major projects and study approved corridors ..... 7-33
On the approved corridors for study, follow interim environmental study objectives, and when the study points to a project, enumerate for construction..... 7-33
Propose additional Major Highway Development projects and studies to maintain or improve the functioning of the highway system (the rate at which projects are studied, enumerated and constructed will depend on funding) ..... 7-33
Review and update Wisconsin Administrative Code and statute governing the Major Highway Development Program ..... 7-34
▶ ***Preserve the local road and bridge system..... 7-35***
Background ..... 7-35
Define a vision for the local road system to establish a level of investment necessary to allow it to adequately fulfill its role..... 7-36
Assist in providing asset management strategies and tools for local governments to ensure that selected system preservation improvements provide cost-effective service life extension..... 7-37
Work with local entities to enhance the ability to quantify local road infrastructure needs..... 7-38
Work with local entities to identify and address key safety issues on the local system ..... 7-39
Manage and invest in the local network as a partner with local governments ..... 7-39
▶ ***Promote Wisconsin tourism through transportation system maintenance and improvements..... 7-41***
Background ..... 7-41
Continue to maintain and provide high-quality transportation options for Wisconsin tourists ..... 7-43
Continue to maintain Wisconsin's highway rest areas..... 7-43
Continue the Rustic Roads and Scenic Byways programs ..... 7-44
Continue the Transportation Enhancements Program ..... 7-47
▶ ***Partner with consumers and businesses to increase transportation sustainability..... 7-49***
Background ..... 7-49
Track changes and analyze responses to the state's transportation energy use and costs ..... 7-52
Promote more efficient use of petroleum-based fuels and viable alternatives..... 7-53
Encourage local governments to improve vehicle efficiencies..... 7-53
Seek to adjust WisDOT's transportation revenue stream to respond to changing fuel use..... 7-54

**CHAPTER 7:** Foster Wisconsin's Economic Growth, *continued*


▶ ***Promote a diverse workforce in Wisconsin's transportation industry by building alliances and business opportunities through civil rights initiatives*** ..... ***7-55***
Background ..... 7-55
Target the distribution of information and technical assistance to businesses certified as socially and economically disadvantaged to encourage their participation in the transportation industry ..... 7-57
Building partnerships and stakeholder alliances to leverage equity goals, requirements and efforts ..... 7-59
Continue efforts to build a diverse skilled and professional transportation workforce ..... 7-61
Integrate environmental justice principles into planning and project development ..... 7-62


**CHAPTER 7 FIGURES**


Figure 7-14: Inflation-adjusted price of regular unleaded gasoline in Wisconsin over the last decade ..... 7-49
Figure 7-15: Three future scenarios for oil production prices ..... 7-50


**CHAPTER 7 MAPS**


Map 7-1: Wisconsin's major retail distribution centers are strategically located adjacent to major transportation facilities. ..... 7-3
Map 7-2: Survey shows runway that can accommodate larger airplanes is key to whether corporations will utlize an airport ..... 7-12
Map 7-3: Publicly owned rail lines as of 2006 ..... 7-24
Map 7-4: Rails-to-Trails and rail banks ..... 7-25
Map 7-5: Major Highway Development Program enumerated major projects ..... 7-32
Map 7-6: Traveler expenditures (in millions of dollars) in Wisconsin, by county, 2007 ..... 7-42


**CHAPTER 7 TABLES**


Table 7-1: WisDOT local road and bridge programs ..... 7-37
Table 7-2: Local bridge deficiencies (2001-2005) ..... 7-38
Table 7-3: Top 10 Wisconsin counties for tourism expenditures in 2007 ..... 7-43
Table 7-4: Origins of Wisconsin tourists in 2005 ..... 7-43


## CHAPTER 8: Provide Mobility and Transportation Choice


**Challenges** ..... **8-2**
**Opportunities** ..... **8-3**
▶ ***Support public, specialized and human services transit*** ..... ***8-3***
Background ..... 8-3
Challenges to providing comprehensive mobility with public transit ..... 8-4
Work to ensure the availability of adequate funding for existing transit systems ..... 8-6
Work with partners to improve transit service coordination, eliminate inefficiencies and improve transit planning ..... 8-7
Support existing and expanded urban and rural regional transit systems with new governance structures, funding sources and increased coordination ..... 8-10
▶ ***Support development of fixed-guideway transit services*** ..... ***8-13***
Background ..... 8-13
Continue state funding assistance for fixed-guideway transit studies ..... 8-14
Support the creation of new transit governing bodies – such as regional transit authorities with revenue-raising authority – to administer and fund transit systems ..... 8-14
Develop a capital and operating assistance program to implement fixed-guideway transit in major metropolitan areas ..... 8-14
Study additional fixed-guideway services in other metropolitan areas ..... 8-15

**CHAPTER 8:** Provide Mobility and Transportation Choice, *continued*


▶ ***Increase intercity travel options by improving intercity passenger rail service*** ..... ***8-17***
Background ..... 8-17
Continue to support and enhance existing passenger rail service ..... 8-21
Implement the Wisconsin component of the Midwest Regional Rail System ..... 8-21
Establish a state rail station capital assistance program ..... 8-23
▶ ***Improve intercity bus service and connections*** ..... ***8-25***
Background ..... 8-25
Support the development of a state intercity bus funding assistance pilot program (Phase 1) ..... 8-27
Implement an expanded state intercity bus funding assistance program that supports connections between metropolitan areas and feeder service to Midwest Regional Rail System stations (Phase 2) ..... 8-29
Expand state intercity bus funding assistance program to include connections with key non-metropolitan destinations (Phase 3) ..... 8-29
▶ ***Advocate for improved air service at Wisconsin airports*** ..... ***8-31***
Background ..... 8-31
Providing air service data and analysis to communities and carriers ..... 8-32
Conducting economic impact analyses of airports ..... 8-32
Supporting the continuation of federal assistance programs ..... 8-32
▶ ***Support bicycle and pedestrian facilities and plans*** ..... ***8-33***
Background ..... 8-33
Implement bicycle and pedestrian plan goals and objectives ..... 8-33
Include bicycle and pedestrian facilities on state and federally funded projects, following the federal 'Complete Streets' policy ..... 8-34
Implement identified bikeways in corridors and on bicycle plan map ..... 8-35
▶ ***Encourage transportation demand management strategies*** ..... ***8-40***
Background ..... 8-37
Establish a transportation management association grant program to support integration of transportation demand management strategies with corridor plans ..... 8-38
Assess opportunities to expand the RIDESHARE program ..... 8-39
Develop statewide standards for planning, designing and maintaining park and ride facilities ..... 8-40
▶ ***Facilitate intermodal passenger connections*** ..... ***8-41***
Background ..... 8-41
Improving coordination among transportation modes ..... 8-42
Providing funds for intermodal facilities ..... 8-43
Increase the availability of alternative modes ..... 8-44


**CHAPTER 8 FIGURE**


Figure 8-3: Amtrak's Hiawatha Service ridership ..... 8-18


**CHAPTER 8 MAPS**


Map 8-1: Wisconsin Amtrak rail routes and ridership, 2007 ..... 8-17
Map 8-2: Proposed Midwest Regional Rail System (2004 MWRRI Business Plan) ..... 8-19
Map 8-3: Phase 1 – Extend Chicago-Milwaukee service to Madison ..... 8-20
Map 8-4: Phase 2 – Extend Chicago-Milwaukee-Madison Service to Twin Cities ..... 8-20
Map 8-5: Phase 3 – Implement Chicago-Milwaukee-Green Bay service ..... 8-21
Map 8-6: Intercity bus network 2030 ..... 8-28
Map 8-7: Existing park and ride locations, 2007 ..... 8-39

## CHAPTER 9: Promote Transportation Efficiencies

**Challenges** ..... **9-2**
**Opportunities** ..... **9-4**
▶ ***Improve the reliability and efficiency of state trunk highway system operations*** ..... ***9-7***
Background ..... 9-7
Continue to plan and prepare for WisDOT's prompt and consistent response to incidents ..... 9-8
Continually monitor the state trunk highway network and respond to operational needs ..... 9-9
▶ ***Actively manage the daily operation of the state trunk highway network via the State Traffic Operations Center and other technology systems*** ..... ***9-13***
Background ..... 9-13
Continue to develop, implement and expand technology ..... 9-14
Cooperate with federal, state, local and private partners for communication and information sharing ..... 9-16
Improve motor carrier efficiency and enforcement ..... 9-16
Maximize efficiency of multimodal transportation options ..... 9-18
▶ ***Optimize traffic movement on the state trunk highway system by utilizing tools to improve existing capacity and, where necessary, adding capacity*** ..... ***9-21***
Background ..... 9-21
Use tools and strategies to improve capacity on existing facilities ..... 9-21
Construct new facilities to increase capacity where appropriate and warranted ..... 9-29
▶ ***Manage access on Wisconsin's state trunk highway system*** ..... ***9-37***
Background ..... 9-37
Manage access according to the *State Access Management Plan* ..... 9-37
Address daily state trunk highway operational goals through sound access management decision-making ..... 9-40

### CHAPTER 9 FIGURE

Figure 9-6: 2+1 roadway design ..... 9-25

### CHAPTER 9 MAPS

Map 9-1: Forecast state trunk highway system congestion (2030) ..... 9-24
Map 9-2: Completed and candidate passing-lane corridors ..... 9-30
Map 9-3: Candidate expressway upgrades and candidate expressway-to-freeway conversions ..... 9-32
Map 9-4: Candidate statewide interchanges for study, reconstruction and/or construction ..... 9-34
Map 9-5: *State Access Management Plan* tiers ..... 9-38

### CHAPTER 9 TABLES

Table 9-1: Examples of traffic management technologies ..... 9-14
Table 9-2: Examples of cooperative information-sharing efforts between WisDOT and others ..... 9-16
Table 9-3: Summary of technologies used to monitor commercial motor vehicle activity ..... 9-17
Table 9-4: Level of service performance thresholds ..... 9-23
Table 9-5: Guidelines for new access points ..... 9-39
Table 9-6: Guidelines for existing access points ..... 9-39

## CHAPTER 10: Preserve Wisconsin's Quality of Life

**Challenges** ..... **10-2**
**Opportunities** ..... **10-2**
▶ ***Continue a comprehensive approach to integrating transportation and environmental issues*** ..... ***10-3***
Background ..... 10-3
Work to streamline the state's environmental review process ..... 10-4
Collaborate with environmental resource agencies and other key stakeholders on the data collection and decision-making process ..... 10-5
▶ ***Emphasize air quality improvement*** ..... ***10-7***
Background ..... 10-7
Comply with existing policies and regulations for improving air quality ..... 10-10
Support and participate in air quality improvement programs and activities ..... 10-11
Monitor emerging air quality issues ..... 10-14
▶ ***Emphasize the preservation of protected resources*** ..... ***10-17***
Background ..... 10-17
Identify sensitive resources early in transportation planning processes ..... 10-18
Avoid or minimize impacts on sensitive natural areas, as well as historical and archeological sites, and mitigate unavoidable impacts ..... 10-18
Develop guidance and establish procedures to discourage transportation activities from intensifying the spread of invasive plants ..... 10-18
Continue efforts to control erosion on transportation construction sites, and adhere to 'no net loss' wetland strategies ..... 10-19
Continue to mitigate environmental impacts and monitor compliance ..... 10-20
▶ ***Incorporate environmental justice in all planning, programming and project decisions*** ..... ***10-21***
Background ..... 10-21
Conduct environmental justice analyses on all transportation planning and project activities ..... 10-22
Seek public input from a wide variety of stakeholders ..... 10-23
Assist metropolitan planning organizations in addressing environmental justice in transportation planning activities ..... 10-23
▶ ***Continue community sensitive solutions efforts*** ..... ***10-25***
Background ..... 10-26
Coordinate community sensitive solutions with local stakeholders ..... 10-27
Continue using flexible design standards for community sensitive solutions projects ..... 10-27
Encourage transportation projects that minimize negative impacts while supporting and preserving local character ..... 10-28
Seek public input early and throughout the transportation decision-making process ..... 10-29
▶ ***Preserve and enhance a positive land use/transportation relationship*** ..... ***10-31***
Background ..... 10-31
Continue to address direct land use effects of transportation decisions ..... 10-31
Evaluate and address indirect and cumulative effects ..... 10-33
Continue efforts to integrate land use and transportation decisions ..... 10-35

### CHAPTER 10 MAP

Map 10-1: Counties considered National Ambient Air Quality Standard ozone non-attainment areas ..... 10-9

## CHAPTER 11: Promote Transportation Security

**Wisconsin's role in transportation security** ..... **11-2**
▶ ***Enhance the security of the transportation system by reducing vulnerability*** ..... ***11-5***
Background ..... 11-5
Adopt and apply technological and physical improvements ..... 11-5
Prepare to respond to a range of incidents through plans and exercises ..... 11-6
▶ ***Improve emergency response to make the transportation system more resilient*** ..... ***11-9***
Develop and apply response procedures and upgrade communication equipment ..... 11-9
Improve the operability of the transportation system during disruptive events ..... 11-13

## CHAPTER 12: Funding Wisconsin's Transportation System

**Part 1: Background** ..... **12-1**
State transportation revenue ..... 12-1
Federal transportation funding ..... 12-4
Bonding ..... 12-5
Other funds, local and service funds, program and general purpose revenue ..... 12-5
**Fiscal Year 2007-2009 transportation funding** ..... **12-5**
All revenues ..... 12-6
Distribution of state revenue ..... 12-6
Bond authority ..... 12-6
Vehicle registration fees ..... 12-7
**Part 2: Funding transportation beyond 2009** ..... **12-8**
Eroding revenue base ..... 12-8
Increasing costs ..... 12-9
Funding corridor management and freight projects ..... 12-12
**Part 3: Funding transportation beyond 2015: National Surface Transportation Policy and Revenue Study Commission** **12-13**
Mid-term finance recommendations (through 2025) ..... 12-14
Wisconsin mid-term recommendations ..... 12-16
Long-term revenue solutions (beyond 2025) ..... 12-17
Wisconsin long-term recommendations ..... 12-19
Next steps ..... 12-20

### CHAPTER 12 FIGURES

Figure 12-1: Development and growth of Wisconsin user charges ..... 12-3
Figure 12-2: State and federal funds are used to help finance many state highway rehabilitation projects ..... 12-4
Figure 12-3: All WisDOT revenue sources (reflects 2007 Wisconsin Act 20) ..... 12-6
Figure 12-4: Distribution of state revenues (reflects 2007 Wisconsin Act 20) ..... 12-7
Figure 12-5: Bond authority (reflects 2007 Wisconsin Act 20) ..... 12-7
Figure 12-6: Distribution of federal funds (reflects 2007 Wisconsin Act 20) ..... 12-7
Figure 12-7: Forecast consumption of motor vehicle fuel through 2015 fiscal year ..... 12-9
Figure 12-8: Wisconsin quarterly roadway construction costs (1999-2008) ..... 12-10
Figure 12-9: Approximate timeline, in years, for EIS development and other activities leading up to construction ..... 12-11
Figure 12-10: Dollars spent per fiscal year by WisDOT on real estate acquisition, 1996 to 2006 (in millions) ..... 12-12

**CHAPTER 12:** Funding Wisconsin's Transportation System, *continued*

**CHAPTER 12 TABLES**

Table 12-1: Real estate acquisition expenditures on land and litigation ..... 12-13
Table 12-2: Evaluation of potential transportation revenue sources against generally accepted evaluation criteria ..... 12-18

## CHAPTER 13: Implementing *Connections 2030*

**Overarching WisDOT priorities for the transportation system through 2030 ..... 13-1**
Short term: Continue to focus on key priorities and initiatives ..... 13-1
Medium to long term: Build on early implementation and expand efforts to address unfunded needs ..... 13-2
Over the entire planning period: Seek sufficient funding and appropriate statutory program changes to fully implement the plan ..... 13-2
**The role of WisDOT and others as implementers ..... 13-3**
WisDOT ..... 13-3
Other stakeholder roles and responsibilities ..... 13-6
**Methods and tools for delivering the *Connections 2030* vision ..... 13-7**
Apply appropriate processes and tools ..... 13-8
Monitor plan implementation progress and system performance ..... 13-11

**CHAPTER 13 MAP**

Map 13-1: Statewide system-level priority corridors ..... 13-9

## CHAPTER 14: System-Plan Environmental Evaluation

**Structure of chapter ..... 14-1**
**System-plan environmental evaluation purpose and methodology ..... 14-1**
**Plan development process ..... 14-2**
Early public outreach ..... 14-2
Early plan scoping and the planning process ..... 14-2
Consultation process ..... 14-3
**Modal comparison of the base case and draft plan ..... 14-4**
State trunk highway system ..... 14-5
Intercity passenger rail ..... 14-8
Intercity bus ..... 14-8
Airports ..... 14-9
Public, specialized and human services transit and fixed-guideway transit ..... 14-9
Bicycle and pedestrian facilities ..... 14-10
Freight (rail, truck, water, air) ..... 14-11
**Qualitative assessment ..... 14-11**
Congestion ..... 14-12
Energy ..... 14-13
Air quality ..... 14-14
Climate change ..... 14-15
Agriculture ..... 14-16
Economic growth ..... 14-19
Community ..... 14-19
Sensitive land and water resources ..... 14-21

**CHAPTER 14:** System-Plan Environmental Evaluation, *continued*

Indirect effects ..... 14-25
Cumulative effects ..... 14-26
Mitigation ..... 14-26

**CHAPTER 14 TABLES**

Table 14-1: Approximate number of highway centerline mile changes ..... 14-6
Table 14-2: Comparison of state trunk highway actions ..... 14-7
Table 14-4: Comparison of intercity passenger rail actions ..... 14-8
Table 14-3: Approximate intercity passenger rail mileage changes (in one direction) ..... 14-8
Table 14-5: Comparison of intercity bus actions ..... 14-9
Table 14-6: Comparison of airport actions ..... 14-9
Table 14-7: Comparison of public, specialized and human services transit and fixed-guide transit actions ..... 14-10
Table 14-8: Comparison of bicycle and pedestrian actions ..... 14-10
Table 14-9: Comparison of freight-related actions ..... 14-11

## CHAPTER 15: Environmental Justice Analysis

**Environmental justice overview ..... 13-2**
**Summary of Wisconsin's minority, low-income, age 65 and older, and zero-vehicle household populations ..... 13-3**
Step 1: Establishing thresholds ..... 13-3
Step 2: Identify U.S. Census block groups above and below the thresholds for each WisDOT region ..... 13-4
Census block group transportation region threshold analysis limitations ..... 13-8
**Connections 2030 public outreach activities ..... 13-9**
**Connections 2030 recommendations ..... 13-10**
Preserve and maintain Wisconsin's transportation system ..... 13-10
Promote transportation safety ..... 13-10
Foster Wisconsin's economic growth ..... 13-11
Provide mobility and transportation choice ..... 13-11
Promote transportation efficiencies ..... 13-12
Preserve Wisconsin's quality of life ..... 13-12
Promote transportation security ..... 13-13
**Connections 2030 and the state's minority, low-income, age 65 and older, and zero-vehicle household populations ... 13-13**
Highways ..... 13-13
Intercity passenger transportation ..... 13-14
Public transit ..... 13-15
Intermodal connections ..... 13-15
Economic opportunities ..... 13-16
**Next steps ..... 13-16**

**CHAPTER 15 MAPS**

Map 15-1: WisDOT transportation region offices ..... 15-4
Map 15-2: Census block groups with black population above region threshold ..... 15-6
Map 15-4: Census block groups with Asian American population above region threshold ..... 15-6
Map 15-3: Census block groups with American Indian population above region threshold ..... 15-6
Map 15-5: Census block groups with Hispanic population above region threshold ..... 15-6

**CHAPTER 15:** Implementing *Connections 2030*, *continued*

Map 15-6: Census block groups with any minority population above region threshold. ..... 15-7
Map 15-7: Census block groups with persons in poverty above region threshold ..... 15-8
Map 15-8: Census block groups with age 65and older population above region threshold ..... 15-8
Map 15-14: Census block groups with black population above region threshold with recommended highway-related activities and existing and recommended intercity bus stops and passenger rail stations..... 15-22
Map 15-15: Census block groups with American Indian population above region threshold with recommended highway-related activities and existing and recommended intercity bus stops and passenger rail stations..... 15-23
Map 15-16: Census block groups with Asian American population above region threshold with recommended highway-related activities and existing and recommended intercity bus stops and passenger rail stations..... 15-24
Map 15-17: Census block groups with Hispanic population above region threshold with recommended highway-related activities and existing and recommended intercity bus stops and passenger rail stations..... 15-25

**CHAPTER 15 TABLES**

Table 15-1: Wisconsin demographics, 2000 ..... 15-3
Table 15-2: Wisconsin demographics by WisDOT Region, 2000..... 15-5

## APPENDIX A: Finding Your Way with the *Connections 2030* Statewide System-Level Priority Corridors

**Getting started ..... A-1**
**Origins of the corridor names ..... A-4**

**APPENDIX A FIGURES**

Figure A-1: Cover page ..... A-8
Figure A-2: Map page – understanding the map..... A-9
Figure A-3: Map page – understanding the legend and other information ..... A-10
Figure A-4: Connecting the maps and tables ..... A-11
Figure A-5: Table ..... A-12
Figure A-6: Notes about what is depicted..... A-13
Figure A-7: Data sources..... A-14

**APPENDIX A MAPS**

Map A-1: Statewide System-Level Priority Corridors ..... A-2
Map A-2: Wisconsin regional planning commissions and metropolitan planning organizations ..... A-3

## APPENDIX B: Summary of Consultation and Plan Comparison Activities

**Environmental resource agency consultation..... B-1**
**Tribal consultation ..... B-7**
**References..... B-9**
**Additional data provided..... B-10**

**APPENDIX B TABLES**

Table B-1: Wisconsin Department of Natural Resources resource plans ..... B-5

# CHAPTER 1: Introduction

Wisconsin's quality of life and economic growth depend on a safe, efficient, effective and coordinated multimodal transportation system that provides choices for people and goods, enabling quick and convenient transfers among modes. *Connections 2030*, Wisconsin's long-range, statewide multimodal plan, will help the state maintain and enhance its transportation system to meet the needs of the 21st century and fulfill the state's transportation vision.

Wisconsin already has a quality transportation network. Efforts during the next 20 years will focus on maintaining and enhancing that system to support future mobility and economic growth. *Connections 2030* sets the foundation for Wisconsin's transportation system with an emphasis on:

- Safety and security
- Preserving the existing and future system
- Optimizing investment in the system for continued safety, enhanced mobility and efficiency
- Responding to local, regional, national and international economic trends to maintain state economic competitiveness
- Considering environmental issues to maintain Wisconsin's quality of life
- Providing users with transportation choices

### Wisconsin's vision for transportation

WisDOT envisions an integrated multimodal transportation system that maximizes the safe and efficient movement of people and products throughout the state, enhancing economic productivity and the quality of Wisconsin's communities while minimizing impacts to the natural environment.

▲ *Figure 1-1: Wisconsin's quality of life and economic growth depend on a safe, efficient, effective and coordinated multimodal transportation system.*

CONNECTIONS 2030 *meets the challenge of providing a quality transportation system by setting policy directions for the state trunk highway system, public transit, intercity travel, freight movement, bicycle and pedestrian travel, and funding, project scheduling and prioritization decisions.*

*Connections 2030* links statewide transportation policy to implementation, planning, programming and other Wisconsin Department of Transportation (WisDOT) activities. The plan also calls for improved system integration for passengers and freight, as well as modernization to correct outdated infrastructure design and combine technological advancements with more traditional transportation infrastructure designs.

Wisconsin relies on a mix of modes to move people and freight safely and efficiently. Interstate and international travel relies on efficient rail, air, water and highway systems. *Connections 2030* meets the challenge of providing a quality transportation system by setting policy directions not just for the state trunk highway system, but also for public transit, intercity travel, freight movement, bicycle and pedestrian travel, and funding, project scheduling and prioritization decisions.

Even with modest revenue increases, Wisconsin has continued to achieve its goals of building and operating a high-quality transportation system; moving people and freight safely; identifying and eliminating congested traffic bottlenecks; planning and investing in major projects and transit services; supporting economic development; and preserving the network.

To meet future demands, additional funding will be required. Because priorities and financial resources for transportation infrastructure needs can vary from budget cycle to budget cycle, WisDOT has developed *Connections 2030* to be a road map of policy statements with recommended implementation actions and priorities (defined by short-, mid- and long-term activities). The plan is intended to help decision-makers establish transportation funding priorities.

## Understanding and using the plan

The plan is organized into four main parts:

» Part One – Chapters 1-4: introduces the *Connections 2030* plan; provides an overview of Wisconsin's transportation system; describes some of the key trends and challenges facing the state's transportation system; and reviews the public involvement activities that helped shape the plan

» Part Two – Chapters 5 – 11: focuses on the seven themes and related policy statements developed to achieve the *Connections 2030* vision

» Part Three – Chapters 12-13: provides a basic overview of the state's transportation funding structure and plan implementation strategies through 2030

» Part Four – Chapters 14-15: documents the system-plan environmental evaluation[1] and the environmental justice analysis of the potential impacts of the plan on the state's natural, cultural and protected populations

### The plan's theme chapters

In a departure from previous mode-based plans, the *Connections 2030* policies are organized according to seven themes:

» Preserve and maintain Wisconsin's transportation system

[1] SEE – Statutorily defined as the conceptual environmental evaluation, a SEE analysis is required during the preparation of statewide, system-level transportation plans when initial department analyses determine that the plan contains "major and significant new proposals" likely to affect the quality of the human and natural environment.

» Promote transportation safety

» Foster Wisconsin's economic growth

» Provide mobility and transportation choice

» Promote transportation efficiencies

» Preserve Wisconsin's quality of life

» Promote transportation security

Each of the seven theme chapters includes:

» An overall vision statement

» Background information including trends, statistics and objectives

» A summary of the major challenges

» A summary of opportunities, which are also the policy statements, to address the trends and challenges, as well as a description of the department's role into the future

» Individual policies outlining WisDOT's goals, objectives, and implementation measures

The seven themes provide the base upon which the plan's policies were written. Each policy outlines specific issues and identifies actions WisDOT either is currently taking or will undertake to achieve the policy goal or goals. By design, the seven themes are interrelated, but they have been written to stand alone if necessary. For example, safety is an important consideration for all of WisDOT's activities, including those detailed in other themes, but the department's long-range vision for safety and safety-specific goals, commitments and implementation measures is located in Chapter 6, *Promote Transportation Safety*.

## The plan's 37 policies

*Connections 2030* defines 37 policies that have been organized under their primary theme chapter. The policies address specific issues and areas of activity either under way or proposed to be undertaken during the life of the plan.

The focus of each policy includes providing a concise policy statement accompanied by the department's commitment and proposed actions to implement the policy through 2030. The policies have been developed with awareness of critical issues and best practices that are explored through research. The policies will guide planning, investment decisions and project delivery from now until 2030.

Each of the 37 policies includes:

» Policy title (which is also the goal statement)

» Background information

» Discussion of important issues, trends or challenges

» WisDOT's commitments to address the issues and implement the policy

» List of specific recommended action steps through 2030

Just as the seven themes define the plan's vision and scope, the policies and implementation strategies support the department's mission and commitment to achieving the *Connections 2030* vision. In addition, the policies, like the themes, are interrelated and in some cases codependent, but are written in such a way as to be able to stand alone.

### Goals

Each policy's title is the proposed policy statement. These policy statements are WisDOT's goals under the theme topic areas.

### Commitments

The specific commitments proposed to help achieve the goal are outlined in the beginning of each policy with a bulleted statement beginning with: "WisDOT will …." Each "WisDOT will" statement (or policy commitment) is further detailed in the paragraphs that follow.

### Actions

Action statements are located at the end of each policy and are grouped according to timeframe. They are not listed in any particular order within the given timeframe. Priorities within timeframes will be determined by the biennial budget process. All actions represent specific measures proposed to reach the policy commitments by 2030.

## Plan development process

The plan development process was influenced by several factors, including:

- The Safe, Accountable, Flexible, Efficient Transportation Equity Act for the 21st Century: A Legacy for Users (SAFETEA-LU)
- Wisconsin's comprehensive planning legislation (Section 66.1001 Wis. Stats.)
- Trends and challenges
- Public involvement

### SAFETEA-LU

Passed in 2005, SAFETEA-LU establishes the nation's transportation priorities and funding through 2009. Compared to previous transportation bills, SAFETEA-LU places greater emphasis on transportation system security considerations, consultation activities, and linking statewide planning activities to project-level activities. *Connections 2030* addresses these changes by:

- Including transportation security as a separate plan theme and defining the department's security-related policies
- Establishing a consultation process for environmental resource agencies and tribal governments for the plan development process
- Developing policies to better link state-level planning to regional and local transportation activities

### The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

SAFETEA-LU represents the largest surface transportation investment in U.S. history, guaranteeing funding for highways, highway safety and public transportation totaling $244.1 billion. SAFETEA-LU addresses the many challenges facing the nation's transportation system – challenges such as improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment – as well as laying the groundwork for addressing future challenges.

~ www.fhwa.dot.gov/safetealu/summary.htm

### Wisconsin's comprehensive planning legislation

The actions of local governments, developers and property owners significantly influence the state's transportation system.

WisDOT's regional transportation offices continue to coordinate with local governments to consider local comprehensive plans while working to make the state's transportation system safe and reliable.

The comprehensive planning law (Section 66.1001, Wis. Stats.) was passed as part of the 1999-2001 Wisconsin biennial budget. Although sometimes referred to as the "smart growth" law, the comprehensive planning law does not dictate how or where development will occur; instead, the law focuses on improving communication within and among jurisdictions to make more informed decisions that result in smart growth.

By January 1, 2010, all actions and decisions made by a community must be consistent with an adopted local comprehensive plan. The comprehensive plans must contain the following nine elements:

» Issues and opportunities

» Housing

» Economic development

» Transportation

» Intergovernmental cooperation

» Utilities and community facilities

» Implementation

» Land use

» Agricultural, natural and cultural resources

While *Connections 2030* does not include specific elements of individual community plans, the plan development process recognized these efforts and incorporated community-level concerns into the individual policies. *Connections 2030* also includes recommendations developed by metropolitan planning organizations and regional planning commissions, WisDOT's corridor and project plans, and tribal transportation plans.

### Trends and challenges

Chapter 3, *Trends*, and the plan's policies identify many of the trends and challenges Wisconsin's transportation system either is facing or will face in the future. WisDOT developed the *Connections 2030* policies to address these trends and challenges.

One significant trend affecting the state is the aging of the population. By 2030, Wisconsin's 65 and older population is expected to increase more than 90 percent. The plan's policies regarding transportation safety, public transit and intercity travel address this trend by recommending more transportation choices.

### Public involvement

Chapter 4, *Public Involvement*, describes the public involvement activities that shaped *Connections 2030*. Early public outreach efforts helped guide development of the plan's vision and seven themes. Additional outreach activities during the draft plan public review effort will help refine the plan's policies.

## Linking plan to project-level activities

A key goal of WisDOT reflected in *Connections 2030* is an emphasis on improving the link between statewide policies and implementation activities occurring at the WisDOT regional or corridor level.

To help achieve this goal, WisDOT has adopted a corridor management approach. Corridor management is a coordinated transportation planning, project development and facility operations approach that enables consideration of the transportation system from a state and "corridor" – regional or local – perspective.

Key characteristics of the corridor management approach include:

» Developing plans for the corridor within the context of what is happening within and adjacent to the right of way (for example, all aspects that influence or impact the function and operation of the facility, such as surrounding land uses, access management and adjacent facilities)

» A long-term perspective: developing and, over time, implementing a vision for the corridor (for example, preservation of the existing facility)

» Integration of all appropriate modes to maximize the capacity of the existing corridor

» Intergovernmental and community coordination and collaboration

» Continued review and update of this approach to meet emerging statewide and regional needs, and incorporate best practices where practical

As part of the *Connections 2030* planning process, WisDOT identified 37 System-level Priority Corridors. Maps of the corridors can be viewed or downloaded online at www.wiconnections2030.gov.

The information depicted on these maps provides visual representations of how the plan might be implemented during the next 20 years. It is important to note that while the corridor maps identify specific projects, it is not guaranteed that all potential projects will be implemented.

The short-term projects are identified in the Six-Year Highway Improvement Program, metropolitan transportation improvement programs and the Statewide Transportation Improvement Program. These projects are most likely to be completed; however, funding and prioritization changes can cause a project to be delayed or advanced.

The remaining project information is based on planned or anticipated projects with implementation decisions based on available funding and evaluation of priorities when compared with other priorities. With the exception of the highways enumerated under the Major Highway Development Program, mid- and long-term projects do not have funding specifically designated for their implementation.

For more information about the 37 System-level Priority Corridors, as well as the corridor management approach, refer to Chapter 13, *Implementing Connections 2030*.

## WisDOT highway programs

### Six-Year Highway Improvement Program: 2008-2013

This program covers the 11,773 miles of state trunk highways that are administered and maintained by WisDOT. While these 11,773 miles represent only 10 percent of all public road mileage in Wisconsin, they carry more than 35 billion vehicle miles of travel a year, or about 59 percent of the total annual statewide highway travel. Each wisely invested dollar returns benefits in terms of time savings, fewer accidents and decreased vehicle operating costs.

~ www.dot.state.wi.us/projects/state/sixyear/index.htm

### 2006-2017 Major Highway Development Program

The Major Highway Development Program, a subprogram of the Six-Year Highway Improvement Program, addresses the most complex, costly and potentially controversial highway development projects initiated by the department. By statute, a "Major highway project" denotes a project that has a total cost of more than $5 million and involves any of the following:

- Constructing a new highway 2.5 miles or more long
- Reconstructing or reconditioning an existing highway by any of the following:
  - Relocating 2.5 miles or more of the existing highway
  - Adding one or more lanes five miles or more in length to the existing highway
  - Improving to freeway standards 10 miles or more of existing divided highway having two or more lanes in either direction

~ www.dot.state.wi.us/projects/state/sixyear/major.htm

# CHAPTER 2: Profile of Wisconsin's Transportation System

This chapter provides an overview of Wisconsin's existing transportation network, which includes airports, highways, bridges (state and locally owned), transit, fixed-guideway transit, freight rail, intercity passenger services (including passenger rail and intercity bus), ports and harbors, ferries, and bicycle and pedestrian accommodations.

The sections in this chapter provide a comprehensive inventory of each mode, listing statistics about system use and condition, and assessing key challenges facing different parts of the transportation system.

## Airports

Wisconsin's public-use airport system includes five types of airport facilities.

» Air Carrier/Cargo facilities accommodate virtually all aircraft, including commercial jets and military transports

» Transport Corporate airports serve corporate jets, small passenger jets and cargo jet aircraft used for regional service

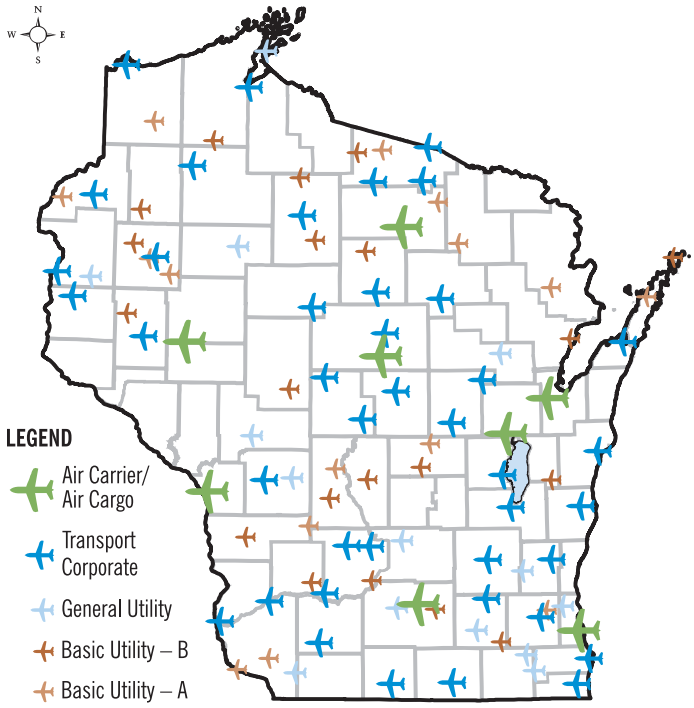
» General Utility airports serve small, general aviation aircraft typically used for business and charter flying and for personal reasons

» Basic Utility-A and Basic Utility-B airports serve small aircraft used for business and charter flying, as well as for activities such as recreational and sport flying, training, and crop dusting. Basic Utility-B airports can accommodate heavier planes than those served by Basic Utility-A airports

### System facts

» 134 public-use airports in Wisconsin

» 98 airports in the State Airport System Plan that qualify for state funds (Map 2-1)




▲ *Map 2-1: State Airport System Plan airports by airport classification*

» 83 airports listed in the National Plan of Integrated Airport Systems that qualify for federal funds

» Eight airports classified as "Air Carrier/Air Cargo"

» One airport provides seasonal passenger service

» Some airports have intermodal connections
  – Milwaukee (transit, and intercity bus and passenger rail)
  – Madison (transit)
  – La Crosse (transit)
  – Eau Claire (transit)

» 2007 statistics
  – 11.5 million air passengers
  – 116 million enplaned pounds of air cargo

» 2030 forecasts
  – 22.9 million passengers (108 percent increase)
  – 260 million pounds of cargo (120 percent increase)

### Aviation challenges

» Forecasted growth may be quickly surpassed as more Wisconsin airports relieve Chicago freight and passenger congestion

» Heightened airport security and safety

» Wildlife encroachment on air facility properties

» Direct passenger service in Wisconsin is limited

» Incompatible land use around airports

» Use of corporate jets requiring runway extensions and navigational aids is increasing

» Funding sources are limited

## Highway and local road system

Wisconsin has 122,177 miles of highways and local roadways. The state generally has jurisdiction over the higher-order roads for Interstate and intercity travel that comprise the state trunk highway system. Municipalities are responsible for the local road network that serves short-distance trips. Counties are responsible for county trunk highways, which serve medium-distance trips and provide connections between state trunk highways and local roads.

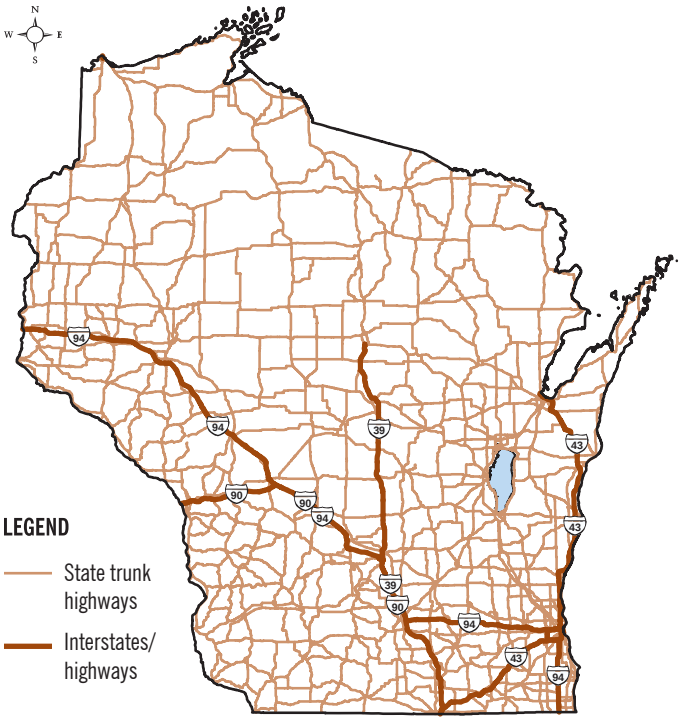
### System facts

» State trunk highway system (Map 2-2)
  – 11,769 miles of state and Interstate highways handle 60 percent of vehicle miles traveled (VMT)
  – This is 10.3 percent of the total road network
  – The system includes 4,900 bridges (other structures include sign bridges and retaining walls)
  – Annual VMT on state and Interstate highways was 35.5 billion miles in 2007

» Local road network
  – 102,936 miles of county, town and municipal streets handle 40 percent of the state's VMT
  – Approximately 8,800 locally owned bridges are along the state's local road network
  – Annual VMT on Wisconsin local roads was 24 billion miles in 2007
  – As of 2007, there were 103 scenic country roads designated as part of the Rustic Road System

» Annual VMT on all roads was 59.5 billion miles in 2007

» In 2007, Wisconsin had approximately 3.95 million licensed drivers and 5.46 million registered vehicles




▲ *Map 2-2: State trunk highway system*

### Vehicle miles of travel

Vehicle miles traveled (VMT) is defined as the total number of miles traveled in automobiles and other vehicles in a specific area. One vehicle traveling the distance of one mile equals one VMT.

### Highway system and local road network challenges

» Addressing safety and mobility

» Responding to incidents and emergencies

» Maintaining conditions at current levels

» Addressing increased congestion

» Responding to forecasted increases in truck freight, which is estimated to double by 2030

» Staying sensitive to environmental factors such as air and water quality

» Addressing needs of aging population and overcoming language barriers

» Responding to pressure to increase truck weight and size limits

» Minimizing potential impact of increased truck size and weight limits on bridges

» Securing adequate funding

» Ensuring adequacy of intermodal connectors, including the condition of local roads that are adjacent to major traffic generators or other facilities such as ports

» Managing highway access (analyzing, limiting and consolidating)

» Coordinating incompatible land uses and transportation decisions

## Transit

Wisconsin's transit system includes local bus and paratransit, commuter bus, subsidized shared-ride taxi service and specialized transit. The provision and maintenance of these transit services generally are under the jurisdiction of local governments.

### System facts

» 71 public bus and shared-ride taxi systems in 2008 (Map 2-3)

» 81 million unlinked (includes transfers) transit rides in 2007

» Most transit trips occur on Milwaukee or Madison's local bus systems

### Transit challenges

» Providing mobility to seniors, low-income households and people with disabilities

» Coordinating transit services among multiple governmental units, especially in rural areas

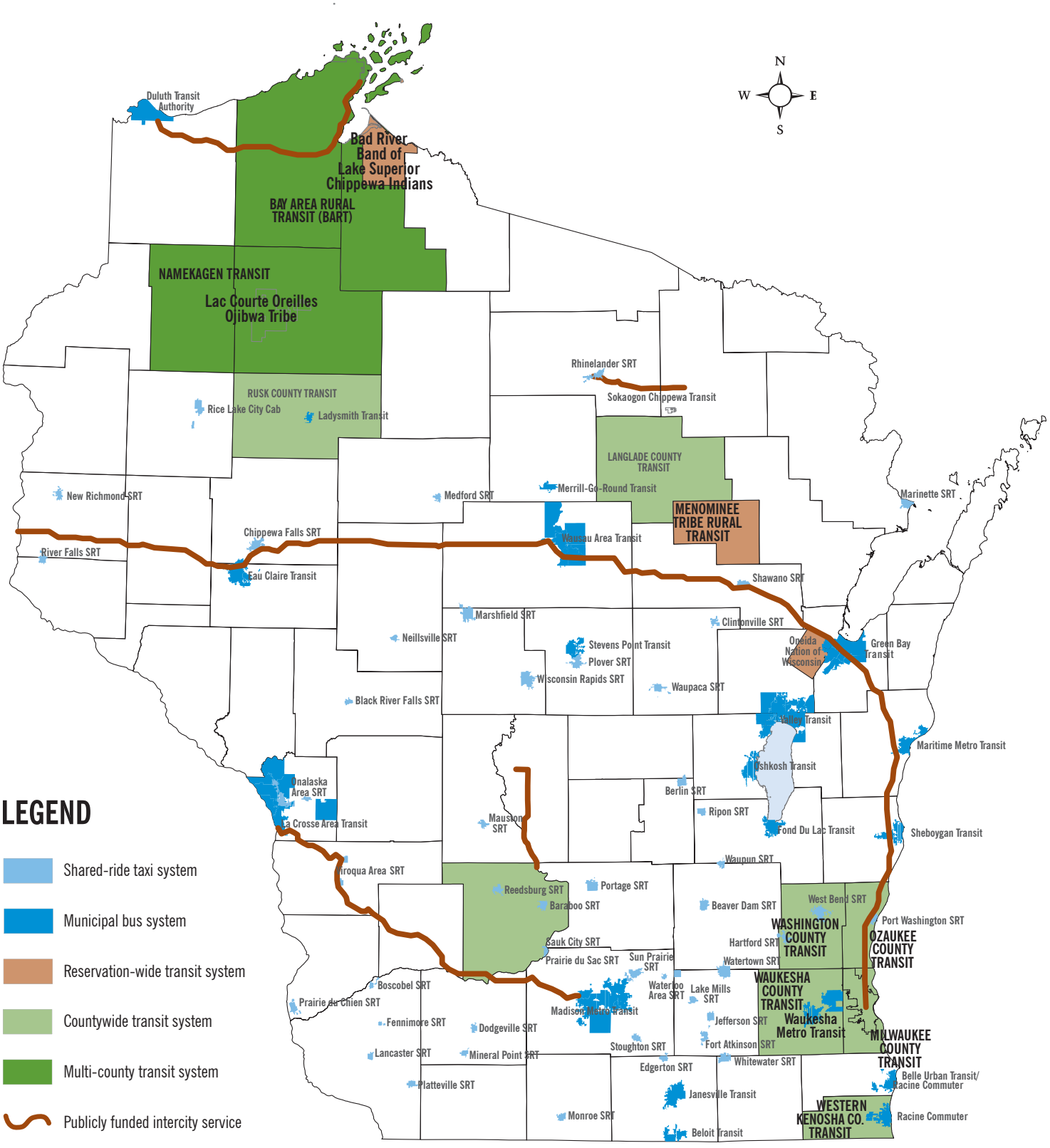
» Creating dedicated local funding sources for transit

» Meeting service demand across municipal and county boundaries

» Ensuring adequacy of intermodal connections

» Responding to deteriorating transit capital. In 2006, 11 percent of transit system vehicles were beyond their useful lives as defined by the Federal Transit Administration, meaning replacements may be needed. The national average in 2006 was 15 percent.

▲ *Figure 2-1: Wisconsin's transit system includes local bus and paratransit, commuter bus, subsidized shared-ride taxi service and specialized transit.*




▲ *Map 2-3: Wisconsin's transit systems*

## Fixed-guideway transit

Fixed-guideway transit includes commuter rail, light rail and bus rapid transit. It provides travel within a metropolitan region, as well as travel within a municipality.

### System facts

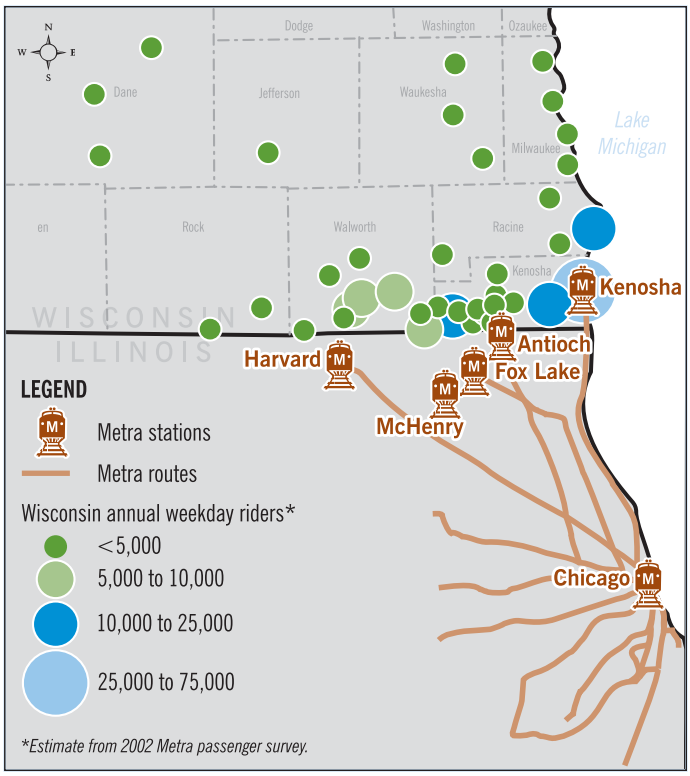
» Wisconsin is served by two fixed-guideway transit systems
  – 1.9 mile streetcar route in Kenosha
  – Metra commuter rail serving communities between Kenosha and Chicago (Map 2-4)

» Wisconsin helps fund commuter rail studies with local sponsors and support from the federal government
  – In 2003, the state developed a commuter rail grant program to help fund commuter rail studies; funding has increased each budget cycle

» The 2005-2007 Wisconsin budget created a Regional Transit Authority to study commuter rail service from Kenosha to Milwaukee

» Potential fixed-guideway projects being studied
  – Transport 2020 (Madison metropolitan area)
  – Kenosha-Racine-Milwaukee commuting corridor
  – Commuter rail service between Rock County, Dane County and Chicago
  – Kenosha streetcar extension
  – Milwaukee Connector (within the city)

» There is strong support from many business groups for fixed-guideway transit, particularly in southeast Wisconsin




▲ *Map 2-4: Wisconsin Metra users by origin*
*Source: Metra*

### Fixed-guideway transit challenges

» Creating dedicated local/regional funding sources and providing state assistance

» Existing government structures, at all levels of government, are not conducive to administer and fund future fixed-guideway transit, existing bus and shared-ride taxi systems; new legislation and funding sources are needed

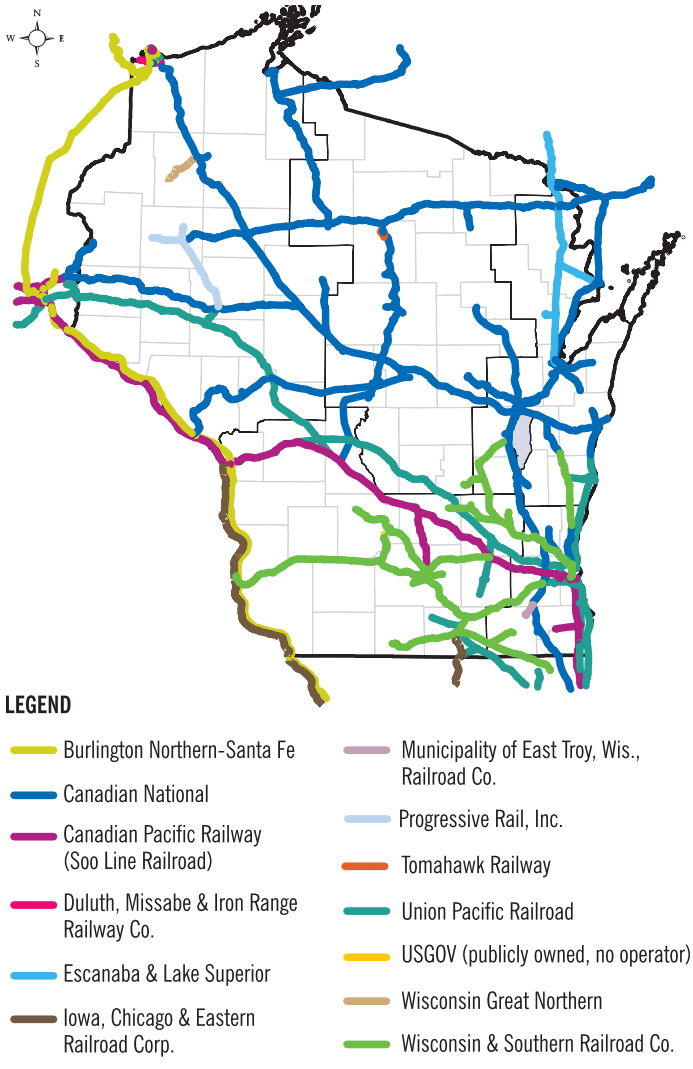
### Metra

Metra is a commuter rail system that primarily serves the Chicago metropolitan region. The 503-mile system serves 239 stations throughout Cook, DuPage, Lake, Will, McHenry and Kane counties in northeastern Illinois, and it operates one station in Kenosha. Metra provided more than 83.3 million rides in 2007.

## Freight rail

Freight rail provides transportation service to manufacturers and industrial users throughout the state. The freight rail system is composed of publicly and privately owned rail lines and serves both long distance and local freight needs.

Many of the state's rail lines are currently operating Class I railroads, which generally provide high-volume, long-haul service. The system also includes short-line or regional operators that connect local manufacturers to the railroad network and provide service for shorter trips.




▲ *Map 2-5: Wisconsin railroads by operator*

### System facts

» Total rail network includes 3,500 miles, 477 miles of which are publicly owned and operated, primarily by Wisconsin and Southern Railroad Co.

» Wisconsin has 7,300 public and private railroad-highway crossings

» 12 freight railroad companies operate in Wisconsin (Map 2-5)

» 77 percent of network is operated by Class I railroads; 23 percent of state's rail mileage is operated by short-line or regional railroads

» 190 millions tons of freight were transported in 2004

» Ports in Milwaukee, Superior, Ashland, Marinette, Green Bay, Manitowoc, Sheboygan, Prairie du Chien and La Crosse have freight rail access

» Arcadia and Milwaukee have truck-rail intermodal connection

» Coal is the top shipped commodity shipped by rail

» By 2035, freight rail tonnage shipped to and from Wisconsin is forecast to nearly double[1]

### Freight rail challenges

» Preserving local rail service

» Preserving abandoned corridors

» Improving intermodal connections

» Funding track upgrades on publicly owned lines to meet market standards for heavier railcars

» Addressing security in rail yards

[1] Freight Analysis Framework[2.2], Office of Freight Management and Operations, Federal Highway Administration

▲ *Figure 2-2: Amtrak operates two passenger rail lines in Wisconsin.*

» Coordinating passenger rail and freight rail

» Coordinating shipping companies and freight rail

» Addressing crossing safety and closures

» Addressing weight limits on publicly-owned track

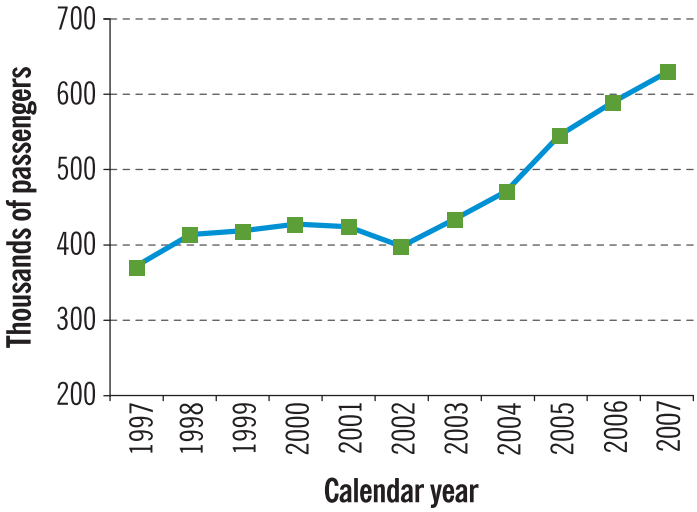
» Minimizing trespassing

## Intercity passenger rail

Two passenger rail lines and eight stations serve the state. Amtrak provides passenger rail service on the *Hiawatha* and the *Empire Builder* lines (Map 2-6). Additional routes are being studied for the proposed Midwest Regional Rail System.

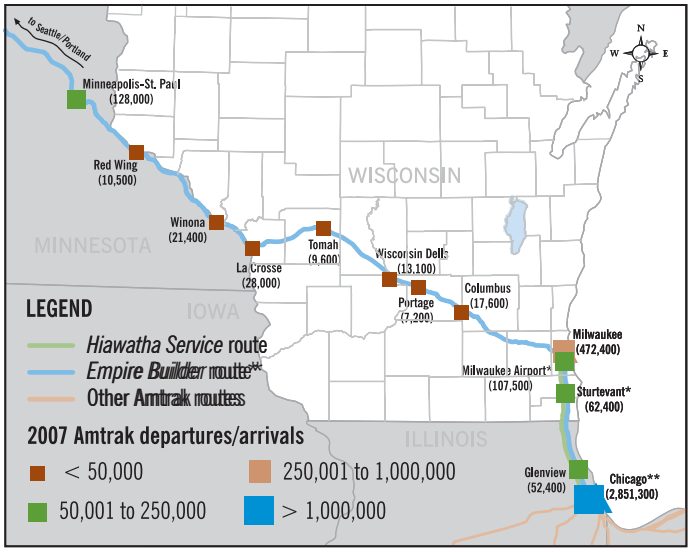
### System facts

» Hiawatha Service
- Passenger rail service between Milwaukee and Chicago has been operated by Amtrak under contract with Wisconsin and Illinois since 1989
- Seven round-trips run daily (six on Sundays), the most of any Amtrak route outside the east and west coasts
- Service operates on Canadian Pacific and Metra right of way
- Has the best on-time performance of the national Amtrak system: 89 percent in 2007 federal fiscal year
- Travel time between downtown Chicago and downtown Milwaukee is one hour and 29 minutes
- Amtrak throughway feeder bus service operates between Wausau and Milwaukee, and between Houghton, Mich., Green Bay, Manitowoc, Sheboygan and Milwaukee
- Route has seen a 67 percent ridership growth during past 10 years (Figure 2-3)




▲ *Figure 2-3: Amtrak's* Hiawatha Service *ridership*

▲ *Figure 2-4: The Milwaukee Intermodal Station provides intercity bus and intercity passenger rail service.*




*Empire Builder *does not stop in Sturtevant or at General Mitchell International Airport.*
***Chicago total includes departures/arrivals from other Amtrak routes.*

▲ *Map 2-6: Wisconsin Amtrak rail routes and ridership*

  - 2007 ridership was an all-time high of 617,800 trips
  - Additional car was added to each train in 2007 to meet rising demand

» Empire Builder Amtrak service between Chicago and Seattle, and Portland
  - Part of Amtrak's national network
  - One round-trip daily
  - 2007 ridership was 94,800 trips to and from Wisconsin stations

» Passenger rail stations
  - Milwaukee's General Mitchell International Airport Rail Station
    - One of four Amtrak stations nationwide located at a major airport
    - 2007 Amtrak ridership to and from airport rail station was 107,500 trips
    - Has received $6.8 million in federal and state funding for design and construction
  - Milwaukee's Intermodal Station
    - Newly remodeled station opened in November 2007
    - Includes passenger rail and intercity bus services
    - 2007 Amtrak ridership to and from the intermodal station was 472,400 trips
    - Demonstrated a $20.2 million public-private partnership to design and build
  - New Sturtevant Depot
    - Opened August 2006
    - Served by Racine's transit system
    - 2007 Amtrak ridership to and from Sturtevant was 62,400 trips
    - Received $2.4 million in federal, state and local funds

## Intercity passenger rail development

Wisconsin has partnered with other states and Amtrak in an effort to better link major Midwestern cities via a 3,000-mile intercity passenger rail system called the Midwest Regional Rail System. Wisconsin recently conducted activities to advance the Midwest Regional Rail System development:

» Completed an environmental assessment of the Milwaukee-Madison component of the system and received a finding of no significant impact from the Federal Railroad Administration

» Purchased the Madison-Watertown line in 2007 for $7 million to continue development of the system

» Upgraded grade crossings along proposed system routes using $4.2 million in federal funding

» Partnered with Canadian Pacific Railway in a $2 million advanced train control project

### Passenger rail challenges

» Passenger and freight rail services use the same infrastructure

» High-quality Amtrak service requires continued schedule coordination with Canadian Pacific Railway and Metra

» Amtrak's Hiawatha Service requires continued financial support from Wisconsin and Illinois

» Infrastructure investments are needed to ensure that improved passenger rail service does not negatively impact Wisconsin's freight rail service

» Some stations lack adequate passenger facilities

» Hiawatha Service train equipment is aging; replacements with modern amenities and improved performance characteristics are needed

» Providing and maintaining adequate connectivity with other modes

» Frequent passenger rail service exists only in southeast Wisconsin; other populous and fast-growing areas do not have this level of service

» Considerable federal and state funding sources must be identified before implementing improved intercity passenger rail service in Wisconsin

## Intercity bus

Intercity bus service in Wisconsin is privately owned and operated by several carriers that provide service among cities.

### System facts

» As of 2007, eight intercity bus companies operate in the state: Greyhound, Badger Coaches, Lamers, Megabus, Wisconsin Coach Lines/Coach USA, Van Galder/Coach USA, Jefferson Lines and Indian Trails

» All services are privately owned and operated

» As of 2007, intercity bus operators provided scheduled service to 53 communities (Map 2-7); some communities receive only commuter services or limited non-daily service

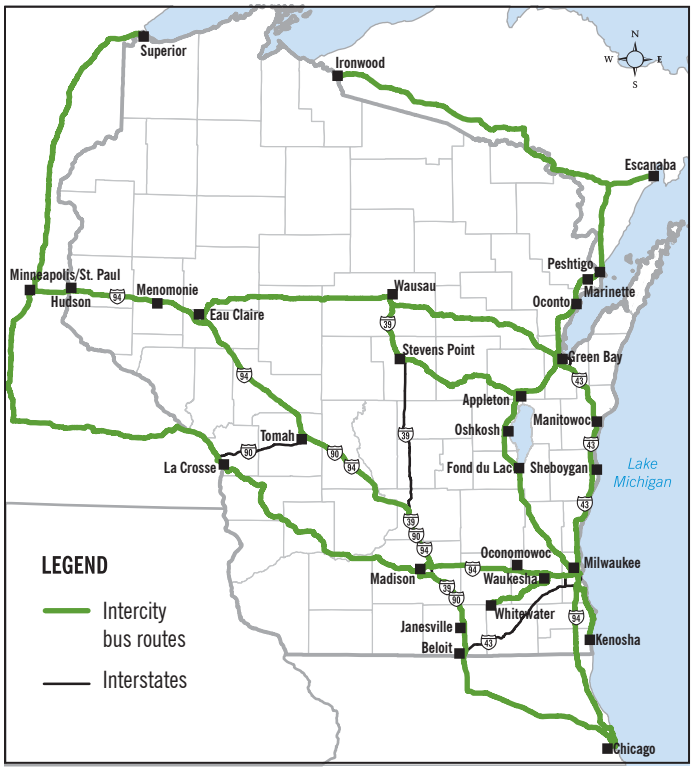
» The Madison-La Crosse route operated by Jefferson Lines is subsidized by the Federal Transit Administration's Section 5311 program funds, which cover 50 percent of the operating loss of this route

» A new Minneapolis/St. Paul-Eau Claire-Wausau-Green Bay-Sheboygan-Milwaukee route starting in 2008, and operated by Jefferson Lines, is supported by funds from the federal pilot Supplemental Transportation Rural Assistance Program funds. These funds cover up to 80 percent of the operating loss of the route

### Non-Urbanized Area Formula Program (Section 5311)

The Federal Transit Administration's Section 5311 program provides funding for public transportation in nonurbanized areas. The Federal Transit Administration distributes these grants to states according to a statutory formula based on each state's population in rural areas and in small urban areas with fewer than 50,000 people. Section 5311 grants are intended to provide residents of these areas with access to employment, education, health care, shopping and recreation.

~ www.fta.dot.gov/funding/data/grants_financing_1111.html




▲ *Map 2-7: Current intercity bus network*

## Intercity bus challenges

» Extremely long intercity bus travel times between some of Wisconsin's largest metropolitan areas (for example, a trip between Wausau and Madison, which is a 143-mile distance, takes almost seven hours and requires a transfer in Milwaukee)

» Fewer routes serving fewer communities due to Greyhound's decision to abandon some routes

» Infrequent service (some routes have only one daily round trip or less)

» Lack of adequate station facilities in some areas (for example, there is a lack of restrooms, or some stations are closed in early mornings or late evenings)

» Lack of intermodal connections that link intercity bus services to some rail stations, airports, park-and-ride sites and local transit

» Limited service to transit-dependent and university-based populations

» Lack of affordable, convenient, alternative modes between key destinations (for example, no alternative is available between Janesville or Beloit and Milwaukee without transfer through Madison or Chicago)

» Need for a feeder bus system with service to MWRRS stations

» Limited federal funds for supporting intercity buses

» Lack of data on intercity bus ridership, revenue and cost for statewide planning

» Lack of intercity bus service in the northern half of Wisconsin

# Ports and harbors

Wisconsin has 15 ports that handle millions of tons of international and domestic cargo each year. Many commodities ship through the ports including agricultural products, coal, iron ore, wood pulp, cement and road salt.

## System facts

» 15 ports include:
  – Six gateway ports: Milwaukee, Green Bay, Marinette, Duluth-Superior, La Crosse and Prairie du Chien
  – Three diversified cargo ports: Marinette/ Menominee, Manitowoc and Sheboygan
  – Six limited cargo ports: Ashland, Bayfield, Washburn, Port Washington, Sturgeon Bay and Washington Island

» International connections are made through the St. Lawrence Seaway via the Great Lakes

» The Mississippi River provides access to the Gulf of Mexico

» Many ports provide intermodal connections to rail

» Total 2004 freight transported by water: 35.1 million tons valued at $1.8 billion (includes tonnage shipped through the port of Duluth-Superior)

» Coal, iron ore and grain are the top commodities shipped through ports

### Port and harbor challenges

» Security

» Waterfront development

» Dredging and disposal

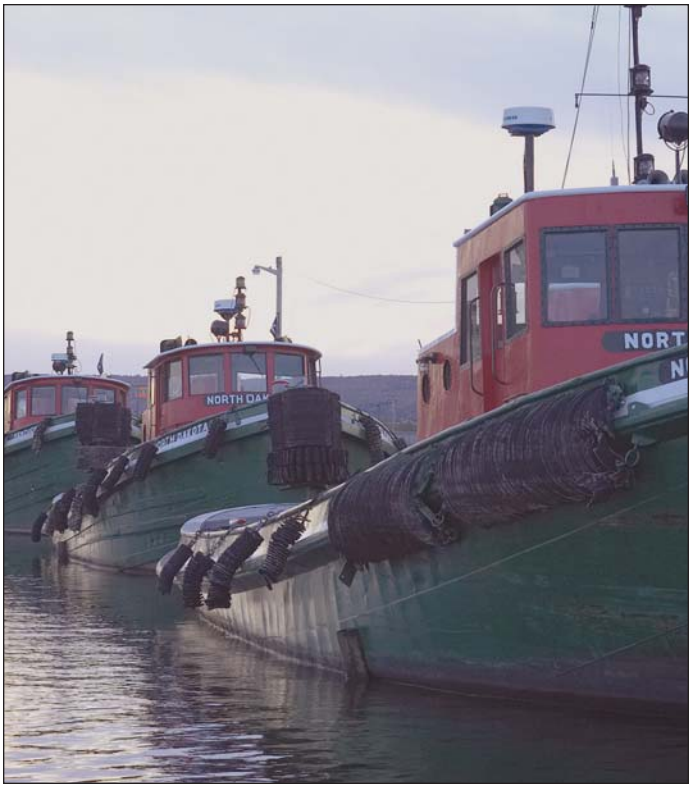
» Large vessel accessibility of the Sault Ste. Marie lock system

» Mississippi River navigation

» Outdated Mississippi River lock system

» Federal regulations

» Ballast water and aquatic invasive species



▲ *Figure 2-5: Wisconsin has 15 ports that handle millions of tons of international and domestic cargo each year.*

## Ferries

### System facts

» Six passenger ferries provide almost year-round service in Wisconsin (Map 2-9)
  – Two ferries (Madeline Island and Washington Island) provide access to and from island communities
  – Two ferries provide access across rivers (Cassville and Merrimac)
  – Two ferries provide service to and from Michigan across Lake Michigan (Lake Express Carferry and Lake Michigan Carferry)

### Ferry challenges

» Year-round access to and from island communities

» Lack of intermodal connections

▲ *Map 2-8: Ferries in Wisconsin*

▲ *Figure 2-6: One challenge facing Wisconsin's bicycle system is making sure that bicycle accommodations are routinely considered in urban and rural highway projects.*

## Bicycle

### System facts

» Bicycling accounted for 1.2 percent of all trips made in 2001[2]

» Federal Highway Administration policy requires bicycle accommodations on federally funded projects unless no need exists or the cost is deemed prohibitive

» WisDOT's 1998 state bicycle plan committed to routinely consider bicyclists in roadway design plans

» Rural accommodations include paved shoulders and separate paths

» Bicycle accommodations are consistently included in urban state trunk highway projects

### Bicycle challenges

» Improving safety while increasing usage

» Securing adequate funding

» Improving connectivity between bikeways

» Routinely considering bicycle accommodations in urban and rural highway projects

## Pedestrian

### System facts

» Walking accounted for more than 7 percent of all trips made in 2001[3]

» Walking is the second most common mode of transportation after the personal automobile

[2] 2001 National Household Travel Survey

[3] 2001 National Household Travel Survey

» Sidewalks and walking provide critical access to transit and other modes

» Federal Highway Administration policy includes pedestrian facilities on federally funded projects unless there is no need, or the cost is deemed prohibitive

» The 2002 Wisconsin Pedestrian Policy Plan committed WisDOT to routinely consider pedestrians in roadway designs

## Pedestrian challenges

» Improving safety while increasing usage of pedestrian facilities

» Securing adequate funding at both the state and local level to install sidewalks along state-owned roadways

» Improving connectivity between walkways and across highways

» Need for routine consideration and inclusion of pedestrian facilities in highway projects

▲ *Figure 2-7: The Safe Routes to School program seeks to make bicycling and walking to school a safer and more appealing transportation alternative.*

# CHAPTER 3: Trends

Changes in population, travel patterns, safety concerns, economic trends, and environmental considerations (including land use development patterns) affect the demand for transportation. This chapter provides an overview of key trends and issues that shaped the development of *Connections 2030* and continue to influence transportation decision-making.

The trends and issues that continue to be closely linked to transportation are:

» Population

» Travel patterns

» Transportation safety

» Economic activity

» Energy and the environment

## Population

### Summary of population trends

» Between 2000 and 2030, the state's population is predicted to increase by 19.6 percent.

» Between 2000 and 2030, Wisconsin's population of people 65 years and older is predicted to increase by 90.2 percent.

» By 2030, the average household size in Wisconsin is expected to decrease from 2.5 people in 2000 to 2.33 people.

▲ *Figure 3-1: Between 2000 and 2030, it is estimated that Wisconsin's population growth will be second in the Midwest only to Minnesota's growth.*

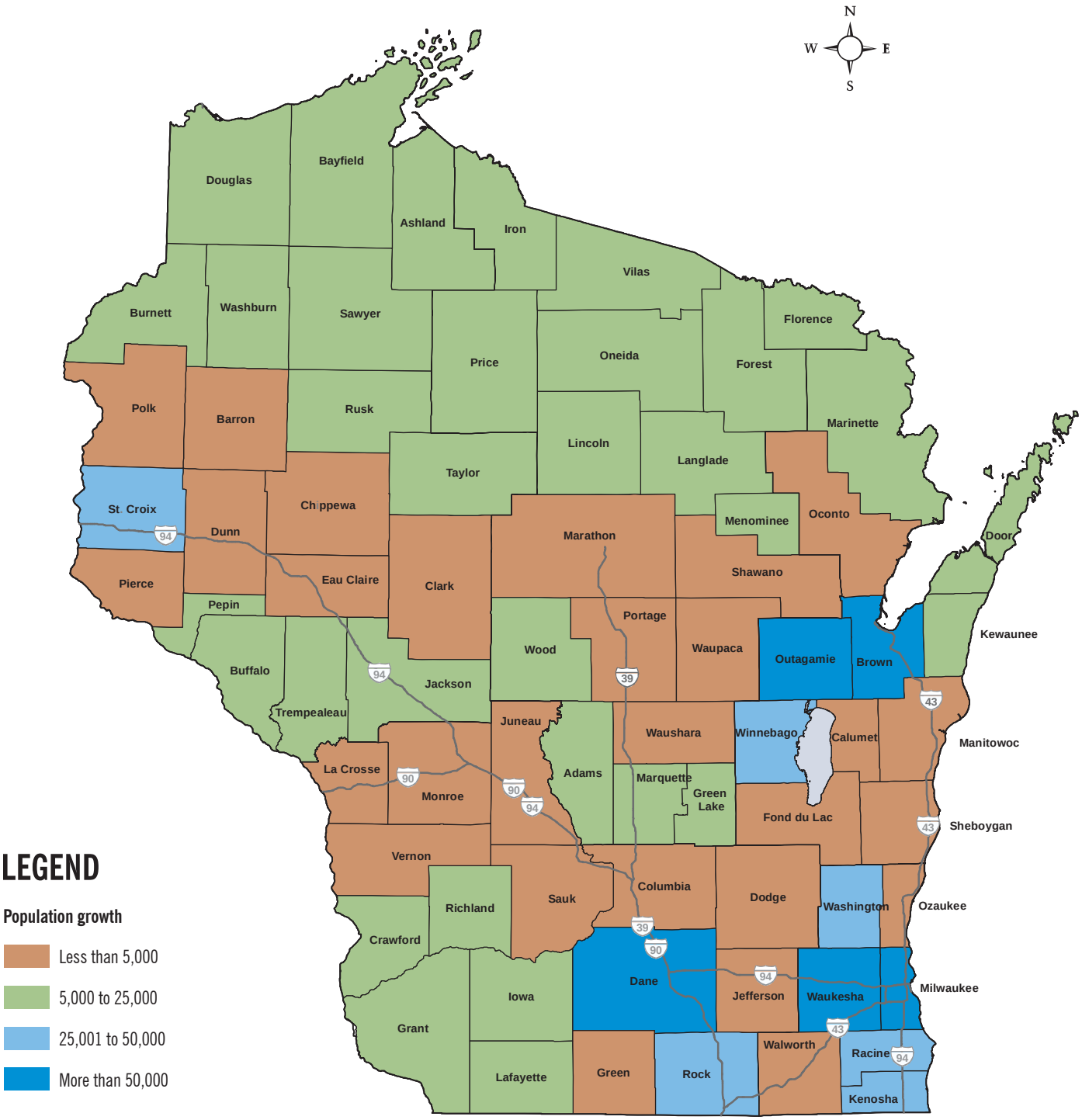
» 92 percent of the state's current households own at least one vehicle, and 18 percent own three or more vehicles.

### Population growth

According to the 1970 U.S. Census, Wisconsin had 4.4 million residents. By 2005, Wisconsin's population had increased to 5.87 million. By 2030, it is estimated that the state's population will be 6.35 million – an increase of 45.2 percent from 1970.

While Wisconsin's net population growth rate will lag behind the fastest growing parts of the country – the South and the West – it is estimated that among the five Upper Midwest states (Wisconsin, Illinois, Iowa, Michigan and Minnesota), Wisconsin's growth (19.6 percent) will be second to Minnesota's 28.2 percent projected growth between 2000 and 2030.

According to the 1970 U.S. Census, *Wisconsin had 4.4 million residents. By 2030, it is estimated that the state's population will be 6.35 million – an increase of 45.2 percent from 1970.*




▲ *Map 3-1: Wisconsin total population growth (2000 – 2030)*

**Table 3-1: Wisconsin population summary (in thousands)**

| Category | 1970 | 1980 | 1990 | 2000 | 2010 | 2020 | 2030 | Percent change 1970-2000 | Percent change 2000-2030 |
|---|---|---|---|---|---|---|---|---|---|
| Total population (thousands) | 4,417 | 4,705 | 4,891 | 5,363 | 5,751 | 6,110 | 6,415 | 21.4 | 19.6 |
| Age 24 and under | 2,087 | 2,000 | 1,801 | 1,889 | 1,915 | 1,922 | 2,005 | -9.5 | 6.1 |
| Ages 25 to 44 | 976 | 1,252 | 1,546 | 1,554 | 1,493 | 1,596 | 1,587 | 59.2 | 2.1 |
| Ages 45 to 64 | 880 | 888 | 892 | 1,190 | 1,575 | 1,569 | 1,486 | 35.5 | 24.9 |
| Age 65 and older | 472 | 564 | 651 | 702 | 766 | 1,022 | 1,336 | 48.7 | 90.2 |

*Source: U.S. Census Bureau; Wisconsin Department of Administration*

The majority of this population growth will occur in Brown, Dane, Milwaukee, Outagamie and Waukesha counties. By 2030, notable growth is also projected to occur along the corridor between Madison and Milwaukee, at the Illinois border near Chicago, along the Fox Valley corridor from Green Bay to Oshkosh and near the Minnesota border by Minneapolis/St. Paul (see Map 3-1).

For example, St. Croix County, which is located at the Wisconsin-Minnesota border near the Minneapolis/St. Paul area, has experienced the highest percentage increase in population in the state. The estimated percentage increase for this area was 25.1 percent between 2000 and 2007.[1] It also had the fourth highest increase in total population in Wisconsin during this period. In general, Wisconsin's northern counties will experience smaller population increases than other parts of the state.

## Age demographic changes

Wisconsin's age demographics will also change significantly during the next 20 years. Table 3-1 summarizes the total percent change in population by age group. While the number of people in all age groups will increase, the greatest percent increases will occur in the older population groups. Nationally, the number of people age 65 years and older is expected to increase 19.7 percent between 2000 and 2030. In comparison, Wisconsin's 65 and older population is predicted to increase by 90.2 percent. By the year 2030, 25 percent of drivers in the state will be 65 years or older. In contrast, the 18-to-64 age group will see smaller and more gradual increases during this period.

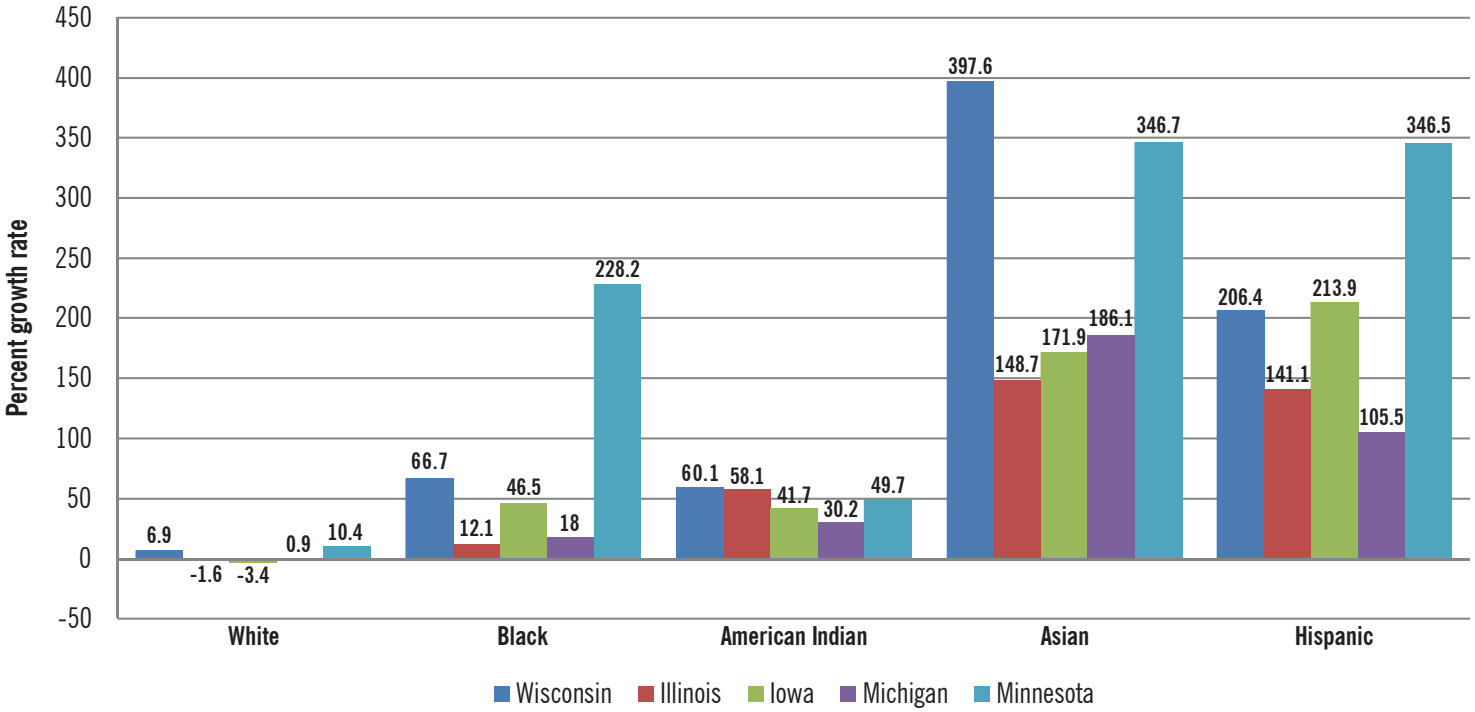
## Minority population changes

Projections of changes in minority populations through 2030 are not available; however, based on historical trends, Wisconsin's minority population is also expected to increase. The state's minority population currently comprises about 13 percent of Wisconsin's entire population. Over the past two decades, the largest increases have occurred in the Asian/Pacific Islander and Hispanic populations. Figure 3-2 compares Wisconsin's minority population increase from 1980 to 2000 with the population changes in Illinois, Iowa, Michigan and Minnesota.

U.S. Census data shows that most of Wisconsin's minority populations are located in and around the state's urban areas. For example, 90.5 percent of Wisconsin's total African American population resides in Dane, Kenosha, Milwaukee and Racine counties, with 85 percent of the state's total African American population located in the cities of Kenosha, Madison, Milwaukee and Racine.

Hispanic populations also tend to live in highly urbanized areas. More than 70 percent of the state's total Hispanic population resides in Brown, Dane, Kenosha, Milwaukee,

[1] WI Dept. of Admin., Demographic Services, Population Est., Aug. 2007




▲ *Figure 3-2: Minority populations increases in Midwestern states (1980-2000)*

Racine and Waukesha counties, of which more than half reside in the cities of Kenosha, Madison, Milwaukee and Racine. Almost 75 percent of the state's Asian/Pacific Islander population resides in Brown, Dane, La Crosse, Marathon, Milwaukee, Outagamie, Sheboygan and Waukesha counties. Almost 60 percent of Asian/Pacific Islanders live within the largest cities in each of those counties. While the largest concentration of Native Americans is in Milwaukee County (more than 6,700), the population is spread across the state, with many Native Americans living in counties with tribal reservations. There has also been scattered population growth for other minority groups in more rural parts of the state.

### Household size

Wisconsin's average household size (the number of people residing in one household) has steadily decreased over the past several decades. According to the U.S. Census, the average household size in Wisconsin was 2.50 persons in 2000. By 2030, it is expected to decrease to 2.33 persons. This decline in average household size is a national trend largely due to an increase in single heads of households, individuals waiting longer to marry, and people having fewer children. Even though there will be fewer people per household, the number of households in the state is expected to increase 28 percent from 2000 to 2030 due to population growth.

## Travel patterns

Many complex factors, including job location, fuel costs and land use decisions, influence travel patterns.

### Summary of travel patterns

» Between 2007 and 2030, traffic on Wisconsin's roadways is expected to increase 34 percent.

» Total vehicle miles traveled[2] (VMT) in the state is estimated to be 80 billion miles in 2030.

» Truck VMT is expected to increase 64 percent between 2007 and 2030, while personal VMT is forecast to increase 33 percent.

**Table 3-2: Means of transportation to work in Wisconsin, 2000 (percent)**

| Race/ethnic group | Drove alone | Carpool | Public transit | Motorcycle | Bicycle | Walk | Other means | Work at home |
|---|---|---|---|---|---|---|---|---|
| Wisconsin | 79.5 | 9.9 | 2.0 | 0.1 | 0.4 | 3.7 | 0.4 | 3.9 |
| White | 80.7 | 9.3 | 1.3 | 0.1 | 0.4 | 3.7 | 0.4 | 4.1 |
| African American | 61.5 | 15.9 | 16.5 | — | 0.2 | 3.4 | 0.7 | 1.9 |
| American Indian | 71.6 | 16.7 | 3.4 | 0.1 | 0.5 | 4.5 | 1.2 | 2.0 |
| Asians/Pacific Islander | 68.1 | 15.8 | 5.4 | — | 0.7 | 6.9 | 1.1 | 1.9 |
| Hispanic | 63.4 | 23.1 | 5.7 | 0.1 | 0.6 | 4.8 | 1.0 | 1.3 |

*Source: 2000 U.S. Census*

» From 1980 to 2006, the total number of roadway miles increased 6 percent.

» The 2000 U.S. Census revealed the average travel time to work was 20.8 minutes for the 2.7 million people in Wisconsin's workforce.

In 2007, total vehicle miles traveled in Wisconsin was close to 59.5 billion, of which 6.4 billion were commercial (truck) vehicle miles. Total VMT has decreased 1.8 percent since the peak in 2004. Truck VMT, while experiencing a slight decrease in 2005 and 2006, has continued to increase.

Between 1980 and 2007, vehicle miles traveled in Wisconsin increased by 79 percent. By 2030, VMT is projected to be 80 billion miles, a 34 percent increase since 2007. Truck VMT is forecast to increase 64 percent between 2007 and 2030, while personal VMT is forecast to increase 33 percent.

The number of roadway miles in Wisconsin is increasing at a much slower rate when compared to vehicle miles traveled.

From 1980 to 2006, the number of roadway miles increased 6 percent. Today's roadways are carrying higher levels of traffic than in previous years. By 2030, 8 percent of the state trunk highway network is expected to be congested, compared with 5 percent in 2007.

Congestion problems are most noticeable on highways where traffic volumes exceed the current design capabilities of the highway. Increases in traffic volumes can be attributed to several factors: household size, and job, services and residential locations.

Changes in the size and number of households have direct impacts on the number of trips made per household. As household size decreases or the number of households increases, the number of trips made per household increases.

The locations of residential areas, jobs and other services affect travel choices and can place greater demands on the transportation system. People who do not live in urban areas often must travel to more populated areas for shopping and other activities. As local development becomes more dispersed, more people drive and rely on highways for local trips.

All of these factors contribute to more travel on the state's roadways.

## Commuting patterns

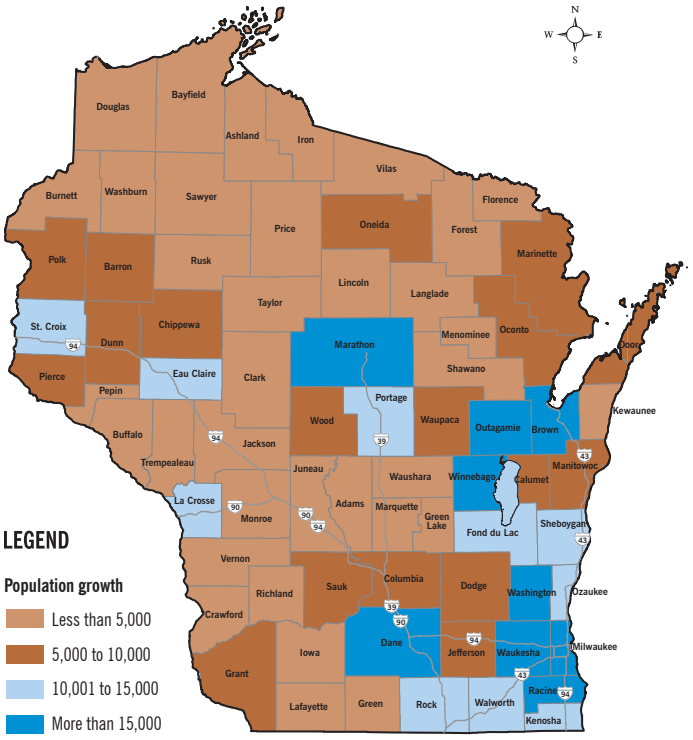
According to the 2000 U.S. Census, the average travel time to work was 20.8 minutes for Wisconsin's 2.7 million person workforce. Table 3-2 shows that the use of different modes for journeys to work varies by

[2] "Vehicle miles traveled" refers to the total number of miles traveled by every car on Wisconsin's roadways.

racial and ethnic groups. Minority populations tend to carpool and use public transit more often than white transportation users, who rely heavily on the personal automobile. Asians and Pacific Islanders tend to bike and walk to work more often than any other population group. African Americans tend to use public transit more than other groups when traveling to work.

### Drivers 65 years and older

Travel patterns for those age 65 and older may also be very different from those of previous generations. Map 3-2 depicts projected changes in population by age (people age 65 and older) between 2000 to 2030. During this period, the average per-county increase of people age 65 and older will be 8,800. Counties expected to experience a significant increase in the number of people age 65 and older include Marathon, Washington, Dane, Brown, Outagamie, Waukesha, Milwaukee and Racine. Because this age group represents the first generation to have been highly mobile throughout adulthood, they are likely to expect transportation services to meet their changing needs.




▲ *Map 3-2: Wisconsin projected increases for population 65 years and older (2000- 2030)*

*Source: U.S. Census 2000, WI Dept. of Administration*

## Modal choice

Table 3-3 shows the percentage breakdown of travel modes in Wisconsinaccording to trip purpose. Personal vehicles, such as cars, vans, and trucks, are the primary mode used across all trip purposes. Transit comprises a greater mode share of school-related, religious, and medical trips than for other trips, while relatively large percentages of social or recreational and school trips are completed by walking.

As the economy and travel patterns have changed, so has the demand for alternative modes of transportation. For example, business and advocacy groups in Southeast Wisconsin have increasingly demonstrated strong support for fixed-guideway transit systems (such as commuter rail, light rail and bus rapid transit), in part because of their desire to attract a variety of skilled workers to the area. Meanwhile, ridership on intercity transportation services has also increased, which indicates demand for convenient and reliable transportation alternatives.

This has been particularly noticeable on Amtrak's Hiawatha Service, as ridership in 2005, 2006, and 2007 has been the highest since Wisconsin began supporting the service in 1989. This increase in ridership may be the result of several factors, including improved service, road congestion and rising gasoline prices.

### Summary of modal share trends

» In 2007, more than 81 million unlinked (includes transfers) trips in Wisconsin were completed using public transit.

» During the past 50 years, intercity bus service has decreased and service to many areas has completely stopped.

» Ridership for Amtrak's *Hiawatha Service* increased 67 percent between 1997 and 2007.

**Table 3-3: Mode use by trip purpose in Wisconsin, 2001 (percent)**

| Trip purpose | Personal occupancy vehicle[1] | Public transit | Bicycle | Walk | Other mode[2] |
|---|---|---|---|---|---|
| Work commute | 94.4 | 0.6 | 0.6 | 4.4 | 0.1 |
| Work-related | 93.6 | 0.0 | 0.0 | 5.0 | 1.4 |
| School-related | 55.5 | 1.7 | 1.7 | 11.3 | 28.9 |
| Religious | 96.5 | 0.9 | 0.0 | 2.6 | 0.0 |
| Medical/dental | 95.7 | 1.1 | 0.0 | 1.1 | 2.2 |
| Shopping | 95.3 | 0.5 | 0.3 | 3.8 | 0.1 |
| Other family and personal | 90.9 | 0.3 | 0.7 | 7.0 | 1.0 |
| Social/recreation | 75.3 | 0.4 | 3.9 | 18.0 | 2.4 |
| Other | 93.3 | 0.2 | 0.5 | 4.7 | 1.2 |
| All trip purposes | 88.3 | 0.5 | 1.3 | 7.4 | 2.6 |

*Source: 2001 National Household Travel Survey*

*[1]"Personal occupancy vehicle" includes cars, vans, sport utility vehicles (SUVs), pickup and other trucks, recreation vehicles (RVs) and motorcycles*

*[2]"Other modes"includes taxis, sail and motorboats, commercial and private aircraft, charter and schoolbuses, intercity buses, and intercity rail*

» Annually, bicycle and pedestrian travel accounts for 8.2 percent of all trips in Wisconsin.

» In 2007, more than 116 million pounds of cargo moved through Wisconsin's air carrier airports.

## Transit

Wisconsin has 71 public transit systems. They include 23 fixed-route, urban bus systems; six rural fixed-route systems; 43 shared-ride taxi systems and four commuter bus systems. In 2007, more than 81 million unlinked (includes transfers) trips in Wisconsin were completed using transit. According to the 2000 U.S. Census, about 45,000 people in Wisconsin (approximately 1.5 percent of the state's total labor force) use public transit to get to work every day.

Significant increases in transit ridership nationwide in 2007 and the first quarter of 2008, along with recent increases in commuter bus ridership in southeast Wisconsin, have been attributed in part to increases in the price of gas in 2007 and 2008. Demand for transit between 1976 and 2006 was steady. Transit demand in Wisconsin is expected to grow in the future for reasons including, but not limited to:

» Providing alternatives for individuals to commute to and from work

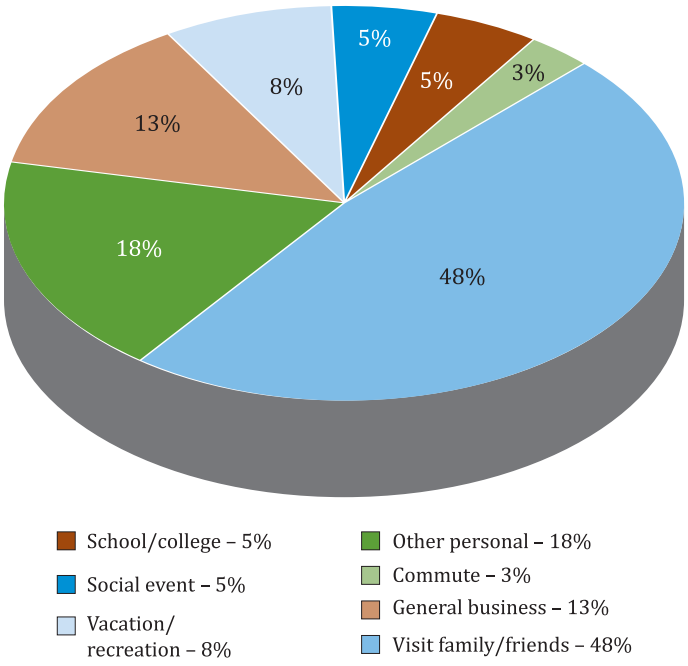
» Providing transit alternatives to driving a personal vehicle for a growing elderly population

» Increasing traffic congestion, longer commutes and rising energy prices, which will likely increase demand for alternatives to single-occupant vehicles

In particular, rising gas prices will continue to increase demand for transit.

## Intercity bus

Historically, the intercity bus industry played a significant role in connecting Wisconsin's small, geographically isolated, rural communities to larger urban areas. However, during the past 50 years, intercity bus service in Wisconsin has decreased and service to many areas has stopped completely.




▲ *Figure 3-3: Greyhound bus passenger trip purpose*
*Source: TEMS: Demand Model Database Report Draft. March 2002*

Wisconsin experienced numerous cuts in service and elimination of routes until 2006.

In recent years, there has been renewed interest in intercity bus service both in Wisconsin and nationwide. Nationally, ridership began to increase in 2006. Rising fuel prices, demographic changes, and environmental concerns have led to renewed demand for public transportation. In 2006, Megabus, a discount carrier, entered the Wisconsin market serving Milwaukee, and in 2008 the company expanded service to Madison. In 2007, WisDOT received a Congestion Mitigation Air Quality grant to support additional bus service in the eastern part of the state, which indicates further interest in expanding intercity bus service. A new federal pilot program (the Supplemental Transportation Rural Assistance Program) has added to the momentum and led to implementation of a new service starting in 2008 between Minneapolis, Eau Claire, Wausau, Green Bay, and Milwaukee. Despite these positive developments, major gaps in service remain in Wisconsin, with many areas not receiving daily service.

Currently, eight companies provide intercity bus service in Wisconsin: Van Galder/Coach USA, Greyhound, Lamers, Indian Trails, Badger Coaches, Jefferson Lines, Megabus, and Wisconsin Coach Lines/ Coach USA. The primary purpose of trips taken by Greyhound bus passengers is to visit family and friends (Figure 3-3). These trips account for 48 percent of all Greyhound trips. Ridership on existing services and demand for new service is expected to continue to increase due to rising fuel costs, congestion, changing demographics and environmental concerns.

## Intercity passenger rail

Intercity passenger rail ridership in Wisconsin has grown significantly during the past 10 years. Ridership on Amtrak's *Hiawatha Service*, which operates between Chicago and Milwaukee, rose from 369,100 in 1997 to a record 617,800 in 2007, a 67 percent increase.

Ridership to and from Wisconsin rail stations on Amtrak's long-distance *Empire Builder* route, which operates between Chicago and Seattle/Portland, has increased 59 percent, from 59,700 in 2002 to 94,800 in 2007. Several factors have likely contributed to increases in intercity passenger rail ridership:

» Opportunity to avoid growing highway congestion, especially in the Chicago and Minneapolis/St. Paul metropolitan regions

» Increasing gasoline prices

» Continuing cooperation from the host railroads, Canadian Pacific Railway and Metra, which has allowed the *Hiawatha Service* to maintain the best on-time performance of any Amtrak route

» Continuing efforts by communities, the states of Wisconsin and Illinois, and Amtrak to improve the *Hiawatha Service*, which include:
  – Increasing daily round-trips from six to seven in 2002
  – Constructing a new station at Milwaukee's General Mitchell International Airport in 2005
  – Replacing the Sturtevant station with a new facility in 2006
  – Redeveloping Milwaukee's Amtrak depot into the new Milwaukee Intermodal Station in 2007

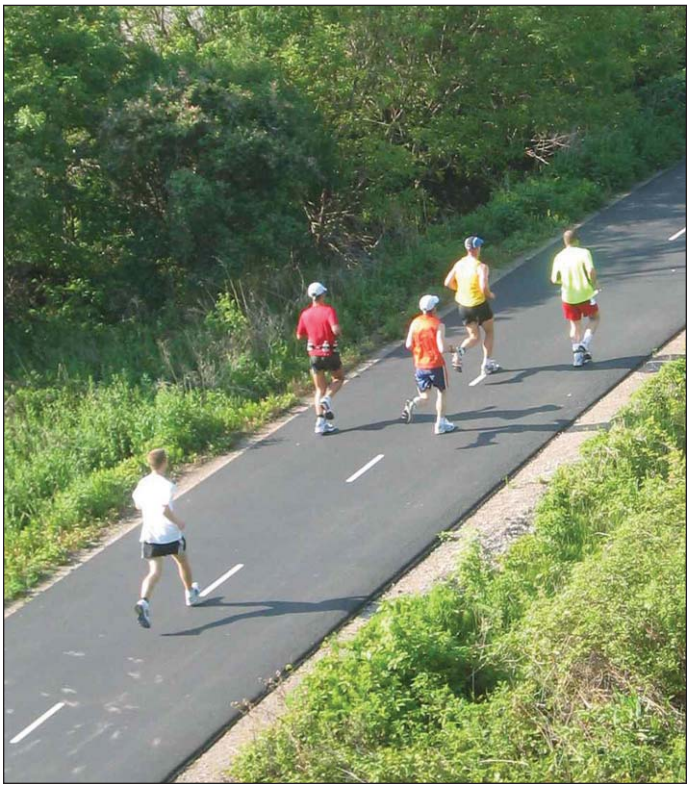
## Bicycle and pedestrian travel

Biking and walking will continue to be vital components of Wisconsin's multimodal transportation system. Bicycle and pedestrian modes currently account for 8.2 percent of all trips in Wisconsin for all 12 months of the year. The bicycle and pedestrian commuting modal share shown in Table 3-2 shows that a relatively low percentage of people use these modes to travel to work (0.4 percent for biking and 3.7 percent for walking). However, the Census data represents the last week of March, which is typically a period not conducive to making non-motorized journeys.

Moreover, just a small percentage of all trips made by bicycle and foot are for commuting purposes. Most of the metropolitan planning organization planning areas in Wisconsin exceed the state average for the percentage of trips made by bicycle and foot.

WisDOT addresses both of these modes in independent state bicycle and pedestrian plans. Both plans call for significant increases in the number of trips by bicycle and foot while reducing the number of crashes that involve pedestrians and cyclists. Crashes have continued to decline over the past decade while the number of walking and bicycling trips have increased; this is likely due to the increasing cost of gasoline. Walking will continue to be important in combination with other trips, especially those made by transit, since nearly every trip by bus starts and ends with a walking trip.

Dedicated funding programs, such as the Transportation Enhancements program, have been important for supporting bicycle and pedestrian projects and they are very popular among Wisconsin communities. However, another key strategy that will continue to foster the provision of bicycle and pedestrian facilities will involve incorporating these facilities as incidental components of larger street and highway projects.



▲ *Figure 3-4: Bicycle and pedestrian modes currently account for 8.2 percent of all trips in Wisconsin for all 12 months of the year.*

## Aviation

Aviation is a major component of Wisconsin's transportation system. As of 2007, 98 public-use airports comprised the state airport system, with scheduled commercial airline service offered at eight of these airports. These eight airports

AVIATION IS A MAJOR COMPONENT *of Wisconsin's transportation system. As of 2007, 98 public-use airports comprised the state airport system, with scheduled commercial airline service offered at eight of these airports.*

served 5.7 million passengers in 2007, about the same number as in 2006 and 2005. 2005 ended a trend of enplanements increasing every year since 2001, when these airports served 4.4 million passengers. Wisconsin's largest airport is Milwaukee's General Mitchell International Airport, followed by Madison's Dane County Regional Airport. In 2007, almost 70 percent of the state's passengers boarded at General Mitchell.

Air cargo activity in the state has decreased slightly since 2002. In 2007, more than 116 million pounds of cargo moved through Wisconsin's air carrier airports, while in 2006 118 millions pounds of cargo was moved. These years represent decreases, as more than 122 million pounds of cargo were shipped in 2003 and 2004, and more than 128 million pounds were shipped in 2002. Almost 77 percent of the 2007 cargo was loaded or unloaded at General Mitchell.

Wisconsin is directly served by 21 commercial passenger airlines and four cargo airlines. Wisconsin air passengers also use airports in adjoining states, including Chicago's O'Hare airport, Chicago Midway, Minneapolis-St. Paul International Airport, and airports in Dubuque, Iowa; Duluth, Minnesota; and Ironwood, Michigan.

## Transportation safety

### Summary of trends

Transportation safety has been and will continue to be an integral part of WisDOT's mission. WisDOT's commitment to improving transportation safety has been demonstrated by safety records that have remained below national averages from 1991 through 2007 (Figure 3-5). The number of fatalities on state roadways peaked in the late 1960s and early 1970s. After falling throughout the 1970s and 1980s, fatality numbers have slowly risen again since the early 1990s.

As depicted in Figure 3-6, the number of fatalities on state roadways has fluctuated, while the overall number of vehicle miles traveled has steadily increased. The projected growth in traffic volumes over the planning period will result in more vehicles using the roadways, and potentially more crashes and more fatalities unless additional action is taken. New requirements under the Safe, Accountable, Flexible and Efficient Transportation Equity Act-A Legacy for Users (SAFETEA-LU) further address safety challenges. These include:

» A new core highway safety improvement program

» Strategic highway safety planning

» Targeted safety programs for construction work zones, older drivers and pedestrians

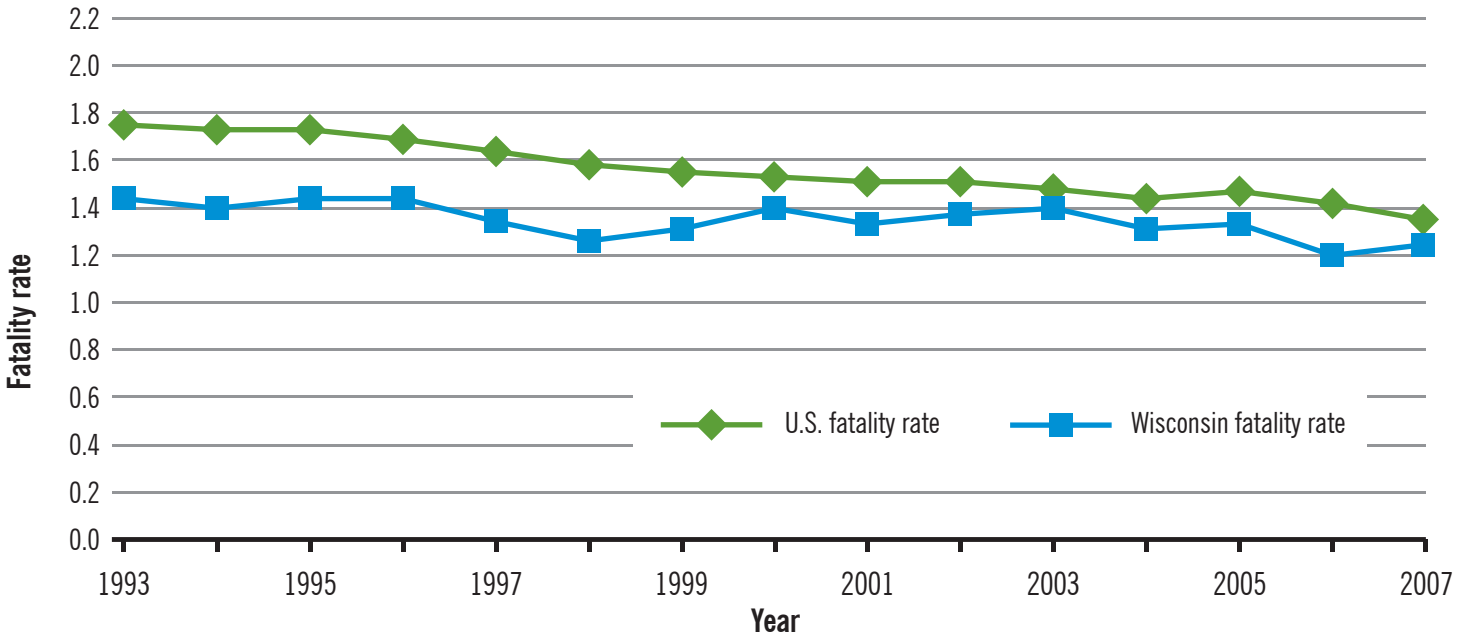
Increased use of technology will also have an impact on transportation safety. Cameras and other detection equipment can locate incidents quickly. Computerized mapping programs allow crash locations to be accurately entered into databases and can improve the comprehensiveness of crash analyses. These technologies, along with others, can be used to identify problem locations that need increased enforcement or improved engineering.

In addition, airbags and other vehicle technology have improved passengers' ability to survive crashes. On-board computers record vehicle data that can be used to help reconstruct incidents. These technologies, along with others, can help identify and improve driver behavior. Driver behavior is the primary cause of crashes for all age groups.

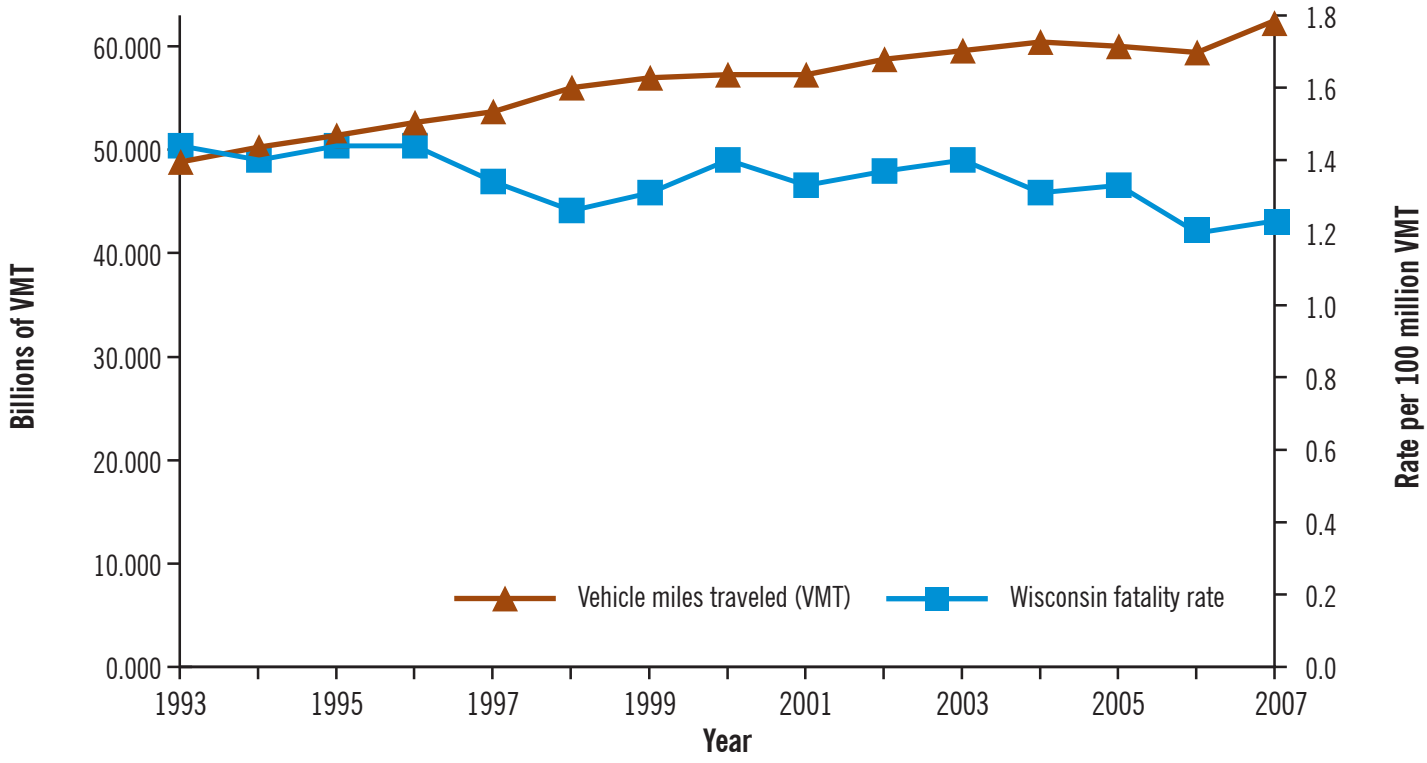
## Economic activity

Transportation and the state's economy are directly connected. The state's transportation system is and will continue to be vital to Wisconsin's economy, and the development of the state's economy will play an important role in guiding investments in the state's transportation system.

The changing demographic characteristics of the state's workforce will also impact future transportation plans by raising new challenges on how to best serve transportation needs. Additionally, travel patterns can be affected by the local or regional




▲ *Figure 3-5: Wisconsin fatality rate vs. U.S. fatality rate (1992-2006)*




▲ *Figure 3-6: Wisconsin fatality rate vs. vehicle miles traveled (1992-2006)*

economy, as well as other unpredictable factors. For example, increases in income often lead to increased travel demand. Consumer behavior and demand for more products, competitive pricing and demand for immediate access to goods will also affect the transportation system.

Historically, Wisconsin's economy was based on forest products, agriculture, and manufacturing industries. Today, with the support of transportation infrastructure and a strong education system, traditionally strong industries like manufacturing remain viable, while other sectors such as service and tourism have emerged.

### Table 3-4: Wisconsin industries with largest percentage output growth, 2005-2030 ($ billions, 1992 dollars)

| Industry | 2005 | 2030 | % growth |
|---|---|---|---|
| Machines and computers (m*) | $57.3 | $155.5 | 171 |
| Electric equipment (m) | 13.4 | 35.0 | 160 |
| Primary metals (m) | 4.4 | 10.7 | 123 |
| Instruments (m) | 5.8 | 12.7 | 118 |
| Miscellaneous business services (s) | 10.7 | 20.8 | 94 |
| Wholesale (o) | 16.3 | 30.8 | 89 |
| Air transportation (o) | 1.3 | 2.5 | 86 |
| Automobile repairs and service (s) | 3.6 | 6.6 | 84 |
| Communications (o) | 5.0 | 9.1 | 84 |
| Rubber (m) | 7.3 | 13.0 | 79 |

**m=manufacturing s=service o=other*

*Source: WisDOT and REMI (2002)*

### Table 3-5: Wisconsin industries with largest projected output, 2030 ($ billions, 1992 dollars)

| Industry | 2030 |
|---|---|
| Machines and computers (m) | $155.5 |
| Electric equipment (m) | 35.0 |
| Real estate (o) | 33.9 |
| Wholesale (o) | 30.8 |
| Food (m) | 24.5 |
| Medical (s) | 23.0 |
| Rest of retail (o) | 21.6 |
| Miscellaneous business service (s) | 20.8 |
| Paper (m) | 20.6 |
| Fabricated metals (m) | 17.2 |

**m=manufacturing s=service o=other*

*Source: WisDOT and REMI (2002)*

### Table 3-6: Top 10 largest employment sectors, 2005 and 2030

| Employment field | 2005 | Employment field | 2030 |
|---|---|---|---|
| Rest of retail* (o) | 391,725 | Medical (s) | 449,521 |
| Medical (s) | 282,337 | Rest of retail* (o) | 361,587 |
| Miscellaneous business services (s) | 227,781 | Miscellaneous business services (s) | 289,858 |
| Eating and drinking (s) | 201,482 | Eating and drinking (s) | 243,109 |
| Construction (o) | 168,066 | Nonprofit organizations (o) | 194,526 |
| Nonprofit organizations (o) | 146,830 | Miscellaneous professional services (s) | 176,375 |
| Wholesale (o) | 140,280 | Construction (o) | 165,680 |
| Miscellaneous professional services (s) | 113,266 | Machine and computer (m) | 138,343 |
| Machine and computer (m) | 95,527 | Wholesale (o) | 127,400 |
| Insurance (o) | 80,369 | Insurance (o) | 108,424 |

**"Rest of retail" is defined as any non-food or beverage services. This category includes building materials, hardware, garden supply, mobile home dealers, general merchandise stores, food stores, automotive dealers and gasoline service stations, apparel and accessory stores, home furnishings, equipment stores, miscellaneous retail.*

**m=manufacturing, s=service, o=other*

*Source: WisDOT and REMI (2002)*

## Overall economic conditions

Wisconsin's economy has long been dependent on traditional manufacturing and service industries, more so than many other states. Tables 3-4, 3-5, 3-6, 3-8, 3-9 and 3-10 illustrate Wisconsin's current and continued dependence on the manufacturing and service sectors. The tables also show that these sectors are expected to grow considerably by 2030.

In some cases, industries are expected to more than double their output.

## Regional conditions

Table 3-6 shows projected overall economic growth in Wisconsin, by region, through 2015. The Milwaukee area is projected to experience the most economic growth, while many areas of Central and Northwest Wisconsin are expected to experience growth below the statewide average.

## Freight shipping patterns

Wisconsin's transportation system allows businesses to ship and receive goods both domestically and internationally. The state's transportation system also supports the "overhead" shipment of goods that simply pass through Wisconsin.

### Table 3-7: Forecast economic growth, 2000-2015

| Region | Approximate % growth |
|---|---|
| Milwaukee | 45.4 |
| La Crosse/Coulee Region | 42.2 |
| Eau Claire/Chippewa Valley | 42.2 |
| Green Bay/Fox Valley | 41.5 |
| Madison | 39.5 |
| Rhinelander | 39.2 |
| Central Wisconsin/Wausau | 37.5 |
| Superior | 35.3 |
| **State of Wisconsin** | **42.2** |

*Source: WisDOT and REMI (2002)*

Domestic, international and overhead shipping are all expected to grow in Wisconsin. To maintain a healthy economy, Wisconsin's transportation facilities will need to accommodate this growth.

## Wisconsin's top trading partners

As shown in Table 3-7, Wisconsin businesses received or shipped more than 528 million tons of freight in 2002. This freight was valued at more than $433 billion. In 2002, 40 percent of the freight by weight shipped from Wisconsin traveled entirely within

### Table 3-8: Top Wisconsin trading partners, 2002 and 2035

| | TON (MILLIONS) | | | VALUE (MILLIONS OF DOLLARS) | | |
|---|---|---|---|---|---|---|
| | Year | | | Year | | |
| Region | 2002 | 2035 | % change | 2002 | 2035 | % change |
| Wisconsin[1] | 214.6 | 332.2 | 55% | $117,877 | $214,683 | 82% |
| Illinois | 84.0 | 160.9 | 92% | $75,116 | $177,734 | 137% |
| Minnesota | 45.6 | 105.7 | 132% | $32,317 | $81,763 | 153% |
| Michigan | 29.3 | 46.4 | 58% | $22,829 | $56,209 | 146% |
| Wyoming | 22.5 | 52.0 | 131% | | | |
| Ohio | | | | $22,528 | $44,625 | 98% |
| International | 16.7 | 32.9 | 97% | $17,881 | $63,983 | 258% |
| **Total[2]** | **528.6** | **947.0** | **79%** | **$433,643** | **$976,755** | **125%** |

[1]*Trade that occurs entirely within Wisconsin*

[2]*Includes trade with other U.S. states not listed*

*Source: Freight Analysis Framework[2.2], Office of Freight Management and Operations, Federal Highway Administration*

### Table 3-9: Top destinations of Wisconsin international exports (millions of dollars)

| Destination | 1997 | Destination | 2007 |
|---|---|---|---|
| Canada | $3,531 | Canada | $5,846 |
| Japan | $722 | Mexico | $1,891 |
| United Kingdom | $602 | China | $1,179 |
| Mexico | $454 | United Kingdom | $723 |
| Germany | $433 | Germany | $661 |
| France | $400 | Japan | $655 |
| Austrailia | $262 | Austrailia | $564 |
| Netherlands | $250 | Saudi Arabia | $476 |
| Hong Kong | $205 | France | $442 |
| Belgium | $204 | Belgium | $423 |
| All destinations | $10,125 | All destinations | $19,186 |

*Source: Wisconsin Department of Commerce*

### Table 3-10: Top Wisconsin international export products (millions of dollars)

| Product | 1997 | Product | 2007 |
|---|---|---|---|
| Industrial machinery | $3,314 | Industrial machinery | $6,153 |
| Transportation equipment | $1,378 | Electrical machinery | $2,746 |
| Instruments | $1,048 | Instruments | $2,062 |
| Electrical machinery | $834 | Transportation equipment | $1,738 |
| Paper products | $453 | Paper products | $832 |
| Plastic products | $293 | Plastic products | $613 |
| Cereals | $249 | Cereals | $503 |
| Miscellaneous grain, seed and fruit | $173 | Iron/steel products | $293 |
| Iron/steel products | $164 | Printed materials | $261 |
| Printed materials | $122 | Furniture and bedding | $219 |
| All products | $10,125 | All products | $19,186 |

*Source: Wisconsin Department of Commerce*

the state's borders, 56 percent was moved between Wisconsin and other U.S. states, and 3 percent traveled between Wisconsin and international markets.

Table 3-8 also shows that Wisconsin's international trade is generally expected to grow faster than its domestic trade. By 2035, Wisconsin is expected to import and export 33 million tons of goods — valued at $64 billion — to and from its international trading partners.

Table 3-9 shows the top (based on product value) international destinations of Wisconsin goods in 1997 and 2007. During the 10-year period, Wisconsin's international exports nearly doubled. While Canada remains Wisconsin's top international trading partner, the state's trade with Mexico and China is growing rapidly.

Compared with freight tonnage, the value of freight shipped to and from other U.S. states accounted for a higher percentage of Wisconsin's total trade:

## Table 3-11: Wisconsin freight shipments by weight, 2002 and 2035 (millions of tons)

| | WITHIN STATE | | | FROM STATE | | | TO STATE | | |
|---|---|---|---|---|---|---|---|---|---|
| | Year | | | Year | | | Year | | |
| Mode | 2002 | 2035 | % change | 2002 | 2035 | % change | 2002 | 2035 | % change |
| Truck | 189.0 | 301.3 | 59% | 77.2 | 134.6 | 74% | 90.4 | 204.4 | 126% |
| Rail | 5.8 | 6.1 | 5% | 31.7 | 56.8 | 79% | 57.5 | 122.9 | 114% |
| Water | 3.3 | 5.2 | 58% | 5.8 | 5.4 | -7% | 0.4 | 1.4 | 250% |
| Air, air and truck | < 0.1 | < 0.1 | 0% | < 0.1 | < 0.1 | 0% | < 0.1 | 0.2 | 100% |
| Truck and rail | < 0.1 | < 0.1 | 0% | 1.6 | 2.9 | 81% | 0.3 | 0.7 | 133% |
| Other Intermodal[1] | 0.1 | 0.3 | 200% | 0.6 | 1.5 | 150% | 1.5 | 2.1 | 40% |
| Pipeline and unknown[2] | 16.3 | 19.3 | 18% | 17.3 | 18.1 | 5% | 29.6 | 63.7 | 115% |
| **Total** | **214.6** | **332.2** | **55%** | **134.2** | **219.3** | **63%** | **179.8** | **395.5** | **120%** |

*[1]Other intermodal shipping includes U.S. Postal Service, courier shipments and all intermodal combinations except air and truck.*

*[2]Land unknown shipments are combined because data on region-to-region flows by pipeline are statistically uncertain.*

*Note: Numbers may not add up to the total due to rounding.*

*Source: Freight Analysis Framework[2.2], Office of Freight Management and Operations, Federal Highway Administration*

## Table 3-12: Wisconsin freight shipments by value, 2002 and 2035 (millions of dollars)

| | WITHIN STATE | | | FROM STATE | | | TO STATE | | |
|---|---|---|---|---|---|---|---|---|---|
| | Year | | | Year | | | Year | | |
| Mode | 2002 | 2035 | % change | 2002 | 2035 | % change | 2002 | 2035 | % change |
| Truck | $108,148 | $198,784 | 84% | $121,713 | $214,364 | 76% | $114,364 | $329,989 | 189% |
| Rail | $344 | $396 | 15% | $3,929 | $6,055 | 54% | $12,745 | $21,289 | 67% |
| Water | $601 | $1,017 | 69% | $774 | $784 | 1% | $36 | $153 | 325% |
| Air, air and truck | $46 | $137 | 198% | $1,443 | $2,323 | 61% | $1,313 | $5,024 | 283% |
| Truck and rail | $127 | $292 | 130% | $7,080 | $11,375 | 61% | $1,055 | $3,889 | 269% |
| Other Intermodal[1] | $3,543 | $6,211 | 75% | $17,202 | $37,144 | 116% | $14,432 | $96,492 | 569% |
| Pipeline and unknown[2] | $5,068 | $7,846 | 55% | $10,036 | $10,491 | 5% | $9,645 | $22,701 | 135% |
| **Total** | **$117,877** | **$214,683** | **82%** | **$162,177** | **$282,534** | **74%** | **$153,589** | **$479,538** | **212%** |

*[1]Other intermodal shipping includes U.S. Postal Service, courier shipments and all intermodal combinations except air and truck.*

*[2]Land unknown shipments are combined because data on region-to-region flows by pipeline are statistically uncertain.*

*Note: Numbers may not add up to the total due to rounding.*

*Source: Freight Analysis Framework[2.2], Office of Freight Management and Operations, Federal Highway Administration*

» 68 percent of the total value of products shipped to, from and within Wisconsin came from trade with other U.S. states

» 27 percent came from trade that occurred entirely within Wisconsin's borders

» Four percent came from international trade

Wisconsin's freight shipments, measured by tonnage and value, are expected to double by 2035. Table 3-10 shows the top products (based on value) exported by Wisconsin firms in 1997 and 2007. Industrial

▲ *Map 3-3: Projected 2020 freight rail density*

machinery was the top export in both years, accounting for about 32 percent of all exports. Other major exports in 2007 were electrical machinery, instruments, transportation equipment and paper products.

## Overhead freight

A portion of all freight is simply called "overhead freight." These freight shipments travel through Wisconsin, but neither originate nor terminate in the state. In 2001, approximately 146 million tons of overhead freight moved through Wisconsin.[3] Overhead shipments are expected to grow through 2030, taking up capacity on Wisconsin's transportation system.

## Freight modal distribution

Tables 3-11 and 3-12 illustrate how and where Wisconsin's freight was moved in 2002 and how it is expected to move in 2035. While the total amount of freight shipped is forecast to increase for all modes, trucking is expected to remain the dominant mode of freight transportation in the state. Trucking is expected to account for 68 percent of all 2035 freight shipments measured by weight and 76 percent of all 2035 freight shipments measured by value.

With truck traffic expected to double by 2030, major highway corridors serving manufacturing, retail trade and service industries will experience heavy increases in commercial truck traffic. Any increase in vehicle miles traveled on state trunk highways can negatively impact the delivery of goods if no alternatives for shipping exist. In Wisconsin, it is expected that commercial vehicle miles traveled will outpace the growth of total vehicle miles traveled through the year 2030. Some commodities will be moved on a local basis and others will generate more long-haul demand.

Even though trucking is expected to remain the dominant mode of freight transportation, the other modes will also carry increasing amounts of freight and will remain important parts of the overall transportation system. For example, freight trains will continue to carry the majority of coal used by Wisconsin power plants. Wisconsin freight rail traffic (measured by weight) is expected to nearly double by 2035, with much of the traffic concentrated on certain rail lines (Map 3-3).

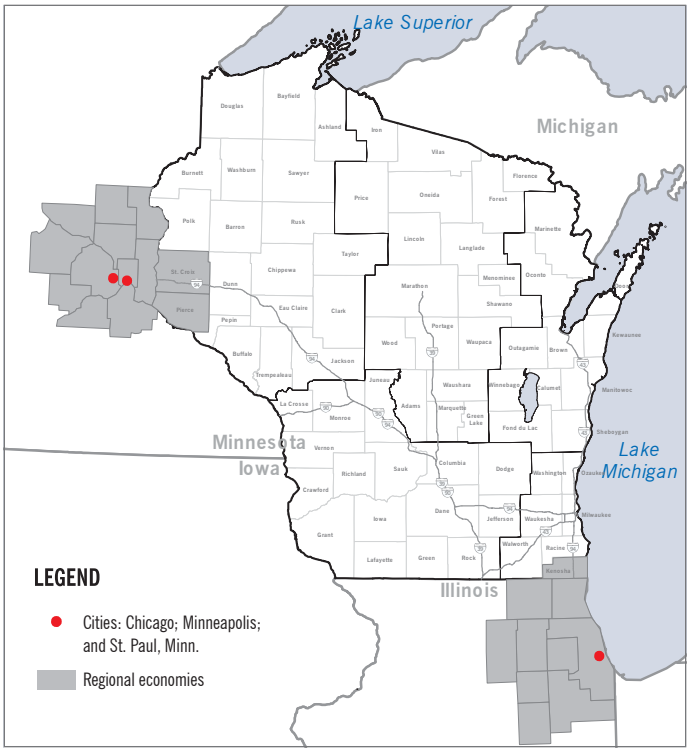
The Great Lakes shipping fleet will continue to carry heavy bulk products such as coal and grain, as well as large, high-tech products such as wind turbine parts. Finally, airplanes will continue to carry high-value, high-tech items.

## Labor force factors

A major factor that may affect the state's economic growth during the next 30 years will be the economy's labor demands. While Wisconsin will experience the inevitable rising and falling of economic cycles, demand for workers with specific skills will continue to outpace supply.

Much of the demand for workers will be a result of demographic changes. As the "baby boom" generation

[3] Reebie Associates. Construction and Forecast of Wisconsin Freight Data. February 2002.




▲ *Map 3-4: Proximity of regional economies to Wisconsin*

retires, there will be fewer people of working age. In Wisconsin, the number of people turning 65 will surpass the number of people turning 18 in about 2020. This trend is expected to continue for a number of years, increasing the unmet demand for workers in Wisconsin. When approximately equal numbers of people are entering and leaving the workforce, there is little, if any, opportunity for growth. Also, inflation may occur when an economy that is attempting to grow has strong competition for a decreasing number of available workers.

The impact that older workers will have on the labor supply is unknown. Longer life expectancy means people could work longer, but more and more people are investing in 401(k) programs, individual retirement accounts and other personal investment programs with the goal of being able to retire before the traditional retirement age. Depending on the economic environment, this could result in more people leaving the workforce prematurely. Some individuals may decide to return to the workforce after retirement, but because these returning workers may opt for reduced, flexible or nontraditional work schedules, it is difficult to project the overall impacts on the labor supply.

### Travel statistics of Wisconsin's workers

› 73 percent live and work in the same county

› 22 percent work outside of the county where they reside

› 4 percent work out of state

Source: U.S. Census 2000, WI Dept. of Administration

Meanwhile, access to jobs has become especially important in recent years to carry out Wisconsin's welfare-to-work initiatives. The Job Access and Reverse Commute Program connects low-income workers with jobs through enhanced transportation services. The program funds capital and operating costs of services that provide working families with access to jobs and child care.

## Regional travel patterns and economies

Regional economies span cities, counties and states. These economies link businesses and industries through shared labor pools, and transportation networks provide important connections between these businesses and industries.

Two metropolitan regions outside Wisconsin's borders impact the state's economy and transportation system: the Minneapolis/St. Paul and Chicago metropolitan areas (Map 3-4). These areas generate significant freight traffic and worker flow into and out of Wisconsin. Both metro areas have extensive intermodal terminal networks, which optimize the transfer of freight goods between modes. Because of the state's close proximity to this infrastructure, expanding Wisconsin's intermodal terminal network is economically impractical.

Consequently, heavy truck traffic along the I-94, I-90, I-43 and I-39 corridors is increasing as goods are trucked to, from and through Wisconsin to intermodal terminals in Minnesota, Illinois and elsewhere.

Both neighboring metropolitan areas also influence passenger travel and work patterns in Wisconsin. For example, job growth in the Minneapolis/St. Paul and Chicago urban areas has had a significant impact on travel into and out of Wisconsin. During the past several decades, economic expansion in Minneapolis and St. Paul has contributed to the dramatic growth and development of Wisconsin's St. Croix County. I-94 allows a a large number of western Wisconsin workers to access the larger Minnesota job market.

For example, in 2000, almost 15,000 of St. Croix County's working residents commuted to Minnesota for work. This comprised 43 percent of the more than 44,000 Wisconsin workers that commuted to Minnesota. In comparison, fewer than 16,000 Minnesota workers commuted to Wisconsin.

The Wisconsin-Illinois border area experiences similar patterns. The Chicago area is the third largest metropolitan region in the United States. Because of its close proximity to the Wisconsin border, the Chicago area commuter shed is spreading into Wisconsin. More than 41,000 Wisconsin residents work in Illinois, 50 percent of whom live in Kenosha County. In contrast, fewer than 15,000 Illinois residents work in Wisconsin.

A number of workers also travel between Iowa and Wisconsin, and Michigan and Wisconsin. About 2,400 Iowans commute to Wisconsin. In contrast, 4,300 Wisconsin residents commute to Iowa, 66.7 percent of whom reside in Grant County. A higher number of Michigan workers – 7,075 – commute to Wisconsin compared with the approximately 5,400 Wisconsin workers who travel to Michigan. Forty-seven percent of the Wisconsin workers that commute to Michigan reside in Marinette County.

The location of job growth also influences regional travel patterns, and these locations have shifted over time. Many jobs have moved out of the central core of cities to the urban fringes and suburbs. This creates challenges in connecting urban dwellers, who often rely on public transit, to their suburban workplaces. As a result, reverse commute transit services have become important to some segments of the population.

## 'Megaregions'

Wisconsin is also part of a "megaregion." Megaregions represent a new framework for discussing regional economies and transportation. A megaregion is defined as a network of metropolitan regions connected by commuting, linked economies, environmental systems and geography, infrastructure systems, settlement patterns, and shared culture and history.[4]

According to the 2006 America 2050 report, most of the nation's population and economic expansion is expected to occur in 10 or more emerging megaregions.[5] These megaregions will account for 50 percent of the nation's population growth and 66 percent of its economic growth during the next 45 years. This population and economic growth will increase to more than 70 percent by the middle of the 21st century.[6] The America 2050 document reports "emerging megaregions are becoming the new competitive units in the global economy, characterized by the increasing movement of goods, people and capital among their metro regions."[7]

Wisconsin lies within the Midwest megaregion, which stretches across the Midwest from Minneapolis/St. Paul to Buffalo, N.Y., and includes major Midwestern cities: Milwaukee, Chicago, St. Louis, Detroit, Indianapolis, Cleveland and Pittsburgh (Map 3-5). The Midwest megaregion has many assets, including the Great Lakes, environmental resources, and a strong research and cultural tradition tied to major universities.

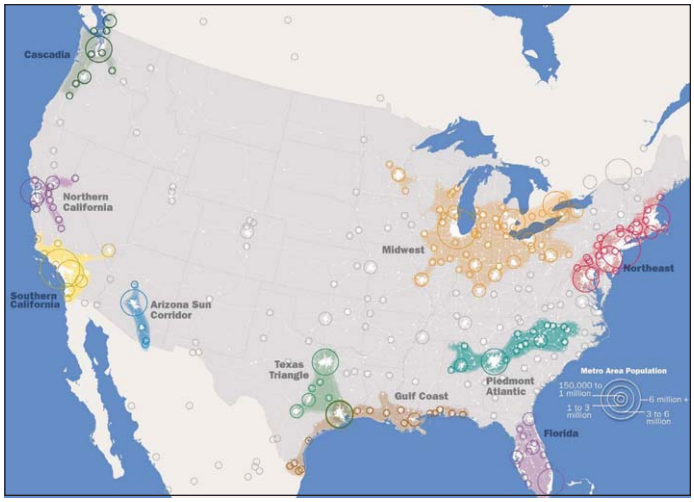
Each megaregion faces increased highway congestion, overcrowded airports and seaports, loss of open space, and aging infrastructure. These problems are

[4] America 2050. A Prospectus. 2006.

[5] Ibid.

[6] Ibid.

[7] Ibid.




▲ *Map 3-5: Ten U.S. emerging megaregions*

*Source: Regional Plan Association*

compounded by population growth and expanding international trade.[8] To accommodate freight transportation, megaregions are connected internally and to the global economy through the national truck and rail networks. In the Midwest megaregion, freight congestion and movement within and through the Chicago area remains a significant challenge, with additional freight infrastructure needed throughout the region. While a transportation network exists to support freight movements, efficient passenger connections within megaregions, including the Midwest megaregion and others, are lacking or nonexistent.

Increased availability of alternative transportation modes will be necessary for each megaregion to stay economically competitive as it faces increased airport and highway congestion, rising fuel costs, and air pollution and global warming concerns. Similar regions in Asia and Europe are investing in high-speed rail systems to link cities across distances of 100 to 500 miles. This investment is seen as key to increasing competitiveness in the global economy, where value is created by time savings, collaboration and innovation. The emerging megaregions in the United States will require expansion of existing passenger networks and the addition of new transportation modes to accommodate trips of 100 to 500 miles. The emphasis is likely to be on intercity passenger rail, which has been identified as the mode that can best enable personal mobility and economic interaction across megaregions for distances less than 500 miles. For longer trips, air travel may be more efficient.

[8] Ibid.

### Consequences of increasing energy costs

› Wisconsin citizens and businesses will face higher costs

› Other transportation modes will face demands to carry more passengers

› Gas tax revenue growth will slow

› The state transportation fund's ability to meet future needs will be hindered

› Wisconsin will need to identify alternative methods for funding improvements to the state's transportation system

## Energy and environment

### Summary of energy trends

» More than 83 percent of all petroleum used in Wisconsin is consumed by the transportation sector

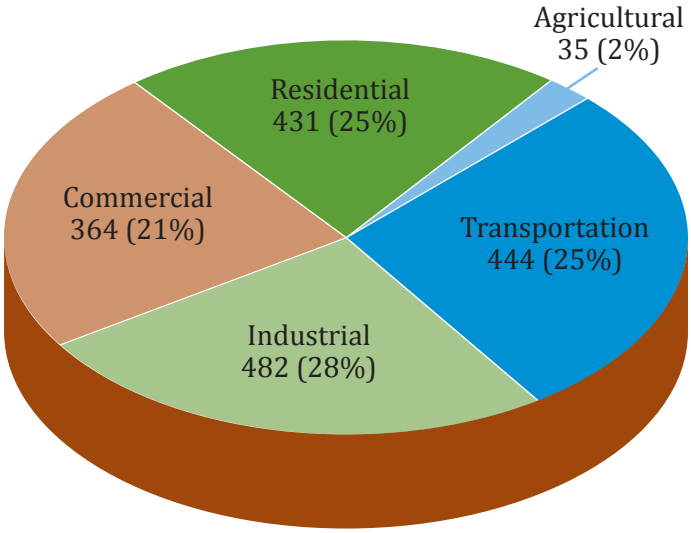
» The inflation-adjusted price of regular unleaded gasoline has nearly doubled over the past decade, increasing from $1.50 per gallon (in

2007 dollars) in 1995 to $2.87 per gallon in 2007. When adjusted for inflation, the price of regular unleaded gasoline in Wisconsin in 2007 even exceeded the high prices encountered by Wisconsin residents during the energy crisis of the late 1970s and early 1980s.

» In 2005, higher fuel prices resulted in a 1.3 percent decrease in transportation fuel use, the first decrease since 1990. Vehicle miles traveled also decreased 0.6 percent in 2005, the first decrease since 1980

» In 2006, a quarter of all energy consumed in Wisconsin was used for transportation

» Transportation energy use has grown steadily during the past 30 years




▲ *Figure 3-7: Wisconsin energy use (2007) (trillions of Btu and percent of total)*

*Source:* Wisconsin Energy Statistics 2008, *Wisconsin Office of Energy Independence*

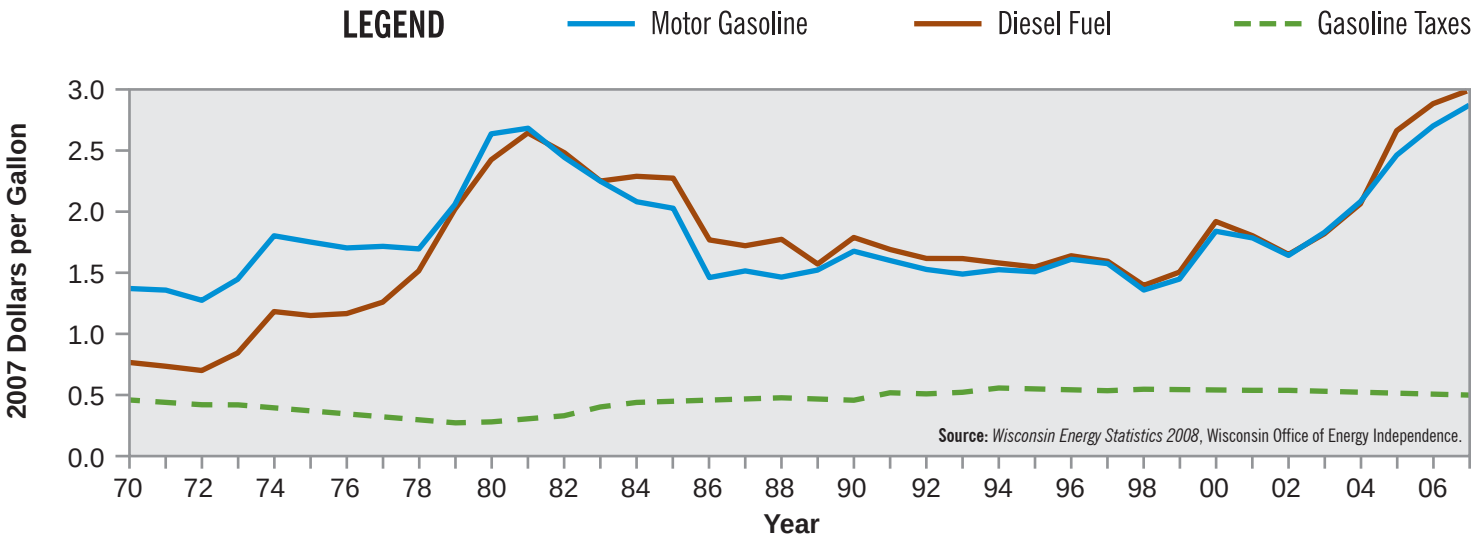
## Fuel prices

Wisconsin's transportation system depends on petroleum and related products. Transportation accounts for 25 percent of the total energy used in Wisconsin (Figure 3-7).

In 2007, petroleum-based fuels, such as gasoline, diesel and jet fuel, accounted for about 97 percent of the energy used by the automobiles, trucks, airplanes, trains and ships that move people and goods via Wisconsin's transportation system.[9] More than 83 percent of all petroleum used in Wisconsin is consumed by the transportation sector.[10]

[9] *Wisconsin Energy Statistics 2007*. Wisconsin Office of Energy Independence.

[10] Ibid.



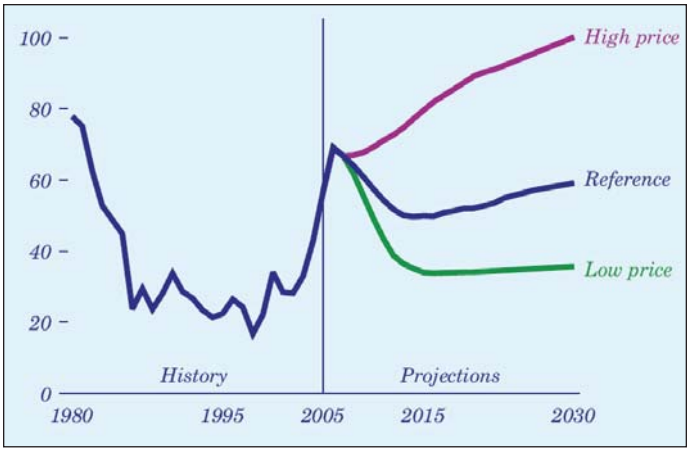

▲ *Figure 3-8: Wisconsin motor gasoline and diesel fuel retail prices, 1970-2007*

In recent years, the cost of fuel has increased considerably. Figure 3-8 shows changes in fuel prices from 1970 to 2007. As of early 2008, the price of a barrel of oil would need to decrease 65 percent to return to its 2003 price.

The federal government expects upward pressure on petroleum prices to continue at least through 2030. The U.S. Department of Energy's Energy Information Administration (EIA) considers the trends discussed previously to produce projections of world oil production and prices, estimates of supply and other relevant data. The EIA's Annual Energy Outlook 2007 identifies three future scenarios of oil production prices (Figure 3-9). In all three scenarios, the EIA envisions oil prices higher than they have been during much of the past 20 years.

With oil prices well above $100 per barrel in early 2008, there is growing concern that fuel prices could follow a path similar to the EIA's High Price Scenario. A 2007 U.S. Government Accountability Office review of global oil production studies found production is expected to peak and begin to decline sometime between now and 2040.[11]

If such a peak occurs during the plan period, transportation costs are expected to keep rising. Rising fuel costs may encourage consumers and businesses to use fuel more efficiently, either by driving less or by switching to more fuel-efficient modes of transportation. In 2005, higher fuel prices resulted in a 1.3 percent decrease in transportation fuel use, the first decrease since 1990. Vehicle miles traveled also decreased 0.6 percent in 2005, the first decrease since 1980. These decreases benefit Wisconsin consumers and businesses, as well as the environment. However, from a transportation funding perspective, this reduction in fuel consumption and the resulting decrease in fuel taxes collected means less revenue for Wisconsin's transportation fund. Wisconsin's ability to pay for roadway maintenance, new highway




▲ *Figure 3-9: World oil prices in three future scenarios, 1980-2030 (2005 dollars/barrel)*

*Source:* Energy Outlook 2007. *Energy Information Administration.*

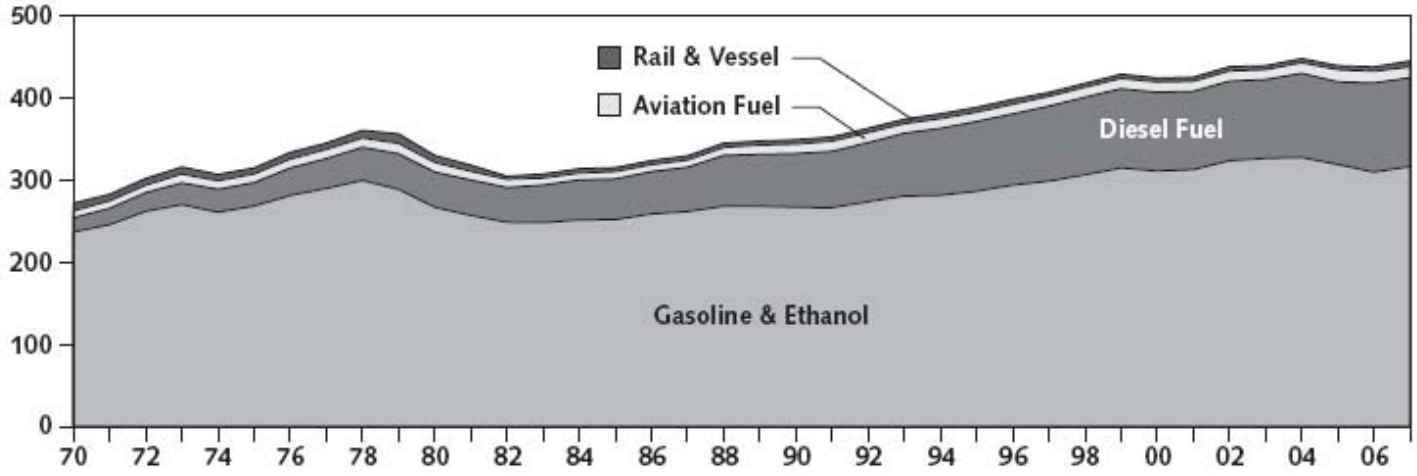
construction and other transportation projects would be reduced. However, efforts to track changes in fuel tax revenue collections and finance projections indicate that the level of transportation funding from fuel taxes will remain relatively unchanged until about 2015. See Chapter 12, *Funding Wisconsin's Transportation System*, for more information.

## Transportation alternative fuel use

Most of the transportation sector's energy comes from gasoline and ethanol, but diesel fuel consumption is increasing (Figure 3-10). Interest in alternative fuels such as ethanol and biodiesel also continues to grow. Wisconsin's first large scale ethanol plant began producing fuel in 2001. Ethanol production in Wisconsin increased from 210.4 million gallons in 2006 to 283.8 million gallons in 2007, an increase of over 34 percent. The state's capacity to produce ethanol has been projected to reach nearly 400 million gallons per year by the end of 2008. In the next few years, Wisconsin's ethanol production capacity is expected to reach 877 million gallons per year.[12] Wisconsin's first biodiesel refining facility began operating in 2004 and has produced about two million gallons of biodiesel per year. State biodiesel

[11] *Crude Oil: Uncertainty About Future Oil Supply Makes It Important to Develop a Strategy for Addressing a Peak and Decline in Oil Production*. United States Government Accountability Office. February 2007.

[12] Wisconsin Office of Energy Independence.




▲ *Figure 3-10: Wisconsin transportation energy use by type of fuel, 1970-2007 (trillions of Btu)*

*Source: Wisconsin Energy Statistics 2008, Wisconsin Office of Energy Independence*

production is expected to increase to 58 million gallons per year by 2008. By 2010, Wisconsin is expected to have the potential to produce 183 million gallons of biodiesel per year.[13]

## Private and public sector response to rising fuel prices

Both the private and public sectors are responding to higher fuel prices. Major vehicle manufacturers have increased production of more fuel-efficient models, such as gasoline-electric hybrids, flex-fuel vehicles capable of running on fuel that is 85 percent ethanol, and diesel vehicles.

To save fuel, major freight carriers and retail stores have changed their supply chains and vehicles, and they have also passed on fuel surcharges to consumers. Some carriers have made physical changes to the trucks that haul their products, such as making vehicles more aerodynamic to increase fuel efficiency. Others have made the shift from truck to rail for portions of their shipping routes. Still others have reduced the weight or size of packaging in order to get more products into each vehicle at a lighter, fuel-saving weight.

Guided by the 2001 National Energy Policy, the federal government has funded several research and development programs to study traditional and alternative ways of meeting the energy challenges facing the nation.

In the transportation sector, areas of emphasis include renewable fuels, more efficient engines, and new battery technologies that would advance hybrid and electric vehicles. These efforts have increasingly sought to address air quality issues and climate change concerns. Other major federal activities include:

» The Energy Independence and Security Act, signed in December 2007, will improve fuel economy for cars and light trucks, and it will significantly increase the use of renewable fuels.

» In 2007, the U.S. Supreme Court ruled that the U.S. EPA can regulate carbon dioxide. As a result, the U.S. EPA will likely issue rules related to carbon dioxide emissions in the near future.

» The U.S. EPA is considering rulemaking to address greenhouse gas emissions from a variety of sources, including motor vehicles. This rule-making may also require changes to the transportation system's fuel use.

[13] Ibid.

» Regarding international activities, the Bali Action Plan was ratified at the December 2007 United Nations Climate Change Conference. The plan commits the United States and 180 other nations to negotiating a new climate agreement by the end of 2009, which will go into effect in 2012 when the Kyoto Protocol's first commitment period ends. Such agreements typically have sections that apply to the transportation sector, which contributes to atmospheric pollutants.

Wisconsin is also involved in activities to reduce fuel dependency, such as tying changes in transportation-related greenhouse gas emissions and carbon dioxide to increased fuel efficiency, business development related to the demand for biofuels, and research. Some examples include:

» Midwest Greenhouse Gas Reduction Accord: Wisconsin, eight other Midwest states and Manitoba, Canada, committed to establishing greenhouse gas reduction targets and developing a market-based and multi-sector cap-and-trade mechanism to help achieve those targets. The Midwest Accord joins already existing regional greenhouse gas agreements that cover Western states and the Northeast and encompass almost half of the U.S. population.

» State Office of Energy Independence: Governor Jim Doyle created this office in 2007. Major transportation-related goals include getting 25 percent of the state's transportation fuel from renewable resources by 2025; capturing a 10 percent share of the emerging renewable energy market by 2030; and becoming a national leader in research to make alternative energy more affordable and available.

» Governor's Task Force on Global Warming: This task force, which includes representatives from business and advocacy groups, recommended ways Wisconsin can make substantial progress in stabilizing and reducing its greenhouse gas emissions.

## Environment

WisDOT continues to balance the needs of the state's transportation system with the concerns of stakeholders and potential environmental impacts. With regard to addressing environment issues, four areas are particularly important:

▲ *Figure 3-11: Guided by the 2001 National Energy Policy, the federal government has funded several research and development programs to study traditional and alternative ways of meeting the energy challenges facing the nation.*

» Coordination

» Air quality

» Climate change

» Land use

### Coordination

The Safe, Accountable, Flexible, Efficient Transportation Equity Act-A Legacy for Users (SAFETEA-LU) requires increased consideration of environmental issues during the transportation planning process. Specifically, SAFETEA-LU requires transportation agencies to consider environmental mitigation activities in their long-range transportation plans. SAFETEA-LU also requires transportation agencies to consult with environmental resource agencies and tribes to discuss these mitigation measures and to compare the transportation plan to available conservation inventories, maps and databases. This will require transportation agencies, environmental resource agencies and tribes to better coordinate their transportation planning and environmental functions.

### Air quality

A wide variety of pollutants are emitted into the atmosphere by vehicles and other transportation-related sources. Effects of these pollutants include health problems, damage to plants and reduced visibility. Other sources of pollutants, such as industrial activities, stationary sources such as electric utilities and boilers, and solid waste disposal processes, also contribute significantly to air pollution.

The Clean Air Act established National Ambient Air Quality Standards (NAAQS) for several key pollutants. Ten Wisconsin counties are designated as non-attainment areas for the current ozone standard, and more counties may fall into non-attainment status if this standard is changed. The U.S. EPA has designated three Wisconsin counties as non-attainment for the particulate 2.5 standard: Milwaukee, Racine and Waukesha.

There is growing concern about greenhouse gases. In 2007, the U.S. Supreme Court ruled that the U.S. EPA can regulate carbon dioxide. As a result, the U.S. EPA will likely issue rules related to carbon dioxide emissions in the near future.

### Climate change

The burning of fossil fuels and the resulting greenhouse gas emissions, particularly carbon dioxide

THE CLEAN AIR ACT ESTABLISHED

*National Ambient Air Quality Standards for several key pollutants. Nine Wisconsin counties are designated as non-attainment areas for the current ozone standard, and more counties may fall into non-attainment status if this standard is changed.*

($CO_2$) but also methane and nitrous oxide, trap heat in the earth's atmosphere and are the largest contributors to human causes of climate change. $CO_2$ emissions resulting from transportation sources account for one-third of all carbon dioxide emissions. In Wisconsin, the transportation sector is responsible for 24 percent of greenhouse gas emissions. In general, alternatives to single-occupancy automobiles and trucks such as transit and intercity passenger rail are more fuel-efficient and typically produce fewer carbon emissions per passenger mile.

At the international, national and state levels, efforts to assess the effects of, and solutions to, global warming are becoming high priorities. Nationally, the U.S. Congress is addressing climate change through several proposed bills. Wisconsin has begun to evaluate whether to institute carbon emission cap and trade programs.

In 2007, nine Midwestern states, including Wisconsin, signed the Midwest Regional Greenhouse Gas Reduction Accord to combat global warming by targeting greenhouse gas emissions with carbon trading programs and other initiatives. Twelve Midwestern states signed the 2007 Energy Security and Climate Stewardship Platform for the Midwest, an agreement aimed at reducing dependency on petroleum-based energy sources, particularly foreign oil.

## Alternative land use development models

"Urban sprawl," or low-density, single-use, car-oriented development on the urban fringes, continues to be the dominant form of development. However, there has been an increase in alternative development models and planning initiatives both nationwide and in Wisconsin. These include movements such as:

› **"New urbanism," or traditional neighborhood development:** Refers to creating neighborhoods with a "sense of place" that include a mix of uses, compact development, community gathering and open spaces, and accommodations for transit, walking, biking, and auto travel.

› **Transit-oriented development:** Refers to high density, mixed use, compact development that is oriented around transit stations and facilities. This type of development enables a higher number of trips to be made by transit or walking, and improves access to transit by ensuring a short walking distance to transit stops for all residents and workers in the development.

In addition, in 2007 the governor established the Governor's Task Force on Global Warming to examine actions to curb greenhouse gas emissions in Wisconsin, and created the Office of Energy Independence. In July 2008, the Governor's Task Force on Global Warming presented its findings and recommendations for a state plan to reduce Wisconsin's contribution to global warming.

At the local level, as of 2007, 720 cities across the United States, including 16 in Wisconsin, signed the U.S. Conference of Mayors Climate Protection Agreement to meet the Kyoto protocol's greenhouse gas emission reduction targets, in addition to many other local initiatives.

### Land use

During the past several decades, Wisconsin's dominant pattern of development around metropolitan areas has been scattered and less dense. As populations become more dispersed, services and activities tend to follow.

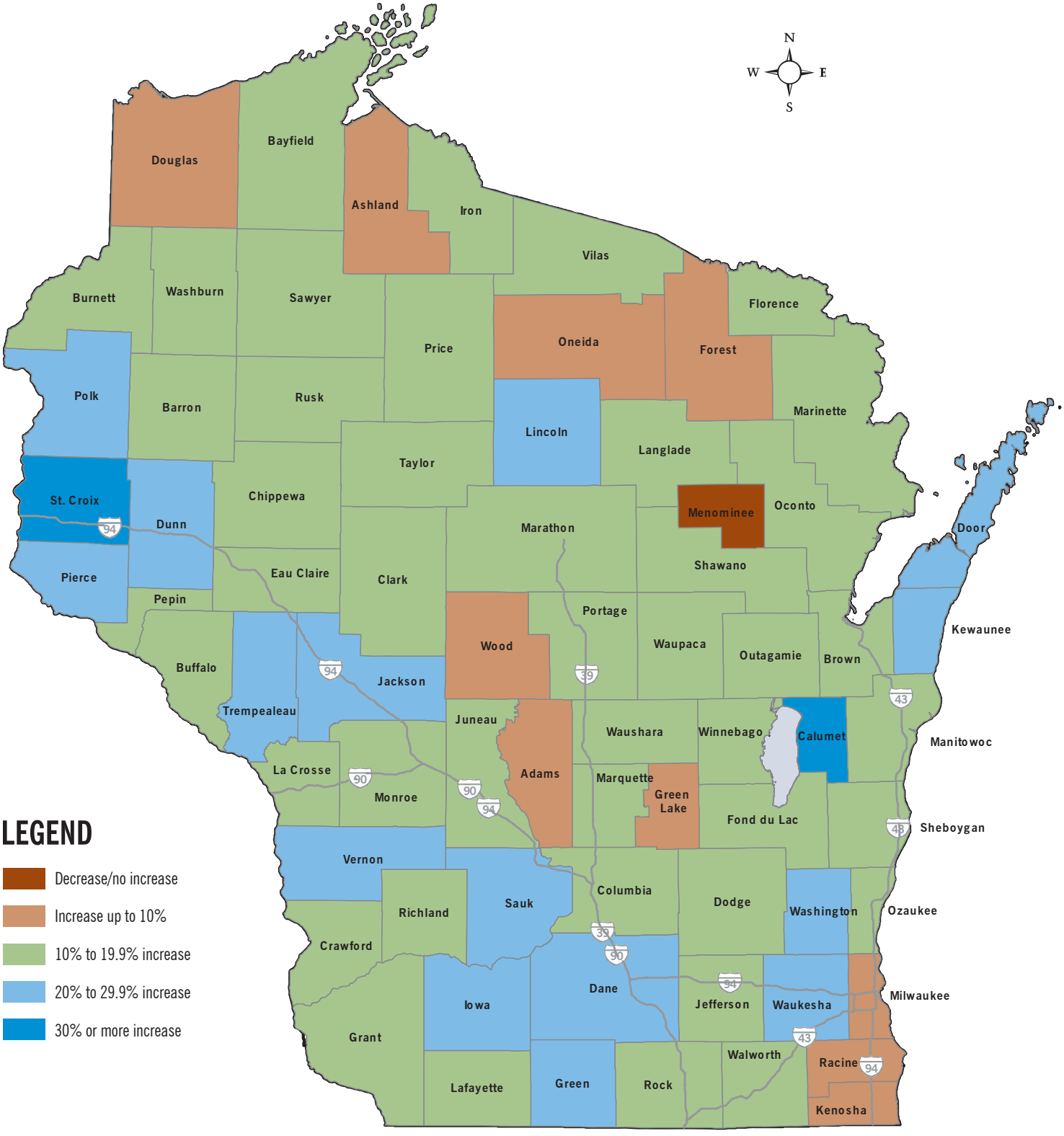
Moreover, industrial parks, shopping centers and "big box" commercial developments want locations along principal arterials and state highways that provide easy access and visibility. As a result, Wisconsin's population has become increasingly dependent on the automobile. However, as previously mentioned, higher gas prices will likely affect travelers' decisions and demands for other transportation options (such as transit, rail, and park and ride lots) and increased fuel efficiency. In addition, more dispersed patterns of population and development have resulted in dispersed employment opportunities and housing, increased traffic congestion, and safety concerns along transportation facilities. These impacts exist not only in metropolitan areas, but also statewide.

Along with other initiatives, two land use practices in particular may provide options that can help reduce the number of trips and cars:

» Compact development and mixed land use may reduce residents' number of vehicle trips

» Development that supports multimodal options may help reduce highway traffic

When combined, these practices can reduce traffic congestion, improve mobility and highway safety, and improve the quality of life in a community. These concepts are included in several initiatives, including "new urbanism," transit-oriented development, and "smart growth."




▲ *Map 3-6: Change in total number of properties between 1991 and 2001 (commercial, manufacturing, residential)*

*Source: Wisconsin Department of Revenue, Property Tax Master Data Files (1991, 2001)*

To improve responses to land use and transportation-related issues, planning legislation that encourages smart growth has been developed at the national and state levels. Smart growth refers to planned development efforts that can enhance the economy, serve the community and protect the environment. In general, smart growth focuses on city centers, older suburbs, and new developments that have central cores, are transit- and pedestrian-friendly, have a mix of housing and commercial uses, and preserve open space and natural resources. Demographic changes, increasing environmental awareness, and fiscal concerns add to this increased interest in smart growth. In response, many communities are turning to smart growth and comprehensive planning.

Smart growth planning processes involve discussions at the community level about how and where new development should be located, and it includes residents in decision-making processes. Smart growth planning also accommodates growth while preserving natural and cultural resources, establishes strong neighborhoods with a range of housing options, and creates a mix of land uses and compact design.

In 1999, Wisconsin enacted the Comprehensive Planning Law (Section 66.1001, Wis. Stats.), also referred to as the "smart growth" law. The law states that if a local government exercises certain land use regulations, those regulations must be consistent with that local government's comprehensive plan, which must be in place by 2010. While this law does not mandate smart growth as described above, it provides communities with a mechanism to facilitate smart growth.

## Changes in land use

Wisconsin is experiencing significant changes in land use, including loss of agricultural and forest lands and an increase in residentially and commercially developed lands. Changes in land use can have an impact on travel patterns and the transportation system. For example, commuting times become longer as development extends beyond the urban fringe, and the population density of an area affects how viable a transit option may be in that area.

In addition, developments that are adjacent to or near the state highway system typically generate increased demand for access to the highway system. This results in changes to existing traffic flow patterns and a greater potential for conflicts between cars seeking to enter the system and those already on the system.

Development pressures may be analyzed by reviewing the levels of land use conversion that real estate parcels have experienced. Map 3-6 shows the counties in which development pressures may be more intense, as indicated by the percentage of parcels that have been converted to commercial, manufacturing or residential uses (primarily from agriculture uses) during the past decade. Some of the counties with the greatest increase in parcel conversion lie along major transportation corridors, including the state's *Corridors 2030* routes (see Chapter 5, *Preserve and Maintain Wisconsin's Transportation System* for more information), which offer many connections for businesses to local, regional, national and international markets.

DEVELOPMENTS THAT ARE ADJACENT TO OR NEAR THE STATE HIGHWAY SYSTEM *typically generate increased demand for access to the highway system. This results in changes to existing traffic flow patterns and a greater potential for conflicts between cars seeking to enter the system and those already on the system.*

## Trends summary and implications for Wisconsin's transportation system

Based on the trends described in this chapter, Wisconsin's transportation system faces many challenges as the state looks toward the year 2030. These include:

### Population

» Population increases will place greater demands on the transportation system as more users demand trips

» Decreasing household sizes, and increasing numbers of households, will result in more trips, which may lead to increased congestion

### Travel patterns

» The locations of residential areas, jobs, and other services have an impact on travel choices and can place greater demands on the transportation system

» The baby boom generation is the first generation to have been highly mobile throughout adulthood, and they may have higher expectations for transportation services as they transition from using personal vehicles to other forms of travel

### Modal share

» Improved services (e.g., travel times, routes), as well as increasing energy costs and roadway congestion, have resulted in increased ridership among other modes

### Transportation safety

» Projected travel growth will result in increased numbers of incidents unless additional measures are taken; increased incidents will result in higher costs related to property damages and may result in additional fatalities

### Economic activity

» Providing citizens with adequate transportation to access jobs and services is crucial to Wisconsin's quality of life and economy; changes in the demographic characteristics of the state's workforce will raise new challenges for meeting these transportation needs

» Freight shipping is expected to increase; Wisconsin's transportation system needs to adjust to accommodate this growth

» Major highway corridors are expected to experience heavy increases in commercial truck traffic

» Increased availability of alternative transportation modes will be necessary for Wisconsin (and the Midwest megaregion) to stay economically competitive

### Energy and the environment

» Increasing energy costs may result in improved fuel efficiency, and while this benefits businesses and consumers, it could negatively impact Wisconsin's transportation fund

» Improved coordination between transportation and environmental resource agencies and tribes will improve transportation and environmental planning

» Dispersed development patterns can result in dispersed jobs and housing, as well as increased traffic congestion and safety concerns

*Connections 2030* helps WisDOT meet these challenges. The plan's themes and policy statements identify actions WisDOT will take to prepare Wisconsin's transportation system for the challenges it will face in the upcoming years. WisDOT will use these challenges as opportunities to improve the state's existing transportation system.

# CHAPTER 4: Public Involvement

A comprehensive public involvement process is crucial to the success of any transportation planning process. It helps ensure that the plans and related decisions regarding the transportation system incorporate the concerns and issues of the transportation system's users.

A comprehensive process also involves gathering input from a variety of stakeholders and the general public to ensure that different perspectives are heard, and related comments are incorporated into the decision-making process.

## WisDOT's process

To help the department focus outreach activities and ensure a comprehensive approach throughout the development of the long-range plan, WisDOT developed:

» A public participation plan

» An environmental justice plan

The public participation plan describes the public involvement activities WisDOT used during the development of *Connections 2030*. The plan identifies proposed strategies and techniques, as well as proposed meeting locations and the length of public comment periods.

The environmental justice plan builds on the public participation plan by providing a more detailed discussion on how WisDOT will ensure minority and low-income group participation in the planning process.

WisDOT recognizes that minority and low-income groups may face obstacles to participating in the transportation planning process. The environmental justice outreach plan targets public involvement activities and identifies meetings specifically for minority and low-income groups. The plan identifies strategies to help inform minority and low-income citizens about the *Connections 2030* planning process such as reaching out to community-based organizations and placing meeting notices in minority newspapers.

The *Connections 2030* public participation plan and environmental justice plan are available at www.wiconnections2030.gov.

Development of *Connections 2030* included a comprehensive, four-phase process to gather early input into the scope of the draft plan, as well as review and feedback on the detail of the individual policies and theme chapters. This approach allowed the department to structure its outreach to reflect and balance the variety of stakeholder needs and interests. The four phases included:

» Phase 1: Early planning

» Phase 2: Pre-draft plan

» Phase 3: Draft plan

» Phase 4: Final plan

### Phase 1: Early planning

Early efforts to define the scope and focus of *Connections 2030* and identify key statewide transportation issues included:

▲ *Figure 4-1: Executive summaries and full reports of the telephone survey, interviews, focus groups and stakeholder meetings are available at www.wiconnections2030.gov.*

» Statewide telephone survey

» Stakeholder interviews

» Focus groups

» Stakeholder meetings

### Statewide telephone survey

To obtain feedback from the general public, WisDOT conducted a statewide telephone survey. The survey contacted 1,100 Wisconsin adults to obtain their feedback on the state's transportation system and some of their key concerns regarding transportation. The survey used a sampling technique to ensure representation from each county. The survey also used two techniques to ensure that minority populations were included: 1) oversampling in counties with higher than average minority populations, and 2) "name-based target sampling" to identify persons of Asian and Hispanic descent. These techniques ensured that the survey results are statistically representative of the state's population.

### Stakeholder interviews

The stakeholder interviews were designed as a structured yet informal opportunity to obtain an initial assessment of key planning issues, perceptions and opinions from a select sample of transportation opinion leaders through one-on-one interviews. Thirty-four interviews were conducted with individuals who represented a cross-section of opinion and perspectives regarding transportation issues in Wisconsin. The interviews:

» Gathered suggestions to maximize the effectiveness of the public involvement process

» Identified key issues, opportunities and community concerns related to the long-range plan

» Assessed the issues needing to be addressed in the planning process and the range of opinions that will come into play

» Identified effective methods for encouraging participation in the planning process

### Focus groups

WisDOT conducted two focus groups regarding transportation planning in Wisconsin. WisDOT staff comprised the first group; the second involved external stakeholders.

The focus groups:

» Identified opinions, beliefs and attitudes about issues related to the *Connections 2030* planning process

» Elicited views on emerging trends and priorities to be addressed in the planning process

» Assembled potential improvements in key planning and public involvement issues

» Identified additional stakeholder audiences

» Built interest in, awareness of and excitement about the planning process

### Stakeholder meetings

WisDOT held meetings with a wide variety of stakeholder groups focused on issues specific to the environment, bike and pedestrian travel, needs of the aging, and roadway use. In addition, the department met with local government officials from the state's larger urban areas. These early outreach activities revealed a number of common themes.

The issues identified included:

» Wisconsin's deteriorating transportation system

» Availability of funding

» Availability of transportation choice (such as public transit and intercity bus)

WisDOT used this input to create the draft plan's vision, seven overarching themes and 37 policies, and to evaluate the potential impacts considered in the system-plan environmental evaluation and environmental justice analysis.

## Phase 2: Pre-draft plan

Pre-draft plan development outreach efforts focused on obtaining feedback through consultation with environment resource agencies and tribal governments having a historic interest in Wisconsin. WisDOT also consulted with Wisconsin's metropolitan planning organizations and regional planning commissions in the development of the statewide system-level priority corridors.

### Environmental Resource Agency and Tribal Consultation

The Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) requires state transportation agencies to consult with environmental resource agencies and tribal governments when preparing long-range transportation plans. WisDOT developed a consultation process to inform environmental resource agencies and tribal governments about plan policies and to get feedback from them. This consultation process included a discussion of potential mitigation strategies. WisDOT also compared *Connections 2030* to available conservation plans, maps and databases of natural and historic resources (see Appendix B, *Summary of Consultation and Plan Comparison Activities*, for a discussion of the plan comparison).

#### *Environmental resource agency consultation*

WisDOT held three separate consultation meetings with representatives of many environmental

THE STAKEHOLDER INTERVIEWS *were designed as a structured yet informal opportunity to obtain an initial assessment of key planning issues, perceptions and opinions from a select sample of key transportation opinion leaders through one-on-one interviews.*

resource agencies. Those invited to participate are shown below; those followed by an asterisk participated in at least one of the meetings.

» Bureau of Land Management

» Federal Aviation Administration

» Federal Highway Administration*

» Federal Railroad Administration

» Federal Transit Administration*

» National Park Service*

» Natural Resources Conservation Service*

» U.S. Army Corps of Engineers*

» U.S. Coast Guard

» U.S. Environmental Protection Agency*

» U.S. Fish and Wildlife Service*

» U.S. Forest Service*

» Wisconsin Department of Administration*

» Wisconsin Department of Agriculture, Trade and Consumer Protection*

» Wisconsin Department of Natural Resources*

» Wisconsin State Historical Society*

Environmental issues raised include those related to air quality, land use, ecosystem management and climate change.

*Tribal consultation*

WisDOT held one consultation meeting and one follow-up briefing with representatives of tribes having a historic interest in Wisconsin. The tribes invited to participate are shown below; those followed by an asterisk participated.

### Tribes

Tribes having a historic interest in Wisconsin include those currently located in the state, as well as tribes that may have lived in the state at one time.

The feedback received during this consultation process helped to further shape and refine the content and focus of the long-range plan.

Meeting summaries and a discussion of how the draft plan was updated to reflect comments received through the consultation process are available at www.wiconnections2030.gov.

» Bad River Band of Lake Superior Chippewa Indians

» Forest County Potawatomi Community*

» Ho-Chunk Nation*

» Iowa Tribe of Oklahoma

» Lac Courte Oreilles Ojibwa Tribes*

» Lac du Flambeau Band of Lake Superior Chippewa Indians*

» Menominee Indian Tribe of Wisconsin*

» Oneida Nation of Wisconsin

» Prairie Band Potawatomi Nation

» Red Cliff Band of Lake Superior Chippewa

» Sac & Fox Nation

» Sokagon Chippewa Community*

» St. Croix Chippewa Indians

» Stockbridge-Munsee Band of Mohicans

The U.S. Department of the Interior Bureau of Indian Affairs was also invited and participated in the tribal consultation process.

Some of the key topics raised were wetland mitigation, movement of hazardous materials on tribal lands, and WisDOT's maintenance contracts with county governments.

### Wisconsin's metropolitan planning organizations and regional planning commission consultation

*Connections 2030* directly reflects the recommendations of the state's metropolitan planning organizations and regional planning commissions. WisDOT staff met with transportation planners from metropolitan planning organizations and regional planning commissions to discuss their long-range transportation plan recommendations and how those recommendations could be incorporated into *Connections 2030*. Metropolitan planning organization and regional planning commission planners reviewed the draft corridor maps to ensure that WisDOT accurately portrayed their recommended activities. The feedback received during this effort was integrated into the draft plan and helped to further update the corridor maps.

### Learning more about *Connections 2030*

WisDOT developed a variety of materials for the public outreach efforts:

› Printed executive summaries*

› Printed fact sheets*

› Display boards

› PowerPoint presentation

› Review copies of the complete draft plan

› Review copies of the corridor maps

› CDs containing the complete draft plan, executive summary and all the corridor maps

**Spanish versions also developed.*

## Phase 3: Draft plan

Phase 3 began with the release of the draft version of *Connections 2030* for public comment on November 9, 2008. The public comment period ended March 13, 2009. During this time, WisDOT conducted public information meetings and meetings with minority, low income, and senior citizen groups. WisDOT also met with various stakeholder groups, at their request, to discuss the draft plan. Throughout this public comment period, WisDOT accepted feedback on the draft plan via the Internet, e-mail, phone, U.S. mail, and in person at the meetings. The comments received during this time were then compiled and analyzed to determine if and how the plan would be revised to reflect the public's opinions. These revisions can include clarifying existing policies to more effectively explain them to the public, and refining existing policies so that they better address the public's needs.

### Release of the draft plan

WisDOT used a number of tools to publicize the release of the draft plan, the times and locations of

### Table 4-1: Newspapers in which display ads for the draft *Connections 2030* public information meetings were published

| Public meeting | Newspaper |
|---|---|
| Madison | *Wisconsin State Journal*<br>*Capital Times*<br>*Madison Times*<br>*Isthmus* |
| La Crosse | *La Crosse Tribune* |
| Milwaukee | *Milwaukee Journal Sentinel*<br>*Milwaukee Times* |
| Kenosha | *Kenosha News*<br>*Milwaukee Journal Sentinel* |
| Superior | *Duluth News Tribune*<br>*Superior Daily Telegram* |
| Eau Claire | *Eau Claire Leader Telegram* |
| Rhinelander | *Rhinelander Daily News* |
| Wausau | *Wausau Daily Herald* |
| Green Bay | *Green Bay Press-Gazette*<br>*Appleton Post-Crescent* |
| Oshkosh | *Oshkosh Northwestern*<br>*Appleton Post-Crescent* |

the public meetings, and the methods available for obtaining information and providing feedback. Some of these tools included:

» Publishing a legal notice in the *Wisconsin State Journal*

» Mailing 7, 000 postcards to individuals and organizations on the plan's mailing list

» Sending follow-up letters to the stakeholder groups WisDOT met with early in the plan scoping effort to highlight the comments they provided and explain how those comments helped shape the plan

» Issuing statewide and local press releases to Wisconsin media outlets

» Placing display ads in newspapers serving areas in which public meetings were held (Table 4-1)

» Submitting listings to Internet event calendars for areas in which public meetings were held (Table 4-2)

### Table 4-2: Online calendar posting of public information meetings

| Public meeting | Web site community/event calendar |
|---|---|
| Madison | City of Madison; Madison Convention & Visitors Bureau; Craigslist (Madison); Madison.com; Wisconsin Online (Madison); Eventful (Madison); WMSN TV Fox 47; WMTV TV NBC 15; WKOW TV ABC 27; The Bubbler (Madison) |
| La Crosse | City of La Crosse; My Live; Craigslist (La Crosse); WXOW TV ABC 19; Eventful (La Crosse); La Crosse Area Convention & Visitors Bureau; La Crosse Wisconsin.com; The Bubbler (La Crosse) |
| Milwaukee | OnMilwaukee.com; KeyMilwaukee.com; Craigslist (Milwaukee); Wisconsin Online (Milwaukee); KGET TV NBC 17; WDJT TV CBS 58; Eventful (Milwaukee); The Bubbler (Milwaukee) |
| Kenosha | Kenosha Area Chamber of Commerce; Craigslist (Kenosha-Racine); The Daily Kenoshan |
| Superior | Duluth News Tribune; Superior Telegram; Superior-Douglas Chamber of Commerce; City of Superior; American Towns (Superior); KBJR TV NBC 6 |
| Eau Claire | VolumeOne.org; WEAU TV NBC 13; Leader Telegram; Chippewa Valley Convention & Visitors Bureau; WEUX TV Fox; WQOW TV ABC 18; Eau Claire Chamber of Commerce |
| Rhinelander | Rhinelander Chamber of Commerce; The Bubbler (Rhinelander); ExploreWisconsin.com; Rhinelander Daily News |
| Wausau | Wausau Daily Herald; WausauCityGuide.com; WAOW TV ABC 9; Marathon County; Eventful (Wausau); The Bubbler (Wausau) |
| Green Bay | PressGazette.com; Craigslist (Green Bay); WBAY TV ABC 2; WLUK Fox 11 |
| Oshkosh (postpone) | Craigslist (Oshkosh); Hometown USA (Oshkosh); Eventful (Oshkosh); American Towns (Oshkosh); The Bubbler (Oshkosh); OshkoshEvents.com; TheNorthwestern.com |
| Oshkosh (rescheduled) | WLUK Fox 11; WFRV TV CBS 5; Eventful (Oshkosh); American Towns (Oshkosh); The Bubbler (Oshkosh); OshkoshEvents.com; TheNorthwestern.com |

» Posting plan documents and accompanying information on *Connections 2030* Web site

## Meetings

WisDOT held 10 public meetings (Map 4-1) and nine targeted outreach meetings (Table 4-3) throughout the state and met with seven stakeholder groups (Table 4-4) during the comment period. The targeted outreach meetings were aimed at minority, older and low-income persons and groups to ensure they had opportunities to provide input into WisDOT's decision-making process.

### Public meetings

Conducted as open houses, the public meetings were scheduled on weeknights from 5 p.m. to 8 p.m. to allow attendees to comfortably review the materials, ask questions and provide comments at their own pace. The time and format of the targeted outreach and stakeholder meetings varied, depending on the groups' requests, needs, and availability. More than 300 people attended the *Connections 2030* public information meetings. Attendees included a mixture of residents, business representatives, local officials and elected officials.

The format for each of the public meetings included a brief presentation on the plan, more than 20 display boards presenting the plan's key points, printed review copies of the complete draft plan and corridor maps, as well as copies of the *Connections 2030* executive summary and fact sheets. WisDOT did not print hard copies of the complete draft plan for distribution. Instead, CD-ROMs were made available that contained the entire draft plan, as well as the executive summary and corridor maps. WisDOT staff were available to present an overview of the draft plan, answer questions and take comments. Attendees had the opportunity to provide written comments on flip charts, or on a paper questionnaire that could either be submitted directly at the meeting, or later, via U.S. mail. Additionally, a laptop computer was available for attendees to submit their comments online.

### Targeted outreach meetings

The targeted outreach meetings were designed to provide opportunities for minority, senior and low-income groups to participate in the *Connections 2030* public outreach process. As part of WisDOT's environmental justice effort, the targeted outreach meetings ensured that feedback from these populations was included during the public review period and analysis of comments. The individual meetings were tailored to the interests and focus of the respective groups. The meeting format differed slightly from the public meetings: WisDOT staff gave a short overview of the plan and then facilitated a question and answer period with attendees.

**Table 4-3: Targeted outreach meetings held for the draft *Connections 2030***

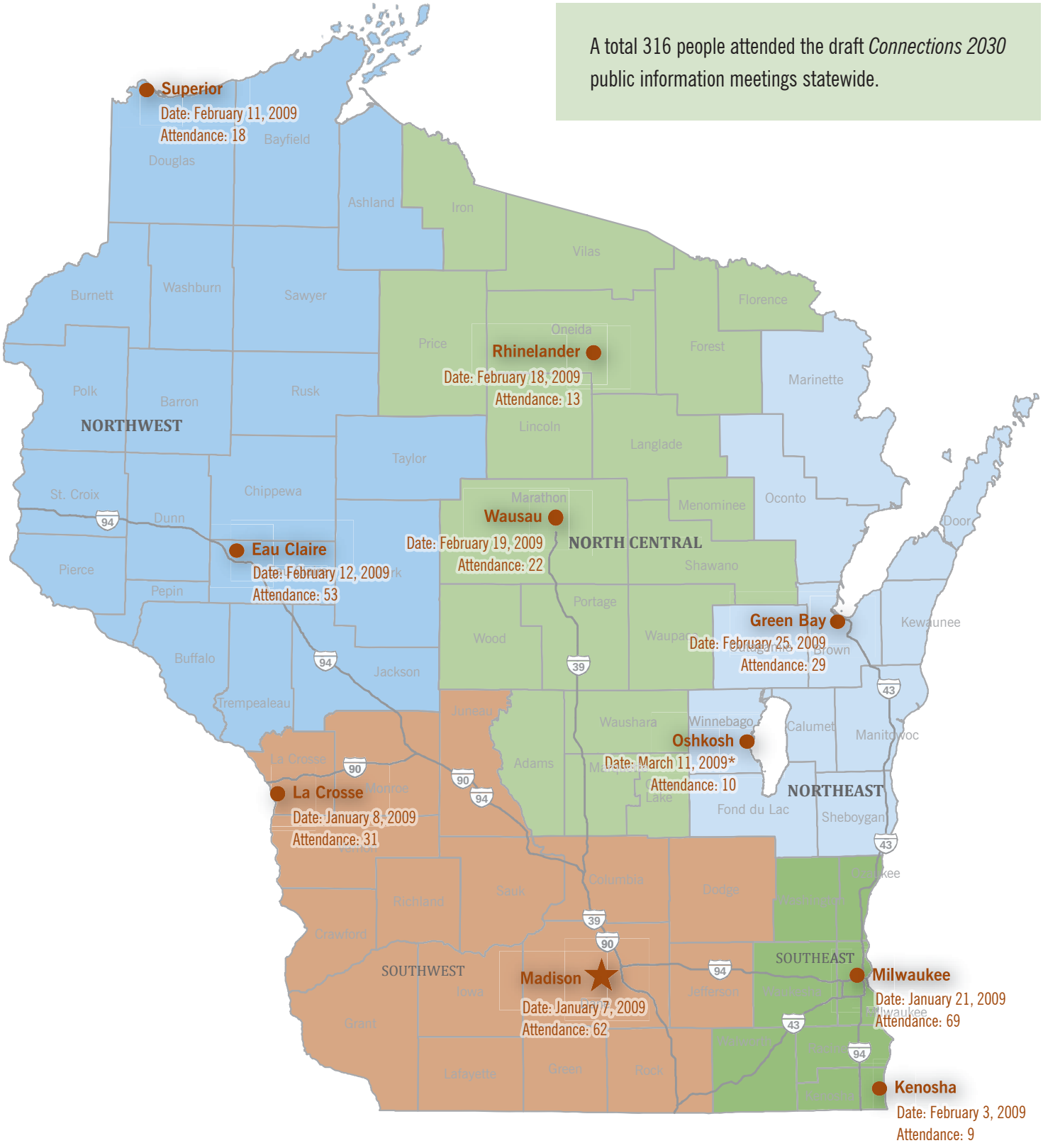
| Date | Organization | Attendance |
|---|---|---|
| December 18, 2008 | Urban League of Greater Madison | 1 |
| January 8, 2009 | Platteville Senior Center | 40 |
| January 22, 2009 | Hmong Wisconsin Chamber of Commerce (Milwaukee) | 4 |
| January 26, 2009 | Urban League of Racine and Kenosha | 12 |
| February 4, 2009 | Milwaukee Hispanic Chamber of Commerce | 12 |
| February 4, 2009 | United Community Center of Milwaukee | 6 |
| February 12, 2009 | Spooner Senior Citizens Center | 15 |
| February 19, 2009 | Hmong Mutual Association (Wausau) | 4 |
| February 25, 2009 | Green Bay Multicultural Center | 7 |
| **Total** | **All groups** | **101** |

The results of the environmental justice analysis were used to determine the locations for the targeted outreach meetings (see Chapter 15, *Environmental Justice Analysis*, for more information on the environmental justice analysis). Approximately 100 people from African American, Hmong, Hispanic, senior citizen and low-income populations attended these meetings.

### Stakeholder presentations

WisDOT received requests from a number of stakeholders to present information regarding *Connections 2030* at one of their meetings. These

A total 316 people attended the draft *Connections 2030* public information meetings statewide.




▲ *Map 4-1: Draft* Connections 2030 *public information meeting dates, locations and attendance.*

**Meeting rescheduled from February 26, 2009, due to inclement weather.*

presentations were an opportunity for the groups to discuss their organization's interests with WisDOT staff and ask questions. As with the targeted outreach meetings, the length and format of the stakeholder presentations were customized to meet their specific needs.

### Comments received

In addition to the comments submitted at the meetings, WisDOT received a large number of comments through its Web site – which contained a link to an online comment form that could be completed and submitted from any computer – and a dedicated phone number, email address, and mailing address for information and feedback about the draft plan.

All comments received via U.S. mail, e-mail or the *Connections 2030* Web site were entered into a computerized comment tracking system. These comments – more than 400 of them – comprised nearly a third of the 1,200-plus comments received during the public comment period. Comments submitted via telephone were added to the rest of the comments for analysis.

### Data compilation and analysis

WisDOT staff compiled and analyzed all comments to develop a complete picture of stakeholder interests and concerns. The comments were categorized and sorted using several criteria including date, comment method, geographic area (if known), transportation mode, primary comment topic, and *Connections 2030* theme.

### Comments overall

Analysis of the comments revealed that the majority of the public is supportive of *Connections 2030*. Among the most important issues to those who responded are intercity passenger rail, funding, system preservation and transit.

**Table 4-4: Stakeholder presentations provided for the draft *Connections 2030***

| Date | Stakeholder group | Location |
|---|---|---|
| November 13, 2009 | Transportation Development Association Conference | Madison |
| November 19, 2009 | Annual Freight Rail Conference | Madison |
| December 11, 2009 | Local Roads and Streets Council | Wisconsin Rapids |
| January 6, 2009 | Ho-Chunk Nation | Black River Falls |
| January 22, 2009 | Sheboygan Metropolitan Planning Organization Technical and Policy Advisory Committees | Sheboygan |
| January 28, 2009 | Madison Metropolitan Planning Organization Technical Coordinating Committee | Madison |
| February 3, 2009 | Wisconsin Transportation Builders Association Policy Board | Madison |
| February 13, 2009 | Bay-Lake Regional Planning Commission | Green Bay |

Intercity passenger rail

WisDOT received a large number of comments on intercity passenger rail. The majority of respondents support of the intercity passenger rail system connecting Chicago, Ill., Minneapolis-St. Paul, Minn., and Milwaukee, Madison and Green Bay. Comments from the La Crosse and Eau Claire areas favored an intercity passenger rail option that serves their respective communities. Comments from the Green Bay and Fox River valley communities indicated support of a phased implementation approach for the Midwest Regional Rail System.

This phased approach would include incorporating these communities earlier than proposed in the draft plan by substituting the high-speed option recommended in *Connections 2030* for the standard 79 mile-per-hour top speed that Amtrak currently

ANALYSIS OF THE COMMENTS *revealed that the majority of the public is supportive of* Connections 2030.

uses. Finally, several comments from central and north central Wisconsin expressed the desire for intercity passenger rail service that would serve Stevens Point, Wausau and Rhinelander.

The public comments also revealed a demand for better coordination between passenger and freight lines to improve service levels. Some people stated that the proposed passenger rail speeds of up to 110 miles per hour are not fast enough and that, in order to be competitive with regional air service, passenger trains need to have even higher speeds.

In addition, some comments supported the need for exploration of new, dedicated right of way for high-speed trains to eliminate the need for passenger trains to share the railways with freight trains. Not all comments were supportive of intercity passenger rail. Some people said that the expense, and potential limited ridership, would not justify the cost to create and maintain the system.

<u>Funding</u>

Many comments related to the various funding sources for transportation, notably the gas tax. Several participants said the gas tax indexing[1] should be reinstated to provide a stable funding source. Some also want to see a larger portion of the gas tax go to other modes of transportation such as transit, bicycle and pedestrian. Others suggested that local governments should be able to levy their own gas tax so funding for local roads would not have to come out of the property tax.

Participants also commented that WisDOT should implement tolling in Wisconsin because it would provide a new funding mechanism that charges only the users of the highway and would ensure that users from outside Wisconsin pay for their roadway usage. In addition, some participants suggested implementing an idling tax to discourage trains from idling in major

[1] Wisconsin uses a "per gallon" rate that does not fluctuate with the price of gasoline. In 1985, the Wisconsin Legislature created an annual indexing adjustment based on inflation and overall fuel consumption. In 1997, the Legislature removed the consumption factor and based the adjustment on the Consumer Price Index. In 2005, the Legislature eliminated the annual indexing adjustment altogether

▲ *Figure 4-2: More than 300 people attended the* Connections 2030 *public information meetings.*

cities. Others suggested increasing the license fee to a percentage of vehicle value.

Some people commented that increasing roadway capacity in Southeastern Wisconsin would encourage congestion and dispersed development that could reduce farmlands. A few participants opposed to highway expansion expressed that they wanted to see more investment in transit or the use of turn lanes and controlled intersections to minimize or postpone the need for roadway expansion.

<u>Transit</u>

In addition to intercity passenger rail issues, participants commented on other transit modes including intercity bus, local and rural public transit, fixed-guideway transit and Regional Transit Authorities. WisDOT received many comments, from both urban and rural areas, expressing the need to expand and improve public transit options and service. In general, people pointed out the potential benefits of public transit such as improved connections to employment centers, sporting and cultural events, downtowns, and airports; the need for more transit options late at night and on weekends; and the benefits of dedicated transit lanes.

Southeastern Wisconsin residents frequently mentioned the need for commuter rail and light rail. Specifically, they identified the Kenosha, Racine, and

Milwaukee (KRM) commuter rail study as an important effort. In northern Wisconsin, people's comments indicated that these areas are currently underserved by transit due to the lack of transit service options and poor coordination among transportation providers.

Other frequently identified issues

People raised several additional issues during the public comment period. Numerous people commented on bicycle and pedestrian accommodations, expressing the importance of adding bike and pedestrian facilities when existing roadways are reconstructed or expanded. Other improvements mentioned were bicycle and pedestrian tunnels, year-round maintenance and snow removal on paths and sidewalks, and improved bicycle and pedestrian planning. Participants cited the need for bicycle and pedestrian safety, with emphasis on improved road crossings and more motorist education.

People also commented on the need for more and improved intermodal facilities for travelers. This broad topic includes issues such as terminals that serve intercity buses and public transit, bicycle access to park and ride lots, transit connections at ferry landings, passenger terminals that integrate rail, bus, and air travel services, and the importance of the complete streets philosophy in planning and improving the transportation network.

A number of other issues were raised by participants; The most frequently mentioned are discussed briefly:

» Technology: Participants commented on the value of the technology that WisDOT uses to disseminate traffic information through various media outlets, and expressed the need for real time arrival and departure information for public transportation. Some people commented that WisDOT should do more to control excessive access points and dispersed development along highways.

» Quality of life: People also commented on the need for improved coordination between land use and transportation planning to ensure better quality of life, and on the importance of incorporating community sensitive solutions into transportation projects – with needs ranging from safe pedestrian tunnels to landscaping with native plant species to highway noise mitigation. There were also comments pertaining to energy usage and climate change, focused on the increasing need for alternative fuel vehicles across all modes.

» Transportation safety: Feedback on transportation safety included statements about increased use of technology such as roadway cameras, the 511 traveler information system, and statewide monitoring of the roadways through the Statewide Traffic Operations Center and Emergency Transportation Operations during and after major events such as blizzards and flooding.

Key issues identified from targeted outreach meetings

The comments from the targeted outreach meetings fall into the same categories as the main themes from the public meetings and other feedback. The primary themes reflected in the comments are the need for affordable, accessible public transportation; making preservation of the existing transportation system a priority; and concerns about transportation funding. One common theme mentioned throughout the targeted outreach meetings was an interest in job and business opportunities through transportation projects.

## Draft plan changes

Based on the analysis of all the feedback from the public, WisDOT staff developed recommendations for changes to the draft plan to address key issues identified by the public and department staff. A large number of the comments received did not result in changes to the draft plan and, therefore, are not reflected in this summary.

These included comments that were based on incorrect information, outside the scope of the long range plan, not within WisDOT's jurisdiction, statements of fact or opinion with no direction for change, extreme and unrealistic, not feasible due to funding constraints, unclear, or are already addressed in the draft plan. WisDOT staff organized the compiled public comment data into three tiers of recommended plan revisions:

BASED ON THE ANALYSIS *of all the feedback from the public, WisDOT staff developed recommendations for changes to the draft plan to address key issues identified by the public and department staff.*

» Top tier: Changes that, if implemented, could change the scope or direction of a policy or theme chapter

» Second tier: Changes that would not necessarily change the scope or direction of a policy or theme chapter

» Third tier: Lower level changes such as paragraph reordering, grammatical revisions, corrections to names, numbers, dates and places, data updates, and language revisions to clarify minor details and non-controversial information

Top tier
A key change to the draft plan is the plan's policy statement on intercity passenger rail. Because of the overwhelming response on this topic during the public comment period, the draft plan was revised to clarify that the proposed route for the Midwest Regional Rail system between Madison and Minneapolis-St. Paul has not been finalized. During the environmental review process, WisDOT will consider all viable routes and system enhancements, including any that were not part of the 2004 Midwest Regional Rail Initiative Business Plan.

The rail policy has also been revised to make it clear that throughout the planning period, WisDOT will study the potential for expanding the intercity passenger rail system across the state.

Another important revision to the draft plan relates to tolling on state highways, discussed in Chapter 12, *Funding Wisconsin's Transportation System*. Although the department's position remains the same as when the draft plan was released, this policy has been revised slightly to explain that other funding options are available to support transportation needs, and WisDOT will consider them in the short term.

Second tier
Several other issues were expanded on in the revised draft plan based on feedback received during the various meetings. In Chapter 11, *Promote Transportation Security*, WisDOT added language to describe increases in the use of WisDOT's Emergency Transportation Operations Plan and technologies such as the 511 system and roadway cameras. Chapter 6, *Promote Transportation Safety*, was revised to state that WisDOT does support enforcement tools such as allowing primary enforcement of the safety belt law. And WisDOT added information in Chapter 12, *Funding Wisconsin's Transportation System*, to reference the American Recovery and Reinvestment Act (the federal economic stimulus plan), which was beginning to be implemented the public comment period in February 2009.

With the completion of these revisions to the draft plan, the public involvement process enters its fourth and final phase.

## Phase 4: Final plan

WisDOT released the final draft of *Connections 2030* in July 2009. The public review period officially started on July 24, 2009, with the publication of a legal notice in the Wisconsin State Journal. The public review period continued through August 31, 2009. During this time, WisDOT held six public hearings throughout the state on the final draft of *Connections 2030* and its System-Plan Environmental Evaluation (SEE). Each public hearing included opportunities for attendees to submit oral or written testimony about the final draft plan, as well as a chance to view an oral presentation and talk to WisDOT staff.

To advertise the public hearings, WisDOT:

» Mailed a postcard or e-mail notice to over 7,000 individuals and organizations on the plan's mailing list

**Table 4-5: Public hearings held for the final draft *Connections 2030***

| City, location | Date | Attendance | Oral testimony |
|---|---|---|---|
| **Milwaukee**, Milwaukee County Transit Center | August 11 | 22 | 7 |
| **Madison**, Alliant Energy Center | August 12 | 19 | 4 |
| **Appleton**, Appleton West High School | August 13 | 23 | 4 |
| **Stevens Point**, UWSP Dreyfus University Center | August 19 | 35 | 8 |
| **Eau Claire**, Sacred Heart Conference Center | August 20 | 42 | 5 |
| **La Crosse**, WisDOT SW Region Office | August 26 | 61 | 23 |
| **Total** | **All dates** | **202** | **51** |

» Published display ads in the newspapers serving the cities in which the public hearings were held

» Issued press releases announcing the individual public hearings and the availability of the final draft plan for public comment

» Posted plan documents and information related to the public hearings on the *Connections 2030* Web site

A total of 202 people attended the public hearings. Of those, 51 submitted oral testimony. In addition, 103 people submitted written testimony during the public comment period.

At the close of the public comment period, WisDOT staff reviewed and analyzed the written and oral testimony. Public comments covered a range of topics, with the majority of comments focused on either intercity passenger rail or highways.

### Intercity passenger rail

As during Phase 3, WisDOT received the largest number of comments regarding intercity passenger rail. Overall, those who commented support improved intercity passenger rail and called for WisDOT to be more active with its rail planning activities. Many individuals also commented on the proposed intercity passenger rail routes. Individuals expressed a need for a route through La Crosse, a route through Eau Claire, or a route through both cities. Numerous comments also noted that WisDOT should not delay implementation of intercity passenger rail to Green Bay.

### Highways

Overall, individuals noted that WisDOT should focus on preserving and maintaining existing highway infrastructure before constructing additional lanes on both state-owned and local roads. Other statements focused on highway safety and economic development.

### Other issues

People commented on several additional issues. Examples of these issues include:

» The need for a long-term approach to transit, including improved funding for transit and better intermodal linkages

» The importance of bicycle and pedestrian accommodations

» Changes to the current modal funding allocations

▲ *Figure 4-3: More than 200 people attended the* Connections 2030 *public hearings.*

## Changes to Final Draft

The oral and written comments did not result in major changes to the policies or actions in *Connections 2030*. There are four minor revisions to the final draft:

» The action table for intercity passenger rail service was modified to clarify which actions are projected for the mid-term (2014-2019) and long-term (2020-2030).

» The language regarding primary enforcement of safety belts was updated to reflect that primary enforcement became law in Wisconsin in June 2009.

» The map depicting Wisconsin's major retail distribution centers (Map 7-1) was revised to show three distribution centers that had not been included in earlier drafts of the plan.

» The Eau Claire metropolitan planning area corridor map has been updated to clarify existing and planned intercity bus stops.

In addition, minor formatting changes were made to correct grammar and typographical errors, and to improve readability.

# CHAPTER 5: Preserve and Maintain Wisconsin's Transportation System

▶ ***POLICIES IN THIS CHAPTER FOR PROMOTING PRESERVATION AND MAINTENANCE:***

- › *Implement cost-effective maintenance activities on Wisconsin's state trunk highway system infrastructure*
- › *Preserve Wisconsin's state trunk highway system infrastructure*
- › *Preserve Wisconsin's airport system infrastructure*

WisDOT's vision for preservation and maintenance is a Wisconsin where transportation system investment benefits are maximized through cost-effective strategies that foster:

» Ongoing routine maintenance

» Long-term preservation

» Continued availability of transportation services statewide

Ongoing routine maintenance refers to the daily activities that help maintain and preserve the system so that it provides a satisfactory level of service. Maintenance activities typically focus on system parts such as roadway shoulders, pavement markings, bridge railings, pavement cracks, transit vehicles and traffic signals.

Examples of maintenance activities include:

» Patching potholes on roadways or bicycle trails

» Maintaining and repairing publicly owned rail lines (see Chapter 7, *Foster Wisconsin's Economic Growth*, for more information)

» Repairing and restoring facilities after crashes, natural disasters or vandalism

» Maintaining traffic signals

» Repairing dock walls (see Chapter 7, *Foster Wisconsin's Economic Growth*, for more information about harbor programs)

» Routinely inspecting bridges

» Repairing damaged bridges

While maintenance activities help address immediate system needs, eventually they are insufficient to address underlying infrastructure deterioration. At that point, preservation strategies are used to appreciably extend the infrastructure's useful life. Preservation requires cost-effective strategies that enhance the long-term performance of the system while improving safety and striving to meet user expectations. These activities may include:

▲ *Figure 5-1: Wisconsin's existing transportation system includes extensive infrastructure and services, such as highways and local roads.*

» Rehabilitating bridges and structures

» Resurfacing or reconstructing highways, local roads and airport runways

» Dredging harbors and shipping channels

» Replacing sidewalks and bicycle accommodations during roadway reconstruction

State preservation activities, such as retaining current passenger and freight services, also ensure continued availability of critical transportation options. The availability of transportation options to move people and goods enhances Wisconsin's quality of life and economic well-being. Examples of related preservation activities include:

» Preserving rail corridors, including rights of way, for freight and passenger service (see Chapter 7, *Foster Wisconsin's Economic Growth*)

» Retaining public, human services and specialized transit services (see Chapter 8, *Provide Mobility and Transportation Choice*)

» Retaining and enhancing intercity passenger services such as intercity bus, passenger rail and air travel (see Chapter 8, *Provide Mobility and Transportation Choice*)

## Challenges

Wisconsin's existing transportation system was developed over many decades using both private and public investment. It includes extensive infrastructure and services ranging from highways, local roads and airports, to railways, harbors, sidewalks and transit systems. The existing transportation system is the foundation on which future investments will be made. However, this foundation faces several challenges:

» Aging system infrastructure

» Limited available funding

» Increasing costs

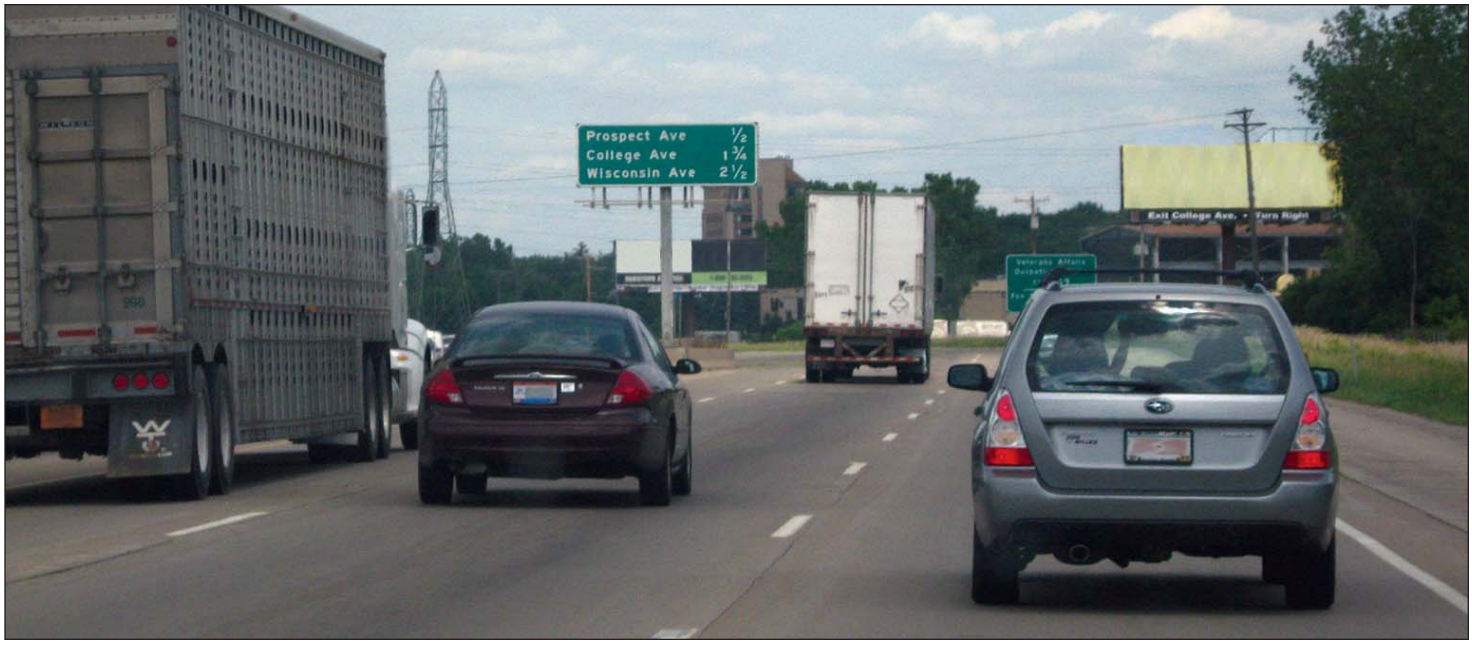
» Increasing user demand

» Increasing requests to accommodate heavier truck and trailer loads

» Reduced availability of transportation options

Much of Wisconsin's Interstate highway system was constructed in the 1950s and 1960s, and bridges on the state trunk highway system (which includes the Interstate highway system) can date back to the 1930s and 1940s. Since then, user demands have increased, and in some cases designs that were applied to address anticipated travel demands are now outdated. In response, WisDOT's efforts continue to focus on maintaining and preserving the system, along with addressing safety deficiencies, traffic flow concerns and critical design features. If pavement replacement continues over the typical lifespan of the infrastructure, roads can last up to 60 years (prior to complete reconstruction), and bridges can last up to 75 years. However, keeping pace with both emerging and existing needs remains a challenge.

MUCH OF WISCONSIN'S INTERSTATE HIGHWAY SYSTEM *was constructed in the 1950s and 1960s, and bridges on the state trunk highway system (which includes the Interstate highway system) can date back to the 1930s and 1940s. Since then, user demands have increased, and in some cases, designs that were applied to address anticipated travel demands are now outdated.*




▲ *Figure 5-2: By 2030, statewide vehicle miles traveled is forecast to increase 34 percent, with truck traffic forecast to account for 10.5 billion miles, an increase of 64 percent.*

## Challenges with funding and increasing costs

Financing Wisconsin's wide range of transportation needs continues to be a challenge. As the system ages, maintenance and preservation activities typically change. Costs tend to increase – particularly those related to real estate, energy and construction materials. This has had an impact on both WisDOT's and local governments' abilities to maintain and preserve existing infrastructure. In some cases, lack of adequate funding to address all needs has resulted in deferred preservation and maintenance activities.

When maintenance and preservation activities are delayed, system deterioration can progress to the point of requiring potentially more extensive and expensive work, such as full reconstruction, sooner than it might otherwise have been needed.

Without increases in funding to maintain and, where possible, increase purchasing power, WisDOT and local governments cannot keep pace with maintenance and preservation needs. This will result in a growing backlog of necessary but uncompleted work. The larger the backlog gets, the longer preservation projects will be delayed, resulting in probable project cost increases that will exacerbate already strained budgets.

Increased user demand also presents challenges. By 2030, statewide vehicle miles traveled (VMT) is forecast to increase 34 percent, from 59.5 billion miles in 2007 to 80 billion miles in 2030. Freight traffic will also place increased pressure on the state's transportation system. In 2007, truck traffic accounted for 6.4 billion miles; by 2030, truck traffic is forecast to account for 10.5 billion miles, an increase of 64 percent.

In some cases, state and local roadways are not designed to handle the number of trucks or the heavy loads associated with truck shipping. As a result, the timing required to address pavement deterioration and system capacity issues may be accelerated.

## Reduced availability of transportation options

As stated in Chapter 8, *Provide Mobility and Transportation Choice*, an accessible, affordable and integrated transportation system is critical to maintaining mobility. A key factor in maintaining mobility is the preservation of existing passenger and

EVERY YEAR, BILLIONS OF MILES *of travel and continuous natural wear create a need for ongoing maintenance of the highway system. In addition, Wisconsin's highway infrastructure is aging, requiring increased levels of maintenance to preserve existing levels of service.*

freight services. In recent years, Wisconsin residents and businesses have experienced losses of intercity bus and freight services on several corridors. The policies outlined in Chapter 8, *Provide Mobility and Transportation Choice*, offer strategies and future direction to address continued service needs and provide more mobility options.

Each of these issues – aging system infrastructure, limited funding, increasing costs, increasing demand and reduced availability of transportation options – further challenges the department's efforts to address system preservation, modernization and capacity issues (see Chapter 9, *Promote Transportation Efficiencies*, for information). Funding activities that address preservation, modernization and capacity issues will be expensive.

## Activities

With a vision for and commitment to system preservation, WisDOT will continue to perform several key activities to address these challenges:

» Implement cost-effective maintenance activities on Wisconsin's state trunk highway system infrastructure

» Preserve Wisconsin's state trunk highway system infrastructure

» Preserve Wisconsin's airport system infrastructure

While this chapter discusses the state trunk highway and state airport systems, WisDOT's preservation focus is not limited to these transportation modes. The department has identified specific policies and actions for maintaining and preserving all modes of transportation, but WisDOT's role varies depending on the transportation mode. The department has primary responsibility for maintaining and preserving the state trunk highway system and some segments of publicly owned rail.

For the remainder of the transportation system, WisDOT manages available federal and state funding, and provides technical assistance and appropriate data resources, but the infrastructure and facilities belong either to private entities or local governments. For details about maintenance and preservation actions related to other modes, refer to:

» Chapter 7, *Foster Wisconsin's Economic Growth*, for actions related to freight rail, local roads and harbors, and additional actions related to airports

» Chapter 8, *Provide Mobility and Transportation Choice*, for actions related to bicycle and pedestrian accommodations, transit and intercity passenger travel, and additional actions related to airports

Each of the activities in this chapter offers strategic direction through the year 2030. These activities may be implemented with other activities throughout the plan to better leverage limited resources. For example, a road preservation project may offer opportunities to consider and incorporate the scheduling of utility work, such as sewer upgrades, or to add or upgrade bicycle and pedestrian facilities.

▶ ***POLICY:***
*Implement cost-effective maintenance activities on Wisconsin's state trunk highway system infrastructure*

To effectively maintain state trunk highway system infrastructure, WisDOT will:

» Initiate a formal, ongoing preventive maintenance process

» Promote and implement sound environmental practices for all highway maintenance activities

» Implement proven maintenance management practices

## *Background*

Highway maintenance activities focus on the infrastructure along the highway right of way, including, but not limited to, roadway pavement and shoulders, bridges, rest areas, signs, drainage and pavement markings. WisDOT maintains nearly 12,000 miles of highway infrastructure, approximately 4,900 bridges and more than 150,000 acres of roadside adjacent to state trunk highways.

Every year, billions of miles of travel and continuous natural wear create a need for ongoing maintenance of the highway system. In addition, Wisconsin's highway infrastructure is aging, requiring increased levels of maintenance to preserve existing levels of service. Growing freight markets and heavier trucks and loads traveling on Wisconsin's highways are expected to impact preservation needs through 2030.

Meanwhile, funding levels for highway maintenance have not kept pace with growing demands. As a result, the backlog of maintenance needs continues to increase.

## *Initiate a formal, ongoing preventive maintenance process*

Preventive maintenance is the periodic application of relatively inexpensive roadway treatments (for

Highway maintenance is closely associated with highway operations. Both seek to maximize the reliability of the highway system. Highway maintenance activities focus on the infrastructure along the highway right of way, while operations activities focus on the flow of traffic on and across the infrastructure. See Chapter 9, *Promote Transportation Efficiencies*, for more information on highway operations.

### Highway maintenance activities

› Pavement and bridge spot treatments

› Shoulder repair

› Repair and replacement of signs and pavement markings*

› Roadside vegetation control

› Repair and restoration of state trunk highway facilities and structures after crashes, natural disasters and vandalism

› Maintenance of rest areas, waysides and some park and ride lots

** Historically, repair and replacement of signing and markings have been grouped with highway operations functions. However, they are maintenance activities.*

▲ *Figure 5-3: Heavier trucks and loads on Wisconsin's highways may have a significant impact on highway deterioration.*

UNLIKE OTHER *state departments of transportation, WisDOT contracts with the state's 72 counties to perform maintenance activities on the state trunk highway system. Routine Maintenance Agreements outline costs and standards requirements.*

example, filling the pavement cracks on roadways) that help extend the life of the system by delaying deterioration. Postponing preventive maintenance ultimately results in larger repair projects that take longer to complete and, as a result, can cause such consequences as greater disruption to traffic flow. An effective preventive maintenance process includes:

» Monitoring existing state trunk highway conditions, identifying deficiencies and setting priorities

» Developing a plan to carry out maintenance activities and address deficiencies

### *Monitoring existing state trunk highway system conditions, identifying deficiencies and setting priorities*

WisDOT will continue to address the most critical maintenance needs of the state trunk highway system infrastructure, including (not in order of priority):

» Repair needs of bridges and other structures

» Pavement and shoulders

» Pavement cracks

» Signs and markings

» Guardrails and other roadside safety features

» Drainage elements such as culverts, including restoration and replacement

» Traffic signals and other traffic management devices

In addition, WisDOT will continue to perform numerous other preventive maintenance activities, including:

» Keeping shoulders in good condition and free of debris

» Ensuring visibility at intersections by mowing and using plant growth retardants

» Controlling woody plants within the clear zone using herbicides and mowers

» Keeping rest facilities clean and in good repair

» Providing highway lighting where necessary

To monitor system performance and address deficiencies throughout the year, WisDOT will work with the Federal Highway Administration to implement a Maintenance and Operations Decision Support System (an extension of the current Maintenance Decision Support System that focuses on winter operations). A decision support system is a computerized information system that supports

organizational decision-making activities and is intended to help decision makers compile useful information from raw data, documents, personal knowledge and/or business models to identify and solve problems and make decisions. This system will help highway maintenance staff identify and recommend specific treatments and timing strategies to complete necessary maintenance work. Moreover, WisDOT's regional maintenance field staff will continue to monitor county performance, specifically in the areas of establishing work plans, setting priorities and assuring compliance with maintenance standards.

This effort continues WisDOT's current work with counties and developers. One example of this coordination is when plans indicate traffic signal placement on corridors. WisDOT will also develop reporting tools to document when fieldwork is completed. This information will help WisDOT benchmark performance and identify best practices.

WisDOT is developing a more robust asset management program for structures and bridges. The program will include defined inspection cycles and replacement and maintenance strategies.

### *Developing a plan to carry out maintenance activities and address deficiencies*

To more effectively manage statewide maintenance work, the department will complete three activities:

» Finalize the department's policy regarding highway infrastructure ownership and maintenance responsibilities

» Develop long-term investment plans and corridor-level roadside management plans for state trunk highway facilities, such as rest areas, waysides, scenic overlooks, welcome centers and safety and weight enforcement facilities

» Develop a system for identifying maintenance costs associated with new and existing highways and bridges. This will enable department staff and decision-makers to better understand the maintenance costs associated with new construction, as well as the costs associated with the maintenance of the existing state trunk highway system. This goal is further described under the "Preserve Wisconsin's state trunk highway system infrastructure" policy

▲ *Figure 5-4: WisDOT maintains nearly 12,000 miles of highway infrastructure, including, but not limited to, roadway pavement and shoulders, bridges and rest areas.*

### *Promote and implement sound environmental practices for all highway maintenance activities*

As with all highway projects, WisDOT considers the potential impacts of roadway maintenance activities on natural plant and animal communities and works to avoid, minimize and mitigate these impacts (see Chapter 10, *Preserve Wisconsin's Quality of Life*, for more information). The department uses – and will continue to use through 2030 – a number of minimization and mitigation practices to help address potential impacts (Table 5-1).

In addition to the activities identified in Table 5-1, WisDOT will also establish more robust programs related to:

» Invasive, non-native species

» High priority plant communities

Non-native invasive species continue to be a statewide challenge; efforts to minimize and eradicate their presence are ongoing. To respond to this challenge, Governor Jim Doyle established the Council on Invasive Species. WisDOT will track the decisions of the Council and respond accordingly, implementing best management practices as appropriate. Also, through ongoing collaboration with the Wisconsin Department of Natural Resources, WisDOT will implement a program of "early detection, rapid response" for invasive species. The department will take mitigating actions to address noxious weeds as required under Wisconsin State Statute 66.0407, and will seek the necessary resources to manage this effort. For more information, refer to Chapter 10, *Preserve Wisconsin's Quality of Life*.

As part of its efforts to identify high-priority plant communities, such as native prairie remnants, WisDOT will develop a new program aimed at preserving and restoring high-priority prairie, where feasible.

### *Implement proven maintenance management practices*

WisDOT will continue to:

» Improve the department's existing maintenance management tools

» Research and evaluate new, cost-effective highway maintenance technologies

» Implement work zone and lane-closure management strategies and tools to maintain safety and minimize impacts on travelers

» Emphasize cost-effective strategies in county maintenance contracts

**Table 5-1: Continuing department minimization and mitigation practices**

| Maintenance area | Activity |
|---|---|
| Wildlife/domestic animal crossings | • Continue to maintain wildlife/domestic animal crossings |
| Scenic easements | • Continue to identify and maintain existing scenic easement agreements<br>• Continue to clarify scenic easement policy including issues such as urban growth area impacts on scenic easements |
| Community sensitive design | • Consider aesthetic elements in planning and projects<br>• For more information, refer to the "Continue Community Sensitive Design Efforts" policy in Chapter 10, *Preserve Wisconsin's Quality of Life* |
| Erosion control and water management | • Continue to use tools and techniques for effective erosion control, water quality management and drainage |
| All-terrain vehicles (ATVs) (use on roadways, shoulders and roadsides can damage vegetation, cause rutting and slope erosion, displace shoulder gravel, prematurely wear pavement markings and disturb adjacent landowners through noise and exhaust fumes) | • Continue to monitor legislation concerning ATVs<br>• It is not in the public interest to accommodate ATVs within state trunk highway right of way; exceptions to this 'no accommodation' policy will be very rare |

WisDOT will continue to expand and refine its existing management system tools, including the Compass program. Compass is a decision-making tool that helps establish work priorities and allocate resources. A critical input for this program is an annual condition assessment of the state trunk highway system. The assessment provides condition information about shoulders, drainage, roadsides, traffic devices, bridges and winter operations. Over the long term, WisDOT will continue to work toward developing and implementing a comprehensive maintenance management system for all highway assets.

In addition to improving existing tools, WisDOT will research and evaluate new, cost-effective highway maintenance technologies and will identify best management practices that leverage existing resources and maximize efficiencies. Emphasis will also be placed on developing tools that not only pinpoint specific areas that need preventive maintenance, but prioritize the identified needs.

For example, innovative technology for pavement crack filling may be evaluated. From a capital improvement standpoint, other technologies that can be incorporated into the routine replacement of pavements include those that use new pavement additives that resist wear and lengthen pavement life. New technology can be used in replacing or improving traffic signs and pavement marking materials so they are more durable and visible, particularly in wet weather.

WisDOT will continue to emphasize cost effectiveness in managing contracts with Wisconsin's counties. The department will create and track appropriate benchmarks and service delivery outcomes. The department will also continue working with the counties as they define and provide a comprehensive suite of services.

Conducting highway maintenance activities sometimes disrupts traffic flow. Work zone management strategies help minimize disruption and maintain state trunk highway system reliability. Oftentimes, work zone management requires creativity and flexibility. In response, WisDOT will perform more of its maintenance work during non-peak traffic hours, including nighttime hours when traffic volumes are typically lower.

In addition, WisDOT will ensure that ongoing training on work zone traffic control and safety is available to department staff. Refer to Chapter 9, *Promote Transportation Efficiencies*, for more information.

## Compass

Compass is WisDOT's highway operations quality assurance and asset management program. Launched in 2001, it plays a critical role in educating and communicating maintenance needs to WisDOT stakeholders.

Compass uses existing WisDOT data and statistical sampling to gather information on existing highway conditions and to explain the relationship between those conditions and the maintenance budget. It puts the expertise of highway operations workers into a format easily understood by laypeople and decision-makers.

Annual Compass reports provide information about the conditions of shoulders, drainage, roadsides, selected traffic devices, traveled ways, bridges and winter maintenance.

Compass also works with operations managers to set annual targets for highway operations conditions under current budget levels.

Compass will complement the Maintenance and Operations Decision Support System. While the system will help optimize decisions about specific treatment types and the timing for completion of the work, the Compass program will provide information about the extent of work needed and will help WisDOT consider trade-offs among various work priorities.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Implement cost-effective maintenance activities on Wisconsin's state trunk highway system infrastructure*

### *Short-term (2008 – 2013)*

- Complete long-term investment plan for state trunk highway facilities.
- Finalize policy for highway infrastructure ownership and maintenance.
- Partner with the Federal Highway Administration to develop and implement a Maintenance and Operations Decision Support System.
- Develop a more robust program related to the restoration and preservation of high-priority plant communities.
- Continue to develop and implement a web-based lane closure planning system.

### *Mid-term (2014 – 2019)*

- Develop and implement corridor-level roadside management plans for the state trunk highway system.
- Develop a system for identifying maintenance costs for new and existing state trunk highways and bridges.
- Cooperate with the Wisconsin Department of Natural Resources to develop and implement a rapid-detection and early response program to better control non-native invasive species.
- Evaluate new technologies that can pinpoint and prioritize areas with preventive maintenance needs.

### *Long-term (2020 – 2030)*

- Continue to research and evaluate new, cost-effective maintenance technologies and prioritize needs including research, development, testing and implementation of new pavement additives that are resistant to wear and would lengthen the life of the pavement.
- Develop and fully implement a comprehensive maintenance management system for all highway assets (including bridges and structures).

### *Entire planning period (2008 – 2030)*

- Continue to address the most critical highway maintenance needs.
- Continue to perform preventive maintenance activities (keeping rest facilities clean and in good repair, for example).
- Continue to monitor county performance and develop reporting tools to document when fieldwork is completed.
- Expand and refine existing management system tools, including the Compass program.
- Continue to implement work zone management strategies to maintain safety and minimize traveler impacts, including ensuring WisDOT staff receive ongoing training on work zone traffic control and safety, and perform more maintenance work during off-peak travel times, including nighttime hours, where feasible.
- Continue to emphasize cost effectiveness in managing contracts with counties.
- Continue to work with Wisconsin's counties to define a comprehensive suite of services that the counties will provide.

▶ ***POLICY:***
*Preserve Wisconsin's state trunk highway system infrastructure*

WisDOT will continue to preserve the existing state trunk highway system infrastructure. To accomplish this policy, WisDOT will:

» Continue using a performance-based approach to identify state trunk highway system preservation needs, including development of a bridge asset management system

» Refine and expand a state-of-the-art process for prioritizing needs and identifying cost-effective state trunk highway construction alternatives

» Pursue sufficient funding to address state trunk highway system preservation needs

## *Background*

Wisconsin's state trunk highway system includes approximately 11,800 miles of two-lane and multi-lane highways and approximately 4,900 bridges. The state trunk highway system includes all Interstate highways, U.S. highways and state highways.

The majority of the state trunk highway system was built in the 1950s and 1960s. Preventive maintenance, resurfacing and reconditioning strategies have extended the useful life of the system. However, infrastructure deterioration – due to increased traffic volumes, freight movements and typical wear and tear – has resulted in the need for significant improvements, including reconstruction and replacement. Ensuring the continuation of system preservation is critical to maintaining the safety and quality of the state's roadways.

While all state trunk highways are important, a key component requiring immediate attention is the Southeast Freeway System. This 270-mile system includes both Interstate and non-Interstate freeways crossing seven southeastern Wisconsin counties in and around Milwaukee. Because the southeast freeways are also some of the primary gateways into and out of Wisconsin, they are some of the state's most heavily traveled roadways. Truck volumes are particularly high because these routes provide access to markets in the Chicago area and regions to the east and south. Freeways in southeastern Wisconsin also serve freight traffic moving not only to and from the Milwaukee metropolitan area, but also Chicago, Madison and the Fox River Valley.

Similar to other state highways, many of Wisconsin's southeast freeways were constructed in the 1950s and 1960s. In addition to pavement deterioration concerns, design standards that were appropriate at the time of construction are now inadequate to handle increased

### Highway preservation activities include:

› **Resurfacing** – Placing a new surface on existing pavement to provide a better riding surface and to extend or renew pavement life. Generally requires no capacity increase or change in roadway characteristics (such as width, curves or slope).

› **Replacement** – Removing all existing pavement layers and replacing with new pavement. Occurs when deterioration is severe. Generally, no capacity or roadway characteristic changes are made.

› **Reconditioning** – Work done in addition to resurfacing or replacing pavement. Minor work may include pavement widening and shoulder paving. Major work involves improvement to site-specific roadway character deficiencies, such as isolated grade, curve, or safety issues related to sight distance problems.

› **Reconstructing** – Total rebuilding of an existing highway to improve maintainability, road characteristics, and traffic safety. Usually completed on existing alignment. Normally requires some right of way acquisition.

### Southeast Freeway System

There are 270 miles of freeways serving seven counties in southeast Wisconsin, with each carrying thousands of cars and trucks every day. The Southeast Freeway System is the economic lifeline not only for the region, but for the entire state. Manufacturers in Milwaukee, tourism destinations in Door County, and commuters in Washington and other southeastern Wisconsin counties depend on safe and efficient freeway connections.

The system also includes several freeway-to-freeway interchanges, providing access from one freeway to another. In Milwaukee County, four major interchanges serve as the hubs of the Southeast Freeway System:

› The Marquette Interchange, linking I-43, I-94 and I-794 in downtown Milwaukee

› The Zoo Interchange, connecting I-94, I-894 and US 45 in western Milwaukee County

› The Hale Interchange, connecting I-43, I-894 and US 45 near Hales Corners

› The Mitchell Interchange, linking I-43, I-94 and I-894 near General Mitchell International Airport in Milwaukee

~ www.dot.wisconsin.gov/projects/sefreeways/index.htm

traffic and truck volumes. Some Southeast Freeway System characteristics that no longer serve current traffic demand include left-side on- and off- ramps and "scissor" ramps. These and other characteristics present design and safety concerns. As a result, much of the system needs to be reconstructed and updated.

If the Southeast Freeway System is not reconstructed, it will need extensive and continual repaving and reconditioning increasing long-term costs. In addition, simply continuing to rehabilitate the system would not address unsafe highways and interchanges, outdated designs, lane-closure issues or weight restrictions.

In addition to prioritizing infrastructure needs in southeastern Wisconsin, WisDOT also focuses on preserving the quality of the highway network and ensuring the state's connection to local, regional and national systems.

The *Corridors 2020* plan, first published in 1988 and most recently updated in 2000 (as part of the *Wisconsin State Highway Plan 2020*), divided the state trunk highway network into *Corridors 2020* routes and all remaining routes. The *Corridors 2020* network, which included "Backbone" and "Connector" routes, served as a component of, and provided links to, the National Highway System.

The Backbone System includes the highest value multi-lane (or planned multi-lane) divided highways, which connect all regions and major economic centers in the state and are tied to the national transportation network. The Connector System includes high-quality two- and four-lane highways that connect all other significant economic and tourism centers to the Backbone System.

A key focus of the highway proposals in the *Wisconsin State Highway Plan 2020* was the completion of planned *Corridors 2020* multi-lane Backbone routes. Completion meant that all Backbone routes would be multi-lane by the year 2020. Completion of the existing *Corridors 2020* Backbone routes is expected to occur in the short-term outlined by *Connections 2030*.

To reflect this ongoing priority and to enhance the quality of the *Corridors 2020* system, WisDOT has updated the system to *Corridors 2030* as part of this long-range transportation plan (Map 5-1).

Like the *Corridors 2020* system, designated *Corridors 2030* routes:

» Provide multimodal system linkages

» Provide safe, dependable access to and from Wisconsin communities

» Encourage regional and statewide economic development

The *Corridors 2030* update makes minor adjustments to the network, including:

» Two new Backbone routes:
  – US 45 from US 10 to US 41
  – US 14 from I-90 to I-43

» Eight new Connector routes:
  – US 63 from WIS 64 to the Wisconsin-Minnesota state line
  – US 14 from US 12/US 18 to I-90
  – WIS 16 from WIS 26 to I-94
  – WIS 33 from US 151 to US 41
  – US 151 from US 41 to WIS 23
  – WIS 57 from US 10 to I-43
  – WIS 310 from I-43 to WIS 42
  – WIS 47 from WIS 29 to US 41

The vision for all *Corridors 2030* Backbone routes is that they will continue to provide high-quality multi-lane divided highways.

Over the long term, completion of the *Corridors 2030* Backbone system will occur through proposed future activities. Additional analyses, including environmental documentation, will be conducted before any of the projects or activities are completed. The *Corridors 2030* plan adds about 30 miles of new *Corridors 2030* Backbone routes.

▲ *Figure 5-5: The Marquette Interchange serves as a hub of the Southeast Freeway System.*

WisDOT envisions that *Corridors 2030* Connector routes will continue to be high-quality two- and four-lane routes. Of the approximately 250 miles of newly designated Connector routes, about 40 miles are planned to be multi-lane and 90 miles are planned to have passing lanes.

## Updating the *Corridors 2020* highway network

*Corridors 2020* was developed to provide essential links to key employment and population centers throughout the state. First established in 1988, the network identifies a system of two-lane and multi-lane highways consisting of two subsystems:

› Backbone system: A network of multi-lane highways connecting all major population and economic regions of the state.

› Connector system: A network of high-quality two- and four-lane highways directly linking significant economic and tourism centers to the Backbone system.

*Corridors 2020* supports Wisconsin's economic development by helping create a positive and safe traveling environment allowing business, industry, agriculture, and tourism to expand in the state. *Connections 2030* recognizes the importance of the *Corridors 2020* network, and updates the network to *Corridors 2030*.

▲ *Map 5-1: The updated* Corridors 2030 *routes include two new Backbone routes and eight new Connector routes*

The total length of the *Corridors 2030* system is approximately 3,750 miles; of this, approximately 1,450 miles are Backbone routes and approximately 2,300 miles are Connector routes.

## *Continue using a performance-based approach to identify preservation needs on the state trunk highway system, including development of a bridge asset management system*

WisDOT will continue to use a comprehensive asset management approach to identify and address state trunk highway system needs. An asset management approach allows WisDOT staff to analyze preservation needs using data based on physical condition, safety, operation, function and connectivity. It also allows WisDOT staff to consider a range of funding and road construction alternatives, which results in a systematic and objective approach to cost-effective state trunk highway system preservation.

This policy divides state trunk highway system preservation activities into three categories:

» Structures and bridges

» Pavements

» Interchanges (discussed in Chapter 9, *Promote Transportation Efficiencies*)

### *Structures and bridges*

The state trunk highway system includes approximately 4,900 bridges and similar structures, as well as a variety of ancillary structures such as retaining walls, culverts, sign structures, noise barriers and high-mast light structures.

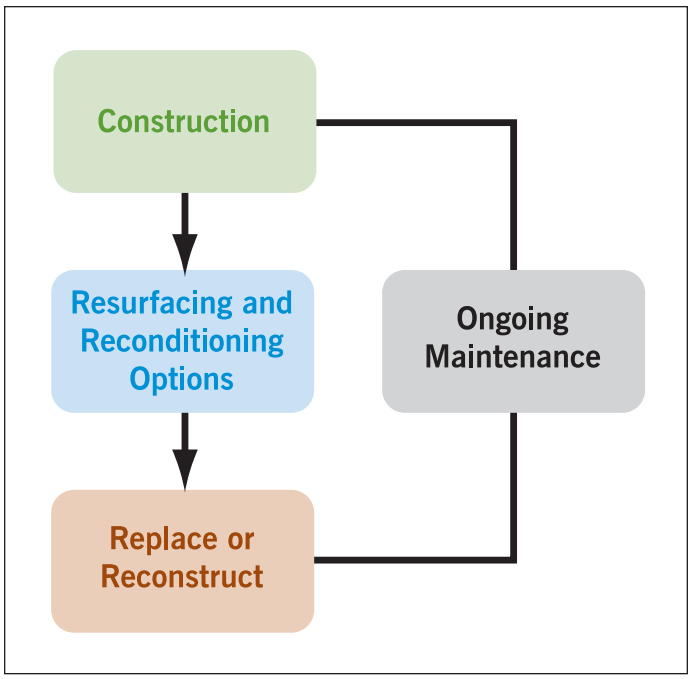
Most bridges are designed to have a life expectancy of up to 75 years. To achieve this, bridge decks, girders, trusses and substructures must be regularly maintained. WisDOT performs regular inspections on all bridges, and stores the inspection data in the department's Bridge Management System. Bridge inspections are key to helping the department decide whether future bridge construction or repair is needed.

To ensure the continued safety and connectivity of the system, bridge preservation is WisDOT's highest priority preservation activity.

WisDOT continually monitors and applies emerging technologies to further complement the department's strong asset management philosophy. This enables the department to continually analyze bridge data, monitor bridge conditions, identify potential future problems and recommend preservation activities.

For planning purposes, WisDOT measures bridge performance using three ratings:

» Deck condition – evaluates the riding surface and other deck components on a scale of 0 to 9. A lower score indicates a need for ongoing maintenance and eventual deck replacement.




▲ *Figure 5-6: Following the pavement preservation steps shown above can lead to a 50- to 60- year roadway life before complete replacement is needed.*

» Sufficiency rating – rates a bridge's sufficiency (or capability). Factors include the bridge's adequacy, safety, serviceability and functional obsolescence, as well as how essential the bridge is for public use. Ratings range from 0 to 100. Lower scores indicate a deficiency; the federal government uses the sufficiency rating to determine eligibility for federal funds.

» Rate score – measures the quality of a bridge's structure and load-carrying capacity. All bridges start with a score of 100. Lower scores indicate problems such as cracks, rust and inadequate bridge width. These bridges typically require more substantial work.

WisDOT developed performance thresholds to rate bridges and structures regarding deck condition, infrastructure quality and load-carrying capacity. WisDOT uses these performance measures to identify bridges that need preservation or maintenance improvements. The department also uses these performance measures to supplement bridge inspection reports. Both bridge inspections and the performance measures help extend the useful life of the facility and delay structural deterioration that may result in the need for weight limits.

Bridge preservation needs will continue to grow throughout the *Connections 2030* planning period. Using existing thresholds, WisDOT forecasts the following bridge needs by 2030:

» 2,900 bridges will need deck overlays

» 550 bridges will need deck replacements

» 700 bridges will need to be replaced

WisDOT is also developing a more robust asset management program for structures. The program will include defined inspection cycles, and replacement and maintenance strategies.

### *Pavements*

Pavement preservation activities usually follow a standard process (Figure 5-6). Assuming timely preservation improvements, state highways are designed to last 50 to 60 years before they need to be reconstructed. However, several factors influence pavement life, such as the timing and type of maintenance and preservation activities, weather, traffic volumes, vehicle weight and soil conditions.

To achieve a 50- to 60-year roadway life, resurfacing or reconditioning activities are typically necessary 15 to 25 years after initial construction and several more times before the end of the 50- to 60-year time span. It is at this point that a roadway will likely need complete replacement.

WisDOT uses a Pavement Management System to continually monitor and update data on state trunk highway system pavement conditions. WisDOT uses the information to identify potential pavement problems as well as to determine the type of treatment needed to achieve or extend the pavement life expectancy.

WisDOT monitors pavement performance using a combination of three measures:

» Pavement distress index (PDI) – measures the structural adequacy of pavements on a scale of 0 to 100, with 0 indicating pavement with no distress and 100 indicating the worst possible conditions

» Pavement serviceability index (PSI) – measures the pavement roughness and ride quality on a scale of 0 to 5, in which 0 is the worst ride quality, and 5 is the best

» Rutting (RUT) – measures the inches of vehicle track depressions in each lane, which are typically caused by problems in the underlying pavement structure

WisDOT pavement thresholds are used to help determine needs on the state trunk highway system at a planning level. The department has developed minimum performance thresholds for each of the three pavement measures. An "ideal" system would have no pavements below minimum thresholds. Because of the importance of *Corridors 2030* Backbone and Connector routes to the overall state trunk highway system, the thresholds for these routes are higher than for other roads.

Most highway segments on the state trunk highway system will show some level of pavement need prior to 2030. As of 2007, approximately 2,860 miles (20 percent) of the state trunk highway network was identified as deficient in terms of at least one of the minimum pavement performance thresholds.

WisDOT will continue to use these pavement performance thresholds and pavement condition data to identify state trunk highway segments that need attention. This data will help WisDOT identify preservation treatments as well as the most appropriate times to apply them. This process will continue to help extend the useful life of pavements and reduce structural deterioration that requires more costly rehabilitation and reconstruction.

For *Corridors 2030* Backbone pavements, WisDOT uses a value-based program that selects improvement alternatives that provide pavement service life extension at the lowest cost per year of life extension.

As of 2007, *approximately 20 percent of the state trunk highway network was identified as deficient in terms of at least one of the minimum pavement performance thresholds.*

## WisDOT's pavement management system

The development of a pavement management system in Wisconsin began in 1987. Wisconsin has a geographic information system-based system that provides spatial and mapping capabilities.

The pavement management system uses pavement inventory data and a decision support system to develop preservation and maintenance programs. The system also provides a database for complex pavement modeling efforts and statewide planning efforts.

Pavement sections with identified needs are aggregated into improvement sections (a section whose length is generally more typical of preservation or maintenance projects), with low-, nominal- and high-level treatment strategies recommended for the entire section.

The final treatment selected is based on the relative impacts of five factors: improvement in ride, improvement in distress rating, user inconvenience, initial cost, and life cycle cost. The final product is WisDOT's Six-Year Highway Improvement Program.

## Wisconsin's highway network

Wisconsin has more than 114,000 miles of public roads, from Interstate highways to city and village streets. The highway improvement program covers only the 11,773-mile state trunk highway system, which is administered and maintained by WisDOT. The other 102,712 miles of roadways are improved and maintained by the cities, towns, counties and villages in which they are located.

The state trunk highway system consists of 743 miles of Interstate highways and 11,030 miles of state and U.S. highways. While the 11,773 miles of state trunk highways represent only 10.3 percent of all public road mileage in Wisconsin, they carry over 35 billion vehicle miles of travel a year, or about 59.2 percent of the total annual statewide highway travel.

Each wisely invested dollar returns benefits in terms of time savings, fewer accidents and decreased vehicle operating costs. Poor roads mean more accidents and deaths, higher insurance costs, more wear and tear on vehicles, more time on the road and less efficient and competitive commerce.

~ www.dot.wisconsin.gov/projects/state/sixyear/index.htm

Determining when to schedule preservation or maintenance work is a complex task. WisDOT analyzes pavement condition data to determine where and when repairs are needed, and to determine viable alternatives. In addition, the department assesses the metropolitan planning organization recommendations published in each organization's long-range transportation plan when assessing priority needs.

The corridor maps described in Chapter 13, *Implementing Connections 2030*, show reconstruction activities identified in the Six-Year Highway Improvement Program as well as reconstruction activities identified in metropolitan planning organization long-range transportation plans. Preservation activities such as preventive maintenance, resurfacing and reconditioning are identified as ongoing system needs throughout the planning period.

### *Refine and expand a state-of-the-art process to prioritize needs and identify cost-effective state trunk highway construction alternatives*

As stated earlier, WisDOT will continue to use pavement condition data and performance thresholds to identify highway segments that need reconditioning, rehabilitation or reconstruction. WisDOT continues to enhance its prioritization methods using asset management tools such as the Meta-Manager Management System Database. This prioritization process will include using thresholds for pavement, bridges, safety (for more information, see Chapter 6, *Promote Transportation Safety*, and

## Meta-Manager management system database

Meta-Manager, a comprehensive data repository for WisDOT, was developed by the Division of Transportation Investment Management's Bureau of State Highway Programs to meet the data requirements for a variety of needs and performance analyses. The Meta-Manager database is an excellent resource for assessing system condition, analyzing need and performance and supporting project development. It geographically integrates a variety of data, including pavement information, system deficiencies, safety, congestion and other information. The database also includes future projections of physical condition data.

▲ *Figure 5-7: WisDOT will continue to use pavement condition data and performance thresholds to identify highway segments that need reconditioning, rehabilitation or reconstruction.*

Chapter 9, *Promote Transportation Efficiencies*) and traffic movement (see Chapter 9, *Promote Transportation Efficiencies*).

As mentioned previously, the department's maintenance and preservation efforts address system needs and help extend the system's life. Wisconsin's state trunk highway system needs exceed available funding, requiring WisDOT to prioritize transportation infrastructure investments.

Wisconsin's highest preservation priority continues to be the structural preservation of bridges. For this reason, structural bridge needs will continue to receive priority funding.

For the remaining state trunk highway system, WisDOT will prioritize preservation needs using state-of-the-art methods. The process applied will include a dual-priority approach that selects projects based on both the cost effectiveness of the preservation strategy and the importance of the roadway to overall system function. Establishing a functional priority will enable WisDOT to better prioritize needs.

### *Pursue sufficient funding to address state trunk highway system preservation needs*

While system preservation continues to be a department priority, many funding challenges remain:

» Increasing magnitude of needs due to aging infrastructure

» Limited funding and increasing costs

» Decreasing purchasing power

» Economic analysis of maintenance costs for new roads

Typically, WisDOT uses an incremental investment approach to infrastructure preservation. This approach uses a combination of low cost and best value repairs to extend the useful life of the facility.

WisDOT's purchasing power has been reduced in the past several years, primarily due to biennial budgets not keeping pace with inflationary increases associated with the rising costs of real estate, energy and construction materials. While recent data show that the number of deficient state trunk highway miles has remained steady for the past two years, any additional loss in purchasing power will increase the number of deficient miles.

If needed repairs cannot be made at appropriate times over the life of the infrastructure, conditions will deteriorate to a point when preservation treatments are no longer cost effective. The result will be more frequent and more costly maintenance and rehabilitation efforts, increased safety concerns, and lower levels of service on deficient highway segments, which may create increased user delays. Ultimately, this will negatively impact the state's mobility and economic development.

In addition, roadway maintenance costs can be expensive over the life of a highway. These costs should be recognized before the roadway is constructed. As part of monitoring existing system conditions and setting priorities for new roadways, WisDOT will more fully develop a long-term investment plan (see the "Implement cost-effective maintenance activities on Wisconsin's state trunk highway system infrastructure" policy in this chapter for more information).

WisDOT will also develop a report to better inform the Wisconsin Legislature and key decision-makers of the department's efforts to maintain and improve system performance and the way it has handled unmet needs. WisDOT will maintain its dual-priority programming approach of applying the most cost-effective strategies to serve the overall function of the system.

The department will also emphasize proactive pavement preservation actions to extend service life and minimize the life-cycle cost of other system needs. Increased purchasing power would help to expedite the programming of needed repairs to the system, specifically those for interchanges.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Preserve Wisconsin's state trunk highway system infrastructure*

### *Short-term (2008 – 2013)*

- Develop and implement a more robust asset management system for state trunk highway system ancillary structures.

### *Mid-term to long-term (2014 – 2030)*

- Develop a report to inform the legislature about preservation needs and efforts to address system performance.

### *Entire planning period (2008 – 2030)*

- Continue to use a comprehensive asset management approach to identify and address state trunk highway system needs through existing tools (like the Bridge Management System and the Pavement Management System) and emerging technological solutions.
- Continue to identify highway segments, bridges and structures not meeting performance thresholds, assess information gathered (e.g. in metropolitan planning organization plans) and determine if additional action is required (for example, pavement improvement, bridge improvement, safety improvement, etc.).
- Refine and expand a state-of-the-art process to prioritize needs and identify cost-effective improvement alternatives. This process will include prioritizing bridge needs first, and then selecting projects based on cost-effectiveness and the importance of the roadway to overall system function.
- Pursue sufficient funding to address state trunk highway system preservation needs, including more fully developing a long-term investment plan.

▶ ***POLICY:***
*Preserve Wisconsin's airport system infrastructure*

WisDOT will preserve the functionality of the existing airport system through a focus on its infrastructure. Specifically, WisDOT will:

» Continue to implement Airport Improvement Program preservation projects

» Update the *State Airport System Plan* to identify long-term needs

## *Background*

Airports, aviation and aviation-related industries play a significant role in the economic success of Wisconsin communities. A key component of the state's transportation system is its system of commercial service and general aviation airports.

In 2007:

» More than 7.4 million individuals used passenger air service

» More than 116 million pounds of cargo were shipped by air

WisDOT sets the direction of its programs and identifies system needs through the *State Airport System Plan*. Needs identified in the plan serve as the link to the Airport Improvement Program, which is the primary funding mechanism that preserves the State Airport System.

### State Airport System

The State Airport System consists of all publicly owned public use airports. Privately owned public use airports are included only if the airport has been federally designated as an airport reliever. It is against state law to fund privately owned airports except those federally designated as relievers.

### *State Airport System Plan 2020*

Airports, aviation and aviation-related industries play a significant role in the economic success of Wisconsin communities. The *Wisconsin State Airport System Plan 2020* provides a framework for the preservation and enhancement of a system of public-use airports adequate to meet Wisconsin's current and future aviation needs.

~ www.dot.wisconsin.gov/projects/state/air2020.htm

The Airport Improvement Program uses a combination of local, state and federal funds. Ninety-eight airports are part of the State Airport System and are eligible for state funding; 88 of those airports are also included in the *National Plan of Integrated Airport Systems*, allowing them to receive federal funds.

The *State Airport System Plan* classifies airports to establish the current and future role of each airport in the overall airport system. The plan also forecasts usage and investment needs to preserve and improve each airport so that it meets its defined role. WisDOT administers the Airport Improvement Program and acts as the agent for airport owners in securing federal grants. As program administrator, WisDOT participates in certain aspects of airport projects, such as planning, coordination, design, land acquisition and construction.

### *National Plan of Integrated Airport Systems*

The *National Plan of Integrated Airport Systems* identifies more than 3,300 airports that are significant to national air transportation and thus eligible to receive federal grants under the Airport Improvement Program.

The plan also includes estimates of the amount of Airport Improvement Program money needed to fund infrastructure development projects that will bring these airports up to current design standards and to add capacity to congested airports.

~ www.faa.gov/airports_airtraffic/airports/planning_capacity/npias/

▲ *Figure 5-8: General aviation projects are typically paid for with 60 percent federal funds, 20 percent state funds and 20 percent local funds.*

### *Continue to implement Airport Improvement Program preservation projects*

The program funds projects that maintain airport runways, taxiways and instrument approach capabilities. The program also funds airport improvement projects, which are discussed in Chapter 7, *Foster Wisconsin's Economic Growth*. The Airport Improvement Program schedules needed monthly preservation projects over a five-year planning period. Preservation projects fall primarily into two categories:

» Pavement projects (includes pavement reconstruction and strengthening of runways, taxiways and aprons)

» Instrument approach capability projects (includes air navigational landing aids and required land acquisition)

Preservation projects are ranked using the Pavement Condition Index. WisDOT uses established Pavement Condition Index thresholds for taxiways, aprons and runways according to an airport's classification. Other factors used to prioritize preservation projects include safety, annual operations, service area population, local sponsor responsibility and the relative importance of the requested project.

WisDOT recognizes the financial contributions of local jurisdictions toward their air facilities and will continue to administer the Airport Improvement Program in cooperation with local airport authorities.

### *Update the State Airport System Plan to identify long-term needs*

Current state funding levels will not complete all of the airport preservation and improvement projects needed on the system. WisDOT is updating the *State Airport System Plan* to identify preservation needs through the year 2030. The updated plan will include funding estimates for future airport preservation and improvements. WisDOT will prepare additional plan updates throughout the planning period. WisDOT will continue to work with stakeholders and the general public throughout the development of the updates.

### ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Preserve Wisconsin's airport system infrastructure*

***Short-term (2008 – 2013)***

- Complete the *State Airport System Plan* update to identify long-term needs.
- Implement Airport Improvement Program projects.

***Entire planning period (2008 – 2030)***

- Continue to implement Airport Improvement Program preservation projects (e.g. pavement reconstruction) in cooperation with local airport authorities.
- Continue to work with stakeholders and the general public to evaluate and update the *State Airport System Plan*, as needed, throughout the planning period.

# CHAPTER 6: Promote Transportation Safety

▶ ***POLICIES IN THIS CHAPTER FOR PROMOTING TRANSPORTATION SAFETY:***

- › *Modify driver behavior*
- › *Improve standards for infrastructure*
- › *Improve emergency response*
- › *Support innovative, comprehensive safety programs*

Safety has been, and continues to be, one of the fundamental missions of WisDOT. The department emphasizes safety in all of its efforts, from education and enforcement to engineering and emergency response. WisDOT remains committed to a multi-disciplinary philosophy that safety "is everybody's business" and continues to coordinate efforts across the entire department. WisDOT will focus on enabling all people to safely use the transportation system even as new challenges arise, such as the aging of the state's population and increased freight movement on highways and railways.

This chapter incorporates recent federal legislative requirements defined in the Safe Accountable Flexible Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU), as well as elements of the department's . However, this chapter goes beyond these important documents to define the department's vision:

The following long-range plan objectives will guide WisDOT in achieving this vision:

» Reduce crashes, injuries and fatalities

» Educate users on safety strategies

» Design and construct safe transportation facilities

» Identify and support partnerships between governmental units to achieve safety improvements

## Challenges

In 2007, there were 125,123 crashes on Wisconsin's roadways, resulting in 737 deaths. These deaths included 106 motorcyclists, 10 bicyclists and 52 pedestrians. In addition, more than 50,000 individuals were injured in these crashes. Many crashes are the result of driver behavior (588 of the 737 deaths in 2007 were from alcohol or speed-related crashes). It is estimated that someone is injured or killed in a speed-related crash in Wisconsin every 46.8 minutes. While WisDOT has made great strides in addressing safety needs system-wide, efforts to improve must continue.

Wisconsin motorists also face the risk of vehicle-deer collisions. October and November are the peak months for vehicle-deer collisions. During the fall mating season, deer are more active, especially at dusk and dawn when they move to and from their bedding and feeding areas. Every year thousands of vehicle-deer crashes are reported. Motorcyclists are especially vulnerable. In 2007, a total 14 people

▲ *Figure 6-1: The promotion of transportation safety includes an improved emergency response.*

### *Wisconsin Strategic Highway Safety Plan, 2006-2008*

WisDOT and its safety partners are challenged with continuing to lower motor vehicle injury and fatality rates and improve overall highway safety. The *Strategic Highway Safety Plan* describes Wisconsin's most critical highway safety issues and outlines a plan to significantly reduce fatalities and serious injuries on all public roads.

The plan's overall strategic goal is to reduce traffic fatalities, injuries and crashes on Wisconsin roadways by 5 percent from the 2001-2005 average by 2008.

The plan identifies Wisconsin's top 10 highway safety issue areas, and short- and long-term strategies for each area to improve safety. Issue areas include:

› Increasing safety belt use

› Improving design and operation of intersections

› Reducing speed-related crashes

› Reducing impaired driving

› Designing safer work zones

~ www. dot.wisconsin.gov/library/publications/topic/safety/hwy-strategic-safety-plan.pdf

died in Wisconsin vehicle-deer crashes; 10 of them were motorcyclists. Figure 6-2 illustrates that the number of crashes on all state roads has fallen slightly during the past decade, as has the number of injuries. WisDOT can improve safety by working to continue these trends. However, fatality numbers, as seen in Figure 6-3, have remained relatively constant.

Rail-highway crossings also present a safety challenge. From 2004 to 2007, an annual average of 68 crashes occurred at rail-highway crossings in Wisconsin. These crashes resulted in an annual average of seven deaths and 20 injuries. Some *Connections 2030* recommendations may result in more frequent or higher speed train movements across Wisconsin roadways, which may necessitate application of higher design standards for railroad crossings.

Long-term changes in vehicle characteristics present potential challenges for WisDOT engineers, regulatory challenges for WisDOT's Division of Motor Vehicles, and enforcement challenges for WisDOT's Division of State Patrol. Changes in vehicle characteristics may include lighter, more fuel-efficient personal vehicles; neighborhood electric vehicles[1]; and increasing numbers of heavy or overweight freight haulers using the highway system. Multiple uses of trails and unapproved uses of WisDOT rights of way are another challenge that the department will continue to address.

Finally, transportation safety has a significant economic impact. In 2007, it is estimated that crashes cost Wisconsin $2.9 billion in economic loss, including costs related to lost worker productivity, medical expenses and property damage.

## Opportunities

WisDOT has developed the following policies to promote transportation safety:

» Modify driver behavior

» Improve standards for infrastructure

» Improve emergency response

» Support innovative, comprehensive safety programs

## Wisconsin's role in transportation safety

As the steward of the state's transportation system, WisDOT is responsible for addressing safety for all

[1] Most neighborhood electric vehicles are classified as low-speed vehicles, which limits their operation to roads where the posted speed limit is 35 miles per hour and limits their maximum operating speed to 25 miles per hour.

*SINCE TRANSPORTATION SAFETY is one of WisDOT's fundamental missions, all WisDOT divisions and bureaus have a role in increasing transportation safety. The department's influence and ability to address safety varies depending on who has ownership or jurisdiction.*

transportation modes and systems. The department's influence and ability to address safety varies depending on who has ownership or jurisdiction over the particular system or mode. For state trunk highways, WisDOT is able to directly fund safety improvement needs. For the local system, WisDOT provides funding, data and technical assistance.

Since transportation safety is one of WisDOT's fundamental missions, all WisDOT divisions and bureaus have a role in increasing transportation safety:

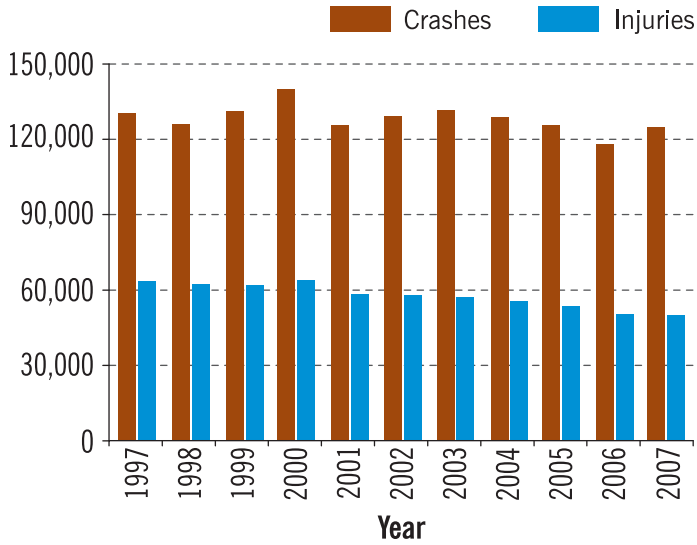
» The Division of State Patrol enforces traffic safety laws, conducts motor carrier inspections, assists travelers, provides statistical and policy research, and offers grants and training

» The Division of Motor Vehicles ensures that only safe drivers are licensed, takes appropriate suspension and withdrawal actions when serious violations occur, and ensures that vehicles sold in Wisconsin comply with all safety and regulatory standards

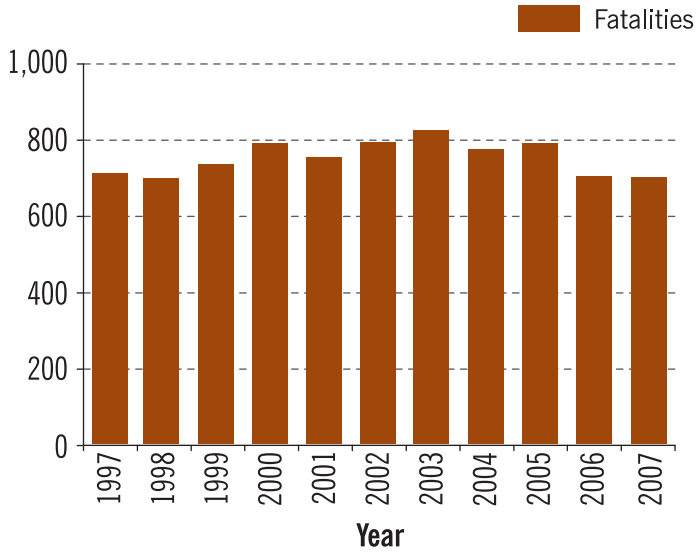
» The Division of Transportation System Development plans, designs and constructs transportation projects that incorporate safety solutions. The division also operates and maintains the state trunk highway system

» The Division of Transportation Investment Management oversees the Safe Routes to School Program, Highway Safety Improvement Program and Meta-Manager safety analysis software that can identify "hot spots" for crashes

In addition to motor vehicle safety, WisDOT has roles in supporting safety for other modes, such as walking, bicycling, rail and air. These include:




▲ *Figure 6-2: Number of crashes on all Wisconsin roads*




▲ *Figure 6-3: Number of fatalities on all Wisconsin roads*

▲ *Figure 6-4: WisDOT will coordinate with the Office of the Commissioner of Railroads regarding rail crossing investments.*

» Considering and, where feasible, incorporating marked crosswalks and bicycle lanes into regular highway designs

» Offering sidewalks as part of regular reconstruction projects, and making sure pedestrian facilities accommodate the needs of people with disabilities

» Coordinating activities with the Office of the Commissioner of Railroads regarding rail crossing investments

» Assisting the Federal Aviation Administration (FAA) and local airport owners with infrastructure improvements and equipment for improved navigation and communications

» Supporting specialized transit to address safety concerns related to an aging population (see Chapter 8, )

WisDOT's strategies during the next 20 years will also meet the new federal requirements identified under SAFETEA-LU. These requirements include:

▲ *Figure 6-5: WisDOT supports pedestrian safety by offering sidewalks as a part of regular reconstruction projects.*

» A new core Highway Safety Improvement Program

» Strategic highway safety planning

» Safety programs targeted toward work zones, older drivers and pedestrians (including the Safe Routes to School program)

▶ ***POLICY:***
*Modify driver behavior*

WisDOT's comprehensive approach to improving the safety of the state's transportation system includes changing driver behavior. To accomplish this policy, WisDOT will continue to:

» Address safety in transportation planning and programming activities

» Educate the public on traffic safety

» Enforce and strengthen traffic laws

## *Background*

Nationally, speeding, driving under the influence of alcohol or drugs, failing to yield, and running red lights contribute to approximately 93 percent of traffic crashes. In 57 percent of these crashes, driver behavior is the sole reason for the crash. In Wisconsin, the consequences of poor driver behavior are also documented.

In 2007, 46 percent of state traffic fatalities were alcohol-related, 34 percent of deaths resulted from speed-related crashes, and 21 percent of fatalities came from crashes that involved both speed and alcohol. Also in 2007, 59 percent of the deaths in passenger car and light truck crashes involved occupants not using safety restraints. Further, 75 percent of motorcyclist fatalities were riders not wearing helmets.

## *Address safety in transportation planning and programming activities*

Wisconsin has integrated safety into its procedures and plans for several decades. Ongoing research and statistical analyses continually identify opportunities for improvements that integrate safety into state procedures and plans. WisDOT continues to emphasize safety as one of its fundamental responsibilities by addressing safety in documents at all levels of planning and program development.

To maintain and improve the department's safety planning and programming focus, WisDOT will:

» Continue to use and improve safety design and planning tools

» Use Highway Safety Improvement Program funds to improve safety across the state

### Highway Safety Improvement Program

Developed by the Federal Highway Administration, the Highway Safety Improvement Program provides guidance to state and local agencies for developing and implementing a comprehensive highway safety improvement program that best suits their capabilities and needs.

The program consists of components for planning, implementation and evaluation of safety programs and projects. Funding obtained through the program is used to apply new procedures to enhance highway safety efforts, including improving techniques for data collection, analysis and evaluation.

~ www.fhwa.dot.gov/tfhrc/safety/pubs/81218/intro.htm

IN 57 PERCENT OF CRASHES, *driver behavior is the sole reason for the crash. WisDOT's comprehensive approach to improving the safety of the state's transportation system includes modifying driver behavior.*

» Incorporate Safety Conscious Planning into all activities

» Continue to refine the collection, analysis and application of data to improve the planning and design of future transportation projects

» Continue to address the issues identified in the current and future updates of the plan

## *Continue to use and improve safety design and planning tools*

WisDOT's day-to-day operations include numerous applications of safety-related design and planning tools. For example, access management has been used for decades as a tool to improve safety on state highways. It does so through restrictions such as prohibiting driveways on hills and curves, or limiting exit and entry points to commercial and industrial operations along state highways. These restrictions limit the number of turning movements along a given segment of roadway. For more information on access management see the "Manage access on Wisconsin's state trunk highway system" policy in Chapter 9, *Promote Transportation Efficiencies*. Furthermore, the *Facilities Development Manual* (FDM) includes safety-driven national standards such as incorporating safety improvements when pavement fixes are scheduled. WisDOT will continue to use and improve upon these and other tools to ensure transportation facilities are safely designed. New tools are being developed to assist planners and designers in identifying locations where safety can be improved For example, road-safety audits are being conducted to comprehensively identify problems with roadway design.

## *Continue to refine the collection, analysis and application of data to improve planning and design for future transportation projects*

Safety Analyst software is being developed to better detect "hot spots" for safety issues. Other projects include developing speed management guidelines for roadways; conducting intersection studies for major corridors; and analyzing cross-median crash data.

These studies will fold into other tools, including the Federal Highway Administration's urban demand models and the Decision Support System for WisDOT. To strengthen planning capabilities, WisDOT will continue to develop a computerized toolbox to improve data collection, sharing and analysis. This system will enable staff to quickly and accurately identify locations with safety problems, and encourage more coordination and cooperation inside and outside the department.

WisDOT will continue to refine data collection and analysis techniques and applications to improve planning and design for future transportation projects.

## *Continue to address the issues identified in the current* Strategic Highway Safety Plan *and future updates of the plan*

Wisconsin's 2006-2008 *Strategic Highway Safety Plan* describes the state's most critical highway safety issues and outlines a plan to significantly reduce fatalities and serious injuries

### Decision support system

A decision support system is a computerized information system that supports organizational decision-making activities. A properly designed decision support system is an interactive software-based system intended to help decision makers compile useful information from raw data, documents, personal knowledge and/or business models to identify and solve problems and make decisions.

~ www.informationbuilders.com/decision-support-systems-dss.html

on all public roads. The plan also includes actions related to pedestrian and bicyclist safety and reducing vehicle-train collisions. WisDOT will continue to address the issues identified in the current plan and in future updates.

### *Use Highway Safety Improvement Program funds to improve safety across the state*

The primary funding support for implementation comes from Highway Safety Improvement Program funding. Projects funded by this program must use strategies to reduce fatalities and serious injuries on public roads. WisDOT will use these program funds to improve safety across the state.

### *Incorporate Safety Conscious Planning into all activities*

WisDOT will incorporate Safety Conscious Planning into all activities. In implementing Safety Conscious Planning, WisDOT will work toward consistency with safety recommendations established in previously published planning documents and other guidance materials including, but not limited to:

- *State Airport System Plan 2020* and Airport Improvement Program
- *Strategic Highway Safety Plan*
- *State Bicycle Transportation Plan 2020*
- *State Pedestrian Policy Plan 2020*
- *Facilities Development Manual*
- *State Access Management Plan*

The Safety Conscious Planning process allows WisDOT to recognize and address safety issues in a comprehensive manner. WisDOT will coordinate decisions to leverage funding and opportunities for complementary, multimodal actions. For example, a highway improvement project at rail crossings could be analyzed to determine if safety accommodations for bicyclists and pedestrians could be added simultaneously with the highway work. WisDOT will also continue close coordination of projects with utilities to ensure construction worker safety with minimal service disruptions for utility customers.

#### Safety Conscious Planning

Safety Conscious Planning is a comprehensive, system-wide, multimodal, proactive process that better integrates safety into transportation decision-making. The concept evolved from the safety requirements under the Transportation Equity Act for the 21st Century. It has gained increased importance under SAFETEA-LU.

### *Educate the public about traffic safety*

WisDOT will continue to make safety education and outreach a top priority. These efforts include updating and distributing guides on the rules of the road and safe driving strategies; supporting education programs for motorcyclists; and continuing public information campaigns such as safety belt use and operating under the influence.

Education-based outreach also includes child safety seat installation checks; working with groups that represent drivers with medical issues; producing, disseminating and presenting information on safely navigating roundabouts; and meeting with advocacy groups who promote specialized safety messages, such as Mothers Against Drunk Driving, Students Against Drunk Driving and various motorcycle groups.

Combining these efforts helps build partnerships to improve awareness and safety. Specifically, the Division of Motor Vehicles conducts written and road tests to grant driver's licenses, regulates private driving schools for both regular and commercial drivers, and provides oversight for the multiple traffic offender and group dynamics programs offered through Wisconsin's technical colleges. These courses are designed to improve the driving behavior of those convicted of multiple traffic offenses or operating while intoxicated.

In addition, WisDOT works to educate those with cognitive or physical limitations about strategies that will allow them to continue to drive safely. For example, WisDOT examiners work with drivers when license restrictions will improve safety but still allow them to operate legally (for example, daytime-only driving or limited radius).

As Wisconsin's population ages, issues relating to older drivers will grow in importance. WisDOT will continue to work with organizations that educate seniors on the availability of transportation services such as public transit and specialized transit. WisDOT will promote third-party driver training programs such as the American Association of Retired Persons (AARP) Drive Safely program. WisDOT is a leader in improving the availability of transportation services such as public transit and specialized transit for those who do not drive.

WisDOT continues to emphasize education and strengthening the driver licensing process to reinforce behavioral changes, especially in the crash-prone under-25 demographic group. Wisconsin's Graduated Drivers License program has been in effect since 2000 and has been very successful. However, there is still room for progress, as those under the age of 25 remain overrepresented in motor vehicle crashes, injuries and deaths. While the Division of Motor Vehicles conducts road tests for driver licensing, the Department of Public Instruction manages the instructional materials for driver's education classes. WisDOT will continue to assist the Department of Public Instruction on revisions to driver education program materials.

▲ *Figure 6-6: Campaigns to assert pedestrian right of way in crosswalks are a component of continuing driver education outreach.*

WisDOT will also continue to educate the public through public service announcements in all media. Recent announcements have addressed drunk driving, moving over or slowing down for emergency vehicles, and work zone safety.

Changes in transportation technology and increases in roadway congestion are two reasons driver education must be viewed as an ongoing process.

In addition to continuing driver education outreach efforts, WisDOT will increase educational outreach to address safety issues for other modes. This will include campaigns to assert pedestrian right of way in crosswalks and to recognize the rights of bicyclists to share the roadways. WisDOT will also continue to support the Operation Lifesaver program that teaches safe behavior while crossing railroad tracks. Furthermore, WisDOT will work with the Wisconsin Department of Natural Resources, legislators, and others to identify what vehicles may and may not be safely operated on WisDOT rights of way. The use of small vehicles that are street legal in Wisconsin under limited circumstances presents an important challenge for the state's safety community.

### Safety education and outreach at work: Wisconsin Motor Carrier Advisory Committee

WisDOT staff from several divisions meet regularly with representatives from Wisconsin's motor carrier industry and federal officials to improve the safe and efficient transport of freight. Committee members discuss issues of national and statewide importance in order to collaboratively develop solutions that best meet the needs of those who work and travel in Wisconsin. Issues range from medical eligibility to safe parking of vehicles.

## *Enforce and strengthen traffic laws*

Enforcement remains the primary tool in improving driver behavior. While the Wisconsin State Patrol, county sheriffs, and local police have made great efforts in driver behavior enforcement, especially speeding and drunk driving, these remain ongoing enforcement concerns.

Safety belt use increases crash survival by providing vehicle occupants additional protection. About 75 percent of Wisconsin residents now use safety belts. However, several demographic groups have below-average safety belt usage: drivers between the ages of 16 and 25, male drivers and pickup truck drivers. Wisconsin recently passed primary enforcement of safety belt laws. Under this law, police officers are allowed to stop motorists if they are not wearing a safety belt. Similar laws in other states have produced multiple benefits, including reductions in crash injuries and fatalities, as well as the societal costs associated with the fatalities and injuries averted. WisDOT will continue to apply and support enforcement tools to increase safety belt compliance.

During the *Connections 2030* plan period, Wisconsin is expected to experience increases in vehicle miles traveled and increases in the overall state population; therefore, Wisconsin's State Patrol will require additional resources to maintain the current service level and coverage along state highways.

WisDOT will support legislation to increase the number of troopers, and it will support additional vehicles, communication systems and other tools that allow troopers to safely and effectively perform their duties.

Technology-based safety enforcement is well established in the United States. Because reckless driving behaviors such as running red lights and driving around lowered railroad crossing gates are difficult to enforce, WisDOT will monitor legislative discussions regarding the use of technology at highway-rail crossings and intersections for research and potential enforcement.

WisDOT will continue to work with Wisconsin law enforcement agencies and courts to suspend and revoke the privileges of drivers who violate traffic laws and create unsafe conditions. The department will also continue to ensure that people who sell automobiles are not selling unsafe or stolen vehicles.

WisDOT also leads the effort to automate the citation and crash-reporting system used by police agencies in Wisconsin. More than 100 agencies have been trained to use Badger TraCS – a real-time, online reporting system that will improve the efficiency and effectiveness of officers' incident reporting. WisDOT will continue to support training and use of this system for law enforcement community members across the state.

### Badger TraCS

Traffic and Criminal Software (TraCS), an application developed by the state of Iowa in partnership with the Federal Highway Administration, serves as a national model for the development of automated reporting systems for law enforcement TraCS is designed with modular architecture capable of sharing common data among forms and incorporating crash, citation, OWI, commercial motor vehicle inspection and incident forms. Wisconsin's version of TraCS is Badger TraCS and its suite of forms includes:

- MV4000 (police accident report), an abbreviated MV4000 for single-unit, property damage vehicle-deer crashes
- A form for amending previously submitted MV4000s
- Uniform traffic citation
- Alcohol incident reporting form
- Uniform municipal citation
- Warning citation
- Drivers condition and behavior form
- Attachment form to submit photos and other supplemental information

TraCS allows for immediate data entry in the squad car or entry at a later time at the headquarters office.

~ www.dot.state.wi.us/drivers/drivers/enforce/tracs/index.htm

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Modify driver behavior*

### *Short-term (2008 – 2013)*

- Continue to implement the current Strategic Highway Safety Plan and future plan updates.
- Continue to use and support effective enforcement tools to increase compliance, save lives and reduce injuries.
- Monitor legislative decisions regarding the use of technology at highway-rail crossings and intersections, for research and potential enforcement.
- Continue to use and improve planning tools and design methods to address safety issues.
- Develop tools to assist planners and designers in identifying safety issues (for example, road safety audits).
- Continue to refine data collection and analysis techniques, as well as applications to improve planning and design for future transportation projects.
- Continue administering the Highway Safety Improvement Program.
- Continue incorporating Safety Conscious Planning into all activities, to achieve consistency with safety recommendations established in previously published planning documents.
- Coordinate decisions to leverage funding and opportunities for complementary, multimodal actions, including increased educational outreach, to address safety issues for other modes.
- Continue to make safety education and outreach a top priority using written guidance material, education programs, and public information campaigns.
- Continue working with the Wisconsin Department of Natural Resources, legislators, and others to identify what vehicles may and may not be safely operated on WisDOT rights of way.
- Promote third-party driver training programs such as the AARP Drive Safely program.
- Support legislation that increases the number of troopers, to address expected increases in vehicle miles traveled and the overall state population.
- Support the provision of additional State Trooper vehicles, communication systems and other tools needed to allow enforcement officers to perform their duties safely and effectively.
- Continue efforts to automate the citation and crash reporting system, "Badger TraCS," and support training and the use of this system for law enforcement community members across the state.

### *Entire planning period (2008 – 2030)*

- Continue close coordination of projects with utilities to ensure construction worker safety with minimal service disruptions for utility customers.
- Continue to work with organizations that educate seniors on the availability of transportation services such as public transit or specialized transit.
- Continue to assist the Department of Public Instruction with revisions to driver education program materials.
- Continue to support the Operation Lifesaver program that teaches safe behavior while crossing railroad tracks.
- Continue to ensure that people selling vehicles are not selling unsafe or stolen vehicles.

▶ ***POLICY:***
*Improve standards for infrastructure*

Highway design standards are continually researched, reviewed and updated to ensure characteristics such as speed, lane width, shoulder width and slope, and stopping-sight distance meet current traffic requirements. Roadway engineering improvements during the past several decades have changed the mix of causal factors and injury outcomes for traffic crashes. Design tools such as guard rails, divided highways, cable barriers, clear zones and shoulder-edge rumble strips not only reduce the negative influences of roadway design, roadway condition or environmental factors, but also minimize the impacts of driver error. These tools help keep vehicles on the road, and minimize the consequences of leaving the road – two key department safety goals.

Roadway engineers apply both proactive and reactive tools in their efforts, such as designing facilities, including roundabouts, to modify driver speed behaviors. This requires engineers to anticipate potential problems and determine how drivers could avoid them, while at the same time identifying existing problems and designing the facilities to eliminate or reduce their impacts. For example, in rural areas, safety design challenges include topography, ATV crossings, and access points. Project engineers recognize that human perceptions such as speed and distance, and driver behaviors such as distracted driving and driving too fast for conditions, reflect how the built environment will be used.

*Connections 2030* identifies two actions that support improving standards for infrastructure. These are:

» Engineer infrastructure to be safe

» Maintain infrastructure for safe operation and use

## *Engineer infrastructure to be safe*

In addition to continually addressing safety considerations on the state's heavily traveled routes, WisDOT has focused additional attention on safety considerations for bicycle riders and pedestrians; senior drivers; work zones; and rural, two-lane highways.

▲ *Figure 6-7: Design tools such as guard rails, divided highways, cable barriers, clear zones and shoulder-edge rumble strips help keep vehicles on the road and minimize the consequences of leaving the road – two key WisDOT safety goals.*

Design features such as wider paved shoulders, improved pavement marking and lighting, roundabouts, and access management help address safety concerns for the highway users, as well as for bicyclists and pedestrians. Figure 6-8 provides just one example of how changes to design and vehicle access can improve the safe operation of a roadway. Where appropriate, WisDOT will continue to include these elements as standard features for most highway projects through 2030.

At high-volume intersections, operation and design improvements such as improved signal timing, dedicated turn lanes and improved signage are elements of a comprehensive effort to improve safety. Engineers may also incorporate technology such as metered freeway on-ramps, variable message boards and weigh-in-motion truck scales to improve traffic flow and safety (see Chapter 9, *Promote Transportation Efficiencies*, for policies discussing

▲ *Figure 6-8: Work zone safety is a critical concern. Motorists and construction maintenance workers alike face challenges on projects that require maintaining traffic flow on facilities.*

access management and the application of Intelligent Transportation Systems and operational tools).

The U.S. Department of Transportation adopted guidelines developed by the American Association of State Highway and Transportation Officials on how to modify roadways to safely accommodate senior drivers and pedestrians as well as other users. Ideas range from larger roadway signs to roadway lighting. WisDOT will integrate the American Association of State Highway and Transportation Officials recommendations on engineering, operations and maintenance into its activities. WisDOT will also continue to increase investments in roadway engineering and operational improvements that reduce the negative influences of roadway design, roadway condition or environmental factors, and minimize the impact of driver error.

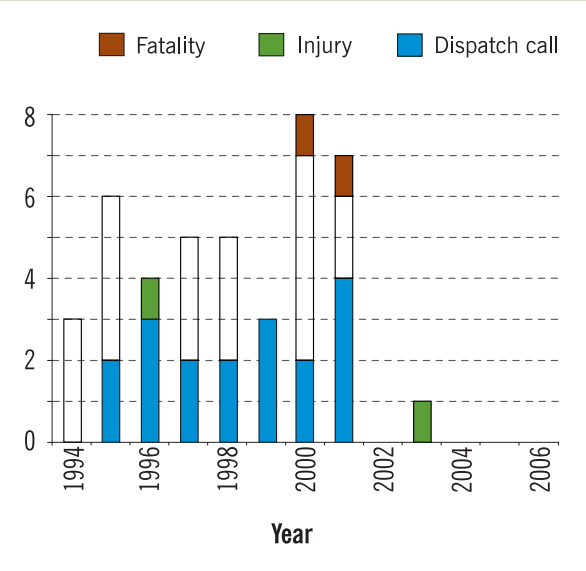
Work zone safety is identified as a critical concern in the *Strategic Highway Safety Plan*. Motorists and construction maintenance workers face challenges on projects that require maintaining traffic flow on deteriorating roadways. On average, Wisconsin annually experiences nearly 2,000 crashes in work zones that injure 900 people and result in 11 deaths. Department analyses of statistical trends show an increase in the number of fatal crashes in work zones. As more existing highways undergo rehabilitation during the plan period, WisDOT will improve planning, training and design practices for safer management and operation within work zones (see Chapter 9, *Promote Transportation Efficiencies*, for additional discussion regarding work zone management). Major safety hazards are created along rural, two-lane highways as drivers attempt to pass slow-moving vehicles or farm equipment, increasing the potential for head-on crashes. WisDOT has installed passing lanes along some highway segments. These "third lanes" provide passing zones at regular intervals for slow vehicles to move over and let other traffic pass without crossing into oncoming traffic.

WisDOT will continue to study the use and effectiveness of passing lanes, and will continue to add them on some roadways. Chapter 9, *Promote Transportation Efficiencies*, further highlights the department's commitment to using passing lanes to address safe traffic movement, where appropriate.

WisDOT will also continue to make safety improvements for other modes:

» Railroads: On state-owned rail corridors, WisDOT will continue to invest in programs that improve railroad tracks and roadbeds, and railroad crossings (see Chapter 7, *Foster Wisconsin's Economic Growth*, for specific policies related to state freight rail issues.

  On privately owned corridors, WisDOT will work with the Office of the Commissioner of Railroads and private companies to identify potential needs for improved rail-crossing safety measures such as signals, gates, grade separations, and crossings that should be closed, and it will discourage trespassing by installing fencing.




### Case study: Design tool reduces crashes

Fatalities, injuries and calls to the police dropped significantly the year after a directional median opening (a median that directs turning movements) was constructed in 2001 at WIS 42/WIS 57 and Utah Street, near Sturgeon Bay in Door County.

» Aviation: WisDOT will continue to support engineering improvements ranging from technical improvements such as landing and navigational aids, weather monitoring equipment, and rescue and firefighting equipment, to simpler treatments such as runway lighting, land acquisition for protection zones, and fencing to prevent wildlife incursions onto runways.

## *Maintain infrastructure for safe operation and use*

Once constructed, transportation facilities require regular maintenance to ensure safety elements continue to function as designed.

▲ *Figure 6-9: Technology such as variable message signs improve traffic flow and safety.*

While maintenance activities include regular treatments such as painting, pavement sealing and pothole repairs, they can also include repairs to damaged guardrails and traffic signals.

In general, county highway crews perform most maintenance activities on state facilities through contracts with WisDOT. As discussed elsewhere in this plan, maintenance activities are vital to the overall safe operation of the system. System maintenance is a priority and a challenge. Efforts will continue to focus on identifying methods to better estimate maintenance costs for existing and new infrastructure (for more information, see Chapter 5, *Preserve and Maintain Wisconsin's Transportation System*). As more lane-miles are added to the state trunk highway system, maintenance funding needs will also increase. WisDOT will consider options such as increases in the maintenance budget to help offset rising costs for materials, labor and number of lane-miles.

Bridges are perhaps the most critical transportation-related structures. Whether spanning another highway, a body of water, a railroad, or another structure, bridges require regular inspections to ensure that stress from regular use has not caused the structure to become unsafe.

When bridge inspections identify weakened structural elements, maintenance to retrofit or repair these elements is essential. In cases where bridge structures have significant damage, weight limits or even closures may be necessary. Wisconsin's program for inspections and repairs allows most structures to be repaired or replaced before weight restrictions or closures are required. WisDOT will continue its policy of addressing bridge safety on the state trunk highway system first. WisDOT will continue to ensure safe infrastructure through a regular program of inspections, repairs and replacements as needed. Further, WisDOT will continue to employ cost-effective maintenance practices that improve the safety and efficiency of travel on state highways.

Operational treatments such as coordinated signal timings, debris removal and winter event operations (such as snow and ice removal) are also crucial for the safety of the transportation system. WisDOT will support development and implementation of operational improvements to enhance safety. The department will also seek greater flexibility in its investments in operational improvements that prevent or delay more costly treatments. (For more information, refer to Chapter 9, *Promote Transportation Efficiencies*, and Chapter 5, *Preserve and Maintain Wisconsin's Transportation System*.)

## ► *SUMMARY OF POLICY ACTION ITEMS:* *Improve standards for infrastructure*

***Entire Planning Period (2008 – 2030)***

- Continue and/or increase investments in roadway engineering and operational improvements that reduce the negative influences of roadway design, roadway condition or environmental factors, as well as soften the impact of driver error.
- Improve planning, training, and design practices for safer management and operation within work zones.
- Continue to work with the Office of the Commissioner of Railroads and private railroad companies to identify potential rail crossing safety improvements such as signals, gates, grade separations, or closing crossings, and discourage trespassing by installing fencing.
- Continue to support safety-engineering improvements at airports, ranging from technical improvements (landing and navigational aids) to simpler treatments (runway lighting).
- Consider funding options such as increases in the maintenance budget to help offset rising costs for materials, labor and lane-mile additions.
- Support development and implementation of operational improvements to enhance safety.
- Seek greater flexibility in investing in operational improvements that may prevent or delay more costly treatments.
- Continue to include pedestrian and other safety elements as standard features for most highway projects through 2030.
- Continue to study the use and effectiveness of passing lanes, and continue to use them where appropriate.
- Continue to invest in programs that improve railroad tracks and roadbeds, and railroad crossings.
- Continue policy of addressing bridges on the state trunk highway system first; ensuring infrastructure safety through a regular program of inspections, repairs and replacement.

▶ ***POLICY:***
*Improve emergency response*

Quick response is vital to preventing secondary crashes and increasing the number of people who survive crashes. In order to improve safety after incidents occur, WisDOT will:

» Continue to improve emergency and incident response

## *Improve emergency/incident response*

WisDOT's Statewide Traffic Operations Center monitors highways in Milwaukee, Madison and Wausau using video technology and coordinated communication efforts. The center also coordinates statewide emergency responses through a toll-free telephone number available to law enforcement agencies (see Chapter 9, *Promote Transportation Efficiencies*, for more discussion).

In urban areas, WisDOT will continue to use technology for faster detection and response to incidents. Statewide, WisDOT will continue to invest in communication system redundancy

### Statewide Traffic Operations Center

The WisDOT State Traffic Operations Center (STOC) handles traffic management for Wisconsin. It is staffed 24 hours per day, seven days per week and communicates regularly with sheriff, fire, police departments and the Wisconsin State Patrol, as well as media outlets and construction project managers. The actual operations center is located in southeastern Wisconsin in the city of Milwaukee. From the STOC, it is possible to use various traffic management tools such as closed circuit television units, ramp meters, variable message signs, highway advisory radio, roadway sensors and other tools. It is designed to improve the safety and efficiency of the freeway system by reducing incidents and relieving traffic congestion.

~ www.dot.wisconsin.gov/travel/stoc/

▲ *Figure 6-10: Quick response is vital to preventing secondary crashes and increasing the number of crash survivors.*

▲ *Figure 6-11: Rapid detection and response to crashes will also reduce the number of secondary crashes that occur in congested situations.*

and integration throughout the plan period. This includes interoperability systems and standards that allow several agencies and responders to exchange communications across a single channel.

While secondary to safety considerations, enhancements to incident response systems and procedures will also help to mitigate unexpected or non-recurring congestion (see Chapter 9, *Promote Transportation Efficiencies*, for more information on WisDOT's Emergency Transportation Operations (ETO) Plan). Rapid detection and response to crashes will also reduce the number of secondary crashes that occur in congested situations. The Statewide Traffic Operations Center is also developing best practices for incident management. WisDOT will support the adoption of such practices, and it will support a regular review process to update these practices. Refer to Chapter 11, *Promote Transportation Security*, for more information on improving emergency response.

## ► *SUMMARY OF POLICY ACTION ITEMS:* *Improve emergency response*

### *Short Term (2008 – 2013)*

- Continue to invest in communication system redundancy and integration throughout the plan period.
- Support the Statewide Traffic Operations Center's development of best practices for incident management and a process to regularly review and update these practices.

### *Entire Planning Period (2008 – 2030)*

- Continue to use video technology and sensors to allow faster detection and response to incidents.

▶ ***POLICY:***
*Support innovative, comprehensive safety programs*

While some safety improvement strategies can be applied as stand-alone techniques, many successful strategies are best applied with combined coordination across engineering, education, enforcement and other techniques. These strategies typically address broad visions of safety improvements. To implement these coordinated and broad strategies WisDOT will:

» Support innovative, comprehensive safety programs

## *Support innovative, comprehensive safety programs*

WisDOT's strongest effort at a comprehensive safety solution has focused on intoxicated driving. Efforts have focused on obtaining citizen support and the reporting of intoxicated drivers. WisDOT conducts numerous public outreach programs, coordinates with groups such as MADD and SADD, and rewards citizens who use cell phones to report intoxicated drivers.

Other state-supported programs have focused on a three-point strategy to prevent intoxicated people from driving:

» Providing certified alcohol server intervention training

» Implementing comprehensive designated driver programs

» Initiating confidential Safe Ride alternative transportation programs

Wisconsin uses fines, license sanctions and incarceration as consequences for Wisconsin drivers convicted of repeated Operating While Intoxicated (OWI) or related offenses. Experience suggests that incarceration alone does not alter the drinking and driving behavior of individuals with alcohol-related problems. In the past two decades, public policies have been designed to use education and rehabilitation to change the drinking and driving behavior of persons convicted of OWI. The most successful effort emphasizes early intervention.

Pre-trial, intoxicated driver intervention programs, commonly known as intensive supervision programs, aim to rehabilitate drunk drivers as soon as possible after arrest and before conviction, thereby reducing the likelihood of future drinking and driving. These programs have operated in Wisconsin since 1993. Analysis has demonstrated that clients who complete their programs are less likely to be re-arrested for drinking and driving than those who did not complete them. Further, for those few intensive supervision program clients who are re-arrested, the elapsed time before a subsequent offense is longer.

Another comprehensive effort related to safety is the Safe Routes to School program. Safe Routes to School seeks to comprehensively improve safety near schools by creating safer walking and biking routes. The Safe Routes to School program improves walking and biking travel options, promotes

### Safe Routes to School

The Safe Routes to School program was established in August 2005 as part SAFETEA-LU.

The program provides funds to the states to substantially improve the ability of primary and middle school students to walk and bicycle to school safely.

Each state administers its own program and develops its own procedures to solicit and select projects for funding. The program establishes two distinct types of funding opportunities: infrastructure projects and non-infrastructure related activities (such as education, enforcement and encouragement programs).

~ safety.fhwa.dot.gov/saferoutes/

healthier lifestyles in children at an early age and decreases auto-related emissions near schools. The program was established in August 2005 as part of SAFETEA-LU. While existing programs such as Congestion Mitigation Air Quality, Hazard Elimination and Transportation Enhancements could be used to promote some safety and air-quality programs, Safe Routes to School is the first program specifically aimed at safety near schools.

Specific program goals are to:

» Enable and encourage children, including those with disabilities, to walk and bike to school

» Make bicycling and walking to school a safer and more appealing transportation alternative, thereby encouraging a healthy and active lifestyle from an early age

» Facilitate the planning, development and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption and air pollution in the vicinity (approximately two miles) of primary and middle schools (grades kindergarten through eight)

As previously mentioned, work zone safety is another safety emphasis area where comprehensive strategies are applied. Congestion resulting from work zones is often unpredictable. Movement of equipment into and out of work zones, variation in lane direction and width, and unexpected closures of lanes and ramps all contribute to rapidly changing conditions for drivers. As part of a comprehensive approach to improving work zone safety, WisDOT will support strategies including, but not limited to:

▲ *Figure 6-12: Enabling and encouraging children to walk to school is a specific goal of the SRTS program.*

» Lowering speed limits, with increased enforcement and higher penalties for violators

» Installing design elements and including barriers to protect workers from traffic

» Educating drivers with signage indicating length of project, in time and distance

Other important safety elements, such as reckless or risk-taking driving and safety belt use, are also being addressed through comprehensive programs. WisDOT will support retention and expansion of successful comprehensive programs like these to improve public awareness of safety, and to encourage public involvement when witnessing unsafe drivers and conditions.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Support innovative, comprehensive safety programs*

***Entire Planning Period (2008 – 2030)***

- Continue to support the Safe Routes To School program, working with stakeholders to comprehensively improve safety near schools by creating safer walking and biking routes.
- Support strategies as part of a comprehensive approach to improving work zone safety.
- Support retention and expansion of successful comprehensive programs to improve public awareness of safety.

# CHAPTER 7: Foster Wisconsin's Economic Growth

WisDOT's vision for transportation and economic growth is to partner with communities and industry to maintain and improve the state's transportation system so it is responsive to global and regional economic needs and changing conditions.

A growing economy requires a strong multi-modal transportation system that connects people to jobs and permits the safe and efficient movement of goods and people across the state. Nearly half of Wisconsin's gross product is derived from three major industries – manufacturing, agriculture and tourism. These industries, along with the growing service sector, rely heavily on efficient transportation to succeed and grow.

During the past 20 years, three business practices have changed the way the transportation system is used: just-in-time delivery, the strategic siting of retail distribution centers, and e-commerce.

***Just-in-time delivery.*** In the past, manufacturers maintained large inventories in warehouses. Today, goods are produced based on consumer demand and delivered just in time for the next phase of production or consumption. Eliminating warehousing costs and reducing inventory costs have increased efficiency and productivity gains.

As a result, trucks, railcars and ship containers, as well as the state's transportation system, have become the new warehouses. The just-in-time shipping practices have created a greater reliance on a transportation system that provides predictable travel times.

***E-commerce.*** Advances in communication and Internet based retail operations have fine-tuned

▶ ***POLICIES IN THIS CHAPTER FOR FOSTERING WISCONSIN'S ECONOMIC GROWTH:***

- *Partner with stakeholders to ensure that freight movements are safe and reliable and provide positive environmental and community impacts*
- *Improve airport facilities and infrastructure to create more business airplane-capable airports*
- *Maintain and improve waterways critical to Wisconsin's transportation system*
- *Ensure that freight rail remains a viable transportation mode for Wisconsin shippers*
- *Provide grant and loan assistance to Wisconsin businesses and communities*
- *Continue and improve the performance of the Major Highway Development Program*
- *Preserve the local road and bridge system*
- *Promote Wisconsin tourism through transportation system maintenance and improvements*
- *Partner with consumers and businesses to increase transportation sustainability*
- *Promote a diverse workforce in Wisconsin's transportation industry by building alliances and business opportunities through civil rights initiatives*

A GROWING ECONOMY REQUIRES A STRONG MULTI-MODAL TRANSPORTATION SYSTEM *that connects people to jobs and permits the safe and efficient movement of goods and people across the state.*

the supply chain. Suppliers, producers, shippers and businesses use innovative approaches and regularly adopt new technologies to communicate and collaborate on the faster movement of products to their destinations. Disruptions in the system impact everyone along the supply chain, from the shippers, producers and manufacturers to the consumers. As a result, a transportation system that flows from mode to mode without disruptions or congestion increases profits for businesses and lowers product costs for consumers.

***Retail distribution centers.*** Wisconsin's major retail distribution centers (Map 7-1) are strategically located adjacent to major transportation facilities so products can be delivered quickly. In conjunction with just-in-time shipping practices, these retail distribution centers rely on an efficient and predictable transportation system.

## Challenges

Wisconsin freight is moved by truck, rail, water and air. Each of these modes faces a number of challenges at the regional, national and international levels:

» Significant increases in truck and rail freight traffic and limited infrastructure capabilities

» Limitations in water and air freight capacity

» Inadequate infrastructure and funding for maintenance of key segments of local roads and bridges that serve freight traffic

» Wisconsin's location between Chicago and Minneapolis/St. Paul

» A changing global economy

In 2007, truck traffic accounted for 6.4 billion vehicle miles traveled. By 2030, truck traffic is forecast to account for 10.5 billion miles, an increase of 64 percent. In addition to traffic volume increases, truck size and weights are also expected to increase. In some areas of the state, Wisconsin's roadways are not designed to handle the current number of trucks using them. Future increases will further strain the system and potentially result in accelerated infrastructure deterioration, as well as expanded maintenance and preservation requirements.

Similar to trucks, freight rail shipping is forecast to grow 60 percent by 2030. In addition, rail car loads are expected to get heavier for shippers and rail lines to remain competitive. To accommodate these increases, several miles of rail line will need to be upgraded to accommodate modern rail cars designed to carry heavier loads. In addition to infrastructure concerns, some non-mainline rail corridors may be at risk for abandonment. Freight shipments by water also face several challenges including seasonal water limitations such as freezing, antiquated lock systems, lack of dredging, and low water levels on the Great Lakes.

While air freight represents a small share of the state's freight movements, lack of direct air freight service into Wisconsin, limited air freight movement in Minnesota and congestion problems at Chicago's airports, will continue to impact Wisconsin's transportation system. (Eighty percent of airborne goods manufactured in Minnesota that are destined for international markets are trucked to Chicago to be placed on planes there because there is not enough cargo capacity in the Minneapolis airport.)

Inadequate funding and infrastructure necessary to support freight movements on the state and local system remains a challenge. As more and heavier loads are carried on the transportation system – both state and local – greater investments will be required. Ensuring that adequate funding is in place to maximize existing investments and position the state to handle anticipated increased freight movements is critical.

Of immediate concern are efforts to identify maintenance and preservation needs of key state and local system components, including highway and bridge needs, rail corridors, the links between ports and the state system. With budgets and staff resources strained at all levels, efforts will need to consider how best to leverage available resources and identify

▲ *Map 7-1: Wisconsin's major retail distribution centers are strategically located adjacent to major transportation facilities. Major distribution centers are described as historically large facilities of 40,000 square feet or more, with 100-plus employees. Backbone routes are multi-lane divided highways interconnecting all regions and major state economic centers, with links to the national system. Connector routes are predominantly two-lane highways connecting all other significant economic and tourism centers to the backbone system (see Chapter 5,* Preserve and Maintain Wisconsin's Transportation System*).*

### Transportation and economic growth

A quality transportation network benefits the state's continued economic growth by:

› Encouraging business and industry to locate here

› Supporting existing businesses

› Supporting and enhancing the state's strong tourism industry

› Attracting new residents

opportunities to meet the heightened demands on the system. In addition, efforts to maximize use of the system and shift freight movements across modes, especially trucking to other modes, will require that the limitations of air, rail and water be addressed.

In addition to funding and infrastructure concerns, other issues need to be addressed at the federal and state levels to ensure that community and environmental impacts are minimal. These include invasive species controls, rail crossing safety, and minimizing increased rail traffic and noise impacts on communities. Individually, each freight mode faces challenges. However, when freight movements can use multiple modes, efficiencies are gained. Wisconsin's intermodal connections are limited. Intermodal connections exist at the ports of Milwaukee and Duluth/Superior. At these ports, freight is moved from ships to rail or truck. Beyond these connections however, Wisconsin intermodal shipping relies on the significant infrastructure of neighboring Minnesota and Illinois facilities.

Because Wisconsin is located between two major freight generating metropolitan cities – Chicago and Minneapolis/St. Paul – more freight passes through Wisconsin than originates in, or is destined for, the state. In addition, the close proximity of intermodal facilities in Illinois and Minnesota make siting a rail/truck intermodal facility in Wisconsin less attractive economically. For these reasons, shippers truck goods to the Chicago area, contributing to congestion and potential pavement deterioration on Wisconsin's highways. Over time, these factors may change. Rising fuel prices and new technology may result in intermodal moves becoming economically feasible for distances of less than 500 miles.

The changing and expanding global network will also dramatically affect Wisconsin's transportation system and economic growth. Around the world, developing countries such as China and India are investing in transportation infrastructure. By improving their systems, these countries have effectively streamlined their transportation costs. As a result, even with modest population growth increases, China is forecast to become the world's manufacturing center. The U.S. will import a large percentage of its goods by the year 2030.

In addition, infrastructure limitations like bottlenecks at traditional U.S. points of entry (ports or airports) will force the freight industry to look at other ways of moving freight. In some instances, they are already using roads not designed for heavy freight use. Ports of entry that have adopted modern technologies and expanded to accommodate larger planes or ships have the advantage. Wisconsin's ability to prepare for and respond to these market changes, as well as the expected increase in freight traffic and corresponding demands on the transportation system, is critical. Wisconsin's infrastructure must be maintained, and where possible, improved to meet these dramatic increases.

## Opportunities: Wisconsin's role in fostering economic growth

To meet the challenges associated with transportation and economic growth, Wisconsin must continue to develop and implement transportation policies that link Wisconsin's communities to the global market. This means focusing investments on the parts of the system that are most heavily used, focusing business practices on projects that facilitate and maximize goods movement across modes, examining the department's role with regard to freight, and developing local and regional solutions to address this multi-jurisdictional issue. Besides productivity gains at the state or regional level, investments in the state's transportation system will also provide benefits, such as:

- Safer roads and less congestion
- Local highway access that provides economic development and tourism opportunities for communities
- Jobs created from project construction and the multiplier effect

The following *Connections 2030* policies are developed to help address Wisconsin's economic growth initiatives and transportation needs:

- Partner with stakeholders to ensure that freight movements are safe and reliable and provide positive environmental and community impacts
- Improve airport facilities and infrastructure to create more business airplane-capable airports
- Maintain and improve waterways critical to Wisconsin's transportation system
- Ensure that freight rail remains a viable transportation mode for Wisconsin shippers
- Promote Wisconsin tourism through transportation system maintenance and improvements
- Provide loan assistance to Wisconsin businesses and communities
- Continue and improve the performance of the Major Highway Development Program
- Preserve the local road and bridge system
- Partner with consumers and businesses to increase transportation sustainability

### The multiplier effect

The multiplier effect is a measure of the economic consequences of a change in one sector upon other sectors. It incorporates the direct effects (project construction jobs), plus those supported through project purchases of goods and services (indirect jobs), plus the effects on the rest of the economy due to household spending (induced jobs).

### Port of Prince Rupert, British Columbia, Canada

Recent investments in the the Port of Prince Rupert in British Columbia will enable faster intermodal shipping between China (and other Asian markets) and the Midwest. Intermodal shipments traveling between Asian markets and the Midwest will utilize Canadian National's rail mainline that passes through Superior, Central Wisconsin, the Fox Valley and Southeastern Wisconsin.

HIGHWAY PRESERVATION WILL CONTINUE TO STIMULATE ECONOMIC ACTIVITIES, *with emphasis placed on maximizing investments and providing high quality system connections between Wisconsin's communities, regionally and nationally.*

» Promote a diverse workforce in Wisconsin's transportation industry by building alliances and business opportunities through civil rights initiatives

While this chapter is focused primarily on freight transportation and business development, economic growth is also stimulated by a number of other transportation initiatives and policies outlined in the plan and summarized below.

### *Preserve and Maintain Wisconsin's Transportation System* (Chapter 5)

Highway preservation will continue to stimulate economic activities, with emphasis placed on maximizing investments and providing high quality system connections between Wisconsin's communities, regionally and nationally.

### *Promote Transportation Safety* (Chapter 6) and *Promote Transportation Security* (Chapter 11)

Providing a safe and secure system also contributes to economic growth. By ensuring that Wisconsin's transportation infrastructure is safe and able to respond effectively to incidents, as well as providing system redundancy, businesses and individuals are able to continue their day-to-day activities without major disruptions or delays.

### *Provide Mobility and Transportation Choice* (Chapter 8)

Passenger transportation plays a significant role in supporting Wisconsin's economy. Further development of passenger modes can have positive economic impacts. Results from a 2006 transit benefit-cost analysis indicate that investing in transit produces a return of more than $3 of socio-economic benefits for every $1 invested.[1] Fixed guideway transit has played a significant role in economic growth in urban areas throughout the United States, and has the potential to do the same in Wisconsin's largest urban areas. Fixed-guideway transit can spur development around stations, increase property values, increase the attractiveness of a region for potential employers, and help attract highly skilled professionals to a region. In fact, the business community is one of the strongest supporters of fixed-guideway transit in southeast Wisconsin. Intercity passenger rail has similar economic benefits. In addition to attracting employers and highly skilled professionals, and encouraging development around station areas, intercity passenger rail can spur tourism, and it can allow business travelers to travel more cost effectively.

### *Promote Transportation Efficiencies* (Chapter 9)

Enhancing transportation system efficiencies and seeking to improve the overall operation and function of the system and address capacity needs further stimulates economic growth. Businesses and individuals will continue to see Wisconsin as an attractive state to locate and expand their business opportunities.

### *Preserve Wisconsin's Quality of Life* (Chapter 10)

Supporting Wisconsin's natural and cultural resources through environmental considerations in transportation decision-making also contributes to the state's continued economic vitality. Wisconsin's natural resources support the state's tourism industry.

[1] Wisconsin Department of Transportation. *The Socio-Economic Benefits of Transit in Wisconsin. Phase II: Benefit Cost Analysis*. May 2006.

▶ ***POLICY:***
*Partner with stakeholders to ensure that freight movements are safe and reliable and provide positive environmental and community impacts*

Current projections indicate that overall, Wisconsin's freight traffic will double by the year 2030; in certain corridors and by certain modes it is expected to occur sooner. This increase in freight traffic will place significant demands on the state's transportation network. To meet this need and keep Wisconsin competitive WisDOT will:

» Establish a freight focus within WisDOT

» Facilitate and advocate for freight between public and private interests

» Collect and analyze data to support freight planning and programming decisions

» Conduct an all-mode freight study

## *Background*

In addition to significant increases, the expanding economies of Chicago and Minneapolis-St. Paul will also contribute to future growth and development in Wisconsin. These changes will place enormous pressures on Wisconsin's transportation network. A coordinated response that enables WisDOT to prioritize investments and target improvements to meet infrastructure needs while supporting economic growth is critical.

Initial efforts must focus department resources on building and maintaining relationships with the freight industry to better understand freight needs, markets and issues, and developing a forum where issues and concerns can be addressed and prioritized.

## *Establish a freight focus within WisDOT*

WisDOT will establish a freight focus first by dedicating staff to reviewing the department's role in freight transportation. Then, staff will develop strategies to improve WisDOT's understanding of freight needs. Finally, staff will integrate freight

▲ *Figure 7-1: A coordinated response that enables WisDOT to prioritize investments and target improvements to meet infrastructure needs while supporting economic growth is critical. Initial efforts must focus department resources on building and maintaining relationships with the freight industry to better understand freight needs, markets and issues, and developing a forum where issues and concerns can be addressed and prioritized.*

## Freight stakeholders

**Private sector interests:**

› Highway builders

› Trucking industry

› Railroads

› International shipping companies

› Private terminal operators

› Third party logistics firms

› Ports

› Shippers

› Organized labor

› Private financial community

**Public sector interests:**

› Metropolitan planning organizations

› Impacted communities

› Environmental interests

› Emergency management

transportation policies into department planning and investment decision-making processes.

Implementing a freight focus within the department will support the state's effort to maintain and enhance its competitive role within regional, national and global markets, and strategically place the state at a competitive advantage to apply for federal funding for freight projects that address congestion. To qualify for federal funds, projects must be innovative. States must possess significant knowledge of commodity flows, have committed private sector participation, track freight performance measures, and produce cost-benefit analyses. States with advanced freight planning efforts will be positioned to compete for this funding.[2]

Specifically, freight focus staff will:

» Measure the economic impact that all freight modes have on the transportation network

» Analyze and work to understand the state's freight markets and freight's regional, national and international role in the global economy

» Spearhead change within WisDOT to incorporate freight in all transportation functions: planning, program administration and project selection and delivery

» Participate in the development of national freight policy

» Assess and understand the impacts that Wisconsin's policies have on the competitive economics of freight modes

» Provide outreach to educate decision-makers and the public on freight issues

» Assess impacts of freight on highway maintenance costs

[2] Federal freight programs include Corridors of National and Regional Significance and Corridors of the Future.

» Seek innovative ways to maintain an all-mode freight network, improve efficiencies among the modes, and facilitate goods movement

In addition, WisDOT will continue to participate in collaborative regional freight research efforts with other Midwest states through the Mississippi Valley Freight Coalition and other forums.

## *Assume the role of facilitator and advocate for freight between public and private interests*

No forum exists within WisDOT to support the exchange of ideas and discuss freight issues between the public and private sectors. In response, WisDOT will engage in freight advocacy by facilitating a dialogue to resolve issues between stakeholders when industry decisions impact a community's economic viability.

As a first step, WisDOT will investigate opportunities to work with freight stakeholders to improve its understanding of the relationship between business logistics and the transportation system, and identify opportunities for improvement. Options may include partnering with existing agencies locally, regionally and nationally, holding focus groups, and hosting meetings. These discussions will focus on efforts to address challenges and opportunities on a statewide and a regional basis. These challenges could include: congestion in the Fox Valley; lack of shipping alternatives in northern Wisconsin; and truck driver shortages.

In addition, WisDOT will explore the potential for establishing advisory groups that include freight stakeholders. Issues that could be addressed by an organized stakeholder group may include:

» Performance of the transportation network

» Regulation and taxation of the various modes

» Labor availability

» The impact of national and international trade policies

▲ *Figure 7-2: WisDOT projects freight traffic will double by the year 2030. This increase in freight traffic will place significant demands on the state's transportation network.*

» Labor regulation and contractual provisions

» Business consolidations

## *Collect and analyze data to support freight planning*

The department will also continue to collect and analyze data necessary to support its new freight planning efforts. WisDOT already has access to some of this data. However, WisDOT will need to collect additional data to develop a comprehensive view of Wisconsin's freight transportation system. In the future, WisDOT may be able to collect real-time data from Chicago or Minneapolis, particularly if the data shows potential impacts in Wisconsin.

Over the next 25 years, it is expected that data collection from the private sector will be in real-time and freight data will be standardized to support national freight policy.

## *Conduct an all-mode freight study*

WisDOT already has a good understanding of how commodities are generally shipped to, from and within the state. The department also has a good

understanding of the general origins and destinations of Wisconsin's freight shipments.

To develop a more complete picture of freight, WisDOT will conduct an all-mode freight study. This study will include a review of transportation infrastructure in surrounding states that impact freight movement within Wisconsin.

For example, rail congestion in Chicago usually adds a day in travel time for Fox Valley shippers, resulting in many companies deciding to move their shipments by truck to make the Chicago rail connection. The freight study will also provide the structure needed to engage the private sector, incorporate regional bottlenecks into transportation modeling and help the state prioritize future freight actions.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*

*Partner with stakeholders to ensure that freight movements are safe and reliable and provide positive environmental and community impacts*

### *Short-term (2008 – 2013)*

- Consider the implications of additional freight on all transportation modes, and the impacts to WisDOT programs.
- Provide outreach to educate decision-makers and the public on freight issues.
- Investigate opportunities for outreach with freight stakeholders (for example, private sector representing truckers, shippers, other public sector agencies and local governments, etc.).
- Assess the impacts of freight on highway maintenance costs.
- Participate in the development of national freight policy.
- Investigate new policies and new financing strategies for projects that improve freight service.
- Conduct an all-mode freight study.
- Assess and understand the impacts that Wisconsin's policies have on the competitive economics of freight modes.
- Measure the economic impact that all freight modes have on the transportation network.

### *Entire planning period (2008 – 2030)*

- Integrate freight data and freight considerations into WisDOT's planning and investment decision-making processes.
- Collect and analyze data and work to understand the freight markets in Wisconsin, and freight's regional, national and international role in the global economy.
- Prioritize investments and target improvements to meet infrastructure needs while supporting economic growth.
- Seek innovative ways to maintain an all-mode freight network to improve efficiencies among the modes and facilitate goods movement.
- Continue collaborative regional freight research efforts with other states in the Midwest through various forums such as the Mississippi Valley Freight Coalition.

*NOTE: Intermediate and long-term actions will be identified by WisDOT as the policy evolves.*

▶ ***POLICY:***
*Improve airport facilities and infrastructure to create more business airplane-capable airports*

Airports and aviation are integral parts of local, state and regional economic development. An airport's ability to accommodate the needs of existing and prospective businesses is vital. To help improve the environment for business growth and retention, WisDOT will improve airport facilities and infrastructure by increasing the number of airports able to handle business airplanes.
To accomplish this policy, WisDOT will:

» Use the Airport Improvement Program to help Wisconsin airports accommodate business planes

» Support the needed airport system infrastructure, including inclement weather capability, to enable and sustain jet aircraft and related activity

» Determine how the Wisconsin Airport System can best accommodate potential increased use of very light jets

## *Background*

In 2000, WisDOT conducted a survey of Wisconsin businesses and their airport needs. Corporate flight departments, corporate pilots and airport owners consistently stated a runway length that will accommodate larger airplanes is a key factor in determining whether corporations will fly to a particular airport for business purposes.

As a result of the survey, WisDOT evaluated 72 state system airports to determine whether they were able to accommodate longer runways and business jets. The analysis found 20 airports were not capable of accommodating a longer runway due to site constraints. Of the remaining 52 airports, 32 met the criteria for runway extensions. Since 2000, 13 have been improved. Fifteen additional airports will likely be improved during the next decade. The remaining airports do not have a short-term need to accommodate jets, but may need to by 2030.

Six factors are taken into consideration when evaluating a runway extension:

› Potential environmental impacts

› Site constraints

› Economic feasibility

› Community support

› Current and forecast business/corporate activity

› Economic development impact

## *Use the Airport Improvement Program to help Wisconsin airports accommodate business airplanes*

WisDOT will continue to use the Airport Improvement Program to assist with infrastructure improvements at Wisconsin airports. The Airport Improvement Program uses a combination of federal, state and local funds. Airport infrastructure improvement projects that clearly support an immediate need by an existing business user, or that can be directly linked to job retention, job increases, income and retaining a

▲ *Map 7-2: In a WisDOT survey, conducted in 2000, corporate flight departments, corporate pilots and airport owners consistently stated a runway length that can accommodate larger airplanes is a key factor in determining whether corporations will fly to a particular airport for business purposes. Airport improvements must be tested against existing eligibility criteria and environmental impacts to see if federal or state funds may be available to assist in paying for that improvement under the facts and circumstances of that particular airport.*

AIRPORTS AND AVIATION *are integral parts of local, state and regional economic development. An airport's ability to accommodate businesses is vital. WisDOT will improve airport facilities and infrastructure by increasing the number of airports able to handle business jet airplanes.*

▲ *Figure 7-3: To help improve the environment for business growth and retention, WisDOT will improve airport facilities and infrastructure by increasing the number of airports able to handle business airplanes.*

company located in the community, are given priority over projects intended solely to attract new business.

An update to the *State Airport System Plan 2020* is in progress and should be completed in 2011. The update will project needs based on a new set of forecasts through the year 2030. A key issue in the update effort will be the establishment of thresholds for airport classifications, which will in turn drive the Airport Improvement Program.

In 2002, a state airport system needs analysis estimated that over $1.3 billion was needed through 2020 for preservation and improvement projects, or about $72.6 million annually (2002 dollars). Based on historic funding levels, this indicates a shortfall of $18.4 million each year (combined federal, state and local money). Increases in state funding of roughly $3 million a year are needed to meet both the preservation and improvement needs of the state airport system.

### *Support the needed airport system infrastructure, including inclement weather capability, to enable and sustain jet aircraft and related activity*

In addition to helping airports improve runways, the Airport Improvement Program also funds other improvements typically needed by jet airports:

- Instrument approach systems
- Runway lighting
- Visual landing aids
- Expansion of taxiways and aprons
- Fuel storage
- Hanger space
- On-site weather information
- Terminal buildings
- Waiting areas
- Ground transportation
- Security

### *Analyze how the Wisconsin Airport System can best accommodate potential increased use of very light jets*

A newer aviation innovation is a small jet engine powered airplane called a very light jet. Very light jets are relatively inexpensive and can land on runways as short as 3,000 feet. WisDOT will further analyze the growth of the very light jet market to determine its impact on the State Airport System.

While very light jets may reduce the need for runway extensions at some airports, other types of improvements such as instrument approach systems and hangers may be required. Although these small jets will fill a niche for businesses needing to move people or cargo quickly, they will not replace the use of larger jets at most airports.

#### Very Light Jets

- Also called light jets, microjets or mini-jets
- Single-pilot jets that weigh 10,000 pounds or less, with two engines, five to six passenger seats, and automated cockpits
- May cost only half as much as today's least expensive business jets
- Cost less to operate
- Able to land on runways as short as 3,000 feet

### ► *SUMMARY OF POLICY ACTION ITEMS:*
*Improve airport facilities and infrastructure to create more business airplane-capable airports*

***Short-term (2008 – 2013)***

- Update the State Airport System Plan to determine airport improvement needs through 2030.
- Establish thresholds for airport classifications.
- Seek additional state funding for airport preservation and improvement projects.
- Study the needs of very light jets to determine their impact on the State Airport System.
- Construct runway extensions potentially in West Bend, Baraboo and Platteville.

***Mid-term to Long-term (2014 – 2030)***

- Construct runway extensions potentially in Watertown, Burlington, Ladysmith, East Troy, Hartford, New Lisbon, Amery, Clintonville, New Holstein, Sparta and Black River Falls.
- Program additional airport runway extension projects if the need to accommodate jets arises.

***Entire planning period (2008 – 2030)***

- Continue to use the Airport Improvement Program to assist with infrastructure improvements at Wisconsin airports.

▶ ***POLICY:***
*Maintain and improve waterways critical to Wisconsin's transportation system*

To promote increased freight transportation and commerce along the Great Lakes and the Mississippi River, WisDOT will maintain and improve waterways critical to Wisconsin's transportation system.

Specifically, WisDOT will:

» Advocate for federal funding of navigation and environmental improvements for the Upper Mississippi River-Illinois River Waterway and improvements to the Soo Lock System

» Continue state assistance programs for harbor improvements

» Encourage comprehensive harbor and waterfront land use planning

» Examine roadway issues at ports

## *Background*

The waterways that surround Wisconsin, the Mississippi River and the Great Lakes are under-utilized as a means to move freight. Recent estimates indicate that the Great Lakes System is operating at about half its potential capacity.

Reasons for this underutilization have to do with the type of commodities traditionally transported by water and the lack of intermodal connections. Bulk commodities (grain, fertilizer, iron ore) have different service requirements than goods shipped by trucks or air, which typically need to be shipped faster. While Wisconsin's waterways are connected

▲ *Figure 7-4: The locks and dams on the Mississippi and Illinois rivers allow barge transportation along Wisconsin's western boundary, as well as from Milwaukee to the Gulf of Mexico.*

### Harbor Maintenance Tax

The Harbor Maintenance Tax was enacted by Congress in 1986 to recover a portion of the cost of maintaining, not improving, the nation's deep-draft navigation channels. The amount of tax paid by the shipper, who owns the cargo, was based on the value of the goods being shipped. In March 1998, the U.S. Supreme Court issued a short, unanimous decision finding the Harbor Maintenance Tax unconstitutional as applied to exports. The decision states that the Harbor Maintenance Tax is a tax, not a user fee, because the ad valorem tax is not a fair approximation of services, facilities or benefits furnished to the exporter. Exports are protected from taxation in the Constitution because of their importance to the health of the nation.

~ www.aapa-ports.org/Issues/content.cfm?ItemNumber=1006

### Merchant Marine Act of 1920 (Jones Act)

The Merchant Marine Act of 1920 (commonly known as the Jones Act) is federal statute that requires U.S.-flagged vessels to be built in the United States, owned by U.S. citizens, and documented under the laws of the United States. Documented means "registered, enrolled, or licensed under the laws of the United States." In addition, all officers and 75 percent of the crew must be U.S. citizens. Vessels that satisfy these requirements comprise the "Jones Act fleet." The Jones Act also restricts the carriage of goods between United States ports to United States flagged vessels. Critics of the Jones Act point out that the legislation results in higher costs for moving cargo between U.S. ports than if such restrictions did not apply. Another consequence is that the U.S. shipbuilding industry has suffered. Ship operators are given incentives to maintain veteran U.S.-built vessels rather than replace them with new tonnage; U.S. shipyards have adapted to building only ships that are needed by Jones Act operators, with price tags that reflect their all-American workforces.

~ www.nationmaster.com/encyclopedia/Merchant-Marine-Act-of-1920

to an extensive waterway network, that network is not necessarily well integrated into the road and rail systems.

In addition, a number of barriers exist to increasing commerce, including:

- An antiquated regulatory environment that does not reflect economic realities (for example, the Harbor Maintenance Tax and the Jones Act)
- Environmental issues such as invasive species
- Lower water levels in the Great Lakes
- Border crossing inefficiencies and lack of coordination between U.S. and Canada customs
- Infrastructure improvement needs – antiquated locks and port facilities
- Siting requirements for new landfills to store contaminated dredged materials
- Increased residential waterfront development

Trends that may catalyze a shift from the road and rail networks to the waterways over the next 25 years include:

- Continued growth in international trade, regional population and economic activity
- Shortage of truck drivers
- Higher fuel prices

» Highway and rail congestion in the Great Lakes basin and St. Lawrence River region

» More efficient shipping strategies due to the use of containers

» Increased rail traffic from the Port of Prince Rupert, British Columbia, Canada

» Congestion at U.S. West Coast ports

The Great Lakes St. Lawrence Seaway Study, completed in 2007, investigated the future role and necessary improvements that the Great Lakes system may require for waterborne shipping.[3]

The study concluded that the Great Lakes system could serve a dual purpose: continue to provide an essential service to North America's resource, manufacturing and service sectors; and play a growing role in carrying the new container traffic moving into and through the region.

To accomplish this, the waterborne mode must be as flexible and reliable as other modes. New vessels, short sea shipping and expanded container shipping would help make this shift possible, as well as intense collaboration by stakeholders to carefully balance economic considerations with environmental concerns and infrastructure maintenance.

WisDOT's freight study (identified in the policy in chapter called, "Partner with stakeholders to ensure that freight movements are reliable and safe and provide positive environmental and community impacts") will build on the Great Lakes St. Lawrence Seaway study.

WisDOT will analyze waterborne freight, review and develop forecasts, and identify opportunities to strengthen this mode as part of Wisconsin's transportation system. In addition, Wisconsin will cooperate with private and public sector entities to study and identify ways to improve Wisconsin's waterway system.

[3] For more information, see *www.glsls-study.com/English%20Site/home.html.*

### Waterborne freight and the environment

Transportation by water is significantly more fuel-efficient than other modes and consequently could reduce the emission of greenhouse gases and other pollutants. Moreover, increased use of waterborne transportation could help to alleviate traffic congestion on roads, which may ultimately result in the reduction of road maintenance and repair costs.

International shipping on the Great Lakes and Mississippi River waterways has contributed to the introduction of non-native invasive species such as the zebra mussel, the quagga mussel and the round goby.

WisDOT will work with the Wisconsin Department of Natural Resources and others to identify solutions to this problem. Improved shipping practices and new shipbuilding and ballast water treatment technologies may help address this issue in the future.

## *Advocate for federal funding of navigation and environmental improvements for the Upper Mississippi River-Illinois River Waterway System and for the construction of a new lock in Sault Ste. Marie*

### *Upper Mississippi River-Illinois River Waterway System*

The system of locks and dams on the Mississippi and Illinois rivers allow barge transportation along Wisconsin's western boundary, as well as from Milwaukee to the Gulf of Mexico. The majority of commodities transported out of Wisconsin ports via river barges are agricultural-related items.

The U.S. Army Corps of Engineers completed a comprehensive study of navigation improvements and environmental actions on the Upper Mississippi River-Illinois River Waterway System.[4] The study recommends implementing $2.6 billion in navigation efficiency improvements and $5.7 billion in ecosystem restoration activities along the Mississippi River and Illinois River waterways in Wisconsin, Minnesota, Iowa, Illinois and Missouri. The improvements will be federally funded. The recommended navigation efficiency improvements include seven new locks and five lock extensions, mooring facilities and switchboats. The state of Wisconsin, including WisDOT and the Wisconsin DNR, participated in this effort and endorse the study recommendations.

In 2007, Congress passed the Water Resources Development Act which authorizes funding for a variety of projects along the Upper Mississippi River, including:

» Switchboats at certain locks

» Development of an appointment scheduling system

» Several new 1,200-foot locks

» Small-scale or non-structural improvements including mooring facilities at various locks

» An estimated 225 projects designed to improve the ecological health of the river system

Congress has not yet provided funding for the act. WisDOT will continue to advocate that Congress fully fund the Water Resources Development Act.

### *Soo Lock System*

The Soo Lock System is located along the St. Mary's River in Sault Ste. Marie, Michigan. It provides the only

[4] For more information, see *www2.mvr.usace.army.mil/UMRS/NESP/*.

A number of passenger ferries provide service in Wisconsin:

› Three provide service to islands (Madeline Island, Washington Island, and Rock Island ferries)

› Two provide access across rivers (Cassville and Merrimac ferries)

› Two provide service across Lake Michigan (Lake Michigan Carferry and Lake Express)

Harbor Assistance Program funds can be used to help maintain or improve Wisconsin's ferry service.

Through the "Facilitate intermodal passenger connections" policy, Wisconsin's ferry services will become available to more travelers.

▲ *Figure 7-5: Wisconsin's ports annually handle 40 million tons of cargo with a value greater than $7 billion. This represents approximately 11 percent of the state's total freight traffic.*

water connection between Lake Superior and the rest of the Great Lakes system. About 86 million tons of freight pass through the lock system each year, of which iron ore, coal and grain are the primary commodities. These commodities account for approximately 90 percent of the total freight transported into and out of the Port of Duluth-Superior.

The Soo Lock system is operated by the U.S. Army Corps of Engineers. The system consists of four locks. Currently, the Poe lock is the only Soo lock capable of handling the largest vessels in the Great Lakes fleet. Failure of this lock would prevent these large vessels from traveling between Lake Superior's ports and other Great Lakes ports. For this reason, the U.S. Army Corps of Engineers recommends constructing a new lock. The new lock will provide needed capacity and redundancy to ensure reliable service to Lake Superior's ports in the future. While the Water Resources Development Act of 2007 approved construction of the Soo Lock in Sault Ste. Marie, Michigan, full funding for the construction of this lock was not included in the Army Corps of Engineer's Fiscal Year 2009 budget.

### *Continue state assistance programs for harbor improvements*

Created in 1979, the Harbor Assistance Program assists port communities along the Great Lakes and Mississippi River in maintaining and improving waterborne commerce. Port projects typically include dock reconstruction, mooring structure replacement, dredging, and the construction of facilities to hold dredged material.

Since 1980, WisDOT has contributed over $57.5 million in matching funds for 59 port projects. Recent state budgets have funded the Harbor Assistance Program at a level of $5 million per two-year budget cycle. The 2007-2009 budget increased funding to $12.7 million for a total of $53.4 million in bonding authority. The Transportation Economic Assistance program is another WisDOT funding source available for port access infrastructure improvement projects that meet the program's criteria. Refer to the "Provide grants and loans to Wisconsin businesses" policy in this chapter for more information.

WisDOT will continue to help communities and businesses make land- and water-side harbor improvements through the Harbor Assistance Program and the Transportation Economic Assistance Program.

### *Encourage comprehensive harbor and waterfront land use planning*

Wisconsin port communities are faced with competing land uses for existing waterfront properties. With increasing demand for waterfront property, local officials must address the challenges of zoning conflicts between competing interests at the ports, such as recreation/tourism, housing developments, and commercial and industrial needs. Some of these competing interests could

impact future freight activities at Wisconsin's ports. Regional planning commissions, metropolitan planning organizations and local governments typically handle local shoreline planning and development issues. Historically, WisDOT has had limited involvement with local shoreline planning and development issues. However, WisDOT will monitor and, if appropriate, participate in discussions to encourage communities to include comprehensive waterfront development analyses as part of their planned growth. WisDOT will also provide technical assistance to community planning efforts. WisDOT's goal is to encourage waterfront development that balances commercial, environmental, recreation and housing interests.

*Examine and address roadway issues at ports*

The road network that connects to the state's ports is a critical, but sometimes-overlooked, part of Wisconsin's transportation system. Typically, these are local roads owned and operated by local jurisdictions. Even though they are local roads, many are part of the National Highway System because they provide access to intermodal facilities. In some instances, these roads suffer from a lack of maintenance because they typically do not serve high volumes of passenger traffic.

In addition, the road network sometimes does not adequately serve oversize or overweight trucks traveling to and from the ports. This can result in trucks traveling farther distances to avoid bridges with weight limits, areas with reduced clearances or roadways with insufficient turning radii.

Since many of these local roads are part of the National Highway System, the state and local governments typically share responsibility for maintaining them. As part of WisDOT's freight planning and local roads coordination efforts, the department will work with local governments and Wisconsin's ports to identify solutions that address roadway issues for port areas (see also the policy in this chapter called, "Preserve the local road and bridge system").

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*

*Maintain and improve waterways critical to Wisconsin's transportation system*

***Short-term (2008 – 2013)***

- Continue to help communities and businesses make land- and water-side harbor improvements through the Harbor Assistance Program and the Transportation Economic Assistance Program.
- Advocate for continued federal funding to implement the recommendations resulting from the U.S. Army Corps of Engineers' Upper Mississippi/Illinois River Waterway Study.
- Continue to work with other Great Lakes states in promoting the construction of a new lock in the Soo Lock System.
- Work with local governments and ports to identify solutions to address roadway issues for port areas.
- Cooperate with private and public entities to study and identify ways of improving the infrastructure of Wisconsin's waterway system.

***Entire planning period (2008 – 2030)***

- Analyze waterborne freight, review and develop forecasts, and identify opportunities to strengthen this mode as part of Wisconsin's transportation system.
- Continue to advocate that Congress fully fund the Water Resources Development Act.
- Work with the Wisconsin Department of Natural Resources and others to identify solutions to the problem of non-native invasive species introduced to the Great Lakes and Mississippi River waterways.
- Encourage communities to include comprehensive waterfront development plans as part of their planned growth, and provide technical assistance as needed.

> ***POLICY:***
> *Ensure that freight rail remains a viable transportation mode for Wisconsin shippers*

WisDOT recognizes the increasing challenges Wisconsin shippers face. WisDOT will work to ensure that freight rail remains a viable mode of transportation for Wisconsin shippers. The action steps identified under this policy are in response to service issues raised by shippers and communities that rely on local freight rail service – specifically their need for adequate connections to the regional and national transportation system.

To accomplish this policy, WisDOT will:

» Continue to preserve rail corridors for future transportation use

» Work with railroads to ensure that appropriate rail service will be provided to all shippers statewide

» Acquire rail lines into public ownership, when appropriate, to preserve essential railroad service

» Fund track upgrades for publicly owned rail lines to meet changing industry standards

## *Background*

The Staggers Act of 1980 marks the beginning of the modern U.S. rail industry. This legislation deregulated the rail industry, allowing railroads to shed unprofitable and duplicative lines. Many lines in Wisconsin were abandoned. In response, the state partnered with a number of counties to purchase rail lines to maintain freight rail service to local communities. This policy is still in place today.

Wisconsin's rail system has gone from having a large Class I[5] presence in the 1980s, to being a primarily shortline and regional rail system in the 1990s, to once again being operated by the large Class I railroads since 2001. Generally, the Class I business model is focused on providing high volume, long-haul service instead of local rail service. The change back to Class I dominance in Wisconsin has impacted local economies.

Decisions by Class I railroads to potentially reduce or cease service over low volume routes, especially in northern Wisconsin, has led WisDOT to identify the following shortcomings in its current policies:

» Lack of detailed and readily available state-level freight data

» No clear liaison function between WisDOT and the railroads

» No advocacy role or outreach function for WisDOT relative to rail service for Wisconsin (rail-dependent) businesses

This policy's actions, in conjunction with the freight focus policy, will begin to address these shortcomings.

### Staggers Rail Act of 1980

Before 1980, economic regulation prevented railroads from any flexibility in pricing needed to meet both intra and intermodal competition. Regulation also prohibited carriers from restructuring their systems, including abandoning redundant and light density lines, a necessity for controlling cost.

With the passage of the Staggers Rail Act of 1980, many regulatory restraints on the railroad industry were removed, providing increased flexibility to adjust rates and tailor services to meet shipper needs and their own revenue requirements. The Staggers Act also legalized railroad-shipper contracts. These contracts represent privately negotiated agreements between railroads and shippers over rates, service levels and equipment, minimum annual volume of traffic, and other items.

~ www.fra.dot.gov/downloads/policy/staggers_rail_act_impact.pdf

[5] Class I railroad classification is based on a threshold of annual operating revenues. In 2008 the threshold was 2007 operating revenues of $359.6 million.

▲ *Figure 7-6: Heavier rail car loadings not only impact the rail infrastructure, they also impact more than 260 railroad bridges and structures located on the publicly owned system.*

### Rail transit commissions

Rail transit commissions were formed as a mechanism to purchase rail lines and manage rail service. They generally provide matching funds for the purchase and rehabilitation of rail corridors.

Regional transit commissions continue to be valuable partners in efforts to preserve freight rail service even though they were created before a change to the Wisconsin Constitution allowed the state to make direct investments in rail infrastructure.

## *Work with railroads to ensure that appropriate rail service is provided to all shippers statewide*

WisDOT will work with railroads to maintain, improve and increase service in Wisconsin. To better serve areas in northern Wisconsin that have lower freight rail traffic volumes, WisDOT will promote the development of one or more rail transit commissions. The new rail transit commissions would provide the organizational structure needed to move forward on an agenda for rail service preservation and outreach to both Class I and regional railroads operating in Wisconsin.

By monitoring railroad activity and creating partnerships among businesses and railroads to increase the use of rail, it is hoped there will be fewer service reductions and, as a result, fewer abandonments and fewer rail line acquisitions.

## *Acquire lines into public ownership, when appropriate, to preserve essential railroad service*

WisDOT will continue efforts to preserve rail freight service when the service is judged essential, cost effective and financially viable based on transportation efficiency cost-benefit analyses.

The state is committed to maintaining essential freight rail service for Wisconsin communities. WisDOT will also continue to work with communities and shippers to acquire railroad lines if essential service

is compromised. The state, along with rail transit commissions representing local governments, has acquired approximately 637 miles of track since 1977. Currently, the state owns about 472 miles of track and provides funds to improve this system.

WisDOT's Freight Rail Preservation Program funds rail line acquisitions. The program is also the primary funding source used to improve the infrastructure of state-owned lines. The rail transit commissions have contracted with the Wisconsin and Southern Railroad to operate the majority of this network for a period of 40 years. A number of smaller railroads operate over other rail lines.

## *Fund track and bridge upgrades for publicly owned rail corridors*

A critical business need for the Wisconsin shortline system (serving local business freight needs), is the ability to accommodate heavier car loadings that are becoming prevalent on Class I railroads. Two types of infrastructure improvements that will meet this need require additional funding to ensure that the state-owned system is economically competitive, safe and efficient. They are:

» Track upgrades to industry standards

» Bridge upgrades to handle heavier car weights

The state-owned system was rehabilitated to Federal Railroad Administration Class 2 Track Safety Standards after it was acquired in the 1980s. Market standards have since changed. To improve their financial performance, railroads are increasingly hauling heavier loads in each rail car – moving from 263,000-pound cars to 286,000-pound cars. If shippers continue to use the lighter cars, they will ultimately pay a higher premium to ship their goods.

Heavier cars require more robust track infrastructure. In many areas, Wisconsin's current publicly owned track cannot effectively handle these heavier cars. In 2002, Wisconsin and Southern Railroad (WSOR) outlined a plan through 2010 for upgrading rail lines under its operation to accommodate the heavier railcars and increasing volume of traffic. At that time, Wisconsin and Southern Railroad estimated 175 miles of the publicly owned lines needed improvements.

In 2008, that number was updated to include nearly all of the approximately 500 miles of line in the WSOR-operated, publicly owned system. This was done due to increased use of 268,000 rail cars and the occurrence of several derailments caused by the combination of heavier cars and aging rail. Some of these line upgrades have been completed and more are being scheduled as funds become available. The Wisconsin and Southern Railroad based the proposed upgrades on both the condition of the existing track and the projected service needs on the corridors.

Heavier rail car loadings not only impact the rail infrastructure, they also impact more than 260 railroad bridges and structures located on the publicly owned system. In 2006, WisDOT studied a sample of state-owned railroad bridges.[6] The study concluded that steel and concrete bridges would accommodate heavier cars, but timber bridges would have less than five years of life expectancy at sustained weights of 286,000 pounds.

Based on the limited sample of bridges, the study estimated that nearly $24 million of maintenance and capital construction would be needed for existing timber bridges. Due to the limited sample size, a similar estimate was not produced for the steel and concrete structures.

Governor Doyle's 2007-2009 state budget increased the Freight Rail Preservation Program budget to $22 million per year to accelerate track and bridge upgrades. However, this acceleration will not keep pace with projects proposed by Wisconsin and Southern Railroad and other program applicants over the next several years. Future projects could include:

» Increasing capacity of existing state-owned rail infrastructure to accommodate growth

[6] *Impact of Railcar Weight Change on Bridges of the State of Wisconsin Owned Railroad System*, August 2006.

### State Trails Network Plan

The Wisconsin Department of Natural Resources' State Trails Network Plan identifies a majority of the state's rail network as proposed recreational trails. The plan is an amendment to the Wisconsin State Trail Strategic Plan, and provides authorization for the Department of Natural Resources to pursue acquisition of any abandoned rail grade or other corridor identified in the plan. This plan allows the state to respond quickly to abandonment proceedings. Over 90 percent of rail corridor preservation comes from Department of Natural Resources funding.

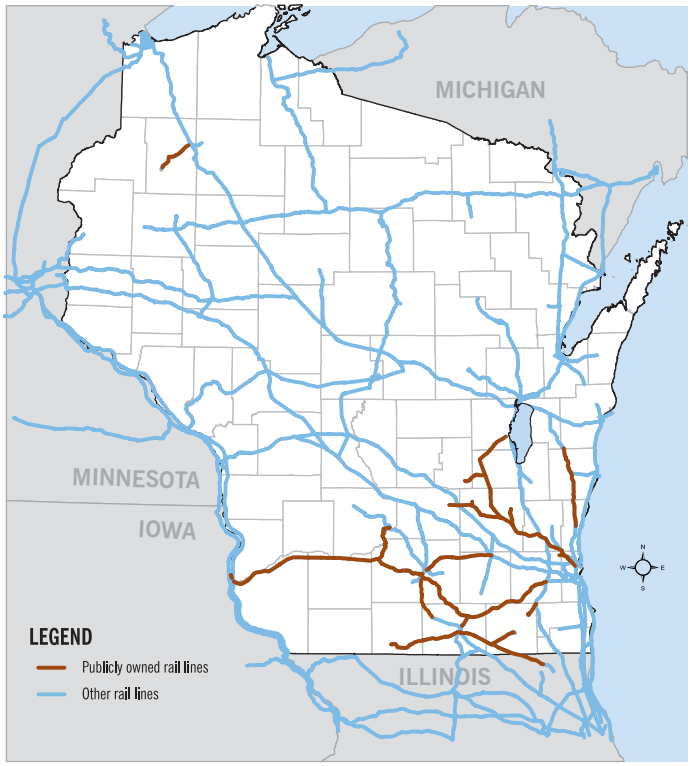
- Purchase of key corridors that would otherwise be abandoned, like the Kiel-Saukville corridor purchased in 2005
- Upgrading rail infrastructure and bridges to accommodate new, heavier car standards
- Returning Rails-to-Trails corridors to active freight rail service, as warranted

Key corridor acquisitions, such as the purchase of the Kiel-Saukville corridor segment in 2005, as well as other pending and potential line acquisitions, will impact the level of funding available for track rehabilitation. To date, Wisconsin has provided this funding as a local assistance program. The state may need to re-evaluate its role given the large financial commitment needed to keep the system competitive for forecast traffic.

WisDOT will continue to work with rail transit commissions, Wisconsin and Southern Railroad, other operators, and stakeholders to study the economic impacts of the publicly owned rail system and the opportunity costs of this policy. WisDOT will communicate the results of these activities to decision-makers.

## *Continue to preserve corridors for future transportation use*

When preservation of rail service is not possible and a railroad abandons a rail line, the department shifts to a rail corridor preservation approach. Rail corridor preservation ensures that rights of way can be used in the future for transportation purposes.




▲ *Map 7-3: The state, along with rail transit commissions representing local governments, has acquired approximately 600 miles of track since 1977. The map above shows the extent of publicly owned rail lines as of 2006.*

In the interim, the corridors can be developed as recreational trails commonly known as Rails-to-Trails. The popular trails add to the state's tourism appeal and enhance the quality of life for Wisconsin residents. In many communities, these trails provide

▲ *Map 7-4: When preservation of rail service is not possible and a railroad abandons a rail line, the department shifts to a rail corridor preservation approach. This preservation approach ensures that rights of way can be used in the future for transportation purposes. In the interim, the corridors can be developed as recreational trails commonly known as Rails-to-Trails.*

important links for both pedestrians and bicyclists. In a few instances, they offer an alternative to the private automobile for work and school trips. If there is interest in preserving a rail corridor by either the Wisconsin Department of Natural Resources or a local community, WisDOT, serving as the state's Rails-to-Trails clearinghouse, will invoke the National Trails System Act prior to an abandonment decision by the Surface Transportation Board. A certificate for interim trail use, granted to the applicant, allows the corridor to be used as a trail in the interim. Map 7-4 shows corridors currently operating as Rails-to-Trails or rail/land banks that could revert to rail service.

Another option for corridor preservation is to rail bank or land bank a corridor. WisDOT, alone or with local partners, may purchase track and land (rail bank) or land only (land bank). In this case, the corridor is not used as a trail in the interim. Rail banking is an option when local partners have plans to restore rail service in the near term. If attempts to generate business fail, it is then possible for the corridor to be used as a trail under the National Trails System Act. In cases where there is no interest by either the state or local communities to preserve a rail corridor, the rail corridor is allowed to be abandoned, and the property is returned to the owners. Funding for most land acquisitions for Rails-to-Trails will continue to come from the Wisconsin Department of Natural Resources through sources such as the Knowles-Nelson Stewardship program.

Rail service in some communities could be restored during the life of this plan. Decisions to restore service may be based on economic feasibility, creating system redundancy or other considerations. A redundant transportation system can provide "backup" or alternative routing for other freight modes, and provide relief from congestion that may occur on national rail corridors. Creating redundancy will also support homeland security efforts and provide alternate routing in case of a disaster.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*

*Ensure that freight rail remains a viable transportation mode for Wisconsin shippers*

### *Short-term (2008 – 2013)*

- Develop outreach and foster relationships with all Wisconsin railroad operators to keep abreast of market demands and railroad interests.
- Facilitate relationships to reduce the number of abandonments and strengthen the market for rail.
- Promote the creation of rail transit commissions with the charge to create an agenda for rail service preservation in northern Wisconsin.
- Work with the rail transit commissions, Wisconsin and Southern Railroad, and other operators to study the economic impacts of the publicly owned rail system, and the opportunity costs of this policy, and communicate the results of these activities to decision-makers.

### *Entire planning period (2008 – 2030)*

- Support increased investment in freight rail infrastructure in response to shipper needs and market demands, including continued growth in traffic volume and industry-wide changes in car loading weights.
- Continue efforts to preserve rail freight service when the service is judged essential, cost effective and financially viable based on transportation efficiency cost-benefit analysis.
- Continue to act as clearinghouse for Wisconsin Rails–to-Trails initiatives.
- Continue to work with local partners to preserve rail corridors via the rail bank or land bank process.
- Restore rail service where economically feasible.
- Continue to monitor the level of Wisconsin Department of Natural Resources stewardship funding.

▶ ***POLICY:***
*Provide loan assistance to Wisconsin businesses and communities*

WisDOT will continue to administer grant and loan programs aimed at enhancing transportation infrastructure for highways, rails, harbors and airports. Currently these programs include:

» Transportation Economic Assistance program

» Freight Rail Infrastructure Improvement Program

» Freight Rail Preservation Program

» Harbor Assistance Program

» Airport Improvement Program

## *Background*

WisDOT's grant and loan programs help preserve or increase a community's tax base and provide funding to build projects that could not have been financed in their entirety by the private sector.

All applications for assistance undergo a benefit/cost analysis to demonstrate the public benefit of each project. WisDOT will periodically review the assistance programs to ensure that they reflect market needs.

The following grant and loan programs are discussed in more detail within other policies:

» Harbor Assistance Program: "Maintain and improve waterways critical to Wisconsin's transportation system"

» Airport Improvement Program: "Preserve the airport system infrastructure"

» Freight Rail Preservation Program: "Ensure that freight rail remains a viable transportation mode for Wisconsin shippers"

The Transportation Economic Assistance and Freight Rail Infrastructure Improvement Programs are discussed in detail below.

## *Transportation Economic Assistance program*

The Transportation Economic Assistance program provides grants to governing bodies for road, rail, harbor and airport projects that help attract employers to Wisconsin, or encourage business and industry to remain and expand in the state.

Grants of up to $1 million are available for transportation improvements essential to an economic development project. The project must begin within three years of the approved application, have the local government's endorsement and benefit the public through job creation or retention. The program is designed to implement an improvement

### Transportation Economic Assistance program

The Transportation Economic Assistance (TEA) program provides 50% state grants to governing bodies, private businesses, and consortiums for road, rail, harbor and airport projects that help attract employers to Wisconsin, or encourage business and industry to remain and expand in the state. The goal of the TEA program is to attract and retain business firms in Wisconsin and thus create or retain jobs. Since the program began in September 1987, over 66,000 jobs have been directly and indirectly created through the $74 million invested in grants awarded to 305 businesses in 179 communities across the state.

~ www.dot.wisconsin.gov/localgov/aid/tea.htm

The department's freight focus effort will include outreach to all modes and will provide the framework for studies that identify new rail markets, and opportunities for improved intermodal shipping. Existing studies have shown a need for examining distribution centers as catalysts for improving rail service in Wisconsin, as well as developing a marketing plan aimed at the plastics and agricultural sectors.

more quickly than normal state programming processes allow. Transportation Economic Assistance grants require a 50 percent local match, which can come from any combination of private, local or federal funds, as well as in-kind services.

Since its beginning in 1987, the Transportation Economic Assistance Program has invested $74 million in 305 businesses in 179 communities across the state. This investment has directly and indirectly created more than 66,000 jobs.

One hallmark of the Transportation Economic Assistance program is that transportation facilities can be approved and built quickly in response to rapidly changing business needs. However, programs like Transportation Economic Assistance may produce changes that could conflict with a community's long-range vision. WisDOT will study the impact that programs like Transportation Economic Assistance have on the local planning process and make adjustments in communication and coordination, as appropriate.

In addition, WisDOT will evaluate opportunities to coordinate the Transportation Economic Assistance and Harbor Assistance programs to better market the Freight Rail Infrastructure Improvement Program to improve intermodal connections.

### *Freight Rail Infrastructure Improvement Program*

WisDOT began the Freight Rail Infrastructure Improvement Program in 1993 after a constitutional amendment allowed the state to make rail-related infrastructure improvements. Under this program, WisDOT offers low- or no-interest loans to local units of government, railroads and businesses. Loans received under this program must be repaid within 10 years. Freight Rail Infrastructure Improvement Program loans can be used for rail projects meeting one or more of the following goals:

» Connect an industry to the national railroad system

» Make improvements to enhance transportation efficiency, safety, and intermodal freight movement

WISDOT WILL STUDY THE IMPACT *that programs like Transportation Economic Assistance have on the local planning process and make adjustments in communication and coordination, as appropriate.*

*Figure 7-8: WisDOT's Freight Rail Infrastructure Improvement Program offers loans to be used for rail programs meeting goals such as making improvements to enhance transportation efficiency, safety, and intermodal freight movement.*

» Conduct rail line rehabilitation

» Assist business and industrial expansion

Since its inception in 1993, WisDOT has provided approximately 79 Freight Rail Infrastructure Improvement Program loans totaling $93 million.

Originally, the program's funding came from segregated transportation fund revenues and loan repayments. Currently, program funding is provided entirely through the repayment of loans. The funding level is $8.5 million for the 2007-2009 state budget. Many of the action items for this program revolve around its marketability and catering to meet new market needs, such as addressing the aging of rolling stock. A clear understanding of the current rail environment is required to continue this program's flexibility in meeting future market needs.

*Figure 7-9: WisDOT will evaluate opportunities to coordinate the Transportation Economic Assistance and Harbor Assistance programs to better market the Freight Rail Infrastructure Improvement Program to improve intermodal connections.*

As discussed in the policy "Partner with stakeholders to ensure that freight movements in Wisconsin are safe and reliable and provide positive environmental and community impacts," the freight focus will include outreach to all modes. It will provide the framework for studies that identify new rail markets, as well as opportunities for improved intermodal shipping. Existing studies have shown a need for examining distribution centers as catalysts for improving rail service in Wisconsin, as well as developing a marketing plan aimed at the plastics and agricultural sectors.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Provide loan assistance to Wisconsin businesses and communities*

### Short-term (2008 – 2013)

- Coordinate Transportation Economic Assistance and Harbor Assistance programs to better market the Freight Rail Infrastructure Improvement Program as a means to improve intermodal connections.
- Assess the impacts of programs like Transportation Economic Assistance on the local planning process.
- Identify opportunities for improved intermodal shipping in Wisconsin.
- Examine distribution centers as catalysts for improving rail service in Wisconsin.

### Mid-term (2014 – 2019)

- Work with local and regional economic development agencies and rail transit commissions to identify new markets for rail.
- Cater to market needs and revise the Freight Rail Infrastructure Improvement Program as necessary.
- Develop a rail marketing plan aimed at agricultural and plastics sectors.

### Entire planning period (2008 – 2030)

- Continue to administer grant and loan programs aimed at expanding transportation infrastructure for highways, rails, harbors and airports.
- Periodically review the assistance programs to ensure that they reflect market needs.
- Continually assess the Freight Rail Infrastructure Improvement Program to meet new market needs, such as addressing the aging of rolling stock.

> ***POLICY:***
> *Continue and improve the performance of the Major Highway Development Program*

WisDOT will continue and improve the performance of the Major Highway Development Program.

Specifically, WisDOT will:

» Complete the currently enumerated Major Highway Development projects and study approved corridors

» On the approved corridors for study, follow interim environmental study objectives and when the study points to a project, request enumeration[7] for construction

» Propose additional Major Highway Development projects and studies to maintain or improve the functioning of the highway system (the rate at which projects are studied, enumerated and constructed will depend on funding)

» Review and update Wisconsin Administrative Code and statute governing the Major Highway Development Program, as needed

## *Background*

Major Highway Development projects, or "Majors," are generally the most complex, costly and potentially controversial studies and projects initiated by WisDOT. They are long-term solutions to the most serious deficiencies on highly traveled segments of the highway system.

WisDOT thoroughly analyzes all potential improvement projects through a corridor management approach. Currently, statutory language defines a Major Highway Development project candidate.

[7] Official designation in state statutes by the legislature

### Major Highway Development Program project candidates

Major Highway Development project candidates are those with costs greater than $5 million. They must also include at least one of the following:

› Constructs a new highway 2.5 or more miles long

› Relocates 2.5 or more miles of existing highway

› Adds at least one lane five or more miles in length to the existing highway

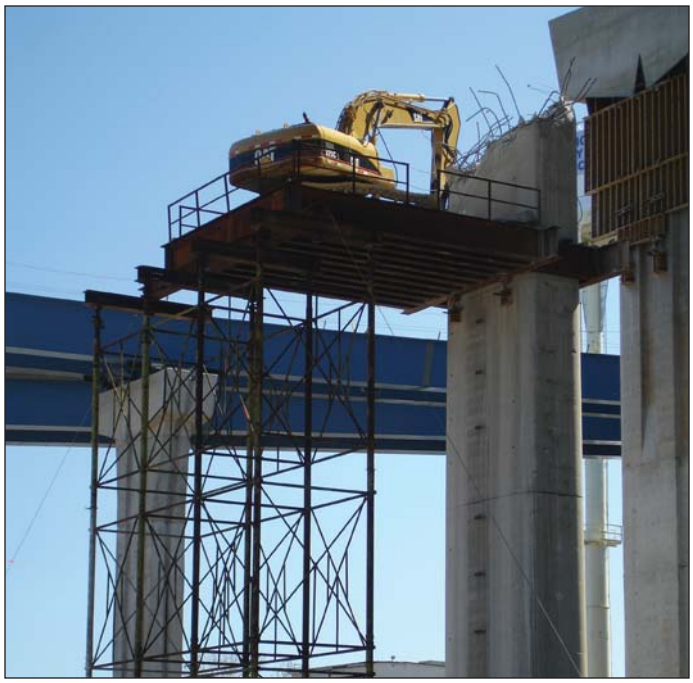
› Improves to freeway standards 10 or more miles of an existing divided highway with at least two lanes in each direction

Majors generally include significant capacity expansion projects, new highways and bypasses.

WisDOT provides an analysis and recommendation of Major project candidates for study or construction to the Transportation Projects Commission. This analysis includes factors such as safety and congestion (refer to Chapter 9, *Promote Transportation Efficiencies*). The Transportation Projects Commission uses the data to make an informed decision on which study or construction candidates will be funded. The Governor chairs the commission, which consists of 10 legislative members – five senators and five representatives and three Governor-appointed members (WisDOT's Secretary serves as a non-voting member).

Not all highway-related construction projects are defined Major Highway Development projects. WisDOT will also continue to undertake other highway projects to improve safety, reduce congestion and support economic growth. Refer to the "Optimize traffic movement on the state trunk highway system by utilizing tools to improve existing capacity and, where necessary, adding capacity" policy in Chapter 9, *Promote Transportation Efficiencies*.

▲ *Map 7-5: As part of the Major Highway Development Program, WisDOT has identified the enumerated major projects as shown above.*



▲ *Figure 7-10: Major Highway Development projects are long-term solutions to some of the most serious deficiencies on the highway system.*

## *Complete the currently enumerated Major projects and study approved corridors*

WisDOT is authorized to:

» Complete the 27 projects actively enumerated for construction

» Complete environmental studies on the eight approved corridors for study, as they are potential Major project candidates

The limited availability of funds, and fluctuations in energy, material and real estate prices, have had impacts on the scheduling and delivery of current Major Highway Development construction projects. In addition, balancing increased preservation needs with capacity expansion considerations continues to be a concern in terms of financial priorities. Major Highway Development projects are estimated in current dollars and reported on every six months to the Transportation Projects Commission, as required by 2003 Wisconsin Act 217.

Current Major Highway Development project funding levels are at about $322 million per year. The 27 Major Highway Development projects enumerated for construction have a future cost-to-complete of approximately $2.3 billion (2007 dollars). The Transportation Projects Commission has approved the environmental study of eight potential Major Highway Development projects where deficiencies point to further examination. The studies are expected to be completed by 2010.

## *On the approved corridors for study, follow interim environmental study objectives, and when the study points to a project, enumerate for construction*

The eight corridors with environmental studies should follow study objectives in the interim until the traffic need is justified or funds are made available to fully implement the plan recommendations. Corridor preservation activities can occur as spot improvements, like repairing hazardous intersections, or can include such things as real estate acquisition, meaning that the state comes into possession or control of land on or along the corridor. Assuming the environmental study points to construction of a project as the preferred alternative, and the studies are enumerated in the future, it is estimated that the eight corridors will have eventual improvement costs of at least $1.5 billion (2007 dollars).

## *Propose additional Major Highway Development projects and studies to maintain or improve the functioning of the highway system (the rate at which projects are studied, enumerated and constructed will depend on funding)*

Additional Major Highway Development Program projects and studies will be pursued as the need exists and funding becomes available. The vision within the Major Highway Development Program will continue to be:

» Program and complete current projects and studies as soon as funding permits

» Complete the current program and the addition of new projects and studies

### *Review and update Wisconsin Administrative Code and statute governing the Major Highway Development Program*

State statute 84.013 was drafted in the mid-1980s and defines a Major Highway Development candidate project. Since the mid-1980s, funding for all highway projects has increased proportionately, most often beyond the initial dollar trigger. In addition, language in the statute limiting the addition of lanes has led to challenges when implementing some Backbone projects.

While the Major Highway Development Program historically has funded the most complex and costly projects, an emerging subset of projects has significant safety, mobility and economic impacts that do not meet the definition of a Major Highway Development project. Projects that are very large and complex, such as large bridges or large interchanges, are difficult to fund in other programs. For example, replacement of a large Backbone bridge on a highly traveled corridor would have an extraordinarily high opportunity cost if funded out of the Backbone program. Certain key bridges have significant economic impacts both in terms of highway funding and the transport of people, goods and services.

In addition to the challenges faced with the types of projects currently funded under the Major Highway Development Program, there is little flexibility in scheduling and reprioritizing projects within the program. This means that the department is unable to respond to urgent needs on large projects in a timely manner because the projects must be delivered in the order they are enumerated. Because of the growing need for highway improvements and the limited availability of funds, WisDOT will review the state statutes governing the Major Highway Development Program and recommend revisions as necessary.

### ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Continue and improve the performance of the Major Highway Development Program*

***Short-term (2008 – 2013)***

- Continue work on the 27 actively enumerated projects for construction.
- Complete environmental studies on the eight Transportation Projects Commission approved corridors for study.
- Begin review of Wisconsin Administrative Code and state statute governing the Major Highway Development Program, in cooperation with the Transportation Projects Commission and the legislature.

***Mid-term (2014 – 2019)***

- Complete the 27 Major Highway Development projects enumerated for construction.
- Complete any recommended changes to Wisconsin Statutes governing Major Highway Development projects, in cooperation with the Transportation Projects Commission and the legislature.
- Program and complete current projects and studies as soon as funding permits.
- Complete the current program and add new projects and studies to the program.

***Long-term (2020 – 2030)***

- Construct enumerated Major Highway Development projects and study corridors that contain Major Highway Development candidates as allowed by funding levels.
- Program and complete current projects and studies as soon as funding permits.
- Complete the current program and add new projects and studies to the program.

▶ ***POLICY:***
*Preserve the local road and bridge system*

Preserving the local road and bridge system is critical to the continued growth of Wisconsin's economy. To support Wisconsin's local road and bridge system, WisDOT will:

» Define a vision for the local road system to establish a level of investment necessary to allow it to adequately fulfill its role

» Assist in providing asset management strategies and tools for local governments to ensure that selected system preservation improvements provide cost-effective service life extension

» Work with local entities to identify and address key safety issues on the local system

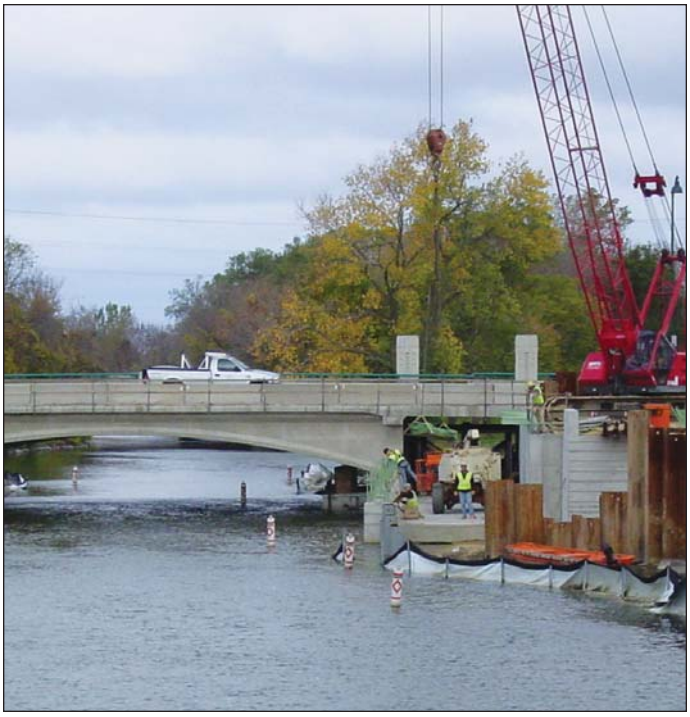
» Partner with local governments to manage and invest in the local road and bridge network

## *Background*

Wisconsin's locally owned and maintained road and bridge system serves as a critical link in the state's total transportation network. With over 100,000 miles of county, town and municipal roads and nearly 9,000 bridges, the local road network accounts for approximately 90 percent of Wisconsin's public road mileage.

As a critical adjunct to the state highway system, the local road system offers connections not only to local activity centers, but also to state and national facilities of importance such as ports and economic business centers.

Local roads connect to the state trunk highway network, airports, rail stations, and bus and ferry terminals. They are the first and usually last link in the state's farm-to-market commerce and offer critical links for area businesses and tourists. They are also essential for bicycle and pedestrian travel.



▲ *Figure 7-11: The local road system cannot operate safely, efficiently, or effectively without addressing current and future local bridge needs. WisDOT will continue to work with local governments to assess and maintain local bridges.*

While the state trunk highway system is critical to "through" travel, most "through" trips start and end on local roads. Finally, many trips made by Wisconsin citizens, businesses and tourists take place entirely on the local system.

In contrast to decisions made for the state trunk highway system, WisDOT does not have a direct role in the planning, construction, maintenance or operation of the local road system. However, the department is responsible for managing and distributing local program funding.

In addition, as an important component to the state's overall transportation system, the department remains committed to working with its partners to maximize the safe and efficient operation of the entire system. Currently, local governments identify and prioritize infrastructure needs according to established guidelines for various state and federal funding sources. Based

on these assessed needs, WisDOT distributes state and federal financial assistance to local governments through a variety of programs. Table 7-1 provides a summary of the local programs.

## *Define a vision for the local road system to establish a level of investment necessary to allow it to adequately fulfill its role*

WisDOT will work with local governments to develop a strategic vision for Wisconsin's local road network that describes what is needed to support optimal economic development and vitality.

Emphasis will be placed on efforts that:

» Encourage sound investment decisions

» Address high-cost system components critical to the state and local road systems

### *Encourage sound investment decisions*

WisDOT will work with its local partners to define statewide expectations specific to local road network goals and priorities, ensuring development and maintenance of a quality network. It will also develop the appropriate framework within which to promote sound investment decisions at the local level. This will be accomplished through the use of available data and asset management tools, such as the pavement analysis tools provided by the Wisconsin Information System for Local Roads (WISLR).

WISLR (pronounced "whistler") is a comprehensive, Internet accessible local roads database and mapping system. Currently, local road network system performance monitoring is limited to pavement and bridge condition analyses; however, the data and tools offered by WISLR provide a critical starting point for both the state and local governments.

Additional data and discussions will be necessary to assess abilities to measure and appropriately address issues such as capacity, safety, infrastructure condition, weight capacity, access, routing and the role of state funding. This will fully define a network vision and assess appropriate investment levels.

### *Address high-cost system components (critical to state and local systems)*

Local transportation financial needs are significant. Compounded with the issues surrounding already strained resources are the issues of high cost system components that do not have stable funding sources to support maintenance and preservation needs. The high-cost system components include:

» High cost local bridges (local bridge structures that have costs exceeding $5 million, with spans greater than 475 feet in length) – present a unique challenge because of the rehabilitation and reconstruction needs typically associated with the structures, and the limited budgets available to support them.

» National Highway System-local routes – are typically local roads that link facilities of statewide importance (for example, ports) to the state trunk highway and interstate systems. Because of their designation and specialized use, they often are either under-funded or unfunded by the local or state government. However, the pavement deterioration experienced by these facilities is significant. Addressing these needs is generally costly.

» Connecting highways – are local roads that serve state travel needs. These local roads connect segments of the state trunk highway system and have increased traffic levels. As a result, the wear and tear experienced on these roads is generally higher than on other local roads. Due to their importance as part of the state system, connecting highways are tracked as state roadways. Local governments are responsible for ongoing maintenance funded with connecting highway aids. Reconstruction costs are shared by the department and the local government.

Each component is critical to the safe and efficient operation of the system. If local bridges, roads and highways are allowed to deteriorate, the impact on the transportation system and the state's economy will be significant. Decisions regarding how to address these needs will require close coordination and discussion.

## Table 7-1: WisDOT local road and bridge programs

| Program | Description |
|---|---|
| General Transportation Aids | Returns to local governments roughly 30 percent of all state-collected transportation revenues, helping to offset the cost of county and municipal road construction, road maintenance, traffic operations and other transportation-related costs. It is the second largest program in WisDOT's budget. |
| County Forest Road Aids | Helps defray county costs for the improvement and maintenance of public roads within county forests. |
| Lift Bridge Aids | Reimburses the cities of Milwaukee, Racine, Green Bay, Manitowoc and Two Rivers for maintenance and operating costs of lift bridges located on the Connecting Highway System. |
| Highway Safety Improvement Program | Funds safety projects designed to reduce the number and severity of crashes on state and local highways. |
| "Small Safety" Program | Funds safety projects on county trunk highways and local streets and highway systems. |
| Surface Transportation Program – Urban | Allocates federal funds to complete a variety of improvements to federally eligible roads and streets in urban areas. |
| Surface Transportation Program – Rural | Allocates federal funds to complete a variety of improvements to rural highways (primarily county highways). |
| Local Roads Improvement Program | Assists local governments in improving deteriorating county highways, town roads, and city and village streets. It is a reimbursement program that pays up to 50 percent of total eligible costs, with local governments providing the balance. |
| Local Bridge Improvement Assistance | Helps rehabilitate and replace seriously deteriorating local bridges on Wisconsin's local highway system. |
| Connecting Highway Aids | Assists municipalities with costs associated with increased traffic and maintenance on roads that connect segments of the state trunk highway system. |
| Flood Damage Aids | Assists local governments with improving or replacing roads and roadway structures that have sustained major damage from flooding. It helps defray costs of repairing major flood damage to public streets, alleys and bridges off the state trunk highway system. |
| Transportation Economic Assistance Program | Provides 50 percent state matching grants to governing bodies, private businesses, and consortiums for road, rail, harbor and airport projects that help attract employers to Wisconsin, or encourage business and industry to remain and expand in the state. The program is discussed in more detail in the policy in this chapter called, "Provide loan assistance to Wisconsin businesses and communities." |

### *Assist in providing asset management strategies and tools for local governments to ensure that selected system preservation improvements provide cost-effective service life extension*

Similar to the funding challenges faced at the state level, increasing costs – particularly those related to real estate, energy and construction materials – have impacted local governments' ability to maintain and preserve the existing infrastructure.

In some cases, lack of adequate funding to address all needs has resulted in preservation and maintenance activities being deferred. In response, WisDOT will work with local governments to develop and adopt asset management strategies to extend the life of existing investments at the lowest cost.

Developing and adopting asset management strategies enables decision-makers to analyze preservation needs using data based on physical condition, safety, operation, function and connectivity. While WisDOT has initiated efforts with the development and use of WISLR, gaps remain in data necessary to fully adopt and implement a local road network asset management approach.

To assist, WisDOT will focus on the following efforts:

» Continue to support WISLR as a data and pavement asset management tool

» Work with local entities to enhance their ability to quantify local road infrastructure needs

#### *Continue to support WISLR as a data and pavement asset management tool*

WisDOT will continue to analyze local road pavement conditions using WISLR. The department will assist local governments by doing system level analysis to identify priority areas and measure progress in addressing local road needs.

**Table 7-2: Local bridge deficiencies (2001-2005)**

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|
| Total local bridges | 8,629 | 8,663 | 8,552 | 8,883 | 8,772 | 8,767 | 8,809 | 8,736 |
| Deficient local bridges | 1,898 (22%) | 1,819 (21%) | 1,454 (17%) | 1,371 (15%) | 1,566 (18%) | 1,502 (17%) | 1,464 (17%) | 1,386 (16%) |

Local governments are required by state statute to regularly submit data to WisDOT describing local road pavement conditions. Local governments are encouraged to submit this data electronically using WISLR. WisDOT is working with the Local Roads and Street Council to develop a simple incentive program to encourage local governments to electronically submit their pavement condition data using WISLR.

The incentive program would also encourage local governments to use the data to guide local road management decisions. If adopted and implemented, this incentive program will further improve management of the state's local roads. WISLR provides a number of benefits to Wisconsin's local governments and WisDOT. These benefits include:

» Allowing local officials to view specific local road data which can support local comprehensive planning efforts

» Allowing local governments to update their local roads data which helps them meet state pavement condition data reporting requirements

» Assisting WisDOT in distributing almost $400 million annually in General Transportation Aids to local governments

» Providing a gateway to data, maps, graphs and other analytic tools that help the state's 1,900 local governments manage the local roads under their jurisdiction

WisDOT will continue to encourage communities to use WISLR to evaluate local road pavement conditions and local road network needs. The department will analyze WISLR data to see how well past pavement investment strategies have worked in maintaining the local road system. In the future, data produced by WISLR will help the department and local governments assess and prioritize available program funding.

Local bridge[8] infrastructure needs are also critical. The local road system cannot operate safely, efficiently, or effectively without addressing current and future local bridge needs. WisDOT will continue to work with local governments to assess and maintain local bridges. This effort will rely on regular bridge inspections (conducted every two years as required by state statute) and tracking the collected data using the Highway Structures Information System, the state's centralized bridge database. In addition to identifying bridge needs, WisDOT also uses the system to help determine funding eligibility.

As of 2005, more than 1,500 local bridges required rehabilitation or replacement (Table 7-2). The percent of deficient local bridges has fluctuated between 15 percent and 22 percent of all local bridges over the past five years. This trend is expected to continue through the planning period. WisDOT will continue to encourage local governments to focus available resources on the most seriously deteriorated bridges.

### *Work with local entities to enhance the ability to quantify local road infrastructure needs*

WisDOT will work with local entities to help them quantify infrastructure needs and make better informed decisions. This will be accomplished by using available data and identifying data needs to

[8] Local bridges eligible for federal or state funds must have a clear span of 20 feet or greater, a sufficiency rating of 80 or less for rehabilitation or less than 50 for replacement, and be either "functionally obsolete" or "structurally deficient."

improve mutual understanding of local system issues and needs. Areas that will be examined to maximize local road management efforts include improvements to data collection and analysis of local expenditure accounting methods, analyzing local system congestion and capacity issues, and safety data needs.

Local governments currently submit annual standardized expenditure reports to the Wisconsin Department of Revenue. These standardized reports are not consistent with the data used by WISLR and do not provide enough detailed information to conduct the local roads analyses desired by WisDOT and local governments.

WisDOT recognizes that barriers exist to addressing the reporting needs of local governments and level of detail required for WISLR. WisDOT will evaluate opportunities to work with the Wisconsin Department of Revenue and the Local Roads and Streets Council to ensure that the data is useful to the affected parties.

In addition, WisDOT will consider efforts to obtain more specific pavement expenditure data through a statistically valid survey of sample cities, villages, towns and counties. The survey would require the collection of about five years worth of pavement expenditures, including travel lanes and shoulders.

### *Work with local entities to identify and address key safety issues on the local system*

WisDOT will continue its efforts to improve the safety of the state's roadway network, including Wisconsin's local roads and bridges. Addressing safety needs is critical regardless of where they occur. Depending on the location, the department's role and responsibility varies.

For the local road system, the department will work with local governments to manage available safety funding and program safety improvements, provide data, enhance analytical tools, and provide technical assistance to address safety issues.

In addition, as noted in Chapter 6, *Promote Transportation Safety*, WisDOT's Strategic Highway Safety Plan commits the department to the following short term actions:

- Establish data-oriented safety analysis tools and performance thresholds
- Develop and prioritize recommended improvements for high accident locations
- Recommend measures to prevent new hazardous locations
- Schedule safety improvements through local and state programming processes

Current efforts focus on integrating safety data into WISLR to improve the quality and type of data available to local governments. In addition, the department has partnered with the University of Wisconsin-Madison to identify and map the locations of crashes on the local system to develop program applications that analyze improvement strategies to address the safety concerns.

In addition to developing and implementing the Strategic Highway Safety Plan and other safety-related programs (see Chapter 6, *Promote Transportation Safety*), WisDOT has designated safety engineers in each WisDOT region office to represent the department's safety interests at the state, region and local level. Key to this role is continued participation on each county's highway safety committee.

### *Manage and invest in the local network as a partner with local governments*

Decisions regarding transportation at the state and local levels will continue to emphasize cooperation and coordinated decision-making. All levels of government are responsible for transportation system management and efforts should be made to ensure that decisions are coordinated. WisDOT will continue to work with local governments when managing corridors to ensure that decisions regarding operations, access management, or project planning design or construction consider concerns and issues at the local level.

In addition, WisDOT will work with its stakeholders and local governments to evaluate the issues and proposed actions regarding the transport of oversize and overweight loads on Wisconsin's roads. Overweight trucks may accelerate deterioration of highways and bridges, and can result in additional infrastructure investment. However, allowing oversize and overweight vehicles on Wisconsin's roadways requires a balance between increasing freight movements to meet economic development goals and minimizing impacts to local roads, highways and bridges.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:* *Preserve the local road and bridge system*

### *Short-term (2008 – 2013)*

- Work with local governments to develop a strategic vision for the future of Wisconsin's local roads network.
- Continue to support WISLR as a data and pavement asset management tool, encouraging communities to use WISLR.
- Work with stakeholders and local governments to evaluate the issues and proposed actions regarding the transport of oversize and overweight loads on Wisconsin's roads.
- Work with local governments and stakeholders to address high cost system components (high cost bridges, National Highway System local and connecting highways).
- Consider efforts to obtain more specific pavement expenditure data through a statistically valid survey of sample cities, villages, towns and counties.

### *Mid-term (2014 – 2019)*

- Work with the Local Roads and Streets Council to develop a simple incentive program to encourage local governments to electronically submit their pavement condition data using WISLR.
- Assist local governments by doing system level analysis to identify priority areas and measure progress.
- Assist in the development and adoption of asset management strategies by all local governments.
- Evaluate opportunities to work with the Wisconsin Department of Revenue and the Local Roads and Streets Council to identify strategies to make the annual standardized expenditure reports and data useful to affected parties.

### *Entire planning period (2008 – 2030)*

- Continue to provide data, enhance analytical tools and provide technical assistance to address safety issues.
- Continue to work with local governments to enhance their ability to quantify infrastructure needs using available data.
- Continue to help local governments focus available resources on the most seriously deteriorated bridges.
- Continue efforts to improve the safety of the state's roadway network.
- Work with local governments to manage available safety funding and program safety improvement needs.
- Continue to participate on county highway safety committees.
- Continue to work with local governments when managing corridors to ensure that decisions consider concerns and issues at the local level.

▶ ***POLICY:***
*Promote Wisconsin tourism through transportation system maintenance and improvements*

Working with local governments and the private sector, WisDOT will continue to encourage tourism and related economic development in Wisconsin through innovative programs that help communities capitalize on their resources. Specifically, WisDOT will:

» Continue to maintain and provide high-quality transportation options for Wisconsin tourists

» Continue to maintain Wisconsin's highway rest areas

» Continue the Rustic Roads and Scenic Byways programs

» Continue the Transportation Enhancements program

## *Background*

Tourism is one of Wisconsin's major industries. In 2007, tourists spent an estimated $12.8 billion in Wisconsin. These expenditures supported 302,000 full-time jobs in the state, and helped generate $7.1 billion in resident income. These expenditures generated $1.42 billion in state government revenue, as well as $638 million in local government revenue.[9] The economic benefits of tourism are spread throughout the year in Wisconsin. Visitors travel to Wisconsin to enjoy the state's natural beauty, to hunt and fish, to attend festivals and sporting events, to visit family and friends, and to shop and dine.

Map 7-6 shows that the economic benefits of tourism also are spread geographically to all parts of the state. The top 10 Wisconsin counties for tourism expenditures in 2007 are listed in Table 7-3.

Transportation promotes tourism in a variety of ways:

› Provides important intercity linkages to tourist areas

› Promotes walkable, accessible communities

› Provides gateways to the state

› Can be part of the tourist experience with some modes

Wisconsin tourist expenditures by season:

› Spring – $2.6 billion (21%)

› Summer – $4.9 billion (38%)

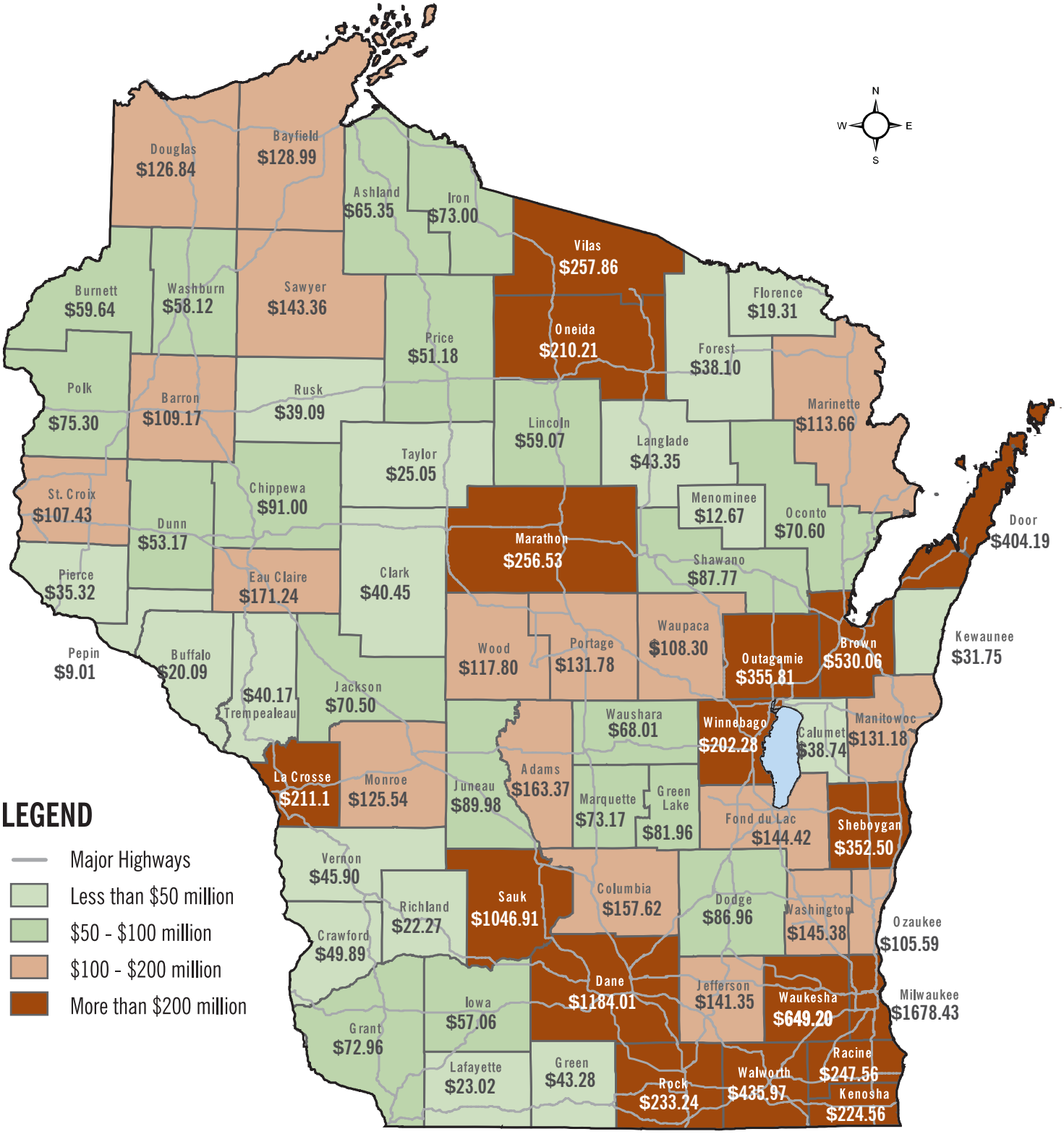
› Fall – $3.1 billion (24%)

› Winter – $2.2 billion (17%)

Tourists typically are from Wisconsin or neighboring states. As shown in Table 7-4, Wisconsin residents account for the majority (about 58 percent) of all tourists in the state. Nearly 90 percent of all Wisconsin tourists are from Wisconsin, Illinois, Minnesota or Michigan.[10] Because Wisconsin's tourism industry operates year-round and is spread throughout the state, Wisconsin visitors typically use a wide range of transportation

[9] *The Economic Impact of Expenditures by Travelers In Wisconsin, Calendar Year 2007, County by County Report*. Wisconsin Department of Tourism, April 2008.

[10] *2006-07 Wisconsin Department of Tourism Strategic Marketing Plan.* Wisconsin Department of Tourism.




▲ *Map 7-6: Traveler expenditures (in millions of dollars) in Wisconsin, by county, 2007*
*Source: Wisconsin Department of Tourism*

**Table 7-3: Top 10 Wisconsin counties for tourism expenditures in 2007**

| Rank | County | Total tourism expenditures ($ millions) | Percent of Wisconsin total |
|---|---|---|---|
| 1 | Milwaukee | $1,678 | 13.14 |
| 2 | Dane | $1,184 | 9.27 |
| 3 | Sauk | $1,047 | 8.19 |
| 4 | Waukesha | $649 | 5.08 |
| 5 | Brown | $530 | 4.15 |
| 6 | Walworth | $436 | 3.41 |
| 7 | Door | $404 | 3.16 |
| 8 | Outagamie | $356 | 2.79 |
| 9 | Sheboygan | $352 | 2.76 |
| 10 | Vilas | $258 | 2.02 |

**Table 7-4: Origins of Wisconsin tourists in 2005**

| Origin | Percent |
|---|---|
| Wisconsin | 58 |
| Illinois | 21 |
| Minnesota | 6 |
| Michigan | 4 |
| Other states | 8 |
| Other countries | 3 |

modes to reach their destinations. These modes include cars, airplanes, trains, ferries, public transit, bicycles and pedestrian facilities. For these reasons, construction impacts, work zone traffic delays, system quality (i.e., efficiently maintained and operated), availability of trails, and bicycle/pedestrian-friendly communities impact the state's tourism environment.

## *Continue to maintain and provide high-quality transportation options for Wisconsin tourists*

The most fundamental way WisDOT can promote tourism in Wisconsin is to continue to maintain and improve the state's transportation system. WisDOT also can continue to improve the intermodal connections to make travel in Wisconsin even more convenient.

To better serve Wisconsin's tourism industry, WisDOT will coordinate with local governments and private sector partners to maintain convenient connections to tourist destinations. These efforts will include:

» Improving incident response measures to limit traffic disruptions from crashes and other incidents on the state highway network (see Chapter 9, *Promote Transportation Efficiencies*)

» Reducing construction zone bottlenecks on weekends (for example, opening all lanes in a construction zone) and during other peak tourist travel times (for example, major sporting events)

Most of WisDOT's efforts to maintain and improve the state's multimodal transportation system are described in other chapters.

## *Continue to maintain Wisconsin's highway rest areas*

Wisconsin's rest areas help promote tourism in several ways. They offer basic travel services, provide tourist information, and act as ambassadors of the state to first-time visitors.

### *Basic travel services*

Rest areas generally offer a range of amenities important to travelers, such as handicap accessibility, rest rooms, collection bins for refuse and recycling, public telephones, landscaped surroundings with shaded areas, drinking water, vending machines, picnic tables, pet walking areas, separate car and truck parking, weather information, and security lighting. These basic amenities make trips more comfortable and convenient and encourage travelers to make additional trips to Wisconsin in the future.

### *Tourist information*

Wisconsin's rest areas located at the state's borders with Illinois, Iowa, Michigan and Minnesota also serve as tourist information and promotional centers. At designated hours, these "Wisconsin Welcome Centers" are staffed with knowledgeable volunteers. Maps and brochures are available to inform travelers about state attractions.

The state's rest areas are often the first impression an out-of-state visitor has of Wisconsin. The design and layout of the facility, as well as the upkeep and cleanliness, give these first-time visitors a positive impression of the state and encourage return visits.

Through the Rest Area Maintenance program, WisDOT will continue to contract with 24 work centers throughout Wisconsin to provide custodial care, landscape maintenance, and minor repairs at Wisconsin's 30 rest areas.

## *Continue the Rustic Roads and Scenic Byways programs*

WisDOT administers two programs – the Rustic Roads program and the Scenic Byways program – that promote tourism and economic growth by preserving the scenic and cultural qualities of designated roadways.

The Wisconsin Legislature created the Rustic Roads Program in 1973 to preserve Wisconsin's remaining scenic and lightly traveled back roads for the enjoyment of motorists, hikers and bicyclists. Wisconsin is the only state to preserve these low volume rural roads.

The Scenic Byways Program, established in 2005, represents a cooperative effort between WisDOT and local community groups to preserve, promote and enhance some of the state's most scenic and historic state highway corridors.

Local governments and communities benefit from Rustic Road and Scenic Byway designations. These designations increase the visibility of their area by providing the traveler with information and an additional incentive to visit the area.

WisDOT estimates that thousands of people travel the state's Rustic Roads and Scenic Byways and spend some of their discretionary income in nearby communities.

### *Rustic Roads Program*

WisDOT and local governments share responsibilities in identifying and maintaining the state's Rustic Roads. WisDOT's role consists of administering the program, providing unique signage for each Rustic Road and helping to develop promotional materials. Local governments continue to administer and maintain officially designated Rustic Roads using general transportation aids – the same aids they receive for any local road within their jurisdiction.

▲ *Figure 7-12: Wisconsin's rest areas offer basic travel services, provide tourist information, and act as ambassadors of the state to first-time visitors.*

## Wisconsin's Rustic Roads

The Wisconsin Legislature established the Rustic Roads program in 1973 to help citizens and local units of government preserve what remains of Wisconsin's scenic, lightly traveled country roads. As of 2007, there were 103 designated routes in Wisconsin that qualify as Rustic Roads. These routes were located in 54 counties and made up 572 miles of roadway.

To qualify for the Rustic Road program, a road should:

› Have outstanding natural features along its borders such as rugged terrain, native vegetation and native wildlife; or include open areas with agricultural vistas which singly or in combination uniquely set this road apart from other roads.

› Be a lightly traveled local access road – one that serves the adjacent property owners and those wishing to travel by auto, bicycle, or hiking for purposes of recreational enjoyment of its rustic features.

› Not be scheduled nor anticipated for major improvements that would change its rustic characteristics.

› Have, preferably, a minimum length of 2 miles and, where feasible, should provide a completed closure or loop, or connect to major highways at both ends of the route.

A Rustic Road may be a dirt, gravel or paved road. It may be one-way or two-way. It may also have bicycle or hiking paths adjacent to or incorporated in the roadway area. The maximum speed limit on a Rustic Road has been established by law at 45 mph. A speed limit as low as 30 mph may be established by the local governing authority.

~ www.dot.wisconsin.gov/travel/scenic/rusticroads.htm

The Rustic Road designation provides a promotional and marketing opportunity for communities to highlight the qualities of their areas. For example, several chambers of commerce in Fond du Lac County coordinated their efforts to produce "Wander Country Roads," a county driving tour featuring scenic and rustic vistas as well as historical attractions.

Designated routes are featured in the Rustic Roads Booklet, one of the most requested publications from the Departments of Tourism and Transportation. The booklet features a small locator map with a description of flora and fauna found along each designated route. It assists the traveler in reaching the Rustic Road and provides highlights of what they can expect to see along the corridor. WisDOT will seek a reliable funding source to produce regular updates of this booklet in the future.

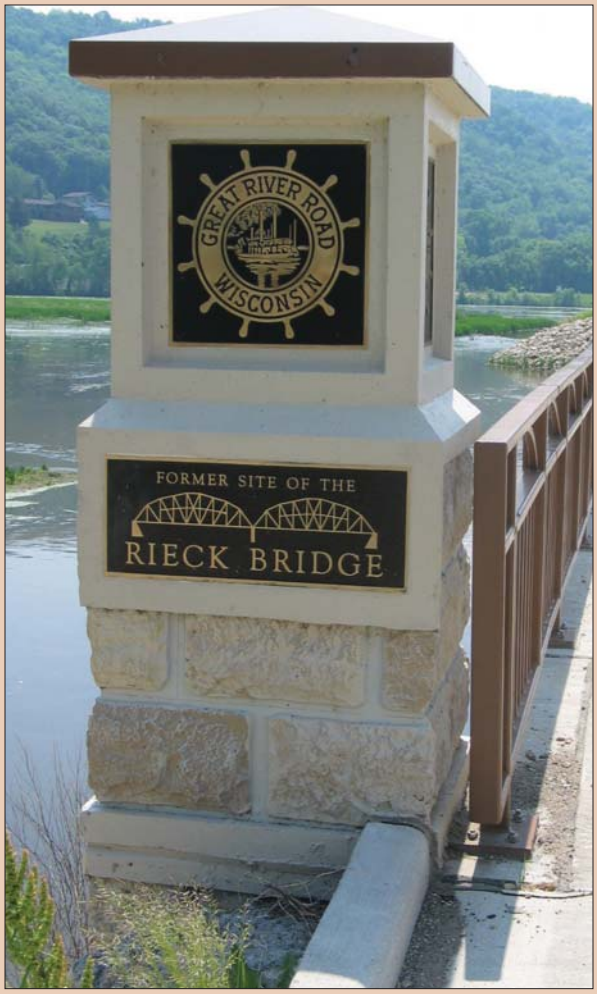
In 2005, WisDOT held a photo contest to commemorate the dual milestones of the 30th year of the program and the 100th road being designated. The photo contest also served to further promote the program and educate the public on the outstanding qualities of the state's Rustic Road system. WisDOT will conduct additional photo contests at future program milestones to reach similar marketing and educational goals.

Through the year 2030, WisDOT will identify additional opportunities to develop and promote the Rustic Roads Program in cooperation with local communities, adjacent states, and the private sector.

### *Scenic Byways Program*

Similar to the Rustic Roads Program, responsibility for creating and maintaining Wisconsin's Scenic Byways is shared by WisDOT, local groups, and the federal government.

WisDOT's role consists of administering the program and providing unique signage for each Scenic Byway and helping to develop promotional materials. Local




## Great River Road, Pierce County

Wisconsin's Great River Road is a state and nationally designated Scenic Byway that extends 249 miles along the Mississippi River (primarily on WIS 35) between Prescott, Wisconsin, and Dubuque, Iowa. Federally funded projects along the Great River Road include:

› Prescott Learning Center

› Rieck's Lake visitor amenities

› Renovation of historic Potosi brewery

› Wisconsin Department of Tourism's "Birding, Boating, and Biking" media campaign

groups, with the support of local governments, submit applications for new Scenic Byways and provide the grassroots support for ongoing byway projects and activities.

If a state Scenic Byway is designated by the Federal Highway Administration as a National Scenic Byway or All-American Road, the federal government provides additional promotional support and possible additional funding for Scenic Byway improvements and maintenance.

Wisconsin currently has one National Scenic Byway, the Great River Road (WIS 35). State Scenic Byway designation offers communities several benefits:

» Improved partnerships between local governments, businesses, civic groups and community leaders

» Increased tourism and economic development opportunities

» Unique signs, markers, brochures and ongoing promotional efforts that enhance community recognition and strengthen civic pride

» Preservation of an area's scenic, historical and recreational amenities for the enjoyment of future generations

» The potential for designation as a National Scenic Byway or All-American Road, which would bring even greater recognition and economic benefits to communities along the route

Through the year 2030, WisDOT will continue to partner with local communities and the federal government to promote tourism and economic growth along the state's Scenic Byways.

As one example, WisDOT will conduct a Scenic Byways photo contest and develop a Scenic Byways guide similar to those of the Rustic Roads Program. WisDOT will also seek a reliable source of state funds to leverage federal Scenic Byways funds awarded in the future.

## National Scenic Byways Program

The National Scenic Byways Program is a voluntary, community-based program administered through the Federal Highway Administration to recognize, protect and promote America's most outstanding roads. National Scenic Byways designations recognize roads with at least one of six core intrinsic qualities – scenic, natural, historic, recreational, archaeological, or cultural – contributing a unique travel experience. To be considered for designation, a road must possess characteristics of regional significance within at least one of the intrinsic quality categories. In addition, it must be part of the numbered state or federal (non-interstate) highway system; be at least 30 miles long; ffer outstanding scenic views or historic resources, combined with unique recreational, cultural or other educational opportunities.

~ www.scenic.org/byways

## *Continue the Transportation Enhancements Program*

The U.S. Congress created the Transportation Enhancement Program in 1991. In doing so, it recognized that people want a balanced approach to transportation. Transportation is more than getting from point A to point B. It must be multimodal, improve quality of life and serve as a catalyst for economic growth. The Transportation Enhancement Program addresses these desires. For more than a decade, the program has served Wisconsin by helping to improve its communities, offering transportation choices, supporting tourism and economic growth, and enhancing the natural and man-made environment.

Transportation enhancement projects have helped make walking and bicycling easier in communities all over the state by providing funding for sidewalks, bike lanes and Rails-to-Trails conversions. In addition, funds have been used to restore historic buildings, beautify streetscapes and provide transportation museums and visitor centers resulting in increased tourist traffic and stronger regional economies. Some communities have capitalized on acquiring, restoring and preserving scenic areas, while others use the program to aid in environmental stewardship and safety efforts.

WisDOT will continue to administer the Transportation Enhancements Program to fund multi-modal transportation alternatives and projects that enhance communities and the environment. Currently, $6.25 million is available in annual funding. Federal funds administered through this program provide up to 80 percent of project costs. The local project sponsor which can be a local or tribal government, or a state agency, is responsible for funding the remaining 20 percent of project costs. Eligible projects must demonstrate a clear relationship to surface transportation and fit into one of the following 12 categories:

▲ *Figure 7-13: Transportation enhancement projects have helped make walking and bicycling easier in communities all over the state by providing funding for sidewalks, bike lanes and Rails-to-Trails conversions.*

» Providing facilities for pedestrians and bicyclists

» Providing safety and educational activities for pedestrians and bicyclists

» Sponsoring scenic or historic highway programs, including tourist and welcome centers

- » Acquiring scenic easements and scenic or historic sites
- » Completing landscaping and other scenic beautification
- » Preserving historic sites
- » Preserving abandoned railway corridors
- » Controlling and removing outdoor advertising
- » Rehabilitating and operating historic transportation buildings and structures
- » Conducting archeological planning and research
- » Mitigating water pollution due to highway runoff or reducing vehicle-induced wildlife fatalities
- » Establishing transportation museums

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*

*Promote Wisconsin tourism through transportation system maintenance and improvements*

### *Short-term (2008 – 2013)*

- Seek a reliable source of funding for future updates to the Rustic Road booklet.
- Seek a reliable source of funds to leverage federal Scenic Byways grants.

### *Mid-term (2014 – 2019)*

- Conduct another Rustic Roads photo contest.
- Develop a Scenic Byways guidebook.

### *Long-term (2020 – 2030)*

- Conduct a Scenic Byways photo contest.

### *Entire planning period (2008 – 2030)*

- Continue to promote Rustic Roads in Wisconsin through the Rustic Roads program.
- Continue to promote Scenic Byways in Wisconsin through the Scenic Byways program.
- Explore public-private promotional activities for both Rustic Roads and Scenic Byways.
- Investigate the potential for multi-state efforts to promote Rustic Roads and Scenic Byways.
- Continue to maintain Wisconsin's highway rest areas.
- Continue the Transportation Enhancements Program.
- As discussed in other policies, continue to help maintain and improve the state's transportation system and continue to improve intermodal connections.
- Coordinate with local governments and private sector partners to maintain convenient connections to tourist destinations.

▶ ***POLICY:***
*Partner with consumers and businesses to increase transportation sustainability*

The prices of fuel- and oil-related products important to transportation have risen considerably in recent years. The federal government estimates fuel costs will continue to increase.

This pattern of increasing fuel costs has impacted WisDOT, businesses, families and local communities by increasing the cost of infrastructure maintenance and construction, as well as the cost to ship goods. This has led to a demand for a transportation system that is less affected by an increasingly expensive oil supply. In response to rising energy costs, WisDOT will:

» Track changes and analyze responses to the state's transportation energy use and costs

» Promote more efficient use of petroleum-based fuels and viable alternatives

» Encourage local governments to improve vehicle efficiencies

» Seek to adjust WisDOT's transportation revenue stream to respond to changing fuel use

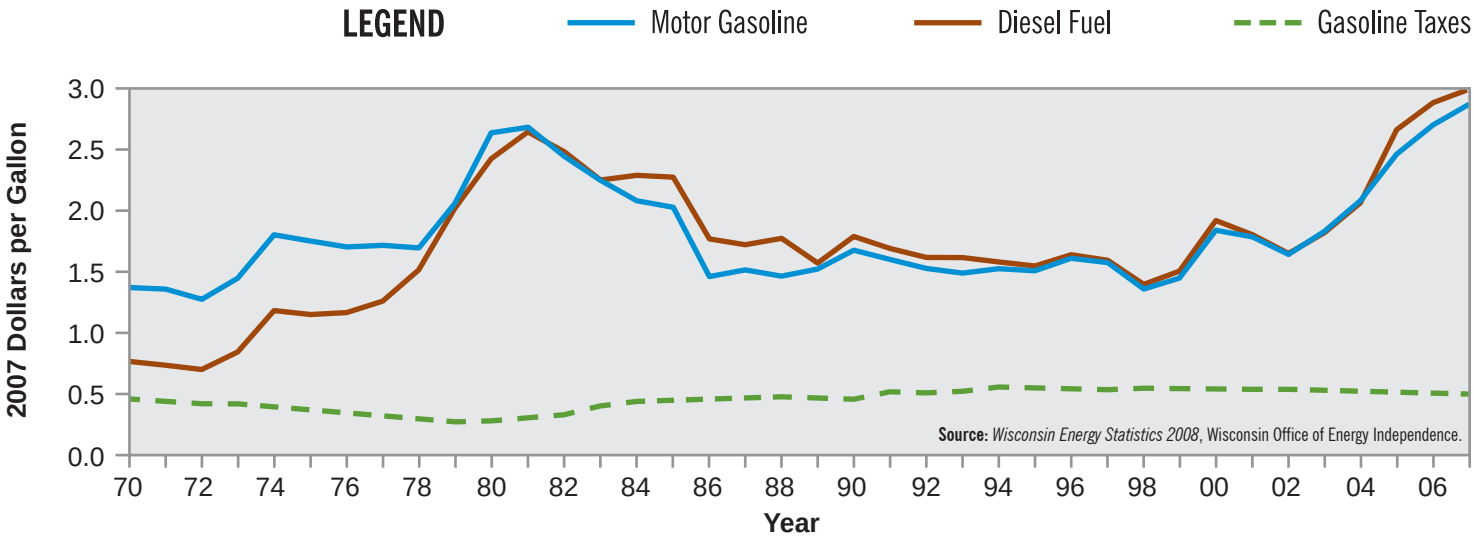
## *Background*

Wisconsin's transportation system depends on petroleum and related products. Petroleum-based fuels (gasoline, diesel, jet fuel, etc.) account for about 97 percent of the energy used by the automobiles, trucks, airplanes, trains and ships that move people and goods in the state.[11] Over 83 percent of all petroleum used in Wisconsin is consumed by the transportation sector.[12]

Rising petroleum costs directly and indirectly impact the state's transportation system and economy because of this dependence. For example, many state roads are constructed using oil-based asphalt. Rising oil prices increase construction and maintenance costs. WisDOT's activities are funded in large part by fuel taxes. The price consumers pay for food, clothing and other products depends in part on the

[11] *Wisconsin Energy Statistics 2007.* Wisconsin Office of Energy Independence.

[12] Ibid.




▲ *Figure 7-14: The inflation-adjusted price of regular unleaded gasoline in Wisconsin has nearly doubled over the last decade, increasing from $1.50 per gallon (in 2007 dollars) in 1995 to $2.87 per gallon in 2007.*

cost of transporting these items to store shelves. Similarly, the ability of businesses to compete in a global marketplace depends in part on their ability to ship goods in a cost-effective manner. Rising fuel costs can increase the cost of consumer goods and make Wisconsin businesses less competitive in the global marketplace.

In recent years, the cost of fuel has increased considerably. Figure 7-11 shows the changes in fuel prices from 1970 to 2007. The inflation adjusted price of regular unleaded gasoline in Wisconsin has nearly doubled in the last decade, increasing from $1.50 per gallon (in 2007dollars) in 1995 to $2.87 per gallon in 2007.[13] When adjusted for inflation, the price of unleaded regular gasoline in Wisconsin in 2007 even exceeded the high prices encountered by Wisconsin residents during the energy crisis of the late 1970s and early 1980s. As of early 2008, the price of a barrel of oil would need to decrease 65 percent to return to its price in 2003. Many factors have influenced the recent increases in crude oil and fuel prices:

» Worldwide demand for oil has increased, especially from the fast-growing economies of India, China and other major oil-producing countries. Worldwide production remained steady, however, resulting in a reduction of spare oil-producing capacity. In the past, spare capacity has been a major player in stabilizing oil prices

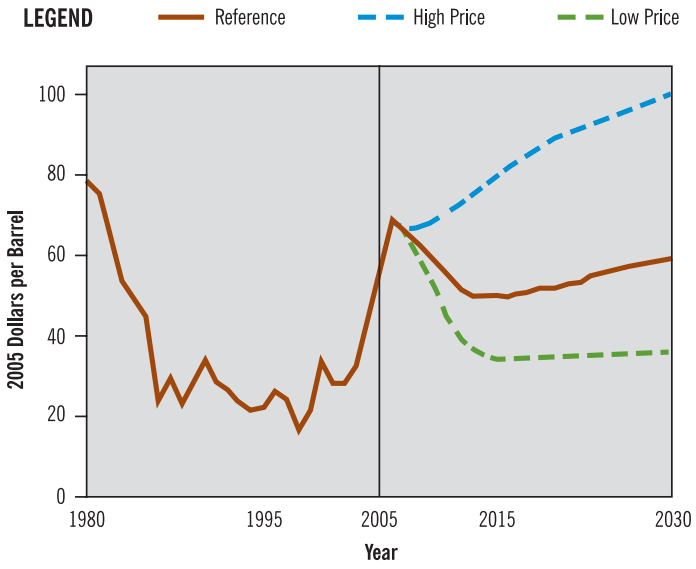
» Political instability and the threat of terrorism in some major oil-producing countries have resulted in decreased oil production

» Increasing control of world oil production by national oil companies has resulted in more-limited oil production and reduced exports

» Decreased value of the U.S. dollar has resulted in more expensive oil imports to the U.S.

The federal government expects upward pressure on petroleum prices to continue at least through 2030.

[13] *Wisconsin Energy Statistics 2007.* Wisconsin Office of Energy Independence.




**Source:** *Annual Energy Outlook 2007*, Energy Information Administration.

▲ *Figure 7-15: The EIA's Annual Energy Outlook 2007 identifies three future scenarios for oil production prices in which prices will be higher than they have been over much of the past 20 years.*

The U.S. Department of Energy's Energy Information Administration (EIA) generates projections of world oil production and prices, taking into account the above factors, estimates of supply and other relevant data. The EIA's Annual Energy Outlook 2007 identifies three future scenarios for oil production prices (Figure 7-12). In all three scenarios, the EIA projects oil prices higher than they have been over much of the past 20 years.

There is growing concern that fuel prices could continue to increase in the near future similar to the pattern shown in the EIA's High Price Scenario. A 2007 U.S. Government Accountability Office review of global oil production studies found production will likely peak – and begin to decline – between now and 2040.[14] If such a peak occurs during the planning period, transportation costs can be expected to continue to rise.

[14] *Crude Oil: Uncertainty About Future Oil Supply Makes it Important to Develop a Strategy for Addressing a Peak and Decline in Oil Production.* United States Government Accountability Office. February 2007.

Rising fuel costs encourage consumers and businesses to use fuel more efficiently, either by driving less, driving slower or by switching to more fuel-efficient modes of transportation. The tradeoff, unfortunately, is less revenue for WisDOT since its main funding source to implement *Connections 2030* is tied to the consumption of gas and diesel fuels.

Both the private and public sectors are responding to higher fuel prices. Major vehicle manufacturers have increased production of more fuel-efficient models such as gasoline-electric hybrids, flex-fuel vehicles capable of running on fuel that is 85 percent ethanol, and diesel vehicles.

Major freight carriers and retail stores have instituted supply chain and vehicle changes to save fuel, and have passed on fuel surcharges to consumers. Some have focused on physical changes to trucks hauling their products to increase fuel efficiency, such as aerodynamic changes to the vehicle front end and optimal tire pressure. Some have made mode shifts from truck to rail during portions of the shipping routes. Still others have reduced the weight and/or size of packaging in order to get more products into each vehicle at a lighter, fuel saving weight.

Guided by the 2001 National Energy Policy, the federal government has funded several research and development programs to study traditional and alternative ways to meet the energy challenges facing the nation. In the transportation sector, emphasis areas include renewable fuels, more efficient engines, and new battery technologies that would advance hybrid and electric vehicles.

These efforts have increasingly also sought to address air quality issues and climate change concerns. Other major federal activities include:

» The Energy Independence and Security Act, signed in December 2007, will improve fuel economy for cars and light trucks and significantly increase the use of renewable fuels.

» The U.S. Supreme Court ruled that carbon dioxide is a pollutant that can be regulated by the U.S. EPA under the Clean Air Act. Regulating this pollutant will likely result in changes to many types of power plants, refineries and vehicles.

WISCONSIN IS INVOLVED *in activities to reduce fuel dependence such as tying changes in transportation related greenhouse gas emissions and carbon dioxide to increased fuel efficiency, business development related to the growth in demand for biofuels, and research.*

» The U.S. EPA is considering rule-making to address greenhouse gas emissions from a variety of sources, including motor vehicles. The rule-making may also require changes to the transportation system's fuel use.

» Internationally, the Bali Action Plan was ratified at the December 2007 United Nations Climate Change Conference. The plan commits the U.S. and 180 other nations to negotiating a new climate agreement by the end of 2009 that will go into effect in 2012 when the Kyoto Protocol's first commitment period ends. Such agreements typically have sections applying to the transportation sector, a major contributor to atmospheric pollutants negatively impacting the climate.

▲ *Figure 7-16: Some freight carriers have focused on physical changes to trucks hauling their products to increase fuel efficiency, such as aerodynamic changes to the vehicle and optimal tire pressure.*

Wisconsin is also involved in activities to reduce fuel dependence such as tying changes in transportation related greenhouse gas emissions and carbon dioxide to increased fuel efficiency, business development related to the growth in demand for biofuels, and research. Some examples include:

» Midwest Greenhouse Gas Reduction Accord. Wisconsin, along with eight other Midwest states and Manitoba, Canada, is committed to establishing greenhouse gas reduction targets and developing a market-based and multi-sector cap-and-trade mechanism to help achieve those reduction targets. The Midwest Accord joins already existing regional greenhouse gas accords covering western states and the Northeast to encompass almost half of the U.S. population.

» Governor's Office of Energy Independence. Major transportation related goals include getting 25 percent of the state's transportation fuel from renewable resources by 2025; capturing a 10 percent share of the emerging renewable energy market by 2030; and becoming a national leader in research to make alternative energy more affordable and available.

» Governor's Task Force on Global Warming. This task force, which includes representatives from business and advocacy groups, recommended ways Wisconsin can make substantial progress in stabilizing and reducing its greenhouse gas emissions. Many of these recommendations are expected to overlap with fuel efficiency and sustainability goals.

The following actions outline WisDOT's efforts to help mitigate negative impacts of rising oil costs.

### *Track changes and analyze responses to the state's transportation energy use and costs*

WisDOT needs a solid understanding of the state's transportation energy use and costs before the department can recommend adjustments to state policies and programs. For this reason, the department will establish a team focused on energy to closely monitor and analyze responses to energy cost impacts

on the transportation system. Activities will include but are not limited to:

» Monitoring trends in transportation energy costs and transportation system use

» Analyzing fiscal impacts on the state resulting from increases in alternative fuel use and the decline in license and vehicle registrations

» Assessing when changes to WisDOT's policies and programs should occur and any associated cost implications

» Collaborating with other state agencies, task forces, federal agencies and the state legislature on potential changes in state policies and programs

### *Promote more efficient use of petroleum-based fuels and viable alternatives*

To facilitate energy conservation in the near term, WisDOT will:

» Educate Wisconsin travelers on ways to conserve fuel, such as reducing driving speeds, maintaining proper tire pressure and consolidating trips

» Engage in marketing campaigns for alternatives to driving, such as use of transit, rail, bicycling and walking

» Analyze potential fuel saving strategies and air quality impacts

» Support local, state and federal initiatives to encourage use of alternative fuels such as hybrids, ethanol (E10 and E85), biodiesel, biobutanol and hydrogen

#### Fuel economy

Cars and trucks typically achieve better fuel economy at lower speeds. Each 5 mph you drive over 60 mph is like paying an extra $0.20 per gallon of gas.

~ www.fueleconomy.gov

» Support state and federal initiatives that promote the adoption of fuel-saving technologies. For example, WisDOT supports the state Department of Commerce program that assists the trucking industry in purchasing auxiliary power units that reduce fuel consumption while trucks idle

### *Encourage local governments to improve vehicle efficiencies*

As fuel prices increase, local governments face higher costs to run their construction, maintenance and transit vehicles. For this reason, WisDOT will consider the following actions to help control the negative impact of rising fuel prices on contract costs:

» Assist public transit agencies in accelerated replacement of their fleets with more fuel-efficient buses. This is especially important for fixed-route systems, many of which have fleets dominated by older model diesel powered busses with significantly lower fuel economies than models built in the last five years

» Examine alternative fuel use and anti-idling technologies that can be used by WisDOT's maintenance partners at the county level

WisDOT supports the state Department of Commerce program *that assists the trucking industry in purchasing auxiliary power units that reduce fuel consumption while trucks idle.*

» Encourage counties to upgrade their heavy truck and equipment fleets to more fuel-efficient models

### *Seek to adjust WisDOT's transportation revenue stream to respond to changing fuel use*

Both the state and federal transportation funds are substantially tied to vehicle travel and the gas tax. Response to increased fuel costs will likely reduce both of these while WisDOT's costs to provide transportation choices increase.

To address this potential funding shortfall, WisDOT will:

» Examine the relationship between fuel type and taxation if alternative fuel use significantly reduces revenues

» Examine adjustment of transportation funding sources to accommodate any significant increase in demand for alternative modes, such as intercity passenger rail, local bus, and commuter rail (see Chapter 12, *Funding Wisconsin's Transportation System*)

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Partner with consumers and businesses to increase transportation sustainability*

### Short-term (2008 – 2013)

*Short-term actions will focus on consumers and businesses dealing with fuel increases. Work will also begin in the short-term on identifying a more comprehensive strategy to address larger issues of global climate change and peak oil.*

- Initiate a work group to track changes in the state's transportation energy use and recommend changes to state policies and programs.
- Encourage alternative fuel use, anti-idling technologies, and fuel-efficient fleet vehicles that can be used by WisDOT's maintenance partners at the county level.
- Assist public transit agencies in accelerated replacement of their fleets.
- Educate Wisconsin travelers on ways to conserve fuel.
- Engage in marketing campaigns for alternatives to driving.
- Analyze potential fuel saving strategies and air quality impacts.
- Continue education to encourage change at the local level.

### Entire planning period (2008 – 2030)

- Continue policies that promote passenger and freight transportation efficiencies and alternative trip options.
- Support state and federal initiatives to encourage use of alternative fuels.
- Support state and federal initiatives that promote the adoption of fuel-saving technologies.
- Adjust WisDOT's revenue stream to respond to changing demand for conventional and alternative fuels (as in Chapter 12, Funding Wisconsin's Transportation System).

▶ ***POLICY:***
*Promote a diverse workforce in Wisconsin's transportation industry by building alliances and business opportunities through civil rights initiatives*

WisDOT will continue to demonstrate its leadership and commitment to civil rights by promoting fairness and equity, as well as business and employment opportunities, in Wisconsin's transportation industry. WisDOT will continue to focus efforts on expanding business and employment opportunities for minorities into all state transportation programs and projects.

To achieve this, WisDOT will continue and expand efforts to:

» Target the distribution of information and availability of assistance to businesses certified as socially and economically disadvantaged to encourage their participation in the transportation industry

» Build partnerships and stakeholder alliances to leverage equity goals and requirements, and promote civil rights efforts

» Build a diverse, skilled and professional transportation workforce

» Integrate environmental justice principles into transportation planning and project development

## *Background*

Government plays a key role in addressing the issues of equity, access and opportunities for socially and economically disadvantaged people. Within the transportation industry, government can help build the future transportation workforce and ensure access for disadvantaged businesses to not only meet growing transportation needs, but also promote economic growth. WisDOT's efforts are directly aligned with a focus on the economic benefits of transportation investments, including those that enhance transportation equity and participation for businesses and workers.

WisDOT will continue to lead efforts to expand opportunities, establish a sense of urgency within the transportation industry to promote opportunities, and partnerships to support ongoing efforts.

### Civil rights

For the purposes of this policy, civil rights are limited to transportation business and workforce issues. WisDOT will continue its efforts to improve accessibility to all WisDOT programs and services. Examples of these activities include providing documents in languages other than English, providing translators, etc.

WisDOT civil rights policies exist to ensure that its operations and decisions are free of bias. Title VI of the Civil Rights Act of 1964, and subsequent federal and state laws, give WisDOT the authority to facilitate programs for business and workforce development, outreach and recruitment, contract compliance and prevailing wage enforcement.

Federal and state laws addressing civil rights include:

› Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU)

› Title VI of the Civil Rights Act of 1964

› Davis-Bacon Act of 1931

› Wisconsin State Statute 103.50 (Employment regulations related to highway contracts)

› Presidential Executive Orders 11246, 12898, 13216, 13230, 13256 and 13270

› Governor's Executive Order 108

› Several regulations, forms, notices and agency orders

## Disadvantaged Business Enterprise Program

The Disadvantaged Business Enterprise Program's goal is to increase participation of firms qualifying as disadvantaged business enterprises in all federally aided and state transportation contracts. The program started with the Surface Transportation Assistance Act of 1982. The act set a national goal of placing at least 10 percent of federal highway and transit funds with persons who qualify as disadvantaged small business operators. A subsequent act in 1987 included women.

WisDOT annually invests between $600 million and $700 million of federal and state dollars in highway, airport and transit projects. These funds translate into millions of dollars in transportation-related contracts and project work for disadvantaged business enterprise firms.

To qualify as a disadvantaged business enterprise, a company must be a small business at least 51 percent owned, operated and fully controlled on a daily basis by a member or members of the following groups:

› African Americans

› Native Americans

› Hispanic

› Asian-Pacific

› Asian-Indian Americans

› Women

› Individuals found to be disadvantaged as defined by the Small Business Act under the 8(a) program

WisDOT may determine that individuals who are not members of the above groups may be socially and economically disadvantaged. WisDOT makes such determinations on a case-by-case basis.

~ www.dot.wisconsin.gov/business/engrserv/dbe-main.htm

Providing opportunities for individuals and businesses in transportation is not a new goal. The Disadvantaged Business Enterprise Program has been part of federal legislation since the Surface Transportation Assistance Act of 1982. In 2005, the Safe Accountable Flexible Efficient Transportation Equity Act- A Legacy for Users (SAFETEA-LU) continued funding for DBE support services, tribal technical assistance and workforce development initiatives.

Wisconsin began its Disadvantaged Business Enterprise Program in 1980 to increase the participation of minority and women-owned businesses in federal and state highway contracting. Since then, WisDOT has developed policies and technical guidance and undertaken several efforts to respond to growing demands for improved participation in state transportation projects, as well as encourage greater participation by disadvantaged individuals and businesses.

Since 1982, WisDOT's program has:

» Developed funding programs to aid disadvantaged business enterprises

» Established procedures and measures to track performance

» Expanded participation of minority-owned and other businesses in the transportation industry

WisDOT also provides and supports several programs to build the knowledge, expertise and competitive capabilities of both minority-owned businesses and the transportation workforce.

### *Target the distribution of information and technical assistance to businesses certified as socially and economically disadvantaged to encourage their participation in the transportation industry*

WisDOT annually invests between $600 million and $700 million in federal and state funding for transportation projects, and allocates another $100 million for design contracts. These funds translate into millions of dollars in transportation-related contracts, as well as opportunities for local communities and the transportation industry. Ensuring access to these opportunities and working to eliminate barriers for disadvantaged business enterprise firms that want to participate is the goal of the program as it strives to create a level playing field.

Specifically, WisDOT will:

» Identify and implement strategies to maximize opportunities and participation in transportation projects, while promoting and strengthening the Disadvantaged Business Enterprise Program

» Identify opportunities to expand and improve tribal contract firm participation in projects on or near tribal reservations

#### *Identify and implement strategies to maximize opportunities and participation in transportation projects, while promoting and strengthening the Disadvantaged Business Enterprise Program*

Efforts will focus on promoting and expanding the existing Disadvantaged Business Enterprise Program, identifying strategies and best practices that may be tailored for specific projects, emphasizing continued collaboration and partnering with stakeholders, and enhancing training opportunities.

▲ *Figure 7-17: The Marquette Interchange Reconstruction Project included partnering between disadvantaged business enterprises and prime contracting firms, mandatory subcontracting and disadvantaged business enterprise goal-setting conducted by a technical stakeholder group.*

In addition, WisDOT will continue to promote and strengthen its Disadvantaged Business Enterprise Program by:

» Continuing to implement the Unified Certification Program Agreement to create a "One-Stop" certification system for all U.S. DOT assisted contracts in the state

» Continuing the $1.5 million Disadvantaged Business Enterprise Loan Guarantee Program

» Hosting workshops, training and networking opportunities

» Targeting marketing efforts to increase disadvantaged business enterprise participation

» Continuing to review and evaluate potential firms to ensure that only firms that qualify for the program participate

▲ *Figure 7-18: WisDOT annually invests $600 million to $700 million in federal and state funding for transportation projects, and allocates another $100 million for design contracts. These funds translate into millions of dollars in transportation-related contracts, as well as opportunities for local communities and the transportation industry.*

» Using customized, computerized payroll tracking to monitor the relationship between prime contractors and disadvantaged business enterprise firms

» Providing mediation and dispute resolution assistance

» Providing management, technical and legal assistance

» Developing partnership agreements

» Using stakeholder committees such as the Transportation Advisory Committee and the Transportation Consultant Advisory Committee, and alliances including the Tribal Partnership Agreement, as well as project specific advisory committees such as the Marquette Interchange project's Disadvantaged Business Enterprise Advisory Committee

WisDOT uses a variety of techniques to encourage disadvantaged business enterprise participation in all projects. For example, the Marquette Interchange reconstruction project included 'bulls-eye' or targeted marketing, and mandatory pre-bid meetings to provide opportunities for firms to ask questions about the project. It also included partnering between disadvantaged business enterprises and prime contracting firms, mandatory subcontracting, unbundling contracts into nontraditional and smaller stand-alone projects, project specific advisory meetings including elected officials, and disadvantaged business enterprise goal-setting conducted by a technical stakeholder group.

Initial efforts on the I-94 North South Corridor Project, which passes through Kenosha and Racine counties and into Milwaukee County, determined that many prospective workers, for various reasons, lack valid driver's licenses, necessary for job training and employment. In response, WisDOT worked with the individuals and the legal system to restore licenses through a driver's license recovery and restoration effort. WisDOT has initiated business and labor training programs have been initiated modeled after those used on the Marquette Interchange reconstruction project.

### Tribal partnership agreement

In 2004, Governor Doyle issued Executive Order 39, recognizing the government-to-government relationship between the state and tribal governments, and requiring strengthening of the working relationship between the two governments. In accordance with this order, WisDOT created a partnership agreement with Wisconsin's federally recognized tribes.

Its purpose is to create and define the processes by which WisDOT and the Federal Highway Administration will work in collaboration with Wisconsin's eleven sovereign Indian nations. The agreement is also designed to acknowledge and support the government-to-government relationship between tribes and state and federal agencies and to support American Indian sovereignty.

~ www.dot.wisconsin.gov/localgov/docs/partnership-agreement.pdf

As the US 41 corridor project in northeastern Wisconsin progresses, the department will apply many of the techniques used on the Marquette Interchange reconstruction project. However, these techniques will be tailored to meet the demands and interests of the surrounding area. Current plans include targeted marketing for tribal members and others, goal-setting efforts specific to the area, and evaluating progress.

As these efforts move forward, WisDOT will document and quantify the benefits of these practices for future projects. The department will also research national best practices to identify effective techniques for increasing stakeholder and business participation that could be used in Wisconsin.

WisDOT will continue to support the need for updating the women and minority project labor goals set by the U.S. Department of Labor. WisDOT will also conduct research to better measure and evaluate the value of its efforts toward serving disadvantaged business enterprise populations.

*Identify opportunities to expand and improve tribal contract firm participation in projects on or near tribal reservations.*

WisDOT is evaluating opportunities to expand the participation of tribal contracting firms statewide. Early efforts in the 1990s focused on tribal training needs to assist in developing local roads inventories, orientation programs for newly certified Native American firms, and acquiring computers, equipment and materials. Recent efforts have focused on outlining coordination and improving communication between the state's tribes and WisDOT.

WisDOT has also begun efforts to encourage greater participation among Native American contractors. WisDOT will continue to support the efforts of the Native American Initiative. The primary goal of the initiative is to increase participation of Native American contractors in WisDOT projects. Currently, WisDOT is working with the Lac Courte Oreilles Ojibwa Community College and the College of the Menominee Nation to provide training to Native American disadvantaged business enterprise firms.

Past Native American Initiative efforts include:

» Hosting summer training institutes (Lac Courte Oreilles and Menominee Nation)

» Training tribal governments to prepare road inventories (Lac Courte Oreilles)

» Performing GIS work for WisDOT region offices (Lac Courte Oreilles)

## *Building partnerships and stakeholder alliances to leverage equity goals, requirements and efforts*

WisDOT will continue to build partnerships and stakeholder alliances. Specific efforts will focus on partnering with Wisconsin's:

» Tribal nations

» Racial and ethnic minority and low-income communities

» Key stakeholders and committees

### Workforce Development Initiative benefits:

› Economic and business development resulting from the creation of transportation industry jobs and related job preparation programs.

› Employment programs served to enable a better quality of life for many (over 500 in the Transportation Alliance for New Solutions Program have been placed in family-supporting positions as laborers in the industry)

› Lowered training costs and increased employee retention for the contracting industry as a result of a collaborative approach to improving the supply line for laborers and the skilled trades.

*Partner with Wisconsin's tribal nations*

WisDOT will to continue to partner with the tribes to build strong relationships and gain a better understanding of tribal needs. Prompted by Governor Doyle's Executive Order 39 (2004), WisDOT was the first state agency to implement a tribal partnership agreement.

WisDOT worked with the tribes to draft the agreement and created a tribal liaison position to build the government-to-government relationship between WisDOT and Wisconsin's 11 sovereign Indian nations.

The agreement promotes communication and cooperation between WisDOT and Wisconsin's tribes. Its goal is to work with Indian nations as equal partners focused on people, economics, and natural and human environments to improve the quality of life for all people.

Since signing the partnership agreement, WisDOT has:

» Created the WisDOT Tribal Task Force to address internal policies and procedures affecting tribes

» Conducted cultural competency training for WisDOT staff

» Developed a WisDOT tribal Web page

» Started a tribal historic preservation officer initiative to improve WisDOT procedures related to cultural resources

» Improved economic development/capacity building programs to increase participation of tribal and individual Indian businesses

WisDOT will continue to implement these activities. In addition, WisDOT will continue to monitor activities in other states to identify practices that could be used in Wisconsin to improve tribal relations.

*Partner with Wisconsin's racial and ethnic minority and low-income communities*

WisDOT will continue efforts to reach out to and partner with Wisconsin's racial/ethnic minority and low-income communities across the state to ensure expanded and enhanced participation in the transportation decision making process.

Examples of regional activities include:

» WIS 54/WIS 172 Corridor Study: WisDOT staff worked closely with the Oneida Tribe of Wisconsin to understand the safety, community, environmental and archeological concerns. While the corridor study focused on broader corridor level issues, WisDOT planners and engineers saw the study as an opportunity to reach out and become aware of the tribe's issues. WisDOT will continue to work with the tribe to address its concerns.

» Verona Road/West Beltline Needs Study: WisDOT continues to work closely with the

### Transportation Alliance for New Solutions Program success story

The first Marquette Interchange reconstruction project was the Bridge Deck Overlay project. The work required the surface to be jack-hammered manually. This project was well-suited for hiring workers in the laborer classification.

Of the 14,401 total work hours expended on the project, 31.2 percent were completed by minority workers and 8.8 percent were completed by female workers.

The laborer classification alone yielded 39.7 percent minority hours and 9.7 percent female hours. Fourteen TrANS program graduates contributed to these successful numbers.

"After I graduated from the TrANS program I worked on the 1st Marquette Interchange project doing the jack hammering for Zenith Tech. The crew had a bet that I wouldn't make it a week on the job probably because I'm female and under five feet tall. It was rough work but I wasn't willing to give up. I'm proud of my work and I'm still working on the Marquette Interchange today."

~ Paige Edwards, 2003 TrANS Graduate

minority and low-income communities living along the corridor to identify their concerns, needs and potential solutions. These include providing better transportation connections to area neighborhoods and developing neighborhood improvement plans to reduce the potential loss of low-income housing.

» Southeast Wisconsin Freeways: WisDOT staff worked with the minority and low-income populations residing adjacent to the corridors to gain a better understanding of their issues and concerns and to identify ways to avoid, reduce or mitigate the issues.

*Continue relations with key stakeholders and committees*

WisDOT will continue to work with communities and stakeholders to encourage collaboration to consolidate gains and incorporate new cultures into equity efforts. The Transportation Advisory Committee, Transportation Consultant Advisory Committee, Marquette Interchange Advisory Committees and the tribal partnership agreement are examples of WisDOT's inclusion efforts.

## *Continue efforts to build a diverse skilled and professional transportation workforce*

WisDOT will continue to strongly encourage and help facilitate opportunities for all contractors to employ a workforce that mirrors the surrounding project's population. Over the last 10 years, WisDOT and its partners in industry and labor, community-based organizations, and other government agencies have collaborated to address critical workforce needs in the highway construction skilled trades. One outcome is the Transportation Alliance for New Solutions.

The Transportation Alliance for New Solutions Program demonstrates how the public and private sectors can work together to address the outreach, preparation, placement and retention of women, minorities and others in the highway construction skilled trades. This program, and similar programs, prepares the underemployed and unemployed with skills needed to gain access to the road building industry as laborers and eventually as apprentices. WisDOT will expand the program to serve the Green Bay, Racine, Kenosha and La Crosse areas. WisDOT will continue to require contractors to document a diligent effort in hiring underutilized employees.

WisDOT will conduct equal employment opportunity reviews to monitor contractor hiring practices and efforts to utilize Transportation Alliance for New Solutions Program graduates and diversify its workforce. WisDOT will also educate its staff and stakeholders on federal labor goals and requirements including:

» Tribal employment rights

» Prevailing wage requirements (i.e., ensure that workers receive the appropriate wage rate)

» State and federal requirements for equal employment opportunities

WisDOT will continue to fund, oversee and implement several programs to encourage youth to consider future careers in transportation:

» Transportation and Civil Engineering – allows students in grades 7 to12 to work on a variety of transportation projects such as bridge design, land use planning and traffic signal timing

» National Summer Transportation Institute – introduces high school students to transportation careers

» Career Awareness Summer Program – provides an opportunity for students in grades 5 to 8 to observe professionals using industry tools and machinery as they work on a variety of WisDOT projects

WisDOT will expand the Transportation and Civil Engineering Program statewide. In addition, WisDOT will coordinate efforts between the Transportation and Civil Engineering and existing National Summer Transportation Institute programs in Wisconsin. WisDOT will also continue to research methods used in other states to build their transportation workforce, and identify methods that could be used in Wisconsin.

### *Integrate environmental justice principles into planning and project development*

Environmental justice is a public policy goal developed to ensure that adverse human health or environmental effects of government activities do not fall disproportionately upon minority or low-income populations. The essence of effective environmental justice practice is summarized in three fundamental principles:

» Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process

» Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

» Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects (including social and economic), on minority and low-income populations

At its core, environmental justice requires a commitment from its partners and stakeholders to be more inclusive – to fully involve, recognize and explore the needs of all its citizens when making transportation decisions. It also requires partners and stakeholders to be more comprehensive in determining how existing transportation plans, projects and activities distribute their benefits and burdens across all socioeconomic groups.

Executive Order 12898 and the subsequent U.S. DOT order clarify and reinforce Title VI responsibilities and require agencies to consider impacts on low-income populations as well as minority populations. Both orders were developed to ensure that transportation programs, policies and other activities do not have a disproportionately high and adverse effect on minority or low-income populations.

WisDOT will continue to conduct environmental justice analyses on all transportation planning and project activities (see the policy in Chapter 10, *Preserve Wisconsin's Quality of Life* called "Incorporate environmental justice in all planning, programming and project decisions").

AT ITS CORE, ENVIRONMENTAL JUSTICE *requires a commitment from its partners and stakeholders to be more inclusive – to fully involve, recognize and explore the needs of all its citizens when making transportation decisions.*

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*

*Promote a diverse workforce in Wisconsin's transportation industry by building alliances and business opportunities through civil rights initiatives*

### *Short-term (2008 – 2013)*

- Expand the Transportation Alliance for New Solutions Program to serve the Green Bay, Kenosha, Racine and La Crosse areas.
- Expand the Transportation and Civil Engineering Program statewide.
- Coordinate efforts between the Transportation and Civil Engineering Program and existing National Summer Transportation Institute programs in Wisconsin.
- Evaluate opportunities to expand the participation of tribal contracting firms statewide.
- Continue to support the effort to update the women and minority project labor goals set by the U.S. Department of Labor.

### *Long-term (2020 – 2030)*

- Conduct research to better measure and evaluate WisDOT's efforts toward serving disadvantaged business enterprise populations.

### *Entire planning period (2008 – 2030)*

- Identify opportunities to expand and improve tribal contract firm participation in projects on or near tribal reservations.
- Promote and expand the existing Disadvantaged Business Enterprise Program; identify strategies and best practices that may be tailored for specific projects; emphasize continued collaboration and partnering with stakeholders; and enhance training opportunities.
- Continue efforts to reach out to and partner with Wisconsin's racial and ethnic minority and low-income communities to ensure expanded and enhanced participation in the transportation decision making process.
- Document and quantify the benefits of disadvantaged business enterprise practices for future WisDOT projects.
- Continue to support the efforts of the Native American Initiative.
- Partner with tribes to build strong relationships and gain a better understanding of tribal needs.
- Continue to monitor activities in other states to identify practices that could be used to improve tribal relations in Wisconsin.
- Continue to work with communities and stakeholders to consolidate gains and incorporate new cultures into progressive equity efforts.
- Continue to strongly encourage and help facilitate opportunities for all contractors to employ a workforce that mirrors the surrounding project's population.
- Continue to require contractors to document a diligent effort in hiring underutilized employees.
- Research national best practices to identify effective techniques for increasing minority stakeholder and business participation that could be used in Wisconsin.
- Conduct equal employment opportunity reviews to monitor contractor hiring practices and their efforts to utilize Transportation Alliance for New Solutions Program graduates and diversify their workforce.
- Continue to fund, oversee and implement programs to encourage youth to consider future careers in transportation .
- Continue to research methods used in other states to the build transportation workforce and identify methods that could be used in Wisconsin.
- Educate WisDOT staff and contractors on federal labor goals and requirements, including tribal employment rights, prevailing wage requirements and state and federal requirements for equal employment opportunities.
- Continue to conduct environmental justice analyses on all transportation planning and project activities.

# CHAPTER 8: Provide Mobility and Transportation Choice

***POLICIES IN THIS CHAPTER FOR PROVIDING MOBILITY AND TRANSPORTATION CHOICE:***

- *Support public, specialized, and human services transit*
- *Support development of fixed-guideway transit services*
- *Increase intercity travel options by improving intercity passenger rail service*
- *Improve intercity bus service and connections*
- *Advocate for improved air service at Wisconsin airports*
- *Support bicycle and pedestrian facilities and plans*
- *Encourage transportation demand management strategies*
- *Facilitate intermodal passenger connections*

Providing mobility and transportation choice creates the foundation of an efficient, balanced and safe transportation system—which is critical to Wisconsin's economic vitality and quality of life.

Wisconsin's transportation system offers many options to provide mobility and choice. These include public transit (bus, fixed-guideway, specialized and human services transit), bicycling, walking, park and ride facilities, intercity bus, intercity passenger rail, ferries, and passenger air service.

WisDOT, local and federal governments, and the private sector work together to provide these options. WisDOT's involvement can include directly contracting for service, as it does for Amtrak; building and maintaining infrastructure such as highways; distributing state and federal funds; or providing technical assistance.

A properly integrated transportation network brings multiple modes together through public and private sector coordination of local and intercity transportation services. For example, a facility where passengers can conveniently transfer from an intercity bus to a train promotes use of public transportation and can spur economic development near the facility.

For the purposes of the plan, mobility refers to the ease with which people and freight can move smoothly on the transportation network. Congestion can negatively impact the mobility of people and goods. As congestion increases, the amount of time needed to travel between places increases, and as a result, mobility may be decreased (see Chapter 7, *Foster Wisconsin's Economic Growth*). When various transportation options are available, individuals can avoid travel on congested modes.

For example, a person may choose to take transit or ride a bike rather than travel by car. Likewise, businesses may choose to transport their goods by truck if a rail corridor is congested. Refer to Chapter 9, *Promote Transportation Efficiencies*, for information on how WisDOT will work to improve traffic movement (such as addressing congestion) on the state trunk highway system. Refer to Chapter 7, *Foster Wisconsin's Economic Growth*, for information on how WisDOT supports freight movement.

Many of the policies in this chapter can be implemented using existing federal, state and local resources; however, other policies call for significant changes to the state's transportation system and require new funding sources.

**WisDOT's vision for mobility and choice is:**

- More transportation alternatives available to all Wisconsin residents and visitors
- Improved connections between transportation modes
- Improved public awareness of the availability of alternative transportation modes

## Challenges

A critical function of Wisconsin's transportation system is to provide convenient and affordable access to jobs, health care, financial and social services, educational facilities, and leisure activities. However, this is not always accomplished by existing transportation services. Many people in Wisconsin have no choice except to travel by automobile. Others are hindered by limited connectivity or lack of flexibility in the schedules of alternative modes. Mobility will continue to be a challenge as the population ages and as businesses develop in areas traditionally underserved by public transportation.

The importance of enhanced transportation choices for those who cannot or choose not to drive will increase in the future. Population projections show a 90 percent increase in persons older than 65 (compared to a 20 percent increase in total population) from 2000 to 2030 in Wisconsin. Projections also show a 75 percent increase in the number of people 75 or older, an age group that traditionally voluntarily reduces or eliminates driving.[1] See Chapter 3, *Trends*, for more information.

Mobility may also be a challenge for young people seeking driver's licenses. In recent years, the percentage of public schools offering driver education programs has steadily declined across the state. The only options for some students are driving courses offered by private agencies, which are typically more expensive. If young people ages 16 and 17 cannot receive driver's education due to its lack of availability in public schools and the cost of commercial driver training schools, they will not be able to obtain a driver's license until they are 18. These unlicensed young people may choose to drive without a license and insurance. Lack of a driver's license may also limit their mobility to those transportation modes that are available to them such as public transit, bicycling and walking.

People with disabilities, drivers who cannot afford a vehicle, and those who cannot or choose not to drive can also face significant mobility barriers. Without a concerted effort to address mobility, many people will continue to face challenges in accessing job markets, goods and services.

[1] Wisconsin Department of Administration. March 2004. "Wisconsin Population 2030".

### Providing mobility and choice

Transportation options are important because they provide an alternative to private auto travel, creating a more balanced transportation system and enhancing mobility. They are also the only means of travel for those who cannot or choose not to drive.

## Opportunities

WisDOT has developed several key policies that will enhance the state's transportation system and build upon the department's commitment to increase mobility and choice:

- Support public, specialized and human services transit
- Increase intercity travel options by improving intercity passenger rail service
- Improve intercity bus service and connections
- Support development of fixed-guideway transit services
- Advocate for improved air service at Wisconsin airports
- Support bicycle and pedestrian facilities and plans
- Encourage transportation demand management strategies
- Facilitate intermodal passenger connections

Through these policies, WisDOT will build new relationships and expand existing partnerships to address Wisconsin's mobility challenges.

▶ ***POLICY:***
*Support public, specialized and human services transit*

WisDOT recognizes the importance of public, human services and specialized transit in meeting basic transportation needs and achieving comprehensive statewide mobility. The department will work toward a coordinated system of public, human services and specialized transit services in urban and rural areas to provide mobility for all Wisconsin residents.

To implement this policy, WisDOT will:

» Work to ensure the availability of adequate funding for existing transit systems

» Work with partners to improve transit service coordination, eliminate inefficiencies, and improve transit planning

» Support existing and expanded urban (including suburban) and rural regional transit systems with new governance structures, funding sources and increased coordination

## *Background*

Transit is often the only transportation option for many individuals, and it is an alternative option for others. Robust transit service also helps attract and retain businesses and jobs. A 2006 transit benefit-cost analysis indicated that every $1 invested in transit produces a return of more than $3 of socio-economic benefits in Wisconsin.[2] In addition, transit is a relatively fuel-efficient mode of transportation, and produces significantly fewer greenhouse gas emissions per passenger mile than the private auto or airlines.[3]

[2] Wisconsin Department of Transportation. *The Socio-Economic Benefits of Transit in Wisconsin. Phase II: Benefit Cost Analysis*. May 2006.

[3] Davis, Todd and Hale, Monica. *Public Transportation's Contribution to U.S. Greenhouse Gas Reduction*. Science Applications International Corporation. September 2007.

### Economic benefits of mobility and choice

Improving mobility and transportation choice benefits Wisconsin's economy by:

› Improving access to jobs

› Connecting businesses with labor markets

› Improving access to goods and services

› Encouraging economic development in cities

› Making Wisconsin attractive to businesses

In Wisconsin, transit services consist of public, specialized and human services transit:

» Public transit is either a fixed-route or demand-response service available to all riders for a specific fare

» Specialized and human services transit is provided for individuals who do not operate a car due to their age, a disability or income levels

Federal, state and local agencies pay for various human services and specialized transportation programs for veterans, people with disabilities, seniors and low-income individuals. These programs specifically fund fixed-route, demand-response or volunteer driver services. Some of these services are only available to certain riders based on eligibility criteria.

As the state's population increases and grows older, greater pressure will be placed on transit systems to meet increased demand. The number of Wisconsin residents 65 years or older is expected to double between 1990 and 2030. Twenty-one percent of the state's residents are currently older than 65 or have a disability, and are likely to use transit to meet basic needs.[4]

[4] U.S. Census Bureau – American Community Survey. Disabled population age 5 to 65 plus the population over 65 years of age in Wisconsin. Information retrieved July 3, 2007. www.census.gov

## Public transit in Wisconsin

- Fixed-route bus
- Commuter bus
- Fixed-guideway (including commuter rail, light rail or streetcar, bus rapid transit)
- Shared-ride taxi, which consists of demand-response systems of cars or vans that may not follow a fixed route, but carry several people at a time
- Paratransit, which is a van or taxi service for persons whose disabilities do not permit them to use a regular transit vehicle
- Regional bus systems, including Bay Area Rural Transit (Bayfield/Ashland area, covering several counties and tribal areas), and the Sawyer and Washington county regional system
- Countywide transit systems (Grant, Menominee, Ozaukee, Rusk, and Washington counties)

Federal and state gasoline taxes, registration fees and other transportation-based taxes help pay for transit systems. Passenger revenues and other local funds – generally property tax revenues – pay for the remainder of the operational costs. Increased fuel, insurance and health care costs have raised transit operating expenses faster than revenues have increased. These increases typically are not accounted for in funding formulas, so many transit systems have had to raise fares or decrease service levels to maintain service.

## *Challenges to providing comprehensive mobility with public transit*

This policy addresses the following financial limitations and challenges faced by transit systems in sustaining or expanding current service:

***Operating cost increases for existing transit systems are outpacing state and federal funding increases.*** Wisconsin provides one of the highest levels of financial support for public transit operating costs in the nation[5]; however, the cost to operate existing transit systems in the state is outpacing local, state and federal funding. Fuel, insurance, health care and other cost increases have raised operating costs 5 percent to 6 percent annually; meanwhile state funding levels continue to increase by 1 percent to 2 percent annually. Federal increases vary depending on system size and location, with the largest systems getting the smallest increases. As a result, state and federal funds are covering a smaller percentage of transit costs, and transit agencies are not receiving adequate funding to maintain current levels of service.

***Local funding is limited.*** Most transit systems in Wisconsin rely on property taxes and fares to pay a portion of operating costs, which makes it difficult to raise more local funds to meet increasing costs. In Madison and Milwaukee, where federal funding has increased the least compared to other Wisconsin cities, local funding from property taxes has not

[5] Wisconsin ranks 14th in the nation in state support for transit operations, according to the *Characteristics of State Funding for Public Transportation-2005*. United States Department of Transportation. Bureau of Transportation Statistics.

WISCONSIN PROVIDES ONE OF THE HIGHEST *levels of financial support for public transit operating costs in the nation; however, the cost to operate existing transit systems in the state is outpacing local, state and federal funding.*

kept up with the rising costs of operating the transit systems. This has resulted in pressure to reduce service and increase fares. The Milwaukee County Transit System has reduced service every year between 2001 and 2007, and raised fares several times during that period.

Transit is often forced to compete with other local services for property tax revenues. When federal and state resources are increased to support transit, local property tax revenues may be allocated to other services. In addition, there are state limits on property tax levy increases for municipalities that limit their ability to raise property tax mill rates to fund transit cost increases or other programs. Under current state statutes, very few feasible alternatives to property tax revenues exist for the local, non-fare share of transit costs. The "wheel tax," which is a municipal or county vehicle registration fee, in addition to the regular annual state vehicle registration fee, is another option available under current state statutes. However, the wheel tax has been difficult for communities to use; it is limited in its application, and has been tried and repealed in several locations.

***State statutes limit funds for rural public transit.*** State operating funding is not available for non-urban public transit between outlying rural areas and rural communities where destinations and basic services are located. Only communities with populations of 2,500 or more are eligible to apply for state public transit operating assistance, making it difficult to finance public transit services in rural areas.

***Political boundaries limit mobility in rural areas and some urban areas.*** Many counties and municipalities operate transit in rural areas. In some cases, there is insufficient coordination among transit providers to get users to medical, educational, shopping and other service locations that cross county or municipal lines.

### Specialized and human services transit in Wisconsin

- Fixed-route or demand-response services are available to certain riders based on eligibility criteria
- Specialized transit services for seniors and persons with disabilities are available in all 72 counties
- Human services transit helps low-income people access jobs
- Most services are delivered through county agencies
- Volunteer drivers provide most specialized transit trips statewide

***Specialized and human services transit services are limited.*** Because of low reimbursement rates, many providers of medical assistance transportation have reduced or eliminated service in rural areas. The dispersed nature of riders and destinations, as well as a general lack of other types of transit, has placed additional strain on human services transportation. Furthermore, most human service and specialized transit systems are designed to serve elderly residents, people with disabilities, and low-income individuals; as a result they are not always available to the general public.

### Southeastern Wisconsin transit challenges

The Southeastern Wisconsin Regional Planning Commission and the Milwaukee County Transit System warn that without changes to funding and governance structures, transit service in Milwaukee County will be greatly reduced by 2010 due to the lack of funds needed to retain current service levels.

The potential elimination of routes and reduction of service hours would decrease mobility options for people who depend on transit to get to work and other crucial destinations. This would intensify the challenges associated with the spatial mismatch between workers and jobs, and the temporal mismatch between job shifts and transit service hours.

A regional approach to transit, along with local revenue sources other than, or in addition to the property tax, could provide the necessary resources to retain or improve transit service in southeastern Wisconsin.

***Meeting additional transit needs requires additional funding.*** Under the current funding structure for transit, funding new systems or expanded transit services reduces the amount of state and federal funding available to existing services. To meet the funding needs of existing systems as well as provide funding for new systems, the Wisconsin Legislature must proportionately increase funds for new services.

***Transit services lack coordination.*** Transit services in Wisconsin are funded from various sources and are operated by numerous providers within a given area. For example, in addition to state and local sources, 62 federal programs provide funds for human services transit. This often leads to fragmented, inefficient service. In many cases, there are redundant services, lack of coordination among agencies and providers, service gaps and underutilized vehicles from multiple programs covering similar geographic areas.

***Dispersed land use patterns create challenges to providing service in growing communities.*** Transit systems and services must expand to meet the new demands of growing communities; however, it is often too costly and inefficient for transit to serve new, dispersed, low-density, single-use developments on the edges of cities or in the suburbs. To make transit service more efficient in these areas, transit-friendly local land use policies – which support ridership by creating mixed-use, compact developments – should accompany planned transit routes and stops. A dynamic local revenue source for transit is needed to initiate service in newly developing areas.

## *Work to ensure the availability of adequate funding for existing transit systems*

### *Urban transit systems outside Milwaukee and Madison*

WisDOT will work toward providing state and federal funds to meet 60 percent of operating costs for larger urban transit systems, and 65 percent for smaller urban systems in order to meet rising operating costs and sustain current transit services. Additional state funds will be required to reach and maintain these funding levels. WisDOT will seek additional state funds, or a higher annual percentage increase in state funds, from the legislature to achieve desired funding levels.

### *Milwaukee and Madison transit systems*

While other transit systems receive state funding for a certain percentage of operating costs, the transit systems in Milwaukee and Madison receive a fixed amount of state funds determined by the legislature during the biennial budget process.

Historically, these systems have received strong support from the state, which typically covers about 40 percent of their operating costs. Milwaukee and Madison also have high fare box recovery rates, which is the percentage of operating costs recovered by passenger fares. Milwaukee has one of the highest fare box recovery rates in the nation. However, despite these recovery rates and strong state support, revenues are not meeting the rising costs of these systems, leading to reductions in service.

WISDOT WILL SUPPORT AND PROVIDE *technical assistance for the creation of transit governance bodies such as regional transit authorities and for enabling new local revenue sources for transit systems.*

In Milwaukee, there have been no increases in the local or federal share of costs. Moreover, Milwaukee and Madison receive less federal funding than smaller transit systems due to their large size and the assumption that these systems have higher fare box recovery and dynamic local revenue sources. However, neither system has a dynamic local revenue source, and both rely on property taxes. In fact, Milwaukee is the largest transit system in the country to be funded by property taxes.

A non-property tax, dynamic, local revenue source at the regional level – such as a sales tax – offers a solution to Milwaukee and Madison's transit funding challenges. If new transit governance bodies such as regional transit authorities and new, stable, local funding sources are enabled through legislation, money from these new sources could help cover rising costs that are not addressed by state and federal funds. This model works successfully for transit systems in large metropolitan areas throughout the country.

WisDOT will support and provide technical assistance for the creation of transit governance bodies such as regional transit authorities and for enabling new local revenue sources for transit systems. WisDOT is committed to continue its role as a significant finance partner for Milwaukee and Madison's transit systems and will seek to maintain a significant state funding share for these systems. WisDOT will also support planned fixed-guideway systems in the Milwaukee and Madison regions.

### *Fixed-guideway transit systems*

WisDOT will recommend new, separate operating funds for all new fixed-guideway transit systems, such as commuter rail, light rail or bus rapid transit services, that receive state operating assistance. This will ensure that funding levels are maintained for existing public transit. For more information about fixed-guideway transit systems and their funding, see the policy in this chapter called, "Support the development of fixed-guideway transit services."

## *Work with partners to improve transit service coordination, eliminate inefficiencies and improve transit planning*

WisDOT will work to expand its role in facilitating communication and coordination among the many transit providers and funding agencies across the state.

The department will also seek to streamline and consolidate complex and disjointed funding and operating structures. In addition to more efficient operations, improved coordination will support more transit options for the public, improve access to jobs, and expand the area accessible by transit (including areas on the urban fringe).

To achieve this, WisDOT will:

» Improve system efficiencies through cross-agency coordination of programs and funding

» Take a pro-active role in the future of transit planning functions

» Facilitate coordination between transit and other modes to provide intermodal connections

### *Improve system efficiencies by coordinating programs and funding across agencies*

Coordinating existing transportation programs can provide more mobility options without increasing funding. This is especially important with respect to specialized and human services transit.

WisDOT will help maximize efficiency through coordination and collaborative partnerships and processes such as the Interagency Council on Transportation Coordination, the Wisconsin Employment Transportation Assistance Program and the New Freedom program.

***Interagency Council on Transportation Coordination.*** WisDOT is an active member of the Interagency Council on Transportation Coordination. The council is responsible for working to eliminate state agency barriers to human services transportation coordination. It is charged with developing a statewide model for coordinating human services transit (including specialized transit) in Wisconsin.

The implementation strategies developed with this model focus on identifying ways to better manage human services transportation services and pool resources so providers can serve widely dispersed populations while remaining competitive. The council's efforts focus on coordinating specialized and other human services transit statewide to reduce redundancies, increase efficiencies and improve customer service. Immediate coordination efforts include:

» Establishing cooperative agreements between providers and organizations that fund or use transit services

» Coordinating programs and consolidating services to share resources including facilities, funding, training, vehicles and maintenance needs

» Improving communication, trust and flexibility between human services transit stakeholders

» Focusing on the transportation needs of the individual

WisDOT will support the efforts of the Interagency Council on Transportation Coordination to:

▲ *Figure 8-1: WisDOT will work to expand its role in facilitating communication and coordination among the many transit providers and funding agencies across the state. Improved coordination will support more transit options for the public, improve access to jobs, and expand the area accessible by transit.*

» Identify opportunities to restructure current funding

» Provide options in every county and access to key services statewide

» Create an interagency coordination liaison position that will improve mobility choices through strategic partnerships and promotion of coordination and mobility management

» Improve integration between transit systems and shared-ride taxi services via established transfer locations

» Improve coordination among private transportation providers in the state

» Improve outreach and communication with local entities, including using techniques to facilitate communication between state agencies and local organizations

***Wisconsin Employment Transportation Assistance Program and New Freedom.*** The Wisconsin Employment Transportation Assistance Program and the New Freedom program are efforts to improve transit coordination. In Wisconsin, both programs integrate several state and federal funding sources into a simple, coordinated process. This encourages local areas to work together to assess their transportation needs and develop options that address those needs. The Interagency Council on Transportation Coordination will build upon these and similar interagency relationships to achieve its long-term vision for maximum efficiency in transit funding and programming.

WisDOT will monitor the success of the Interagency Council on Transportation Coordination, Wisconsin Employment Transportation Assistance Program, New Freedom and other collaborative processes in order to enhance existing programs or create new programs.

### *Take a proactive role in future transit planning functions*

WisDOT will continue and expand its role in supporting public transit in Wisconsin by:

### Interagency Council on Transportation Coordination

Formed in 2005, the Interagency Council on Transportation Coordination is a multi-agency partnership that includes:

› Department of Veteran Affairs

› Department of Health Services

› Department of Workforce Development

› Office of the Commissioner of Insurance

› Department of Transportation

» Assisting local governments, counties, metropolitan planning organizations and regional planning commissions in determining critical destinations for people in their regions, as well as ways to implement service to connect people to these destinations

» Working with partners to develop a basic level of transit service for the state

» Continuing to provide guidance on available funding sources to enable transit services to meet basic mobility needs and achieve this basic level of service

» Reviewing the structure of the state operating assistance program for transit and recommending modifications in light of potential changes in federal funding, development of new fixed-guideway transit systems, new local funding options, and potential new funds for rural transit systems

### *Facilitate coordination among transit and other modes to provide intermodal connections*

Intermodal connections can improve the performance of transit systems and provide more choices for transit users. In some cases, local transit does not adequately connect to intercity bus stops, passenger rail stations or airports. Moreover, some transit stops do not have sidewalks or safe bicycle access or facilities. WisDOT will work with public and private entities to create or

improve connections between public transit and other modes such as air, intercity bus, intercity passenger rail, bicycling and walking. See the policy in this chapter called, "Facilitate intermodal passenger connections."

### *Support existing and expanded urban and rural regional transit systems with new governance structures, funding sources and increased coordination*

WisDOT supports efforts to provide both urban and rural communities with transit options. This includes communities on the edge of urban areas that may want transit service. To improve transit options in these areas, WisDOT will:

» Promote regional transit systems with coordinated services and new local funding sources through regional transit authorities and other measures

» Seek new state funding sources for rural and regional transit systems

Special purpose units of government for transit, such as regional transit authorities, administer and fund transit systems on a region-wide basis. Regional transit authorities are common throughout the United States. WisDOT will support new statewide enabling legislation for the creation of independent transit governing bodies – particularly regional transit authorities – with revenue raising authority to generate new local sources of transit funding. WisDOT's support for such bodies is based on their ability to operate efficiently and address mobility needs on a regional basis; this allows local jurisdictions to coordinate their efforts.

WisDOT will support legislation enabling the creation of independent governing bodies that:

» Address mobility needs on a regional basis

» Make various types of transit available in a particular region

» Recognize both rural and urban service areas

» Establish or expand dedicated local funding options and revenue-raising authority

#### The New Freedom program

New Freedom is designed to:

› Support new public transportation services and alternatives beyond those required by the Americans with Disabilities Act of 1990

› Promote coordination between specialized and public transportation in all areas of the state

#### Wisconsin Employment Transportation Assistance Program

The Wisconsin Departments of Workforce Development and Transportation jointly sponsor the Wisconsin Employment Transportation Assistance Program. Objectives of the program include:

› Help low-income or unemployed people access jobs, retain jobs or advance to higher paying jobs by alleviating transportation-related barriers

› Encourage the creation of local planning processes that involve all local stakeholders, including low-income individuals and the private sector

▲ *Figure 8-2: The Milwaukee Airport Rail Station is an example of how WisDOT will work with public and private entities to create or improve connections between public transit and other modes such as air, intercity bus, intercity passenger rail, bicycling and walking.*

» Coordinate or merge services with adjacent participating communities

» Encourage coordination among local governments and all regional transit services

» Encourage intermodal connections

State policies to facilitate implementation of the new transit governing bodies will include:

» Enabling new local funding sources that facilitate transit service expansion

» Promoting regional transit systems and coordination of services

» Providing state funding for fixed-guideway transit options without reducing funding available for other transit systems (see the policy in this chapter called, "Support development of fixed-guideway transit services")

» Seeking legislative and administrative rule changes requiring regional coordination and cooperation on proposed projects to receive funding

In addition to supporting new independent governing bodies for transit, WisDOT will support regional transit systems that coordinate specialized human services and other types of rural transit. This will open more services to the general public, create efficiencies in the provision of transit service, and enable coverage of more areas that span county and municipal lines.

One tool WisDOT will use for developing coordinated regional transit in rural areas is the federal Supplemental Transportation Rural Assistance Program. This demonstration program provides funds for new, non-urbanized, public transit service projects.

In 2007 – the Supplemental Transportation Rural Assistance Program's first year of funding – WisDOT received numerous applications from rural transit agencies seeking to add new service or improve coordination among different agency providers. This shows that the demand for rural transit service is strong. To continue improving and coordinating rural transit service, WisDOT will work to make the program permanent and will support its inclusion in the next federal transportation reauthorization bill. Ultimately, expanding state public transit funding to include rural areas will be necessary to achieve a fully coordinated system.

### Create a local non-property tax funding source for transit

Existing state statutes limit the options of local governments and regional transit authorities for raising local revenues for transit outside of the property tax. Wisconsin regional transit authorities currently do not have the authority to raise revenue or levy taxes. WisDOT will support legislative changes that will allow local governments and future regional transit authorities to have additional transit funding options available to them.

WISDOT WILL SUPPORT REGIONAL TRANSIT SYSTEMS *that coordinate specialized, human services and other types of rural transit, creating efficiencies in the provision of transit service, and enabling coverage of more areas that span county and municipal lines.*

### *Seek new state funding for rural and regional transit systems*

WisDOT will seek new funds from the state legislature for rural and regional transit to increase coordination among Wisconsin's transit systems. Doing so will provide more mobility choices for people in rural areas by connecting them with destinations in urban and rural communities, such as medical care, county services, shopping and education facilities. It will also connect residents to the intercity bus network and other transportation modes.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Support public, specialized and human services transit*

### Short-term (2008 – 2013)

- Seek combined state and federal funding covering 60 percent of operating costs for large urban transit systems (other than Milwaukee and Madison), and 65 percent for small urban systems.
- Continue WisDOT's role as a funding partner for Milwaukee and Madison transit systems and seek to maintain current state funding share.
- Support creation of a new, separate funding category for new fixed-guideway transit systems.
- Work to make the Supplemental Transportation Rural Assistance Program permanent in the next federal transportation reauthorization bill.
- Continue to support legislative changes that will allow local governments to have transit funding options (other than property taxes) available to them.
- Support and provide technical assistance for new statewide legislation enabling the creation of new transit governing bodies, such as regional transit authorities, with revenue-raising authority to generate new local revenue sources (other than property taxes) for transit funding.
- Increase WisDOT's transit planning role and capabilities.

### Mid-term (2014 – 2019)

- Seek new state funds for rural and regional transit.
- Conduct analyses to develop standards that establish a basic level of transit service in all parts of the state.
- Review the structure of the state operating assistance program for transit and recommend changes as appropriate.

### Entire planning period (2008 – 2013)

- Improve system efficiencies through cross-agency coordination of programs and funding.
- Monitor the success of the Interagency Council on Transportation Coordination, Wisconsin Employment Transportation Assistance Program and other collaborative processes to make enhancements to these programs or create new programs.
- Assist local governments, counties, metropolitan planning organizations, and regional planning commissions in determining critical destinations for people in their regions, and ways to implement service to connect people to these destinations.
- Continue to provide guidance, assistance and information about funding sources to meet mobility needs.

▶ ***POLICY:***
*Support development of fixed-guideway transit services*

WisDOT envisions fixed-guideway transit systems in Wisconsin's largest urban areas, providing a robust and environmentally friendly alternative to congested roadways; greatly increasing transportation options; and promoting economic development. WisDOT will support development of fixed-guideway transit systems to improve public transportation in Wisconsin's major urban areas. To implement this policy, WisDOT will:

» Continue state funding assistance for fixed-guideway transit studies

» Support the creation of new transit governing bodies, such as regional transportation authorities, with revenue-raising authority to administer and fund transit systems

» Develop a program to provide capital and operating funding assistance for fixed-guideway transit in major metropolitan areas

» Study fixed-guideway services in other metropolitan areas

## *Background*

Several metropolitan areas in Wisconsin are exploring fixed-guideway transit as a way to improve their public transit systems, increase mobility options and promote economic development. Several studies are under way and some are in advanced planning stages.

Most proposed fixed-guideway transit systems are seeking federal funding through the Federal Transit Administration New/Small Starts programs. New/Small Starts are competitive federal grant programs that provide capital funds that typically amount to 50 percent of the system's total capital costs. Seeking federal funding is a highly competitive process and requires considerable commitment by the local sponsor. To date, WisDOT has provided support for fixed-guideway transit studies on a case-by-case basis. With this new policy, WisDOT will be able to respond to the growing interest in fixed guideway transit by establishing a coordinated approach for participation in the funding, study and implementation of fixed-guideway transit initiatives during the planning period.

### Fixed-guideway transit

› Operates on a permanent, separate right of way for the exclusive use of transit vehicles, existing freight railroad tracks, or on-street rail

› Can be rail or bus rapid transit

› Provides a convenient, affordable, and reliable transportation alternative

› Attracts significant increases in transit ridership and improves transit service

› Connects with other modes

› Examples include commuter rail (diesel or electric trains), light rail (electric vehicles, including streetcars), and bus rapid transit (buses on exclusive right of way)

### *Continue state funding assistance for fixed-guideway transit studies*

WisDOT will request that the Wisconsin Legislature restore funding in the Multimodal Planning Appropriation.[6] This will allow WisDOT to provide funding assistance for planning, environmental and engineering studies for fixed-guideway transit from a stable, dedicated funding source.

WisDOT will also continue to provide support and technical expertise to advance and implement projects.

### *Support the creation of new transit governing bodies – such as regional transit authorities with revenue-raising authority – to administer and fund transit systems*

Because fixed-guideway transit projects often cross municipal boundaries, local sponsors of these projects need local funding sources and intergovernmental bodies to administer and fund the systems. Many fixed-guideway transit systems in metropolitan areas across the country are administered by regional transit authorities. WisDOT will support legislation enabling local governments to create new transit governing bodies such as regional transit authorities, which will have the authority to raise revenues to cover the local funding share of transit costs. These bodies could pay for and adminster all modes of public transit in a region. For more details, see the "Support public, specialized, and human services transit" policy in this chapter.

[6] The Multimodal Planning Appropriation allowed grants for studies and preliminary engineering of public transportation projects. It financed studies of interurban and intraurban area multimodal transportation, including analyses of the potential impact of a transportation facility on local and statewide economic development. The legislature eliminated the funding for this appropriation in the 2003-2005 biennial budget.

#### Economic and land use benefits of fixed-guideway transit systems

- Attract economic development around station areas
- Encourage investment due to their permanence and high passenger flow
- Help promote land uses that meet a community's smart growth planning goals, such as compact, mixed-use, higher density, and pedestrian-friendly development around stations
- Enhance economic competition in regions by improving access to jobs, goods and services, and expanding both the labor pool and market area for businesses

### *Develop a capital and operating assistance program to implement fixed-guideway transit in major metropolitan areas*

WisDOT will seek funds from the state legislature to support a fixed-guideway transit capital and operating assistance program. The funding will cover up to 50 percent of the total nonfederal share of capital costs, or up to 25 percent of total costs, whichever is lower. The state also will provide

#### Commuter rail studies in Wisconsin

Wisconsin has funded commuter rail feasibility and engineering studies during the past 10 years. The state has also studied and addressed commuter rail in several reports, including the *1995 Commuter Rail Policy Report*, the Governor's Blue Ribbon Task Force on Passenger Rail Service, the *Wisconsin Rail Issues and Opportunities Report*, and proposals in WisDOT biennial budget requests.

### Fixed-guideway funding

Transit programs in Wisconsin receive state operating funding based on a tiered system. The fixed-guideway transit-funding tier would be separate from bus transit tiers and have separate funds. The bus and shared-ride taxi tiers will be unaffected by any operating cost share policy with fixed-guideway systems, ensuring bus and shared-ride taxi services are not adversely affected by the funding of fixed-guideway systems.

operating assistance for fixed-guideway transit projects to help cover a portion of operating costs not covered by fare box or federal funds.[7] The remaining costs will be paid with local funds. To administer the funds, WisDOT will work with the state legislature to create a new funding tier for fixed-guideway transit under WisDOT's existing urban mass transit tier structure for transit operating assistance.

The following projects are in the planning phase, include state participation, and are considered priorities for implementing this policy:

» Kenosha, Racine and Milwaukee (KRM) commuter rail. Includes commuter rail from Milwaukee to Kenosha, connecting with Metra trains to Chicago in Kenosha (the locally preferred alternative)

» Transport 2020 (Dane County). Includes commuter rail from Sun Prairie to Middleton (the locally preferred alternative) as well as other fixed-guideway alternatives and additional bus service

The following studies are under way and could include state involvement in implementation:

» Milwaukee Connector Study (includes bus rapid transit lines and a streetcar circulator)

» Kenosha streetcar expansion

[7] Fixed-guideway transit systems typically have a higher fare box recovery rate (many at 45 percent to 55 percent) than bus transit. As a result, the state may fund fixed-guideway transit systems at a lower percentage of total operating costs than is provided for bus transit.

Funded fixed-guideway transit systems will be connected to and coordinated with other modes such as bus transit and intercity passenger rail.

## *Study additional fixed-guideway services in other metropolitan areas*

Several metropolitan planning organizations' plans have identified additional corridors where new fixed-guideway transit systems could be implemented, including:

» Somerset, Wis., to St. Paul, Minn.

» Roberts, Wis., to St. Paul, Minn.

» Eau Claire, Wis., to St. Paul, Minn.

» Oconomowoc to Milwaukee, Wis.

» West Bend to Milwaukee, Wis.

» Saukville to Milwaukee, Wis.

» Pleasant Prairie, Wis., to Chicago, Ill.

» Burlington, Wis., to Chicago, Ill.

» Walworth, Wis., to Chicago, Ill.

» Madison (streetcar)

In addition, the *South Central Wisconsin Commuter Transportation Study*, completed in 2008, looked at several transportation alternatives for

THE SOUTH CENTRAL WISCONSIN COMMUTER TRANSPORTATION STUDY *recommended several rail corridors for preservation as potential commuter rail corridors connecting Rock County with Dane County and Northern Illinois.*

addressing transportation needs in Rock County and connecting Rock County with Dane County and Northern Illinois, as well as new commuter bus, vanpool and park and ride services. These alternatives included bus rapid transit, commuter bus, vanpools, and commuter rail. The study recommended several rail corridors for preservation as potential commuter rail corridors connecting Rock County with Dane County and Northern Illinois. WisDOT will participate in further studies of these corridors and any additional corridors identified by metropolitan planning organizations.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Support development of fixed-guideway transit services*

### Short-term (2008 – 2013)

- Continue to provide support and technical expertise in advancing projects to implementation.
- Support legislation to enable the creation of transit governance bodies with revenue-raising authority, such as regional transit authorities.
- Support legislation to enable dedicated local transit funding sources, enabling local sponsors to fund the required local share for fixed-guideway and other transit.

### Short- to mid-term (2008 – 2019)

- Request that the state legislature restore funding to the Multimodal Planning Appropriation so WisDOT can provide funding assistance for fixed-guideway transit studies through a dedicated source.
- Create and implement capital and operating assistance programs with funding initially for systems already in the advanced planning stages. Priorities for implementation include:
  - Service between Kenosha, Racine and Milwaukee
  - Service in Dane County

### Mid- to long-term (2014 – 2030)

- Participate in studies in cooperation with metropolitan planning organizations or local governments for additional fixed-guideway services in other metropolitan areas. Possibilities include Somerset-St. Paul, Roberts-St. Paul, Eau Claire-St Paul, Oconomowoc-Milwaukee, West Bend-Milwaukee, Saukville-Milwaukee, Pleasant Prairie-Chicago, Burlington-Chicago, Walworth-Chicago, Rock County-Dane County, and Rock County-Northern Illinois.

▶ ***POLICY:***
*Increase intercity travel options by improving intercity passenger rail service*

WisDOT envisions a 21st century intercity passenger rail system that links the Midwest region's major economic centers. The system will provide connections within Wisconsin and to cities throughout the Midwest. This modern and efficient system will seamlessly integrate with other modes and serve as a crucial component of the state's transportation system. The service will provide a sustainable transportation alternative that will enhance mobility and help grow the state's economy.

Wisconsin has made significant investments to achieve this vision and will increase its efforts by improving existing intercity passenger rail service and implementing new, enhanced intercity passenger rail service. Specifically, WisDOT will:

» Continue to support and improve existing passenger rail service

» Implement the Wisconsin component of the Midwest Regional Rail System

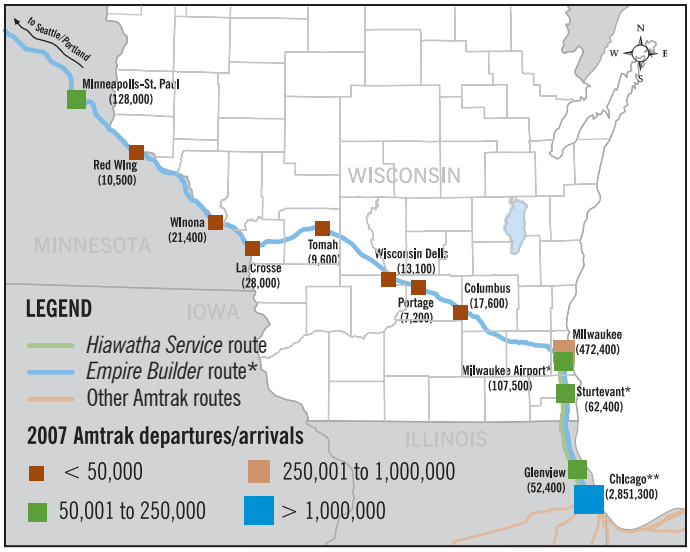
» Establish a state rail station capital assistance program

» Extend intercity passenger rail service to regions of Wisconsin not originally included in the Midwest Regional Rail System

## *Background*

### *Existing service*

As shown in Map 8-1, two passenger rail routes operated by Amtrak currently serve Wisconsin: the *Hiawatha Service* and the *Empire Builder*. Wisconsin and Illinois jointly fund the *Hiawatha Service*. The *Hiawatha Service* provides seven daily round-trips (six on Sundays) between Chicago and Milwaukee, with a one-way trip duration of 1 hour and 29 minutes. The *Hiawatha Service* currently posts one of the best on-time-performance rates of any Amtrak




*Empire Builder does not stop in Sturtevant or at General Mitchell International Airport.
**Chicago total includes departures/arrivals from other Amtrak routes.

▲ *Map 8-1: Wisconsin Amtrak rail routes and ridership, 2007*

### Intercity passenger rail policy

The *Connections 2030* intercity passenger rail policy is based on the results and conclusions of several reports and studies:

› *2004 Midwest Regional Rail Initiative Notebook and Executive Report*

› *Milwaukee-Madison Passenger Rail Corridor Project Environmental Assessment*, June 2001

› *Wisconsin Rail Issues and Opportunities Report*, 2004

› *Intercity Passenger Rail Corridors Feasibility Study*, 2002

› *Milwaukee to Green Bay Passenger Rail: Feasibility Study of Route Alternatives*, 2001

## Improved intercity passenger rail benefits

› Provides an alternative to congested roads, especially when connecting with major urban centers

› Offers a safe travel option that can be cost- and time-competitive with driving and flying, especially for trips between 100 and 400 miles

› Provides a regional travel option for those who cannot or choose not to drive or fly

› Allows business travelers to work productively while en route to their destination

› Improves Wisconsin's economic competitiveness and supports the growth of high-tech and service sector jobs

› Encourages community economic development, especially near train stations

› Provides a transportation option that is energy efficient and environmentally friendly (fewer carbon dioxide emissions per passenger mile than private auto or airlines)

service. The *Hiawatha Service* has experienced robust ridership growth during the past 10 years (Figure 8-3). Through 2030, WisDOT will work to increase the frequency of service as funding allows.

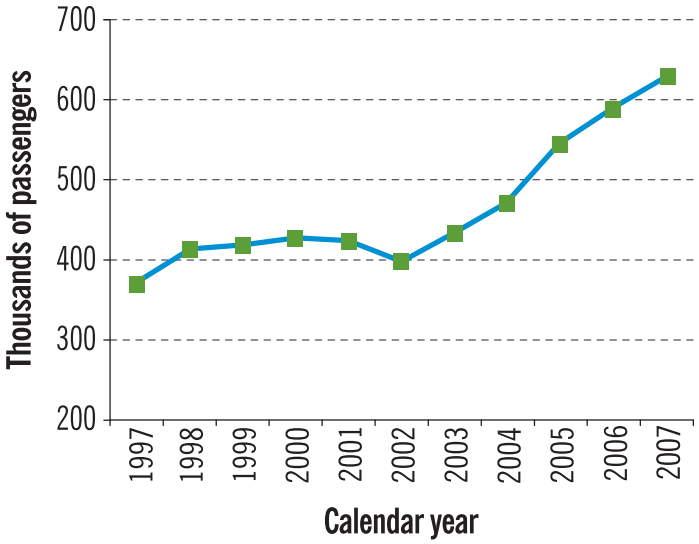
The *Empire Builder* provides one daily round-trip between Chicago, Milwaukee, Minneapolis/St. Paul and Seattle/Portland. Amtrak provides the *Empire Builder* service as part of its national network, without financial support from any state. While the *Empire Builder* is one of Amtrak's more popular long-distance trains and is a valued component of Wisconsin's transportation system, it does not provide robust corridor service between Chicago, Milwaukee and Minneapolis/St. Paul due to its limited schedule and longer travel times. The *Empire Builder* also does not directly serve Madison, a major population center.

### *Wisconsin's improvements to existing services and infrastructure*

In recent years WisDOT has worked with Amtrak, Canadian Pacific Railway, local governments and private investors to make numerous improvements to Wisconsin's intercity passenger rail service. These improvements include:

» The addition of one daily round-trip and an increase in train seating capacity for the *Hiawatha Service*

» Renovation of the downtown Milwaukee station




▲ *Figure 8-3: Amtrak's Hiawatha Service ridership*

» Construction of a new station at Milwaukee's General Mitchell International Airport

» Construction by the village of Sturtevant of a new station to replace the community's previous facility

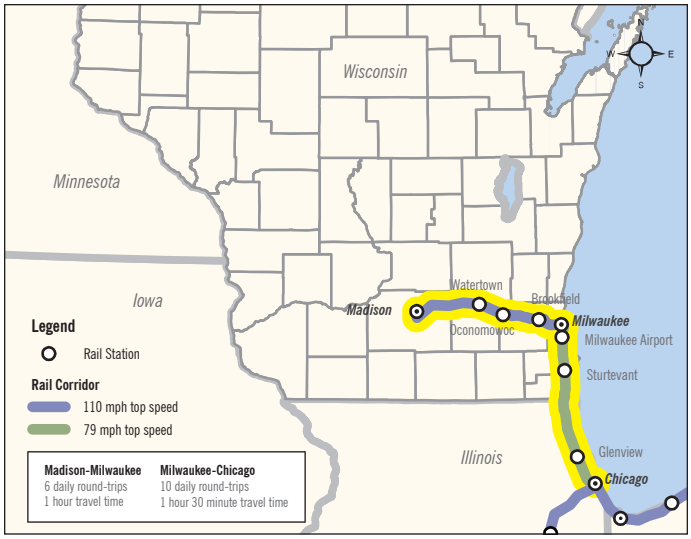
» Grade-crossing improvements

### *The Midwest Regional Rail Initiative*

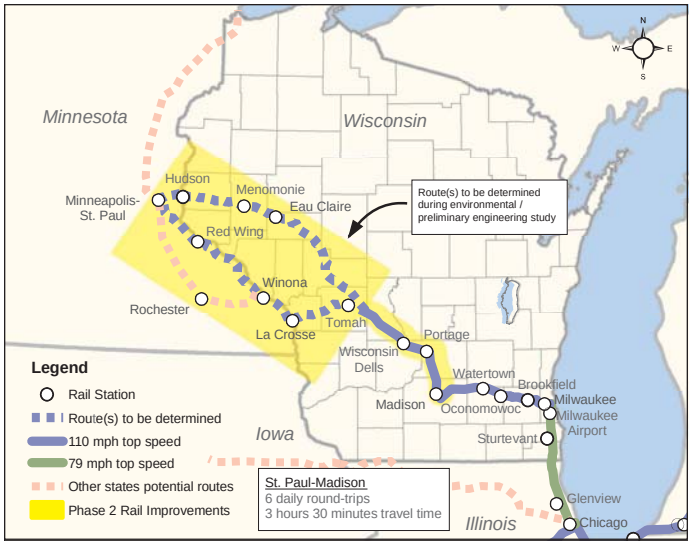
Wisconsin, along with eight other Midwestern states, began investigating the concept of enhanced

▲ *Map 8-2: Proposed Midwest Regional Rail System (2004 MWRRI Business Plan). NOTE: Project alternatives will be chosen after consideration of environmental and community impacts, and may be influenced by decisions of the Transportation Projects Commission, the Legislature or the Governor, and through coordination with local units of government, with public involvement opportunities as appropriate.*

▲ *Figure 8-4: Midwest Regional Rail System concept train.*




▲ *Map 8-3: Phase 1 – Extend Chicago-Milwaukee service to Madison*[8]




▲ *Map 8-4: Phase 2 – Extend Chicago-Milwaukee-Madison Service to Twin Cities*[8]

regional intercity passenger rail service in 1996. After extensive analysis, the states jointly proposed a regional intercity passenger rail system for the Midwest: the Midwest Regional Rail System. Assuming new federal and state funding is secured, the proposed 3,000-mile system will be implemented over a 10-year period.

The Midwest Regional Rail System will:

» Improve existing rail corridors owned by freight, commuter railroads and Amtrak to accommodate both passenger and freight trains

» Use Chicago as the network hub

» Use state-of-the-art train equipment to provide improved reliability, speed and passenger comfort

» Provide frequent service

» Operate at speeds up to 110 mph

» Include new or remodeled stations

» Use a coordinated intercity/feeder bus service to connect to additional communities

» Link, wherever possible, with air, transit, taxi service, and bicycle and pedestrian modes

Map 8-2 depicts the 2004 proposed Midwest Regional Rail System. Proposed station stops in Wisconsin include Sturtevant, Milwaukee's General Mitchell International Airport, Downtown Milwaukee, Brookfield, Oconomowoc, Watertown, Madison, Portage, Wisconsin Dells, Tomah, La Crosse, Northwest Milwaukee, West Bend, Fond du Lac, Oshkosh, Neenah, Appleton and Green Bay.

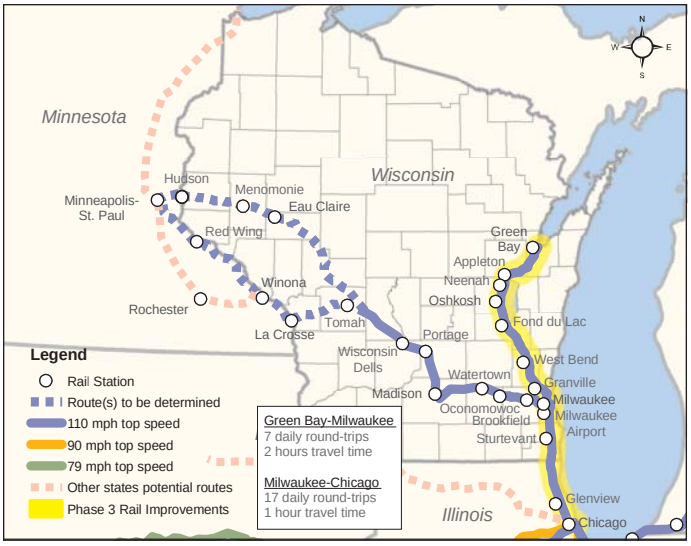
An economic benefit study of the Midwest Regional Rail System completed in 2006 estimates that this intercity passenger rail system will provide significant economic benefits to Wisconsin:

» $1.80 in benefits for every $1 invested in the system

» 9,600 new, permanent jobs created

» $173 million in additional household income

[8] Project alternatives are chosen after consideration of environmental and community impacts, and may be influenced by decisions of the Transportation Projects Commission, the Legislature or the Governor, and through coordination with local units of government, with public involvement opportunities as appropriate.




▲ *Map 8-5: Phase 3 – Implement Chicago-Milwaukee-Green Bay service*[8]

» $704 million in property value increases as a result of new development near stations

Since adoption of the 2004 *MWRRI Business Plan*, the intercity passenger rail landscape has changed, including the creation of new federal funding opportunities, stronger political support and vocal public support.

WisDOT is in a good position to capitalize on these developments due to the decade of passenger rail planning already completed. Moving forward, WisDOT will remain flexible and will consider new routes and system enhancements not originally included in the Midwest Regional Rail System that are viable and will benefit Wisconsin communities.

## *Continue to support and enhance existing passenger rail service*

Wisconsin's existing Amtrak service will act as the foundation upon which future Midwest Regional Rail System service will be built. Many infrastructure improvements to Wisconsin's intercity passenger rail service made today, such as grade-crossing improvements and station renovations, will also serve Midwest Regional Rail System service in the future.

Moreover, current efforts to increase Amtrak service, such as increasing *Hiawatha Service* train frequencies, will help build a ridership base and provide additional insight into how the Midwest Regional Rail System ultimately should be designed and operated.

WisDOT will continue to support and enhance existing intercity passenger rail service by:

» Providing continued financial support for Amtrak's Chicago-Milwaukee *Hiawatha Service*

» Continuing to fund a marketing program using print, radio and other media to promote the *Hiawatha Service*

» Upgrading rail stations, purchasing and upgrading track, and improving roadway-railway grade crossings

» Increasing *Hiawatha Service* train frequencies

» Continuing to improve train equipment, service reliability and intermodal connectivity

» Supporting intercity feeder bus service linking with Amtrak at the Milwaukee Intermodal Station (see the policy in this chapter titled "Improve intercity bus service and connections" for more detail)

## *Implement the Wisconsin component of the Midwest Regional Rail System*

Building on incremental improvements to Wisconsin's existing Amtrak *Hiawatha Service*, and rail infrastructure, WisDOT will significantly improve the state's intercity passenger rail service by implementing the Midwest Regional Rail System.

Wisconsin's future intercity passenger rail system will be implemented over the course of 10 years or more and will require a strong partnership between federal, state and local governments, as well as railroads and other private sector interests.

To implement Wisconsin's vision of a 21st century intercity passenger rail system, WisDOT will:

### MWRRS Implementation in Wisconsin

Wisconsin's expanded intercity passenger rail system could potentially serve all of the state's most populous and fast-growing regions:

› Milwaukee and Southeastern Wisconsin

› Madison and Dane County

› Green Bay and the Fox River Valley

› West Central Wisconsin

About 76 percent of the state's total population lives within 30 miles of proposed Midwest Regional Rail System stations.

» Work toward implementation of the Midwest Regional Rail System through roadway-railway crossing improvements, track upgrades and other infrastructure projects and engineering work

» Work with the Office of the Commissioner of Railroads to preserve intercity passenger rail corridors by discouraging new at-grade crossings of the corridors

» Seek dedicated federal funding to cover up to 80 percent of the total capital costs needed to implement Wisconsin's portion of the Midwest Regional Rail System (including infrastructure upgrades and new trains). Wisconsin will be responsible for the remaining share of the costs

» Implement improved intercity passenger rail service in Wisconsin through a phased, 10-year construction period, as shown in Maps 8-3, 8-4 and 8-5.

*Phase 1: New Service to Madison*

In the first phase of implementation, existing Milwaukee-Chicago intercity passenger rail service will be extended to Madison. Trains will operate at speeds of up to 110 mph between Madison and Milwaukee, but they will continue to operate at speeds of up to 79 mph between Milwaukee and Chicago (Map 8-3).

*Phase 2: New Service to Minneapolis-St Paul*

In the second phase of implementation, enhanced intercity passenger rail service will be extended from Madison to Minneapolis/St. Paul, Minn. Trains will continue to operate at speeds of up to 79 mph between Milwaukee and Chicago (Map 8-4).

*Phase 3: New Service to Green Bay*

In the third phase of implementation, improved intercity passenger rail service will be extended from Milwaukee to Green Bay. During this third phase, train speeds between Milwaukee and Chicago will be increased to up to 110 mph (Map 8-5).

*Entire Planning Period: Consider opportunities to expand intercity passenger rail service to other regions of Wisconsin*

As previously detailed, the state's initial focus is to connect Madison to Milwaukee and Chicago, then to expand service to Minneapolis/St. Paul and Green Bay.

Through 2030, WisDOT will consider opportunities for expanding intercity passenger rail service to regions of Wisconsin not originally included in the Midwest Regional Rail System. WisDOT will apply knowledge and experience gained from earlier implementation phases of the Midwest Regional Rail System in assessing future expansion of the state's intercity passenger rail system.

Throughout the planning period, WisDOT will assist with future studies requested from other states, as needed. For example, WisDOT is currently involved in supporting an effort by Minnesota local governments pursuing intercity passenger rail service between Duluth/Superior and Minneapolis/St. Paul. In addition, WisDOT may study the potential for expanding the state's intercity passenger rail system as part of future updates to *Connections 2030*. These studies could examine expanded service to regions such as North Central Wisconsin, Central Wisconsin and South Central Wisconsin.

▲ *Figure 8-5: WisDOT may study the potential for expanding the state's intercity passenger rail system as part of future updates to Connections 2030. These studies could examine expanded service to regions such as North Central Wisconsin, Central Wisconsin and South Central Wisconsin.*

### *Intermodal connections*

To encourage a seamless, multimodal transportation system in Wisconsin, the Midwest Regional Rail System will link with intercity/feeder bus service, air service at General Mitchell International Airport and Dane County Regional Airport, and local and regional transit and taxi services. The Midwest Regional Rail System intercity/feeder bus routes will be implemented as part of the state intercity bus program.

Additional information about the Midwest Regional Rail System intercity/feeder bus routes and the intercity bus program can be found in the policy in this chapter called, "Improve intercity bus service and connections."

## *Establish a state rail station capital assistance program*

Train stations are critical components of Wisconsin's intercity passenger rail system. The stations:

» Act as gateways to both communities and the intercity passenger rail system

» Bring multiple modes of transportation together, allowing passengers to make seamless travel connections between trains, airplanes, intercity buses, local transit, bicycle and pedestrian facilities, and taxi service

THE MIDWEST REGIONAL RAIL SYSTEM WILL LINK *with intercity/feeder bus service, air service at General Mitchell International Airport and Dane County Regional Airport, and local and regional transit and taxi services.*

» Act as catalysts for community economic development

To maximize the benefits that train stations provide to Wisconsin communities, WisDOT will establish a new Rail Station Capital Assistance Program.

Working with local governments and the private sector, the program will be used to:

» Upgrade existing stations

» Build new stations

» Ensure that all stations are accessible to people with disabilities

» Encourage connections with other transportation modes such as airplanes, intercity bus, and local transit and taxi service.

### ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Increase intercity travel options by improving intercity passenger rail service*

#### Short-term (2008 – 2013)

- Continue funding for the *Hiawatha Service* in partnership with Illinois.
- Continue to pursue funding for train-air connectivity improvements at the General Mitchell International Airport station.
- Increase frequency of the *Hiawatha Service* as funding allows.
- Complete final design of the Milwaukee-Madison intercity passenger rail corridor segment.[9]
- Construct and implement Madison-Milwaukee intercity passenger rail service.[9]
- Complete environmental and engineering work on the Madison-Twin Cities corridor as federal funds become available.[9]
- Begin environmental and engineering work on the Milwaukee- Green Bay and Milwaukee-Chicago corridor segments.[9]
- Implement Midwest Regional Rail System intercity/feeder bus routes as part of the Intercity Bus State Assistance Program.[9]

#### Mid-term (2014 – 2019)

- Design, build and implement the Madison-Minneapolis-St. Paul corridor segment.[9]
- Design and begin construction of Milwaukee-Green Bay and Milwaukee-Chicago corridor segments.[9]
- Implement the State Rail Station Capital Assistance Program to help fund improvements to rail stations.[9]
- Construct and implement the Milwaukee-Green Bay and Milwaukee- Chicago intercity passenger rail service.[9]
- Implement any remaining Midwest Regional Rail System feeder bus routes.[9]

#### Long-term (2020 – 2030)

- Consider opportunties to expand intercity passenger rail service to other regions of Wisconsin.

[9] Actions are contingent on receiving federal funding.

▶ ***POLICY:***
*Improve intercity bus service and connections*

WisDOT envisions a network of intercity bus services that provides critical transportation connections between urban and rural areas and enhances Wisconsin's multimodal transportation system. WisDOT will improve mobility in Wisconsin by creating an intercity bus network that:

» Connects Wisconsin's urban areas

» Connects Wisconsin's rural areas to key education, health care, recreation, commerce and government centers

» Provides intermodal connections to intercity passenger rail, major passenger airports, passenger ferries, park and ride lots and public transit

» Improves performance of the proposed enhanced intercity passenger Midwest Regional Rail System

» Builds on existing intercity bus routes

This policy will require new state funds in addition to existing federal funds and will be implemented in three phases. WisDOT will:

» Support the development of a state intercity bus funding assistance pilot program that provides connections between metropolitan areas (Phase 1)

» Implement an expanded state intercity bus funding assistance program that supports connections between metropolitan areas and feeder service to Midwest Regional Rail stations (Phase 2)

» Expand the state intercity bus funding assistance program to include connections with key non-metropolitan destinations and rural areas (Phase 3)

### Intercity bus benefits

› Provides a safe and reliable travel alternative

› Connects urban areas to growing rural areas

› Expands transportation choices for Wisconsin's growing senior population and other groups that have been adversely affected by the recent elimination of several routes

› Provides connections to the state's universities and colleges, many of which currently lack intercity bus service

› Improves intermodal connections by adding more bus service, locating bus stops adjacent to other modes, and coordinating with other modes

› Complements intercity passenger rail policies by connecting passengers with the existing rail network and the proposed Midwest Regional Rail System

› Provides a transportation option that is energy efficient and environmentally friendly (fewer carbon dioxide emissions per passenger mile than private auto or airlines)

## *Background*

Wisconsin's current intercity bus network has several deficiencies:

***Loss of intercity bus service in Wisconsin.*** Several intercity bus routes have been eliminated in recent years, leaving many communities without service. This has resulted in decreased mobility for people in those areas of the state.

***Lack of convenient intercity bus connections between many metropolitan areas.*** Infrequent service, long waits for connecting buses, indirect routes and long trips make some connections extremely inconvenient for potential users. For example, an intercity bus trip between Madison and Wausau, a 143-mile distance, takes almost seven hours and requires a transfer in Milwaukee.

***Lack of intercity bus connections to key rural destinations.*** There is no intercity bus service in much of the northern half of the state, southwestern Wisconsin or Door County.

***Inadequate or non-ADA compliant bus station facilities.*** Some bus stations lack restrooms and adequate accessibility. Some stations are not open when buses depart or arrive.

***Lack of connectivity between intercity bus service and other modes.*** In many cases, intercity bus service does not offer connections to passenger rail, public transit, passenger airports, ferries or park and ride lots. For example, many intercity buses serving communities with Amtrak service do not stop at the Amtrak station. Also, some intercity bus stops cannot be accessed by local transit services.

***Limited federal funding to assist the private sector in providing adequate intercity bus service.*** Available federal funds for intercity bus routes typically cover either half of a route's operating loss (when ticket revenues are less than the cost to operate a route), or up to 80 percent of the loss. Private carriers are expected to cover the remaining part of the loss. This can be a disincentive for private carriers considering new services where there may not be an immediate profit even if there is a public need. Therefore, additional funds may be needed to provide new intercity bus services.

***Inability of the state to contract directly with intercity bus providers to implement new services.*** Under current state statutes, WisDOT is not able to contract directly with private operators to provide federal funds for new routes. A local sponsor is required to apply for and

## Intercity bus funding program details

### Goals of selected routes

› 1) Connect metropolitan areas that are not currently connected with direct routes; 2) Increase ridership; 3) Reinstate abandoned routes; 4) Connect key destinations (e.g. universities, medical facilities, tourist destinations); and 5) Provide intermodal connections (e.g. major airports, passenger rail stations, local transit centers, park and ride lots).

### Level of service

› New routes will have at least two round-trips per day where feasible.

### Operating assistance

› Combined federal and state funds will cover up to 100 percent of the operating deficit (total operating costs minus passenger revenues) for each route.

› Private carriers will operate routes.

### Capital assistance

› State and federal funds will be provided for the purchase of motor coaches that will be leased to private carriers.

› Funding will cover up to 80 percent of bus station improvements or new facilities costs and will ensure ADA compliance. A 20 percent local share will be required.

### Market study and marketing

› WisDOT will complete an intercity bus market study to evaluate the performance of the pilot routes and determine the feasibility of future route development and intermodal connections.

› WisDOT will provide funding assistance for marketing new intercity bus services.

▲ *Figure 8-6: WisDOT will provide funding assistance to improve connections between existing intercity bus and passenger rail service at the Milwaukee Intermodal Station as a demonstration project using federal and state funds.*

administer the funds. This is another obstacle for intercity bus providers seeking to start new services, and for the state in implementing a systematic approach to intercity bus development. Most other states in the Midwest provide federal funds directly to the provider for intercity bus services. To address these deficiencies, improve the performance of the public transportation system and provide viable transportation alternatives, the state will play a greater role in providing intercity bus service.

## *Support the development of a state intercity bus funding assistance pilot program (Phase 1)*

WisDOT will lay the foundation of the state's future intercity bus network by implementing a pilot program that:

» Improves connections between major metropolitan areas that currently lack convenient or direct intercity bus connections

» Improves station facilities and provides funds for new buses

» Completes an intercity bus market study to guide future development of the intercity bus network

» Facilitates improved intermodal connections and coordination

### *Improved connections between metropolitan areas (four pilot routes)*

WisDOT will provide operating, capital, and marketing funding assistance using existing federal funds – 5311 and Supplemental Transportation Rural Assistance Program funds – and new state funds for four new bus routes operated by private carriers (Map 8-6). These routes include:

» Madison-Fond du Lac-Oshkosh-Appleton-Green Bay

» Madison-Stevens Point-Wausau

» Eau Claire-Duluth/Superior

» Green Bay-Wausau-Eau Claire-Minneapolis/St. Paul

These routes will fill in some major gaps in Wisconsin's intercity bus network. The Green Bay-Minneapolis/St. Paul route will be implemented using Supplemental Transportation Rural Assistance Program funds in 2008 with one daily round-trip; however, WisDOT will seek at least two daily round trips on all of these pilot routes. Other routes may be implemented under the program, which would improve access in rural areas.

As part of the development of this intercity bus program, WisDOT will seek a statutory change that will allow the state to provide funding directly to bus operators to provide needed services. This will support the systematic development of critical intercity bus services by eliminating the need to seek a local sponsor for implementing new routes with federal and/or new state funds. Existing intercity bus routes are expected to continue and are considered priorities. WisDOT will work with partners to continue these routes as part of the 2030 intercity bus network.

### *Capital assistance*

WisDOT will also provide capital funding assistance for new buses, bus station improvements and new bus stations, where needed. WisDOT will ensure that all funded stations are accessible by those with disabilities. Funds will be awarded to stations accessible by local transit and other alternative modes.

▲ *Map 8-6: Intercity bus network 2030*
*NOTE: Priority routes shown are subject to change based on further analysis. Additional routes not shown may also be eligible for state funds. Communities shown on the map have populations of approximately 5,000 or greater, or are key destinations along the routes. Buses could also stop in other communities not shown on the map.*

### *Intercity bus market study*

WisDOT will analyze the performance of the state-supported pilot routes and conduct an intercity bus market study to ensure effective implementation of a permanent statewide intercity bus assistance program. WisDOT will use the results of the study to refine the Phase 2 and Phase 3 routes.

### *Intermodal connections*

Intermodal connections are vital to the success and efficiency of public transportation systems. Intercity bus and intercity passenger rail services are not always connected or coordinated; however, efforts to improve connections are under way. For example, the new Milwaukee Intermodal Station hosts both intercity bus and intercity passenger rail services, provides easy access to local transit and taxi service, and includes improved pedestrian access to the station.

WisDOT will provide funding assistance to improve connections between existing intercity bus and passenger rail service at the Milwaukee Intermodal Station as a demonstration project using federal and state funds. Funds will be made available for costs associated with coordinated scheduling, marketing, ticketing and increasing intercity bus frequencies. This demonstration project will be evaluated after two years and may be used as a model for future intermodal connection initiatives.

## *Implement an expanded state intercity bus funding assistance program that supports connections between metropolitan areas and feeder service to Midwest Regional Rail System stations (Phase 2)*

WisDOT will expand operating and capital funding assistance to new routes that:

- Connect additional metropolitan areas with populations of at least 50,000. The priority routes where WisDOT would solicit service include (Map 8-6):
  - Madison-Dubuque
  - Janesville-Milwaukee (via Whitewater)
  - Janesville-Kenosha
  - Madison-Fond du Lac-Sheboygan
  - Madison-La Crosse (via Tomah)
- Provide intermodal connections to Midwest Regional Rail System stations in Wisconsin. Most of the routes identified as the Midwest Regional Rail System feeder routes already have some level of existing intercity bus service. Additional funding would increase the number of bus frequencies on the routes and ensure direct connections to rail services to maximize transportation efficiencies.[10] Routes identified as the Midwest Regional Rail System feeder routes include (Map 8-6):
  - Madison-Janesville-Beloit-Rockford-Chicago
  - Eau Claire-Tomah
  - Green Bay-Manitowoc-Sheboygan-Milwaukee
  - Wausau-Stevens Point-Appleton
  - Marinette-Green Bay
  - Sturgeon Bay-Green Bay

The route alignments shown in Map 8-6 are subject to change pending the results of the intercity bus market study. Other routes not shown may also be eligible for funds.

## *Expand state intercity bus funding assistance program to include connections with key non-metropolitan destinations (Phase 3)*

WisDOT will expand funding assistance to additional routes that connect to key education, health care, recreation, commerce, and government centers in non-metropolitan and rural areas. Some connections are already being implemented under the Supplemental Transportation Rural Assistance Program in the short term.

Priority routes where WisDOT would solicit service (assuming they are not implemented in the short term under another program) include (Map 8-6):

- La Crosse-Wisconsin Rapids-Stevens Point-Wausau
- Marshfield-Stevens Point
- Gills Rock-Green Bay
- Hurley/Ironwood-Wausau

[10] These routes may be funded separately as part of the Midwest Regional Rail System.

Some routes, such as Marshfield-Stevens Point, may be better served by rural transit than by intercity bus. In these instances, WisDOT will work with rural transit service providers to connect with intercity bus routes. Final routes will be determined after completion of the intercity bus market study, and private operators will be able to apply for funding for additional routes not shown.

The illustrative 2030 intercity bus network (Map 8-6) provides a basic level of connectivity to metropolitan areas and many rural destinations; however, not all key destinations or cities with populations greater than 5,000 are served by this network. Intercity bus service to additional communities may be warranted in the future. WisDOT will conduct further analysis to determine future needs.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:* *Improve intercity bus service and connections*

### Short-term (2008 – 2013) PHASE 1

- Create a WisDOT administered Intercity Bus Assistance Pilot Program by submitting a biennial budget request or by proposing new legislation that will allow the state to provide funding directly to bus operators.
- Provide operating and capital assistance (with state and federal funds) for new service between selected metropolitan areas on four pilot routes with at least two round trips per day: Eau Claire – Superior; Green Bay – Wausau – Eau Claire – Minneapolis/St. Paul; Madison – Stevens Point – Wausau; Madison – Fond du Lac – Oshkosh – Appleton – Green Bay
- Provide capital funding for new buses, station improvements or new stations, where needed. All funded stations must conform to Americans with Disabilities Act (ADA) standards.
- Provide funding assistance for marketing new routes.
- Provide funding assistance for coordinating intercity bus and rail connections at the downtown Milwaukee Intermodal Station. Increase intercity bus frequencies on select routes. Adjust schedules so that intercity buses meet trains. Coordinate ticketing, marketing and branding.
- Conduct an intercity bus market study to examine the feasibility of new routes, stops and intermodal connections.

### Mid-term (2014 – 2019) PHASE 2

- Evaluate state Intercity Bus Assistance Pilot Program.
- Provide operating and capital assistance (with state and federal funds) for additional routes connecting metro areas (>50,000) and the Midwest Regional Rail System feeder bus routes.
- Provide capital assistance for station improvements and funds for marketing routes.

### Long-term (2020 – 2030) PHASE 3

- Provide operating and capital assistance (with state and federal funds) for additional routes connecting key education, health care, recreational, commerce, and government centers, and to continue to implement the Midwest Regional Rail System feeder bus routes.
- Provide capital assistance for station improvements and funds for marketing routes.

### Entire planning period (2008 – 2030)

- Facilitate coordination between rural public transit and intercity bus routes.

▶ ***POLICY:***
*Advocate for improved air service at Wisconsin airports*

Passenger air service in Wisconsin is and will continue to be a vital component of Wisconsin's transportation system and economy. WisDOT will advocate for improved air service options by:

» Providing air service data and analysis to communities and carriers

» Conducting economic impact analyses of airports

» Supporting the continuation of federal assistance programs

## *Background*

Efficient commercial air service contributes to the economic growth and prosperity of many Wisconsin communities. Communities with airports that have direct air service are likely to attract more customers to their airports, including both passengers and businesses seeking to transport products and parts. These communities are also more likely to attract businesses that require access to major hubs.

Many Wisconsin communities have struggled to obtain and retain commercial air passenger service, often because they lack the population base and economic activity needed to generate enough passenger traffic. Some communities that are large enough to sustain a basic level of service have difficulty attracting enough air carriers to provide consumer choice, competitive fares or direct service.

Air carriers make market-based decisions about where to provide flights based on whether the service is projected to be profitable. Successful efforts to increase commercial passenger service to small- and medium-sized airports have involved a combination of financial incentives to carriers, and planning assistance to study the feasibility of new services.

WisDOT, in cooperation with local governments and chambers of commerce, provides planning assistance

### Benefits of air service

Efficient commercial air service is essential to economic growth and prosperity in communities throughout the state. Today's competitive economy requires products and parts to move quickly and safely. Communities with airports that provide direct air services are likely to attract more customers, including both passengers and businesses seeking to transport products and parts.

▲ *Figure 8-7: Efficient commercial air service contributes to the economic growth and prosperity of many Wisconsin communities.*

while relying on federal programs for financial incentives. Advocating for improved air service at Wisconsin airports is both complex and challenging.

Air services nationwide are substantially market driven and volatile in today's economy. Deregulation, the development of hub-and-spoke service networks, the growth of budget airlines, and rising fuel costs all have contributed to changes in air service.

Building upon the federal grants and local programs available to encourage air service, WisDOT also focuses on providing federal and state funding to maintain and improve airport infrastructure, to promote safe air travel to and from Wisconsin.

In addition to advocating for improved air service, WisDOT will fund improvements to airport facilities and infrastructure to create more jet airplane capable airports (see the "Improve airport facilities and infrastructure to create more jet airplane capable airports" policy in Chapter 7, *Foster Wisconsin's Economic Growth*). The policy in this chapter focuses on advocating improved air service at all Wisconsin airports.

### *Providing air service data and analysis to communities and carriers*

WisDOT will continue to participate in air service studies and provide aviation information to communities, airport owners and planners. Data and analyses help show the benefits of more frequent and more direct service. The air service studies help the state and the state's airports anticipate future air traffic flow. For example, WisDOT completed the 2003 Tier 2 Air Service Study, which explored ways to increase the commercial use of perimeter airports outside the Twin Cities metropolitan region.

### *Conducting economic impact analyses of airports*

WisDOT will continue to conduct analyses for communities on the economic impact of airports. Economic impact studies provide valuable information to local governments about the benefits of commercial service. Results may encourage them to pursue additional direct service at their airports.

### *Supporting the continuation of federal assistance programs*

The federal government provides financial assistance to eligible airports looking to improve service. Assistance is primarily provided through two programs: the Small Community Air Service Development Program and the Essential Air Service Program.

The Small Community Air Service Development Program provides $20 million annually in competitive grants to communities around the nation to bolster their air service. Communities have flexibility in how they use their grants to improve air service. The Essential Air Service Program helps to maintain a link between smaller communities and larger hub airports. Small airports with too few passengers can seek federal assistance to maintain carrier service. WisDOT will support the continuation of these federal assistance programs. Although no state funding is currently available to help Wisconsin airports to attract and provide direct air service, the state may seek opportunities to become involved during the planning period.

Because efficient air service to and from Wisconsin is important, WisDOT may need to study options to help state airports address their service needs.

### ▶ *SUMMARY OF POLICY ACTION ITEMS:* *Advocate for improved air service at Wisconsin airports*

**Short-term (2008 – 2013)**

- Monitor the state's air service needs and how well they are being met.
- Participate in local and regional air service studies.
- Promote the use of federal programs, such as the Small Community Air Service Development Program and the Essential Air Service Program, to assist communities and airports in their efforts to improve service.

**Mid- to long-term (2014 – 2030)**

- Consider providing state funding if local and federal efforts to assist airports with their service needs are not effective in providing efficient air travel into and out of Wisconsin.

▶ ***POLICY:***
*Support bicycle and pedestrian facilities and plans*

WisDOT envisions a comprehensive bicycle and pedestrian network that provides an alternative travel option for Wisconsin's residents and visitors while improving access to and from other transportation modes. This involves making biking and walking safer and more convenient. WisDOT will continue to promote bicycle and pedestrian travel by improving connections and expanding bicycle and pedestrian facilities, as well as by working collaboratively with communities and counties. To implement this policy WisDOT will:

» Implement state bicycle and pedestrian plan goals and objectives

» Include bicycle and pedestrian facilities in state and federally funded projects, following the federal "Complete Streets" policy

» Implement identified bikeways in corridors and on the Wisconsin bicycle plan map

## *Background*

Bicycle and pedestrian modes – which account for 8.7 percent of all trips in Wisconsin – will continue to be significant components of the state's multimodal transportation system.[11]

Walking is part of almost all trips and vital to accessing other modes. To reach your car or your destination after parking, walking is usually required. Similarly, walking is vital to transit. People cannot easily get to bus stops without sidewalks. Meanwhile, bike use comprises 1.3 percent of all trips.[12] Bicycling is important to many Wisconsin communities, especially those with colleges and universities.

[11] 2001 National Household Travel Survey

[12] Ibid.

### Major funding sources for bike and pedestrian projects include

› Transportation Enhancement grants for local projects

› Bike and Pedestrian Facilities Program

› State Highway Rehabilitation Program and various federal programs (Surface Transportation Program, National Highway System Program, Federal Bridge Program, etc.), when accommodations are added or upgraded as part of a scheduled highway, street or bridge project

› Congestion Mitigation Air Quality Program for projects in nonattainment areas

› Metropolitan planning organization-supported bike and pedestrian projects, funded through the Surface Transportation – Urban Program

## *Implement bicycle and pedestrian plan goals and objectives*

WisDOT's 1998 *Wisconsin Bicycle Transportation Plan 2020* and its 2002 *Wisconsin Pedestrian Policy Plan 2020* committed the department to routinely considering bicyclists and pedestrians in roadway designs. Increasing trips and decreasing crashes for each mode are statewide goals in both plans and apply equally to communities and WisDOT activities.

To implement the goals and objectives in the bicycle and pedestrian plans, as well as in this plan, WisDOT will:

» Increase accommodations for pedestrians along and across state highways
  – Continue to collaborate with local governments to provide sidewalks on new state highway projects and reconstruction projects
  – Minimize barriers to bicyclists and pedestrians in the design of transportation facilities by including space for both modes when designing bridges

▲ *Figure 8-8: Walking is part of almost all trips and is vital to accessing other modes. To reach your car or your destination after parking or public transit, walking is usually required.*

» Plan, design and promote new transportation facilities to accommodate pedestrians

» Support multi-use trails that meet corridor bicycle and pedestrian transportation needs, as identified in the state bicycle plan and corridor plans

» Provide assistance to communities and counties, which may include:
  – Planning and designing bicycle and pedestrian facilities
  – Providing safety resources and strategies
  – Providing demonstration funds to local communities to determine which efforts encourage more and safer bicycle and pedestrian travel

» Promote safety by expanding education activities such as driver licensing and training, bicycle and pedestrian safety education, traffic law enforcement, and public service information

» Expand and improve a statewide network of bicycle-friendly roadways, including those in urban areas

» Continue to monitor and analyze bicycle and pedestrian crash data

» Improve enforcement of laws to prevent dangerous and illegal behavior by motorists, pedestrians and bicyclists. Update traffic laws that impact bicycling and walking based on the current version of the national Uniform Vehicle Code, which is intended to bring about consistencies among traffic laws from state to state

» Update the Wisconsin bicycle map to include new bikeways and roadway conditions and facilities affecting cyclists

» Provide new facilities to accommodate and encourage bicyclists

» Encourage school districts to examine the traffic impacts of expansion and new construction, and to identify site plans that support safe bicycling and walking to school

» Complete the *Pedestrian Best Practices Resources Guide*

### *Include bicycle and pedestrian facilities on state and federally funded projects, following the federal 'Complete Streets' policy*

The Federal Highway Administration's 2001 "Mainstreaming" policy calls for the inclusion of bicycle and pedestrian facilities in every federally funded project, unless no need exists or the cost is excessively disproportionate to expected use. This policy is now commonly known as the "Complete Streets" policy.

WisDOT follows this policy for all federally funded projects and will formally adopt and expand the policy to include projects that receive state funding. Appropriate manuals and other department documents will be updated to reflect this formal

### "Complete Streets"

The "Complete Streets" policy enhances bicycle and pedestrian access and safety, and can also benefit other modes, including improved accommodations for transit.

adoption as well as modifications to standards. WisDOT will also work with local governments to follow this policy for locally funded projects.

The "Complete Streets" policy goal is to create roadways that are safe and accessible to all users, especially users of alternative modes. WisDOT will design a process to increase the number of facilities that are safe for all users, similar to the federal model. In addition, WisDOT will evaluate and work to expand opportunities to include bicycle and pedestrian accommodations on urban state trunk highway projects where feasible.

WisDOT will continue to use ADA design guidelines and the Community Sensitive Solutions concept (see "Continue Community Sensitive Solutions efforts" policy in Chapter 10, *Preserve Wisconsin's Quality of Life*) as tools to implement the federal policy and improve consideration of walking and bicycling on urban state highway projects.

## *Implement identified bikeways in corridors and on bicycle plan map*

WisDOT will implement projects consistent with the state bicycle plan map. The bicycle plan map promotes system connectivity and identifies new bike routes along state highway corridors that connect high bike traffic generators, such as many state parks and communities that have more than 5,000 people. WisDOT will also identify other connections as state highways are reconstructed.

▲ *Figure 8-9: The "Complete Streets" policy goal is to create roadways that are safe and accessible to all users, especially users of alternative modes. WisDOT will design a process to increase the number of facilities that are safe for all users, similar to the federal model.*

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Support bicycle and pedestrian facilities and plans*

### Short-term (2008 – 2013)

- Adopt policy to consider bicycle and pedestrian accommodations on any state or federally funded project, consistent with federal "Complete Streets" policy.
- Assess opportunities to increase bicycle and pedestrian accommodations on urban state highway projects.
- Implement identified key bike connections along corridors in and outside of urban areas.
- Complete and promote the Pedestrian Best Practices Resource Guide.
- Expand education activities such as driver licensing and training, bicycle and pedestrian safety education, traffic law enforcement, and public service information.
- Continue to collaborate with local governments in providing sidewalks on new state highway and reconstruction projects.
- Minimize barriers to bicyclists and pedestrians in the design of transportation facilities by including space for both modes when designing bridges.
- Continue to monitor and analyze bicycle and pedestrian crash data.
- Work with local law enforcement agencies in targeting the types of motorist infractions that statistically result in a high incidence of crashes with bicyclists and pedestrians.
- Encourage school districts to examine the traffic impacts of expansion and new construction to identify site plans that support safe bicycling and walking to school.
- Support multi-use trails consistent with corridor bicycle and pedestrian transportation needs, as identified in State Bicycle Plan or corridor plans.

### Short- to mid-term (2008 – 2019)

- Provide demonstration funds to local communities to determine which efforts encourage more and safer bicycle and pedestrian travel.

### Mid- to long-term (2014 - 2030)

- Continue to implement identified key bike connections along corridors in and outside of urban areas.
- Assess recommendations in statewide bicycle and pedestrian plans to identify any necessary updates and to evaluate progress in achieving the plans' goals.
- Update motor vehicle training materials showing motorists how to safely operate around bicyclists in a manner consistent with state laws. Update traffic laws that impact bicycling and walking based on the current version of the national Uniform Vehicle Code. This code is a national guide intended to bring about consistencies in traffic laws from state to state.

### Entire planning period (2008 – 2030)

- Identify other bike connections in corridors as state highways are reconstructed.
- Update the Wisconsin Bicycle Map to include new bikeways and roadway conditions and facilities affecting cyclists.
- Provide bicycle access and accommodations at park and ride lots and transit hubs, as appropriate.

▶ ***POLICY:***
*Encourage transportation demand management strategies*

WisDOT promotes transportation demand management strategies to improve the efficiency of the transportation network within metropolitan areas (for example, to reduce congestion), and to improve mobility by expanding transportation choices for everyday trips.

WisDOT will encourage the adoption of these strategies by providing funds to:

» Establish a transportation management association grant program to support integration of transportation demand management strategies with corridor plans

» Assess opportunities to expand the RIDESHARE program

» Develop statewide standards for planning, designing and constructing park and ride facilities

## *Background*

Transportation demand management strategies, such as carpooling, ridesharing, and telecommuting, comprise one method to help decrease urban congestion and improve mobility with more transportation choices. These strategies reduce the number of vehicles on streets and highways, particularly during peak travel periods. When roadways are congested, a small reduction in traffic volume can provide a large reduction in delays.

### Transportation demand management strategies

Transportation demand management strategies include:

› Increasing bicycle and pedestrian travel

› Increasing carpooling and public transit use

› Encouraging businesses to alter work times so their employees can commute during off-peak periods

› Encouraging the use of telecommuting and video-conferencing to reduce the need for employee travel

Specifically, transportation demand management measures that may seem minor can have a significant impact on congestion levels. Studies have shown that transportation demand management strategies are most effective in densely built business districts

TRANSPORTATION DEMAND MANAGEMENT STRATEGIES *reduce the number of vehicles on streets and highways, particularly during peak travel periods. When roadways are congested, a small reduction in traffic volume can provide a large reduction in delays.*

where parking is expensive and scarce. Employees may also be more willing to change their travel habits if they have employer support or if there are financial incentives. Similarly, employees faced with long commutes may be willing to carpool or telecommute. Individuals, agencies, businesses and other entities often implement transportation demand management strategies; however, they can also be coordinated at a regional level by a transportation management association.

### *Establish a transportation management association grant program to support integration of transportation demand management strategies with corridor plans*

Transportation demand management activities can be coordinated in a region or corridor by transportation management associations, which are private, nonprofit, member-controlled organizations. These associations are the most efficient way to implement transportation demand management strategies because their members typically include local business owners and politicians who best understand the congestion issues in their area. Some examples of transportation demand management strategies implemented by these associations include buying discounted bus passes for employees, installing bike lockers at job sites and providing preferred parking for van pools.

WisDOT will analyze transportation demand management measures as part of corridor plans or planning processes. To integrate consideration of these strategies into corridor management activities, corridor-planning processes will analyze the viability of such

▲ *Figure 8-10: One way in which WisDOT will encourage the adoption of transportation demand management strategies is by providing funds to develop statewide standards for planning, designing and constructing park and ride facilities*

WISDOT WILL EDUCATE LOCAL LEADERS AND BUSINESSES *on the benefits of transportation management associations and strategies. Local leaders and businesses will be responsible for establishing an association or implementing strategies. Local sponsors will choose strategies to implement, and decide whether to use an individual measure or a combination of measures.*

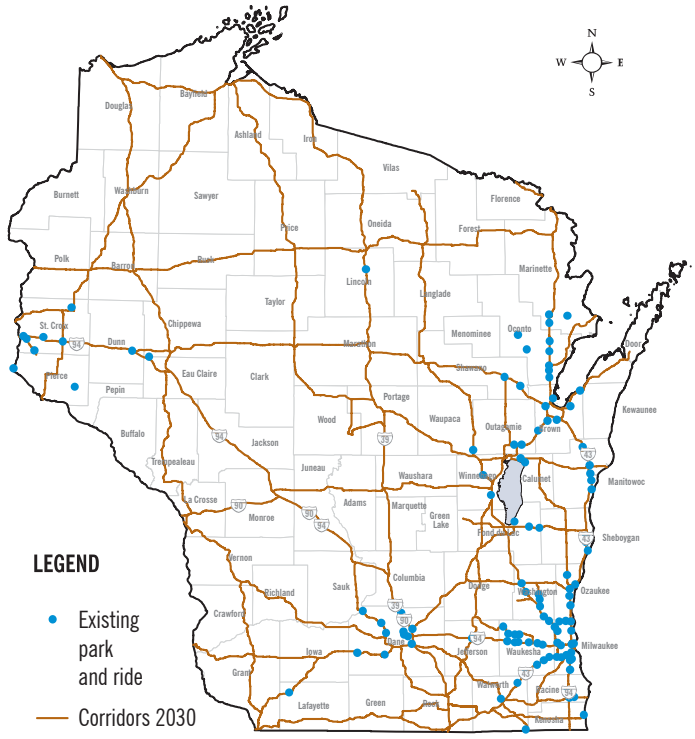
strategies and determine whether to recommend a transportation management association. WisDOT will seek state funding to establish a competitive grant program to fund existing and new transportation management associations. Preference will be given to those located in high-priority corridors as established by WisDOT through the corridor management process. WisDOT will administer the grant funds and facilitate educational effort.

In addition to establishing funding guidelines, WisDOT will educate local leaders and businesses on the benefits of transportation management associations and transportation demand management strategies. Local leaders and businesses will be responsible for establishing an association or implementing transportation demand management strategies. Local sponsors will choose strategies to implement, and decide whether to use an individual measure or a combination of measures. These can include education, ride-sharing, carpooling or financial incentives.

WisDOT will establish performance measures to monitor implementation efforts and determine future funding.

## *Assess opportunities to expand the RIDESHARE program*

WisDOT supports a RIDESHARE program in southern Wisconsin. It is a free service provided by WisDOT to help bring commuters together. The program provides a list of possible carpool or vanpool options, as well as park and ride locations.




▲ *Map 8-7: Existing park and ride locations, 2007. According to Wisconsin Statute 84.30(g), park and ride facilities are sites that provide parking and are within reasonable walking distance of a station or transfer point to access mass transit. Park and pool facilities only provide parking for carpools. For the purpose of this plan, park and ride facilities include both the park and ride facilities defined by state statute, and park and pool facilities.*

WisDOT will continue to support the RIDESHARE program and assess opportunities and the resources required to expand the program statewide.

### *Develop statewide standards for planning, designing and maintaining park and ride facilities*

Wisconsin has more than 100 park and ride facilities across the state (Map 8-7). These facilities provide drivers with the option to travel with others. Traveling with others can save individuals money that would be spent on vehicle maintenance and fuel. WisDOT can use park and ride facilities to improve a corridor's efficiency.

WisDOT will develop standards to ensure that all WisDOT regions follow uniform guidelines for planning, designing and funding new park and ride facilities or expanding existing facilities. Future park and ride lots will be planned as part of the corridor management process.

WisDOT region staff will identify potential park and ride sites, particularly along corridors within urban areas or corridors that feed into urban areas.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Encourage transportation demand management strategies*

**Short-term (2008 – 2013)**

- Educate WisDOT staff on transportation demand management measures and ways these measures can be used in congested corridors.
- Encourage WisDOT staff to discuss the benefits of transportation management associations and transportation demand management measures with local officials and businesses during the corridor planning process.
- Incorporate transportation demand management measures into the corridor planning process as an option to improve congested corridors and preserve corridors.
- Assess opportunities to expand the RIDESHARE program statewide.
- Develop statewide standards for planning, designing and maintaining park and ride facilities.
- Seek state funding to establish a competitive transportation management association grant program for existing and new associations.

**Mid-term (2014 – 2019)**

- Evaluate the effectiveness of transportation management associations and any transportation demand management measures implemented.
- Identify transportation demand management best practices.

**Long-term (2020 – 2030)**

- Continue to monitor the effectiveness of transportation management associations and transportation demand management measures.
- Continue funding support to new and existing transportation management associations.

▶ ***POLICY:***
*Facilitate intermodal passenger connections*

Successfully addressing mobility needs in the face of growing highway congestion and changing demographics requires an approach that connects all modes of transportation, including private autos, transit, commercial air service, intercity passenger rail, intercity bus, ferries, bicycles and walking. WisDOT envisions a multimodal transportation system that:

» Provides seamless connections between modes

» Creates more trip choices

» Improves transportation operating efficiencies

» Boosts economic development

WisDOT will help develop an integrated transportation network through intermodal connections by:

» Improving coordination among transportation modes

» Providing funds for intermodal facilities

» Increasing the availability of alternative modes in both urban and rural areas

## *Background*

An intermodal transportation system allows travelers to conveniently complete a journey using more than one mode. An intermodal transportation system is most effective when it provides:

» A seamless transfer between transportation modes

» The ability to connect to an extended transportation network

» A high frequency of service among the different modes

### Existing intermodal facilities

Existing intermodal facilities include but are not limited to:

› Intercity passenger rail and intercity bus connections at:
- — Milwaukee Intermodal Station
- — La Crosse Amtrak station

› Intercity passenger rail and commercial air service connections at Milwaukee Airport Rail Station

› Local transit and intercity bus connections at Milwaukee's General Mitchell International Airport

› Commuter bus, local bus and fixed-guideway transit connections at Kenosha Transit Transfer Center

› Local bus and intercity bus connections at downtown transit transfer centers in:
- — Racine
- — Kenosha
- — Sheboygan
- — Appleton
- — Waukesha
- — La Crosse (under development)
- — Beloit (preliminary planning)

Intermodal connections can work in a variety of ways. Examples include:

» A commute that involves driving to a suburban park and ride lot and transferring to a bus for a trip downtown

» A trip that includes a seamless connection between intercity passenger rail and commercial air service, using a single ticket and allowing for checked baggage at the train station through to the final destination airport

» A transfer between intercity bus and local transit at a downtown transit transfer center

» A safe trip to school by walking and using transit, with sidewalk access to the transit stop

### Park and ride facilities and intermodal connections

Some Wisconsin park and ride facilities have successfully supported intermodal connections. Examples include:

**Goerke's Corners park and ride lot in Brookfield**

› Commuter bus service (Wisconsin Coach Lines/ Coach USA)

› Local transit service (Waukesha Metro)

› Intercity bus service (Badger, Wisconsin Coach Lines/ Coach USA)

**The Dutch Mill park and ride lot in Madison**

› Local transit service (Madison Metro)

› Intercity bus service (Van Galder/Coach USA, MegaBus)

» A coordinated schedule between an intercity bus and an Amtrak train connecting at an intermodal facility, which, in addition to improving convenience for the passenger, can improve performance and increase ridership for both the intercity bus service and the Amtrak service

*Benefits of intermodal connectivity*

Intermodal connections provide a number of benefits to transportation users, transportation providers, and the state transportation system as a whole. These benefits include:

» Increased public transit ridership, leading to potential air quality benefits and emissions reductions

» Mitigation of roadway congestion, providing relief to congested highway corridors

» Improved financial performance of existing transit systems (resulting from increases in fare box revenues from increased ridership)

» Efficiencies for transit providers and customers through reduced service redundancies and transfer opportunities that increase trip options

In addition, intermodal facilities can:

» Create synergies that increase public transportation ridership and spur business development and investment in or near the facility

» Serve as gateways to a community

» Function as community centers

*Challenges to providing an intermodal transportation network*

Many communities across Wisconsin lack convenient connections between modes, even when multiple modes are present. For example, in some communities, the intercity bus and Amtrak stations are miles apart. In others, local transit does not directly serve intercity bus stops or does not adequately serve major airports.

Paying for improved intermodal connections also can be a challenge. There is no single federal funding source for intermodal projects; however, the state and local governments, airports, intercity bus companies and other private sector partners have been able to tap various federal funds for intermodal facilities such as the rail station at General Mitchell International Airport and the downtown Milwaukee Intermodal Station. Federal funding sources for intermodal projects might include the Congestion Mitigation and Air Quality Improvement Program (CMAQ), the New Starts grant program for fixed-guideway transit systems, the Surface Transportation Program, passenger facility charges at airports, and direct appropriations for intermodal facilities. Currently, there is no dedicated state funding source for intermodal facilities, local funds and private sector investment are other potential sources of funding.

## *Improving coordination among transportation modes*

Many opportunities exist for improving coordination among modes and creating new intermodal connections in Wisconsin.

▲ *Figure 8-11: Intermodal facilities promote more than one transportation mode by making connections between them simple and convenient.*

For example, if an intercity bus stop is outside the local transit service area due to its location in a neighboring community, coordination can be as simple as contacting the intercity bus provider about moving the stop to a location within the local transit service area, or facilitating an intergovernmental agreement between two neighboring municipalities to extend transit service to the bus stop. WisDOT will facilitate coordination among modes, including improved communication between private and public entities.

Specifically, WisDOT will:

» Consider coordination with other modes when evaluating projects that are applying for state and federal assistance such as Supplemental Transportation Rural Assistance Program, Section 5311, and Congestion Mitigation Air Quality program funding

» Provide funding and technical assistance to encourage ticket and schedule coordination between intercity bus and intercity passenger rail providers

» Work with operators and providers of urban and rural transit systems, intercity bus, intercity passenger rail, airports and local governments to identify opportunities for new connections between modes

» Provide technical assistance in developing specific strategies for creating connections between modes

As a demonstration project, WisDOT will provide funding assistance to create a seamless connection between existing intercity bus and passenger rail service at the Milwaukee Intermodal Station. Funds will be made available for costs associated with coordinated scheduling, marketing, ticketing, and increasing additional intercity bus frequencies. This demonstration project will be evaluated after two years and may be used as a model for future intermodal connection initiatives.

## *Providing funds for intermodal facilities*

Passenger intermodal facilities allow people and goods to transfer from one mode of transportation to another. Examples include an intercity bus station with a local transit stop, or an airport with a convenient local bus stop. Intermodal facilities promote more than one transportation mode by making connections between them simple and convenient. Investment in intermodal facilities often leads to increased ridership and a better return on the state's investment in each mode. To support the development of intermodal facilities, WisDOT will:

» Provide funding for the development of intermodal facilities with new state and existing federal money. Facilities eligible for funding include, but are not limited to, intermodal facilities at airports, new or renovated intercity passenger rail stations, and new or renovated intercity bus stations that include transit, parking, bicycle accommodations and pedestrian access

» Work with local communities and the private sector to identify opportunities for intermodal stations, ensuring access for local modes (transit, bicycle and pedestrian), as well as intercity modes (air, rail, and intercity bus)

» Facilitate public-private partnerships to develop new intermodal facilities, such as the successful cooperative effort to redevelop the Milwaukee Amtrak station

» Continue to support park and ride facilities and encourage transit service at the facilities, particularly in urban areas

In addition to local funds and private sector contributions, the following state and federal funding sources may be used to provide funding for the development of intermodal facilities:

» New state funding sources proposed in policies requiring legislative action
  – Rail station capital assistance program
  – Capital funding assistance for new or improved bus stations

» Existing federal funding sources
  – Congestion Mitigation Air Quality funds (in federally designated air quality non-attainment areas)
  – 5311 capital funds
  – Other Federal Transit Administration funds
  – Surface Transportation Program funds
  – Federal appropriations

## *Increase the availability of alternative modes*

WisDOT will increase availability of alternative modes by implementing the other policies discussed in this chapter:

» Improve the coordination and availability of urban, rural and regional transit

» Enhance existing intercity passenger rail service and implement new intercity passenger rail service

» Improve urban and regional transit through development of new or expanded fixed-guideway transit systems

» Expand Wisconsin's intercity bus network by financially supporting new routes

» Support new bicycle and pedestrian facilities

» Advocate for improved commercial air service at Wisconsin airports

» Encourage transportation demand management strategies such as ride-sharing and bus pass programs

WisDOT will implement these policies with a focus on strengthening the statewide intermodal network.

### ► *SUMMARY OF POLICY ACTION ITEMS:* *Facilitate intermodal passenger connections*

**Short-term (2008 – 2013)**

- Provide funding assistance to create a coordinated transfer between existing intercity bus and intercity passenger rail service at Milwaukee Intermodal Station, including coordinated scheduling, marketing, ticketing and increasing intercity bus frequencies.

**Entire planning period (2008 – 2030)**

- Work with transportation providers, airports and local governments to identify opportunities for new connections between modes.
- Provide technical assistance in developing specific strategies to implement connections between modes.
- Consider coordinating with other modes when evaluating projects applying for state and federal funding assistance.
- Facilitate private/public partnerships to develop new intermodal facilities.
- Work with local communities to identify opportunities for intermodal stations.
- Provide funds for intermodal facilities, including transit and intercity bus, and intercity passenger rail stations, along with intermodal stations at airports, with new, dedicated state funding sources and existing federal funding sources.

# CHAPTER 9: Promote Transportation Efficiencies

WisDOT's vision for transportation efficiencies is a transportation system that moves people and goods to their destinations safely and within a reasonable time frame. WisDOT will continue to manage the state transportation system so that it is reliable, resilient and seamlessly connected.

Effective, coordinated and economical operations are part of an efficient transportation system that helps maximize traffic flow. This can reduce travel delays for freight and people, and improve safety.

WisDOT and other transportation providers achieve efficiencies through traditional actions, technologies and partnerships. Traditional actions such as using larger aircraft, scheduling more frequent bus service or expanding highways can make the system operate more efficiently.

Efficiencies are gained in other ways, including technologies like Intelligent Transportation Systems (ITS). ITS makes real-time travel information accessible to all users and can help travelers make decisions before or during their trips if incidents or travel slow-downs occur. Encouraging the use of other transportation modes, and participating in RIDESHARE and other carpooling programs can also help to improve system efficiencies. Driving at lower speeds and reducing vehicle and train idling time can improve fuel efficiency and potentially improve air quality.

WisDOT also achieves efficiencies by collaborating among business areas, with federal and state agencies, local governments, Native American tribes, regional planning commissions, metropolitan planning organizations and other stakeholders. These collaborations encourage up-front communication, technical assistance, coordination and planning, and cooperative efforts to reduce administrative barriers.

Achieving efficiencies and ensuring strong collaboration across WisDOT business areas and between WisDOT and other jurisdictions is critical to incident management, emergency response preparedness planning, and traffic management.

***POLICIES IN THIS CHAPTER FOR PROMOTING TRANSPORTATION EFFICIENCIES:***

- *Improve the reliability and efficiency of state trunk highway system operations*
- *Actively manage the daily operation of the state trunk highway network via the State Traffic Operations Center and other technology systems*
- *Optimize traffic movement on the state trunk highway system by utilizing tools to improve existing capacity and, where necessary, adding capacity*
- *Manage access on Wisconsin's state trunk highway system*

Continuing to provide a reliable transportation system enables the department and other transportation providers to meet changing user needs. A reliable transportation system ensures that users can plan their schedules around basic assumptions of travel times. Many Wisconsin businesses require a reliable transportation system.

For example, a food processing plant may schedule bulk cheese to be delivered at the time it will be needed for processing and packaging — so the cheese arrives "just in time." The finished cheese product may then be shipped "just in time" to distribution centers and grocery stores to replenish store shelves. "Just in time" shipping reduces warehousing costs and is especially useful for producing and distributing perishable goods (see Chapter 7, *Foster Wisconsin's Economic Growth*).

Unexpected delays in delivery of items such as cheese, corn or potatoes can add to production costs, and can cause possible spoilage or contamination of the perishable food. Delays can also affect the shelf life of the finished products in grocery stores.

FOR TRANSPORTATION TO BE BOTH RELIABLE AND RESILIENT, *WisDOT and other transportation providers need to balance traffic movement, safety and security needs with potential environmental impacts.*

A resilient transportation system is able to quickly respond to unexpected conditions and return to its usual operational state. For example, in the case of a crash or scheduled road construction, alternate route options may be provided.

For transportation to be both reliable and resilient, WisDOT and other transportation providers need to balance traffic movement, safety and security needs with potential environmental impacts. For example, a freight rail operator might want to construct a siding to allow freight trains to more easily pass each other and increase safety. However, the rail operator will also need to address any potential environmental impacts before construction. The extent of potential impacts may cause the rail operator to either not construct the siding at all or perhaps construct it in a location other than the place originally planned.

Providing seamless connections focuses not only on connecting Wisconsin's transportation system to local, regional, national and international networks, but also in facilitating convenient movement among different transportation modes. This requires investments in a multimodal transportation system that integrates both physical and technological infrastructure. Efforts must focus not only on maintaining and preserving the existing system, but also on improving system performance through systems management techniques, ITS technologies and, where appropriate, also on adding capacity to bikeways, sidewalks, transit, rail, highways, ports and airports .

The state's transportation system must be managed to enable people and goods to move with minimal delay or disruption from one area to another, while using a variety of modes. This is critical to serving travelers' needs and remaining economically competitive. WisDOT will continue to focus on building a strong and connected transportation network that links to local, regional, national and international networks, as well as intermodal terminals.

## Challenges

Maintaining and improving the efficiency of Wisconsin's transportation system is crucial to supporting economic growth; however, transportation providers, including WisDOT, are facing several challenges:

» Balancing cost-effective strategies with efficiency and safety

» Increasing costs

### Achieving transportation efficiencies

Effective, coordinated and economical operations are part of an efficient transportation system that helps maximize traffic flow. WisDOT and other transportation providers achieve efficiencies through traditional actions, technologies and partnerships.

▲ *Figure 9-1: Technologies such as Intelligent Transportation Systems can help travelers make decisions before or during their trips if incidents or travel slow-downs occur.*

» Changing technology

» Balancing highway access needs with economic growth initiatives

Increasing transportation costs, particularly costs related to energy, real estate and construction materials, can negatively impact the transportation system's efficiency. Without the ability to make needed improvements at the appropriate times over the life of all transportation modes, transportation providers will find it difficult to keep pace with both emerging and existing needs. For example, transit systems are facing increased fuel and operating costs while federal and state aid has remained relatively constant.

At the same time, many systems are receiving requests for expanded service areas. As a result, many transit systems have either reduced existing service to keep pace with current costs or increased fares to try to expand service into new areas.

In addition, transportation demands are likely to go up as Wisconsin continues to experience increases in the overall population and as the aging population stops driving and turns to public transit and other transportation options for their mobility.

Technology presents challenges and opportunities. Keeping pace with ongoing updates and improvements in technology can be expensive. A technological system that may have been state-of-the-art five to 10 years ago may no longer be used or supported today. In addition, using technology for data collection to monitor traffic flow, and identify system needs and potential improvements has raised questions about individual privacy concerns and data storage requirements.

Finally, ensuring that the technologies are available during an emergency or incident requires system redundancy or backups. For example, many signalized intersections also have stop signs that can be uncovered if the traffic signals malfunction.

Technology also presents opportunities. Emerging technologies offer options to manage the transportation system more efficiently. They also help to seamlessly connect transportation modes. For example, the Milwaukee Intermodal Station links highway, intercity passenger rail, intercity bus and transit travel. A traveler may arrive at the station by intercity bus to board an intercity passenger train to another city. Or a traveler may arrive by intercity passenger rail to use the local transit system to reach a final destination.

The majority of Wisconsin's highways were built during the 1950s and 1960s, when traffic volumes and system demands were very different than they are today. Increasing traffic volumes and freight movements, as well as development pressures, have resulted in a strained transportation system. Efforts to address system preservation needs while enhancing safety and efficiencies remains a challenge.

Finally, balancing transportation and land use continues to be a challenge. By protecting the safety, capacity and traffic flow on state trunk highways, public investment can also be preserved. Through sound access management techniques, the public and local governments can work with WisDOT to preserve the state's roadway investments and promote investment in the local economy through safe access points. In addition, providing increased access to transit provides more options for individuals, particularly those who do not or cannot drive.

Increased access to transit could provide more accessibility but may be cost prohibitive if transit operators lack funds to sustain added services. Likewise, limiting crossings along proposed high-speed passenger rail lines may improve safety, but may also impact individual property owners.

### US 41 Interstate conversion

Interstate conversion of US 41 from Milwaukee to Green Bay is required under the Safe, Accountable, Flexible, Efficient Transportation Equity - a Legacy for Users (SAFETEA-LU) Act.

To qualify as an Interstate, US 41 will be studied to assess facility needs such as bridge clearance, interchange upgrades, truck weight exemptions and signage to ensure that federal Interstate standards are met.

WisDOT will also conduct an environmental review to identify and address impacts that may result from upgrading the facility to Interstate standards.

## Opportunities

Even though this chapter primarily focuses on the state trunk highway system, WisDOT's focus is not limited to highways. WisDOT has identified specific policies and actions for improving the efficiency of all

### Definition of highway operations and highway maintenance

Highway operations and highway maintenance are closely related. The primary goal of both is to maximize the reliability of the highway system. Highway operations activities focus on traffic flow on the roadway. Highway maintenance activities focus on the infrastructure along the highway right of way. WisDOT's efforts to improve daily highway operations include implementing and integrating traffic control devices and other applicable technology, as well as facilitating real time traveler warnings and information.

transportation modes; however, WisDOT's role varies depending on the mode.

The department has primary responsibility for the state trunk highway system, and for the rest of the transportation system, WisDOT manages available federal and state funding, and provides both technical assistance and data resources.

For details about actions to improve efficiency for other modes, see:

» Chapter 7, *Foster Wisconsin's Economic Growth,* for actions related to freight rail, local roads, harbors and airports

» Chapter 8, *Provide Mobility and Transportation Choice,* for actions related to bicycle and pedestrian accommodations, transit and intercity passenger travel

WisDOT identified several policies in response to the challenges in achieving it's vision and commitment to transportation system efficiencies. Specifically, WisDOT will:

» Improve the reliability and efficiency of state trunk highway system operations

» Actively manage the daily operation of the state trunk highway network via the State Traffic Operations Center and other technologies

» Optimize traffic movement on the state trunk highway system by utilizing tools to improve existing capacity and, where necessary, adding capacity

» Manage access on Wisconsin's state trunk highway system

Two WisDOT projects highlight how the policies, tools and strategies identified in this chapter can work together to improve system efficiency and are key components on Wisconsin's highway network: the US 41 Interstate conversion project and the Southeast Freeway System.

## Southeast Freeway System

The Southeast Freeway System supports nearly one-third of all travel in southeastern Wisconsin on an average weekday.

The Southeast Wisconsin Regional Planning Commission, the designated metropolitan planning organization for the area, recommends:

› System reconstruction to address modernization and infrastructure deterioration

› System expansion for parts of the system to address congestion

Without the additional capacity, the regional planning commission forecasts 47 percent of the freeway system will experience moderate to severe congestion by 2035, almost double the level of congestion in 2001. Forecasts assume:

› Implementation of a region-wide travel demand management program

› Increased use of Intelligent Transportation Systems

› Expanded transit service

› Improved access management

▲ *Figure 9-2: By protecting the safety, capacity and traffic flow on state trunk highways, public investment can also be preserved.*

US 41 serves as a major arterial for Green Bay and the Fox Valley area, while the Southeast Freeway System is an economic lifeline not only for the southeastern region, but also for the entire state. Both systems face:

» Increased travel delays

» Increased development resulting in congestion and safety concerns

» Crash rates exceeding state averages along some segments

» Outdated facility designs

Throughout both of these projects, WisDOT will work with metropolitan planning organizations, regional planning commissions, local governments, businesses and citizens to identify ways to reduce project impacts, manage project-related congestion and improve safety.

To address congestion and safety, as well as to support continued economic growth, WisDOT will:

» Use operational tools, such as ramp meters and traffic cameras, to improve and add to existing capacity

» Update outdated facility designs to meet current standards, such as increasing vertical clearance on some bridges and redesigning some interchanges to improve safety

» Construct additional lanes to enhance capacity, pursuant to the environmental review process recommendations

THE MAJORITY OF WISCONSIN'S HIGHWAYS *were built in the 1950s and 1960s, when traffic volumes and system demands were very different than they are today. Increasing traffic volumes and freight movements, as well as development pressures, have resulted in a strained transportation system.*

▶ ***POLICY:***
*Improve the reliability and efficiency of state trunk highway system operations*

Highway operations are critical to efficiently move people and goods reliably and safely. To maximize the state trunk highway system operations, WisDOT will:

» Continue to plan and prepare for the department's prompt and consistent response to incidents

» Continually monitor the state trunk highway network and respond to operational needs

## *Background*

Highways are designed to move people and goods safely and efficiently. State trunk highway reliability – or predictability – is a basic user expectation and necessary for a robust economy. People who travel on Wisconsin's highways expect to reach their destinations within a reasonable period of time. Shippers and businesses require a reasonable level of system reliability to support their efforts to compete and, where possible, expand. A wide range of daily events or incidents can disrupt the safe and efficient flow of traffic and affect overall system operation. Vehicle crashes, work zones, natural disasters, special events, and the number and distance of access points such as cross streets or driveways can disrupt system reliability.

In addition, current and future user demand will also negatively impact the system's reliability and safety, if unaddressed. For example, during the next 20 years, freight truck traffic is expected to increase twice as fast as total highway traffic growth. This increase will add significantly to the number of vehicles traveling on the state's highways.

Highway operations include the active, daily management of the highway system, and include two key components:

» Winter operations, which includes ice and snow removal, and roadway treatments

» Incident management, which is essential to managing traffic flow before, during and immediately after a roadway incident

Decisions that address highway operations needs are often interrelated with a wide range of other system considerations including safety, security, congestion and access management. Congestion and access management issues are covered later in this chapter. See Chapter 6, *Promote Transportation Safety*, and Chapter 11, *Promote Transportation Security*, for more information.

Highway maintenance needs, such as painting, sign repair and mowing, can also require highway operations activities. Highway maintenance is discussed in Chapter 5, *Preserve and Maintain Wisconsin's Transportation System*.

▲ *Figure 9-3: Highway operations include ice and snow removal and roadway treatments.*

## *Continue to plan and prepare for WisDOT's prompt and consistent response to incidents*

WisDOT already uses work zone analysis and alternate route planning to plan and prepare for incidents or events that disrupt traffic. The department is also developing a third tool – traffic operations infrastructure planning. These three tools are described below.

### *Work zone management and safety*

WisDOT's ongoing efforts to address Wisconsin's aging highway system result in numerous construction work zones. WisDOT plans for and manages construction impacts to traffic flow through and around work zones by:

» Using operational tools such as signing, marking, ITS and, where necessary, re-routing traffic

» Conducting work zone safety and mobility analyses in cooperation with local agencies to identify and coordinate enforcement needs; identifying potential routing alternatives; and addressing any other issues or concerns

WisDOT tracks the locations and number of work zones in a given corridor from year to year, and strives to schedule projects to minimize the number of work zones through which a driver must travel along a corridor. Another strategy to minimize traffic flow disruptions and user delays is to schedule project work during non-peak or nighttime hours, when there is less traffic on the road. Night work often includes additional costs for night-shift pay and work zone lighting, so WisDOT carefully weighs these costs against the benefits of this approach.

In compliance with new federal regulations, WisDOT will incorporate lane closure guidelines into transportation management planning and plans for work zones. WisDOT will also complete development of, and implement, a Web-based lane closure management tool to best determine construction closure schedules. This will minimize user delay and feed into other traffic management applications. WisDOT will continue to use effective signage to inform drivers of the locations and lengths of work zones, alternate routes and expected time delays.

Finally, WisDOT will continue to identify and expand available training for staff performing traffic control functions.

### WisDOT work zone goals

› Reduce crashes in work zones

› Provide a safe environment for workers and the traveling public

› Minimize work zone related delays

› Provide traveler information to improve safety, mobility and efficiency

› Provide work zone training

› Evaluate and continuously improve work zone safety and mobility performance

### *Emergency alternate route planning*

When an incident or event on a highway makes it unsafe or impassable, alternate route plans redirect traffic to other roadways to keep traffic moving. As noted in the "Improve the operability of the transportation system during disruptive events" policy in Chapter 11, *Promote Transportation Security*, these plans are crucial to maintaining overall system reliability and safety.

WisDOT has developed alternate route plans around the state to identify appropriate alternative routes during an incident. Examples include the Southeastern Integrated Corridor Operations Project (ICOP), a priority initiative for Southeastern Wisconsin, and the "Blue Routes," which are a priority for Madison and south central Wisconsin.

In conjunction with ICOP and the Blue Routes, WisDOT staff have identified roads that could serve as alternate

▲ *Figure 9-4: WisDOT will modernize traffic signal system technologies, which may include replacing and updating traffic signal electronic controllers, as well as linking traffic signals into the statewide communications network.*

routes for freeway traffic in key corridors across the state. WisDOT will continue to analyze priority roadways for alternate route planning. During the *Connections 2030* plan period, WisDOT will strive for statewide consistency in alternate route plan development procedures, including route naming and signage, to minimize confusion for travelers.

In addition, alternate routes are critical to WisDOT's security preparedness efforts, especially in the context of evacuation planning. When the severity of a transportation-related event or emergency requires the need to quickly and safely evacuate people, WisDOT will be prepared to support traffic management through a series of designated alternate routes and other tools designed to keep traffic moving as efficiently as possible. See Chapter 11, *Promote Transportation Security,* for more information.

### *Traffic operations infrastructure planning*

Traffic operations infrastructure planning will integrate traffic management and transportation planning along key transportation corridors throughout the state. When completed, this approach will consider corridor traffic densities statewide and recommend appropriate tools to manage facility operation and traffic flow within specific corridors. These tools include ramp metering and surveillance, travel warning and information systems, and traffic signal systems. As part of this effort, WisDOT will collect and analyze corridor-level traffic data to identify best practices and improve future implementation of traffic management tools.

WisDOT will modernize traffic signal system technologies, which may include replacing and updating traffic signal electronic controllers, as well as linking traffic signals into the statewide WisDOT traffic management and public safety communications network. Data will be continuously accessible for managing operations and maintenance activities. With these improvements, technology controlling traffic signals will automatically respond to variations in traffic conditions.

## *Continually monitor the state trunk highway network and respond to operational needs*

The department's efforts to monitor the daily traffic flow on the state trunk highway network are conducted primarily through close coordination of law enforcement, first responders, other agencies, the media and staff at WisDOT's State Traffic Operations Center.

With the aid of cameras, road sensors and area responders throughout the state, center staff work with others to identify and track incidents, and initiate appropriate responses. Currently, the center has cameras and direct responsibility to monitor and coordinate responses to incidents in Southeast Wisconsin, Madison and Wausau. To serve statewide needs, the center coordinates incident response with local emergency providers and contact via a toll-free number to the center. The center provides information to the public using direct communication, variable message signs, Highway Advisory Radio, and weather displays at rest areas.

The STOC plays an important role in highway safety by coordinating statewide emergency response (see Chapter 6, *Promote Transportation Safety*). For a more detailed discussion of the center, see the policy in this chapter called, "Actively manage the daily operation of

the state trunk highway network via the State Traffic Operations Center and other technologies." WisDOT will continue to fund the center and, where necessary, expand its coverage to other areas.

Monitoring daily traffic enables WisDOT to respond to highway operational needs through:

» Traffic incident management

» Emergency transportation operations

» Winter operations

» Facility design modification as appropriate

WisDOT uses traffic incident management to facilitate quick, efficient and coordinated responses to highway incidents. Traffic incident management focuses on detection and verification of traffic incidents, safe management of personnel at the scene, and clearance of vehicles or debris from the scene. WisDOT leads a partnership among the Wisconsin State Patrol, local law enforcement, emergency medical responders, Wisconsin Emergency Management and tow operators that has greatly improved traffic incident management in the Southeast region of the state. WisDOT will continue to share information quickly with all appropriate partner agencies and organizations throughout the state.

WisDOT will also continue to coordinate traffic incident response efforts among partner agencies and organizations with a focus on safety, expediency and efficiency. WisDOT will investigate the application of traffic incident management techniques along key corridors around the state.

Emergency transportation operations is a coordinated, multi-agency, multi-function approach for incorporating evacuation planning and implementation when managing transportation incidents with security considerations. WisDOT will integrate emergency transportation operations and traffic incident management efforts to increase operational efficiencies in key state corridors. WisDOT will also work with partners to develop agreements on responsibilities

▲ *Figure 9-5: WisDOT uses traffic incident management to facilitate quick, efficient and coordinated responses to highway incidents.*

▲ *Figure 9-6: WisDOT continues to collect, analyze and use traffic data to improve designs and overall highway system reliability.*

for traffic incident management and emergency transportation operations.

WisDOT's Emergency Transportation Operations (ETO) Plan consists of two sections: The ETO Program and the ETO Response. The programmatic aspect of the plan addresses the components and activities necessary to sustain an active, ongoingemergency transportation operations program. In the plan's Response section, procedures and other information are provided as guidance to WisDOT personnel in their response to emergencies. One such aspect is ongoing training activities. WisDOT is organizing a coordinated, department-wide training strategy that combines enhanced planning, realistic risk assessment

and practical exercises managed through a multi-year training program.

In addition, WisDOT's emergency transportation operations training philosophy conforms to the Homeland Security Exercise and Evaluation Program. For more information about emergency response and transportation security, see Chapter 6, *Promote Transportation Safety*, and Chapter 11, *Promote Transportation Security*.

A key element of emergency transportation operations is communicating with travelers. WisDOT works with partners to disseminate road and weather-related information quickly. This helps minimize delays for drivers and facilitates operational efforts to clear or repair the roadway. Travel communication tools include:

» 511 Traveler Information Program

» Highway Advisory Radio

» WisDOT's online travel center (www.dot.state.wi.us/travel)

» WisDOT's toll-free telephone number (1-800-ROAD-WIS)

The 511 Traveler Information Program allows travelers to dial 5-1-1 and receive real-time, route-specific travel information statewide. Similarly, Highway Advisory Radio provides recorded information via dedicated low-power AM radio frequencies in specific locations across the state. WisDOT's online travel center (www.dot.state.wi.us/travel), provides information about several topics, including weather and winter road conditions, work zone maps, and rest areas.

Travelers can listen to work zone reports during the construction season and winter road condition reports by calling Wisconsin's toll-free 1-800-ROAD-WIS telephone number.

WisDOT will continue to share information with travelers using the Internet, Highway Advisory Radio and other methods, and monitor opportunities to expand these services as demands increase.

### *Winter operations*

Winter operations – snow plowing, sanding, salting and chemical application – account for a large part of highway operations activities and are extremely important to maintaining system reliability. Equipment needs are concentrated during the winter months and often for extended periods of time.

Prompt attention to winter conditions is a primary goal and depends on the number of trucks available to treat the roadways: the more trucks available, the shorter the roadway segments for which a single truck is responsible; the shorter the segments, the more frequently and efficiently each segment can be treated during snow and ice conditions.

WisDOT will continue efforts to improve reliability during winter driving conditions by:

» Assisting local partners with the acquisition of more equipment and staffing to allow treatment for snow and ice on more state trunk highway segments in the same amount of time

» Using automatic vehicle location and global positioning system technology to coordinate patrols and monitor salt and chemical application rates and locations

» Improving performance monitoring and standards to measure the effectiveness of snow and ice removal equipment and chemical applications to improve the consistency of application along highway corridors (Performance standards vary depending on class of highway — service expectations are greater on high-traffic-volume roads than on low-traffic-volume roads)

» Developing new performance measures as needed

» Continually evaluating new equipment and treatment methods and making recommendations to local partners

### *Design*

As a highway operations response strategy, design involves the long-term study of traffic conditions to determine how best to improve traffic flow and system reliability. The ongoing, regular or periodic deployment of operational

tools, along with analysis of the corresponding benefits, may point to potential future roadway improvements.

Planners and designers use WisDOT's transportation models to determine how various road construction alternatives might affect traffic flow. WisDOT will continue to collect and analyze traffic data over time, and use it in roadway design to improve highway system reliability. For more information about addressing and managing traffic flow, see the policies in this chapter called, "Optimize traffic movement on the state trunk highway system by utilizing tools to improve existing capacity and, where necessary, adding capacity" and "Manage access on Wisconsin's state trunk highway system."

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Improve the reliability and efficiency of state trunk highway system operation*

### *Short-term (2008 – 2013)*

- Work with partners to develop agreements on responsibilities for transportation incident management and emergency transportation operations.
- Modernize traffic signal system technologies, which may include replacing and updating traffic signal electronic controllers, and linking traffic signals into the statewide WisDOT traffic management and public safety communications network.
- Complete development of, and implement, a Web-based lane-closure management tool.

### *Mid-term (2014 – 2019)*

- Investigate the application of traffic incident management techniques along key corridors around the state.

### *Entire planning period (2008 – 2030)*

- Continue to use operational tools such as signing, marking, Intelligent Transportation Systems and, where necessary, re-routing traffic.
- In cooperation with local agencies, conduct work zone safety and mobility analyses, identify and coordinate enforcement needs, incorporate lane-closure guidelines into work zone plans, identify potential routing alternatives, and use signage to communicate relevant information such as expected time delays.
- Continue to identify and expand training for staff performing traffic control functions.
- Continue to strive for statewide operational consistency, including during determination of alternate routes, route naming and signage.
- Continue to fund the State Traffic Operations Center and, where necessary, expand its coverage.
- For winter driving conditions, improve existing performance monitoring and develop new measures (as needed), evaluate new equipment/treatment methods, assist local partners with the acquisition of more equipment and staff, and improve operations through technology advancements.
- Continue to share information with travelers using the Internet, Highway Advisory Radio and other technologies, and monitor opportunities to expand these services as demands increase.
- Collect and analyze corridor-level traffic data to identify best practices and improve future implementation of traffic management tools.
- Integrate emergency transportation operations and traffic incident management programs into a statewide initiative. Continue to coordinate response efforts and share information quickly with all appropriate partner agencies and organizations.
- Continue to study, collect and analyze traffic data over time and incorporate findings when designing roadways.

▶ ***POLICY:***
*Actively manage the daily operation of the state trunk highway network via the State Traffic Operations Center and other technology systems*

When systematically applied and targeted to priority needs, technology can improve efficiencies and enhance WisDOT's efforts to manage the transportation network. To actively manage the daily operations of the state trunk highway network, WisDOT will:

» Improve motor carrier efficiency and enforcement

» Continue to develop, implement and expand technology

» Cooperate with federal, state, local and private partners for communication and information sharing

» Maximize efficiency of multimodal transportation options

### SmartWays technologies

**Detection**

› Roadway sensors detect vehicles moving on the highway network and are the primary source of data used to understand traffic patterns

› Traffic condition cameras provide live video of traffic on the highway network

**Response**

› Variable message signs inform travelers about current travel times to various destinations, and locations of lane and ramp closures

› Ramp meters (traffic signals) on freeway entrance ramps disperse the volume of vehicles entering the freeway to minimize congestion

› Highway Advisory Radio is a network of low-power radio transmitters that provide prerecorded messages in areas with highway construction projects and high volumes of traffic due to special events

## *Background*

In response to increasing demands on Wisconsin's state trunk highway system, WisDOT uses a wide range of technologies to manage the growing volume of traffic, provide real-time traffic information to system users and first responders, and assess existing and future operational and infrastructure needs.

WisDOT's "SmartWays" technologies consist of numerous tools to help manage highway system traffic flow from detection and response to data collection. Most of the traffic management technologies used by the department to detect and respond to transportation incidents are intelligent transportation systems applications such as variable message signs and portable changeable message signs, ramp meters, closed circuit cameras, and telephone and Internet information systems.

WisDOT will expand the use of intelligent transportation systems to key intercity corridors statewide. WisDOT will also mainstream intelligent transportation systems as a tool for other types of routine highway operations activities including winter weather activities and work zone management. WisDOT currently uses Web-based technologies for the Wisconsin Lane Closure System and the oversize/overweight truck permitting processes.

Technological advancements have enabled WisDOT staff to improve collection of bike trail use data, enhance pedestrian crosswalk signals to help users more safely cross roadways, and provide real-time information at intermodal facilities such as the Milwaukee Intermodal Station. WisDOT will monitor the use of technologies to further enhance the state's multimodal transportation system.

### Table 9-1: Examples of traffic management technologies

| Technology | Status | Description |
|---|---|---|
| 511 National Travel Information | Currently in use | • State-federal cooperative effort to provide real-time, route-specific information on construction zones, weather conditions, weather-related road conditions, congestion, detours, bus schedules and numerous other items<br>• Currently 43 active systems in 32 states<br>• 46 states, including Wisconsin, and the District of Columbia have received funding through the 511 Planning Assistance Program |
| Highway Advisory Radio | Currently in use | • Provides recorded information via dedicated low-power AM radio frequencies<br>• Implemented in specific locations across the state |
| Wisconsin Lane Closure System | Under development | • Provides standard interface for lane closure operations, closure tracking and data retrieval<br>• Facilitates data-sharing with other WisDOT applications such as the 511 Traveler Information program, State Traffic Operations Center incident management system, and the oversize/overweight permitting system<br>• Archives data for future analysis, as well as integration with other traffic engineering applications |
| GPS traffic tracking | Currently in use | • Monitors and addresses real-time traffic conditions and enhances the current and future state trunk highway network by archiving traffic activity<br>• Public-private cooperative effort<br>• Uses cell phone and fleet-based GPS traffic tracking technology to collect traffic flow data<br>• Eliminates all personally identifiable information<br>• Sends anonymous vehicle position to State Traffic Operations Center |
| Vehicle infrastructure integration | Under development and testing | • Requires a cooperative effort among private-sector companies and federal and state agencies in multiple states<br>• Allows vehicles equipped with vehicle infrastructure integration to communicate with embedded roadway technology and other vehicles in real-time |

While technology is crucial to real-time operational data needs, monitoring data over time helps analyze potential trends. Storing data in a logical and accessible way for long-term analysis and future planning is extremely important.

Measures of technological performance can take place on several levels. First is the ability of the technology system to collect and store appropriate, uncorrupted data. Second is the ability of the organization to put the right people and processes in place to access, understand, and ultimately make sound business decisions based on analysis of the data. WisDOT will develop and implement performance measures for technology system management.

## *Continue to develop, implement and expand technology*

WisDOT's State Traffic Operations Center is a centralized facility for monitoring highway operations and managing traffic on the state trunk highway network.

The center manages traffic on the highway system by detecting and coordinating operational activities

### State Traffic Operations Center mission

To help maximize the reliability of the transportation system by improving transportation safety, mobility and efficiency, and managing congestion.

among partner agencies, and responding through the compilation and dissemination of information to numerous users and audiences.

» **Detection:** The center monitors and collects information from numerous sources such as traffic detectors, closed-circuit TV cameras (in Milwaukee, Madison and Wausau), computer-aided dispatch and local law enforcement radio.

» **Response:** The center coordinates response activities among partner agencies and compiles and disseminates information to numerous users and audiences.

The State Traffic Operations Center implements the following response actions:

1. Manage traffic control activities in response to expected traffic congestion such as special events or traffic incidents such as work zones.

2. Disseminate real-time traffic information – including incident location and construction-related closures, and anticipated or known delays – to other WisDOT personnel, emergency service providers, public safety agencies, media and the public. Variable message signs, Highway Advisory Radio and ramp meters are examples of WisDOT response to delays.

3. Coordinate state highway network emergency response activities via a toll-free telephone number available to law-enforcement agencies

Because of its central role in collecting and disseminating traffic information, the Statewide Traffic Operations Center is staffed 365 days a year, 24 hours a day, and acts as a highway operations "nerve center." Statewide expansion of the center began in 2005, and its functions are gradually increasing throughout the state.

As with any technology, implementation and expansion of the Statewide Traffic Operations Center are determined by the extent and immediacy of current and projected needs. WisDOT will continue its efforts to fund the center's operation and development across the state.

WisDOT will continue to implement and monitor technologies to help manage and monitor highway operations. Table 9-1 provides examples of these technologies.

Specifically, WisDOT will continue to:

» Implement the 511 Traveler Information Program statewide

» Implement Highway Advisory Radio

» Develop and implement the Wisconsin Lane Closure System

STATEWIDE EXPANSION OF THE STATE TRAFFIC OPERATIONS CENTER *began in 2005, and its functions are gradually increasing throughout the state. WisDOT will continue to fund the center's operation and development across the state.*

**Table 9-2: Examples of cooperative information-sharing efforts between WisDOT and others**

| Effort | Cooperation between | Activity |
|---|---|---|
| State highway incident notification process | State-local | Established the State Traffic Operations Center as a hub for the collection and dissemination of traffic data. The state highway incident notification process is the single point of contact for local law enforcement agencies statewide. |
| Amber alert | State-local | In partnership with Wisconsin's Department of Justice and Dane County Public Safety Communications Center, WisDOT broadcasts Amber Alert information on the state's variable message signs. |
| Freeway service patrols | State-local | WisDOT State Patrol officers work with local personnel to assist travelers and other responders to traffic incidents. |
| Interstate operations working group | Multi-state | WisDOT, the Illinois Department of Transportation and the Illinois State Tollway Authority meet regularly to share information and discuss daily highway operations issues. |
| Computer-aided dispatch | Inter-divisional (within WisDOT) | Public safety operations and communications are assisted by this automated system. |

» Participate in studies, collaborate with partners and monitor new technologies (such as vehicle infrastructure integration)

» Use of GPS tracking technology

## *Cooperate with federal, state, local and private partners for communication and information sharing*

Technology has enhanced the department's ability to share and receive information. Table 9-2 provides examples of cooperative information sharing efforts under way. WisDOT will continue to maintain existing partnerships, and create new ones to promote solutions to efficiency challenges. The department will also continue to work closely with partner agencies to identify and implement mutually beneficial solutions.

WisDOT will continue to develop improved seamless connections and interfaces between its technology systems and those of other agencies, jurisdictions, states and private organizations. See Chapter 11, *Promote Transportation Security*, for additional information. WisDOT will continue to partner with stakeholders and monitor national efforts to research new and emerging technologies and develop cost-effective, beneficial and efficient technology systems.

## *Improve motor carrier efficiency and enforcement*

Commercial Vehicle Information Systems and Networks (CVISN, pronounced "see-vision") provide the department with tools to improve motor carrier safety and enforcement, as well as enhance the state's revenue collection.

There are numerous CVISN applications designed to improve efficiency of traffic flow and enforcement of motor carrier regulations. Primary regulatory components addressed using CVISN technology include monitoring truck weight and size, and ensuring that each truck has proper insurance and necessary safety equipment.

The majority of the department's CVISN tools and technologies are housed at each of the state's 13 Safety and Weight Enforcement Facilities, commonly called weigh stations. WisDOT's Motor Carrier Enforcement unit in the Division of State Patrol uses CVISN technology to monitor and enforce commercial truck operations in Wisconsin. Specifically, they monitor the legal weight, length and height of loads. They also identify the registration, insurance, authority/permits, and fuel tax collection for the operators. Currently, weigh stations are located along the state's Interstates, U.S. Highways and at entry points to the state.

**Table 9-3: Summary of technologies used to monitor commercial motor vehicle activity**

| Technology | Use |
|---|---|
| Weigh-In-Motion | • Detects the approximate weight of commercial motor vehicles via inductance loops, axle sensors and load cell scales beneath the pavement<br>• Transmits information to weigh station<br>• Instructs (via changeable message sign) vehicles measured as overweight/oversize to exit the roadway for additional measurements<br>• Allows vehicles that are not overweight/oversize to continue without stopping<br>• Allows staff to focus on vehicles most likely to be in violation of statutory limits |
| Virtual Scales | • Detects approximate vehicle weights<br>• Captures vehicle images<br>• Identifies overweight commercial motor vehicles attempting to bypass weigh stations or avoid detection by driving in the opposite lane or on the shoulder<br>• Accessible via laptop computers in State Patrol squad cars<br>• Currently located along two routes bypassing the Kegonsa weigh station; an additional scale is proposed along I-43 northeast of Beloit |
| PrePass | • Allows vehicles to bypass weigh stations by using electronic weight detection and Automatic Vehicle Identification technologies<br>• Allows safety and enforcement inspections to focus on commercial motor vehicles most likely to be in violation of statutory requirements<br>• Currently approximately 25 percent of commercial motor vehicles operating in Wisconsin participate |

### Commercial Vehicle Information Systems and Networks (CVISN)

Benefits of CVISN include:

› Focusing enforcement efforts on problem carriers

› Reducing delays for drivers and trucks stopped at facilities

› Reducing collisions, injuries and fatality rates (due to fewer on/off movements of vehicles passing through enforcement facilities)

To support these facilities and enhance their function, WisDOT will upgrade older facilities and implement technology improvements such as electronic monitoring at higher-volume locations. Three new facilities in Kenosha, Kegonsa (near Madison) and Beloit have been constructed or are under construction.

In addition to the technology applications used at the state's weigh stations, WisDOT also uses three technology systems to more effectively monitor commercial motor vehicle activity: Weigh-In-Motion, Virtual Scales, and PrePass. These technology systems are summarized in Table 9-3.

WisDOT issues permits for oversize/overweight vehicles and loads to provide for their safe and efficient movement. WisDOT will continue to maintain its Internet-based oversize/overweight automated permit issuance system for customers to apply for and self-issue new permits and to renew existing permits. WisDOT will continue to apply Weigh-In-Motion, Virtual Scales, PrePass and other technologies for motor carrier enforcement operations.

WisDOT will integrate roadside data captured by these systems with the commercial motor vehicle data networks maintained by the department through CVISN. Integration will provide seamless monitoring for compliance and allow better data analysis of commercial motor vehicle carrier operations.

Further, WisDOT will research bridges using virtual scale technology and similar applications for detecting and measuring the severity of needed bridge repairs. Weight data and bridge strain caused by moving vehicles (provided by bridge sensors) can be used to study the immediate and long-term effects of commercial motor vehicle traffic on bridges.

▲ *Figure 9-7: The Milwaukee Intermodal Station is a showcase for WisDOT's efforts to use technology to improve the availability of information to travelers.*

WisDOT will examine other emerging technologies related to commercial motor vehicles, and may cooperate on pilot projects to test concepts such as:

» Real-time tracking of hazardous materials shipping for commercial motor vehicles and freight rail

» Radio frequency identification to track freight shipments

» Use of GPS to notify commercial motor vehicle drivers of weight restrictions, overhead clearance restrictions, and navigation, including real-time re-routing options to avoid incidents and congestion

## *Maximize efficiency of multimodal transportation options*

Wisconsin supports and actively participates in technology-related projects including intelligent transportation systems for transit, rail, bicycle, pedestrian and aviation modes.

### *Technology for transit*

Transit systems are continually looking for ways to improve efficiency, safety and customer service. Technology is playing an increasing role in managing transit – from how the transit system addresses customer concerns and needs, to operations and how operators manage limited resources.

In the past, WisDOT has supported the study of intelligent transportation systems options for transit by organizing and funding statewide evaluation and purchasing initiatives, and by funding technology through state and federal grant programs. Past examples of transit technology advances supported by the department include:

» Web-based route assistance for riders

» Dispatching software for rural providers

» GPS-based passenger information and transit dispatch systems

» Automated distribution and collection of program applications, reports and other materials

Recently, WisDOT began a statewide intelligent transportation systems initiative for public transit systems and operators. (See Chapter 8, *Provide Mobility and Transportation Choice*, for more information about public transit.)

The goals of this initiative include:

» Evaluating options and developing procurement guidelines, selection criteria and recommendations to assist transit providers, ensure service continuity and coordination, and promote technology-based efficiencies and options

» Ongoing strategic thinking and planning mechanisms for intelligent transportation systems with involvement from WisDOT staff, transit providers and stakeholders

» Exploring existing and emerging intelligent transportation system options for all types

of transit: urban, suburban, rural, public and specialized transit

WisDOT will continually identify, evaluate and provide appropriate funding options for intelligent transportation systems equipment and services. It will support the use of technology for transit systems to improve efficiency, cost-effectiveness, and service options and information for riders.

### *Technology for intercity passenger rail and freight rail*

Although WisDOT's applications of intelligent transportation systems for intercity passenger rail are still in their infancy, the department is committed to using technology to improve the availability of information to travelers. The Milwaukee Intermodal Station is a showcase for these efforts.

Current projects at the station include installing multimodal schedule display boards with audible announcements for passenger rail, intercity bus and passenger air. Eventually, these schedule boards will reflect real-time schedules through use of GPS, freeway speed monitoring and other integrated technologies.

WisDOT is evaluating opportunities to include power auxiliary units or on-site electrification for the Hiawatha service at the station. Amtrak's Milwaukee Airport Station at General Mitchell International Airport is scheduled to receive similar equipment that lists air and rail schedules. The new Sturtevant Amtrak station also has this type of messaging system.

WisDOT will seek federal security funding to install and operate flat-panel displays and remote audio announcement technology at all Amtrak stations in Wisconsin.

WisDOT will support a variety of other technologies including but not limited to:

» Streamlined traveler information at intermodal facilities (see Chapter 8, *Provide Mobility and Transportation Choice*, for information about intermodal facilities)

» On-board wireless Internet access for riders and at rail stations along Wisconsin's Midwest Regional Rail System routes (see Chapter 8, *Provide Mobility and Transportation Choice* for information on intercity passenger rail)

» Positive train-control technology

### *Technology for bicycle and pedestrian facilities*

Technology plays a large role at pedestrian crossings for persons with disabilities. Accessible pedestrian signals include audible tones and speech messages to communicate the status of the signal cycle ("walk, "don't walk"). This technology can include countdown indicators stating the time remaining to clear the intersection, as well as information about the location, direction of travel and the name of the street to be crossed.

Emerging technologies include variable walk-light timing to give pedestrians options for the length of time they have to cross the street.

WisDOT will ensure that new pedestrian signal systems meet all federal regulations. In conjunction with scheduled intersection signal system improvements on state highways, WisDOT will update existing pedestrian signal systems to comply with federal regulations.

Similar to technology enhancing pedestrian travel, technology that would enhance bicycle travel includes bicyclist detection, especially at those areas of an intersection where motor vehicles do not often line up. In these cases, bicyclist detection often relies on loop detectors, or wires embedded in pavement that can detect metal and can be configured with the right amount of sensitivity to detect bicyclists.

WisDOT will continue to consider loop detectors for bicycle lanes and shared-lanes located at signalized intersections.

Wisconsin uses small electronic devices to count bicyclists on multi-use paths. These devices use high-sensitivity, infrared-sensing technology to count the

number of people who pass the counter. The devices transmit the data directly to a personal digital assistant device, allowing staff to analyze multi-use path data for consideration in proposed projects that have similar attributes.

WisDOT will continue to monitor these emerging technologies in bicycle and pedestrian transportation, and will collaborate with local governments to determine implementation opportunities with the greatest potential benefits.

### *Technology for aviation*

While WisDOT's use of technology systems with the aviation industry is minimal, WisDOT will continue to support future efforts to implement technology systems that improve air safety and reduce delays for passengers.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*

*Actively manage the daily operation of the state trunk highway network via the State Traffic Operations Center and other technology systems*

### Short-term (2008 – 2013)

- Develop and implement performance measures for technology systems management.
- Implement the 511 Traveler Information Program statewide.
- Upgrade older safety and weight enforcement facilities and implement technology improvements.
- Study the immediate and long-term effects of commercial motor vehicle traffic on bridges and research virtual scale and other technologies for detecting and measuring the severity of needed bridge repairs.

### Long-term (2020 – 2030)

- Examine emerging technologies related to commercial motor vehicles and cooperate on pilot projects to test concepts such as radio frequency identification, use of global positioning systems (GPS), overhead clearance restrictions and navigation and real-time tracking of hazardous materials.

### Entire planning period (2008 – 2030)

- Mainstream intelligent transportation systems for routine highway operations activities
- Continue to fund the State Traffic Operations Center and, where necessary, expand its coverage statewide.
- Continue to apply Weigh-In-Motion, Virtual Scales, PrePass and other technologies, integrating captured data with the commercial motor vehicle data networks through Commercial Vehicle Information Systems and Networks (CVISN).
- Maintain and upgrade the 511 Traveler Information Program.
- Set the framework for, monitor, research, develop and support technologies applicable to the state trunk highway system and other transportation modes.
- Continue to work closely with partner agencies, jurisdictions, states, stakeholders and others to determine implementation opportunities allowing seamless connections between technology systems.
- To assist transit providers, identify, evaluate and provide appropriate funding options for the procurement of ITS equipment and services.
- Ensure that new pedestrian signal systems meet federal regulations and bring existing signals in to compliance.
- Continue to consider loop detectors for bike lanes and shared lanes at signalized intersections.

▶ ***POLICY:***
*Optimize traffic movement on the state trunk highway system by utilizing tools to improve existing capacity and, where necessary, adding capacity*

WisDOT's vision for optimizing traffic movement on the state trunk highway system is to improve the system to reduce congestion, improve safety and support economic growth in Wisconsin.

To achieve this vision, WisDOT will:

» Use tools and strategies to improve capacity on existing facilities

» Construct new facilities to increase capacity where appropriate and warranted

## *Background*

The efficiency and reliability of Wisconsin's state trunk highway system are impacted by several factors such as traffic volume, roadway design, bad weather and incidents such as crashes, stalled vehicles and construction. These factors can result in increased congestion. A safe, efficient and reliable state trunk highway system requires routine monitoring, maintenance and preservation to meet established performance thresholds.

## *Use tools and strategies to improve capacity on existing facilities*

To enhance and improve capacity on existing facilities, WisDOT will:

» Continue to use existing tools and performance thresholds for safety and traffic movement

» Continue to manage the daily operation of the highway system

» Develop a statewide congestion management plan and program

### State trunk highway congestion

Two types of congestion affect system reliability:

› Unexpected congestion – the three main causes are incidents, work zones and weather. About one-half of all congestion is caused by these temporary, unexpected disruptions.

› Expected congestion – routinely happens when the level of traffic approaches the capacity of the road; for example, slowdowns during the daily (or "weekday") rush hour.

» Improve traffic congestion modeling

» Work with transportation management areas to develop congestion management processes

» Coordinate with local governments and developers to manage the state trunk highway system more effectively and identify critical links and access points with the local road system

*Continue to use existing tools and performance thresholds for safety and traffic movement*
WisDOT has established performance thresholds to identify changing state trunk highway conditions and WisDOT's warranted response. WisDOT uses performance thresholds for:

» Pavement and bridges (see Chapter 5, *Preserve and Maintain Wisconsin's Transportation System* for more information)

» Safety

» Traffic movement

WisDOT will continue to use these thresholds and monitor national efforts to identify whether new thresholds are needed.

### *Safety performance threshold*

Safety and traffic movement performance thresholds determine whether additional infrastructure is needed. WisDOT uses two primary methods for measuring highway safety:

» Annually evaluating crash statistics based on the number of crashes, injuries and fatalities

» Adjusting the crash statistics for the amount of travel on the state trunk highway system using vehicle miles traveled (VMT) (known as the rate of crashes, injuries or fatalities, expressed in terms of one crash per 100 million VMT)

When measuring highway safety, WisDOT compares the crash rates of similar roadways. For example, WisDOT compares Interstate routes to other Interstate routes, and *Corridors 2030* Connector routes to other *Corridors 2030* Connector routes, etc.

WisDOT uses a safety performance threshold of 2.00 standard deviations above the mean crash rate for similar highway segments as the threshold for the entire state trunk highway system. When a roadway segment exceeds the corresponding threshold, WisDOT examines whether any action is needed.

Deficient roadway design characteristics will likely point to safety improvements designed to reduce crashes and associated injuries and fatalities. However, a significant number of crashes result from driver behavior such as inattentive driving, speeding, and intoxicated driving. Therefore, WisDOT will continue to address transportation safety in a comprehensive manner that includes public education and enforcement activities, as well as emerging engineering improvements. See Chapter 6, *Promote Transportation Safety*, for more information about safety-related issues and policies.

### *Traffic movement*

As stated earlier, safety and traffic movement performance thresholds determine whether additional infrastructure is needed. WisDOT measures traffic movement or congestion levels using a level of service (LOS) performance threshold. Level of service compares the amount of traffic on a road to its capacity. It takes into consideration traffic conditions (number of vehicles, vehicle types, directional distribution) as well as roadway conditions (lane width, shoulder width, passing opportunities, design speed). Level of service is measured on a scale of A to F and ranges from "no congestion" to "extreme congestion" (Table 9-4).

WisDOT developed traffic movement performance thresholds for the state trunk highway system using the level of service categories (Table 9-4). The thresholds differ according to road classification and function.

The thresholds also vary for state trunk highways in urbanized and non-urbanized areas. A need is not triggered on a *Corridors 2030* Backbone or Connector road located in a non-urbanized area until Level D is reached. For *Corridors 2030* routes located in urbanized areas, the level of service trigger varies depending on whether the route is a Backbone or Connector.

Backbone routes have a lower level of service threshold because they function as higher-level

#### Roadway capacity

For the purposes of this policy, roadway capacity is defined as the number of vehicles a roadway can carry.

Capacity is determined by several factors, including the number of lanes; width of lanes and shoulders; traffic signal timing; intersection controls; number and type of access points such as interchanges, driveways and intersections; and speed and alignment points such as grades and curves.

Enhanced roadway capacity should improve mobility, traffic flow and safety.

**Table 9-4: Level of service performance thresholds**

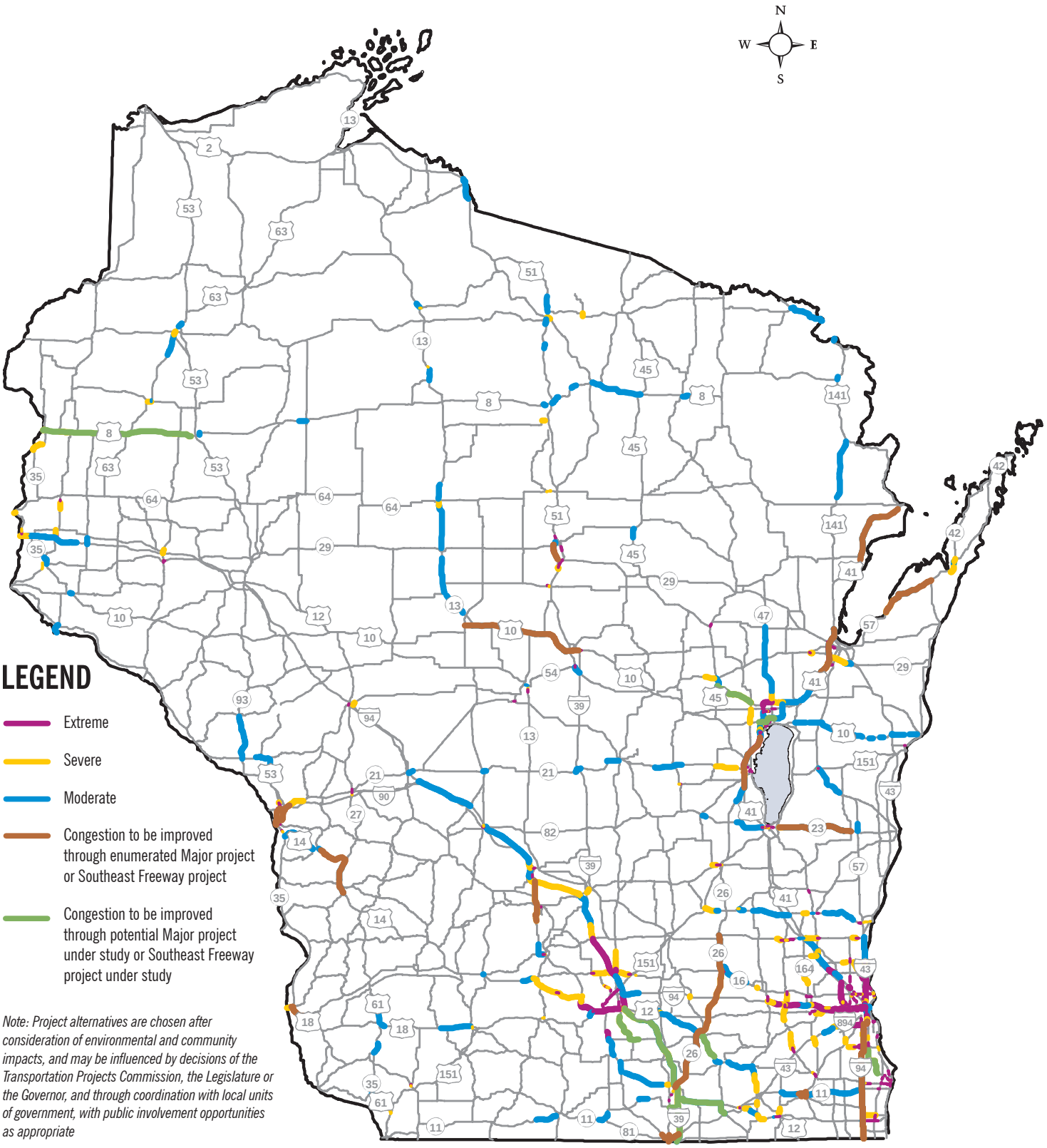
| Level of Service | Description | Characteristics |
|---|---|---|
| A | No congestion; traffic flows smoothly | On both two-lane and four-lane highways<br>• Free-flow operating speeds can be maintained<br>• Vehicles can maneuver freely within traffic<br>• Vehicles can enter the highway with little problem |
| B | No congestion; traffic flows smoothly | On both two-lane and four-lane highways<br>• Speeds generally can be maintained<br>• Vehicles' ability to maneuver within traffic is only slightly restricted |
| C | Minimal congestion; traffic flow and speeds are slightly restricted | • Drivers must be more vigilant when changing lanes on a 4-lane highway<br>• Minor incidents along the roadway can be absorbed, but tie-ups may form behind any significant blockage |
| D | Moderate congestion; speeds and distance between vehicles are reduced, constricting traffic flow | • Freedom of drivers to maneuver within the traffic stream or enter the highway is more noticeably limited<br>• Minor incidents can result in traffic jams because the traffic stream has little space to absorb disruptions<br>• Passing slow-moving vehicles on a two-lane highway becomes very difficult because gaps in traffic occur less frequently<br>• Turning vehicles and roadside distractions cause major shock waves in the traffic system |
| E | Severe congestion; vehicle speeds and spacing severely restricted | • The roadway is reaching capacity<br>• Vehicles are closely spaced leaving little room to safely accommodate vehicles changing lanes or entering the roadway<br>• Even minor incidents can impact traffic flow, resulting in extensive traffic back-ups<br>• Passing vehicles on a two-lane highway is virtually impossible, as slower vehicles or other interruptions are encountered |
| F | Extreme congestion; stop-and-go, bumper-to-bumper traffic | • Traffic demand exceeds the carrying capacity of the roadways<br>• Serious delays in travel occur when congestion reaches this level |

roadways carrying traffic at higher speeds between communities. See the "Preserve Wisconsin's state trunk highway system infrastructure" policy in Chapter 5, *Preserve and Maintain Wisconsin's Transportation System* for information regarding *Corridors 2030*.

When traffic movement is forecasted to exceed an acceptable congestion level, WisDOT examines whether action is needed, including identifying the appropriate tools and range of financial investments that could be made.

Projected 2030 congestion is shown on Map 9-1. Throughout the plan period, forecasted congestion levels may change due to such factors as new land use patterns, road construction or traffic generators. The map accounts for all currently enumerated Major Highway Development Program projects. There are currently 27 enumerated Major Highway Development Program projects for construction and eight projects approved for study by the Transportation Projects Commission. To qualify as a Major Highway Development Program project, specific statutory criteria must be met. See the "Continue and improve the performance of the Major Highway Development Program" policy in Chapter 7, *Foster Wisconsin's Economic Growth* for more information.

Major Highway Development Program projects are some of the most complex and costly WisDOT projects. Because they typically include changes to highway operations, preservation strategies and new facilities, these projects are expected to address congestion concerns within the project area.




▲ *Map 9-1: Forecast state trunk highway system congestion (2030)*

Map 9-1 shows areas where Major Highway Development Program projects will improve the traffic movement or the level of service. Projected passing lanes, lane additions and other highway operations techniques will likely also improve the level of service, but they are not included on this map.

### *Improve traffic congestion modeling*

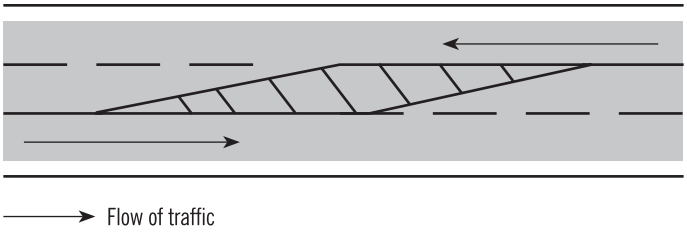
WisDOT recognizes the importance of managing and reducing congestion. The department's traffic movement performance measure, level of service, describes the extent of congestion during peak periods, the times of day with the highest traffic volumes.

Because peak period travel times are extending beyond traditional peak periods – morning and evening commute times – it is necessary to account for the duration of congestion; whether it occurs for one hour or four hours on a given corridor per day.

Historically, WisDOT has focused on congestion on the total length of the roadway. In many instances, specific segments are congested while other segments are not. Roadway users usually think of their trips in terms of how much time it takes to travel the total length of the corridor. Small segments of severe congestion can add significantly to travel time. In these instances, drivers will perceive the entire roadway as congested, not just a particular segment.

For this reason, WisDOT will develop a travel delay model. In developing the model, WisDOT will research additional performance measures that may provide a better understanding of how many hours drivers are delayed due to congestion, and the time savings that may result from improvements or alternative strategies such as roadway design changes.

These additional measures will address both expected and unexpected congestion. In most instances, drivers tend to expect some congestion (for example, the daily commute during peak hours takes 10 minutes longer than the same trip during off-peak hours). Unexpected congestion typically has a higher perceived impact because drivers do not anticipate the travel delay.




▲ *Figure 9-8: 2+1 roadway design*

### *Develop a statewide congestion management plan and program*

WisDOT will develop a statewide congestion management plan and program to provide information on state trunk highway system performance, and strategies to reduce congestion and improve mobility.

The process will coordinate with activities identified in the congestion management processes developed by the state's transportation management areas. As part of this process, WisDOT will:

» Prepare periodic reports of system performance using the traffic congestion models

» Evaluate combined strategies to reduce congestion, such as design improvements combined with operational improvements

» Identify new strategies to reduce congestion, and test their effectiveness through modeling and pilot programs. For example, the 2+1 roadway design in Figure 9-6 is a strategy that has worked well in Europe. The 2+1 design is a continuous three-lane roadway with alternating passing lanes, which differs from traditional passing lane improvements that provide isolated alternating three-lane passing lanes

### *Continue to manage the daily operation of the highway system*

Highway operations activities focus on the daily management of traffic flow. Operational strategies and tools typically do not require changes to the physical roadway.

### Transportation management areas

Transportation management areas should not be confused with transportation management associations. Transportation management areas are designated by the U.S. DOT in urbanized areas with populations of more than 200,000. Transportation management associations are voluntary and help identify and implement transportation demand management strategies to reduce the number of single-occupant vehicles.

Examples of highway operations include:

» Intelligent transportation systems – includes the use of technologies such as ramp meters, changeable message signs, improved signage (such as better route markings) and designating alternate routes to manage traffic movement (see the "Improve the reliability and efficiency of state trunk highway system operations" policy in this chapter for more information)

» Incident management – improves response and coordination between law enforcement, fire and rescue, emergency medical services, etc. (See Chapter 6, Promote Transportation Safety for additional information)

» Work zone management – includes conducting roadway project activities during non-peak travel times and adding temporary travel lanes (see Chapter 5, *Preserve and Maintain Wisconsin's Transportation System* for additional information)

» Event management and coordination – minimizes negative traffic impacts during scheduled special events and, where necessary, coordinates with law enforcement to help manage traffic flow before, during and after the event

WisDOT will continue to study, collect and analyze traffic data and incorporate findings into roadway designs. This process will involve up-front policy and planning at the state level, followed by more detailed corridor plan development to identify specific approaches. WisDOT is developing a transportation operations infrastructure planning methodology to assess the use of traffic operations elements such as ramp meters and surveillance, travel warning and information systems, and traffic signal systems to determine appropriate tools for specific regions and corridors. For more information, see the "Improve the reliability and efficiency of the state trunk highway system operations" policy in this chapter.

In addition, WisDOT uses many other strategies to meet the safety and traffic movement thresholds. These include:

» Encouraging transportation demand management strategies such as carpooling to reduce single-occupant vehicles (see Chapter 8, *Provide Mobility and Transportation Choice* for more information)

» Addressing operational and safety characteristics to improve the function of the highway system (see "Improve the reliability and efficiency of state trunk highway system operations" policy in this chapter)

» Managing state trunk highway system access (see "Manage access on Wisconsin's state trunk highway system" policy in this chapter)

TO HELP DECREASE URBAN CONGESTION, *transportation demand management strategies can be employed such as carpooling, ridesharing and telecommuting.*

▲ *Figure 9-9: Whenever traffic movement or safety concerns are identified, WisDOT determines whether roadway design may also be a factor and if roadway widening is warranted.*

» Using technologies to communicate roadway conditions or incidents (see "Actively manage the daily operation of the state trunk highway network via the State Traffic Operations Center and other technology systems" policy in this chapter)

### *Work with transportation management areas to develop congestion management processes*

The federal Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) requires that transportation management areas implement a congestion management process. A congestion management process includes defining performance measures for existing and predicted future traffic congestion; assessing existing and historic traffic congestion trends; and developing, evaluating and recommending actions to address existing and future congestion.

The congestion management processes in transportation management areas are updated every four to five years as part of a metropolitan planning organization's long-range transportation plan update. Transportation management areas are defined as urbanized areas with populations of more than 200,000. Currently, the Madison, Milwaukee and Round Lake Beach (predominantly located in Illinois with a small area located in Walworth County) urbanized areas are classified as transportation management areas by the federal government. Based on current population projections, WisDOT expects Green Bay and the Fox Cities may reach the 200,000 population threshold and be designated as separate transportation management areas as a result of the 2010 U.S. Census.

Because urbanized areas typically have the highest levels of congestion, WisDOT will continue to work with the affected urbanized areas that reach the population threshold as they develop and update their congestion management processes. The processes developed for transportation management areas will become part of the statewide congestion management plan and program.

The statewide congestion management plan and program will consist of periodic reports on state trunk highway system performance (in cooperation

### Corridor plans and studies

WisDOT will develop corridor plans and implement the plan's recommendations, if supported by an environmental document. Plans help identify efficiencies in the use of state resources. See Chapter 13, *Implementing Connections 2030*, for more information.

with the traffic congestion models within urbanized areas), an evaluation of system effectiveness, and strategies to reduce congestion through modeling and pilot programs. To help decrease urban congestion, transportation demand management strategies such as carpooling, ridesharing and telecommuting can be employed. See Chapter 8, *Provide Mobility and Transportation Choice*, for more information on transportation demand management.

*Coordinate with local governments and developers to manage the state trunk system more effectively and identify critical links and access points with the local road system*

WisDOT will continue to assess roadway conditions and performance thresholds to identify appropriate actions to reduce congestion. However, because of the nature of travel patterns, solutions to particular problems will continue to require coordination between WisDOT and local governments. WisDOT will continue to work with local governments and others to identify the appropriate methods to improve traffic movement. A key component of this will include the department's continuing efforts to participate in local comprehensive planning processes. WisDOT will also continue to work with local units of government to identify critical links and access points between the state trunk highway and local road systems. (See the "Preserve the local road and bridge system" policy in Chapter 7, F*oster Wisconsin's Economic Growth*, for more information.) Coordination enables both the state and local governments to assess appropriate access points, consider development patterns and maximize the flow of traffic along existing (and future) state and local systems.

### Case study: US 41 in Oshkosh between WIS 21 and US 45

Motorists traveling between WIS 21 and US 45 typically use US 41. WIS 21, US 41 and US 45 are four-lane highways. When the combined traffic on US 41 meets or exceeds the highway's carrying capacity, a bottleneck occurs.

In areas where real estate development is occurring, WisDOT will work with adjacent property owners to encourage development of cross-easements to reduce short local trips. Cross-easements encourage adjacent property owners to use a single access driveway, rather than having a driveway for each individual property, and to develop connections between adjacent properties. This reduces the number of access points to the roadway, and helps to improve safety and reduce congestion.

In developing suburban areas and in urban settings (where feasible), WisDOT will work with local governments to develop plans to create and enhance local road networks that parallel state trunk highways.

A strong local road network can provide sufficient property access and reduce the number of access points to the state trunk highway system. When developed, these networks encourage drivers to use local roads for short local trips instead of the state trunk highway system. For this to be effective, local governments need to preserve the parallel

WisDOT will continue to work with *local governments, adjacent landowners, environmental resource agencies and planning entities when conducting interchange studies and during all construction-related activities.*

local road system. See "Preserve the local road and bridge system" policy in Chapter 7, *Foster Wisconsin's Economic Growth,* for more information.

## *Construct new facilities to increase capacity where appropriate and warranted*

WisDOT carefully considers any decision to increase roadway capacity (defined as the number of vehicles a roadway can carry). Before WisDOT constructs additional lane miles and completes any infrastructure changes, such as bypasses or interchanges, the department prepares a clear statement of purpose and need. For example, purpose and need can be outlined in an environmental impact statement (EIS) or a tiered EIS.[1] The review of potential environmental impacts typically includes an analysis of a range of alternatives from a "no build," or "no change" alternative to a full-build-out alternative (see Chapter 10, *Preserve Wisconsin's Quality of Life*, for more information).

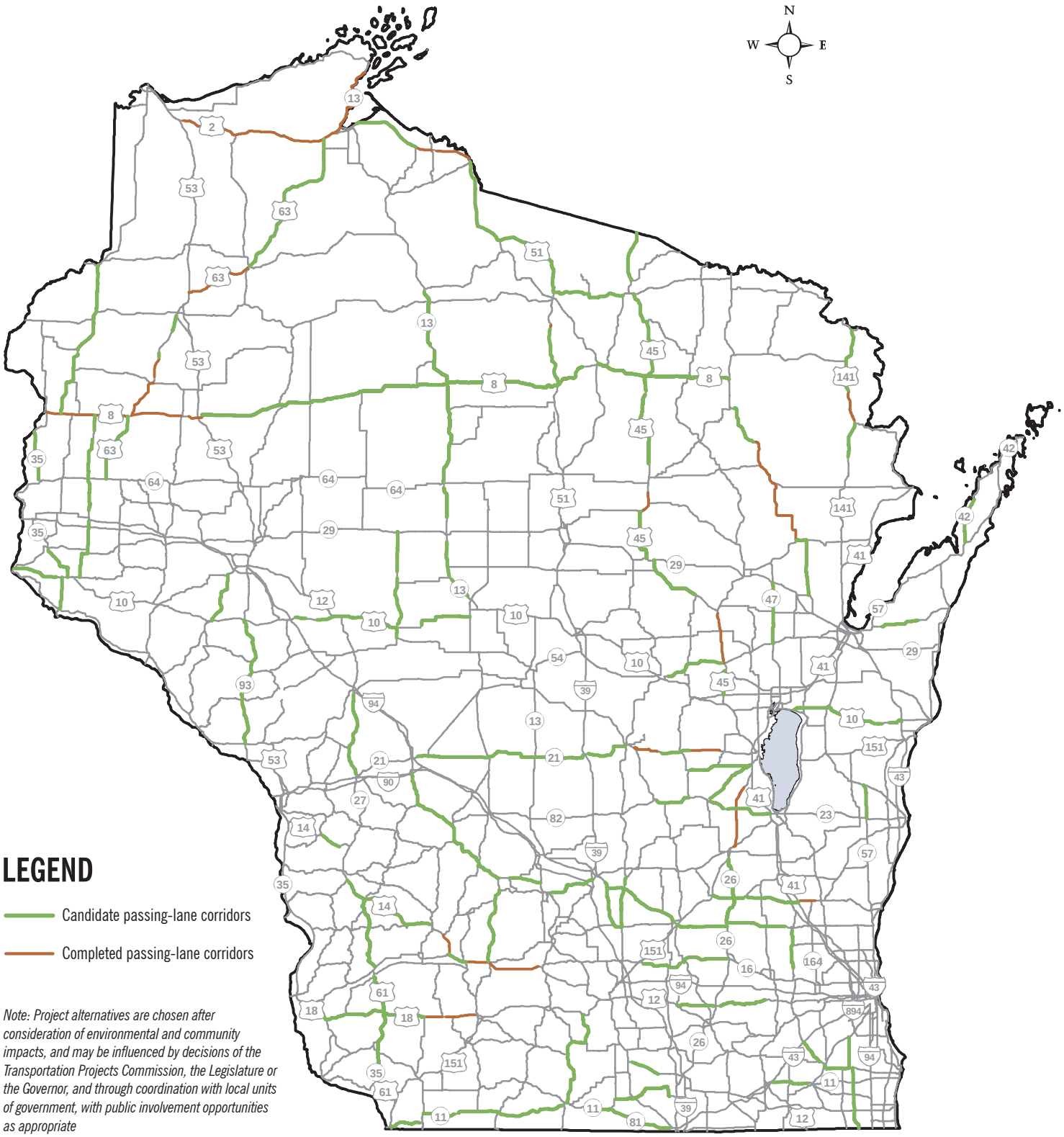
Expansion can be an expensive alternative to improve traffic movement, but in some instances it may be the best alternative in terms of safety, efficiency and overall cost, both to the individual project and to the overall economy. For example, long before the construction of a Major Highway Development Program project occurs, the candidate projects are studied to identify all environmental and social implications (see the "Continue and improve the performance of the Major Highway Development Program" policy in Chapter 7, *Foster Wisconsin's Economic Growth*, for more information).
Business and civic leaders often cite four- or six-lane highway access as a critical component in business location or expansion decisions. Moreover, shifts toward "just in time" manufacturing operations have created competitive pressures on industries to reach their markets in a timely and predictable manner. Interstate designation, for example, has helped encourage economic growth in many Wisconsin communities, as they are able to gain regional and national coverage.

Whenever traffic movement or safety concerns are identified, WisDOT determines whether roadway design may also be a factor, and if roadway widening is warranted. For example, eliminating poor sight distances, sharp curves, steep hills, and narrow lanes and shoulders, as well as improving intersections, can significantly improve safety. Safe roadways minimize the probability of traffic crashes and increase roadway efficiency and reliability. Coupled with less congestion, a safe roadway means less financial strain where property and freight shipments can be compromised.

WisDOT will sometimes undertake a project even if the safety threshold has not been exceeded, but there are safety issues at hand. These situations include updating a roadway design to meet modern design standards and completing appropriate spot safety improvements – such as installing median or cable barriers, guard rails, reflective markings, lighting and signage – during pavement replacement or reconstruction projects.

All transportation projects, including adding lane miles, are scheduled and made part of the department's Six-Year Highway Improvement Program.

[1] Tiered EIS - a method in which the National Environmental Policy Act process may be initiated in conjunction with transportation planning studies in a number of ways. General travel corridors, modes, or packages of projects are evaluated at a planning level of detail, leading to the refinement of purpose and need and, ideally, selection of the design concept and scope for a subsequent project or series of projects. The tiered EIS uses the NEPA process as a tool to involve environmental, regulatory, and resource agencies, and the public in these decisions, as well as to ensure the appropriate consideration of environmental factors in these planning-level decisions.




▲ *Map 9-2: Completed and candidate passing-lane corridors*

To address congestion and capacity needs, WisDOT will:

» Implement candidate passing-lane corridors where appropriate

» Identify large traffic bottleneck locations

» Implement candidate expressway upgrades and candidate expressway-to-freeway conversions

» Study, reconstruct and construct interchanges where needed

### *Implement candidate passing-lane corridors where appropriate*

Passing-lane corridors are primarily used in rural areas as a means of improving safety and traffic movement through an area. Adding passing lanes can be a cost-effective strategy if it is done during repaving or reconstruction of a highway segment.

WisDOT identifies passing-lane corridors by considering the following:

» Forecasted design hour traffic

» Truck traffic

» *Corridors 2030* Connector designations

» Routes with a high percentage of recreational traffic

When an initial analysis determines that a highway segment might meet the criteria for the addition of a potential passing lane, a benefit-cost analysis is conducted to analyze the investment benefit versus the mobility or the increase expected in roadway capacity. Map 9-2 shows the proposed locations of candidate passing-lane corridors through 2030, although further studies must be conducted to determine whether the additions should occur.

### *Identify large traffic bottleneck locations*

Bottlenecks typically result from roadway design limitations. This may happen when there is a reduction in the number of lanes, or at interchanges or intersection locations.

▲ *Figure 9-10: The department will continue to work with local governments and provide technical assistance on planning for land use around interchanges and identifying mitigation strategies for effects related to project impacts.*

Traffic bottlenecks can increase the cost and time associated with the movement of freight traffic, which can affect economic growth. WisDOT will identify large traffic bottlenecks and identify potential solutions for reducing them such as adding auxiliary lanes, providing alternate routes or enhancing capacity.

WisDOT will also monitor national efforts to identify potential strategies that may work in Wisconsin.

### *Implement candidate expressway upgrades and candidate expressway-to-freeway conversions*

The safety and traffic movement performance thresholds help the department determine whether candidate

▲ *Map 9-3: Candidate expressway upgrades and candidate expressway-to-freeway conversions*

expressway upgrades or candidate expressway-to-freeway conversions should be recommended.

An expressway is a multi-lane highway with at-grade intersections and some interchanges. Freeways are multi-lane routes with access only at interchanges. WisDOT will complete the necessary studies and, where appropriate, will either upgrade existing expressways and/or convert expressways to freeways on routes where future traffic movement and safety are in jeopardy. Map 9-3 identifies candidate expressway upgrades and candidate expressway-to-freeway conversions.

Some expressways may not have capacity or traffic movement concerns, but have safety concerns due to high crash rates at at-grade intersections. WisDOT will identify these high-risk locations and determine whether upgrades to interchanges or overpasses, or access closures are needed to maintain safety.

Ideally, converting this type of expressway to a freeway is a desired goal; however, it may not be economically beneficial to upgrade entire segments where only specific locations experience safety issues. In such cases, WisDOT will upgrade expressways to strategically replace existing at-grade intersections with interchanges or overpasses, or close the intersection where necessary and as funding and time allow.

In addition, WisDOT will designate and construct to freeway standards any rural community bypasses and any new construction located on the Interstate or *Corridors 2030* Backbone system. Converting from an expressway (at-grade access) to full freeway status (access at interchanges only) may occur where freeway goals have been identified in a corridor plan and WisDOT has met all the requirements for either enumeration (through the Major Highway Development Program) or through WisDOT policy action.

However, even when the route is mapped as a future freeway (either by a community or WisDOT action), budgetary limitations and/or operational criteria may necessitate incremental road construction activities.

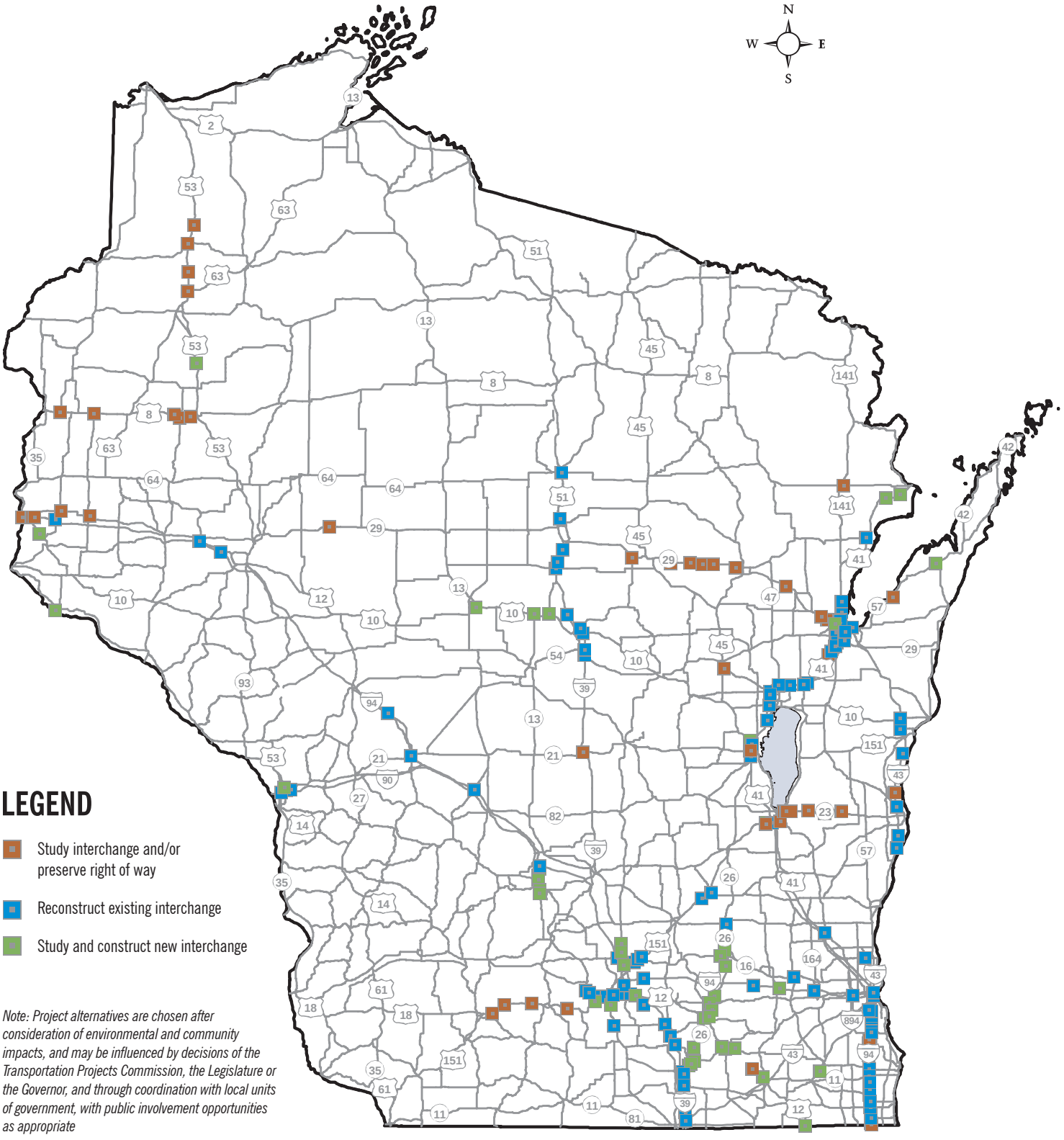
### *Study, reconstruct and construct interchanges where needed*

Interchanges create opportunities and challenges for the state and for communities' land use and economic development. Development of an effective highway system, designed to carry large numbers of vehicles rapidly and safely over long distances, requires smooth functioning of interchanges that connect the main highway to other intersecting highways.

### Major Highway Development Program

Major highway development projects are generally the most complex, costly and potentially controversial projects initiated by the Wisconsin Department of Transportation (WisDOT). They are long-term solutions to the most serious deficiencies on highly traveled segments of the highway system. By statute, a "Major highway project" denotes a project that has a total cost over $5 million, among other criteria.

WisDOT will complete the necessary studies *and, where appropriate, will either upgrade existing expressways and/or convert expressways to freeways on routes where future traffic movement and safety are in jeopardy.*




▲ *Map 9-4: Candidate statewide interchanges for study, reconstruction and/or construction*

More than 560 interchanges are located on Wisconsin's state trunk highway system. Interchanges help maintain the system's safety and efficiency, and they improve traffic flow onto and across the system. Interchanges may support commercial activity along highway corridors, which in turn supports local and regional economies.

Interchanges also present several challenges. Unplanned land use around an interchange or poorly managed development can negatively impact the effectiveness of an interchange, which may reduce traffic flow, particularly if the streets and interchange were designed under different land use plans. Interchanges are also expensive to build, and new interchanges may require large amounts of land.

The department will continue to work with local governments, provide technical assistance on planning for land use around interchanges, and identify mitigation strategies for direct and indirect effects related to interchange impacts (see Chapter 5, *Preserve Wisconsin's Quality of Life*, for more information).

Criteria for studying interchanges include analysis of the operational and capacity needs at a particular location. To aid the department in defining statewide priority needs, in 2007 WisDOT initiated the Backbone Interchange Study of the Corridors 2030 Backbone system in areas outside southeastern Wisconsin. The study evaluated and prioritized the most pressing Backbone system interchange needs and developed improvement alternatives to mitigate safety and capacity problems.

WisDOT will use the study results to focus funding and resources to key interchange needs around the state. WisDOT will use the study methodology to evaluate other interchange needs on the Backbone system and elsewhere in Wisconsin.

In addition to identifying interchange needs using the process described, additional state trunk highway interchange needs are identified by:

» Working with local governments to identify potential new interchange locations

» Evaluating new federally designated Interstate routes in Wisconsin

» Following the corridor management plan/study development process

Throughout the *Connections 2030* planning period, WisDOT will study, preserve right of way, reconstruct deteriorating interchanges and, where needed, construct new interchanges. Map 9-4 identifies interchange locations that will be studied, or where WisDOT will work to preserve the right of way within the plan horizon (approximately 50 candidate locations). Map 9-4 also identifies existing candidate interchanges to be reconstructed (approximately 100) and new candidate interchanges to be constructed (approximately 50). Project-specific studies will be used to determine if an interchange is needed and to preserve the land required for future construction, as appropriate.

WisDOT will continue to work with local governments, adjacent landowners, environmental resource agencies and planning entities when conducting interchange studies and during all construction-related activities.

### *Corridors 2030*

Corridors 2030 is an update to the Corridors 2020 plan, which was first published in 1988 and most recently updated in 2000.

The Corridors 2030 network continues a system of Backbone and Connector routes. Backbone routes are the highest value multilane (or planned multi-lane) divided highways, interconnecting all regions and major economic centers statewide and tying them to the national transportation network. Connector routes include high quality two- and four-lane highways connecting all other significant economic and tourist centers to the Backbone system.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*

*Optimize traffic movement on the state trunk highway system by utilizing tools to improve existing capacity and, where necessary, adding capacity*

### *Short-term (2008 – 2013)*

- Develop a statewide congestion management plan and program.

### *Mid-term (2014 – 2019)*

- Develop a travel delay model.

### *Entire planning period (2008 – 2030)*

- Continue to use pavement, bridge, safety and traffic movement performance thresholds, and monitor national efforts identifying new thresholds.
- Continue to study, collect and analyze traffic data over time, and incorporate findings during the design phase of subsequent projects.
- Continue to work with transportation management areas to develop and update their congestion management processes.
- Monitor national efforts to reduce traffic bottlenecks to identify potential strategies that may work in Wisconsin.
- Identify large traffic bottlenecks and potential solutions.
- Implement candidate passing lane corridors, where appropriate.
- Continue to work with local governments and others to:
  - Identify appropriate methods to improve traffic movements.
  - Identify critical links and access points between the state trunk highway system and the local road system.
  - Encourage development of cross-easements.
  - Develop plans that encourage development and enhancement of local road networks paralleling state trunk highway facilities.
  - Provide technical assistance on land use planning around interchanges.
  - Identify mitigation strategies for direct and indirect effects related to interchange project impacts.
- Complete studies and implement candidate expressway upgrades and/or candidate expressway-to-freeway conversions.
- Address transportation safety comprehensively through public education and enforcement activities and utilize emerging engineering improvements.
- Identify high-risk state trunk highway locations and determine whether design changes are needed to maintain safety.
- Use the Backbone Interchange Study methodology to evaluate interchange needs and focus funding and resources to key interchange needs across the state.
- Study, preserve right of way, reconstruct deteriorating interchanges and, where needed, construct new interchanges.
- Designate and construct to freeway standards rural bypasses and new construction on the Interstate system or on Corridors 2030 Backbone system.

▶ ***POLICY:***
*Manage access on Wisconsin's state trunk highway system*

Access management is the key to preserving a highway's two primary functions; mobility and access to adjacent lands. It is defined as the process of planning and maintaining appropriate access spacing, access-point design, and the total number of access points to a highway system to safely maintain its traffic carrying capacity. The overall goal for access management is to protect the safety of, capacity of, traffic flow on, and public investment in, state trunk highways as well as work with the public and local governments to provide access where it is possible with minimal conflicts.

To effectively manage access on state trunk highway system, WisDOT will:

» Manage access according to the *State Access Management Plan*

» Address daily state trunk highway system operational goals through sound access management decision-making

## Background

Access points are connections between local roads and the state trunk highway system, and may include driveways, median openings, and interchange and street connections. Access management activities range from the daily decisions – such as responding to a private landowner driveway access request or as part of the design of traffic signals – to the long-range visioning process between WisDOT and local governments (see the "Preserve the local road and bridge system" policy in Chapter 7, *Foster Wisconsin's Economic Growth*).

The intent of access management is to allow adequate, safe and reasonably convenient access to the highway system, as well as to adjacent land and land uses, consistent with the interest of public safety and preservation of the public investment in the highway facility. WisDOT's *State Access Management Plan* defines highway mobility goals and coordinates access requirements for land use.

### Benefits of access management

› Improved public safety by reducing crash potential

› Extended useful life of the state trunk highway system by preserving capacity

› Extended useful life of the local road system by diverting or encouraging through-traffic on state trunk highways, as well as promoting and preserving the local street system for local vehicle, bicycle and pedestrian trips

› Efficient movement of people and goods using any surface transportation mode by minimizing travel delay and congestion. This supports a safe and effective multimodal system

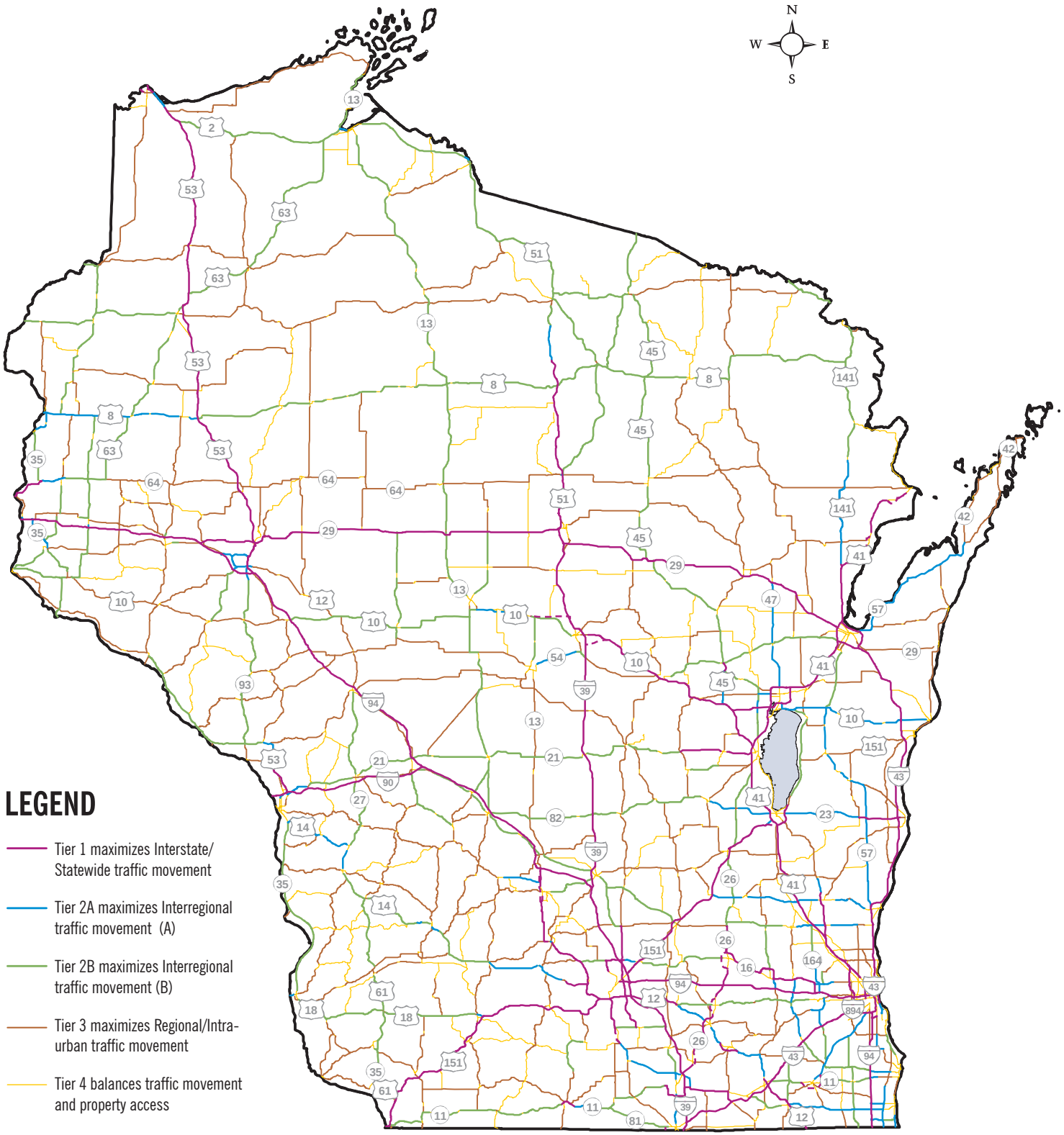
› Sustained economic development that is consistent with safety and operational goals

› Improved intergovernmental coordination and cooperation by participating in and implementing state, regional and local plans

## Manage access according to the State Access Management Plan

The *State Access Management Plan* defines the vision and policy for appropriate access on Wisconsin's state trunk highway system. The plan recommends that all access decisions balance current needs with safety risks and be consistent with the long-range mobility vision described in Map 9-5.

Five state trunk highway access types are defined as part of the *State Access Management Plan* (Map 9-5), ranging from a high degree of access control or a Tier 1 (state trunk highways that maximize Interstate or




▲ *Map 9-5:* State Access Management Plan *tiers*

## Table 9-5: Guidelines for new access points

| Goal for access and traffic movement | Type of new access allowed |
|---|---|
| Tier 1 maximizes Interstate/Statewide traffic movement | • Interchanges<br>• Locked/gated driveways for emergency vehicles<br>• On an interim basis – isolated field entrances |
| Tier 2A maximizes Interregional traffic movement | • At-grade public road intersections, with some interchanges possible at higher volume routes<br>• Locked/gated driveways for emergency vehicles<br>• On an interim basis – isolated field entrances |
| Tier 2B maximizes Interregional traffic movement | • At-grade public road intersections<br>• Lower volume residential, commercial, and field |
| Tier 3 maximizes Regional/Intra-urban traffic movement | • At-grade public road intersections<br>• Higher volume residential, commercial, and field |
| Tier 4 balances traffic movement and property access | • All types, provided they meet safety standards |

## Table 9-6: Guidelines for existing access points

Decisions regarding access management are challenging. Efforts to maintain roadway safety and minimize traffic crashes and achieve a desired level of access for adjacent landowners can be difficult to manage. Sometimes adjacent landowners do not recognize safety and traffic flow concerns. WisDOT will seek to curtail traffic crashes, maximize highway safety and manage access according to the *State Access Management Plan* vision.

When an existing access point does not meet the desired level of access control, it is often because no reasonable alternative access exists (a side road, for example) or no opportunity to obtain an alternative access exists. In response, decisions and actions will consider the following:

- Alter all existing access points to meet departmental and operational safety standards as opportunities arise
- Develop a long-term plan to remove existing hazardous access points when opportunities arise
- Restrict access with a covenant, a formal sealed contract or agreement. When a property is restricted-access via covenant, its owners will not be granted further access beyond the agreement indicated

WisDOT will work with the general public and local governments to achieve a safe and efficient state trunk highway system in the public interest.

statewide mobility goals, such as I-94) to state trunk highways with a balance between mobility and access on Tier 4 routes (for example, WIS 127, WIS 175, WIS 86). Guidelines for both new and existing access types are outlined on Tables 9-5 and 9-6.

WisDOT will follow the guidelines for new and existing access points (see Tables 9-5 and 9-6) as closely as possible out to the year 2030 to achieve the *State Access Management Plan* vision. Along with the *State Access Management Plan*, corridor plans and local comprehensive plans, several state statutes and administrative codes help WisDOT and local governments achieve access management goals in a given corridor.

For example, designating a highway as an Interstate means that specific requirements for access are met. Ultimately, WisDOT will implement the *State Access Management Plan* as an integral component of the corridor management approach and continue to monitor and evaluate implementation on an ongoing basis.

Further, access management should be properly coordinated with local comprehensive plans and land development decisions. During this joint planning process, local governments can disclose their ideas for the type of land uses that might influence the state trunk highway carrying capacity in the future. In light of the guiding principles that the *State Access*

CONTINUED DILLIGENCE IN WORKING *with the public, local units of government, the private sector and other state and federal agencies helps to ensure proper management of access as an ongoing successful activity.*

*Management Plan* promotes, every access decision may be different but will be sound in its respect for the common good in Wisconsin and be focused on statewide access goals.

## *Address daily state trunk highway operational goals through sound access management decision-making*

State trunk highway operations staff are concerned with the daily decisions that affect how traffic movement flows. They respond to everyday events and perform a handful of critical actions impacting access and operational goals for state highways. WisDOT will use access management measures such as standard traffic control devices and highway connection permits to control the degree of state trunk highway access according to the *State Access Management Plan*.

Standard traffic control devices include signals, roundabouts and intelligent transportation systems options. Traffic signal timing can affect traffic and ultimately traffic flow by improving efficiencies and system performance. In terms of access management, WisDOT will continue to manage traffic control devices on state-owned facilities, in cooperation with local governments.

Driveway and utility permits are another way WisDOT controls state trunk highway access. WisDOT must issue a permit to a property owner to allow encroachment onto WisDOT right of way either for an access point, such as a driveway, or for features such as buried utilities, which often run along highways in the right of way.

Throughout the plan period, WisDOT will work to ensure that driveways and utilities within WisDOT right of way all have legal permits.

Another way to manage access is through new construction. See the policy in this chapter called "Optimize traffic movement on the state trunk highway system by utilizing tools to improve existing capacity and, where necessary adding capacity" for more information. WisDOT will designate and construct to freeway standards rural community bypasses and new construction on the Interstate system and on the Corridors 2030 Backbone system.

Further, when roadway capacity changes, access to local roads and streets can also change. By providing local road or private interconnections between adjacent parcels or neighborhoods, access can be shared to create one access location instead of many. WisDOT supports accommodations and linkages to create a connected network that provides accessibility along and across highways.

WisDOT will study, preserve right of way, reconstruct and where needed, construct new interchanges as outlined in the policy in this chapter, "Optimize traffic movement on the state trunk highway system by utilizing tools to improve existing capacity and, where necessary adding capacity."

Continued diligence in working with the public, local units of government, the private sector and other state and federal agencies helps to ensure proper management of access as an ongoing successful activity. WisDOT will continue to work with local governments and others to:

» Provide technical assistance on land use planning around interchanges

» Identify methods to improve traffic movement

» Identify critical links and access points between the state trunk highway system and the local road system

» Encourage development of cross-easements

» Develop plans that encourage development and enhancement of local road networks paralleling state trunk highway facilities

» Identify mitigation strategies for direct and indirect effects related to interchange project impacts

See the policy in this chapter called, "Maximize traffic movement on the state trunk highway system by utilizing tools to improve existing capacity and, where necessary adding capacity" and the policy called, "Preserve the local road and bridge system" in Chapter 7, *Foster Wisconsin's Economic Growth*, for more information.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Manage access on Wisconsin's state trunk highway system*

***Entire planning period (2008 – 2030)***

- Seek to curtail traffic crashes, maximize highway safety and manage access for new and existing access points according to the State Access Management Plan as closely as possible (see Tables 9-5 and 9-6).
- Continue to work with local governments and others to:
  - Identify appropriate methods to improve traffic movements.
  - Identify critical links and access points between the state trunk highway system and the local road system.
  - Encourage development of cross-easements.
  - Draft plans that encourage development and enhancement of local road networks paralleling state trunk highway facilities.
  - Provide technical assistance on land use planning around interchanges.
  - Identify mitigation strategies for direct and indirect effects related to interchange project impacts.
- Implement the State Access Management Plan as an integral component of the corridor management approach and continue to monitor and evaluate access management implementation on an ongoing basis.
- Throughout the plan period, WisDOT will work to ensure that driveways and utilities within WisDOT rights of way all have legal permits.
- Use access control measures such as standard traffic control devices and highway connection permits to control the degree of state trunk highway access according to the State Access Management Plan.
- Designate and construct to freeway standards rural bypasses and new construction on the Interstate system or on Corridors 2030 Backbone system.
- Study, preserve right of way, reconstruct deteriorating interchanges and, where needed, construct new interchanges.

# **CHAPTER 10:** Preserve Wisconsin's Quality of Life

WisDOT's vision for Wisconsin is a well-managed, safe and efficient transportation system that carefully balances consideration of the human environment and historic resource conservation.

Wisconsin's communities and natural resources are critical to the state and its residents' quality of life as they provide a strong foundation for the state's economic growth. As the agency responsible for mobility in Wisconsin, WisDOT focuses on maintaining critical transportation functions (safety, security and efficiency), balancing responses to stakeholder issues and addressing potential environmental impacts. To accomplish this, WisDOT will:

» Ensure that the department considers the range of impacts the transportation system may have on the environment, and identify feasible, cost-effective solutions that avoid, minimize or mitigate those impacts as appropriate

» Comply with state and federal environmental laws

» Encourage public participation in the environmental review process

In addition, WisDOT supports stewardship activities that enhance the environment within the context of its transportation programs and projects. Activities include, but are not limited to, wetland banking, habitat conservation, voluntary air quality improvement efforts and preserving prairie remnants along the highway system.

The department also recycles a variety of materials as part of "The New Recycling Law" (1989 Wisconsin Act 335). Recovered materials such as portland cement concrete pavement, reclaimed asphaltic pavement, fly ash and glass are used in construction, reconstruction and for incidental transportation improvements consistent with standard engineering practices. Materials may be used as long as they meet performance specifications and criteria. Recycled materials are not used if they result in poor performance, are not cost effective or are found to impair health, safety or the environment.

For the purpose of this plan, "quality of life" refers to the natural and cultural features of Wisconsin that make this state a pleasant place to work and live. The policies in this chapter describe the department's role, scope of responsibility and future direction in transportation planning and environmental sustainability. They focus on maintenance and preservation of natural and

▶ ***POLICIES IN THIS CHAPTER FOR PRESERVING WISCONSIN'S QUALITY OF LIFE:***

- › *Continue a comprehensive approach to integrating transportation and environmental issues*
- › *Emphasize air quality improvement*
- › *Emphasize the preservation of protected resources*
- › *Incorporate environmental justice in all planning, programming and project decisions*
- › *Continue community sensitive solutions efforts*
- › *Preserve and enhance a positive land use/transportation relationship*

FOR THE PURPOSE OF THE *CONNECTIONS 2030* PLAN, "QUALITY OF LIFE" *refers to the natural and cultural features of Wisconsin that make this state a pleasant place to work and live.*

sensitive resources, clean water and air quality; sound and noise pollution abatement; and incorporating aesthetic elements into the built environment.

The policies also address the land use and transportation relationship, and effects on the built and natural environment, with discussion regarding agricultural land and protected resources.

## Challenges

The department recognizes that transportation decisions can negatively impact the state's natural and built environments. Challenges include how to appropriately balance safety and security needs while avoiding, minimizing or mitigating potential environmental impacts. These impacts typically are the result of transportation improvements designed to meet increased demands on the system by vehicles traveling on the roads, airways and railroads. They also are the result of development pressures and demands for additional access to the transportation system.

While WisDOT is not always able to avoid or minimize every impact, the department uses a broad range of tools to evaluate and manage impacts, and balance stakeholder interests, to the extent possible.

## Opportunities

Given these challenges, WisDOT continues to identify opportunities that will emphasize and preserve community character and aesthetics. Efforts focus on designing and building transportation facilities within the context of the natural surroundings and community character. Stricter environmental regulations, improved partnerships with key stakeholders and agencies, updated technologies, and increased awareness of the relationship between transportation and land use, contribute to preserving these natural and cultural resources.

In addition, efforts at the local, state, national and international levels to address climate change (see "Emphasize air quality improvement" policy in this chapter) and energy independence (see Chapter 7, *Foster Wisconsin's Economic Growth*) offer opportunities to improve air quality and address the use of natural resources. Other related policies are in Chapter 5, *Preserve and Maintain Wisconsin's Transportation System* and Chapter 9, *Promote Transportation Efficiencies*.

To build on existing department efforts and implement the plan's vision, the following key policies are defined for this chapter:

- Continue a comprehensive approach to integrating transportation and environmental issues
- Emphasize air quality improvement
- Emphasize the preservation of protected resources
- Continue Community Sensitive Solutions efforts
- Incorporate environmental justice in all planning, programming and project decisions
- Preserve and enhance a positive land use/ transportation relationship

In addition to the policies described, WisDOT's efforts to integrate environmental considerations into transportation decision-making will continue to:

- Comply with federal and state environmental laws, regulations and executive orders relevant to transportation and support future standards and programs
- Support and fulfill the WisDOT - Wisconsin Department of Natural Resources (DNR) cooperative agreement, and other current and future interagency agreements
- Meet recognized standards, practices and guidelines for assessing and mitigating direct, indirect and cumulative environmental impacts
- Seek balanced solutions when potential conflicts arise on projects or initiatives

▶ ***POLICY:***
*Continue a comprehensive approach to integrating transportation and environmental issues*

Environmental protection is an important component of WisDOT's transportation investment decisions. Ensuring that transportation decisions and environmental protection are integrated enables the department to respond to mobility and safety needs while working to address potential environmental impacts.

To continue a comprehensive approach to integrating transportation and environmental issues, WisDOT will:

» Work to streamline the state's environmental review process

» Collaborate with local, state and federal resource agencies, as well as the general public and other key stakeholders, in the environmental decision-making process

## *Background*

WisDOT environmental policies are based on federal and state environmental laws, regulations, executive orders and interagency agreements, as well as the National Environmental Policy Act and the Wisconsin Environmental Policy Act. Combined, these environmental regulations require WisDOT to avoid, minimize and mitigate, whenever possible, the potential negative impacts of transportation decisions and/or actions on the state's natural and cultural resources.

WisDOT works with all stakeholders to identify natural and cultural resources and address the impacts that transportation decisions may have on them. To build on existing methods and integrate best practices, the department will continue to consider and, where appropriate, apply new methodologies when integrating environmental considerations into transportation decision-making. For example, in the future, the use of the ecosystem approach may be considered to integrate management of land, water and living resources, as well as social, economic or other environmental factors.

The ecosystem approach is a method used to sustain or restore natural systems and their functions. It is a goal-driven approach, based on a collaboratively developed vision of desired future conditions that integrates ecological, economic and social factors. It is applied within a geographic framework defined primarily by ecological boundaries.

WisDOT's efforts to protect the environment are project-specific, with protection focused on small and/or isolated habitats. An ecosystem approach can result in more effective protection of natural resources by

### National Environmental Policy Act and Wisconsin Environmental Policy Act

Passed in 1969, the National Environmental Policy Act directs federal agencies to conduct environmental reviews to consider the potential environmental impacts of their proposed actions and reasonable alternatives to those actions.

Wisconsin adopted the Wisconsin Environmental Policy Act in 1972, directing all state agencies to gather relevant information and consider it in their decision-making processes. Under the Act, if the proposed action is identified to be a "major action significantly affecting the quality of the human environment," the law requires interagency consultation and preparation of an environmental impact statement regarding possible environmental impacts.

In addition, the Wisconsin Environmental Police Act requires state agencies to study, develop and describe alternatives when a particular course of action involves unresolved conflicts in the use of available resources.

focusing on the larger ecological community. While the current state and federal regulatory framework does not enable full implementation of an ecosystem approach, the department will evaluate opportunities to integrate aspects of this approach, as appropriate.

### *Work to streamline the state's environmental review process*

WisDOT will continue to ensure that all of its processes meet environmental regulations. In addition, WisDOT will work with its partners to identify and implement efficiencies in its study and documentation methods. The department will also work with federal, state and local agencies to identify ways to shorten the review and approval process. Environmental streamlining and stewardship requires transportation agencies to work together with natural, cultural and historic resource agencies to establish realistic timeframes for the environmental review of transportation projects. By working together, agencies meet established timeframes while continuing to protect and enhance the environment.

The efficient and effective coordination of multiple environmental reviews, analyses, and permitting actions is essential to meeting the environmental streamlining and stewardship mandates for highway and transit projects defined under SAFETEA-LU.

### WisDOT tribal planning consultation policy

WisDOT will consult with tribes who have ancestral homelands within the state boundaries on all decisions that may affect tribal rights and interests in regard to long and short range transportation planning. WisDOT is committed to government-to-government consultation with tribes on actions that affect identified tribal rights and issues.

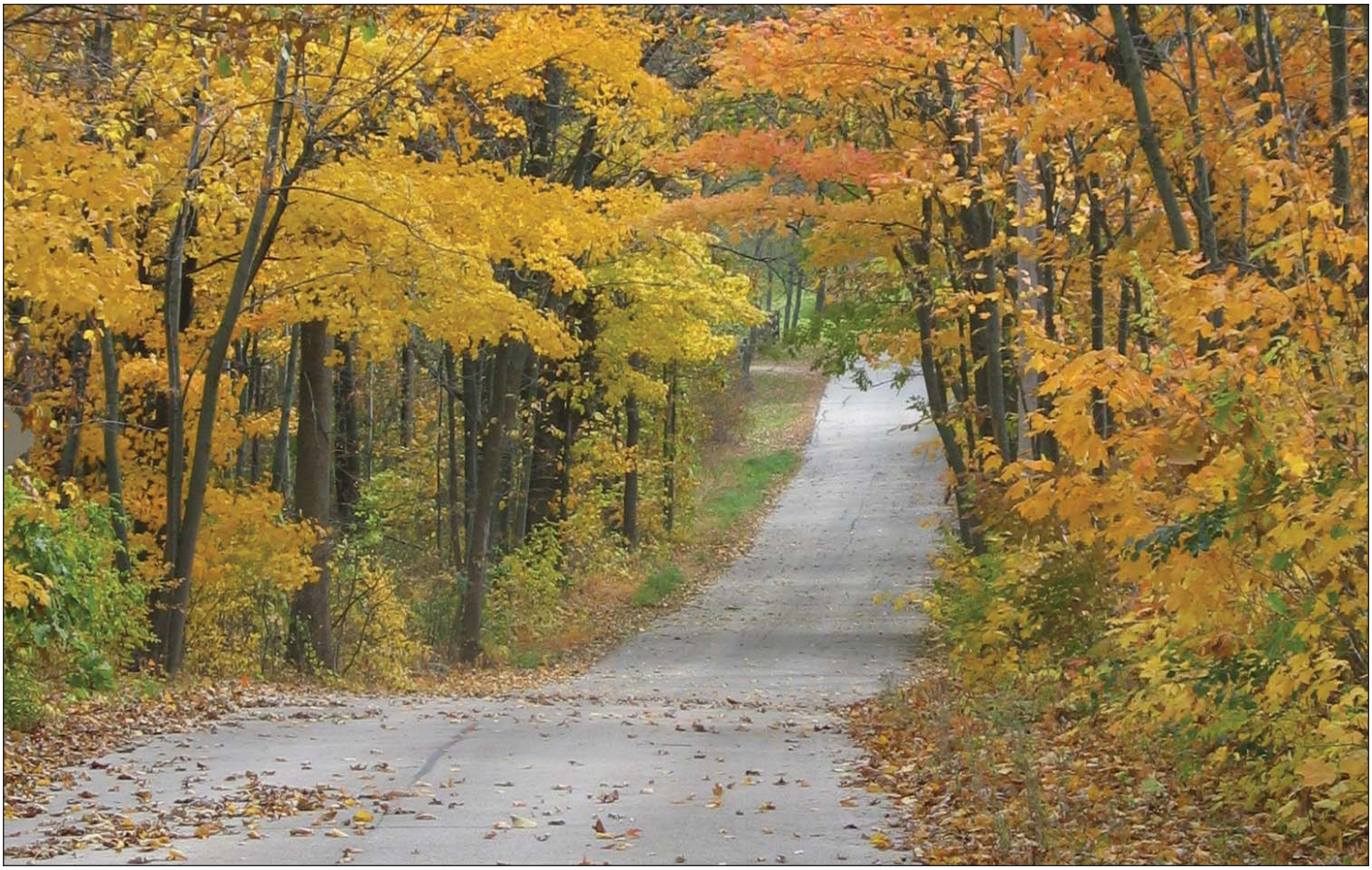
Consultation means respectful, effective communication in a cooperative process that works toward a consensus, before a decision is made or an action is taken. Consultation means more than simply informing affected tribes about what the department is planning to do. WisDOT acknowledges that consultation is a process, not a guarantee of agreement on outcomes. While dedicated to implementing constructive consultation practices, the department hopes to go beyond issue-specific consultation. The goal is to achieve mutually beneficial priorities, programs and interests.

Due to the complexity of WisDOT, the department may not be able to identify in advance all issues that may be appropriate subjects for tribal consultation. However, WisDOT will begin the planning consultation process, as follows:

› The WisDOT Bureau of Planning and Economic Development and the WisDOT Tribal Liaison shall review tribal long-range transportation plan documents whenever WisDOT and/or a tribe updates their respective long-range transportation plan.

› When WisDOT is developing a long-range transportation plan, the Bureau of Planning and Economic Development will hold:
- A meeting with representatives from the Tribal Planning Departments of all 11 tribal Nations in Wisconsin, planning representatives from each WisDOT region, the Bureau of Indian Affairs, and the Federal Highway Administration, to discuss the transportation issues and needs
- A statewide followup meeting to discuss the draft plan
- A meeting at any other time as requested by individual tribes and/or WisDOT.

› WisDOT shall hold one regional planning meeting per year per WisDOT transportation region with WisDOT Regional Office Planning staff and tribes located within that region. The meeting shall focus on short-range planning goals and specific planning goals within WisDOT's Six-Year Highway Program.



▲ *Figure 10-1: Wisconsin works with stakeholders to identify natural and cultural resources and address the impacts that transportation projects may have on them.*

Recent changes to federal environmental review requirements mandated by SAFETEA-LU affect how WisDOT plans and implements transportation projects. These changes are intended to streamline the environmental review process and provide for early, formal coordination among interested agencies and the public. This new, incremental flexibility could improve interagency coordination and speed up project delivery.

### *Collaborate with environmental resource agencies and other key stakeholders on the data collection and decision-making process*

WisDOT will continue to work with local, state and federal agencies, tribes, stakeholders and the public to explore reasonable and appropriate ways to address environmental impacts resulting from transportation plans or projects. This will include consulting with Wisconsin's 11 federally recognized tribal nations, pursuant to the 2005 partnership agreement established between WisDOT, the Federal Highway Administration (FHWA), and the tribes, and WisDOT's Tribal Planning Consultation Policy. It also includes interagency agreements with state agencies including the Wisconsin DNR, the Wisconsin Department of Agriculture, Trade and Consumer Protection and the State Historical Preservation Office. Each agreement outlines roles, responsibilities and expectations for interagency coordination and communication.

In addition to working with federal and state agencies, WisDOT will continue to work with local governments to coordinate state transportation plans

and projects with local comprehensive planning and other activities. WisDOT will also compare the statewide transportation plan with federal, state and tribal conservation plans, maps and inventories of natural and historic resources and other documents.

When working on specific transportation projects, WisDOT will continue to inform all affected agencies, organizations and the public about the potential environmental impacts of proposed transportation actions or decisions. The department will also work with its stakeholders to consider the benefits, costs and trade-offs of various actions before making decisions. WisDOT will continue providing opportunities for community participation and input during project planning, design and implementation.

Finally, WisDOT will work with its partners to enhance the information sharing process. Critical efforts will focus on working with environmental agencies to improve the quality, completeness and accessibility of environmental data, analysis and documentation made available to the public and decision-makers. These efforts will help build consensus, reduce conflict and improve the overall effectiveness of the environmental review process.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Continue a comprehensive approach to integrating transportation and environmental issues*

**Entire planning period (2008 – 2030)**

- Improve the quality, completeness and accessibility of environmental data, analysis and documentation.
- Build consensus with stakeholders by coordinating with state and federal agencies, local governments, tribes and the public.
- Improve the overall effectiveness of the environmental review process.
- Identify and address emerging environmental issues that affect the quality or cost of transportation plans and projects.
- Coordinate state transportation efforts with local comprehensive plans and land use activities.
- Compare statewide transportation plans with federal, state and tribal conservation plans, maps and inventories of natural and historic resources, if available, as well as other required documents.
- Evaluate the existing state regulatory framework and review options to integrate aspects of a systematic "ecosystem" approach.
- Continue to honor and implement the 2005 partnership agreement and the WisDOT Tribal Planning Consultation Policy, as well as agreements with other state agencies.

▶ ***POLICY:***
*Emphasize air quality improvement*

To maintain and improve air quality throughout Wisconsin, WisDOT will:

» Comply with existing policies and regulations aimed at maintaining and improving air quality

» Support and participate in air quality improvement programs and activities

» Monitor emerging air quality issues

## *Background*

Despite increases in the number of vehicle miles traveled, emissions from motorized vehicles have decreased due to cleaner fuels and engines. However, motorized vehicles remain a contributor to overall air quality issues. As a result, transportation agencies have a role in implementing the laws and regulations established to protect the nation's air quality. WisDOT has been, and continues to be, committed to national and state efforts aimed at improving air quality.

As part of the Clean Air Act[1] (as amended in 1990), the U.S. Environmental Protection Agency (EPA) established allowable ambient concentrations for six "criteria" pollutants: carbon monoxide, nitrogen dioxide, ozone, particulate matter, sulfur dioxide and lead. The standards for these six criteria pollutants are commonly referred to as the National Ambient Air Quality Standards (NAAQS).

Areas that do not exceed the NAAQS levels are considered attainment areas. Areas where any of the standards are violated are considered non-attainment areas. Once an area has attained the NAAQS standard, the area requests redesignation to attainment status.

[1] The Clean Air Act of 1970 sets limits on certain air pollutants, as well as the amount of air pollution that can be emitted in the United States. It is administered by the EPA.

### National Ambient Air Quality Standards (NAAQS)

The Clean Air Act, last amended in 1990, requires the U.S. EPA to set National Ambient Air Quality Standards (40 CFR part 50) for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, and damage to animals, crops, vegetation and buildings.

~ www.epa.gov/air/criteria.html

In order to be redesignated, several requirements must be met, including a fully approved maintenance plan. The maintenance plan demonstrates continued attainment of the NAAQS standards for 10 years, followed by a revised maintenance plan covering an additional 10 years (this revision is due in the eighth year of the first 10-year period).

In addition to setting specific emissions levels for the above criteria pollutants, the U.S. EPA is also responsible for establishing and overseeing implementation of national programs aimed at reducing mobile source pollution. Specifically, the U.S. EPA issues rules setting emission limits for light-duty cars and trucks, heavy-duty trucks and buses, locomotives, construction equipment, off-road vehicles, etc.

On July 20, 2005, the U.S. EPA proposed requirements for an emissions trading program as part of its Regional Haze Rule. Regional haze regulations call for states to establish goals for improving visibility in national parks and wilderness areas, and to develop long-term strategies and regulations for reducing emissions of air pollutants that cause visibility impairments. The steps

### Best available retrofit technology

On June 15, 2005, the U.S. Environmental Protection Agency finalized amendments to the July 1999 regional haze rule. These amendments apply to the provisions of the regional haze rule that require emission controls known as best available retrofit technology for industrial facilities emitting air pollutants that reduce visibility by causing or contributing to regional haze.

States were required to develop their implementation plans by December, 2007. They were then asked to identify facilities that must reduce emissions under best available retrofit technology requriements and then set best available retrofit technology emissions limits for those facilities.

~ www.epa.gov/air/visibility/fs_2005_6_15.html

states take to implement these regulations are expected to have the additional benefit of improving visibility in broad areas across the country beyond the Class I areas[2] addressed specifically in the new regulations. These changes apply to the processes used by states or tribal governments to demonstrate that an emissions trading program could be used as an alternative to applying best available retrofit technology.

The best available retrofit technology requirements of the regional haze rule apply to facilities built between 1962 and 1977 that have the potential to emit more than 250 tons per year of visibility-impairing pollution. Those facilities fall into 26 categories, including utility and industrial boilers, and large industrial plants such as pulp mills, refineries and smelters. Many of these facilities have not previously been subject to federal pollution control requirements.

In Wisconsin, air quality is affected by emissions originating within the state and emissions transported northward along Lake Michigan from surrounding states. The highest levels of air pollution occur in Wisconsin's southeastern counties and in the counties along Lake Michigan. Pollutants of greatest concern to Wisconsin include ozone[3] and particulate matter. Wisconsin does not currently appear to be at risk of exceeding the NAAQS standards for carbon monoxide, nitrogen dioxide, sulfur dioxide and lead.

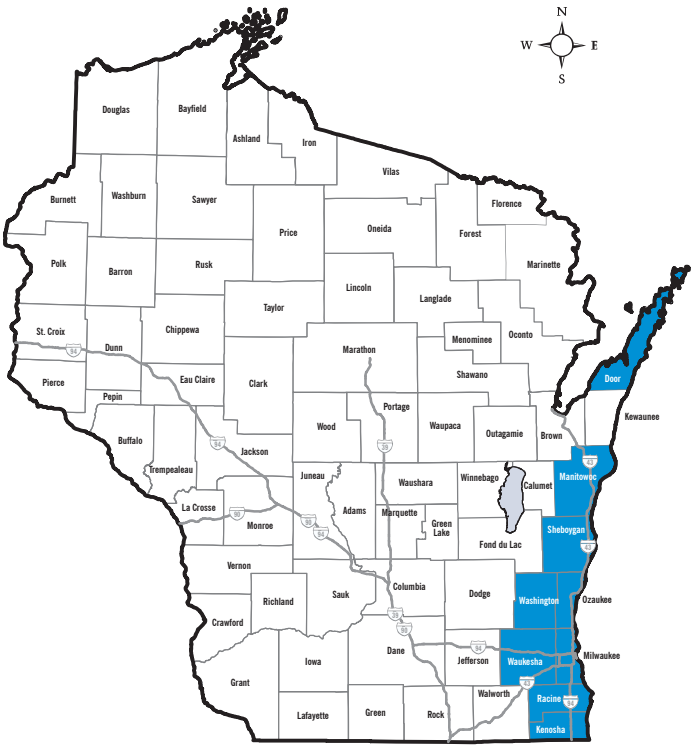
Nine Wisconsin counties (Map 10-1) – Milwaukee, Kenosha, Racine, Ozaukee, Waukesha, Sheboygan, Door, Manitowoc and Washington – are designated as non-attainment for the current ozone standard. In addition, the Clean Air Act requires the U.S. EPA to review the standards set for criteria pollutants every five years. The Clean Air Act requires the Wisconsin DNR to prepare a state implementation plan describing how the state will bring these counties into attainment with current ozone standards. The U.S. EPA has concluded that the 1997 primary standard of 0.08 ppm with an eight-hour averaging time is not adequate to protect public health with a sufficient margin of safety. Therefore, the U.S. EPA has strengthened the level of the eight-hour primary ozone standard to 0.075 parts per million.

With this modification to the standard, Wisconsin's non-attainment areas may also change. Monitoring data from 2004 to 2006 shows that eight of these counties (excluding Door and Sheboygan) met the ozone standard during that timeframe. As a result, the Wisconsin DNR has requested the U.S. EPA redesignate those counties as ozone maintenance areas and approve the maintenance plans developed to ensure that the standard is maintained for at least 10 years.

In addition, the Wisconsin DNR will submit to the U.S. EPA an eight-hour ozone state implementation plan for Door and Sheboygan counties to fulfill Clean Air Act requirements. Changing standards and

[2] Any mandatory Federal Class I area, established under the Clean Air Act Amendments of 1977, where visibility is deemed to be an important value. For more information, refer to the Code of Federal Regulations, Title 40, Part 81, Subpart D.

[3] Ground level ozone is formed from NOx and VOCs reacting to sunlight These pollutants come from motor vehicle exhaust and industrial emissions, gasoline vapors, and chemical solvents, as well as natural sources. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form in harmful concentrations in the air.




▲ *Map 10-1: The counties shown in blue above are considered National Ambient Air Quality Standard ozone non-attainment areas.*

atmospheric conditions could put other counties in non-attainment status.

In addition to ozone, particulate matter is another pollutant of concern in Wisconsin. Particulate matter is a complex mixture of extremely small particles and liquid droplets. It is made up of a number of components such as nitrates and sulphates, organic chemicals, metals, and soil or dust particles. The U.S. EPA has designated three Wisconsin counties as non-attainment for the particulate matter 2.5 standard. While transportation is a contributor to increased ozone, vehicle emissions are expected to decrease in the next 20 years. This will be a result of technological improvements in vehicles and fuels, replacement of vehicles with newer, cleaner vehicles and, to a lesser extent, reduced traffic congestion over the planning period. WisDOT will closely monitor gas price changes and will implement appropriate responses given that these changes may affect driving, congestion, emission levels and funding (see Chapter 7, *Foster Wisconsin's Economic Growth*, and Chapter 12, *Funding Wisconsin's Transportation System*, for more information).

## State implementation plans

State implementation plans are the individual state's regulations and other materials for meeting clean air standards and associated Clean Air Act requirements.

State implementation plans include:

› EPA-approved state regulations

› State-issued, EPA-approved orders requiring pollution control at individual companies

› In rare cases, federally promulgated regulations, designated as a federal implementation plan

› Planning documents such as area-specific compilations of emissions estimates and computer simulations (modeling analyses) demonstrating that the regulatory limits assure that the air will meet air quality standards.

~ www.epa.gov/ARD-R5/sips/

## Conformity rule

The conformity rule requires a quantitative analysis showing that a transportation plan, program or project does not worsen air quality by exceeding the motor vehicle emission limits established in the State Implementation Plan.

▲ *Figure 10-2: Air pollutants deposited in lakes or rivers can affect the quality of drinking water. WisDOT is committed to participating in efforts to decrease overall emissions.*

### *Air quality implications for human health*

Good air quality is important to human health. How air pollution affects a person's health depends on the particular pollutant, its concentration in the air, the length of time the lungs are exposed to it, and existing health conditions. The concentrations of certain air pollutants can be measured with air quality monitoring equipment. The Wisconsin DNR monitors many types of air pollutants through a statewide monitoring network.

Air pollutants can also indirectly affect health. Air pollutants deposited in lakes or rivers can affect the quality of the drinking water, and pollutants deposited on land or water may enter the food chain and bioaccummulate in food. WisDOT is committed to participating in efforts to decrease overall emissions. That is why *Connections 2030* includes several policies aimed at transportation demand management strategies, highway preservation, improving system efficiencies and enhancing modal choices.

## *Comply with existing policies and regulations for improving air quality*

In keeping with the requirements of the federal Clean Air Act, the Wisconsin DNR Cleaner Air Faster initiative and state air quality regulations, WisDOT will, in cooperation with its partners:

» Comply with conformity rules in non-attainment and maintenance areas

» Offer technical assistance to help non-attainment areas achieve compliance

» Identify opportunities to keep potential non-attainment counties in attainment status

» Participate in developing control measures to meet the limits on motor vehicle emissions established in the State Implementation Plan

» Participate in regional air quality control efforts

» Support changes to the federal conformity rule to increase flexibility, provide adequate time and simplify the process

» Work with partners to integrate transportation and air management processes

## *Support and participate in air quality improvement programs and activities*

WisDOT will continue to participate in several programs aimed at improving air quality. These programs include the vehicle inspection and maintenance program, Congestion Mitigation and Air Quality program, air quality watches and advisories, and voluntary air quality improvement programs. Each of these programs is briefly described below.

### *Vehicle Inspection and Maintenance Program*

Most passenger and light-duty vehicle owners in Wisconsin's seven southeastern counties must, as a condition of registration renewal, periodically have their vehicle emissions tested to verify that they meet specific emissions standards. This testing program is one of the actions identified in the state implementation plan to help the state meet the federal ozone standard.

The 2007 Wisconsin Act 20 allows Wisconsin to use only one type of emissions test – the On Board Diagnostic II (OBDII) – to determine compliance with established standards, beginning on July 1, 2008.

Most model year 1996 and newer passenger vehicles are OBDII-equipped, and these vehicles represent an increasingly large majority of the testable fleet. They can be checked for emissions-related problems without expensive, high-maintenance test equipment.

Since passenger vehicles older than model year 1996 were not required to be equipped with OBDII systems, no vehicles from model years 1995 and earlier are tested under Act 20. The reduction in the number of tests on gasoline burning passenger vehicles is offset somewhat by the inclusion of light duty diesel vehicles (automobiles and trucks) and heavier trucks up to 14,000 pounds gross vehicle weight rating, beginning with model year 2007, effective January 1, 2010. Implementing OBDII-only testing has temporarily reduced the number of vehicles tested annually. By 2014, however, annual test volume will exceed pre-2008 levels.

Switching to OBDII-only testing will yield several benefits to the state, including:

» Significant cost savings

» Enhanced customer convenience

» Sustained air quality benefits

» Expanded testing to include diesel powered and heavier commercial vehicles

In 2008, 623,719 emissions tests were performed. This figure includes tests yielding a result of pass, fail, abort, void and waiver.

### Transportation demand management

One of several methods developed to partially address congestion and air quality issues is the concept of transportation demand management. Transportation demand management strategies use incentives, disincentives, and market devices to shift travel into non-motorized or higher-occupancy modes, reduce or eliminate the need to travel, or shift travel onto less congested routes. In some cases, Transportation demand management also refers to providing or expanding alternatives to single-occupancy vehicle travel, such as transit, bicycling, and walking.

~ ntl.bts.gov/DOCS/tdm.html

## Modal characteristics for carbon dioxide emissions and fuel efficiency

**Public transit:**

› Current public transportation use reduces U.S. gasoline consumption by 1.4 billion gallons each year. Public transit produces 50 percent less carbon dioxide per passenger mile than private vehicles.

› Public transit saved 6.9 million metric tons of carbon dioxide ($CO_2$) in 2005.

› Some transit agencies are registered on the Chicago Climate Exchange for carbon trading.

**Intercity bus:**

› Intercity bus has one of the lowest $CO_2$ emissions per passenger mile of all major travel modes.

› Intercity bus is six times more energy efficient, per passenger, than the auto.

**Intercity passenger rail:**

› On a per-passenger basis, Amtrak operations are 18 percent more energy efficient than the airlines and 17 percent more efficient than private autos.

› Development of improved intercity passenger rail has the potential to reduce growth in vehicle miles traveled and carbon emissions along corridors.

› Amtrak is registered on the Chicago Climate Exchange for carbon trading.

**Transportation demand management and bicycle and pedestrian initiatives:**

› Transportation demand management measures and bike and pedestrian initiatives, along with improved public transportation, have the potential to reduce vehicle miles traveled in certain areas, further reducing carbon emissions.

**Highway congestion reduction:**

› Free flowing traffic along Wisconsin's highways produces fewer $CO_2$ emissions than stop-and-go traffic. WisDOT actions described in the Chapter 9, *Promote Transportation Efficiencies* policy "Optimize traffic movement on the state trunk highway system by utilizing tools to improve existing capacity and, where necessary, adding capacity," along with investments in alternative modes, can help reduce Wisconsin's carbon footprint.

~ Davis, Todd and Hale, Monica. *Public Transportation's Contribution to U.S. Greenhouse Gas Reduction.* Science Applications International Corporation. September 2007

~ Bailey, Linda. *Public Transportation and Petroleum Savings in the U.S.: Reducing Dependence on Oil.* ICF International. January 2007

### *Congestion Mitigation and Air Quality Program*

The Congestion Mitigation and Air Quality Program provides federal funds for transportation projects that improve air quality and reduce traffic congestion in counties designated as non-attainment or maintenance areas. Examples of eligible projects are:

- Pedestrian and bicycle facilities
- Capital and operating assistance for new transit services
- Rideshare promotions, vanpool purchases and park and ride lots
- Alternative fuel vehicles and fueling facilities
- Traffic flow improvement and congestion reduction projects
- Diesel engine idling reduction and retrofit projects (newly eligible)

In recent years, the majority of approved projects have focused on transportation demand management strategies including bicycle, pedestrian and public transit projects. While these projects result in improved air quality, greater benefits could be realized from projects targeted at improvements in vehicle and fuel technology.

WisDOT will identify ways to encourage state and local sponsors to propose projects that yield greater air quality benefits. Examples may include electric and alternative fuel vehicle programs, diesel retrofit and idling reduction initiatives, and traffic congestion mitigation projects.

State air quality agencies recommend Congestion Mitigation Air Quality Program funding eligibility be expanded to include potential non-attainment counties to help keep them in attainment. While this is not allowed under the current program structure, WisDOT will consider including potential non-attainment counties if the program eligibility is expanded and funds become available. To assist potential applicants and funding recipients, WisDOT will continue to provide outreach and information regarding the program's funding eligibility requirements and restrictions.

### *Air quality watches/advisories*

As a public service, Wisconsin's DNR issues air quality watches and advisories for particulate matter and ozone whenever air quality reaches, or is forecasted to reach, the orange level (unhealthy for sensitive groups) as defined by the U.S. EPA. The alerts encourage residents and drivers to modify behaviors that impact the region's air quality.

Recommended travel changes include relying on carpooling, telecommuting and conference calling to continue business operations and minimize travel, as well as delaying lawn mowing and car refueling until the alert has expired. Whenever the Wisconsin DNR issues an advisory, WisDOT voluntarily encourages reduced highway maintenance activities and reduced staff travel within the affected counties.

### *Voluntary air quality improvement programs*

WisDOT and the states' metropolitan planning organizations and regional planning commissions provide technical assistance and expertise to Wisconsin Partners for Clean Air and the Dane County Clean Air Coalition. These organizations work with local stakeholders to voluntarily reduce air pollution emissions. Fond du Lac and Jefferson counties and municipalities such as the city of Manitowoc also have established voluntary air quality improvement programs. WisDOT will partner with voluntary clean air programs and local governments to further promote energy conservation and air quality attainment goals.

WisDOT will also continue to implement projects that enhance traffic flow, improve safety and minimize traffic idling. Examples include installing roundabouts and improving signal timing and ramp metering along highly traveled corridors.

In addition to facility improvements, WisDOT will continue to encourage implementation of transportation demand management strategies where appropriate and likely to yield results

WisDOT is a member of the the Wisconsin Clean Diesel Coalition, which is working to reduce emissions from at least 50,000 diesel-powered engines by 2010. Some of the strategies the coalition is pursuing include outreach and funding for reducing operational and idling emissions from both on- and off-road vehicles.

(see the policy called "Encourage transportation demand management strategies" in Chapter 8, *Provide Mobility and Transportation Choice*) and the development of congestion management strategies in urban areas (see the policy called "Optimize traffic movement on the state trunk highway system by utilizing tools to improve existing capacity and, where necessary, adding capacity" in Chapter 9, *Promote Transportation Efficiencies*).

WisDOT also applies and supports a variety of strategies that address traffic movement and have potential air quality improvement benefits. Examples of these are designing roundabouts to manage traffic flow at intersections (see Chapter 9, *Promote Transportation Efficiencies*) and supporting transportation demand management strategies such as park and ride facilities and ride-share programs (see Chapter 8, *Provide Mobility and Transportation Choice*). WisDOT will work with partners to integrate transportation and air management processes to better align decisions with air quality improvement schedules.

## *Monitor emerging air quality issues*

WisDOT will continue to monitor several emerging issues that may affect air quality throughout Wisconsin. The issues include:

### *Air toxics*

Mobile Source Air Toxics are compounds emitted from highway vehicles and nonroad equipment that are known or suspected to cause cancer or other serious negative health and environmental effects. WisDOT will follow U.S. EPA regulations and address air toxics in environmental documents in accordance with Federal Highway Administration guidelines.

Mobile Source Air Toxics standards will likely become a more important issue in the environmental review process. New diesel regulations, low-sulfur fuel and market forces are expected to have a positive impact on this issue.

### *Construction emissions*

Emissions from construction projects produce particulate matter and can form ozone. WisDOT will consider retrofit, idling and fuel restrictions on state highway construction projects and county maintenance contracts in non-attainment and at-risk counties to limit ozone and particulate matter pollution. For example, the Marquette Interchange reconstruction project included voluntary idling restrictions and the use of cleaner on-road diesel fuel.

### *Idling restrictions*

WisDOT will track and support truck idling restriction initiatives and projects (for example, truck stop electrification) in eastern Wisconsin as well as any national regulatory initiatives that may develop over the plan period.

### *Clean Air Interstate Rule*

WisDOT will monitor implementation of the Clean Air Interstate Rule, a federal program that seeks to cap and reduce sulfur dioxide and nitrous oxide emissions in 28 eastern states, including Wisconsin. The Clean Air Interstate Rule focuses on power plant emissions and is expected to benefit air quality and attainment in Wisconsin.

### *Climate change*

At the international, national and state levels, assessing the effects of, and solutions to, global warming is gaining priority.

Nationally, the U.S. Congress is working on the issue of climate change in several proposed bills. Wisconsin has begun discussions to evaluate instituting a carbon emission cap and trade program. In 2007, nine midwestern states, including Wisconsin, signed a climate change accord to combat global warming by targeting greenhouse gas emissions with carbon trading programs and other initiatives to meet emission targets.
All 12 Midwestern states signed an agreement aimed at reducing dependency on petroleum-based energy sources, particularly foreign oil.

In addition, in 2007 Wisconsin's Governor established the Governor's Task Force on Global Warming to look at actions to curb greenhouse gas emissions in Wisconsin. The Governor's Task Force on Global Warming presented its findings and recommendations for a state plan to reduce Wisconsin's contribution to global warming in July 2008. At the local level, as of 2007, more than 700 cities across the United States, including 16 in Wisconsin, signed on to meet the Kyoto protocol's greenhouse gas emission reduction targets (U.S. Conference of Mayors Climate Protection Agreement), in addition to many other local initiatives.

The burning of fossil fuels and the resulting greenhouse gas emissions, particularly carbon dioxide ($CO_2$), are the largest contributors to human causes of climate change. Currently, carbon dioxide emissions resulting from transportation sources account for one-third of all carbon dioxide emissions (in Wisconsin, the transportation sector is responsible for approximately 24 percent of greenhouse gas emissions). In general, alternatives to single-occupancy private automobiles and trucks are more fuel-efficient and typically have fewer carbon emissions per passenger mile.

WisDOT will address climate change and energy independence by increasing the state's investment in alternative modes of transportation, as detailed in Chapter 8, *Provide Mobility and Transportation Choice*. WisDOT will provide assistance to and follow the findings of the Governor's Task Force on Global Warming and other state and national initiatives, and will continue to track ways to reduce carbon emissions of transportation in the state. WisDOT will also continue to work with the Wisconsin Office of Energy Independence to identify how best to provide needed expertise to communities that benefit from the Office of Energy Independence grants.

▲ *Figure 10-3: The burning of fossil fuels and the resulting greenhouse gas emissions, particularly carbon dioxide, are the largest contributors to human causes of climate change.*

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Emphasize air quality improvement*

### *Short- and medium-term (2008 – 2013)*

- Update/develop outreach materials to inform state and local agencies about Wisconsin's complex Congestion Mitigation Air Quality program funding structure.
- Encourage retrofit, idling and fuel restrictions on state highway construction projects in the nonattainment and potential non-attainment counties, and apply restrictions to county maintenance contracts in these areas.
- Encourage state and local sponsors to bring forward Congestion Mitigation Air Quality program projects that yield greater air quality benefits.
- Monitor mobile source air toxics regulations to more adequately address air toxins in environmental documents, in accordance with Federal Highway Administration guidance.
- Monitor the implementation of the Clean Air Interstate Rule to anticipate effects on the mobile sector.

### *Medium- and long-term (2014 – 2030)*

- Consider expanding Congestion Mitigation Air Quality Program eligibility to include potential non-attainment counties, if allowed by federal regulations.
- Monitor state and national efforts and be prepared to address potential future greenhouse gas regulations, pursuant to changes in state and federal regulations.

### *Entire planning period (2008 – 2030)*

- Monitor conformity rule amendments and support changes that increase flexibility, allot adequate time, and simplify the process.
- Continue to encourage transportation alternatives to single-occupant vehicles.
- Consider reducing maintenance and travel activities in potential non-attainment counties whenever Wisconsin DNR issues an air quality advisory.
- Partner with voluntary clean air programs and local governments to further promote energy conservation and air quality attainment goals.
- Encourage implementation of transport demand management strategies.
- Work with partners to integrate transportation and air management processes to better align decisions with air quality improvement schedules.
- Continue to work with the Wisconsin Office of Energy Independence to identify how best to provide needed expertise to communities that benefit from the Office of Energy Independence grants.

▶ ***POLICY:***
*Emphasize the preservation of protected resources*

WisDOT will continue efforts to integrate consideration of environmental and cultural resource issues into transportation decision-making. Transportation projects are closely reviewed to see how they might impact the community and the natural and cultural environments. WisDOT will continue to coordinate with federal, state and local governments, as well as the general public and other key stakeholders, to evaluate appropriate and reasonable approaches to protect these resources.

To emphasize the preservation of protected resources in relation to transportation development, WisDOT will:

» Identify sensitive resources early in the transportation planning process

» Avoid or minimize impacts on sensitive protected resources, as well as historical and archeological sites, and mitigate unavoidable impacts

» Develop guidance and establish procedures to discourage transportation development activities from intensifying the spread of invasive plants

» Continue efforts to control erosion at transportation construction sites and adhere to "no net loss" wetland strategies

» Continue to mitigate environmental impacts and monitor compliance

Section 106 of the National Historic Preservation Act requires that the Federal Highway Administration consult with any interested groups or agencies of protected resources, including tribes, for undertakings that may affect properties considered to have historical resources.

Section 4(f) of the Department of Transportation Act of 1966 directs that special efforts should be made to avoid impacts to parks, historic resources and wildlife refuges.

## *Background*

Wisconsin's natural and cultural resources are a vital part of the state's history and economy. Preserving these resources enhances and fosters recreation and tourism in the state. WisDOT is committed to working with natural resource agencies

WISCONSIN'S NATURAL AND CULTURAL RESOURCES *are a vital part of the state's culture and economy. WisDOT is committed to working with natural resource agencies to meet or exceed standards established for specific protected resources, as required by national and state environmental laws and regulations.*

### Regulations and agreements that govern historic properties

- Section 106 of the National Historic Preservation Act
- WisDOT and State Historic Preservation Officer statewide programmatic agreements
- Chapter 26 of the Facilities Development Manual

to meet or exceed standards established for specific protected resources, as required by national and state environmental laws and regulations.

### *Identify sensitive resources early in transportation planning processes*

WisDOT will use the corridor management plan development process to help identify and locate sensitive resources along corridors early in the planning process. Efforts will focus on applying existing procedures that use multi-disciplinary teams during plan development, project design and construction, and facility maintenance. The corridor management process will include consideration of state and regional plans and program information from the Wisconsin DNR and other resource agencies. Using this approach provides opportunities for stakeholders to be contacted early, to identify appropriate inventories and databases, and obtain their input during transportation project decision-making.

### *Avoid or minimize impacts on sensitive natural areas, as well as historical and archeological sites, and mitigate unavoidable impacts*

WisDOT will continue to minimize and mitigate transportation project impacts on parks, recreation areas and wildlife refuges, as well as on public or private historic or archeological sites eligible for the National Register of Historic Places. WisDOT will continue to follow Section 106 of the National Historic Preservation Act and Section 4(f) of the Department of Transportation Act of 1966, as part of the evaluation process to identify sites that may be affected by a transportation plan or project.

The Wisconsin Burial Sites Preservation Law (Wis. Stats 157.70) provides for the protection of all burial sites in Wisconsin. If a burial site is discovered during a WisDOT project, work must stop immediately and the Burial Sites Preservation Office and the WisDOT Bureau of Equity and Environmental Services must be notified. Tribal burial sites on tribal trust lands are handled differently from other burial sites as WisDOT abides by the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001). However, the Bureau of Equity and Environmental Services remains the appropriate state contact.

### *Develop guidance and establish procedures to discourage transportation activities from intensifying the spread of invasive plants*

To mitigate the negative impacts of invasive species on Wisconsin's natural resources, the state established the Council on Invasive Species. The council is responsible for making recommendations to the Wisconsin DNR for:

- A system for classifying invasive species under the invasive species program
- A procedure for awarding cost sharing grants to public and private entities for up to 50 percent of the costs of eligible projects to control invasive species
- Studies of issues related to controlling invasive species

WisDOT will track the decisions of the council and implement appropriate best management practices. Some state-owned highway rights of way contain or cross areas of high quality native habitat that may include or support threatened and endangered species. However, many of these habitats are failing due to invasive species and the lack of an ongoing management program. Invasive species can impact not only sensitive natural resources, but also sport fishing, forestry, agriculture, tourism and more. To address invasive species, WisDOT will first seek funding and work

with the Wisconsin DNR to develop and implement a program of "early detection, rapid response" for invasive species. WisDOT will take mitigating actions to address noxious weeds, as required under Wisconsin Statute 66.0407. WisDOT will seek the necessary resources to manage this effort. Beyond the invasive species identified under state statute, WisDOT is aware of the potential ecological problems associated with garlic mustard and spotted knapweed.

In addition, WisDOT will continue to plant and manage native species. WisDOT will also work with the Wisconsin Department of Agriculture, Trade and Consumer Protection and the Wisconsin DNR to identify and help control the spread of emerald ash borer wherever it is found in Wisconsin.

▲ *Figure 10-4: WisDOT's wetland banking system has developed 3,780 acres of wetland.*

## *Continue efforts to control erosion on transportation construction sites, and adhere to 'no net loss' wetland strategies*

WisDOT will continue its efforts to minimize the effects of transportation projects on water quality. Over the past several years, WisDOT has successfully undertaken water quality protection and erosion control programs. The department follows the published stormwater and erosion control rule for transportation projects developed by the department in conjunction with the Wisconsin DNR and other stakeholders. To further protect water resources, the department makes every possible effort to limit sediment runoff around construction zones. For example, the erosion control Product Acceptability List has become a standard not only for WisDOT projects, but also for other types of construction.

WisDOT remains committed to protecting and preserving wetlands. Section 404 of the Clean Water Act establishes a program that regulates the discharge of dredged and fill material into federal waters, including wetlands. This is the primary federal regulatory program for wetlands.

In accordance with this regulation and agreements with federal agencies, and working with the Wisconsin DNR, WisDOT will first work to avoid wetlands when developing or enhancing roadways. When wetlands cannot be avoided, WisDOT will continue to adhere to the "no net loss" principle by replacing lost wetlands with new or restored wetlands in compliance with corresponding regulations and agreements. As wetlands may be affected by transportation projects, WisDOT will continue to make every possible effort to maintain and protect these important habitats. Without a healthy wetland mitigation program, regulatory authorizations to build and maintain transportation facilities are jeopardized.

Among the efforts under way is the department's maintenance and expansion of a statewide system of wetland banks. The WisDOT wetland mitigation program consists of one wetland mitigation "bank" that consists of many "bank sites." A wetland mitigation project is one that restores, enhances or creates wetlands to compensate for adverse impacts

on other wetlands. The banking system includes sites where wetlands are restored, enhanced or created to provide transferable credits that may be subsequently applied to compensate for adverse impacts to other wetlands. WisDOT is committed to an ongoing search for suitable wetland bank sites.

The WisDOT wetland mitigation bank is similar to transportation infrastructure with regards to maintenance – the more acres there are in the bank, the more funds are needed to conduct necessary maintenance.

WisDOT strives for the highest quality and most diverse mitigation sites possible, and maintains the largest wetland banking system in the state, with 34 sites. To date, WisDOT's wetland banking system has developed 4,126 acres of wetlands in a combination of sites, as well as on-site and off-site compensation projects. WisDOT will continue the wetland banking system and integrate the banking system into the ecosystem management approach as appropriate. Locating and funding future wetland bank sites will likely be a challenge.

### *Continue to mitigate environmental impacts and monitor compliance*

Effective transportation and a healthy environment are both highly valued by Wisconsin citizens, as both significantly contribute to economic health and a good quality of life. Transportation, like all human activities, affects the environment. The production of fuels and vehicles, the construction and maintenance of infrastructure, the operation of various modes, and the disposal of waste from those processes all affect land, water and air. In keeping with the requirements outlined under SAFETEA-LU and the department's policies, WisDOT will continue to fully implement environmental mitigation commitments made during the transportation development process. In addition, WisDOT will identify and address mitigation requirements pursuant to federal legislation and state interagency agreements.

Finally, department staff will conduct the necessary follow-up work to ensure mitigations are completed and will establish a process to track completion and compliance.

## ► *SUMMARY OF POLICY ACTION ITEMS:*
*Emphasize the preservation of protected resources*

***Short-term (2008 – 2013)***

- Seek funding to develop an invasive plant species "rapid-detection and early response" program and work with the Wisconsin DNR to develop and implement the program.

***Entire planning period (2008 – 2030)***

- Incorporate the concepts and requirements of "avoid, minimize, or where necessary mitigate, impacts to sensitive resources," and consider other state agency plans and programs in the transportation decision making process.
- Continue to incorporate WisDOT's environmental policies and processes into the transportation decision-making process.
- Implement cost-effective practices to minimize impacts on surface and ground water resources during and after construction.
- Continue to adhere to the "no net loss" principle when replacing or restoring impacted wetlands.
- Continue to follow the Section 106 and Section 4(f) evaluation processes to minimize transportation project impacts on publicly owned parks and wildlife refuges, as well as historic and archeological sites.
- Continue to monitor mitigation efforts.

▶ ***POLICY:***
*Incorporate environmental justice in all planning, programming and project decisions*

Pursuant to Title VI of the Civil Rights Act of 1964 and Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, WisDOT will continue to incorporate analysis of disproportionate impacts on low-income and minority populations in all planning, programming and project activities. To achieve this, WisDOT will:

» Conduct environmental justice analyses on all transportation planning and project activities

» Seek input from a wide variety of stakeholders

» Assist metropolitan planning organizations in addressing environmental justice in transportation planning activities

In addition to the commitments outlined in this policy, the department will continue to demonstrate its leadership and commitment to the Civil Rights Act by promoting fairness and equity in the delivery of its transportation services, as well as providing business and employment opportunities in Wisconsin's transportation projects (see the "Promote a diverse workforce in Wisconsin's transportation industry by building alliances and business opportunities through civil rights initiatives" policy in Chapter 7, *Foster Wisconsin's Economic Growth*).

### Title VI

Title VI was enacted as part of the landmark Civil Rights Act of 1964. It says that – in operating a federally assisted program – a recipient cannot, on the basis of race, color, or national origin, segregate or separately treat individuals in any manner related to the receipt of any service, aid or benefit.

~ www.usdoj.gov/crt/cor/coord/titlevi.htm

As a leader in promoting civil rights, WisDOT will:

» Encourage businesses certified as socially and economically disadvantaged to participate in the transportation industry, and target information and assistance to increase competition

» Build partnerships and stakeholder alliances to leverage equity goals, requirements, and efforts focusing on Wisconsin's tribal nations as transportation partners

» Initiate and implement efforts to build a diverse, skilled and professional transportation workforce

## *Background*

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, and subsequent U.S. DOT orders, require federal agencies and agencies receiving federal

IN ADDITION TO THE COMMITMENTS *outlined in this policy, the department will continue to demonstrate its leadership and commitment to the Civil Rights Act by promoting fairness and equity in the delivery of its transportation services, as well as providing business and employment opportunities in Wisconsin's transportation projects.*

▲ *Figure 10-5: Public participation is critical to a successful transportation planning and project development process.*

funding to make achieving environmental justice part of their mission.

### *Conduct environmental justice analyses on all transportation planning and project activities*

WisDOT will continue to conduct environmental justice analyses on all transportation planning and project activities. These analyses include:

» Identifying and locating minority and low-income populations within the applicable study and project areas

» Determining whether potential disproportionate impacts may occur as a result of proposed plan and project alternatives

▲ *Figure 10-6: WisDOT will work with metropolitan planning organizations to identify potential outreach techniques and will review metropolitan planning organization public participation plans to verify that the plans include outreach to minority and low-income populations.*

» Taking action, where appropriate, to mitigate disproportionate impacts resulting from WisDOT actions

WisDOT will continue to monitor environmental justice analysis techniques used by other states and metropolitan planning organizations to identify best practices for Wisconsin.

### *Seek public input from a wide variety of stakeholders*

Public participation is critical to the transportation planning and project development process. WisDOT will use public involvement techniques that encourage participation by minority, low-income, senior and disabled populations.

For instance, WisDOT is currently using grassroots outreach efforts through community-based organizations, local leadership, one-on-one communication, small discussion groups, and advisory committees to ensure that everyone has a voice in the decisions made on the southeast I-94 North-South Corridor project. Similar strategies were used during preliminary engineering and reconstruction of the Marquette Interchange in southeast Wisconsin.

In addition, WisDOT was the first state agency to draft a Tribal Partnership Agreement with state tribes as prompted by Wisconsin Executive Order 39. The Tribal Partnership Agreement is designed to increase the tribes' access to WisDOT's resources and opportunities afforded by highway contracting. As part of this commitment, the department allocated resources and created a tribal liaison position to build the government-to-government relationship between WisDOT and the state's 11 tribes.

WisDOT is currently using *grassroot outreach efforts through community-based organizations, local leadership, one-on-one communication, small discussion groups, and advisory committees to ensure that everyone has a voice in the decisions made on projects.*

### *Assist metropolitan planning organizations in addressing environmental justice in transportation planning activities*

Metopolitan planning organizations are required to conduct environmental justice analyses of their transportation planning activities. WisDOT will

**Three fundamental environmental justice principles:**

› Identify and, where appropriate, mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations.

› Ensure the full and fair participation of all potentially affected communities in the transportation decision-making process.

› Prevent the denial of, reduction of, or significant delay in, the receipt of benefits by minority and low-income populations.

~ www.fhwa.dot.gov/safetealu/summary.htm

work with the Federal Highway Administration to develop guidance for metropolitan planning organizations regarding environmental justice and will review and assist with these analyses as needed. Metropolitan planning organizations and WisDOT are required to ensure that outreach activities in their public participation plans are designed to include minority and low-income populations. WisDOT will work with metropolitan planning organizations to identify potential outreach techniques and will review metropolitan planning organization public participation plans to verify that the plans include outreach to minority and low-income populations.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*

*Incorporate environmental justice in all planning, programming and project decisions*

***Short-term (2008 – 2013)***

- Continue to educate WisDOT staff on the principles of environmental justice.
- Identify minority and low-income populations, conduct environmental justice analyses, and include minority and low-income populations in public outreach for plans and projects.
- Continue to review environmental documents to ensure that environmental justice is adequately addressed at the project level.
- Verify that metropolitan planning organization plans contain an environmental justice analysis and that the public participation plans identify activities to reach out to environmental justice populations.
- Work with the Federal Highway Administration to develop environmental justice guidance for metropolitan planning organizations.
- When possible, work to avoid, minimize or mitigate disproportionate impacts resulting from WisDOT plans or activities.
- Monitor environmental justice activities in other states to identify best practices that can be implemented in Wisconsin.

▶ ***POLICY:***
*Continue community sensitive solutions efforts*

Community sensitive solutions is a collaborative, interdisciplinary approach to transportation planning and project development. Community sensitive solutions incorporates early involvement of all stakeholders to ensure that transportation projects are in harmony with federal and state requirements, community values and the natural, social, economic and cultural environments. This integration of projects into the community and environment requires careful planning. The potential consequences from different planning, design and construction choices must be balanced, and the design must be tailored to fit a project's unique circumstances. The seven qualities of a successful community sensitive solutions approach include:

» An interdisciplinary, flexible project development approach

» An emphasis on project management

» Responsiveness to environmental issues

» An aesthetically pleasing, quality project

» Safe and efficient facilities

» Delivery of projects on time and within budget

» Early and frequent public involvement

▲ *Figure 10-7: The Starkweather Path, in Madison, was a local effort to include two bicycle and pedestrian bridges to link area neighborhoods divided by major streets. Completion of this project provides the neighborhoods with bicycle and pedestrian access to employment centers such as the Airport Business Park, Madison Area Technical College, Olbrich Park and the Capitol City bike and pedestrian trail.*

WisDOT's vision for community sensitive solutions is to deliver a comprehensive transportation network that provides safe, user-friendly access and mobility that corresponds to the values of Wisconsin residents.

To provide a process that considers community values and interests while continuing to provide quality transportation services, WisDOT will continue to:

» Coordinate community sensitive solutions efforts with local stakeholders

» Seek public input early and throughout the transportation decision-making process

## *Background*

Since 2002, WisDOT has used the community sensitive solutions process to enhance excellence in transportation project development. Community sensitive solutions emerged in Wisconsin as part of a nationwide movement for transportation projects known as context sensitive solutions. This represented a significant change in transportation project planning, as agencies such as WisDOT began to work within a broader context. Transportation needs, such as access to land and markets, mobility, and safety in travel for all transportation modes, continue to grow.

However, added to these needs are concerns about where and how transportation facilities are to be planned, developed and designed, and the relative impacts to adjacent communities. This context requires that many perspectives and interests be considered in the project planning process before project development decisions are made. The need for a balanced approach was recognized in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and the Transportation Equity Act for the 21st Century (TEA-21) of 1998. It was reaffirmed with the 2005 Safe, Accountable, Flexible, and Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU). As a result, WisDOT is continuing to enhance the transportation project

▲ *Figure 10-8: WisDOT's experience has shown that an open dialogue early can help address community concerns up front and deliver an aesthetically pleasing project on time and on budget.*

SINCE 2002, WISDOT HAS USED *the community sensitive solutions process to enhance excellence in transportation project development. Community sensitive solutions emerged in Wisconsin as part of a nationwide movement for transportation projects known as context sensitive solutions.*

### Context sensitive solutions

The concept of context sensitive solutions (CSS) has been evolving in the transportation industry since the National Environmental Policy Act of 1969 required transportation agencies to consider the possible adverse effects of transportation projects on the environment.

CSS is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist.

~ www.contextsensitivesolutions.org/content/topics/what_is_css/

planning and development process to acknowledge all stakeholder interests, while providing safe and efficient transportation facilities.

Even though the concept and process are documented in the department's guidance and manuals, the philosophy is still in its infancy and implementation will continue to evolve throughout the plan period. WisDOT will formalize elements of the community sensitive solutions policy to establish reasonable consistency statewide. This is necessary because many community sensitive solutions elements, such as public involvement, are folded into normal project planning and development activities while others, such as aesthetic improvements, are not. This makes it challenging to track the effectiveness of community sensitive solutions.

Clearly defining the process within WisDOT will make it easier to show how the philosophy and the seven qualities of successful community sensitive solutions occur throughout all project stages, from planning to completion.

Community sensitive solutions expands the nature of WisDOT's current activities, focusing on early outreach to understand community values. Specific needs are communicated up front, helping to facilitate a cooperative approach. With early coordination and communication, consensus around plan or project goals is developed, and more sound investment decisions result. Experience has shown that an early and open dialogue can help address community concerns and deliver an aesthetically pleasing project on time and on budget.

## *Coordinate community sensitive solutions with local stakeholders*

WisDOT will continue to coordinate community sensitive solutions efforts with local stakeholders. As part of this process, WisDOT will:

» Continue using flexible design standards for community sensitive solutions projects

» Encourage transportation projects that minimize negative community impacts while supporting and preserving local character

## *Continue using flexible design standards for community sensitive solutions projects*

Flexible design standards that preserve safety and needed operational characteristics can be applied to ensure that a transportation project blends into a community. WisDOT worked with Federal Highway Administration officials in developing the flexible design standards that are now part of WisDOT's *Facilities Development Manual*.

Community sensitive solutions relies on identifying and meeting multiple goals including transportation goals, community goals, and environmental goals. It also relies on transportation professionals supporting collaborative development to reach the most creative and successful solution to problems, opportunities and needs of a project area or corridor.

WisDOT generally works within the flexibility defined by the design standards to minimize impacts and help fit the project within the variety of communities through which the project passes. However, in some instances, a community may request consideration of a design that is outside what is normally considered for a given structure.

For example, if a community voices a desire for lane widths other than the standard 12-foot wide lanes, and studies of the requested alignment show that it is safe, WisDOT may "flex" the standard design to allow the new lane widths. Flexibility built into the *Facilities Development Manual*'s design standards makes it easier for WisDOT planners and engineers to develop creative solutions that balance community values with the needs of the traveling public.

### *Encourage transportation projects that minimize negative impacts while supporting and preserving local character*

Whenever possible, WisDOT will continue to encourage transportation projects that:

» Minimize negative construction impacts on communities

» Support and preserve community character

» Utilize community sensitive solutions to reduce the barrier effects of past transportation projects

Community sensitive solutions is used to minimize construction impacts on communities in both rural and urban contexts. In rural areas, the community sensitive solutions process has many applications including preserving scenic vistas, engaging in prairie restoration and saving rural bridges (for additional information on Scenic Byways and Rustic Roads, see Chapter 7, *Foster Wisconsin's Economic Growth*).

WisDOT's Marquette Interchange reconstruction project in Milwaukee provides several examples of how community sensitive solutions was used to minimize the impacts of a construction project in an urban context.

▲ *Figure 10-9: Milwaukee's church steeples were the inspiration for concrete bridge columns on the new Marquette Interchange.*

The visual identity of the newly reconstructed Marquette Interchange was developed from information gathered in visual preference surveys taken in public meetings and neighborhood focus groups. Survey participants strongly identified with Milwaukee's skyline of spires, a preference that resonated with different ethnic groups.

As shown in Figure 10-9, the concrete column design selected for the interchange reflects the church steeples visible along Milwaukee's skyline. This project demonstrates how community sensitive solutions can be used to create unique designs that not only serve a functional purpose, but are aesthetically pleasing and fit the character of a community.

WisDOT recognizes that some transportation projects have created barriers to personal travel needs within communities. Using the elements of

THE VISUAL IDENTITY *of the new Marquette Interchange in Milwaukee was developed from information gathered in visual preference surveys taken in public meetings and neighborhood focus groups.*

community sensitive solutions, WisDOT will work with local governments to coordinate design and investment decisions to reduce the barrier effects of major transportation infrastructure. WisDOT will use community sensitive solutions techniques to mitigate barrier effects and other transportation impacts by:

» Mitigating temporary barriers during construction projects

» Ensuring that projects fit into the landscapes they pass through

» Considering, and where appropriate, addressing through retrofits the needs of bicyclists and pedestrians (for example, comfortable, safe crossings)

The Marquette Interchange reconstruction project and the Starkweather Path project in Madison represent significant investments beyond those currently identified for typical community sensitive solutions related projects. If WisDOT were to incorporate similar high-profile community sensitive elements on future large urban projects, a significant funding commitment would be required.

## *Seek public input early and throughout the transportation decision-making process*

Incorporating community sensitive solutions into planning and project development starts with the people who use or reside along the facilities. Involving people during planning, before design decisions are made, is vital to obtaining trust and participation, as well as ensuring that the transportation facility fits the community character. When transportation planning reflects community input and takes into consideration the impacts on both natural and human environments, it promotes partnerships that lead to balanced decision-making.

The corridor management activities and corridor management plans used in the implementation of *Connections 2030* will create many opportunities for WisDOT to work with communities and to use the community sensitive solutions process. The corridor maps in the plan show WisDOT's multimodal corridor vision for the statewide system-level priority corridors. The corridor management approach will allow WisDOT region offices to work with local governments to define more detailed and specific multimodal corridor visions in the future. This integrated and collaborative approach is a core concept of the plan.

WisDOT's commitment to meaningful public participation is implemented by using the community sensitive solutions approach as part of the corridor management planning processes. In the early stages of developing corridor management plans, communities and regions define a vision for a corridor's future. Plan recommendations identify how current problems will be addressed, while also anticipating future needs and solutions. By keeping local characteristics in mind during the planning process, corridor plans can lead to a project that will stand the test of time.

To ensure that the community sensitive solutions process continues to be valuable both to WisDOT and Wisconsin communities, WisDOT will develop a process to measure the effectiveness of community sensitive solutions and incorporate the results into future updates of the community sensitive solutions policy. WisDOT will also continue its early and continuous public involvement in all planning and project development activities statewide.

To continue improving the community sensitive solutions process, WisDOT will update the public involvement chapter of the *Facilities Development Manual* to better reflect the community sensitive solutions philosophy. It will also link community sensitive solutions to the corridor management process, expand the community sensitive solutions process to all projects statewide, and include strategies for early and frequent public involvement.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:* *Continue community sensitive solutions efforts*

### Short-term (2008 – 2013)

- Work within WisDOT to ensure that the community sensitive solutions approach is used in all projects.
- Use community sensitive solutions in conjunction with the corridor management approach.
- Formalize the community sensitive solutions policy in the department's manuals and processes.
- Update the public involvement chapter of the Facilities Development Manual to better reflect the community sensitive design philosophy.
- More clearly define the roles and responsibilities of implementing community sensitive solutions within the department.

### Entire planning period (2008 – 2030)

- Engage in opportunities for the department and communities to work together to encourage transportation facilities that support and preserve the community character.
- Continue to work with the Federal Highway Administration on streamlining approval for community sensitive solutions flexible design standards.
- Develop a process to measure the effectiveness of community sensitive solutions from a local community and WisDOT perspective, and incorporate the results into a community sensitive solutions policy.

▶ ***POLICY:***
*Preserve and enhance a positive land use/transportation relationship*

WisDOT will work with local governments to integrate land use and transportation into decision-making processes to preserve and enhance communities. It will encourage community input and participation in the project decision-making process. To implement this policy, WisDOT will continue to:

» Address direct land use effects of transportation

» Evaluate and address indirect, cumulative and community land use effects of transportation projects

» Integrate land use and transportation through coordinated planning at all levels of government

## *Background*

Transportation is just one of many factors that impact land use. Other factors that influence land use decisions include local and regional geographic, social, demographic, and economic conditions, local land use plans and policies, and individual preferences.

Wisconsin's local governments can make land use decisions through local planning, and they can implement these decisions through land use regulations. Some of these are zoning, subdivision regulations, official mapping, and building codes. Local governments can also use non-regulatory tools, such as cooperative boundary agreements, purchase of development rights, capital improvement plans, and impact fees. According to the Comprehensive Planning Law (Wisconsin Statute 66.1001), beginning in 2010, if a local unit of government engages in zoning, subdivision regulations, or official mapping, those actions must be consistent with that unit of government's comprehensive plan.

Since land use issues are very complex and because they present comprehensive challenges beyond WisDOT's authority, cooperative approaches are needed to develop and implement solutions. WisDOT participates on numerous statewide councils and work groups focusing on land use-related issues. WisDOT staff frequently participate in local comprehensive planning efforts where these issues can be further explored. WisDOT project designers work closely with local governments in planning future transportation infrastructure development.

### Direct land use effects

Direct land use effects are directly linked to a project and are highly predictable. They occur at the same time and place as the project. Examples of direct land use effects are:

› Taking agricultural land out of production by building a highway

› Displacing businesses and homes when acquiring additional right of way

WisDOT will continue to work with communities to consider how local development decisions and local transportation needs impact both state and local networks. Efforts may include identifying ways to facilitate growth while continuing to provide a safe, efficient and reliable transportation system (see the policy called "Preserve the local road and bridge system" in Chapter 7, *Foster Wisconsin's Economic Growth*.

## *Continue to address direct land use effects of transportation decisions*

Transportation projects sometimes require additional land for new or expanded right of way or site-specific facilities. As a result, some projects may displace public and private developed land (for example, homes, businesses, and industrial uses). Rural projects requiring additional land are more likely to displace farmland.

Under state and federal laws and regulations, WisDOT must purchase displaced properties impacted by the improvement (both land and any impacted improvements) at fair market value and provide relocation assistance and compensation as appropriate. Federal and state laws and regulations also establish specific analysis and mitigation requirements whenever a transportation project directly impacts wetlands, parklands or cultural resources (see the "Emphasize the preservation of protected resources" policy in this chapter for more information).

WisDOT recognizes the significance of land use disruptions and will continue to assist and/or compensate households and businesses impacted by transportation projects when necessary. WisDOT will also comply with federal and state standards in identifying and evaluating direct effects on farmland, parkland and cultural resources. Examples of potential direct effects include impacts on agricultural lands and noise resulting from traffic movement.

### *Agriculture*

Transportation projects may affect both individual farmland owners and the farmland resources of an area. For example, highway expansion can directly remove farmland from production and indirectly encourage dispersed development by improving access to rural areas. In response to dispersed development, farmland may become fragmented, conflicts may arise between new residents and farm operations, and farmers may feel pressured to sell property for conversion to other uses.

The Department of Agriculture, Trade, and Consumer Protection is required to prepare an Agricultural Impact Statement for any proposal to acquire more than five acres from a farm operation, and/or there is a potential for condemnation of farmland. Agricultural Impact Statements assess the effects of public projects on farm operations, farmland and rural communities.

WisDOT will continue to work with the Department of Agricultural, Trade and Consumer Protection to assess the potential impacts of transportation projects on agricultural lands. Finally, WisDOT will consider the importance of agricultural land when making project level decisions, and will continue to focus efforts on minimizing, to the extent possible, the negative impacts on agriculture.

### *Noise*

Noise is defined as any unwanted sound, and is considered a direct effect when potential

## Factors in development

Transportation projects are one of many factors influencing the type, location, amount, timing and pace of residential, commercial and industrial development. Other important factors include:

› Public sewer and water availability

› Land cost and availability

› Local planning and zoning regulations

› Environmental conditions and restrictions

› Economic development incentives

transportation impacts are assessed. Vehicular traffic sounds constitute noise, and can interrupt normal activities when they reach a certain level. Areas likely to be sensitive to noise include residential developments, recreational areas, schools, churches and cemeteries. Commercial and industrial land uses are generally less sensitive to noise.

When traffic noise impacts occur, measures to reduce or eliminate them are considered by the project sponsor where such measures are determined to be "reasonable and feasible." Noise may be mitigated through a variety of actions that modify the noise source, path, or receiver characteristics. WisDOT uses various methods to address noise resulting from transportation activities.

One method is the use of noise barriers. Barriers can be either earth berms or walls constructed from pre-approved materials, forming a continuous barrier between the noise source and receiver. Noise barriers must be continuous, without opening for driveways or side roads. Pavement design methods, such as tining, which creates minute grooves in the pavement, are also used to address noise resulting from vehicles traveling on roadways. WisDOT will continue to monitor noise concerns, and when feasible and appropriate to minimize or mitigate their effects.

### Case study: *STH 26 Corridor Plan*

The *STH 26 Corridor Plan*, completed in 2004, coordinated local access needs, planned land use, and the local road system to preserve the long-term safe and efficient functioning of WIS 26 from Janesville to Waupun. This 67-mile stretch of highway crosses the boundaries of 24 local units of government. Because of diverse comprehensive plans and the need for intergovernmental coordination, the corridor plan used a collaborative approach to develop many of its recommendations and implementation strategies. The *STH 26 Corridor Plan* represents an approach that anticipates change and recognizes relationships between transportation and land use. It provides strategies and recommendations that, if implemented, will help preserve the state's investment in the WIS 26 corridor for many years.

## *Evaluate and address indirect and cumulative effects*

In addition to assessing a proposed transportation project's direct effects, WisDOT also analyzes the project's indirect and cumulative effects.

### *Indirect effects*

Indirect effects associated with transportation projects are caused by the decisions of others (for example, communities and developers). They may occur later in time, or beyond the project right of way, but they are linked to transportation projects and can be reasonably foreseeable. For a more detailed definition and related procedures, refer to Section 102 of the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321-4327, and the CEQ Regulations for Implementing the Procedural Provisions of NEPA, 40 C.F.R. parts 1500-1508. These effects typically are related to the type of transportation project (for example, additional lanes, new interchange), changes in access, and local conditions.
Indirect effects may include changes in land use (such as concentrated development near a transportation facility), population density, growth rate, economic development, the rate of development and the ecosystem. These effects may be perceived as positive or negative or both, depending on the specific effect.

If a project's analysis shows negative indirect effects, WisDOT may consider mitigation measures. Wisconsin Statute 86.255 (the "quarter-mile rule") limits WisDOT's ability to mitigate indirect effects through compensatory measures. The department will continue to work with communities by implementing community sensitive solutions (see the "Continue community sensitive solutions efforts"

policy in this chapter), coordinating decisions, and providing technical assistance to communities help them to make informed land use decisions.

### *Cumulative effects*

Cumulative effects include the total effect on the human, cultural or natural environment due to past, present and future activities or actions.

Transportation project impacts are just part of the total cumulative effect on land use and development. This encompasses the proposed project impacts, additional transportation and other infrastructure improvements, as well as all public and private development projects.

Transportation projects can impact a community through a trickle-down effect, as one impact may indirectly impact another part of the community. As a result, cumulative impacts will differ based on individual communities and environmental resources. The direct and indirect impacts of transportation projects are analyzed along with other non-project related impacts in the examination of the cumulative impacts on various resources.

WisDOT will investigate ways to better analyze the possible cumulative effects associated with proposed transportation projects and improve the processes for this analysis. This analysis provides WisDOT and other decision-makers, such as local governments, with valuable information about the human, cultural and natural resources that may be affected, throughout time and continued actions. However, some project effects can result in impacts that cross between the different types of effects, including community and neighborhood effects.

### *Community and neighborhood effects*

The physical presence of a new or expanded transportation facility, plus the direct impacts and indirect effects, can alter the character and cohesion of the affected communities. Community effects are highly variable depending on the project's scope, location, timing and the local context. These effects may become apparent over time and some can be viewed as both adverse and beneficial.

Examples of potential project effects on communities include:

***Community character***. A transportation project may permanently change the character of a community by altering the setting or introducing an incompatible element into the landscape. Both linear facilities (such as highways) and site-specific facilities (such as rail stations) may be viewed as incompatible with the character of a community unless efforts are made to work with the community and integrate the project. Community character can include both the built and natural environment.

***Community cohesion***. A transportation project may sever or disrupt patterns of social interaction among individuals, groups and institutions, creating a barrier to these activities. The interruption of these interactions can, in turn, result in reduced stability and social cohesion.

Both of these elements are addressed through the department's implementation of community sensitive solutions (see the "Continue community sensitive solutions efforts" policy in this chapter).

To address these effects on communities and neighborhoods, WisDOT will continue to:

» Avoid, minimize or mitigate identified negative effects, where feasible, on all proposed actions where WisDOT has environmental review and approval responsibility (state highway and bridge projects, Transportation Economic Assistance projects, local roads, etc.)

» Attempt to identify reasonably foreseeable indirect, cumulative and community effects, and apply current regulations and guidance

» Consider and, where feasible, integrate, local comprehensive plans when assessing potential transportation decisions and projects

» Collaborate with stakeholders and resource agencies to find workable solutions to negative impacts that reach across the responsibility of all parties

▲ *Figure 10-10: Coordinated transportation and land use planning is key to minimizing negative effects and successfully integrating transportation facilities into communities.*

» Continue training to implement policy and guidance on transportation and land use, indirect and cumulative effects, and community impacts analysis, while building on past efforts

## *Continue efforts to integrate land use and transportation decisions*

Intergovernmental cooperation and consistency between transportation and land use plans helps preserve and enhance the state's transportation system. Coordinated transportation and land use planning is key to minimizing negative effects and successfully integrating transportation facilities into communities. For this reason, WisDOT will continue its efforts related to assisting local governments with their comprehensive planning activities and through WisDOT corridor planning activities.

In keeping with SAFETEA-LU, WisDOT will continue to develop policies and guidance to improve coordination and consultation activities. Emphasis will focus on implementing the corridor management approach describe in this chapter. These policies will help ensure that all interested agencies, stakeholders, and the public are consulted early and often at all levels of planning, project development and environmental review. A primary objective will be to address transportation and land use issues before they become conflicts.

### *Local comprehensive planning*

As the result of Wisconsin's Comprehensive Planning Law passed in 1999, WisDOT has modified its planning methods. These changes include:

» Increased involvement in the development of local comprehensive plans

» Planning for future transportation needs at the corridor level

» Providing Internet resources for land use and transportation issues, including comprehensive planning

WisDOT will continue to provide and expand resources, training and guidance to strengthen coordination with local governments as they prepare and update comprehensive plans, especially related to the coordination of transportation with land use and economic development. These activities will enhance WisDOT's long range and corridor planning efforts. WisDOT will continue to develop guidance for implementing changes resulting from SAFETEA-LU related to incorporating local plans into state and MPO transportation plans.

Finally, WisDOT will continue to implement corridor management into its project planning and development process. Efforts will focus on continued development of corridor planning guidance and policies, and training to enhance the planning process and coordination with local governments.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*
*Preserve and enhance a positive land use/transportation relationship*

### Short-term (2008 – 2013)

- Develop policies and guidance to improve public and intergovernmental coordination and consultation activities.
- Enhance WisDOT's public involvement efforts for the planning and project development process through improved guidance, training and overall coordination.
- Continue training and implementation of WisDOT policies and technical guidance on the analysis of indirect and cumulative effects, including community effects.
- Establish and enhance policies for developing and implementing corridor plans statewide.

### Entire planning period (2008 – 2030)

- Continue to ensure that individuals, businesses and other property owners affected by relocation programs are treated in a fair, consistent and equitable manner, in accordance with federal and state laws.
- Continue to fully consider impacts for land use, community character, and indirect and cumulative effects in consultation with various state and federal agencies, property owners, stakeholders and local governments.
- Comply with laws and regulations in evaluating effects on farmland, parkland and cultural resources.
- Continue to identify all reasonably foreseeable indirect and cumulative effects in compliance with federal requirements, and avoid or minimize negative impacts.
- Enhance policies and guidance on land use and transportation issues including studying best practices and methods from around the country.
- Coordinate state transportation efforts with local comprehensive plans and land use activities.
- Provide resources to strengthen coordination between WisDOT and local governments in local comprehensive planning efforts.

# CHAPTER 11: Promote Transportation Security

▶ ***POLICIES IN THIS CHAPTER FOR PROMOTING TRANSPORTATION SECURITY:***

- › *Enhance the security of the transportation system by reducing vulnerability*
- › *Improve emergency response to make the transportation system more resilient*

WisDOT's vision for security is to be able to prevent, prepare for or coordinate response to any incident, whether caused by natural or human events. By the end of the plan period, WisDOT envisions a state transportation system that will be less vulnerable to incidents, whether caused by natural or human events. The policies in this chapter focus on continuing to improve the department's speed and ability to prevent, coordinate, respond to, and recover from incidents.

Security considerations have been a part of WisDOT's policies for many years. The September 11, 2001, attacks and Hurricanes Katrina and Rita in 2005 raised additional concerns about the transportation sector's ability to handle emergencies. More recently, flooding and blizzard events in Wisconsin have affected travelers, businesses and communities. These experiences have resulted in the public expecting transportation agencies and providers to make the transportation system more resilient. In response, WisDOT has implemented a 511 Traveler Information system, increased the State Traffic Operation's Center's statewide monitoring and emergency response capabilities, and has developed a fully operational Emergency Transportation Operations (ETO) plan. For more information on this plan, see the "Improve the reliability and efficiency of state trunk highway system operations" policy in Chapter 9, *Promote Transportation Efficiencies*.

Transportation providers and state and local governments already address security concerns through preventive measures, emergency preparedness strategies and comprehensive responses to incidents. Government agencies are also developing strategies to maintain critical transportation operations during hazardous events such as power outages, destruction of facilities from natural or human acts, and pandemics. Prioritizing

▲ *Figure 11-1: WisDOT's role in security and incident management complements the roles of other agencies.*

THE SEPTEMBER 11, 2001, *attacks and Hurricanes Katrina and Rita in 2005 raised additional concerns about the transportation sector's ability to handle emergencies. These experiences have resulted in the public expecting transportation agencies and providers to make the transportation system more resilient.*

these strategies incorporates risk assessment and risk management techniques.

WisDOT's role in security and incident management complements the roles of other agencies, from management of disruptive local incidents such as crashes blocking interstate highways, to incidents of regional concern like hazardous materials spills and fires. In general, incidents are handled by the appropriate agency, depending on the scale and duration of the event. Local law enforcement personnel and emergency crews typically handle incidents of smaller scale and shorter duration; incidents of larger scale and longer duration require broader state and federal oversight.

The plan's objectives to improve transportation security overlap with several objectives from other themes in the plan. The following plan objectives promote transportation security:

» Support a comprehensive vision of homeland security and defense mobilization

▲ *Figure 11-2: Emergency planners have continuously improved the response capabilities of the state and WisDOT, moving from reactive planning to more integrated, comprehensive and proactive planning.*

### Support for Local Governments

Under Wisconsin Home Rule statute Chapters 59 and 163, it is the responsibility of the local government to respond to emergency events. Due to this statutory requirement, WisDOT will typically serve in a support role unless the local jurisdiction defers command to WisDOT.

» Improve emergency response

» Improve data/decision support systems

» Maintain our transportation system to maximize the use of existing facilities

» Use technology and other methods to operate existing facilities and services more efficiently

To achieve these plan objectives, WisDOT will pursue the following policies:

» Enhance the security of the transportation system by reducing vulnerability

» Improve emergency response to make the transportation system more resilient

## Wisconsin's role in transportation security

WisDOT partners with agencies at all levels of government to implement security initiatives. Several federal agencies, including the Transportation Security Administration and the Department of Homeland Security, share responsibility for preventing and responding to attacks.

While Transportation Security Administration and the Department of Homeland Security primarily

### "All Hazards Approach"

Rather than creating specific action plans for dozens of scenarios, the "All Hazards Approach" develops capabilities to address most incidents, including emergency response, traffic management, and communication between responders and the public.

address the aviation sector, other agencies, such as the U.S. Coast Guard and the Federal Motor Carrier Safety Administration, are responsible for the security of other transportation sectors such as Great Lakes shipping and commercial motor vehicles, respectively. The Federal Emergency Management Agency, which is part of the Department of Homeland Security, coordinates disaster response activities when states request federal assistance.

The Office of Wisconsin Emergency Management (WEM) in the Department of Military Affairs is responsible for coordinating all security matters in Wisconsin.

WEM operates the State Emergency Operations Center. Some of WisDOT's systems, such as traffic cameras, are connected to the State Emergency Operations Center to support the center's security efforts. The governor's Homeland Security Council coordinates all transportation security issues within the state.

Emergency planners have continuously improved the response capabilities of the state and the department, moving from reactive planning to more integrated, comprehensive and proactive planning. This comprehensive process, known as the "All Hazards Approach," addresses all types and scales of incidents, whether natural or human-induced. WisDOT has adapted almost all of its activities to incorporate security awareness and strategic security planning.

▲ *Figure 11-3: Private companies also play a crucial role in transportation security, especially in areas where WisDOT has little jurisdictional authority. These private organizations include railroad company police departments and trucking companies cooperating with the Department of Homeland Security in the "Highway Watch" program.*

INFRASTRUCTURE SECURITY EFFORTS *are integrated across all department divisions to maintain the safety of WisDOT buildings and staff, as well as roads, bridges and other assets.*

LOCAL AGENCIES, SUCH AS COUNTY SHERIFF'S DEPARTMENTS, *make significant contributions by providing support at airports and other facilities. Private companies also play a crucial role in transportation security.*

Several cross-divisional efforts within WisDOT address security. Infrastructure security efforts are integrated across all department divisions to maintain the safety of WisDOT buildings and staff, as well as roads, bridges and other assets. WisDOT coordinates responses with transportation partners at other levels of government as well as private sector transportation providers.

Operational planning efforts are developed at the regional level and include coordination with other transportation partners.

Within WisDOT's Division of State Patrol, the Motor Carrier Enforcement section implemented the Security Contact Review, which thoroughly examines commercial motor carriers' security measures and has a particular focus on vehicles that transport hazardous materials.

Many of WisDOT's daily operations also have an integral role in security efforts. These activities include:

» Coordinating communications among first responders through the State Traffic Operations Center

» Coordinating communication to the public through message boards in the Milwaukee and Madison areas

» Maintaining valid identification of individuals through driver's licenses or identification cards

» Monitoring vulnerable infrastructure through visual and other inspection methods

» Maintaining the transportation system to maximize the use of existing facilities

▲ *Figure 11-4: WisDOT's daily operations – such as coordinating communications among first responders through the State Traffic Operations Center – have an integral role in security efforts.*

» Planning for the continuity of state government and operations in the event of an incident (including a pandemic health crisis)

Local agencies, such as county sheriff's departments, make significant contributions by providing support at airports and other facilities. Private companies also play a crucial role in transportation security, especially in areas where WisDOT has little jurisdictional authority. These private organizations include railroad company police departments and trucking companies cooperating with the Department of Homeland Security in the "Highway Watch" program. WisDOT's Division of Motor Vehicles continues its efforts to improve the security and integrity of Wisconsin's drivers license and ID products.

▶ ***POLICY:***
*Enhance the security of the transportation system by reducing vulnerability*

Incident preparation and response are emerging as WisDOT's primary security focus areas. WisDOT will enhance the security of the transportation system through improvements that make state transportation facilities less vulnerable to incidents of any degree or origin. Specifically, WisDOT will:

» Adopt and apply technological and physical improvements

» Prepare to respond to a range of incidents through plans and exercises

## *Background*

In compliance with the Federal Emergency Management Agency, WisDOT completed its *Continuity of Operations* plan and *Continuity of Government* plan. WisDOT is also completing a *Continuity of Operations Plan – Essential* to identify resources and strategies that will allow core department operations to continue in the case of a pandemic. The plan will establish procedures to provide limited, essential functions for up to 90 days.

WisDOT conducted a *Vulnerability Assessment* of critical infrastructure with guidance from the Federal Highway Administration and funding from the Department of Homeland Security. This assessment identified the state's public and private transportation assets that have the greatest potential to be threatened by attack and those that could most compromise the state's transportation system if damaged or destroyed. Of the thousands of potentially vulnerable facilities examined for all modes of transportation (including highways, rail, air, transit and waterways), more than 100 facilities were identified as having the potential to catastrophically disrupt the state's transportation system. Of these, the highest priority facilities are categorized as "Tier 1" facilities, designated as the most vulnerable or the most disruptive to system operations if damaged or destroyed.

▲ *Figure 11-5: WisDOT's* Vulnerability Assessment *identified more than 100 transportation facilities – including highways, rail, air, transit and waterways – as having the potential to catastrophically disrupt the state's transportation system*

## *Adopt and apply technological and physical improvements*

WisDOT will continue to adopt and apply emerging techniques to ensure the security of driver licenses

### *Continuity of Operations* and *Continuity of Government* plans

*Continuity of Operations* and *Continuity of Government* plans have been developed to provide processes by which state transportation and other governmental operations would continue, even after a major incident.

▲ *Figure 11-6: WisDOT offers security planning assistance to local transit agencies.*

and state identification cards. WisDOT will also utilize technology for monitoring bridges, roadways and other public infrastructure, and will work with partners to identify the most appropriate technologies to employ at sensitive locations. WisDOT will actively seek and utilize applicable federal security funds for identified needs and objectives.

With the initial prioritization of vulnerable sites completed, security enhancements are being applied with available funding. WisDOT will next develop a benefit/cost methodology to assess security improvement options at the most critical locations. Security improvements at less sensitive or vulnerable locations could be addressed with improved lighting and fencing, while technology such as motion detectors and cameras could be used at top-tier locations. Over time, the benefit/cost methodology would help identify sensitive and vulnerable infrastructure that may require structural retrofitting, or "hardening," and eventual reconstruction to withstand severe weather or other disasters. Engineers will be trained to apply more secure structural designs into regular projects, much as they currently include drainage systems for infrastructures in flood-prone locations. Many of these design features can be incorporated with no significant impact on the project cost.

WisDOT is also installing continuous, wireless monitoring systems at 15 deck-truss bridges to detect unusual movement in the structures.

## *Prepare to respond to a range of incidents through plans and exercises*

Preparation elements include:

» Evaluating the vulnerability assessment, including recommendations for additional monitoring technology and retrofitting/design revisions for Tier 1 facilities (those 100 or so facilities identified at highest risk)

### Decreasing the impacts of incidents

While no transportation system can be completely secure, certain actions help deter or minimize the impacts of incidents, either natural or man-made. Examples are increased monitoring of critical facilities and improved engineering techniques that better resist physical impacts. Response capabilities can also be improved through better communication, the development of redundancies in routes and travel modes, and regular training drills involving public and private organizations.

▲ *Figure 11-7: Training and scenario planning are essential components of any security plan.*

» Developing evacuation plans for the state's largest metropolitan areas

» Conducting training and scenario planning using the "All-Hazards Approach"

» Providing ongoing consultation and collaboration with federal, state, local and private sector partners

Training and scenario planning are essential components of any security plan. Therefore, the state prepared comprehensive plans to deal with the aftermath of a disaster. These plans require regular updates, and WisDOT will participate in all relevant revisions. WisDOT will also participate in scheduled and unscheduled training drills to help build and maintain preparedness. WisDOT will also lead regular updates to the transportation elements of the *Continuity of Operations* plan and *Continuity of Government* plan. In addition, WisDOT will continue to refine the "All-Hazards Approach" to correct any shortcomings identified through training drills and incident responses.

In the state's urbanized areas, the long-range transportation plans developed by metropolitan planning organizations are required to include, as appropriate, emergency relief and disaster preparedness plans, as well as strategies and policies that support homeland security and safeguard the personal security of all users. WisDOT will assist metropolitan planning organizations in developing

TRAINING AND SCENARIO PLANNING *are essential components of any security plan. Therefore, the state prepared comprehensive plans to deal with the aftermath of a disaster. These plans require regular updates, and WisDOT will participate in all relevant revisions.*

local plans that can be integrated into the statewide process. WisDOT's regional offices have also been developing detailed plans for the evacuation of major metropolitan areas. These efforts will continue during the *Connections 2030* plan period, with ongoing re-examination of policies and practices.

WisDOT hosts regular meetings of transportation sector security partners, including the U.S. Coast Guard, Transportation Security Administration, Office of Wisconsin Emergency Management, WisDOT regional offices, motor carriers, local port managers and others. These meetings include discussions of legislative updates and concerns, and they build familiarity among partners to facilitate future responses – whether in drills or in actual emergencies. These meetings will continue to be at the center of WisDOT's coordination efforts.

Under federal rules, WisDOT oversees the safety and security of fixed-guideway transit systems, while local agencies are responsible for developing transit security plans and procedures. WisDOT will continue to offer security planning assistance to local transit agencies while taking an active role in the oversight of security for new fixed-guideway systems as they are developed.

WisDOT will continue working with the aviation community on efforts to improve airport security, including the development of the Wisconsin Airport Security Plan. This document will address emergency preparedness and response activities in the state's aviation sector. Commercial aviation security will remain under the authority of the Federal Aviation Administration, Transportation Security Administration and other federal agencies.

## ► *SUMMARY OF POLICY ACTION ITEMS:*
*Enhance the security of the transportation system by reducing vulnerability*

### Short-term (2008 – 2013)

- Continue to adopt and apply emerging techniques to improve the security of driver licenses and state identification cards.
- Develop benefit/cost methodologies to assess security improvement options at the most critical infrastructure locations.
- Assist metropolitan planning organizations in developing local plans that can be integrated into statewide emergency relief and disaster preparedness plans, strategies and policies.
- Offer security planning assistance to local transit agencies while taking an active role in the oversight of security for new fixed guideway systems as they are developed.

### Entire planning period (2008 – 2030)

- Utilize improved technologies for monitoring bridges, roadways, and other public infrastructure, work with partners to identify the most appropriate technologies to employ at sensitive locations, and use available federal security funds where appropriate.
- Participate in training drills to help build and maintain preparedness.
- Regularly update the transportation elements of the Continuity of Operations plan, the Continuity of Government plan and the Continuity of Operations – Essential plan, and refine the "All Hazards Approach" to correct any shortcomings identified through training drills and incident responses.
- Develop and periodically review detailed plans for evacuation of major metropolitan areas.
- Continue regular meetings of transportation sector security partners to discuss legislative updates and concerns, and facilitate future responses – whether in drills or in actual emergencies.
- Continue working with the aviation community on efforts to improve airport security, including the development of the Wisconsin Airport Security Plan.

▶ ***POLICY:***
*Improve emergency response to make the transportation system more resilient*

The importance of coordinated, skilled emergency response procedures – in both the initial hours after an incident occurs and in the following weeks and months of reconstruction and rerouting – has been demonstrated repeatedly.

Major incidents typically involve a phase of rescue and recovery followed by a longer period of reconstruction. Therefore, the demands placed on transportation and emergency response partners evolve throughout an emergency situation.

In order to be able to respond to a variety of incidents, plans and procedures should be flexible and adaptable. Related improvements to emergency response can be divided into two general processes:

» Develop and apply response procedures and upgrade communication equipment

» Improve the operability of the transportation system during disruptive events

## *Develop and apply response procedures and upgrade communication equipment*

Response elements include:

» Coordinating initial emergency response, based on severity of incident, and in accordance with WisDOT's Emergency Transportation Operations plan

» Maintaining communication vertically (among different levels of government) and horizontally (across different response agencies within the same level of government)

» Communicating information to the public about the nature and severity of an incident, along with appropriate actions the public should take

The *Emergency Transportation Operations* plan is a coordinated, performance-oriented approach to operating the transportation system during emergencies. The plan addresses the procedures, processes, technology, roles, and relationships used in responding to incidents. An *Emergency Transportation Operations* response is required when there is an exceptional event that disrupts the normal flow of traffic on the Interstate system or state highway network. Incidents and events like these require an extreme response beyond normal daily operating procedures or capabilities. For more information on WisDOT's Emergency Transportation Operations plan, see the "Improve the reliability of state trunk highway system operations" policy in Chapter 9, *Promote Transportation Efficiencies.*

While many traditional communication systems across the state already have redundancies in place, WisDOT will support further development of backup elements for these systems. Many agencies in Wisconsin, including WisDOT, have improved their communication technology for better emergency response coordination.

A new tool available to the emergency response community is the Mobile Data Communications Network. The Mobile Data Communication Network is a statewide microwave system that uses transmission

MAJOR INCIDENTS TYPICALLY INVOLVE *a phase of rescue and recovery followed by a longer period of reconstruction. Therefore, the demands placed on transportation and emergency response partners evolve throughout an emergency situation.*

towers to transmit real-time data between shock-resistant computers inside patrol cars and regional base stations linked to the enforcement database at the Department of Justice. This system allows for a more secure exchange of information, including driver and vehicle information, location details, specific instructions, guidance, training and audio/visual messaging. Each agency partnering with the Division of State Patrol in use of the Mobile Data Communication Network must purchase and maintain its equipment to the division's standards.

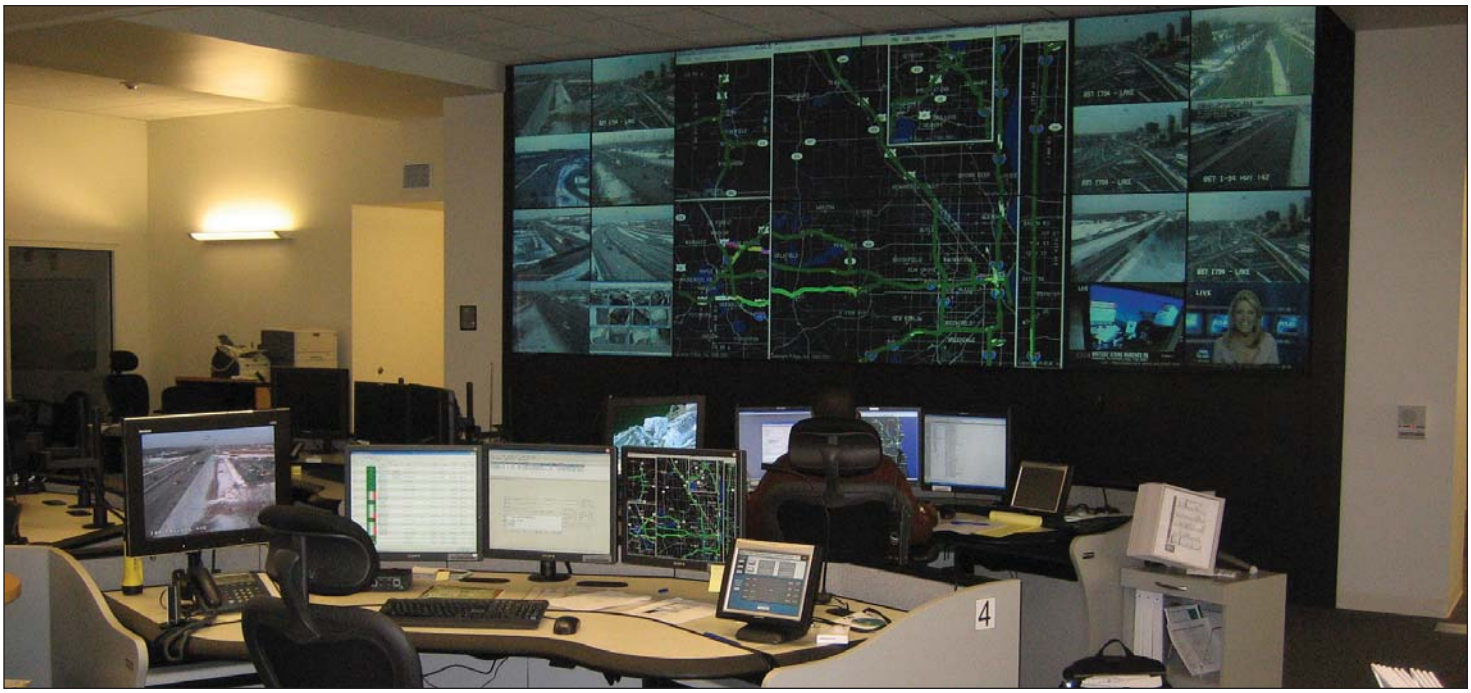
Another critical component of the state's emergency response network is the State Traffic Operations Center in Milwaukee. The center is staffed 24 hours a day to coordinate responses to highway emergencies, incidents and infrastructure problems. Its freeway camera feeds are connected to the state Emergency Operations Center in Madison. Center staff can be reached by law enforcement, highway maintenance and other agencies through a single toll-free number. For more information about the State Traffic Operations Center, see Chapter 9, *Promote Transportation Efficiencies*.

State Traffic Operations Center functions include variable message signs in Milwaukee and Madison, used for both transportation-related information and emergencies such as Amber Alerts. The surveillance cameras in both metropolitan areas help officials quickly identify incidents that disrupt travel.

Highway Advisory Radio is used to notify drivers of lane closures due to construction and traffic conditions at sports events.

Wisconsin now has a 511 Traveler Information System in place. 511 is a nationwide program (administered and funded at the state level) that provides callers with free access to real-time, route-specific travel conditions, including weather, incidents, congestion and construction. The Wisconsin system operates via an automated voice-activated menu, and it is capable of providing Amber Alerts.

The 511 system is highly automated and can handle simultaneous calls. The system is versatile, offering many opportunities to accommodate the "All Hazards Approach" to emergency operations and emergency



▲ *Figure 11-8: The State Traffic Operations Center in Milwaukee is staffed 24 hours a day to coordinate responses to highway emergencies, incidents and infrastructure problems.*

alerts. This includes the ability to provide reverse messaging to cell phones or in-vehicle communication devices. WisDOT will support ongoing upgrades to the 511 system, including the development of security and urban evacuation components.

WisDOT's response capabilities will require extensive improvements. While the Emergency Alert System has been useful in Amber Alerts and severe weather warnings, additional communication and equipment upgrades will be essential. Future WisDOT actions include:

» Continued upgrades of voice and data systems for communication with the public and among primary and secondary responders

» Upgrades to voice and data systems in the Intelligent Transportation System (ITS) networks, including greater integration and coordination with State Traffic Operations Center systems to assist in evacuations and other emergencies. For more information see Chapter 9, *Promote Transportation Efficiencies*

System improvements for the emergency response community will include purchasing communications infrastructure and equipment capable of interoperability among all responders, including local, state, tribal and federal agencies.

In 2005,Governor Jim Doyle's Executive Order 87 created the State Interoperability Executive Council to address interoperability and communication issues. During 2007, the State Interoperability Executive Committee conducted several public listening sessions that focused on the impact of state communications plans and proposed standard operating procedures.

In Spring 2008, Assembly Bill 321 was adopted and the Interoperability Council was formed, replacing the State Interoperability Executive Council. The committee's makeup is indicative of the wide reaching impact of interoperability. Acting as WisDOT's designee on the council is State Patrol Superintendent David Collins.

The Interoperability Council seeks to achieve statewide public safety radio interoperability. The council:

### Interoperability

Interoperability is the ability of two or more systems or components to exchange information and use the information that has been exchanged. For WisDOT, these capabilities include two-way radio communication, telecommunication and data exchange via computer networks. The use of different radio frequencies or software programs can make it difficult or impossible to exchange information.

» Sets goals and objectives to achieve statewide public safety radio interoperability

» Develops and periodically reviews a strategy for achieving public safety radio interoperability including, but not limited to, advising the Office of Justice Assistance on the allocation of homeland security money and other funding available for this purpose

» Sets technical and operational standards for interoperable radio communications

» Develops short and long-term recommendations for local units of government on actions that may be required to achieve public safety radio interoperability

Since the public listening sessions in 2007, the Office of Justice Assistance has already distributed multiple rounds of interoperability equipment grants funded by the homeland security money. This funding replaces and upgrades existing VHF public safety radios. Any local or tribal public safety agency in Wisconsin can apply for the grants.

Through the Wisconsin Interoperable System for Communications, community responders will have the ability to use a common statewide system to communicate during large incidents. Also, responders

▲ *Figure 11-9: Variable message signs help improve communication with the public about emergencies that disrupt travel.*

in one community will be able to assist another community without loss of communications, from any part of Wisconsin. The Wisconsin Interoperable System for Communications is envisioned to support a minimum of three simultaneous conversation paths during an incident, triple the number currently available, and will be expandable through additional enhancements. Initial build-out will provide 95 percent statewide coverage for mobile radios. Information on the Wisconsin Interoperable System for Communications is available at http://www.ic.wi.gov/section.asp?linkid=1223&locid=70.

By definition, public safety communication systems require redundancy so that communications throughout Wisconsin can continue on a backup system if the primary system fails. WisDOT's network provides the required built-in redundancies. Transportation management communications infrastructure (such as WisDOT's fiber optic backbone), and public safety communications (such as the microwave backbone and mobile data network) are integrated to provide enhanced public safety and transportation operations linkages, as well as enhanced mobile voice, data and video access.

In incidents across the nation, the inability of various units of government to properly communicate during a crisis has consistently been cited as a major reason for failure of emergency response plans. WisDOT will continue to invest in communication system redundancy and integration throughout the plan period.

Improvements to communication with the public should be multidisciplinary, with heavy reliance on mass media such as TV, radio, and print. The Emergency Alert System is a cost-effective way to inform the public about emergencies that disrupt travel. Additional outreach should also include fixed and mobile variable message signs, and real-time information posted to the Internet.

Improvements to the initial 511 system also must be supported. These include coverage across rural areas of the state, and potential development of cost-effective interactive and reverse-call technology. In addition, Wisconsin should also encourage next-generation technology developments in public communication, to ensure WisDOT's needs are met.

### *Improve the operability of the transportation system during disruptive events*

Operability improvements to transportation systems include:

» Directing traffic around or away from incidents

» Evacuating part or all of an urban area in a major emergency

» Restoring normal transportation service and operations through expedited reconstruction

WisDOT has identified and established emergency "reliever" routes to redirect traffic after disruptive events force the closure or partial closure of the transportation network. Closures may occur in response to weather conditions, serious crashes or other major incidents.

With the added concerns about possible intentional, human-induced acts, emergency plans for high-volume routes and major metropolitan areas have been revised to include evacuation planning. Alternate critical infrastructures and evacuation routes not only need to be identified, but they also need to be maintained to good standards, particularly when capacity on primary evacuation routes is limited by construction or maintenance.

In major catastrophes, the statewide bureaus of WisDOT's Division of Transportation System Development may request emergency contracting, which is subject to the approval of the governor, according to state law.

WisDOT is developing a comprehensive strategy to ensure mobility, flexibility and emergency operation response capabilities along the most heavily traveled corridors in the state. This approach, called integrated corridor operations planning, looks at techniques that can enhance non-freeway traffic management through use of technology along Backbone corridors. WisDOT will support these efforts through partnerships among state and local agencies. These efforts will first focus on modernizing traffic signals along the corridors parallel to freeways.

In some areas of the state, alternate route signage is already in place, such as the "Blue Route" in the Madison area. These corridors offer drivers alternate routes when a major incident requires a lengthy closure or results in a significant delay. WisDOT regions are identifying and developing additional reliever routes, as well as developing a uniform methodology for designating and signing these routes.

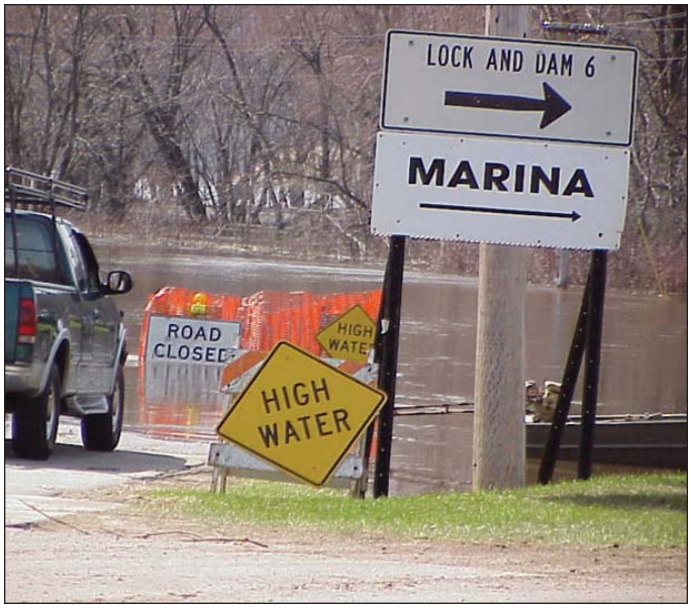
#### Madison-area Blue Route

The "Blue Route" is an alternate route signing concept designed to direct travelers when a major incident on the interstate requires a lengthy closure or results in major delays.

When a major incident occurs on I-39/90/94 around Madison, electronic message signs will instruct interstate travelers to follow the Blue Route. Static Blue Route signs have been installed that lead drivers off the interstate and along the Blue Route. The electronic signs can be activated remotely, allowing the State Patrol and other responding agencies to better focus their resources on the critical incident scene.

The Blue Route uses US 51 (Stoughton Road) from US 12/18 (the Madison Beltline) at the south to its intersection with I-39/90/94 at the north.

~ www.dot.state.wi.us/travel/stoc/altroute.htm




▲ *Figure 11-10: Policy development for overall transportation system redundancy should focus on the availability and capacity of other modes in case of emergencies.*

WisDOT will continue to collaborate with local partners in developing system redundancies and ensuring safe and efficient traffic flows on alternate routes while the transportation network is disrupted.

The *National Response Plan* guides additional efforts to create a more robust, comprehensive system of emergency planning. It includes a transportation element that identifies sector-specific emergency response strategies.

The Office of Wisconsin Emergency Management and WisDOT have joint responsibility for the development of the state's transportation element of the *National Response Plan* in partnership with counties, municipalities and metropolitan planning organizations. WisDOT and the Office of Wisconsin Emergency Management will develop and refine this element, which will include strategies for coordinating evacuation routes across county lines. In an evacuation scenario, the Office of Wisconsin Emergency Management could assert its authority to allow WisDOT to manage roads not under the department's normal jurisdiction. WisDOT and the Office of Wisconsin Emergency Management are awaiting the Department of Homeland Security state funding from the Wisconsin Office of Justice Assistance to develop these plans.

WisDOT will also establish criteria to determine when the response plan should be engaged, in the event of an incident. By conducting regular exercises for simulated incidents, security planners will gain important information about which operations are most essential and how best to continue them. Coordination is the key to the success of these plans. To ensure transportation resiliency under a range of circumstances, WisDOT will:

» Assist in coordinating evacuation plans for Wisconsin's 12 largest communities with the Office of Wisconsin Emergency Management, county governments, metropolitan planning organizations and municipalities

» Assess maximum traffic flow capacities for potential evacuation routes, taking into account the potential for conversion to single-direction operation. This assessment will help determine how quickly a neighborhood or city could be evacuated

» Coordinate border county evacuation plans with Illinois and Minnesota, should the Chicago or Twin Cities metropolitan areas face a crisis

» Schedule regular Emergency Support Function exercises to build intergovernmental cooperation capacities while identifying needs

» Expand ongoing coordination with federal agencies in developing Continuity of Operations-Essential plans (including those for medical pandemics)

» Study the needs of essential freight movement (including food and fuel) during any prolonged incident, and identify strategies that will best meet those needs

In addition to identifying and supporting redundant transportation routes, the state should build

redundancies for essential operations, such as State Patrol communications and driver/vehicle records management. WisDOT must also build resilience into other critical areas, such as operations, design and planning. The development of additional computer server systems and project management files is also essential to the department's most critical daily functions.

In the long term, WisDOT must consider and develop policies for using other modes in case of emergencies. For example, on September 11, 2001, and in the days that followed, the grounding of all domestic air service left thousands of travelers without adequate travel options. Policy development for overall transportation system redundancy should focus on the availability and capacity of other modes.

## ▶ *SUMMARY OF POLICY ACTION ITEMS:*

*Improve emergency response to make the transportation system more resilient*

### Short-term (2008 – 2013)

- Assist the coordination of evacuation plans for Wisconsin's 12 largest communities with the Office of Wisconsin Emergency Management, county governments, metropolitan planning organizations and municipalities, and assess maximum capacity for potential evacuation routes, taking into account the potential for conversion to single-direction operation.

### Entire planning period (2008 – 2030)

- Support ongoing upgrades to the 511 system, including development of security and urban evacuation components.
- Continue upgrades of voice and data systems for communication with the public and among primary and secondary responders.
- Continue upgrades of the voice and data systems in the ITS networks, including greater integration and coordination with the State Traffic Operation Center systems to assist in evacuations and other emergencies.
- Continue to invest in communication system redundancy and integration.
- Partner with state and local agencies to support efforts to ensure mobility, flexibility and emergency operation response capabilities along the most heavily traveled corridors in the state.
- Continue to collaborate with local partners in developing system redundancies and ensuring safe and efficient traffic flows on alternate routes while the state transportation network is disrupted.
- Develop the transportation element of the National Response Plan through collaboration with the Office of Wisconsin Emergency Management, counties, municipalities and metropolitan planning organizations, and establish criteria to determine when the response plan should be engaged, in the event of an incident.
- Coordinate border county evacuation plans with Illinois and Minnesota, should the Chicago and Twin Cities metropolitan areas face a crisis.
- Schedule regular Emergency Support Function exercises to build intergovernmental cooperation capabilities while identifying needs.
- Study the needs of essential freight movement (including food and fuel) during any prolonged incident, and identify strategies that will best meet those needs.
- Build redundancies for essential operations such as State Patrol communications and driver/vehicle records; build resilience into other critical areas such as operations, design and planning, and develop additional computer server systems and essential project management files.

# CHAPTER 12: Funding Wisconsin's Transportation System

To deliver the *Connections 2030* vision, transportation funding must be adequate, sustainable and equitable for all users. In addition, the budget process will need to be flexible to fund initiatives like corridor management and implement multi-jurisdictional, multimodal projects to meet Wisconsin's 21st century needs.

Achieving a sustainable revenue stream is a challenge. In the near future, Wisconsin's traditional reliance on motor fuel taxes to fund transportation will be tested.

As in other states, Wisconsin's transportation needs have routinely exceeded available dollars. The state's budgeting process and allocation of dollars for transportation cannot always respond to the pressures affecting the costs of doing business, including rising construction costs, real estate acquisition needs and environmental requirements.

The following chapter is divided into three parts. The first part offers background information on Wisconsin revenue sources and the 2007-2009 transportation budget. The second part examines trends and pressures affecting Wisconsin, and presents mid-term revenue forecasts. The third part summarizes the findings and recommendations from the National Surface Transportation Policy and Revenue Study Commission report that will serve as a framework for future policy direction in Wisconsin.

## Part 1: Background

Funding for Wisconsin's transportation system comes from several sources:

- State revenue
- Federal funding
- Bonding
- Other funds, local and service funds, program and general purpose revenue

### State transportation revenue

Motor fuel taxes, driver license fees and vehicle registration fees generate the majority of state transportation revenue. These fees are combined with federal funding proceeds from bonds, and revenue

#### Tax rates for motor fuel in Wisconsin

The current tax rate for gasoline and diesel fuel is $0.309 per gallon. In addition, $0.02 per gallon is collected for the state's Petroleum Environmental Clean-up Fund Award, not the Transportation Fund.

Although commonly referred to as "alternative fuels" for tax purposes, Wisconsin statutes treat gasoline-ethanol blends such as gasohol and E-85, and "biodiesel" as gasoline and diesel fuel. As such, they are taxed at the same rate as gasoline and diesel fuel. Under the definition of "alternate fuels" currently used in the statutes, the state's principal alternate fuels are compressed natural gas (CNG), and liquid propane gas (LPG). These fuels are taxed at lower rates than gasoline, gasoline-ethanol blends, diesel fuel and biodiesel. The current rates are $0.247 for CNG and $0.226 for LPG. These rates are intended to reflect these fuels' lower energy content compared to gasoline.

Gasoline used for general aviation is recognized in the statutes for tax purposes as distinct from gasoline used to power motor vehicles. It is taxed at $0.06 per gallon.

## The impact of stimulus funding

An economic stimulus spending package that includes investments in surface transportation, while helpful, will not solve the immediate or the longer-term problems of funding system needs. The current investment shortfall is just too great.

The Highway Trust Fund will continue to need significant augmentation beyond whatever an immediate short-term stimulus plan can provide. For instance, the stimulus package included nearly $35.9 billion for highway and transit infrastructure. While important in addressing the short-term economic crisis, it will pay for only about two months of the identified annual national funding gap to maintain and improve the system – a gap that repeats itself and compounds year after year.

Wisconsin is receiving $529 million for highway projects as part of the American Recovery and Reinvestment Act of 2009, and millions more for transit and aeronautics. These stimulus funds will be used to accelerate start dates on highway, transit and aeronautics projects. In addition to the stimulus funds, the American Recovery and Reinvestment Act provides grant programs for passenger rail, harbors and surface transportation projects. WisDOT will apply for $500 million to $600 million to implement high speed passenger rail service from Milwaukee to Madison.

*~ Paying Our Way: A New Framework for Transportation Finance*, February 2009

## How are federal funds allocated?

Federally funded transportation programs typically are governed through multi-year authorization bills, which provide the policy and funding structure for the programs.

Actual federal transportation funding is allocated annually through the congressional appropriations process.

Most federal funding is provided to states through various formulas established in the authorizations.

States, however, also receive federal funding through a competitive, discretionary process and from earmarks by Congress in annual appropriations bills and in multi-year authorization bills.

generated from communities (when they share in the costs), to fund state transportation projects.

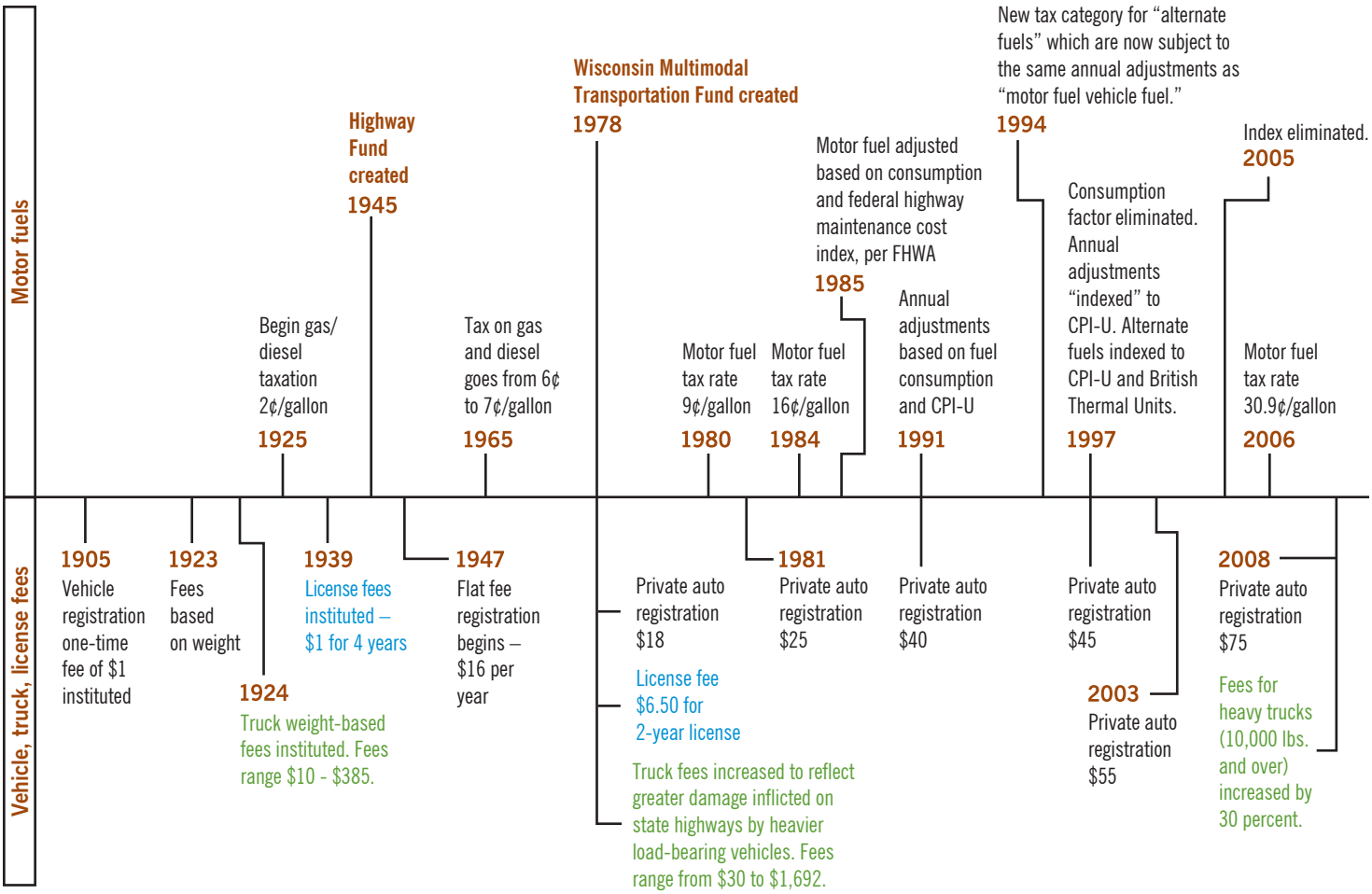
The state has taxed motor vehicle fuels since 1925, when the first tax was introduced at a rate of $0.02 per gallon. Since then, approved tax increases have been intermittent and sporadic. When the Transportation Fund was created in 1978, a tax increase had not occurred since 1965, when the state legislature increased the rate from $0.06 to $0.07 per gallon.

The legislature subsequently raised the rate to $0.09 per gallon in 1980, and during the next five years adopted three additional statutory increases, resulting in a tax rate of $0.16 per gallon in 1984.

In addition to tax increases, the legislature experimented with "indexing," a method used to help keep transportation funding in line with inflation through regular, automatic adjustments.

» In 1985, the Executive Budget Act (1983 Act 27) established a procedure for annually recalculating the tax rate on gasoline and diesel fuel based on fuel consumption and the federal highway maintenance cost index, as determined by the Federal Highway Administration.

» In 1991, the Executive Budget Act (1991 Act 39) altered the method of adjusting gasoline and diesel fuel rates. Instead of adjusting rates to reflect fuel




▲ *Figure 12-1: Development and growth of Wisconsin user charges*

*Notes:*

- *Not all increases are illustrated. Details on motor fuel rate increases can be seen on WisDOT's Web site: Gas Tax Facts.*
- *CPI-U: Consumer Price Index for urban consumers, determined by U.S. Department of Labor.*
- *British Thermal Units: Adjustment used as a factor based on the standard number of British Thermal Units per gallon generated by each kind of alternate fuel sold in Wisconsin compared to the number of British Thermal Units generated by gasoline.*
- *Indexing was suspended in 1992 and reinstated in 1993.*

consumption and highway maintenance costs, adjustments would be calculated annually based on fuel consumption and the U.S. consumer price index for all urban consumers, as determined by the U.S. Department of Labor.

» In 1997, the Executive Budget Act (1997 Act 27) eliminated the consumption factor used to calculate the annual rate adjustments for "motor vehicle" and "alternate" fuels.

In 2005, Wisconsin eliminated the annual indexing adjustment. The last adjustment occurred on April 1, 2006, when the motor fuel tax rate was raised to its current level of $0.309 per gallon. In addition to motor fuel taxes, automobile registrations have been in place since 1905 and license fees have been in place for all Wisconsin drivers since 1939. Figure 12-1 reflects the development and growth of the state's motor fuel tax rates, and vehicle and driver license fees.

## Federal transportation funding

Before 1956, federal transportation funds were allocated from the U.S. General Fund out of revenues derived from transportation-related user charges and other General Fund revenue sources. In 1956, the Highway Trust Fund was created with dedicated revenues. Initially, the purpose of the Highway Trust Fund was to provide funding for the "Federal-Aid Highway Primary and Secondary Systems," including the Interstate.

In 1970, the Airport and Airway Trust Fund was created with dedicated funding for airports and other aeronautics purposes. In 1983, the Mass Transit Account was created in the Highway Trust Fund to provide dedicated funding for mass transit. Both of these funds have sources of dedicated revenue, but a U.S. General Fund component remains for federal aeronautics and mass transit funding.

Passenger and freight rail programs have no federal, dedicated funding; however, certain rail activities are eligible for funding from the Highway Trust Fund. Funding for certain rail activities is also provided from the U.S. General Fund.

The dedicated revenue sources for transportation at the federal level are similar to those in Wisconsin. The primary federal sources of transportation funding are excise taxes on motor and aviation fuels. Other federal revenue sources include excise taxes on tires, heavy truck and trailer sales, heavy vehicle use taxes, and an air passenger ticket tax. The rates for these fees and taxes have varied over the years. For example, the federal excise tax on gasoline was $0.03 per gallon in 1956; it is now $0.184 per gallon. The federal motor fuel excise tax has not been increased since 1993.

There is much discussion among states and in Congress about financial equity – the ratio of federal funding received to federal revenues attributed to a state such as fuel taxes collected. A state can receive either more, less or the same amount as the dollars attributed to it. The level of equity among various transportation programs varies greatly, and it can be difficult to measure for some programs. Historically, Wisconsin has been a "donor" state, meaning it contributes more in federal transportation revenues than it gets back in federal transportation funding. In recent years, however, Wisconsin's equity position has improved within the highway program, and it now receives more

▲ *Figure 12-2: State and federal funds are used to help finance many state highway rehabilitation projects.*

### Local government funding challenged

Strained transportation funding resources at all levels will continue to be a challenge. Limited availability of funding sources and revenue caps will continue to challenge local government's ability to generate additional revenues, and their ability to fund the community share of transportation needs.

federal funding than its attributed revenues. Despite successes in the highway program, Wisconsin remains a significant donor-contributor for transit. Equity for aeronautics and rail is difficult to determine, and therefore is generally not measured or tracked.

## Bonding

Wisconsin uses two types of bonds to fund transportation projects:

» General obligation bonds

» Transportation revenue bonds

The state has used general obligation bonds since the late 1960s. Most recently, general obligation bonds helped finance the construction of the Marquette Interchange reconstruction project in southeastern Wisconsin; harbor and railroad projects; and various state highway rehabilitation projects. These bonds are repaid from the Transportation Fund or the state's General Fund.

Since 1983, transportation revenue bonds – bonds that are repaid from specific, pledged Transportation Fund revenue sources – have been used to pay for the Major Highway Development program. All vehicle-related registration and titling fees have been pledged for transportation bond revenue debt service since 2004. Previously, automobile and truck registration fees were the only pledged sources of revenue for these debt service payments. The biennial budget established by the state legislature and governor limit the amount of transportation revenue bond proceeds used to finance projects.

Historically, transportation revenue bonds have provided as much as 72 percent (in the 1992 fiscal year) of Major Highway Development Program funding, before decreasing to 57 percent in 1998. During the past decade, transportation revenue bonds have funded about 55 percent of allocated major highway program dollars.

## Other funds, local and service funds, program and general purpose revenue

Local units of government have been a principal source of transportation funding for as long as, or longer than, the state and federal governments. The majority of transportation infrastructure and services in Wisconsin are locally owned and provided. Many local transportation projects are not eligible for state or federal funding. In cases where the communities are eligible, state and federal funding provides only a small share of the total costs. Local governments also share a small cost of state highway projects when local amenities are included.

The revenue for local funding of transportation projects comes mainly from two sources: the local property tax, including both the general property tax and special assessments; and debt through bonding or borrowing.

# Fiscal Year 2007- 2009 transportation funding

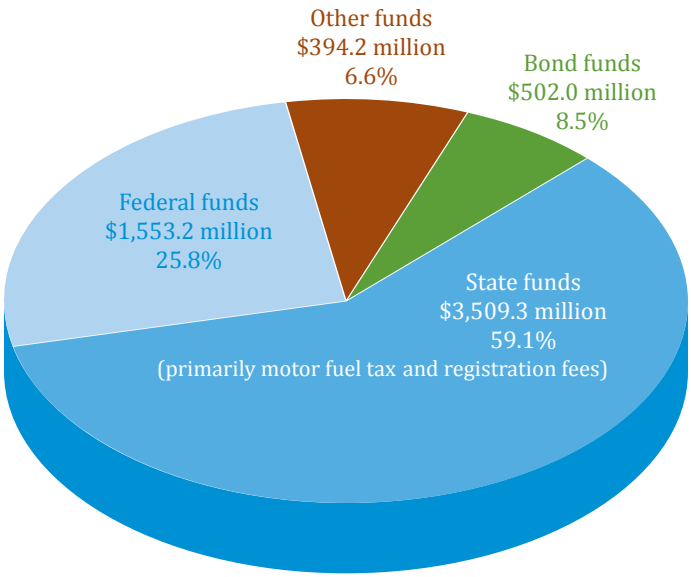
Transportation funding for the fiscal year 2007-2009 totals $5.9 billion. Figures 12-3 through 12-6 depict:

» All WisDOT revenue sources

» The way WisDOT distributes state revenues

### General Transportation Aids program

WisDOT administers the General Transportation Aids program, its second largest program, which helps to offset the cost of county and municipal road construction, maintenance, traffic and other transportation-related costs. General transportation aid payments are based on either a share of eligible transportation-related expenditures, or a per-mile payment.




▲ *Figure 12-3: All WisDOT revenue sources (reflects 2007 Wisconsin Act 20). 2007-2009 total is $5.9 billion*

» Programs that will be financed from bond proceeds

» The way WisDOT distributes federal funds

## All revenues

The total state transportation budget for fiscal years 2007-2009 is derived from four main sources: state funds, federal funds, bond proceeds and other funds (Figure 12-3). This distribution of approximately 59 percent state, 26 percent federal revenue has been consistent with other biennial budgets.

Other funds include local government cost shares and state general purpose revenues.

## Distribution of state revenue

As indicated in Figure 12-3, 59 percent of WisDOT's budget revenue, $3.5 billion in 2007-2009 biennium fiscal period, is generated from state fees.

Figure 12-4 shows the distribution of these funds among WisDOT's programs. The department's state operations include administrative costs such as salaries, as well as funding the Wisconsin State Patrol and motor vehicle services.

Debt service and reserves largely consist of funds that are used to repay bonds. The amount allocated to local programs covers a variety of programs including General Transportation Aids, bridge rehabilitation and transit. The remaining 41 percent funds state highway programs.

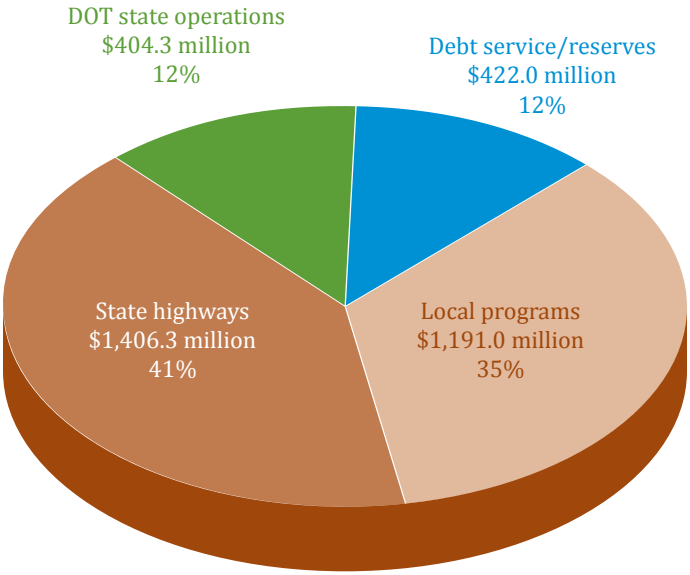
## Bond authority

The state legislature authorized general obligation and transportation revenue bonds totaling $502 million during the 2007-2009 biennium for transportation. These bonds accounted for 8.5 percent of WisDOT's budget revenue.

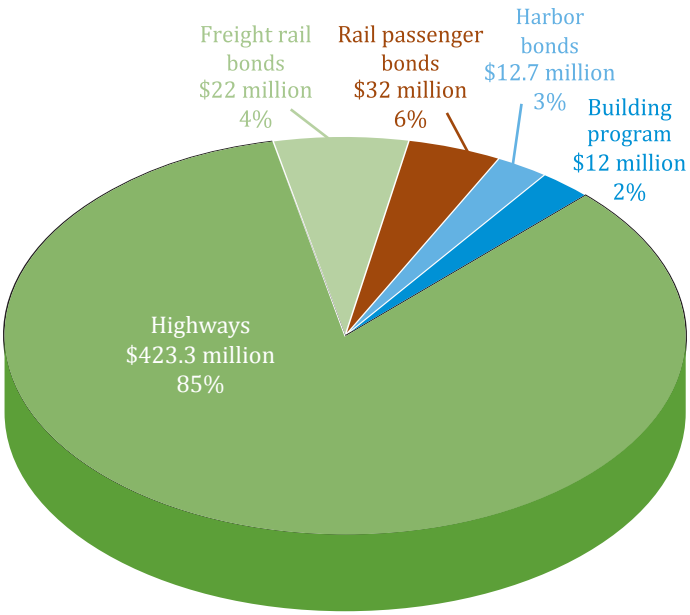
About 85 percent of these funds were used to finance highway programs, including the Marquette Interchange reconstruction project and the I-94 North-South Corridor study in southeastern Wisconsin. The remaining 16 percent of bonding authority is allocated for buildings, harbors and rail projects.

## Distribution of federal funding

During the 2007-2009 biennium, federal funds accounted for almost 26 percent of WisDOT budget revenues ($1.5 billion).




▲ *Figure 12-4: Distribution of state revenues (reflects 2007 Wisconsin Act 20). 2007-2009 total is $3.5 billion*




▲ *Figure 12-5: Bond authority (reflects 2007 Wisconsin Act 20). 2007-2009 total is $502 million*

Federal funding is primarily used for highway construction programs, although the state also receives federal funds for transit, aeronautics, motor carrier safety and other transportation programs.

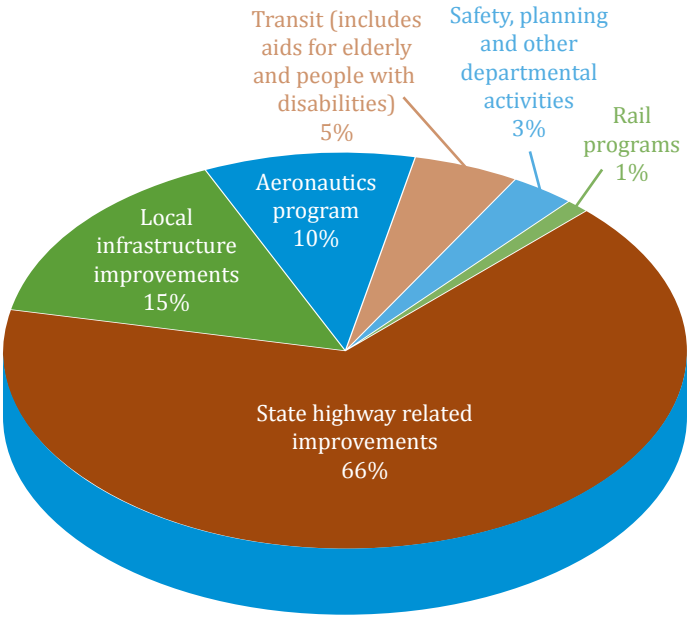
Figure 12-6 shows how WisDOT's federal funds were allocated in the 2007-2009 biennial budget.

## Vehicle registration fees

Increases were also adopted for automobile and light truck registration fees. Auto fees were raised from $55 to $75, generating an estimated $35.3 million in the 2008 fiscal year and $71.9 million in the 2009 fiscal year.

Fees for light trucks also increased. This will generate an estimated $12 million in the 2008 fiscal year, and $24.7 million in the 2009 fiscal year.

Registration fees for heavy trucks (more than 8,000 pounds) increased 30 percent, generating an estimated $7.7 million in the 2008 fiscal year, and $49.2 million in the 2008 fiscal year.




▲ *Figure 12-6: Distribution of federal funds (reflects 2007 Wisconsin Act 20). 2007-2009 total is $1.5 billion*

For the 2007-2009 biennium, allocated amounts for vehicle registration fees are $558.3 million in the 2008 fiscal year and $589.4 million in the 2009 fiscal year.

## Part 2: Funding transportation beyond 2009

This section examines trends, pressures and key topics affecting Wisconsin's transportation system and presents mid-term revenue forecasts. The findings and recommendations emanating from the National Surface Transportation Policy and Revenue Study Commission report serve as a framework for future policy direction in Wisconsin.

Some of the key areas include:

» Eroding revenue base

» Increasing costs

» Funding for corridor management and freight projects

### Eroding revenue base

Wisconsin's transportation revenue base is highly reliant on motor vehicle fuel consumption. Between 1985 and 2007, consumption of taxable motor fuel grew at a rate of about 1.6 percent annually, and motor fuel revenues grew at an average rate of 4.7 percent annually. These growth rates were partly sustained by Wisconsin's expanding working age population; generally rising incomes; increasing industrial production; relatively low unemployment and inflation; relatively low and stable gasoline prices; and stagnant to declining fuel efficiency within the light vehicle fleet. These trends have supported increasing motor vehicle fuel consumption and, in turn, rising motor vehicle fuel revenues.

Looking forward to 2030, the growth rates that have sustained Wisconsin's transportation revenue base will be eroded by several trends affecting motor vehicle fuel consumption.

» Although Wisconsin's population will continue to expand, much of this growth is expected in segments of the population beyond the peak driving years of 18 to 64 years old (also see Chapter 3, *Trends*).

» Significant and sustained increases in fuel prices are expected to have a negative effect on consumption during the long term.

» The introduction of new technologies that improve motor vehicle fuel efficiency will slowly reverse years of stagnant or declining fuel efficiency within the vehicle fleet.

In the past, factors that contributed to the erosion of the state's revenue base were mitigated by the motor vehicle fuel excise rate, which responded to changes in the Consumer Price Index. However, the annual indexing of fuels was repealed in December 2005, with the last annual adjustment occurring on April 1, 2006.

#### Revenue forecast

WisDOT uses a model to annually predict the taxable consumption of motor vehicle fuel in Wisconsin. This information is used to forecast revenues based on current state tax levels.

According to the department's spring 2008 forecast, taxable consumption of gasoline in Wisconsin is expected to increase 7.5 percent, and diesel fuel,

#### Challenges to sustainable revenue

Wisconsin's vision to have a sustainable revenue stream is challenged by a number of trends and pressures. In the years ahead, Wisconsin's traditional reliance on motor fuel taxes will be tested as federal transportation policy is aligned to work with a recently enacted (December 2007) national energy policy and a pending carbon emissions policy. These forces may accelerate the adoption of new ways of funding transportation.

12 percent, between the 2008 and 2015 fiscal years, for a total 8.5 percent increase in taxable motor vehicle fuel consumption. Figure 12-7 depicts the forecast consumption of taxable gasoline and diesel fuel through the 2015 fiscal year.

Although the forecast predicts relatively flat state motor vehicle fuel tax revenue growth through 2015, even at current tax rates it may not fully account for the potential loss of revenues due to rapidly changing vehicle technologies, particularly in the later years of the forecast. In addition, the retail price of gasoline, along with other forecast variables such as population, personal and disposable income growth, industrial activity and annual unemployment rate also influence fuel consumption, and in turn, the department's motor vehicle fuel revenue forecast. Recent spikes in pump prices for gasoline and diesel may be harbingers of reductions in future fuel consumption and erosion of Wisconsin's transportation revenue base.

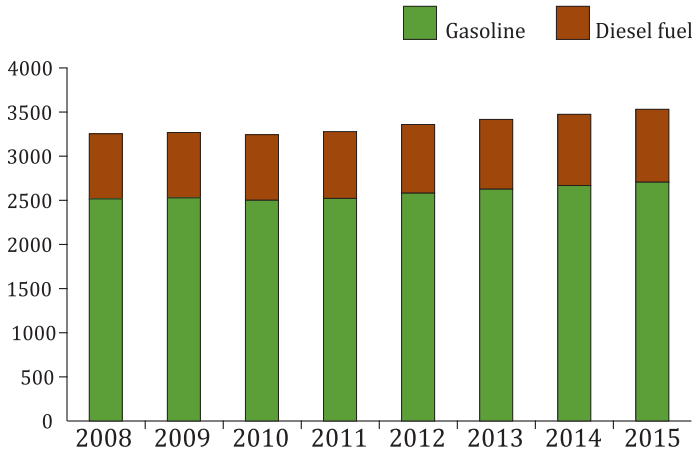
According to the U.S. Energy Information Administration:

> "Concerns about oil supply, fuel prices and emissions will drive development and market penetration of vehicles that make use of alternative fuels, or employ electric motors and advanced electricity storage, advanced engine controls, or other new technologies."[1]

Alternative fuel technologies, including alcohol fuel (ethanol and methanol blends), natural gas (CNG and LPG), electric (including gasoline-electric hybrids), and fuel-cell powered light vehicles comprised about 4 percent of all light-duty vehicles nationally in 2008, and will rise to about 10.4 percent in 2015 and 26.9 percent in 2030.[2] Much of this growth is expected among vehicles using ethanol as fuel. Since ethanol fuels are currently taxed at the same rate as gasoline and diesel fuel under Wisconsin law, this trend has limited impact on future Transportation Fund revenues.

[1] EIA (February 2007), Annual Energy Outlook 2007, p. 81.

[2] Data derived from Supplemental Tables to the Annual Energy Outlook 2008, Table 48, www.eia.doe.gov/oiaf/aeo/supplement/pdf/sup_tran.pdf.




▲ *Figure 12-7: Forecast consumption of motor vehicle fuel through 2015 fiscal year*

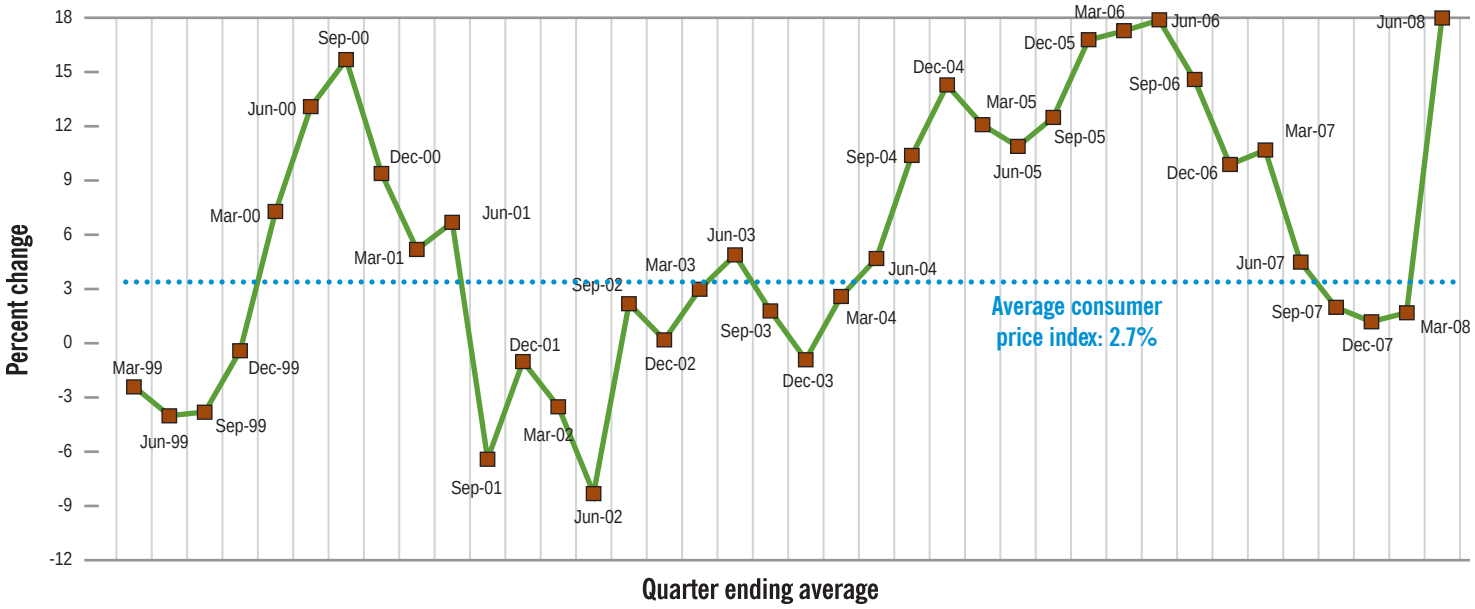
However, vehicles using electric technology (including gasoline-electric hybrids) are forecast to increase their share nationally from about 0.6 percent in 2008, to 2.8 percent in 2015 and 11.2 percent in 2030. If the percentage of hybrid technology vehicles increases more quickly than anticipated, the cumulative effect on WisDOT's revenue stream will be significant.

When hydrogen fuel-cell-powered vehicles become commercially available, they might have an even more dramatic impact on state revenues. The U.S. Energy Information Administration currently forecasts that fuel-cell-powered vehicles will comprise less than 1 percent of light vehicles in 2030; however, rising fuel prices might encourage consumers and businesses to use fuel more efficiently, either by driving less or by using more fuel-efficient modes of transportation.

## Increasing costs

During the next two decades, transportation costs are expected to fluctuate widely. It is difficult to forecast these changes with precision, but the impacts of unplanned increases are raising the costs of scheduled highway projects, thereby limiting the department's ability to address additional needs with existing revenues. In other cases, projects are simply delayed.

Similar to the state, local units of government are also facing funding challenges related to roadway




▲ *Figure 12-8: Wisconsin quarterly roadway construction costs (1999-2008)*

maintenance and preservation, which are compounded by increased construction costs. Increases in the cost of transportation projects can generally be attributed to three areas: highway construction, project delivery and real estate acquisition.

## Highway construction

A number of factors contribute to the cost of highway construction, including size of the construction contract, project location, and project duration. Project duration can be influenced by environmental regulation or plan changes.

The most influential factor, however, is the cost of materials, including concrete and steel, which have increased significantly with rising global demand, labor and equipment. Inherent in the cost of material is a fuel component through either the fabrication or delivery of the materials.

Wisconsin is located close to some of the raw materials needed for highway construction; however, costs have fluctuated due largely to global supply and demand (Figure 12-8).[3] These fluctuations may indicate that a different trend for highway construction costs is emerging – one that does not track inflation – and there may be better indicators of price volatility. Initial studies have indicated that diesel fuel prices closely track highway and street construction costs.[4] If diesel fuel prices increase, construction costs increase accordingly.
The gap for funding emerges as funding increases are not always in line with actual costs of delivering transportation projects.

## Project delivery and environmental regulation

One of the key issues addressed by the National Surface Transportation Policy and Revenue Study Commission was the amount of time it takes to develop transportation infrastructure projects and the impact the process has on the ultimate cost of a project.

Information compiled by the Federal Highway Administration indicates that the national average time for major highway projects to advance from project initiation to completion is approximately 13 years. Freight rail, passenger rail and transit projects face similar or even longer periods to complete.

[3] Wisconsin DOT Price Index, Yearly Moving Average Base Year 2000, January, 2008 data.

[4] Florida Department of Transportation, Construction Cost Indicators, February 7, 2007.

▲ *Figure 12-9: Approximate timeline, in years, for EIS development and other activities leading up to construction*
*Note: Not all WisDOT EIS analyses take the same amount of time. Duration depends on project scope and complexity.*

During this process, a project initially estimated to cost one amount could increase significantly in cost, changing finance plans and construction schedules.

In Wisconsin, a project can take up to 10 years depending on its scope (project size, number of lanes) and complexity.

Some of this time is associated with the environmental review process. In recent years, the median time to complete environmental impact statements (EISs) for highway projects has varied nationally from 54 to 80 months. Changes in project concepts, which typically include design changes, mean that the department must re-evaluate environmental impacts, and project

delivery is delayed. WisDOT's EIS process (Figure 12-9 for Major Highway Projects – WisDOT's complex and large projects) details starting preliminary design activities before the EIS process is completed. This helps to streamline the process. WisDOT will continue to work on improving the process. See Chapter 10, *Preserve Wisconsin's Quality of Life*, for a discussion of WisDOT's policies and strategies that continue to meet environmental requirements but also identify ways to further streamline processes.

### Real estate acquisition

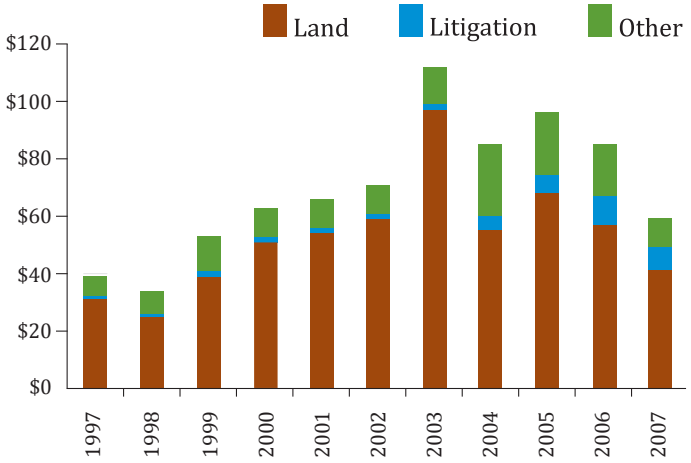
The department invests a significant amount of money in project-related real estate acquisitions. Typically, there are three categories of related costs: land purchase, litigation and "other" costs such as contractual fees, salaries, payments to local governments and additional categories (Figure 12-10 and Table 12-1).

Real estate acquisition costs represent a significant portion of a project's costs: $40 million in 1997, $65 million in 2001 and $60 million 2007. These costs are relatively volatile and difficult to estimate for a variety of reasons such as land speculation and changing project requirements.

The volatility of real estate acquisition costs can impact the stability of the transportation program because the dollars needed to acquire real estate must be allocated before construction can begin.

If real estate for one project is more expensive than initially estimated, decisions must be made to either change the scope of the project or delay other projects to reallocate the necessary funds. While most project costs are associated with land acquisition, litigation costs also have increased significantly in recent years. Some of the factors driving real estate costs and volatility are appreciation in land values, compression, design changes and fear of litigation.

» Land value appreciation is driven in large part by highway improvements. Other likely factors include: proximity to urban areas where land prices tend to rise more rapidly; time (as more time passes, the cost of the land will increase more); and land speculation.




▲ *Figure 12-10: Dollars spent per fiscal year by WisDOT on real estate acquisition, 1996 to 2006 (in millions)*

» Poor appraisals and fear of litigation have a large ripple effect as both raise administrative revision costs and settlement amounts

» Compression (the time between when real estate needs are identified and the project is "let" to a contractor) can also increase total project costs. With less time, real estate agent costs may increase as agents work to get the land cleared faster.

» Facility design changes may also increase a project's costs; they often are the result of local changes, changes in design standards, new or updated information about acquisitions, project staff changes and internal coordination needs.

A number of efforts are underway to improve the department's cost estimating techniques. These include improving staff expertise regarding the appropriate application of eminent domain authority and focusing on the major highway development projects where differences in cost estimates between the initial and the final plat have been found to have the largest discrepancies.[5]

## Funding corridor management and freight projects

*Connections 2030* is based on a multimodal planning framework implemented around a corridor

**Table 12-1: Real estate acquisition expenditures on land and litigation**

| Fiscal Year | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dollars in millions | | | | | | | | | | | |
| Land | $31 | $25 | $39 | $51 | $54 | $59 | $97 | $55 | $68 | $57 | $42 |
| Litigation | $1 | $1 | $2 | $2 | $2 | $2 | $2 | $5 | $6 | $10 | $8 |
| Other | $7 | $8 | $12 | $10 | $10 | $10 | $13 | $25 | $22 | $18 | $10 |
| Total | $40 | $34 | $53 | $63 | $65 | $71 | $112 | $86 | $96 | $84 | $60 |
| Percent of total expenditures | | | | | | | | | | | |
| Land | 79% | 73% | 75% | 81% | 82% | 83% | 86% | 64% | 71% | 67% | 70% |
| Litigation | 3% | 4% | 3% | 3% | 3% | 2% | 2% | 6% | 6% | 12% | 13% |

management approach. As some of *Connections 2030*'s key initiatives (such as corridor management and freight planning) are implemented, it will be necessary to have a budget process in place that is flexible and able to fund multi-jurisdiction, multimodal projects to meet Wisconsin's 21st century needs.

The ability to implement a multimodal corridor management approach requires significant statutory and programmatic changes at both the state and federal levels. Currently, funding and programs are generally limited to a particular mode and make multimodal and intermodal projects very difficult if not impossible to undertake in an efficient manner. In addition, administrative structures, especially at the federal level, are nearly incapable of overseeing such projects, creating significant and costly barriers to this approach. In its deliberations, the National Surface Transportation Policy and Revenue Study Commission recognized this and suggested a complete restructuring of both federal surface transportation programs and the federal transportation system of government to facilitate a multimodal corridor management approach.

In Wisconsin, the administrative structure allows for such projects, but statutory funding eligibility and program definitions largely do not. If these budgetary and programmatic changes are not made, WisDOT will have difficulty coordinating corridor management activities and ensuring a multimodal approach to implementation. Despite these challenges, WisDOT will continue to proceed with plan implementation and identify strategies and solutions to overcome these challenges.

[5] A final plat is used to define the project right of way land needs prior to land acquisition.

## Part 3: Funding transportation beyond 2015: National Surface Transportation Policy and Revenue Study Commission

During the last surface transportation authorization, Congress recognized that since the completion of the Interstate Highway System the United States has lacked a clear and comprehensive strategic vision to guide transportation policy-making at the national level. Congress also recognized that transportation infrastructure is crucial to the nation's well-being because of its role in the economy, national defense and mobility. Congress noted that the nation's infrastructure has many needs that current resources cannot meet.

To address these issues, Congress created the National Surface Transportation Policy and Revenue Study Commission in Section 1909 of the Safe Accountable, Flexible, and Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU). The policy commission was charged with conducting

### National Surface Transportation Policy and Revenue Study Commission members

- **Mary Peters, Chair**
  Secretary, US Department of Transportation
- **Jack Schenendorf**
  Vice-Chair, Counsel Covington and Burling, LLP
- **Frank Busalacchi**
  Secretary, Wisconsin Department of Transportation
- **Maria Cino**
  Former Deputy Secretary, US Department of Transportation
- **Rick Geddes**
  Associate Professor, Cornell University
- **Steve Heminger**
  Executive Director, San Francisco Metropolitan Transportation Commission
- **Frank McArdle**
  Senior Advisor, General Contractors Association of New York
- **Steve Odland**
  Chairman and CEO, Office Depot, Inc.
- **Patrick Quinn**
  Co-Chairman and President, U.S. Express Enterprises, Inc.
- **Matt Rose**
  Chairman and CEO, BNSF Railway
- **Tom Skancke**
  CEO, The Skancke Company
- **Paul Weyrich**
  Chairman and CEO, Free Congress Foundation

a thorough review of the nation's transportation assets, policies, programs and revenue mechanisms, and to create a plan that could serve as a long-term transportation vision.

The policy commission comprised 12 members including representatives from state, local and federal transportation organizations, transportation users, transportation builders, and representatives from private industries, academia and the political arena. The president appointed four members, and the majority and minority leaders in the U.S. House of Representatives and the U.S. Senate each appointed two members. WisDOT Secretary Frank Busalacchi participated on this policy commission.

The policy commission's report and recommendations were presented to Congress on January 15, 2008.[6] The policy commission made several recommendations for financing the nation's surface transportation needs. Given the immediate concern of a possible deficit in the Federal Highway Trust Fund and the long-term nature of the policy commission's report, the finance recommendations were categorized into immediate, mid-term (through 2025), and long-term (beyond 2025).

The mid-term and long-term recommendations are summarized below. Given the focused nature of the immediate recommendations on the Federal fiscal year 2009 condition of the Federal Highway Trust Fund and the long-term horizon of *Connections 2030*, they are not included.

## Mid-term finance recommendations (through 2025)

The policy commission report stated the following opinions:

» Significant additional investment is needed by all levels of government and the private sector to provide transportation infrastructure for a growing population, to support economic growth and for international competitiveness.

[6] The commission report can be viewed at www.transportationfortomorrow.org/final_report/

### Transportation for Tomorrow: Report of the National Surface Transportation Policy and Revenue Study Commission, recommendations for public-private partnerships

The commission recommends the following conditions be met when states use public-private partnerships:

- Transparency is a key element in all aspects of the process and the arrangement, including all terms and conditions in the agreement.
- There should be adequate public participation and all applicable planning and environmental requirements should be met.
- Confidentiality should be limited only to those instances where it is legally required.
- The terms of the agreement should include the following:
  - The condition and performance of the facility are adequately maintained over the life of the concession agreement and at the end of the agreement the facility is returned to the state in a state of good repair.
  - There are no non-compete clauses that prohibit the construction or improvement of adjacent facilities; however, provisions that require the public entity to compensate private operators for lost revenues when improvements are made to adjacent facilities would be acceptable.
  - Should the private partner enter into bankruptcy, become insolvent, or fail to meet all terms and conditions of the agreement, the facility will revert to the state.
  - Customers' interests are protected by capping the rate of increase in tolls at the level of the Consumer Price Index minus an adjustment factor for productivity improvements.
  - Revenue sharing provisions should be included in the lease agreement to ensure that the public sector shares in the rewards if toll revenues are higher than projected during the valuation process. Alternatively, the lease agreement could include rebalancing provisions to bring the agreement terms back into the financial balance achieved in the original negotiation.
  - Concession agreements should not exceed a reasonable term. Following the termination of a concession agreement, public input and review must be undertaken before any renewal of the agreement.
- Concessions or other payments to public entities should not be used for non-transportation purposes or to subsidize transportation improvements in other parts of the state or metropolitan area, but rather should be used to improve and expand the tolled facilities and to expand capacity on transportation alternatives within the same corridor.
- No conflicts of interest exist involving any parties to the agreement.

» Transportation funding should rely on the principal of user financing.

» While the fuel tax may not be a viable long-term source of transportation revenue, it is likely to remain the main source of transportation revenues during the next 20 years.

The policy commission report included two mid-term finance recommendations: increase federal revenues, and remove barriers to options for increasing state and local revenues. Recommendations for increasing federal revenues:

» The federal government should continue to contribute approximately 40 percent of total surface transportation capital outlay.

» A federal freight fee, such as a container charge, freight waybill charge or other fee, should

be created to help finance freight-related infrastructure improvements.

» Federal truck taxes should be adjusted proportionally to increases in fuel taxes.

» Federal investment tax credits should be granted to transportation facility owners for freight capacity expansion.

» The Federal Highway Trust Fund should be restructured and renamed as the Surface Transportation Trust Fund, for compatibility with the recommended new program structure based on functional lines rather than individual modes.

» Federal fuel taxes should be increased from $.05 to $.08 per gallon per year over the next five years.

» Federal fuel taxes should be indexed to inflation.

» The federal General Fund should continue to provide 20 percent of the funding for transit.

» A federal ticket tax should be levied on all transit trips to supplement transit funding.

» Intercity passenger rail should be funded — like transit — with an 80 percent share from surface transportation revenues and 20 percent from the federal General Fund.

» A federal ticket tax should be levied on intercity passenger rail users to supplement other funding.

» Transportation activities that reduce greenhouse gas emissions should receive a proportional share of any revenue generated from any carbon taxes or carbon cap-and-trade system that may be enacted.

» A portion of customs duties should be dedicated to freight-related infrastructure improvements.

To remove barriers to options for increasing state and local transportation revenues in the mid term, the policy commission report recommended:

» Provide states with more flexibility to implement tolling or congestion pricing on new capacity of the Interstate system.

» Encourage the use of public-private partnerships as a financing tool for state and local governments as long as the same strict criteria related to tolling and congestion pricing are followed, and the public interest is protected.

## Wisconsin mid-term recommendations

Wisconsin supports many of the national policy commission's mid-term recommendations, but currently does not support the concept of tolling on any facility in Wisconsin. WisDOT will continue to follow the evolution of public-private partnerships; it will consider short-term options that do not require tolling arrangements, and provide necessary public protections identified by the policy commission.

Table 12-2, developed by the national policy commission, provides a high-level, subjective evaluation of a wide range of revenue sources used by states around the country to fund transportation. The evaluation is based on a set of criteria, including ease of implementation, to determine their potential viability as revenue sources. Wisconsin uses many of these criteria when evaluating potential state revenue sources.

When it is determined that a request for increased resources is necessary, Wisconsin will evaluate the traditional revenue sources identified in Table 12-2 as part of the biennial budget process. Some of those sources are the fuel tax, registration fees, indexing and sales tax options.

The criteria used by WisDOT to select and recommend resource increases will be determined during each budget cycle. It is expected that WisDOT would continue to rely on these traditional revenue sources until a new national financing system can be developed and implemented. Innovative techniques, such as public-private partnerships, will be pursued if they meet Wisconsin's criteria.

### Public-private partnerships

Public-private partnerships refer to contractual agreements formed between a public agency and private sector entity that allow for greater private sector participation in the delivery of transportation projects.

## Long-term revenue solutions (beyond 2025)

The analysis completed by the national policy commission indicates that mileage-based user fees may be the primary transportation revenue source in the future; however, the policy commission noted that research should not be limited to this option.

Mileage-based fees are a user charge that could depend on any or all of the following: mileage, vehicle characteristics, and traffic conditions. Mileage-based fees use communications and information technology to assess charges according to miles traveled, roads used and other conditions related to the cost of service. Mileage-based or "vehicle miles traveled" (VMT) taxes are also evaluated in Table 12-2.
The policy commission report recommended that the next federal surface transportation act require a national study to develop specific mechanisms and strategies to aid the nation and individual states in transitioning to an alternative to the fuel tax to fund surface transportation programs. Specific recommendations resulting from the study include:

» A Phase I study should be conducted through the National Academy of Sciences in coordination with the impacted federal agencies, state agencies and stakeholder groups to address the technological and institutional barriers that would need to be overcome to implement a VMT fee. These barriers would include evasion, privacy, the relationship of wear and tear to the highways, and administrative costs. The study should draw upon findings from VMT fee demonstration projects in the United States and mileage-based user charge systems that are in place in other countries. An important goal of this study would be to confirm whether a VMT fee is feasible and, if so, to agree upon a system to implement such a fee.

THE ANALYSIS COMPLETED BY THE NATIONAL POLICY COMMISSION *indicates that mileage-based user fees may be the primary transportation revenue source in the future; however, the policy commission noted that research should not be limited to this option.*

» The Phase I study should also examine other potential long-term surface transportation revenue options. This analysis should build on the work that has already been done in this area and focus on alternatives to a VMT fee, including ways to equitably tax alternative fuels that cannot be taxed in the same way as existing motor fuels are taxed, annual registration fees for motor vehicles, and other options that were judged to be promising.

» If Phase I finds that a VMT fee is feasible, a Phase II study involving the same organizations should be conducted to develop a specific plan and timetable for implementing a federal VMT

## Table 12-2: Evaluation of potential transportation revenue sources against generally accepted evaluation criteria

| | Revenue adequacy | Stability predictability | Responsiveness to inflation | Flexibility | Appropriateness of dedication | Compliance costs | Administrative costs | Equity by vehicle class | Equity by income group | Equity by geography | Relationship to economic efficiency | Point of taxation and incidence | Evasion potential | Ease of implementation | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fuel tax | | | | | | | | | | | | | | | |
| Indexed fuel tax | | | | | | | | | | | | | | | |
| Motor fuel sales tax | | | | | | | | | | | | | | | |
| Value added tax | | | | | | | | | | | | | | | |
| Registration fee | | | | | | | | | | | | | | | |
| Personal property tax | | | | | | | | | | | | | | | |
| Vehicle sales tax | | | | | | | | | | | | | | | |
| Traditional tolls | | | | | | | | | | | | | | | |
| Tolling new lanes | | | | | | | | | | | | | | | |
| Tolling existing lanes | | | | | | | | | | | | | | | |
| VMT fees | | | | | | | | | | | | | | | |
| Indexed VMT fees | | | | | | | | | | | | | | | |
| Congestion pricing | | | | | | | | | | | | | | | |
| Local option sales tax | | | | | | | | | | | | | | | |
| Impact fees | | | | | | | | | | | | | | | |
| Innovative finance* | | | | | | | | | | | | | | | |
| Public-private partnerships* | | | | | | | | | | | | | | | |
| Container fees | | | | | | | | | | | | | | | |
| Customs duties | | | | | | | | | | | | | | | |

* Assumes repayment from tolls

Excellent · Very Good · Good · Not Good · Poor · Very Poor

This chart provides a subjective evaluation of a series of alternative revenue sources against a set of criteria.

Source: National Surface Transportation Policy and Revenue Study Commission, December 2007

### National Surface Transportation Infrastructure Financing Commission Report

Similar to the National Surface Transportation Policy and Revenue Study Commission, Congress created the National Surface Transportation Infrastructure Financing Commission in Section 11142 of SAFETEA-LU. The finance commission examined these specific Highway Trust Fund issues:

› Current revenues in the federal Highway Trust Fund

› Projections of how Highway Trust Fund revenues might change

› Alternatives for funding the Highway Trust Fund

› Highway and transit needs for Highway Trust Fund funds

› Potential fuel tax exemptions for states waiving Highway Trust Fund funds

While some of the outcomes of the policy commission overlapped with the finance commission, the finance commission chose to make the question of how transportation revenue should be raised the principal focus of its inquiry and report.

Some of the findings and recommendations of the finance commission are:

› The national highway and transit system is underinvested and under priced

› Transportation users are not paying the true cost of using the system, which should include pavement repair and the social costs (traffic congestion & pollution)

› Motor fuels taxes are not sustainable

› The most effective way to raise revenue in the short term is to increase and index the federal fuel tax rate. The increase should include a ten cent increase for gasoline fuel and fifteen cents for diesel

› The Highway Trust Fund mechanism needs to be preserved and measures to ensure its security and sustainability implemented

› The Commission endorses the growing consensus that transitioning to a funding approach based more directly on use of the transportation system is the right foundation. Commit to deploying a new system by 2020

› Financing approaches such as tolling can be considered supplementary revenue measures

The report also provides details on financing mechanisms. The report, *Paving Our Way: A New Framework for Transportation Finance*, is available at http://financecommission.dot.gov/.

fee and for coordinating that fee with VMT fees levied at the state and local levels. An important part of this Phase II study would be to conduct several large scale pilot programs to test alternative mechanisms for levying a VMT fee. These pilot programs should include both passenger and freight vehicles and should evaluate the full range of potential issues that might arise in the implementation of a VMT fee.

## Wisconsin long-term recommendations

Wisconsin supports the policy commission's recommendation to identify an alternative revenue collection system for transportation that is not primarily reliant on the fuel tax. WisDOT will advocate at the federal level to further the policy commission's long-term finance recommendations. In addition, WisDOT will monitor and, when warranted,

seek to participate in the research of alternative revenue systems and analysis of other options.

Public support for the implementation of any new finance system will be critical to its success. Any alternative revenue system must be publicly owned and managed or subject to all the public protections identified by the national policy commission. Due to the interconnected nature of the transportation system, any new financing system will need to be nationally implemented so Wisconsin and other states can adequately assess fees to all users of the system.

## Next steps

In the long term, the viability of the motor fuel tax as an adequate revenue source will impact the delivery of transportation services as we reach 2030. The following actions will be implemented at various stages during the plan and are not necessarily tied to the biennial budget cycle.

### ▶ *SUMMARY OF POLICY ACTION ITEMS:* *Funding Wisconsin's transportation system*

**Entire planning period (2008 – 2030)**

- When deemed appropriate, request additional resources as part of the biennial budget process.
- Continue outreach with decision-makers to consider a longer-range vision for financing transportation system needs beyond the biennial budget cycle.
- Continue to support a strong federal role in funding all modes of transportation.
- Continue to identify emerging and existing needs and educate decision-makers and the public on the importance of maintaining a strong transportation network.
- Continue to refine project cost-estimating processes within the department.
- Work with the Wisconsin congressional delegation to implement the recommendations of the National Transportation Policy and Revenue Study Commission.
- Study long-term revenue options such as a mileage-based user tax and public-private partnerships, identifying the public benefits for each.
- Monitor and, when warranted, seek to participate in the research of alternative revenue systems and analysis of other options.
- Continue evaluating traditional revenue sources as part of the biennial budget process.
- Advocate at the federal level to further the commission's long-term finance recommendations.

# CHAPTER 13: Implementing *Connections 2030*

Implementing *Connections 2030* means putting all of the plan policies into action. In contrast to the individual policies, which are focused on short-, medium- and long-term time frames and recommended actions, full plan implementation focuses on:

» Overarching WisDOT priorities for the transportation system through 2030

» The role of WisDOT and others

» Methods or tools to deliver the *Connections 2030* vision

## Overarching WisDOT priorities for the transportation system through 2030

To optimize existing and proposed future transportation assets and to realize the *Connections 2030* vision, WisDOT will use a phased approach in fulfilling the department's highest priorities through 2030.

» Continue to focus on key priorities and initiatives in the short term

» Build on early implementation efforts and expand efforts to address unfunded needs over the long term

» Seek sufficient funding and appropriate statutory program changes to fully implement the plan as needed throughout the plan period

### Short term: Continue to focus on key priorities and initiatives

WisDOT will maintain commitments to deliver a quality and safe transportation system. Ongoing efforts include, but are not limited to, managing and delivering the Six-Year Highway Improvement Program, addressing safety concerns, and integrating proven best practices to improve department processes. Alongside these efforts, future trends and challenges (including general transportation

### *Connections 2030*

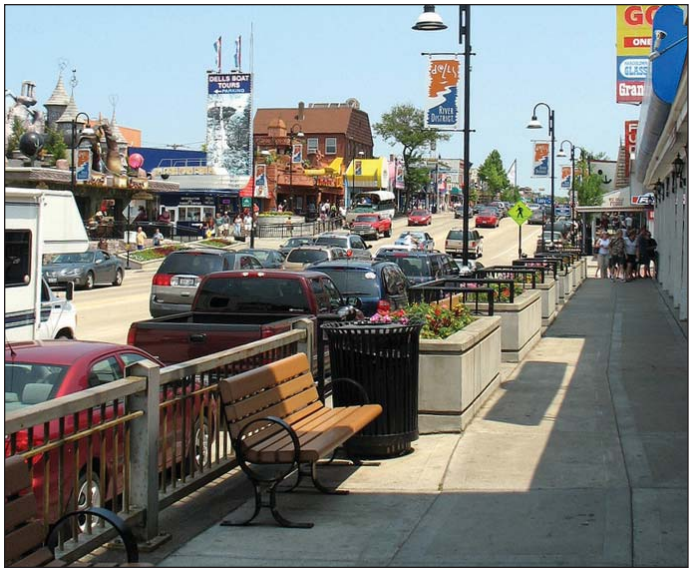
› Is a dynamic and flexible multi-year strategy – with policies easily adapted to respond to changing priorities and constraints

› Establishes WisDOT's policy framework and direction for the next 20 years to guide delivery of department products and services

› Offers implementation strategies that reflect current fiscal constraints

› Complements rather than supplants regional and local decision-making

▲ *Figure 13-1: WisDOT will maintain commitments to deliver a quality and safe transportation system.*



▲ *Figure 13-2: The* Connections 2030 *plan vision acts as the overarching umbrella highlighting the overlapping goals of safety and economic growth.*

funding and ensuring adequate staff resources) will require the department to apply a phased approach to fully implement the plan. Efforts in the short-term, therefore, will continue to focus on key priorities and initiatives that:

» Support the state's economy

» Address transportation safety

While supporting the state's economy and continuing to address transportation safety are key short-term priorities, they cannot and should not be implemented in isolation. The plan identifies key policies and actions organized under the seven themes – preservation, safety, mobility and choice, economic growth, efficiencies, quality of life, and security – to fulfill the *Connections 2030* vision. The plan vision acts as the overarching umbrella highlighting the overlapping goals of safety and economic growth.

### Support the state's economy

WisDOT will continue to focus immediate efforts on system capacity needs to address congestion, freight movements, transit and passenger rail travel, and bicycle and pedestrian needs.

### Address transportation safety

WisDOT will continue to emphasize engineering, education, encouragement, enforcement and emergency response to:

» Educate drivers to influence driver behavior and, ultimately, reduce crashes, fatalities and injuries

» Address infrastructure safety needs

» Partner with stakeholders

As short-term priorities, these goals are tied to the state biennial budget process and will continue to be emphasized as areas for investment.

## Medium to long term: Build on early implementation and expand efforts to address unfunded needs

Efforts to fully implement the plan through 2030 will include maintaining and building upon short-term efforts, as well as addressing unfunded needs.

Chapter 12, *Funding Wisconsin's Transportation System*, provides the long-term perspective and direction for all modal investment decisions over the next 20 years. The chapter describes how budget fluctuations at all levels of government, as well as changing trends and future priorities, are tied to the state's biennial budget.

With this in mind, WisDOT will review and consider *Connections 2030* issues, policies and actions during each biennial budgeting process.

## Over the entire planning period: Seek sufficient funding and appropriate statutory program changes to fully implement the plan

As discussed throughout the plan, WisDOT, local governments and other transportation providers will continue to face challenges when addressing critical needs and providing sufficient or expanded funding to a broader range of transportation services. Funding greatly influences the number of policies or actions that can be implemented. If more funding is

available, the number of items that can be implemented in a given amount of time will be greater. With less funding, fewer actions can be implemented, and it will take longer to implement the same actions. When funding falls short, implementation decisions must consider priorities and trade-offs. Sufficient funds would allow the department to expand its efforts to provide more transportation services. These include:

» Accelerating delivery of services and making progress in addressing the backlog of infrastructure needs resulting from extending project schedules to meet current funding restrictions

» Augmenting transit support, establishing a new intercity bus program, and completing all phases of high-speed passenger rail

» Maximizing use of existing infrastructure through operations and ITS

Throughout the 20-year plan implementation period, WisDOT will use an asset management approach to evaluate the broad range of priorities and analyze potential trade-offs among the actions to address the transportation system.

## The role of WisDOT and others as implementers

Nearly all transportation decisions involve WisDOT, the federal government, local governments – including regional planning commissions and metropolitan planning organizations – tribes, the private sector, operators, and other stakeholders.

### Asset management

Asset management considers the entire life cycle of transportation decisions, including planning, programming, construction, maintenance and operations. It emphasizes integration across these functions, reinforcing the fact that actions taken across this life cycle are interrelated. It also recognizes that investments in transportation assets must be made with consideration of a broad set of objectives, including physical preservation, congestion relief, safety, security, economic productivity and environmental stewardship.

Since no single entity has authority over the entire transportation system, implementing *Connections 2030* will take coordination and cooperation among many interests and business areas.

### WisDOT

The department is made up of three executive offices and five divisions, organized according to transportation function. WisDOT maintains a central office located in Madison, and regional offices throughout the state. This structure helps to preserve the customer-focused approach to transportation development and better serve stakeholder needs. Implementing *Connections 2030* requires that central office and regional office staff continue to work

*FUNDING GREATLY INFLUENCES THE NUMBER OF POLICIES OR ACTIONS that can be implemented. The number of action items that can be implemented in a given amount of time will be greater if there is more funding. With less funding, fewer actions can be implemented, and it will take longer to implement the same actions.*

The Wisconsin State Patrol operates 16 safety and weight enforcement facilities in the state. Inspectors ensure commercial carriers operate within statutory or permitted size and weight limitations. They check carriers to ensure they have proper registration, fuel tax, insurance and authority credentials. Enforcement activities also occur through mobile enforcement using portable scales.

together to communicate plan policies; engage local stakeholders in transportation discussions; and integrate plan recommendations into project-level activities. Plan implementation responsibilities for both the central office and the regional offices will vary depending on the item, issue or activity.

### Central office

The central office is primarily responsible for developing and disseminating transportation policies and decisions at the state level to WisDOT regions, state and federal agencies and other stakeholders. Many of the multimodal transportation initiatives recommended in *Connections 2030* , such as implementation of an intercity bus program, creating a department-wide freight focus, and intercity passenger rail, will continue to be led by the central office. Central office staff will be responsible for much of the broader oversight and management of plan implementation, including communicating policy information, as well as how shifts in priorities at the program and budget levels or federal or national level issues may impact statewide transportation decisions. In addition, central office staff will be responsible for monitoring plan implementation.

Responsibility for integrating policy commitments into day-to-day activities within the department will be borne by central office and regional staff in different ways. Central office staff typically are responsible for taking a broader system level view of state planning, programming and project delivery issues. This perspective will help address overarching WisDOT priorities for the system through 2030. However, because they have direct contact with local stakeholders and primary responsibility for project delivery, region staff will be responsible for the majority of day-to-day integration.

### Regional transportation offices

Regional offices include:

» Regional transportation offices – responsible for operating and maintaining the state's transportation system

» Division of Motor Vehicle customer service centers – responsible for supporting statewide licensing needs

» State Patrol posts – responsible for enforcement and police communications

» State Patrol safety and weight inspection facilities – responsible for commercial motor carrier monitoring and enforcement

WisDOT regional office staff work primarily with consultants, local units of government, and many other stakeholders. WisDOT regions provide local communities with important transportation data and project information for economic development needs. They also provide technical assistance. Where applicable, the regions consider and integrate multimodal connections with highway projects. WisDOT region staff participation in local comprehensive planning processes also helps to

*With the final adoption of* Connections 2030*, WisDOT regional staff will be on the forefront of communicating plan recommendations and integrating them into regional and corridor-level activities that will lead to plan implementation.*

ensure better transportation coordination. In addition, region staff are primarily responsible for delivering the state's transportation projects.

With the final adoption of *Connections 2030*, WisDOT regional staff will be at the forefront of communicating plan recommendations and integrating them into regional and corridor-level activities. The following present some examples of region-level activities that will lead to plan implementation.

Preserve and keep safe the state trunk highway system, which includes, but is not limited to, efforts that:

» Provide routine maintenance and preservation activities

» Identify and address safety issues

» Upgrade and implement the *Corridors 2030* network

Continue efficient operation of the system by:

» Coordinating with other department offices to address congestion and roadway operational issues

» Coordinating implementation of Intelligent Transportation System strategies with appropriate department business areas and other stakeholders

» Integrating appropriate design concepts (such as roundabouts) and operational efficiencies (such as signal timing) into roadway projects

» Integrating consideration of potential environmental impacts and implementing mitigation strategies for all appropriate projects

▲ *Figure 13-3: Coordinating with other department divisions, other agencies and responders to address congestion and roadway operational issues will help ensure the state's transportation system continues to operate efficiently.*

» Identifying opportunities to integrate bike and pedestrian accommodations into projects, where feasible

Support efforts to expand multimodal transportation options with central office staff and other appropriate entities to:

» Implement intercity passenger rail

» Pilot intercity bus services

» Improve coordination among transit providers and operators

Continue to coordinate with other entities to:

» Maintain and enhance working relationships with local units of government, tribes and other stakeholders

» Encourage coordination between local roadway and state highway projects

Continue efforts, with the central office, to support economic growth activities and initiatives, such as:

» Create a freight focus within the department

» Support and integrate training and job development opportunities for disadvantaged businesses and individuals seeking transportation career training

### Motor vehicle customer service centers and State Patrol

In addition to the regional transportation offices, staff in the department's motor vehicle customer service centers and in the State Patrol posts and safety and weight inspection facilities are integral to implementing the plan. A few examples include:

» Implement federal requirements such as REAL ID

» Continue driver licensing and monitoring

» Provide permits to freight trucks moving through the state

» Communicate and enforce state motor vehicle and carrier laws

» Coordinate and communicate across agencies to improve responses to incidents

» Increase use of appropriate technologies to improve incident reporting (for example, crashes) to further support crash data collection and analysis

Plan implementation will also require careful consideration and responses to staffing needs. As noted in Chapter 6, *Promote Transportation Safety*, additional troopers will be required to respond to the expected increase in the number of travelers using the system. Additional department staff resources will also be required to continue delivering the quality transportation system and further position the department to meet the needs and challenges in the next 20 years.

▲ *Figure 13-4: Additional state troopers will be required to respond to the expected increases in the number of travelers using the system.*

## Other stakeholder roles and responsibilities

Outside of WisDOT, two important stakeholder groups influence *Connections 2030* implementation. These groups consist of:

» Government entities, such as local units of government and tribes

» The private sector, operators and others

### Government entities, such as local units of government and tribes

Successful implementation of *Connections 2030* requires involvement and coordination with other government units such as local governments and tribes that own and operate their own transportation services. Over the planning period, WisDOT will continue to work with the various state agencies and tribal governments to address short- and long-term system priorities and continue to discuss and coordinate resources and activities through the existing partnerships and agreements. The plan identifies several initiatives that

require continued coordination and communication with other state agencies, federal agencies, local law enforcement officials and other stakeholders:

» Coordinating corridor- or project-level decisions to minimize and mitigate potential conflicts, such as highway access issues resulting from local land use planning decisions

» Maintaining and enhancing partnerships and agreements with other agencies and governments

» Responding to transportation incidents by planning and coordinating communication needs with agencies and local law enforcement agencies

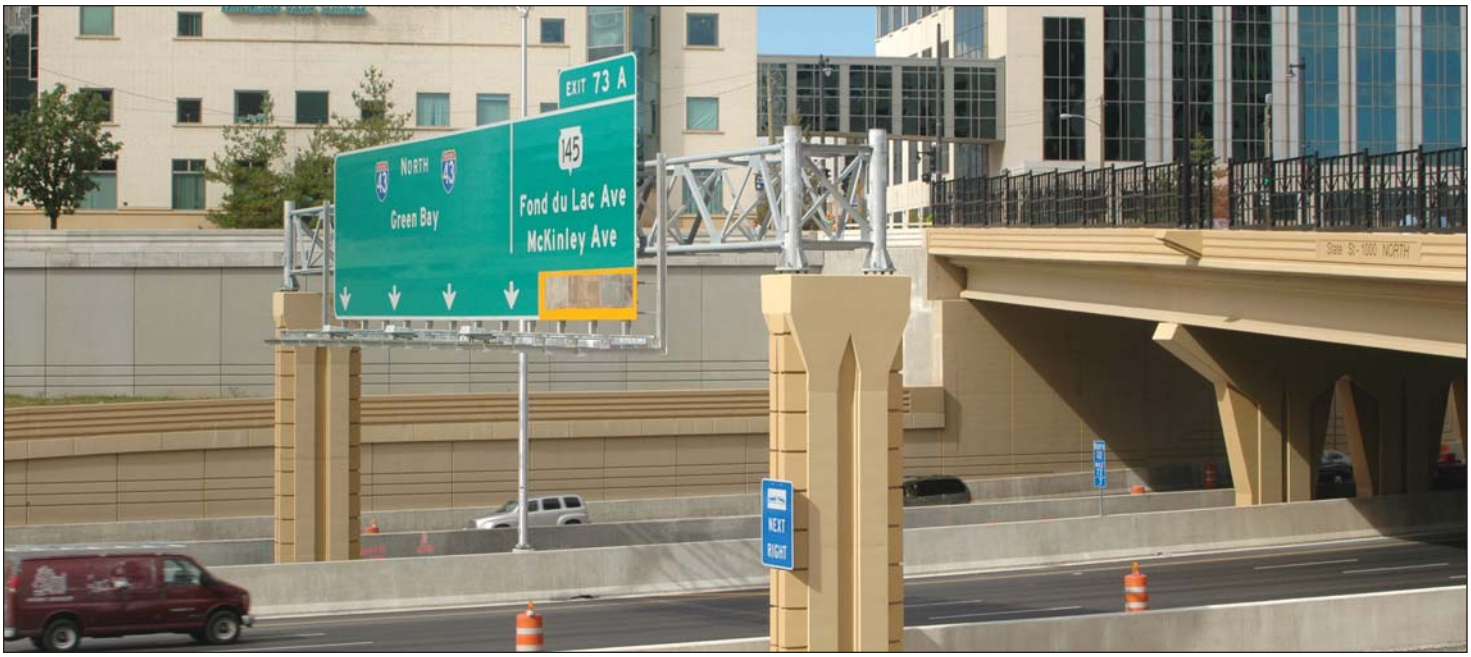
### Private sector, operators and others

WisDOT is responsible for all decisions regarding the state trunk highway system. For all other modes of transportation, the infrastructure or service is owned or operated by someone else – the local government, tribe or private sector. If there is any federal or state funding assistance, WisDOT may be one of a few agencies that administers the funding and provides technical assistance relative to design standards, services needs, land use impacts and coordination of decisions that may impact the state highway system. The plan identifies several recommendations that address transportation needs statewide that are not under the direct jurisdiction of the department. Among these are transit recommendations to address inefficiencies, coordination needs and funding needs for locally operated systems.

Sometimes decisions on policy or project funding are shared and WisDOT can act as a catalyst for local or private transportation investment. In this way, transportation stakeholders and WisDOT will collaborate (either at the region or central office level, or both) to meet the *Connections 2030* vision.

## Methods and tools for delivering the *Connections 2030* vision

To implement the plan vision, WisDOT will remain flexible, and adjust actions as needed to:




▲ *Figure 13-5: WisDOT is responsible for all decisions regarding the state trunk highway system. For all other modes of transportation, the infrastructure or service is owned or operated by someone else – the local government, tribe or private sector.*

» Apply appropriate processes and tools

» Monitor plan implementation progress and system performance

## Apply appropriate processes and tools

Many tools will be used to implement *Connections 2030*, such as:

» Corridor management

» Value engineering

» Project scheduling and funding

Other tools include state statutes and administrative rules to implement or modify specific policies, as well as technological and data analysis tools used to evaluate current conditions and help with prioritized decision making. Local tools, such as local subdivision regulations and zoning that affect transportation decisions and land use, will also impact plan implementation.

### Corridor management

As a new department decision-making tool, corridor management links transportation planning, project development, and facility operations to provide a well-rounded perspective for implementation decisions.

Corridor management means managing a corridor in a cohesive, investment-focused way. It is an inclusive, coordinated means for transforming transportation policies into transportation projects. It can also mean utilizing subsequent planning phases for long-term corridor management strategy identification. While transportation projects are sometimes the result of studies, corridor management does not always lead to a transportation project.
More specifically, corridor management:

» Looks beyond pavement conditions and outside WisDOT's traditional highway rights of way

» Helps WisDOT improve coordination with other state agencies, local units of government and stakeholders

» Looks at regional and more detailed local-level corridor plans to manage the corridor vision and address needs over time

» Focuses on multimodal transportation investments and local land use goals

» Helps make today's decisions consistent with a desired future vision

### Statewide System-level Priority Corridors

To illustrate corridor management priorities and recommended *Connections 2030* implementation actions statewide, 37 Statewide System-level Priority Corridors (Map 13-1) have been identified. These corridors:

» Serve critical sectors of the state's economy or major population centers

» Generate significant activity for both passenger and freight traffic

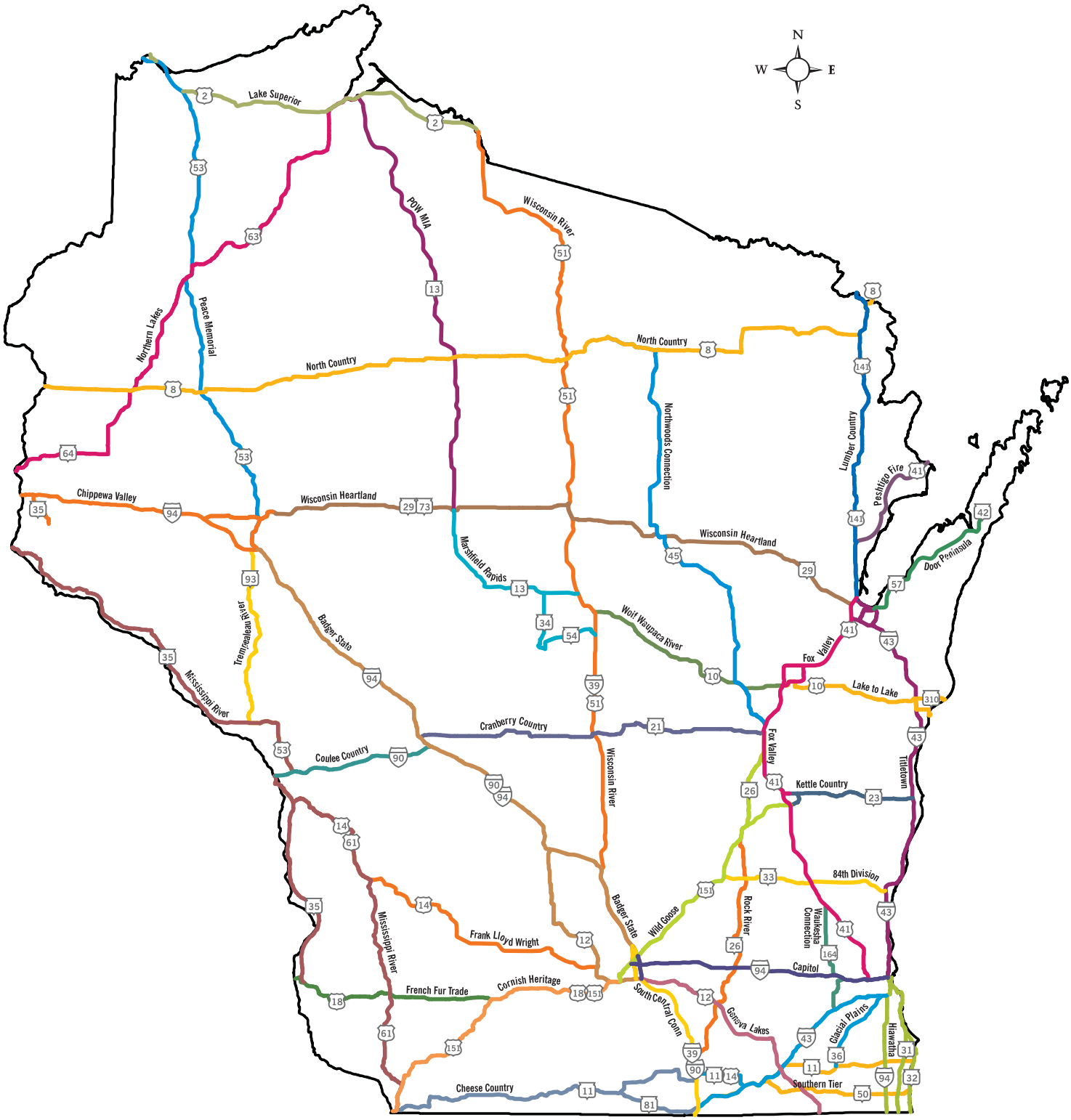
» Show significant growth in travel or economic development

» Serve important multimodal functions

» Connect to other regions within Wisconsin, as well as other states

While the Statewide System-level Priority Corridors follow specific state trunk highway routes, the corridor concept goes beyond the highway right of way and includes a "buffer" of transportation system linkages, including surrounding transportation modes and key transportation connections. Illustrative in concept, the plan's corridors portray *possible* implementation actions and *relative* processes and tools to address specific transportation needs within a "buffered" land area. The Statewide System-level Priority Corridors facilitate a *conceptual perspective* on further detailed planning throughout the state through a variety of programs, modes and opportunities.

Each corridor has been named to provide a regional or local context when viewing potential priorities and implementation strategies. Economic and/




▲ *Map 13-1: Statewide system-level priority corridors*

or cultural importance of the corridors is also discussed. Corridor names do not replace statutorily designated corridor names, nor do they constitute official renaming of any corridor segments. See Appendix A for the list of corridor names, the naming origin description, and a guide for how to read the maps. All corridor maps may be viewed at www.wiconnections2030.gov.

### Conceptual corridor maps

For each of the Statewide System-level Priority Corridors, a map has been developed to illustrate *Connections 2030* concepts. The maps form a conceptual framework that:

- Links policies with program decisions for implementation
- Illustrates statewide priorities to be linked with:
  - Regional and local analysis and implementation activities
  - Surrounding local land use, feeding transportation routes and environmental constraints
- Depicts the *Connections 2030* system-level vision
- Illustrates short-, medium- and long-term recommendations, as well as actions that take place throughout the planning period

As part of corridor management, WisDOT's regions will continue to work with the appropriate stakeholder groups to develop individual corridor plans. The corridor plans will be a subset of the Statewide System-level Priority Corridors and/or a supplement to further regional corridor priorities that may be different and more inclusive than the corridors identified in *Connections 2030*. The results of these planning efforts will help WisDOT define visions for key multimodal corridors statewide, address system priorities, maintain corridor functions, manage and prioritize limited resources (staff and dollars), and identify future priorities and actions. Implementation at the corridor and project level will require more detailed analysis than is provided in the plan's conceptual corridor maps.

Efforts at the region and local levels will require an in-depth analysis to establish a corridor vision and identify needs and priorities to maintain the vision over time. One example of this concept is the tiered environmental impact statement (EIS) process occurring along the North Country Corridor (US 8 from the Wisconsin/Minnesota state line to US 53). This process identifies smaller sections of the longer corridor and looks at possible actions, with a focus on local issues. The corridor management plans will enable the department to make informed investment decisions and, where possible, preserve existing corridors to delay system expansion.

### Value engineering

Value engineering is a methodology by which long-term functionality and quality of a system or system component is considered and included at the design stage and then implemented. This maximizes the usable life of the system component and minimizes maintenance, repair and replacement costs. For example, WisDOT performs numerous maintenance activities on state trunk highways. Value engineering helps to ensure that the infrastructure is designed and built to minimize the ongoing cost and frequency of those maintenance activities. A cross-functional team of people outside of the project

### Region-level priority corridors

*Connections 2030* identifies 37 Statewide System-level Priority Corridors. WisDOT regional staff will identify additional corridors that are important at the region level. Examples of these potential region-level priority corridors include the WIS 47/WIS 55 corridor in northeastern Wisconsin and the WIS 20 corridor in southeastern Wisconsin.

team typically performs the value engineering review process. WisDOT will continue to include value engineering as a key step in implementing transportation projects.

### Scheduling and funding projects

Wisconsin's long-range plans and corridor plans typically are implemented through programming decisions (scheduling and financing of projects in the next four to six years), which align infrastructure needs with available funding and staff resources.

WisDOT administers a variety of programs involving federal, state and local funds that support all modes of transportation. These funds are allocated across the various transportation modes based upon analysis of needs. This analysis uses a range of data sources, known priorities, and funding availability, as well as statutory and regulatory requirements. In general, each program and funding decision is mode-specific. However, opportunities exist to fund multiple modes on and along highway facilities. For example, if a roadway is being reconstructed, a sidewalk, bike lanes or a wider paved shoulder is likely to be added and should be pursued. If an intersection is scheduled for work, a roundabout or improved signal timing may be considered to improve facility function and operation.

To better align with a corridor management approach, future efforts will need to evaluate opportunities to program projects and needs based on the broader corridor level.

## Monitor plan implementation progress and system performance

Significant efforts have been made to develop a long-range, system-level plan that is meaningful, reasonable, and practical. Performance monitoring will help validate and verify the plan's proposed policy direction over time. *Connections 2030* performance monitoring has two objectives: measure implementation progress, and assess transportation system performance as a result of plan implementation.

Performance monitoring within department program management decision-making processes (for example, safety and traffic forecasting) is generally consistent and established. Efforts to establish and implement system-level plan performance measures have been challenging. For WisDOT to assess implementation progress and system performance, a concise set of planning level performance milestones is needed. WisDOT will define appropriate milestones to measure plan implementation progress.

In addition, WisDOT will continue to monitor implementation of the National Surface Transportation Policy and Revenue Study Commission's recommendations discussed in Chapter 12, *Funding Wisconsin's Transportation System*.

### Programming

Programming is a process required under federal regulation (23 CFR Part 450). It requires each state to carry out a continuing, comprehensive and intermodal statewide transportation planning process, including development of a statewide transportation plan and transportation improvement program, that facilitates the efficient, economic movement of people and goods in all areas of the state.

# CHAPTER 14: System-Plan Environmental Evaluation

This chapter presents the System-plan Environmental Evaluation developed in conjunction with *Connections 2030*. The evaluation meets the requirements of WisDOT's administrative code, Trans 400, *Wisconsin Environmental Policy Act Procedures for Department Actions*.

## Structure of chapter

This chapter highlights:

» Evaluation purpose and methodology

» Plan development process

» Modal comparison of the base case and draft plan

» Qualitative assessment of the potential impacts of the base case and draft plan on congestion, energy, air quality, climate change, agriculture, economic growth, community, sensitive land and water resources, and the indirect effects and cumulative effects on these and on land use.

## System-plan environmental evaluation purpose and methodology

Trans 400 establishes rules for analyzing the environmental effects of transportation plans under the Wisconsin Environmental Policy Act. Statutorily defined as the conceptual environmental evaluation, a system-plan environmental evaluation analysis is required during the preparation of statewide, system-level transportation plans when initial WisDOT analyses determine that the plan contains "major and significant new proposals" likely to affect the quality of the human and natural environment. WisDOT determined that although several components of the draft plan were continuations of current policy and procedure, Wisconsin's long-range transportation plan, *Connections 2030*, includes major and significant new proposals. In addition, WisDOT prepared the evaluation because:

### Trans 400 definitions

› "Major and significant new proposal" – a new proposal developed by WisDOT which, if legislatively authorized and funded, may significantly affect the quality of the human environment, and represents a significant departure from, or expansion of, the department's existing responsibilities by substantially expanding or substantially reducing total resources allocated to any existing programs

› "Significant effects" – considerable and important impacts of department actions on the quality of the human environment

› "System plan" – a plan that identifies transportation facility or service needs for a statewide system. The needs are identified conceptually without addressing specific design and location details

» Even though the plan presents policies for non-highway modes, the department anticipates single occupant vehicle travel will continue to be the predominant mode of choice for travelers.

» WisDOT remains committed to disclosing and discussing the impacts of its activities as they affect the environment, the economy, communities, and opportunities for businesses and residents.

» While analyzing the potential impacts of implementing a long-range, system-level plan remain challenging and difficult to predict, the department will continue to perform as comprehensive an analysis as possible to not only meet the statutory requirements but also inform the public.

The system-plan environmental evaluation does not provide the kind of quantitative detail found in project-level environmental reports (e.g., environmental

assessments, environmental impact statements), nor does it replace those reviews. Project-level impacts depend on location and design decisions that were not known during the preparation of *Connections 2030* and the system-plan environmental evaluation analysis. Given these limitations, the system-plan environmental evaluation looks at the policies and recommended actions identified in *Connections 2030* and discusses the potential environmental impacts of implementing these policies and actions in qualitative and comparative terms. In summary, project-level environmental reports focus on specific individual project details while the level of analysis in the long-range plan system-plan environmental evaluation is at a broad policy-level covering conceptual ideas about the future of transportation in Wisconsin.

Trans 400 recommends that the system-plan environmental evaluation consider the range of potential environmental impacts relating to traffic congestion, energy consumption, air quality, land use, agriculture, communities, economic growth, and sensitive land and water resources. Cumulative effects of these policies and actions are considered to the extent they can be recognized during the system-level planning process.

While *Connections 2030* is a multimodal plan, with policies and recommended implementation strategies presented in a comprehensive approach to further encourage multimodal transportation investments, the potential environmental impacts resulting from plan implementation are presented by mode. There are several reasons for this. First, because the policies and theme chapters overlap and interrelate, analysis by policy would result in significant repetition. Analysis by mode minimizes this. Second, some policies that appear to address only a single mode may actually impact other modes. For example, the policy, "Ensure that freight rail remains a viable transportation mode for Wisconsin shippers," may result in improved freight rail service. Because of this, more freight may be shipped by rail than by truck. Decreased truck traffic could positively impact communities by causing less noise pollution and improving safety. However, increased freight rail traffic may increase noise pollution. The freight example also points to the reality that many different players manage transportation policy, thereby influencing environmental impacts. Through the system-plan environmental evaluation, WisDOT strives to outline the broad concepts impacting the environment that not only emanate from state policy but also pertain to all transportation providers throughout the state.

## Plan development process

### Early public outreach

Early public outreach included stakeholder meetings, interviews and focus groups, as well as a statewide telephone survey. (For information related to the early public outreach activities, refer to Chapter 4, *Public Involvement*). These outreach activities identified several areas of concern, including:

» Wisconsin's deteriorating transportation infrastructure

» Availability of funding

» Availability of transportation choice (e.g., public transit, intercity bus)

Apart from shaping the plan's policies and related action steps, these areas of concern helped shape the development of the plan's vision: "An integrated multimodal transportation system that maximizes the safe and efficient movement of people and products throughout the state, enhancing economic productivity and the quality of Wisconsin's communities while minimizing the impacts to the natural environment."

### Early plan scoping and the planning process

Traditionally, WisDOT has used a needs-based process to develop long-range system plans. Under a needs-based plan development process, WisDOT has used models and traffic forecasts to identify recommended transportation system improvements and estimate related costs resulting in a discussion of specific funding needs. A needs-based plan limits flexibility, and tends to focus the reader on estimates of funding needs and dollars beyond the first two years which tend to be less

certain. The first two years of funding estimates are generally known since they represent the most recent budget approved by the state legislature and governor. Beyond the first two years, the funding estimates are broad and uncertain due to changing funding levels and potential shifts in system infrastructure priorities.

Early plan scoping[1] assumptions for *Connections 2030* included developing a needs-based plan around transportation modes. However, as the planning process continued, the plan shifted to a policy-based plan organized around seven transportation themes not modes. So while models and traffic forecasts were still used to identify recommended needs, the policy-based plan approach includes broad goal statements and strategies establishing the general direction of the agency over the course of the planning period. Implementation is dependant on the actual timing of projects and available resources. The themes not only follow the planning factors identified under the Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU), but they also reflect the key issues and concerns raised during early plan outreach efforts. The themes are: preservation, safety, economic growth, mobility and choice, efficiency, quality of life, and security.

A policy-based plan provides the framework upon which priorities are defined and investments are made. *Connections 2030* is written to be flexible and responsive to shifting priorities and funding availability, and to changing project-level decisions. This framework more accurately represents WisDOT's response to transportation needs and offers a tangible plan in which priorities may be addressed through 2030.

As discussed in Chapter 12, *Funding Wisconsin's Transportation System*, transportation funding continues to be a challenge and faces two key challenges in the next 20 years: increasing costs and an eroding revenue base. *Connections 2030* identifies strategies to address these challenges and continue to fund Wisconsin's transportation system needs. These strategies are based on the recommendations of the National Surface Transportation Policy and Revenue Study Commission. (See Chapter 12, *Funding Wisconsin's Transportation System* for more information).

[1] Plan scoping means defining the overall direction and content of the proposed plan.

### Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users

The legislation authorizes federal surface transportation programs for highways, highway safety, and transit for the five-year period 2005-2009. It addresses many of today's transportation challenges and provides policy direction on how to address these challenges.

### Policy-based plans

- Describe overarching strategies to accomplish future results
- Include official policies for solving problems, typically based on legislation and implemented through programs
- Identify means to accomplish these policies through investments, strategies or programs

## Consultation process

In addition to the Trans 400 requirements, SAFETEA-LU requires WisDOT to develop the draft plan in consultation with state, tribal and local agencies responsible for land use management, natural resources, environmental protection, conservation and historic preservation. The consultation process requires a comparison of the draft plan to available state and tribal conservation plans or maps, as well as inventories of natural and historic resources. SAFETEA-LU also requires WisDOT to include in the

### Environmental mitigation activities

As defined in 23 CFR 450.104, environmental mitigation activities are policies or actions that "serve to avoid, minimize, or compensate for (by replacing or providing substitute resources) the impacts to or disruption of elements of the human and natural environment associated with the implementation of a long-range statewide transportation plan."

draft plan a discussion of potential environmental mitigation activities and potential areas to carry out these activities. The discussion must be developed in consultation with federal, state and tribal land management, wildlife and regulatory agencies, and may focus on policies, programs or strategies, rather than specific projects. (Appendix B documents the consultation process.) The feedback received during this process helped to further shape and refine the content and focus of the long-range plan.

## Modal comparison of the base case and draft plan

The system elements of *Connections 2030* are focused predominantly on:

» State trunk highway system

» Intercity passenger rail

» Intercity bus

» Airports

» Public, specialized and human services transit and fixed-guideway transit

» Bike and pedestrian facilities

» Freight

Of these elements, WisDOT has primary responsibility for maintaining and preserving the state trunk highway system. For the rest of the transportation system, WisDOT manages available federal and state funding, and provides technical assistance and appropriate data resources. However, the infrastructure and facilities belong either to private entities or local governments. In general, WisDOT is responsible for evaluating potential environmental impacts, as well as avoiding, minimizing or mitigating those impacts for any projects related to the state trunk highway system. For the remaining elements, WisDOT, a local government, or private entity is responsible for evaluating potential impacts, depending on the project sponsor.

To better understand the potential impacts of implementing *Connections 2030*, WisDOT prepared a "base case" scenario. The base case is a vision of the future that does not include any major shift in policies or resources away from the department's current direction. Stated simply, the base case is a continuation of existing department policies. Under the base case, the department remains focused on the state trunk highway system and is reactive in addressing the needs of non-highway modes.

As a policy-focused "draft plan," *Connections 2030* presents a shift in the department's development of the state's long-range transportation plan and discussion of proposed actions. Under the draft plan, WisDOT identifies ways to meet the needs of non-highway modes (for example, public transit, intercity passenger rail, bicycles), while balancing highway needs. The draft plan also proposes several new

### Base case assumptions

› Current WisDOT policies, programs and projects will continue through 2030.

› It is not a no-build alternative.

policies that promote a multimodal transportation system, such as new strategies related to transit, intercity bus, transportation demand management, and intermodal connectivity. It also recommends establishing a freight focus within the department to better understand freight-related issues and position the department to respond to the range of needs at all levels. The draft plan does not ignore the state trunk highway system, but continues existing highway policies and identifies enhanced policy direction that will improve the efficiency, safety and reliability of the state trunk highway system.

## State trunk highway system

While *Connections 2030* addresses highway system policies in primarily Chapter 5, *Preserve and Maintain Wisconsin's Transportation System* and in Chapter 9, *Promote Transportation Efficiencies*, other theme chapter policies impact highway decisions and investment priorities.

*Connections 2030* continues the policies and strategies currently implemented by WisDOT to preserve and maintain previous investments in the state trunk highway system, help maximize infrastructure longevity and optimize its efficiency through maintenance, preservation and operations policies. Specifically, WisDOT continues to:

» Monitor state trunk highway system conditions and address operation and maintenance needs

» Use proven maintenance strategies and techniques

» Identify methods to improve traffic movements

» Plan and prepare for WisDOT's prompt and consistent response to incidents

» Use a performance-based approach to identify preservation needs on the state trunk highway system

» Develop, implement and expand technology for monitoring highway operations to manage state trunk highway traffic

To optimize the system's efficiency, *Connections 2030* continues WisDOT's policy of enhancing roadway capacity[2] within the confines of WisDOT rights of way. It does this by continuing to evaluate traffic management options using a variety of tools and strategies. These include transportation demand management, improved incident response, work zone management, Intelligent Transportation System strategies, lower cost infrastructure investments, constructing passing lanes, and developing a statewide congestion management plan and program.

Because these policies reflect a continuation of current activities, implementing these maintenance, preservation and operations strategies and actions are the same for both the base case and draft plan. In general, these activities have minimal potential environmental impacts since activities occur within the existing highway right of way.

WisDOT actions that occur outside of WisDOT rights of way that optimize state trunk highway efficiency by enhancing roadway capacity tend to impact the environment more than those that remain with WisDOT right of way. These actions occur only after careful consideration of the purpose of and need for each proposed highway project. Related investment decisions and draft plan policy recommendations include:

» Major Highway Development Program

» Adding lanes

» Passing lanes

» Interchanges

» Bridges

» Expressway upgrades/freeway conversion

» Operations tools

» *State Access Management Plan*

[2] Roadway capacity is defined as the number of vehicles a roadway can carry. Capacity is determined by several factors, such as the number of lanes, width of lanes and shoulders, traffic signal timing, intersection controls, number and type of access points (e.g., interchanges, driveways, intersections), speed and alignment (e.g., grades and curves). Enhanced roadway capacity should improve mobility, traffic flow and safety.

From the perspective of plan implementation, Table 14-1 documents impacts that may remain within or may go beyond existing WisDOT right of way. The miles shown in Table 14-1 will likely change as project-level decisions are made to respond to the needs and priorities identified at the corridor level. Table 14-2 compares the base case and draft plan.

The results show that there is not a significant change in policy in many of the draft plan's proposed actions where the potential to impact highway rights of way is great. Most of the policies and actions are the same for both the base case and draft plan. In many cases, the draft plan refines many of WisDOT's processes and actions. With the exception of the candidate expressway upgrades/freeway conversion actions and the *State Access Management Plan*, the remaining highway policies, and actions related to enhancing capacity and impacting the environment, are the same for the base case and draft plan.

### Candidate expressway upgrades and expressway-to-freeway conversions

The base case and draft plan both recommend continued construction of expressway upgrades and expressway-to-freeway conversions where warranted and feasible. Expressways are multi-lane highways with at-grade intersections and some interchanges. Freeways are multi-lane highways with access only at interchanges. Often, candidate upgrades and conversions are addressed at specific locations as projects are scheduled and design requirements are met. For example, an at-grade intersection may be removed or replaced by an interchange; or a field entrance or driveway may be closed. Expressway upgrades and expressway-to-freeway conversions can impact the surrounding environment by constructing additional travel lanes, frontage roads or interchanges and closing existing access points. Project locations and design elements are determined during the project planning phase; exact analysis of potential impacts is limited at the system-level plan. For the purpose of the system-plan environmental evaluation, the entire corridor length is calculated to arrive at an estimated number of miles identified for candidate expressway upgrades/freeway conversions to ensure that all potential impacts are considered. As a result, the number of miles identified for candidate expressway upgrades and candidate expressway-to-freeway conversions is higher than the actual miles on which projects will occur since the actual project impacts will occur only at site-specific locations along the corridor.

Under the base case, candidate expressway upgrades and candidate freeway conversions are limited to the *Corridors 2020* Backbone routes since the recommended update to *Corridors 2030* discussed in the draft plan would not be implemented. *Corridors 2030* is part of the draft plan and would not be implemented under the base case. Under *Corridors*

**Table 14-1: Approximate number of highway centerline[1] mile changes**

| Policy/action | Centerline miles/number [2] |
|---|---|
| Major Highway Development Program (under authorization of the Transportation Projects Commission [3]) | 400 |
| Adding lanes [4] | 800 |
| Interchanges [5] | 200 locations |
| Bridges | 700 locations |
| Expressway upgrades/freeway conversion | *Table 14-2* |
| Passing lanes | 2,000 |
| Operations tools | *Table 14-2* |
| *State Access Management Plan* | *Table 14-2* |

[1] Centerline miles count the total length of a roadway without taking into account the number of lanes. Lane miles count the length of a roadway by lane. For example, a 1-mile stretch of a 2-lane roadway has 1 centerline mile but 2 lane miles.

[2] Roadway miles and numbers of interchanges and bridges are approximate. Roadway mile estimates are conservative. For example, WisDOT has identified 2,000 miles of state trunk highway on which passing lanes may improve traffic movement and safety. Passing lanes will not be constructed along all 2,000 miles. Instead, passing lanes will be constructed in spot locations. These locations will be determined during the project planning phase. For system-level planning, the entire corridor was identified to ensure full disclosure of potential impacts related to plan implementation. Additional environmental review will occur at the project level. This will determine the project scope and include a detailed environmental review process.

[3] Includes 27 enumerated projects, which account for 300 miles; and 8 studies, which account for 100 miles.

[4] Includes Major Highway Development Program projects and candidate expressway upgrades and expressway-to-freeway conversions.

[5] Includes 50 study or right of way preservation projects; 100 existing interchange reconstructions and 50 new interchange constructions.

*2020*, 1,400 miles of upgrades/conversions have been completed, and 40 miles remain to be completed. The draft plan expands the candidate expressway upgrades and candidate freeway conversions to include some of the *Corridors 2030* routes, the *State Access Management Plan* and the Major Highway Development Program projects. The draft plan identifies the possible conversion of approximately 610 miles of state highways to expressways or freeways (the majority of these conversions will include 'spot' improvements to bring the roadway up to standard, meaning that the calculated 610 miles is likely an over-estimation). Some of these miles are also included under the "Adding lanes" category in Table 14-1.

The impacts of implementing candidate expressway upgrades and/or expressway-to-freeway conversions are discussed under each emphasis area in the Qualitative Impacts section of this chapter.

### *State Access Management Plan*

The draft *State Access Management Plan* recommends implementation of access management[3] on the entire state trunk highway system. The draft plan provides a vision for the safety and capacity preservation benefits of access management on all 11,800 miles of the state trunk highway system. Priorities are focused on highways that require greater mobility over access (Tier 1, 2A or 2B), with particular attention to routes that currently have no access controls. As a result, the draft plan focuses access management on 5,100 miles or 42 percent of the state trunk highway system.

[3] Access management is the process of planning and maintaining appropriate access spacing, design, and the total number of access points (driveways) to the state trunk highway system, to safely maintain the highway's traffic carrying capacity. For more information, refer to the "Manage access on Wisconsin's state trunk highway system" policy in Chapter 9, *Promote Transportation Efficiencies*.

**Table 14-2: Comparison of state trunk highway actions**

| Base case | Draft plan | Differences/similarities |
|---|---|---|
| • Continue to use tools and strategies to measure performance of existing system<br>• Prioritize needs<br>• Pursue sufficient funding to address state highway system preservations needs<br>• Continue to use ITS technology tools to monitor and manage traffic flows daily<br>• Reduce congestion through:<br>› Access management; approximately 5,300 miles of high priority<br>› Operations tools; entire state highway system<br>› Passing lanes; approximately 2,000 miles<br>› Expressway upgrades/freeway conversions; approximately 40 miles remain to be completed (included in the "adding lanes" category) for a total of 1,440 miles<br>› Bridges; approximately 700<br>› Interchanges; approximately 200 (50 new)<br>› Adding lanes; approximately 800 miles<br>› Major Highway Development Program; approximately 400 miles (included in the adding lanes category) | • Continue to use tools and strategies to measure performance of existing system<br>• Use and refine a state-of-the-art process for prioritizing needs<br>• Pursue sufficient funding to address state highway system preservations needs<br>• Continue to use ITS technology tools to monitor and manage traffic flows daily<br>• Develop plans and programs that use different and new design and operations improvements to reduce congestion through:<br>› Access management approximately 5,100 miles of high priority. Follow *State Access Management Plan* to manage access on state highways and collaborate with others to develop access management plans to preserve state highways and meet local needs<br>› Operations tools; entire state highway system<br>› Passing lanes; approximately 2,000 miles<br>› Expressway upgrades/freeway conversions; approximately 610 miles to be completed (some included in the adding lanes category) for a total of 2,010 miles<br>› Bridges; approximately 700<br>› Interchanges; approximately 200 (50 new)<br>› Adding lanes; approximately 800 miles<br>› Major Highway Development Program; approximately 400 miles (included in the adding lanes category) | • Both alternatives monitor state trunk highway system conditions and address operation and maintenance needs<br>• Both alternatives use proven maintenance strategies and techniques<br>• Both alternatives identify appropriate methods to improve traffic movements<br>• Both alternatives use a performance-based approach to identify preservation needs<br>• Both alternatives allow WisDOT to plan and prepare for prompt and consistent response to incidents<br>• Both alternatives develop, implement and expand technology for monitoring highway operations to manage state trunk highway traffic<br>• Both alternatives enhance roadway capacity by continuing to evaluate a range of traffic movement options<br>• The draft plan has a more refined approach to access management policy and recommends 5,100 miles of high priority access management versus the base case recommendations of 5,300 miles<br>• The draft plan outlines 610 miles of expressway upgrades/freeway conversion, while the base case outlines 40 miles<br>• Both alternatives are similar in all other impacts of implementing policies that have the potential to go beyond WisDOT rights of way |

While the base case also focuses on access management for the entire state trunk highway system, it places a higher priority on limiting access on *Corridors 2020* routes and various "supplemental highways" (approximately 5,300 miles or 45 percent of the state trunk highway system). The impacts of implementing the *State Access Management Plan* are discussed by emphasis area, in the Qualitative Impacts section of this chapter.

## Intercity passenger rail

The base case and the draft plan both implement the Midwest Regional Rail System[4], and support existing Amtrak *Hiawatha Service* between Chicago and Milwaukee. However, the draft plan builds on the base case vision for intercity passenger rail by recommending evaluating possible extension of intercity passenger rail service to other regions of Wisconsin. Table 14-3 depicts the approximate number of miles of intercity passenger rail lines likely to be impacted by intercity passenger rail service. Table 14-4 summarizes the similarities and differences between the base case and the draft plan relative to intercity passenger rail. The impacts of implementing intercity passenger rail policies will be discussed, by emphasis area in the Qualitative Impacts section of this chapter.

[4] The Midwest Regional Rail System is a 3,000-mile regional high-speed passenger rail system proposed by Wisconsin and eight other Midwest states. For more information, refer to the "Increase intercity travel options by improving intercity passenger rail service" policy in Chapter 8, *Provide Mobility and Transportation Choice*.

**Table 14-3: Approximate intercity passenger rail mileage changes (in one direction)**

| Policy phase | Miles |
|---|---|
| Milwaukee to Madison | 80 |
| Illinois-Wisconsin state line to Milwaukee | 40 |
| Madison to La Crosse | 140 |
| Milwaukee to Green Bay | 130 |
| Tomah to Eau Claire | 100 |
| **Total** | **490** |

## Intercity bus

The base case and draft plan support intercity bus service and create intermodal connections where possible. However, the draft plan recommends financing and supporting implementation and restoration of bus service and connections across modes by establishing a state intercity bus program, while the base case continues to rely on existing federal programs to provide funding for intercity bus service. The draft plan also proposes approximately 60 intercity bus locations across the state, 10 of which would be Midwest Regional Rail System intercity passenger rail stations. Table 14-5 shows the similarities and differences between the base case and draft plan as related to intercity bus service. The impacts of implementing the intercity bus policies will be discussed, by emphasis area in the Qualitative Impacts section of this chapter.

**Table 14-4: Comparison of intercity passenger rail actions**

| Base case | Draft plan | Differences/similarities |
|---|---|---|
| • Implement Midwest Regional Rail System phases 1-3; approximately 390 miles<br>• Continue to support and enhance existing passenger rail service | • Implement Midwest Regional Rail System phases 1-3; approximately 390 miles<br>• Establish a state rail capital assistance program<br>• Study extending service to regions of Wisconsin not originally included in the Midwest Regional Rail System; approximately 100 additional miles<br>• Continue to support and enhance existing passenger rail service | • Both alternatives implement Midwest Regional Rail System phases 1-3<br>• Both alternatives continue to support and enhance existing passenger rail service<br>• The draft plan outlines the establishment of a state rail capital assistance program, where the base case does not propose one<br>• The draft plan outlines the study of extending service to other regions of the state, totaling an approximately 100 additional miles in service versus the base case, which does not propose the study of additional extended service. |

### Table 14-5: Comparison of intercity bus actions

| Base case | Draft plan | Differences/similarities |
|---|---|---|
| • Continue to support current carriers through existing federal programs<br>• Work with local communities to identify opportunities for intermodal facilities<br>• Continue to improve coordination between transportation modes | • Support the development of a state intercity bus funding assistance pilot program (Phase 1)<br>• Implement an expanded state intercity bus funding assistance program that supports connections between metropolitan areas and feeder service to Midwest Regional Rail System rail stations (Phase 2)<br>• Expand state intercity bus funding assistance program to include connections with key non-metropolitan destinations (Phase 3)<br>• Provide funding assistance for intermodal facilities<br>• Continue to improve coordination between transportation modes<br>• Increase the availability of alternative modes in both urban and rural areas | • Both alternatives continue to improve coordination between transportation modes<br>• The draft plan supports the development and future expansion of a state intercity bus funding assistance pilot program, while the base case continues supporting current carriers through existing federal programs<br>• The draft plan provides funding assistance for intermodal facilities, while the base case outlines working with local communities to identify opportunities for intermodal facilities<br>• The draft plan increases the availability of alternative modes in both urban and rural areas, while the base case is less proactive in encouraging the availability of alternative modes |

### Table 14-6: Comparison of airport actions

| Base case | Draft plan | Differences/similarities |
|---|---|---|
| • Continue to use the Airport Improvement Program to assist with infrastructure improvements | • Continue to use the Airport Improvement Program to assist with infrastructure improvements<br>• Advocate for improved air service at airports<br>• Analyze potential for increased use of very light jets | • Both alternatives continue to use the Airport Improvement Program<br>• The draft plan advocates for improved service at airports, while the base case does not advocate for improved service<br>• The draft plan analyzes potential for increased use of very light jets, while the base case does not analyze the potential |

## Airports

The base case and draft plan both support the construction of runway extensions at 14 airports around the state. Any additional airport system infrastructure projects will be identified in WisDOT's pending update to the *State Airport System Plan 2020*. In addition to the airport infrastructure projects, the draft plan also notes WisDOT's role as an advocate for improved direct air service, and for analyzing possible improvements to Wisconsin's airport system to accommodate potential increased use of very light jets.[5]

[5] Very light jets are also called light jets, microjets or mini-jets. They are single-pilot jets that weigh 10,000 pounds or less and have two engines, five to six passenger seats and automated cockpits. Very light jets may cost only half as much as today's least expensive business jets; they also cost less to operate. Very light jets are able to land on runways as short as 3,000 feet.

Table 14-6 compares the similarities and differences between the base case and draft plan relative to airport needs and future direction.

The impacts of implementing the airport policies are discussed, by emphasis area, in the Qualitative Impacts section of this chapter.

## Public, specialized and human services transit and fixed-guideway transit

Under both the base case and draft plan, WisDOT continues to support public, specialized, human services and fixed-guideway transit in local communities. The draft plan supports the creation of regional governing bodies with revenue raising authority, such as regional transit authorities, to

### Table 14-7: Comparison of public, specialized and human services transit and fixed-guide transit actions

| Base case | Draft plan | Differences/similarities |
|---|---|---|
| • Continue WisDOT's role as a funding partner for Milwaukee and Madison<br>• Continue to support legislative changes to allow local governments to have transit funding options, other than property taxes<br>• Continue state funding assistance for fixed-guideway transit studies<br>• Continue to participate in studies of potential fixed-guideway transit service | • Work to ensure the availability of adequate funding for existing transit systems<br>• Continue WisDOT's role as a funding partner for Milwaukee and Madison<br>• Work with partners to improve transit service coordination, eliminate inefficiencies and improve transit planning<br>• Support urban and regional transit systems with new regional governance and funding structures<br>• Continue state funding assistance for fixed-guideway transit studies<br>• Develop a capital and operating assistance program to implement fixed-guideway transit in major metropolitan areas<br>• Continue to participate in studies of potential fixed-guideway transit service<br>• Continue to promote coordination between modes | • Both alternatives continue WisDOT's role as a funding partner for Milwaukee and Madison<br>• Both alternatives continue participation in studies of potential fixed-guideway transit service<br>• Both alternatives propose continuing state funding assistance for fixed-guideway transit studies. The draft plan also supports urban and regional transit systems with new governance and funding structures, and the development of a capital and operating assistance program to implement fixed-guideway transit in major metropolitan areas<br>• The draft plan proposes working to ensure the availability of adequate funding for existing transit systems, while the base case continues to support legislative changes to allow local governments to have transit funding options other than property taxes<br>• The draft plan proposes working with partners to improve transit service coordination, eliminate inefficiencies and improve transit planning, while the base case does not |

### Table 14-8: Comparison of bicycle and pedestrian actions

| Base case | Draft plan | Differences/similarities |
|---|---|---|
| • Continue to implement bicycle and pedestrian plan goals and objectives | • Continue to implement bicycle and pedestrian plan goals and objectives<br>• Evaluate opportunities to increase the inclusion of bicycle and pedestrian accommodations on urban state highway projects | • Both alternatives continue to implement plan goals and objectives<br>• The draft plan evaluates opportunities to increase the inclusion of accommodations on urban state highway projects |

independently fund and administer local transit systems. The draft plan also supports enhanced coordination and transit system planning to identify and eliminate inefficiencies in existing programs for transit operators and providers. It also recommends new state funding for fixed-guideway transit, as well as for rural and regional transit systems capital and operational needs. Table 14-7 summarizes the key similarities and differences between the base case and draft plan regarding transit.

The impacts of implementing the public, specialized and human services transit and fixed-guideway transit policies are discussed, by emphasis area, in the Qualitative Impacts section of this chapter.

## Bicycle and pedestrian facilities

The base case and draft plan both promote bicycle and pedestrian travel by implementing the goals and objectives outlined in the 1998 *Wisconsin Bicycle Transportation Study 2020* and the 2002 *Wisconsin Pedestrian Policy Plan 2020*. In addition, the draft plan notes that WisDOT will evaluate opportunities to expand the inclusion of bicycle and pedestrian accommodations on urban state trunk highway projects. Table 14-8 shows the similarities and differences between the base case and draft plan related to bicycle and pedestrian facilities. The impacts of implementing the bicycle and pedestrian facilities policies are discussed, by emphasis area, in the Qualitative Impacts section of this chapter.

**Table 14-9: Comparison of freight-related actions**

| Base case | Draft plan | Differences/similarities |
|---|---|---|
| • Continue state assistance programs for rail and harbor improvements<br>• Continue to acquire rail lines into public ownership, when appropriate, to preserve essential freight railroad service<br>• Continue to fund track and bridge upgrades for publicly owned rail corridors<br>• Support increased investment in rail infrastructure in response to shipper needs and market demands<br>• Continue to preserve corridors for future transportation use using Rails-to-Trails, rail banking or land banking<br>• Address airport system needs through the Airport Improvement Program, coordination with owners and operators and *State Airport System Plan* update efforts | • Establish a freight focus within WisDOT<br>• Advocate for federal funding and environmental improvements for the Upper Mississippi River-Illinois River Waterway System and for the construction of a new lock in Sault Ste. Marie<br>• Continue state assistance programs for rail and harbor improvements<br>• Encourage comprehensive harbor and waterfront land use planning<br>• Examine and address roadway issues at ports<br>• Work with railroads to ensure that appropriate rail service will be provided to all shippers statewide<br>• Continue to acquire rail lines into public ownership, when appropriate, to preserve essential freight railroad service<br>• Continue to fund track and bridge upgrades for publicly owned rail corridors<br>• Support increased investment in rail infrastructure in response to shipper needs and market demands<br>• Continue to preserve corridors for future transportation use using Rails-to-Trails, rail banking or land banking<br>• Address airport system needs through the Airport Improvement Program, coordination with owners and operators and State Airport System Plan update efforts | • Both alternatives continue state assistance programs for rail and harbor improvements<br>• Both alternatives continue to acquire rail lines into public ownership, when appropriate, to preserve essential freight railroad service<br>• Both alternatives continue to fund track and bridge upgrades for publicly owned rail corridors<br>• Both alternatives continue to preserve corridors for future transportation use<br>• Both address needs through existing programs, coordination and long-range plan updates<br>• Both continue working with railroads to ensure that appropriate rail service will be provided to all shippers statewide<br>• Both alternatives support increased investment in rail infrastructure in response to shipper needs and market demands<br>• The draft plan establishes a freight focus within WisDOT, while the base case does not<br>• The draft plan advocates for federal funding and environmental improvements, while the base case does not<br>• The draft plan encourages comprehensive harbor and waterfront land use planning, while the base case does not<br>• The draft plan promotes examination and action to address roadway issues at ports, while the base case does not |

### Freight (rail, truck, water, air)

The base case and draft plan continue upgrading and rehabilitating Wisconsin's publicly owned rail lines and bridges to accommodate heavier railcars and increasing volumes of traffic. The draft plan also establishes a freight focus and continued funding and technical assistance for Wisconsin's freight rail and commercial harbor systems.

Table 14-9 notes the key similarities and differences between the base case and draft plan as related to freight.

The impacts of implementing the freight policies are discussed, by emphasis area, in the Qualitative Impacts section of this chapter.

## Qualitative assessment

Plan elements likely to have significant environmental effects often involve new or substantially expanded mode-specific facilities and services. They can also include significant multimodal policies or programs. The base case and draft plan each have the potential for causing direct and indirect effects. The impact of these effects will vary depending on the type of action or facility proposed, the scale or intensity of that action, its location or context, and its duration. Impacts can be either adverse or beneficial, and can occur over the short-term, long-term or throughout the planning period. The system-plan environmental evaluation addresses the impacts of the base case and draft plan for the following broad areas:

- Congestion
- Energy
- Air quality
- Climate change
- Agriculture
- Economic growth
- Community and cultural resources
- Sensitive land and water resources
- Indirect and cumulative effects

## Congestion

Traffic congestion occurs whenever a driver's ability to enter and exit a roadway, change lanes, pass a slow-moving vehicle or simply drive forward is reduced. There are two types of traffic congestion, recurring and non-recurring. Recurring congestion, accounting for nearly 40 percent of all delays, is caused by insufficient capacity on roadway systems and is a function of the increases in both passenger vehicles and freight transportation. Non-recurring congestion, accounting for about 60 percent of delays, can be caused by special events, weather, and traffic incidents. Addressing congestion can reduce energy consumption and improve air quality.
The state's total vehicle miles traveled, while experiencing a slight decrease in 2005 and 2006, has continued to increase. The decreases can be attributed at least in part to high fuel prices. However, many factors influence travel behavior. More data is needed before a determination can be made as to whether the recent decreases constitute a long-term trend. Like the oil shortages in the 1970s, there are many unknown factors:

- Will fuel prices remain high?
- Will drivers permanently adjust their driving habits and drive less or are the changes temporary?
- How will increased fuel efficiency or new fuel alternatives influence driving habits?

WisDOT forecasts vehicle miles traveled to grow at 1.33 percent per year from 2005 to 2030. Of this total, passenger vehicle miles traveled are forecast to grow 1.16 percent per year while commercial vehicle miles traveled are forecast to increase 2.89 percent per year.

This forecast is a best-fit trend line or average for all years in the forecast. Actual year-by-year numbers are expected to show passenger vehicle miles traveled increasing at a decreasing rate (tapering growth) over time. Fuel prices may have an impact on vehicle miles traveled increases over time. While current conditions cannot be considered a trend, WisDOT will continue to monitor changes in vehicle miles traveled and adjust its forecasts as appropriate.

Regardless of whether vehicle miles traveled increase or decrease, the state's transportation system will continue to have extensive needs due to infrastructure age and usage. Even if vehicle miles traveled were to decrease, projections indicate that freight truck traffic will increase significantly through 2030. This increase alone will contribute significantly to infrastructure deterioration and capacity considerations. In addition, addressing system safety needs will remain a top department priority. As a result, responses to safety needs will persist regardless of reductions vehicle miles traveled.
The amount of freight moving through Wisconsin is expected to grow throughout the planning period. Even though the total amount of freight shipped is expected to increase across all modes (air, rail, water and trucking), trucking is expected to remain the dominant mode of freight transportation for Wisconsin. However, if fuel costs continue to rise, Wisconsin's freight rail system may become more competitive with trucking for shorter haul distances. By 2030, freight rail traffic is expected to increase 60 percent over current levels.

The draft plan policies that may impact the environment and affect congestion are not limited to highway related projects. Highway-related projects are not the only types of disruptions or

activities that may affect congestion. Vehicle crashes or decisions altering the number and distance of access points can affect congestion levels. Natural disasters and special events may also affect congestion. Many plan policies seek to address the congestion challenges created by these disruptions or activities.

As noted under the state trunk highway section of the modal comparison discussion and Table 14-2, the base case and draft plan identify approximately 2,000 centerline miles of potential passing lane improvements and 800 centerline miles of potential additional lanes. Other policies identified in the draft plan have the potential to add to the system's traffic carrying capacity as well as reduce and manage congestion. These include:

» Developing a statewide congestion management plan and program

» Working with transportation management areas to develop congestion management processes

» Coordinating with local governments and developers to manage the state trunk highway system more effectively and identify critical links and access points with the local system

» Continuing to plan and prepare for WisDOT's prompt and consistent response to incidents

Increased modal choices can also reduce traffic congestion. Under the draft plan, WisDOT will:

» Implement intercity passenger rail service and improved intercity bus service

» Support public, specialized and human services transit

» Support airport projects and advocate for direct air service

» Support bicycle and pedestrian accommodations

The draft plan also addresses the expected increases in freight movement. Under the draft plan, WisDOT will:

» Establish a freight focus within WisDOT to develop a better understanding of freight-related issues

» Continue support of rail and harbor assistance programs

### Congestion summary

The draft plan provides more and enhanced tools and options than the base case alternative for WisDOT to improve its efforts to address traffic congestion. For example, the draft plan calls for enhanced coordination with the state's largest metropolitan planning organizations, identifying and addressing bottlenecks statewide, coordinating a state level congestion management plan and improving operational efficiencies for the state trunk highway system and other modes as appropriate.

## Energy

Energy is required to operate all transportation modes. In 2006, 25 percent of Wisconsin's total energy resources were consumed by transportation. While many factors influencing transportation energy consumption are beyond WisDOT's control (e.g., world oil prices, vehicle fuel efficiency), WisDOT policies can influence transportation choices.

Energy use and consumption depend on transportation mode. Bicyclists and pedestrians are the most energy efficient in terms of the mechanics of energy transfer. For other transportation modes, energy efficiency is affected by several factors including fuel efficiency, number of passengers carried and length of trip. Advancements in technology, such as hybrid vehicles, are improving the energy efficiency of personal automobiles and public transit.

Congestion also impacts energy use and consumption. For example, the Texas Transportation Institute estimates that highway congestion in the Milwaukee urban area results in 10.8 million extra gallons of fuel consumed per year as compared to the fuel needed to travel during free-flow conditions.[6] In addition to energy consumption impacts resulting from congestion, increases in speeds over 60 miles per hour can

also impact energy use.[7] Cars and trucks typically achieve better fuel economy at lower speeds.

While the base case and draft plan both support new and improved intercity passenger rail service, the draft plan offers additional opportunities to increase energy efficiency and conservation through actions that support new and improved intercity bus service and public, specialized and human services transit. The draft plan also seeks to manage congestion through congestion management planning and coordination, and optimizing the system's efficiencies by using a range of tools such as technological strategies like ramp metering and signal timing, as well as improved design elements.

When moved by rail or water, freight transportation, particularly bulk freight, is more energy efficient. Both the base case and draft plan continue rail and harbor assistance programs. However, the draft plan provides additional opportunities to reduce energy use by establishing a freight focus within WisDOT and working with Class I and other railroads to ensure local rail service is maintained, improved and increased.

For additional information on how the base case and draft plan potentially impact congestion, refer to the Congestion section of this chapter.

### Energy summary

The draft plan has more transportation choices for both freight and passenger travel than the base case; this may result in reduced energy use. For example, the draft plan proposes to implement the intercity passenger rail recommendations outlined in the Midwest Regional Rail System for initial phases, and evaluate expansion of the intercity network to other areas of the state.

## Air quality

Transportation contributes to increased air pollution and poor air quality. The potential air quality impacts discussed here focuses on:

- Ground-level ozone
- Particulate matter
- Greenhouse gas emissions

Ground-level ozone is the primary pollutant of concern in Wisconsin. Ozone is formed when volatile organic compounds and nitrogen oxides combine in the presence of heat and sunlight. Motor vehicle exhaust and gasoline vapors, as well as industrial emissions and chemical solvents, are some of the major sources of volatile organic compounds and nitrogen oxides. While a threshold for human health exposure to ozone has not been established, exposure to ozone has been linked to both acute and chronic adverse health effects, including heart and lung disease. When inhaled into the lungs, ozone can aggravate existing lung diseases, exacerbate asthma attacks and bronchitis, and may shorten life span. Currently, nine Wisconsin counties are designated non-attainment for the 8-hour ozone standard: Door, Kenosha, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington and Waukesha. Particulate matter emissions also affect air quality. Particulate matter is a mixture of solid particles or liquid droplets in the air. Motor vehicle exhaust emits fine particulate matter.[8] Although a threshold for human health exposure to fine particles has not been established, both acute and chronic exposures to fine particles have been linked to heart and lung disease. Like ozone, when inhaled into the lungs, fine particles can aggravate existing heart and lung diseases and cause cardiovascular symptoms, arrhythmias, heart attacks, chronic obstructive pulmonary disease, asthma attacks, and bronchitis. The U.S. EPA has designated three Wisconsin counties as non-attainment for the particulate matter 2.5 standard.

Greenhouse gas emissions, which include gases such as carbon dioxide, methane, and nitrous oxide, trap heat in the earth's atmosphere. The burning of fossil fuels and the resulting greenhouse gas emissions, particularly carbon dioxide, are the largest

[6] Texas Transportation Institute, *The 2007 Urban Mobility Report*, September 2007.

[7] Each 5 miles per hour drive over 60 miles per hour is like paying an extra $0.20 per gallon for gas. Source: U.S. Environmental Protection Agency. http://www.fueleconomy.gov.

[8] Fine particles are 2.5 micrometers in diameter and smaller. They are also referred to as PM2.5.

contributors to the human causes of climate change. Carbon dioxide emissions from transportation sources account for one-third of all carbon dioxide emissions. In total, the transportation sector emits approximately 25 percent of all U.S. greenhouse gas emissions.[9] As a result of reducing congestion and improving state trunk highway efficiency, the base case and draft plan may improve air quality. Free-flow traffic conditions result in fewer emissions than stop-and-go traffic. For more information, refer to the Congestion section of this chapter.

Increased availability of modal choices, such as intercity passenger rail, intercity bus, transit, and bicycle and pedestrian accommodations, may also improve air quality by reducing the number of single occupant vehicles. In addition, the department is evaluating opportunities to integrate on-site electrification for the *Hiawatha Service* at the Milwaukee Intermodal Station. This will help reduce emissions due to rail car idling. The department will also consider integrating this technology into the Midwest Regional Rail System station in Madison. While the base case continues support for intercity passenger rail and pedestrian and bicycle accommodations, the draft plan may result in greater air quality benefits due to the actions supporting improved intercity bus and public, specialized and human services transit service. In addition, the draft plan promotes transportation demand management strategies to improve the efficiency of the transportation network, particularly in metropolitan areas. While increased modal options and transportation demand management strategies will improve air quality, the improvement will be minimal.

In addition to transportation demand management and multimodal policies, the draft plan also outlines strategies and actions aimed at improving incident response times. This not only minimizes secondary crashes, but also can limit the amount of time cars are left idling in traffic. Applying intelligent transportation system strategies are also proposed to address traffic flow considerations and alert drivers to upcoming incidents. Finally, infrastructure design element updates, such as roundabouts, improved ramp designs and improved signal timing, are recommended not only to address safety concerns, but also to minimize congestion and help keep traffic moving. Freight transportation efficiencies may also improve under the draft plan's freight-related policies. This may result in some industries switching from less efficient freight transportation modes, such as air and truck, to more energy efficient modes such as rail and water. In addition, efforts to add traffic carrying capacity to the system through operational and engineering strategies will help maintain and improve system reliability and help minimize vehicle and truck idling on the highway system. Air quality may improve as a result.

### Air quality summary

The draft plan provides more opportunities to improve air quality than the base case due to more and enhanced tools and strategies to reduce congestion, and more travel options to improve energy efficiency and provide alternatives to single occupant vehicles. WisDOT will follow U.S. EPA regulations and address air toxics in environmental documents in accordance with FHWA guidelines. Mobile Source Air Toxics standards will likely become a more important issue in the environmental review process.

## Climate change

Assessing the effects of, and possible solutions to, climate change is gaining priority. Nationally, the United States Congress is addressing climate change through several proposed bills. In addition, Wisconsin has begun discussions to evaluate implementing carbon emission caps and trade programs. In 2007, nine Midwest states, including Wisconsin, signed a climate change accord to combat global warming by targeting greenhouse gas emissions with carbon trading programs and other initiatives to meet emission targets. Twelve Midwest states also signed an agreement aimed at reducing dependence on petroleum-based energy sources, particularly foreign oil.

In addition, in 2007 the governor established the Governor's Task Force on Global Warming to look

[9] U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2006*, EPA 430-R-08-005, April 2008.

at actions to curb greenhouse gas emissions. In July 2008, the task force presented its findings and recommendations for a state plan to reduce Wisconsin's contribution to global warming. As of 2007, 720 cities across the United States, including 16 communities in Wisconsin, have signed on to meet the Kyoto protocol's greenhouse gas emission reduction targets (United States Conference of Mayors Climate Protections Agreement).

The burning of fossil fuels and the resulting greenhouse gas emissions - particularly carbon dioxide, but also methane and nitrous oxide - trap heat in the earth's atmosphere and are the largest contributors to climate change. Carbon dioxide emissions resulting from transportation sources account for one-third of all carbon dioxide emissions. In Wisconsin, the transportation sector contributes about 24 percent of greenhouse gas emissions.[10] In general, alternative modes of transportation such as rail, intercity bus, transit, and biking and walking are more fuel-efficient and typically emit fewer carbon emissions per passenger mile than single-occupancy private automobiles, trucks and airplanes. See Tables 14-10 and 14-11 for more information.

Improved vehicle fuel efficiency and emissions, congestion mitigation, and reductions in vehicle miles traveled resulting from increased availability of modal choices, such as intercity passenger rail, intercity bus, transit, and bicycle and pedestrian accommodations, may reduce overall carbon dioxide emissions from the transportation sector and help achieve future greenhouse gas emission reduction targets. The increase in alternative mode choices may reduce the number of single occupant vehicles. In addition, all of the alternative modes mentioned are more energy efficient and emit significantly fewer carbon dioxide emissions per passenger mile than the auto and air modes.

Many national, state and local agencies and stakeholder groups will be involved in managing efforts to address climate change. As a policy-based plan, *Connections 2030* positions WisDOT to respond to, track and adapt to new climate change initiatives as they are introduced. In addition, the draft plan addresses climate change and energy independence by recommending increases in the state's investment in alternative modes of transportation beyond the base case, as detailed in Chapter 8, *Provide Mobility and Transportation Choice*. These policies are consistent with some of the recommendations of the Governor's Task Force on Global Warming. In both the base case and the draft plan, WisDOT will provide assistance to and follow the governor's policies on climate change and other state and national initiatives, as appropriate, and will continue to track ways to reduce transportation related carbon emissions in the state.

While the base case continues support for intercity passenger rail and pedestrian and bicycle accommodations, the draft plan may result in greater reductions in carbon dioxide emissions from transportation due to the actions supporting improved intercity bus and public, specialized and human services transit services. In addition, the draft plan promotes transportation demand management strategies to reduce vehicle miles traveled, particularly in metropolitan areas.

### Climate change summary

Overall, WisDOT recognizes the importance of climate change, and the many different and often conflicting perspectives on energy use, gas prices and impacts to vehicle miles traveled. The draft plan provides more opportunities to reduce transportation related greenhouse gas emissions than the base case because it increases investments in more travel options to improve energy efficiency and provide alternatives to single occupant vehicles. The recommendations related to development of tools and coordination with stakeholders and government entities are also likely to help reduce congestion and provide opportunities to address climate change.

## Agriculture

In 2005, Wisconsin's working lands covered 21.4 million acres (or 61 percent) of the state's total

[10] World Resources Institute, *Wisconsin Greenhouse Gas Emissions Inventory and Projections*, 25 June 2007.

34.8 million acres. Of these working lands, 12.1 million acres were agricultural land and 9.3 million acres were forest. From 2000-2005, the state lost 600,000 acres of working lands to non-agricultural development and the growth of undeveloped land. Non-agricultural development lands, commonly known as "development," occur when agricultural lands are converted to residential, commercial, manufacturing, or other uses. Of these 600,000 acres, 255,000 acres were developed. Undeveloped lands are lands that were previously productive, but are now unfarmed or left fallow. Of the 600,000 acres of agricultural lands lost between 2000 and 2005, 345,000 acres were allowed to go fallow.[11]

The policies in both the base case and the draft plan that have the potential to impact statewide agricultural land use include:

» Adding lanes

» Constructing new interchanges

» Implementing access management

» Intercity passenger rail

» Local roads

### Adding lanes and new interchanges

On average, WisDOT impacts approximately 2,000 acres of agricultural land per year statewide, or less than 0.02 percent of the state's total agricultural land. From 1993-2007, the number of lane miles added per year ranged from 40 to150 lane miles, with an average of approximately 80 lane miles per year. Using these numbers, and assuming that past trends are a reasonable assumption of future actions, each additional lane mile potentially impacts approximately 25 acres of agricultural land. Note that these impacts are a rudimentary system-wide estimate. Project level decisions regarding whether surrounding land is needed determines the extent of the actual impact, as well as the potential mitigation strategies.

The base case and draft plan identify about 800 added centerline miles, which includes approximately 400 centerline miles of Major Highway Development program projects. To calculate lane miles, it was assumed that two lanes would be added, for a total of 1,600 lane miles. Adding lanes may potentially impact 40,000 acres of agricultural land, or about 0.3 percent of the state's total agricultural land. Note that these impacts are a rudimentary system-wide estimate. Project level decisions regarding whether surrounding land is needed determines the extent of the actual impact, as well as the potential mitigation strategies. Passing lanes were not included, as these projects are typically constructed within the existing right of way and do not add capacity.

New interchange construction may also impact agricultural lands. The base case and draft plan identify 50 potential new interchanges. Typical interchanges require 50 to100 acres of land, depending on the design and function. Using these numbers, 2,500 to 5,000 acres of agricultural land, or 0.04 percent of the state's total agricultural land, may be impacted by new interchange construction statewide. Note that these impacts are a rudimentary system-wide estimate. Project level decisions regarding whether surrounding land is needed determines the extent of the actual impact, as well as the potential mitigation strategies.

Upgrading highways to expressways may also impact agricultural lands. Expressways are multi-lane highways with at-grade intersections and some interchanges. Alternatively, converting expressways to freeways should have minimal impacts, as freeways are multi-lane highways with access only at interchanges. Since expressways are already multi-lane highways, upgrading the expressway to a freeway would require closing at-grade intersections and constructing interchanges. Many of the upgrades and conversions are included with scheduled capacity and interchange projects to minimize project impacts and maximize the available funds. The base case identifies 40 centerline miles of upgrades and conversions to be

[11] University of Wisconsin-Madison, *The Status of Working Lands in Wisconsin: Current Trends and Future Policies*, October 2006.

completed. To calculate lane miles, it was assumed that two lanes would be added, for a total of 80 lane miles. The base case upgrades and conversions may impact 2,000 acres of agricultural land. The draft plan identifies an additional 610 miles of upgrades and conversions. To calculate lane miles, it was assumed that two lanes would be added, for a total of 1,220 lane miles. The draft plan upgrades and conversions could impact 24,000 acres of agricultural land. In both instances, the actual impact to agriculture would be minimal since most of the impacts are already included in the additional lane and interchange impacts discussed previously. Note that these impacts are a rudimentary system-wide estimate. Project level decisions regarding whether surrounding land is needed determines the extent of the actual impact, as well as the potential mitigation strategies.

### Access management

Transportation projects that address access onto or off of a state trunk highway may also impact agriculture. Implementation of the *State Access Management Plan* under both the base case and the draft plan will have the greatest potential impact along Tier 1 and Tier 2A routes that maximize interstate and interregional traffic movement and limit access points to the highway. For both of these tiers, field entrances would be allowed on an interim basis, but would be closed if opportunities arose to close driveways during the planning horizon. New driveways would be prohibited. As a result, affected adjacent farmers and other landowners may need to travel farther and spend additional time and resources to continue farming parcels with altered access points. However, impacts to adjacent landowners are carefully considered during any project and efforts to mitigate potential losses are evaluated and implemented where possible.

### Intercity passenger rail

Implementation of intercity passenger rail may also impact agricultural land. Under both the base case and draft plan, improvements will be made at roadway-railway crossings, which may close crossings. As a result, farm operations may become less efficient since the movement of farm equipment between fields may require alternative routes and more travel time. The draft plan may have a slightly greater impact on agriculture than the base case because it extends intercity passenger rail service to regions of Wisconsin not included in the Midwest Regional Rail System.

### Local road network

The local road network is a critical component to the overall function of the state's transportation system. Even though WisDOT does not have a direct role in planning, constructing, maintaining or operating the local road system, the department manages and distributes state and federal funding for local road projects. While the base case continues these funding programs, the draft plan emphasizes enhanced coordination between WisDOT and local entities to define a network vision, identify needs, address key safety issues, and encourage sound investment decisions. A safe, efficient and well-maintained local road network supports Wisconsin's agricultural economy and potentially reduces the costs of farming by providing reliable and safe connections.

### Agriculture summary

Both the base case and draft plan may potentially impact agricultural lands.

- Construction of additional highway lanes and interchanges may result in the loss of some agricultural land for transportation purposes. These highway-related impacts may be slightly higher under the draft plan due to the proposed expressway/freeway conversions. As noted, the majority of the expressway/freeway conversions efforts undertaken by the department will include spot improvements and not entire roadway segments.

- Implementation of the *State Access Management Plan* may impact farm access. These impacts would be very similar for the base case and draft plan.

- Field access may also be impacted due to implementation of intercity passenger rail. These impacts would be slightly greater under the draft plan.

- Identifying a vision for local roads and addressing key safety issues may positively impact agriculture. These positive impacts would be greater under the draft plan.

## Economic growth

Wisconsin's economic growth relies heavily on the ability of the transportation system to safely transport people, goods, services and information reliably and efficiently throughout the state and beyond Wisconsin's borders. Wisconsin's businesses directly benefit from enhanced freight mobility and connectivity to economic centers both in and out of state. For example, WisDOT's Freight Rail Infrastructure Improvement Program provides funding assistance for improving rail infrastructure used by ethanol plants in Wisconsin.

The base case and draft plan recommend continuing existing programs and policies that support economic growth. These include the Major Highway Development Program, harbor and rail assistance programs, and transportation sector individual and business opportunity growth and development, and policies that support and maintain a reliable and efficient state trunk highway system. These programs and policies can help reduce transportation costs and provide opportunities for Wisconsin businesses, enabling them to be more competitive and better connected to regional, national and international markets.

The draft plan also includes new actions that further support economic growth. These include advocating for improved air service; supporting improved public, specialized and human services transit service; increasing intercity passenger rail service; and improving intercity bus service. For example, improved transit service could expand links to employment opportunities for individuals, particularly those who are transit-dependent. Similarly, improved intercity travel options can increase tourism to areas with new or improved intercity travel service. Under both the base case and draft plan, safety remains a priority for WisDOT. Improved transportation safety not only protects those traveling on the transportation system, but also supports economic growth by reducing the costs related to a range of considerations from property damage and loss of productivity to increased insurance costs. The base case and draft plan policies may also stimulate job creation through the construction, operation and maintenance of new transportation infrastructure, as well as the continued support of disadvantaged business enterprise opportunities, training opportunities through business and labor capacity building efforts, and continued youth outreach and training programs supported by the department. The draft plan policies may result in improved and expanded economic growth and greater access to job opportunities by implementing improved intercity bus service and improved transit service. Job creation benefits communities as employees spend money on local goods and services.

### Economic growth summary

Both the base case and the draft plan support the state's economic growth initiatives. The draft plan provides more opportunities to support economic growth than the base case by:

- Implementing new actions to further support economic growth, such as advocating for improved air service and supporting improved public transit service.
- Creating economic opportunities by implementing intercity passenger rail service and supporting improved intercity bus service.
- Continued investment in the enhancement of the state's highest quality intercity highway network (*Corridors 2030*).

While the draft plan's enhanced economic growth policies will make the state highway system more efficient, they have the potential to negatively affect the environment. For example, policies that enhance roadway capacity during special events may enhance economic growth opportunities but may negatively affect the environment by allowing the number of vehicles to increase on a segment of roadway. The increased number of vehicles may result in more vehicle emissions than would otherwise be emitted.

## Community

Every community in Wisconsin has a unique set of values and interests. A community's character

is often closely linked to its history. Community comprehensive plans reflect these cultural resources as natural linkages between the past and present. Transportation investments can have both positive and negative impacts on a community's social and cultural environment. These impacts can include changes to mobility, accessibility, safety, employment, noise, relocation, isolation, and identity. The type of impact will vary by project and community. Identifying and addressing these impacts appropriately occurs at the project planning and design phase. However, some qualitative assumptions about the potential impacts of the draft plan can be made.

Wisconsin has approximately 6,000 formally recorded intact archaeological sites throughout the state. In addition, the National Register of Historic Places and the Wisconsin Historical Society each list about 1,750 properties as historically significant.

The base case and draft plan both include actions that impact communities. For example, accommodating bicycle and pedestrian travel through the construction of over and underpasses, sidewalks, trails, etc., increases opportunities. In addition, increased support for improved public transit and intercity bus service may encourage individuals to use the bus system rather than single occupant vehicles. The base case and draft plan both continue community sensitive solutions efforts that help ensure that projects are designed to fit the natural, social, environmental and cultural environment. The draft plan also promotes implementation of transportation demand management strategies and enhancing the availability of other modes such as fixed-guideway transit, public transit, and intercity passenger rail to encourage travelers to shift from single occupant vehicles and ridesharing, or look at other travel options.

In addition, the draft plan introduces the department's use of corridor management as not only a plan implementation tool, but also a method to prioritize dollars and to focus resources to corridor level activities and needs. WisDOT's corridor management approach will enhance communities' abilities to:

» Improve community safety

» Support future land use plans that seek more compact development

» Improve accessibility for transit, bicycle and pedestrian modes

» Incorporate local plans into WisDOT activities

The base case and draft plan also include recommendations to add system capacity, which may impact communities. While the specific activities may impact the environment, these actions may also improve safety, access to services, economic opportunities and transportation choices. The actions with the greatest potential to impact communities include:

» Additional lanes

» Increased intercity passenger rail service

» Support for increased freight rail service

» Support for fixed-guideway transit

» Support for airport runway extensions and increased direct air service

Potential negative impacts will vary by project and location. For example, potential impacts resulting from additional highway capacity in urban areas may include:

» Relocating or displacing businesses and residences

» Dividing a city or neighborhood with multi-lane, high volume roads

» Increased noise levels during construction

For example, implementing intercity passenger rail service or increased freight rail service may result in heightened noise levels. Improving rail safety may result in the installation of fencing along rail lines and the closure of existing rail crossings. While these actions address safety issues, they may also limit motor vehicle, bicycle and pedestrian mobility across the rail lines. Increased

rail activity may also impact emergency response times if emergency responders are unable to cross a rail line to reach an incident when a train is passing. Airport activities may have the greatest potential to increase noise levels. Airport runway extensions and increased direct air service may increase noise levels as larger airplanes use the airport and the number of flights increases. However, as technology advancements are adopted in the aviation sector, larger airplanes will become quieter.

Impacts associated with transportation projects are identified at the project level. Efforts are undertaken to avoid these impacts, whenever feasible. When impacts cannot be avoided, efforts are undertaken to avoid and minimize them.

### Community summary

The base case and draft plan include actions that may impact communities. The draft plan has a greater opportunity to positively impact communities through the corridor management approach. The draft plan also has a slightly greater opportunity to impact communities due to support for increased freight rail service and direct air service, as well as support for fixed-guideway transit and extending intercity passenger rail service beyond the Midwest Regional Rail System.

## Sensitive land and water resources

The diversity of Wisconsin's landscape is a function of a number of factors including climate, soils, existing and historic vegetation, topography, and types of aquatic features. Wisconsin has 16 distinct ecological landscapes, ranging from the Northwest Sands to the Central Sand Hills to a Southern Coastal ecological landscape.[12]

Sensitive land and water resources are some of the most important and valued elements of Wisconsin's natural landscape. These resources include undeveloped woodlands and pastures, critical species habitat, wetlands, park lands, and lakes Michigan and Superior.

All transportation modes have the potential to impact sensitive land and water resources; however, airport, rail and highway projects (including bridge and other infrastructure) could result in the greatest impacts. The potential impacts are discussed for these areas:

» Water quality

» Wetlands

» Habitat

» Public lands

### Water quality

Wisconsin has more than 12,600 rivers and streams. Of the 44,000 miles of rivers and streams in Wisconsin, about 32,000 miles of these water resources flow throughout the year. In addition, Wisconsin has over 15,000 lakes, most of which are located in the northern half of the state.

The Wisconsin Department Natural Resources (DNR) classifies the state's highest quality waters as "Outstanding Resource Waters" and "Exceptional Resource Waters." These surface waters provide outstanding recreational opportunities, support valuable fisheries, have unique physical features and environmental settings, and are not significantly impacted by human activities. The Wisconsin Department Natural Resources classifies over 200 streams and about 100 lakes and flowages as "Outstanding Resource Waters," and over 3,600 miles, or about 1,500 streams, as "Exceptional Resource Waters."[13]

Wisconsin also has over 600 impaired waters. These waters do not meet state water quality standards. For impaired waters, the Wisconsin Department Natural Resources establishes total daily maximum loads, which identify the amount a pollutant must be reduced to achieve the required water quality standard and meet the designated use of the water body (e.g., fish and wildlife habitat, drinking water supply, fish consumption).

[12] Wisconsin Department of Natural Resources, Wisconsin's Strategy for Wildlife Species of Greatest Conservation Need, http://dnr.wi.gov/org/land/er/wwap/plan/pdfs/02_4_0_Vert_Habitat.pdf, accessed April 2008.

Poor water quality could be caused by many things, such as chemicals in oil, grease or antifreeze. The operation, maintenance and preservation of the state's transportation infrastructure may impact water resources due to storm water runoff. For example, winter operations activities, including the salting and deicing roadways and airport runways, may impact the surrounding environment.

Similarly, construction activities may also impact water resources due to construction-related erosion and runoff. Storm water best management practices, such as silt fences and storm water detention ponds can reduce the potential impacts of construction-related runoff. Apart from increasing sediment levels in a water body, storm water runoff can carry toxic compounds such as oil and fertilizer. Under both the base case and draft plan, WisDOT will continue to use tools and techniques for effective erosion control, water quality management and drainage as related to highway maintenance activities. WisDOT will also continue to follow published storm water and erosion control rules for construction activities.

Potential water quality impacts related to the state trunk highway system are slightly greater under the draft plan due to additional expressway upgrades and expressway-to-freeway conversions. In addition, potential impacts related to intercity passenger rail service, freight rail and airports might be slightly greater under the draft plan.

Under the draft plan, expansion of intercity passenger rail service to other areas of Wisconsin may result in upgraded or new track construction. For freight rail, working with Class I railroads to maintain, improve and increase service may also result in the need to upgrade and construct additional track. Likewise, supporting increased direct air service may result in airports constructing new runways or runway extensions. Each of these activities could potentially impact water quality through an increased amount of impervious surface and increased density of harmful chemicals in runoff.

[13] Wisconsin Department of Natural Resources, Revisions to Chapter NR 102, Wisconsin Administration Code, January 2006, http://www.dnr.state.wi.us/org/water/wm/wqs/orwerw/OERW%20Communication%20Outreach%20NON-BOOKLET.pdf, accessed April 2008.

### Wetlands

Wetlands are ecological systems that are typically partially or completely covered by water for part of the year. They are among the most productive natural ecosystems in the world. Wetlands support aquatic plants and provide habitat for more species of plants and animals than any other type of landscape in Wisconsin. Additionally, wetlands improve water quality, decrease flooding and protect shorelines.

Wisconsin has 5.3 million acres of wetlands, most of which are located in the northern portion of the state. The Wisconsin DNR estimates that Wisconsin has lost about half of the estimated 10 million acres of wetlands that were present in the 1800s. On average, WisDOT impacts 120 to 200 acres of wetlands per year, or less than 0.01 percent of the total wetlands in the state. From 1993 to 2006, the total number of lane miles increased by an average of 80 miles per year in Wisconsin. Using these numbers, each additional lane mile, on average, can impact between 1.5 and 2.5 wetland acres.

WisDOT mitigates unavoidable wetland losses using the Wetland Mitigation Banking Technical Guideline established and implemented in cooperation with state and federal agencies. For example, from 1990 to 1997, over 500 WisDOT projects resulted in wetland losses of 1,300 acres. WisDOT compensated for these losses by developing 1,900 acres of wetlands. (For additional information on WisDOT's wetland banking system, refer to the "Emphasize the preservation of protected resources" policy in Chapter 10, *Preserve Wisconsin's Quality of Life*.) Through 2030, WisDOT will continue its commitment to protect and preserve wetlands. However, efforts to locate and fund future wetland bank sites will likely experience greater challenges due to higher real estate costs.

The base case and draft plan identify 800 centerline miles of potential additional lanes, which includes 400 centerline miles of Major Highway Development Program projects. To calculate lane miles, it was assumed that two new lanes would be constructed, resulting in 1,600 lane miles. Using these numbers, 2,400 to 4,000 acres of wetlands could be impacted by adding highway lanes over

the planning period. This represents 0.05 percent to 0.08 percent of the state's total wetlands. Note that these are system-wide estimates. Actual loss and mitigation decisions occur at the project level.

New interchange construction may also impact wetlands. The base case and draft plan identify 50 potential new interchanges. As previously noted, new interchanges require 50 to100 acres of land, depending on the design and function of the interchange. While some wetland impacts may result from interchange construction, these would only include small parcels of the interchange area. Note that these are system-wide estimates. Actual loss and mitigation decisions occur at the project level.

Upgrading a highway to an expressway may also impact wetlands. Freeway conversions, however, should have minimal impacts since the highways are already multilane roadways and activities would focus on restricting access to interchanges only. The base case identifies 40 miles of upgrades and conversions to be completed. This could impact 100 to 200 acres of wetlands statewide. The draft plan identifies an additional 610 miles of upgrades and conversions that could impact 1,800 acres to 3,100 acres of wetlands. Note that these are system-wide estimates. Actual loss and mitigation decisions occur at the project level. In both instances, the actual impact to wetlands would be less than estimated at the system-level. The actual project-level impacts will be site-specific and most of these potential impacts are already included in the additional lane and interchange impacts discussed in the previous paragraphs.

Potential wetland impacts related to intercity passenger rail service, freight rail and airports might also be slightly greater under the draft plan. Under the draft plan, expansion of intercity passenger rail service to other areas of the state may result in new track construction or upgrading of existing track. Additional Class I rail infrastructure may need to be constructed to maintain, improve and increase existing freight service. Similarly, supporting increased direct air service may result in airports building new runways or runway extensions that could negatively affect wetlands.

## Habitat

Transportation projects may impact the environment in which a plant or animal lives, otherwise known as an organism's habitat. Impacts of transportation projects on habitat include fragmentation, introduction of invasive species and negative interactions with endangered or threatened resources.

Transportation investments, such as highways, rail and airports have the potential to fragment habitat. Highway construction along new alignments (such as bypasses), or new rail line construction along new alignments, has a greater potential to fragment habitat than highway or rail investments that occur within the original corridor. New highway alignment will occur under the base case and draft plan as related to the Major Highway Development Program. However, not all Major Highway Development Program projects result in new roadway alignment. In addition, development that may occur near a new interchange, bypass or corridor (indirect effect) may also result in habitat destruction or fragmentation.

While neither the base case nor the draft plan specifically identifies new rail line construction, new intercity passenger or freight service may occur along rail lines that are not currently being used. Because the natural environment may have reclaimed an abandoned rail line, new construction or resuming rail activity along these lines may result in some negative impacts. Some types of airport improvements may also result in habitat fragmentation. Runway or taxiway extensions require additional land that may limit wildlife movement. However, since these projects are limited in scope – generally less than 1,000 feet – the potential for habitat isolation is minimal. Similarly, projects to improve airport approach capabilities may result in habitat changes due to tree clearing or tree topping. The potential for habitat fragmentation related to airport projects are slightly greater under the draft plan than under the base case due to actions supporting improved air service.

Invasive species are plants or animals that are not native to an environment and have the potential to cause severe environmental devastation by

overwhelming native species. Invasive species can also affect the economy by affecting recreational opportunities and public health, as well as incurring mitigation costs. Controlling invasive species is often difficult as they are easily spread by human activities such as transportation maintenance, operation and construction activities. To mitigate this, WisDOT implemented a mowing policy in 2007, which requires mowing equipment to be washed prior to moving to a new site. The draft plan also includes seeking funding to implement an "early detection, rapid response" program to address invasive species in partnership with the Wisconsin DNR. Consequently, the draft plan offers greater opportunities to identify and control invasive species than the base case.

Habitat fragmentation and invasive species may impact endangered and threatened resources. Wisconsin supports a wide range of natural habitats for hundreds of species of birds, fish and mammals. Some of these species are common, but others, such as the Osprey, Butler's Gartersnake and Ornate Box Turtle, are considered threatened or endangered. Currently over 230 species in Wisconsin are listed as threatened or endangered.

Endangered or threatened species located near transportation infrastructure can be impacted by the construction, operation and maintenance of infrastructure. The greatest potential impacts are associated with highway, rail or airport projects (especially those that involve expansions or runway extensions). Potential impacts to endangered and threatened species as related to the state trunk highway system may be slightly greater under the draft plan due to the greater number of expressway upgrades and expressway-to-freeway conversions over the base case alternative. Potential impacts related to intercity passenger rail service, freight rail and airports might be slightly higher under the draft plan due to the actions discussed under the water quality section in this chapter.

Wildlife collisions are a threat for all transportation modes. Overall, the wildlife hazards associated with the base case and draft plan are similar. However, the draft plan supports increased direct air service that may result in airport runway additions or expansions. These activities may increase the threat of wildlife strikes, particularly between birds and airplanes. The Federal Aviation Administration has identified numerous land use practices and natural features for airport owners and operators to try to avoid, eliminate or mitigate the likelihood of airplanes striking wildlife.

### Public lands

Transportation projects may affect public lands. Wisconsin's public lands include local parklands, county and state forests, and national wildlife refuges and forests. Wisconsin has about 2.5 million acres of county forest, 2 million acres of national forest, and 0.5 million acres of U.S. Fish and Wildlife lands.

The Wisconsin DNR manages 1.5 million acres of land across the state, including state forests, state parks, wildlife areas, trails, natural areas and forest nursery facilities. Federal regulations protect public lands and require transportation projects to minimize and mitigate any unavoidable impacts. The potential impacts to public lands would be the same for the base case and draft plan.

### Sensitive land and water resources summary

Both the base case and draft plan impact sensitive land and water resources. Impacts to public lands would be the same under the base case and draft plan. The draft plan may result in slightly greater impacts to water quality, wetlands, and endangered and threatened species due to:

- A greater number of expressway upgrades and expressway-to-freeway conversions
- Upgraded or additional track for freight rail service
- Expanded intercity passenger rail beyond Midwest Regional Rail System
- Airport projects to accommodate increased air service

The draft plan offers greater opportunities to identify and control invasive species than the base case.

## Indirect effects

Transportation projects can have a wide range of direct and indirect effects on the environment. Direct effects result from a specific project. For example, a project might convert two acres of agricultural land for highway use. Indirect effects associated with transportation projects may be caused by the decisions of others, such as local governments or developers. These effects may:

» Be viewed as either positive or negative or both, depending on the specific effect

» Occur later in time, or beyond the project right of way, but can be reasonably foreseeable

» Include changes in land use, population density, growth rate, economic development, and the rate of development

Factors such as improved access, improved travel time, and change in property values influence the growth and development of communities. Improved access to the transportation system has the potential to induce development and additional travel; however, improved access by itself is not likely to spur development. Instead, other factors need to be present, such as the availability of sewer and water services, market demand and supporting local land use decisions.

Under the base case, the actions with the greatest potential for indirect effects include:

» New interchanges

» Access management

» Intercity passenger rail service

The draft plan identifies additional actions that may have indirect effects. These actions include:

» Developing a capital and operating assistance program to implement fixed-guideway transit in major metropolitan areas

» Improving intercity bus service and connections

» Funding intermodal facilities

» Funding track and bridge upgrades on publicly owned rail corridors

» Working with Class I and other railroads to ensure local service is maintained, improved and increased

These actions may result in induced or diverted travel. Induced travel is any increase in daily travel that occurs due to a change in transportation service (e.g., improved transit service) and refers to trips that were not taken before the change. Diverted travel is when existing users move from one service to another service after a change. For example, intercity passenger rail service may divert trips taken on the highway or intercity bus. The amount of induced or diverted travel is location-specific and depends on numerous factors including cost, travel time and ease of use. Depending on perspective, induced or diverted travel can be a positive or negative indirect effect.

A potential positive indirect effect of the base case and draft plan actions may be community or neighborhood redevelopment or infill development – promoted under the state's comprehensive planning law. For example, the resumption of intercity passenger rail service may result in redevelopment activities near rail stations. Also, WisDOT's Corridor Management Program and the corridor management approach will be used to help coordinate land use decisions along corridors by establishing a common vision for those corridors. By looking beyond the traditional highway right of way, the corridor management approach considers adjacent land uses, development pressure, and multimodal system needs to prioritize planning studies. These planning studies often include coordination with local governments and public involvement opportunities.

The indirect effects associated with implementing the base case or draft plan are often beyond WisDOT's control. While WisDOT will work with local governments and private entities to assess potential impacts on the transportation system, the local government or private entity makes the final decision.

### Indirect effects summary

The draft plan may result in more indirect effects than the base case due to additional actions implemented under the draft plan such as funding intermodal activities and improving intercity bus service and connections.

## Cumulative effects

Cumulative effects are the total effect of past, present and future activities or actions on an environmental resource. Transportation project impacts are just one of many categories of impacts. Other factors include additional transportation and infrastructure developments, as well as all public and private development projects. For this reason, cumulative impacts differ based on individual communities and environmental resources. Cumulative effects are the result of the combined actions of various agencies and private entities. WisDOT is responsible for mitigating effects of WisDOT projects. The department is not responsible for, nor required to mitigate, the impacts caused by non-WisDOT actions. However, WisDOT will provide information on potential cumulative effects and will work with local governments and other interested stakeholders to suggest potential mitigation strategies for those effects.

Based on the potential direct and indirect effects described previously, the following resources have the greatest potential for negative cumulative impacts:

» Water quality

» Wetlands

» Endangered and threatened species

» Agriculture

» Water quality

» Air quality

## Mitigation

As noted in the previous sections, implementing the actions in both the base case and draft plan may impact the environment. In some instances, there will be unavoidable impacts. However, in all cases, WisDOT will work to avoid, minimize and mitigate impacts. *Connections 2030* identifies numerous policies and actions to mitigate these potential impacts. For example, the draft plan identifies department policies and specific implementation strategies to address air quality, protection of sensitive resources, wetland banking, congestion management, coordination, data sharing to improve communication and analyses, and actions related to the effects of transportation decisions on surrounding land uses. Most of these are discussed in Chapter 10, *Preserve Wisconsin's Quality of Life*; however, other actions are mentioned throughout the plan. The environmental resource agency and tribal consultation processes identified additional mitigation strategies to minimize the potential impacts of implementing *Connections 2030* (Appendix B).

# CHAPTER 15: Environmental Justice Analysis

The *Connections 2030* environmental justice chapter:

» Provides a general overview of the location of Wisconsin's minority, low-income, age 65 years and older, and zero-vehicle household populations

» Evaluates the relationship of the system-level plan recommendations to the state's minority, low-income, age 65 years and older, and zero-vehicle household populations

» Supplements Chapter 14, *System-plan Environmental Evaluation*

» Identifies areas for potential consideration by the department during planning and project-level activities

*Connections 2030* is a policy-based plan developed to be flexible and responsive to budget fluctuations and shifts in investment priorities. While the plan's policies provide the framework for department decision making and for prioritizing investments, plan recommendations may be implemented as proposed, modified as the department responds to changing transportation needs, or delayed due to insufficient resources (staff and funding) or changing priorities. As a result, analysis of transportation decisions and investments that may disproportionately affect minority populations, low-income populations, persons age 65 and older, and households with no vehicles is limited at the system level. Efforts to identify potential implementation impacts on communities and neighborhoods depend on location-specific design and alignment decisions that are evaluated and addressed during the project planning and delivery phases.

In *Connections 2030*, WisDOT states that its policy is to "incorporate environmental justice in all planning, programming and project decisions." This chapter is one action in achieving WisDOT's commitment to environmental justice. Additional actions are identified in the environmental justice policy in Chapter 10, *Preserve Wisconsin's Quality of Life*. Those actions include working to avoid, minimize or mitigate disproportionate impacts resulting from WisDOT plans or activities when possible; and using public participation techniques that encourage participation by minority, low-income, age 65 years and older, and disabled populations.

The analysis presented in this chapter:

» Focuses on the recommendations described in the plan and potential disproportionate impacts on minority, low-income, age 65 years and older, and zero-vehicle household populations at the regional and state levels

» Is a state-level, systems analysis and is not intended to replace project-level analyses

» Represents the department's first step in its system-level consideration of potential impacts to the state's minority, low-income, age 65 and older, and zero-vehicle household populations

» Will be built upon by the WisDOT transportation region staff as they continue planning, programming and project development activities at the region level

This chapter also supplements Chapter 14, *System-Plan Environmental Evaluation*. Chapter 14 presents the system-plan environmental evaluation, which

### Policy-based plans

› Describe overarching strategies to accomplish future results

› Include official policies for solving problems, typically based on legislation and implemented through programs

› Identify means to accomplish these policies through investments, strategies or programs

discusses the potential environmental and community impacts of implementing *Connections 2030*. The environmental justice analysis also supplements the system-plan environmental evaluation.

The chapter has five sections:

» Environmental justice overview

» Summary of Wisconsin's minority, low-income, age 65 and older, and zero-vehicle households

» *Connections 2030* public involvement activities and resulting plan recommendations

» *Connections 2030* and the state's minority, low-income population, age 65 and older, and zero-vehicle households

» Next steps

## Environmental justice overview

Presidential Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, issued in 1994, directed each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority and low-income populations." The order reinforced Title VI of the Civil Rights Act of 1964, which prohibits discrimination on the basis of race, color or national origin and provides protection to low-income groups.

Executive Order 12898 defined four minority groups for the purposes of environmental justice:

» Black – a person having origins in any of the black racial groups of Africa

» American Indian or Alaskan Native – a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition

» Asian American – a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands

» Hispanic – a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race

The order also defines low-income populations as persons whose household income is at or below the U.S. Department of Health and Human Services poverty guidelines.

Subsequent orders and guidelines issued by the U.S. DOT summarize and clarify the executive order and describe processes for incorporating environmental justice principles into U.S. DOT programs, policies and activities. In addition, the U.S. DOT identified three fundamental principles that guide environmental justice:

» To avoid, minimize or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations

» To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process

» To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

WisDOT also analyzed the location of those age 65 and older and households with no vehicles. While not specifically addressed by either the Executive Order or Title VI, other federal laws and regulations do protect persons age 65 and older. For example, the Age Discrimination Act of 1975 prohibits discrimination based on age in programs or activities receiving federal financial assistance. As discussed in Chapter 3, *Trends*, Wisconsin's age 65 and older population is expected to increase by more than 90 percent by 2030. Due to this forecast growth, and the possible changes in transportation needs, WisDOT included this population in the

environmental justice analysis to better understand its statewide distribution and the possible impacts on this group resulting from plan implementation. (Refer to Chapter 3, *Trends*, for additional information regarding this population group.)

In addition, understanding the distribution of zero-vehicle households allows WisDOT to consider whether the transportation choice policies identified in the plan address areas with high concentrations of zero-vehicle households. Again, WisDOT included these households even though they are not specifically protected by any federal or state legislation.

## Summary of Wisconsin's minority, low-income, age 65 and older, and zero-vehicle household populations

According to the U.S. Census Bureau, Wisconsin's population was 5.36 million persons in 2000. Table 15-1 depicts Wisconsin's year 2000 population based on race, ethnicity, age, income, and zero-vehicle households. As noted in the table:

» 89 percent of Wisconsin's population is white

» Persons age 65 and older account for 13 percent of the state's population

» Wisconsin's black population is the largest minority group in the state, accounting for 6 percent of the state's population

» 8 percent of the state's population is below the poverty line

» 8 percent of the state's households have no vehicle available

A state-level geospatial analysis was used to determine the location and density of Wisconsin's minority and low-income populations. Since populations targeted by environmental justice efforts are not evenly distributed across the state, WisDOT identified these populations by using the department's five Transportation Regions (Map 15-1).

**Table 15-1: Wisconsin demographics, 2000**

| Population group | Number of persons | Percent of total state population |
|---|---|---|
| State of Wisconsin | 5,363,675 | 100 |
| White | 4,769,857 | 89 |
| Black | 304,360 | 6 |
| American Indian | 47,228 | 1 |
| Asian (including Hawaiians and Pacific Islanders | 90,393 | 2 |
| Hispanic | 192,921 | 4 |
| Age 65 and older | 702,553 | 13 |
| Persons in poverty | 451,538 | 8 |
| Zero-vehicle households[1] | 163,969 | 8 |

The analysis included two steps:

» Step 1: Establish appropriate thresholds to determine concentrations of minority, low-income, age 65 and older, and zero-vehicle household populations for each WisDOT transportation region

» Step 2: Identify U.S. Census block groups above and below the thresholds for each WisDOT region

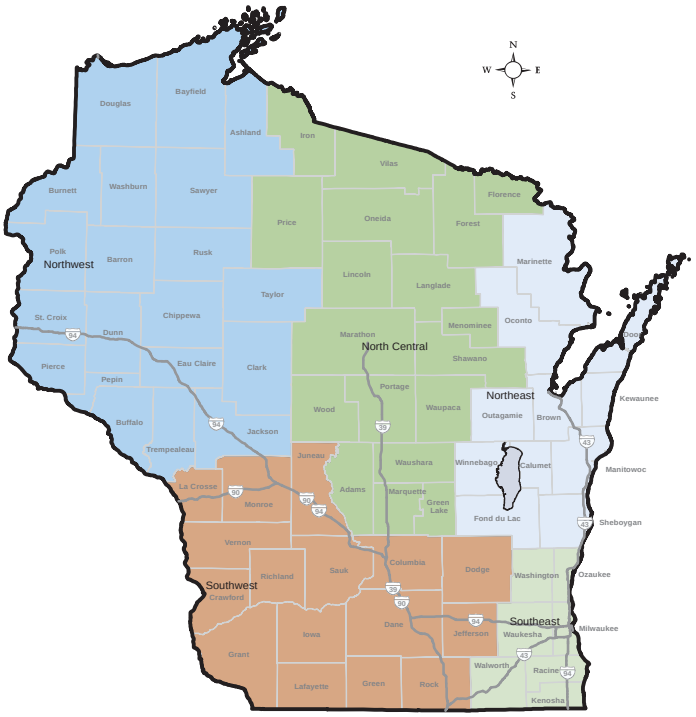
### Step 1: Establishing thresholds

Using 2000 U.S. Census Bureau data, thresholds for each environmental justice demographic group were calculated by dividing the specified population within a WisDOT transportation region by the total population in that same WisDOT region.

The calculated thresholds are shown in the "Percent of Region Population" column in Table 15-2. Table 15-2 depicts Wisconsin's population demographics by WisDOT Transportation Region and demonstrates that Wisconsin's various populations are not distributed equally across the state. For example:

» The Southeast Region has the:

[1] Wisconsin had 2,084,544 households in 2000.




▲ *Map 15-1: WisDOT transportation region offices*

### Example step one calculation

North Central Region

› 12,018 American Indians reside in the region

› Region's total population is 588,247

Total population in that region ÷ total population for population group in region = threshold

(588,247 ÷ 12,018) X 100% = 2% (calculated threshold)

- Largest concentration of the state's population
- Largest minority populations for all groups except American Indian (the North Central Region has the largest American Indian population)
- Greatest concentration of black, Hispanic, persons in poverty and zero-vehicle household populations

» American Indian, Asian and age 65 and older populations are more equally distributed across the state

In addition, Maps 15-2 through 15-9 depict the Census Block Groups for each population above the threshold statewide.

## Step 2: Identify U.S. Census block groups above and below the thresholds for each WisDOT region

To determine whether a U.S. Census block group within a WisDOT transportation region was above or below the calculated threshold for a specified population, the specified population within that Census block group was divided by the total Census block group population. If the calculated percentage is greater than the established threshold, the Census block group was considered atypical for the region and may indicate a higher presence of the specified population and require greater consideration of potential disproportionate impacts of transportation decisions. If the percentage is equal to or less than the threshold, it is considered typical for the region or has a lower concentration of specified population within that Census block group.

### Case study: Wisconsin's black population

In 2000, over 86 percent of the state's black population resided in southeast Wisconsin. Of that number, 76 percent resided in Milwaukee County. Another 6.1 percent of the state's black population resided in Dane County. 92.1 percent of the state's black population resides in either Dane County or southeastern Wisconsin. In comparison, southeastern Wisconsin accounts for 36 percent of the state's total population. With the addition of Dane County, the area accounts for 44 percent of the state's total population.

## Table 15-2: Wisconsin demographics by WisDOT Region, 2000

| | NORTH CENTRAL REGION | | NORTHEAST REGION | | NORTHWEST REGION | | SOUTHEAST REGION | | SOUTHWEST REGION | |
|---|---|---|---|---|---|---|---|---|---|---|
| Population | Total region population | Percent of region population | Total region population | Percent of region population | Total region population | Percent of region population | Total region population | Percent of region population | Total region population | Percent of region population |
| Total | 588,247 | 100% | 1,005,138 | 100% | 633,219 | 100% | 1,932,908 | 100% | 1,204,163 | 100% |
| White | 557,791 | 95% | 947,990 | 95% | 607,447 | 96% | 1,534,464 | 79% | 1,122,165 | 93% |
| Black | 2,096 | 0% | 7,965 | 1% | 2,165 | 0% | 263,200 | 14% | 29,034 | 2% |
| American Indian | 12,018 | 2% | 10,393 | 1% | 10,789 | 2% | 9,510 | 0% | 4,518 | 0% |
| Asian | 9,537 | 2% | 18,800 | 2% | 5,451 | 1% | 35,154 | 2% | 21,451 | 2% |
| Hispanic | 6,959 | 1% | 23,509 | 2% | 5,402 | 1% | 126,394 | 7% | 30,657 | 3% |
| Persons in poverty | 45,552 | 8% | 58,906 | 6% | 57,410 | 9% | 189,548 | 10% | 100,122 | 9% |
| Age 65 and older | 93,807 | 16% | 129,836 | 13% | 89,780 | 14% | 241,024 | 12% | 148,106 | 12% |
| Zero-vehicle households | 13,088 | 6% | 22,725 | 6% | 14,471 | 6% | 81,325 | 11% | 32,360 | 7% |

**Example 1:**

» The Southwest Region has a calculated 3 percent threshold for Hispanics

» Census Block Group A in that region has a total population of 100 persons

» 5 percent of the Census block group's population is Hispanic

Example 1 Analysis: Census Block Group A exceeds the 3 percent threshold and is atypical for the Southwest Region.

**Example 2:**

» The Southwest Region has a calculated 3 percent threshold for Hispanics

» Census Block Group B in that region has a population of 100 persons

» 2 percent of the population is Hispanic

Example 2 Analysis: Census Block Group B would be considered typical of the Southwest Region.
Maps 15-2 through 15-9 identify the Census block groups that exceed the established thresholds. The maps show:

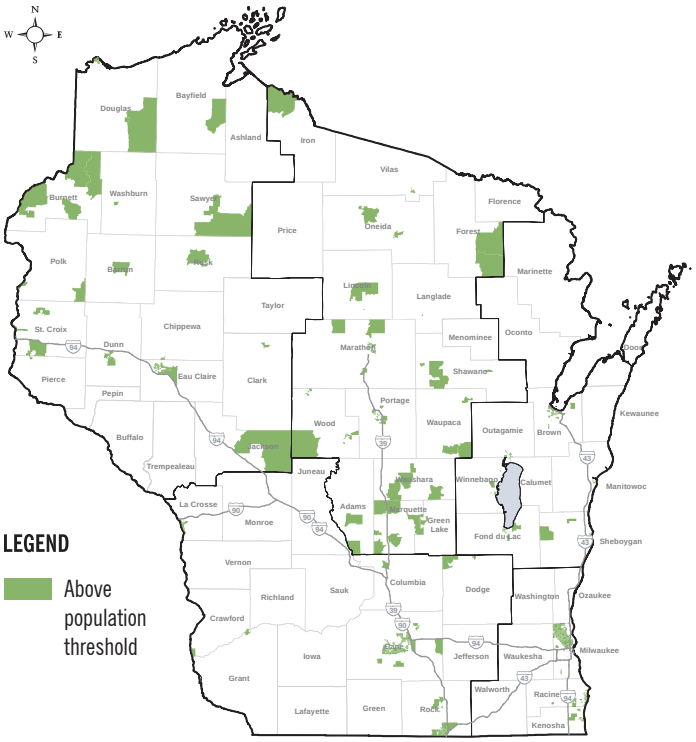
» Census block groups exceeding the thresholds vary in distribution across the state.

» For the Black population, the largest concentration is located in the Southeast Region. Over 233,000 blacks live in Census block groups that exceed the established threshold. The smallest populations are located in the Northwest and North Central regions.

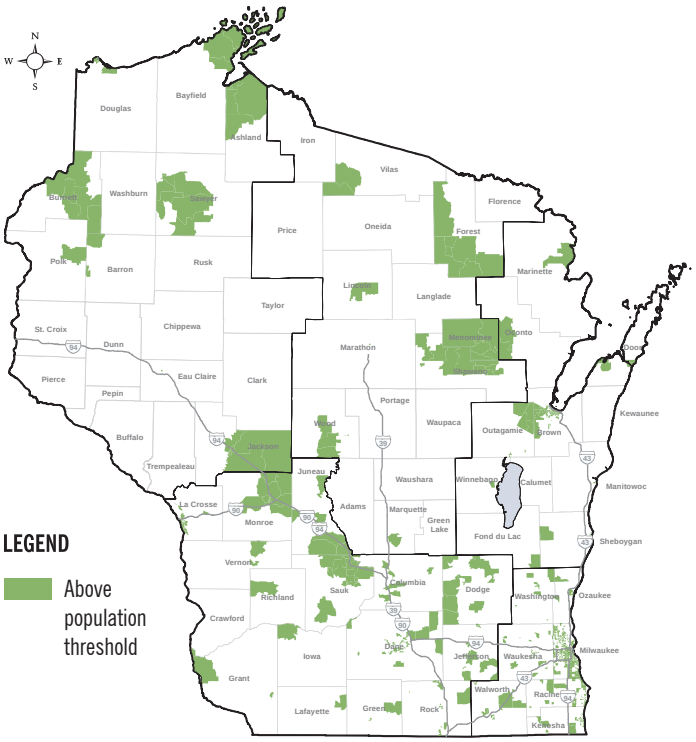
» The number of American Indians living in Census block groups exceeding the established thresholds is fairly consistent across all WisDOT regions except the Southwest Region, which has the fewest. The largest population is located in the North Central Region.

» The number of Asian Americans living in Census block groups exceeding the established thresholds is highest in the Southeast Region. The smallest population is located in the Northwest Region.

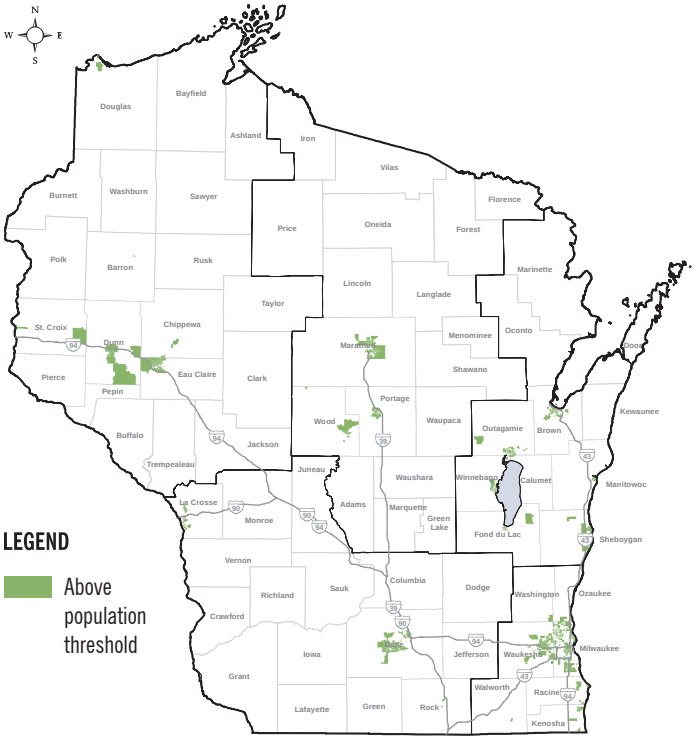
» For the Hispanic population, the largest concentration is located in the Southeast Region. Over 84,000 Hispanics live in Census block groups that exceed the established threshold. The smallest populations are located in the Northwest and North Central regions.



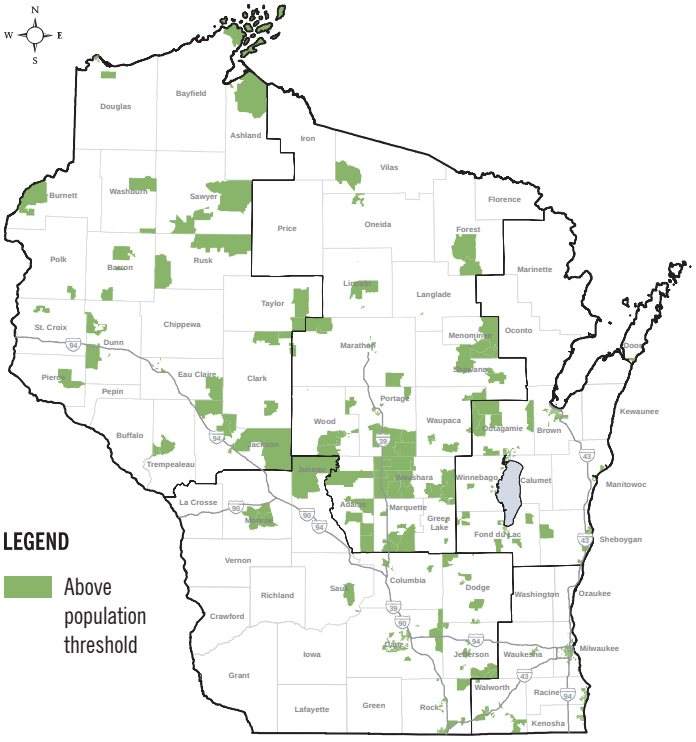

▲ *Map 15-2: Census block groups with **black population** above region threshold*



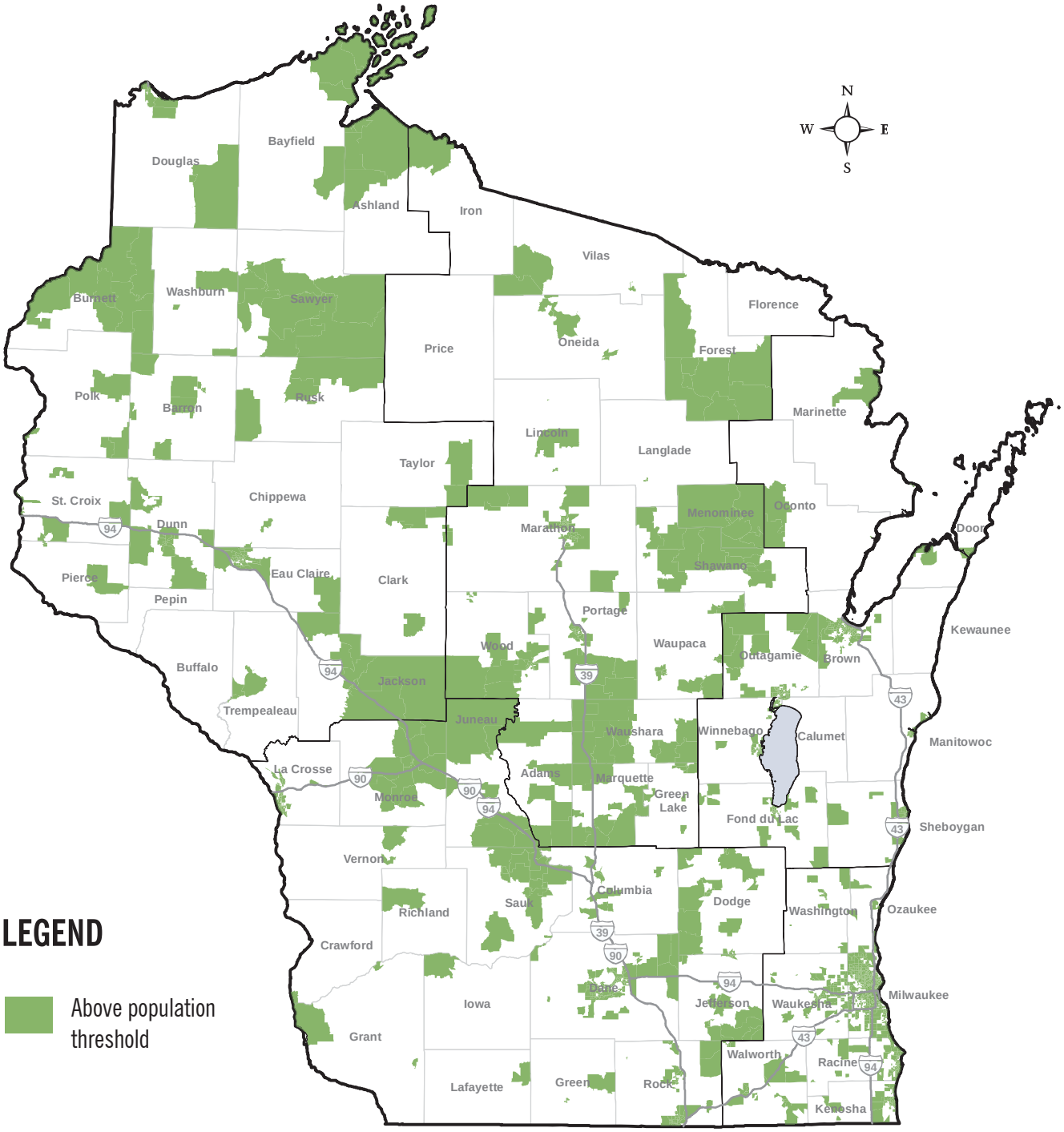

▲ *Map 15-3: Census block groups with **American Indian population** above region threshold*



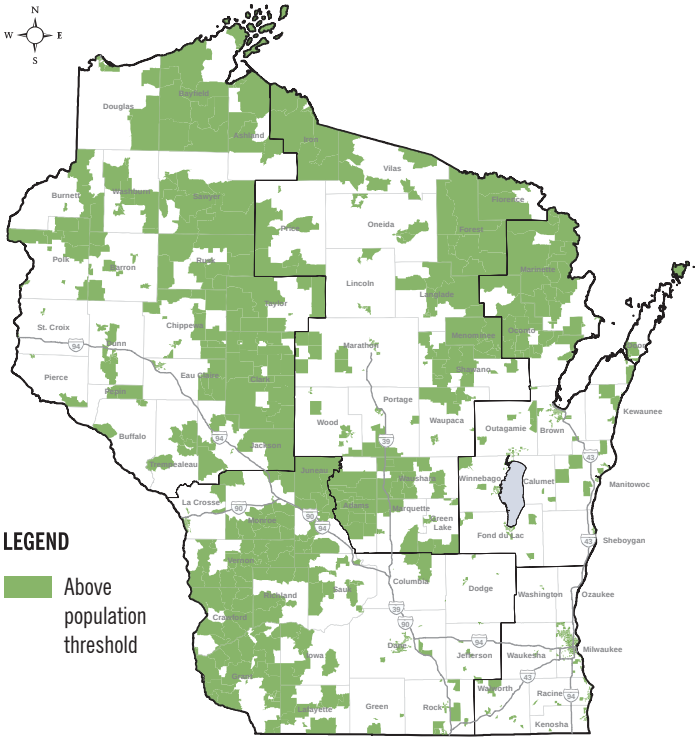

▲ *Map 15-4: Census block groups with **Asian American population** above region threshold*



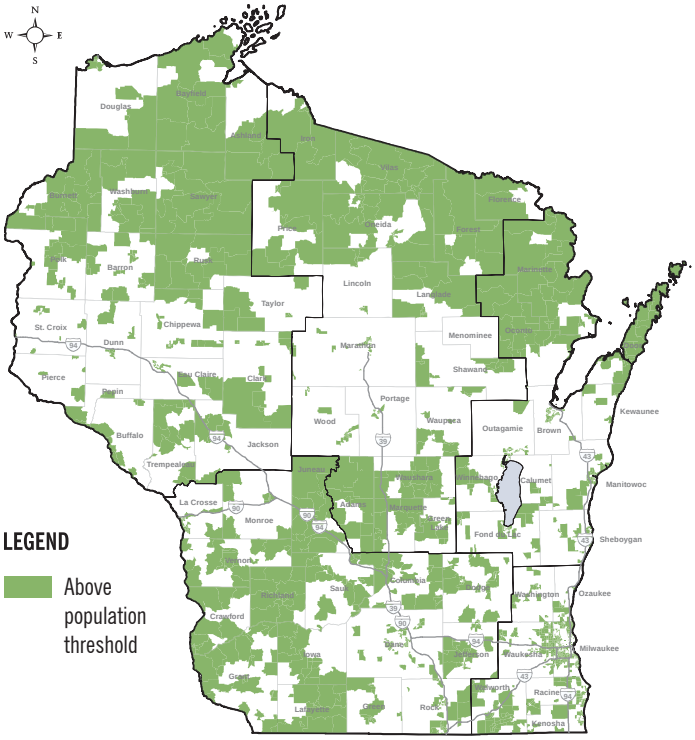

▲ *Map 15-5: Census block groups with **Hispanic population** above region threshold*



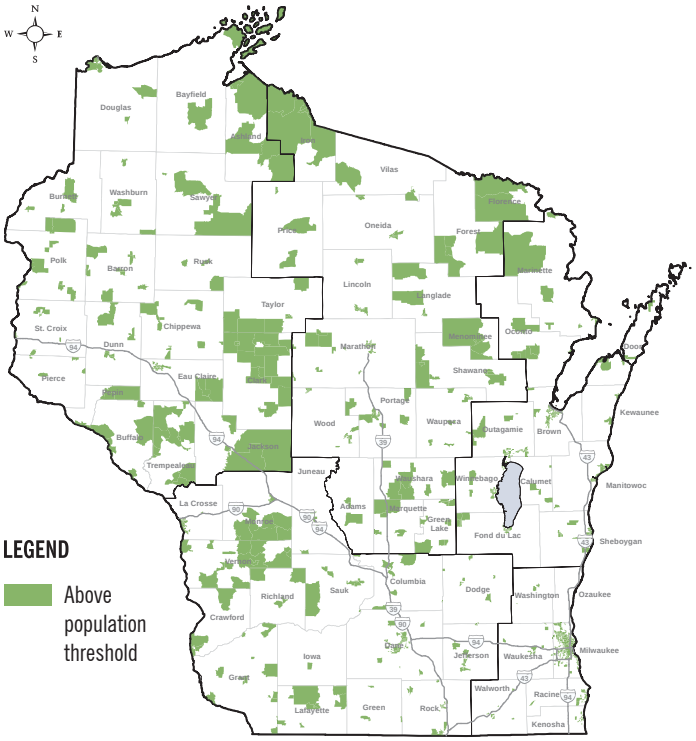

▲ *Map 15-6: Census block groups with any **minority population** above region threshold*
*NOTE: Any census block groups that exceeded a population threshold for black, American Indian, Asian American or Hispanic (as shown on Maps 15-2 through 15-5) are shown on this map.*




▲ *Map 15-7: Census block groups with **persons in poverty** above region threshold*




▲ *Map 15-8: Census block groups with **age 65 and older population** above region threshold*




▲ *Map 15-9: Census block groups with **zero-vehicle households** above region threshold*

» The greatest number of persons in poverty living in Census block groups exceeding the threshold live in the Southeast Region. The number of persons in poverty is fairly equal across the three northern regions.

» For persons age 65 and older living in Census block groups exceeding the established threshold, the largest concentration is located in the Southeast Region. The smallest populations are located in the North Central and Northwestern regions.

» The greatest number of households with no vehicles located in Census block groups above the threshold in the Southeast Region. The smallest number is located in the North Central and Northwest regions.

## Census block group transportation region threshold analysis limitations

The analysis described above has some limitations for determining where specified populations are located:

» The analysis used 2000 U.S. Census Bureau data. While the data is outdated, it is the only readily available statewide data that includes information for all of the categories analyzed.

» The thresholds are based on what is "typical" for each WisDOT transportation region. In some of the less populous areas of the state, Census block groups that exceed the threshold may only have a few persons of the specified population residing in that area. On the other hand, in more populous parts of the state, like the Southeast and Southwest regions, some Census block groups may be below the threshold but have relatively high numbers of persons of the specified population, compared to the less populous regions.

» Population projections are not available for race, ethnicity, income or number of household vehicles. For this reason, the analysis does not account for changes in environmental justice populations over the *Connections 2030* timeframe. These changes may result in fewer Census block groups identified that exceed an established threshold. In addition, while projections are available based on age, the projections are not available at the Census block group level.

While there are limitations, the analysis provides a basis for evaluating the plan's recommendations and their relationship to minority and low-income populations, as well as persons age 65 and older and zero-vehicle households. As a system-level plan, the threshold methodology locates concentrations of the specified group based on population density. This method is appropriate for a state-level plan like *Connections 2030*. However, as stated previously, the analysis conducted for the long-range plan is not intended to replace more detailed analyses completed when individual projects are undertaken.

## *Connections 2030* public outreach activities

WisDOT implemented an inclusive and comprehensive outreach effort to ensure that Wisconsin residents had an opportunity to participate in the early development of *Connections 2030*. Early public involvement activities included focused outreach to minority and low-income groups to encourage participation, receive feedback and identify opportunities to integrate comments into the plan development effort.

The vision and policies presented in *Connections 2030* reflect the issues and concerns identified during early public outreach activities. These activities included stakeholder meetings, stakeholder interviews and a statewide telephone survey. Meetings were held with Wisconsin's Native American Tribes and the Wisconsin Minority Business Opportunities Committee. Interviews were conducted with the Ho-Chunk Nation and Milwaukee Urban League. The statewide telephone survey used two techniques to ensure that minority populations were included: 1) oversampling in counties with higher than average minority populations, and 2) 'name-based target sampling' to identify persons of Asian or Hispanic descent. For additional information, refer to Chapter 4, *Public Involvement*.

For the fall 2008 release of the draft *Connections 2030* for public comment, WisDOT developed an environmental justice outreach plan that identified additional methods to provide opportunities to encourage minority and low-income populations to participate in the *Connections 2030* draft plan outreach. Specifically, WisDOT:

» Translated the plan's fact sheets and executive summary into Spanish

» Held 10 outreach meetings across the state specifically targeted to minority and low-income populations

» Placed meeting notices in minority newspapers

WisDOT used the input from these targeted meetings, as well as input received from other public outreach activities, to update the plan as appropriate. See Chapter 4, *Public Involvement*, for more information.

## *Connections 2030* recommendations

The policies presented in *Connections 2030* are organized under seven themes:

» Preserve and maintain Wisconsin's transportation system

» Promote transportation safety

» Foster Wisconsin's economic growth

» Provide mobility and transportation choice

» Promote transportation efficiencies

» Preserve Wisconsin's quality of life

» Promote transportation security

These themes provide the framework upon which the plan's policies were written and organized. Each policy identifies specific issues and describes actions WisDOT either is currently taking or will undertake to achieve the policy.

### Preserve and maintain Wisconsin's transportation system

System maintenance and preservation are critical to ensure that the state's transportation system continues to operate and function at a satisfactory level and meets user expectations. System preservation is also critical to ensuring the continued availability of transportation services, such as intercity bus and public transit service. Continued availability of these services enhances Wisconsin's quality of life and economic well being.

*Policy recommendations include:*

» Continue to improve the high quality two- and multi-lane highways to further connect intercity, economic and other high traffic generating centers to each other and areas outside of the state

» Continue support of airport needs statewide

» Prioritize investment strategies supported by state-of-the-art processes and best practices

*Benefits*

» Transportation system investments are maximized to help defer more costly repairs

» Safety is addressed

» Mobility is enhanced

» The state's quality transportation system is maintained

» Local and state economic growth activities are supported by a quality transportation network

### Promote transportation safety

Safety is a fundamental mission for WisDOT and will continue to be one of the department's top priorities. WisDOT will continue emphasizing the four "E's": education, enforcement, engineering and emergency response.

*Policy recommendations include:*

» Education – continue outreach and education through media, grant and safety programs such as Safe Routes to School, and work-zone management

» Enforcement – continue to emphasize and address driver behavior, and support non-biased enforcement efforts through additional resources such as staff and equipment

» Engineering – continue to design, construct and maintain transportation facilities to be safe

» Emergency response – improved response to clear accidents or incidents and minimize secondary crashes

*Benefits*

» Continued emphasis on system safety to reduce crashes and fatalities, which also helps address the high costs associated with property loss or damage

» Ensuring that the system is safe and able to respond to incidents and providing system redundancies which allows businesses and individuals to avoid major disruptions or delays

» Continued interagency coordination with the Department of Public Instruction to revise driver education program materials

## Foster Wisconsin's economic growth

A growing economy requires a multimodal transportation system that connects people to jobs and supports the safe and efficient movement of goods and people across the state. *Connections 2030* supports the state's economic growth by ensuring that the transportation system can effectively and efficiently respond to changing economic needs and allow the state's business community to actively participate in regional, national and international markets.

*Policy recommendations include:*

» Maintain and increase freight support

» Assist airports in maintaining and expanding their competitiveness

» Promote tourism

» Address energy and sustainability

» Promote transportation job opportunities for individuals and disadvantaged business enterprises

» Preserve the local road and bridge system

» Continue the Major Highway Development Program

*Benefits*

» Promotion of transportation sector job growth and increased training opportunities through programs and techniques that target and support minority and women-owned businesses

» Preservation of the local road and bridge network, which is critical to serving individuals and businesses – supports mobility, job growth, economic competitiveness, safety, security

» Enhanced safety

» Enhancement and management of the state's highway network to link communities and regions

» Support of tourism to benefit local and state economies through job growth

» Tracking and response to transportation energy use

## Provide mobility and transportation choice

Mobility is critical to Wisconsin's economic vitality and quality of life. Providing safe, convenient and affordable access to jobs, health care, financial and social services, education facilities and leisure activities is a critical function of any transportation system. Many Wisconsin residents have limited transportation options, due to either a lack of choices other than the automobile, or inconvenient schedules or connections.

*Policy recommendations include:*

» Support public, specialized, human services and fixed-guideway transit

» Improve intercity passenger rail and intercity bus service

» Advocate improved direct air service

» Support bicycle and pedestrian accommodations

» Support transportation demand management strategies like ridesharing and park and ride facilities

» Facilitate intermodal passenger connections

*Benefits*

» Improved transportation options within and between cities through expanded transportation choices such as transit, intercity bus or ridesharing

» Support of enabling legislation that provides local governments with revenue-raising authority to support transit costs

» Continued integration of bike and pedestrian accommodations into roadway projects

» Improved connections between transportation modes

» Improved accessibility

## Promote transportation efficiencies

Transportation efficiencies can improve safety and reduce travel delays for freight and people. An efficient transportation system is reliable, resilient and provides seamless connections between different transportation modes. Transportation efficiencies can be gained through actions such as increasing aircraft or transit bus sizes, improving traffic signal timing, expanding the number highway miles, and providing reliable and convenient service.

*Policy recommendations include:*

» Identify and address traffic bottlenecks

» Monitor, detect and respond to highway operations needs, such as coordinating with law enforcement to clear highway incidents and help keep traffic moving

» Improve and expand the use of technology for other modes, such as web-based route assistance for transit riders, loop detectors designed to detect bicyclists, and positive train control

*Benefits*

» Increased safety through improved incident response time and work zone management

» Enhanced mobility through improved connections between transportation modes

» Reduced transportation costs for individuals and businesses through improved system reliability

» Improved air quality due to better traffic flow through actions like improved incident response, design standards, and access management

## Preserve Wisconsin's quality of life

Keeping Wisconsin's communities and natural resources sustainable provides a strong foundation for continued economic growth. As the agency responsible for the state's mobility, WisDOT is focused on maintaining critical transportation functions (safety, security and efficiency) while balancing responses to stakeholder issues and addressing potential environmental impacts.

*Policy recommendations include:*

» Identify opportunities to streamline and improve environmental review processes

» Emphasize air quality through monitoring, compliance, and voluntary actions

» Integrate land use and transportation decisions through coordinated planning and decision-making

» Incorporate environmental justice considerations into decision-making

» Improve coordination and collaboration between WisDOT and other government agencies to identify and address potential environmental impacts

*Benefits*

» Commitments to decrease overall emissions through recommendations related to transportation demand management strategies, as well as transportation preservation and efficiency activities

» Continued support of, and participation in, programs that address air quality

» Commitment to preserving protected resources such as historical and archaeological sites and wetlands

» Informed decisions regarding transportation projects and possible direct, indirect and cumulative effects of actions and decisions on the surrounding landscape

» Continued efforts to integrate transportation projects into the surrounding community through community sensitive solutions

» Continued coordination and communication across agencies and tribes

### Promote transportation security

Transportation security is a growing concern around the world. The plan recommends reducing the vulnerability of the transportation system and improving emergency response to minimize secondary crashes and maintain system integrity.

*Policy recommendations include:*

» Reduce state transportation infrastructure vulnerability

» Improve emergency response to allow the transportation system to return to normal operation after an incident

*Benefits*

» Improved coordination between government entities and agencies, and operators, as well as improved communication with law enforcement, the media and the public

» Continued creation of system redundancy and alternate routes to ensure continued transportation system operation during an incident

## *Connections 2030* and the state's minority, low-income, age 65 and older, and zero-vehicle household populations

The 37 policies presented in the theme chapters could have either positive or negative impacts on minority, low-income, age 65 years and older, and zero-vehicle household populations. This environmental justice analysis focuses on whether implementation of *Connections 2030* results in disproportionate impacts on minority or low-income populations.

To assess the potential impacts of this comprehensive, multimodal plan, the analysis is divided into five areas:

» Highways

» Intercity passenger transportation

» Public transit

» Intermodal connections

» Economic opportunities

In addition to individually mapping the recommendations with each group (as noted below), Maps 15-10 through 15-17 provide a comprehensive view of the plan recommendations for the five areas in relation to the locations of minority, low income, age 65 years and older, and zero-vehicle household populations. The maps identify areas where these population subgroups may be present, and provide a system-level tool for corridor level project sponsors to identify whether additional public outreach activities or measures should be considered to address the interests of the populations present. Furthermore, the plan's policies provide the framework for continued implementation of any additional strategies through community sensitive solutions, as well as environmental justice.

### Highways

*Connections 2030* identifies several policies that affect highway-related activities. Together, these policies aim to increase the safety, efficiency, traffic movement and capacity of the state's highway network. In terms of environmental justice, the highway-related activities with the greatest potential to impact minority, low-income, age 65 years and older and zero-vehicle household populations are:

» Capacity projects

» Bypasses and bypass studies

Maps 15-10 through 15-17 show the location of recommended highway-related activities and Census block groups that exceed a threshold for minority populations, low-income populations, persons age 65 and older, and zero-vehicle households. Recommended highway-related activities include capacity projects, which add lanes, change alignment or upgrade the highway to an expressway or freeway; bypasses and bypass studies; and existing and recommended park and ride facilities.

Proposed capacity projects and bypasses will occur in all WisDOT transportation regions. These projects typically undergo a greater level of environmental review than preservation projects such as resurfacing or reconstructing a roadway. Bypass studies are planned in all regions except the Northwest. In most instances, the bypass studies are located near urban areas. Proposed capacity projects and bypasses may:

» Require additional land, resulting in the potential displacement of households, businesses or workers

» Increase noise levels and change the visual aesthetics of an area, which may impact social and family interactions, comfort or health

» Result in land use changes that could cause land values to either increase or decrease, or result in incompatible development decisions

» Create barriers that hinder bicycle and pedestrian movements

Additional potential impacts related to proposed capacity projects and bypasses are discussed in Chapter 14, *System-Plan Environmental Evaluation*.

New park and ride facilities are proposed across the state under the plan. Currently, the Southeast region has the greatest number of park and ride facilities. *Connections 2030* recommends significant expansion of park and ride facilities across the state, particularly in the Southwest and North Central regions. Park and ride facilities offer opportunities for individuals to carpool. Some facilities also offer opportunities to connect to transit or intercity bus services.

## Intercity passenger transportation

Wisconsin's metropolitan areas have intercity transportation that serves many of the populations specified in this chapter. However, current service frequency and limited destinations do not provide comprehensive statewide service. In addition, certain groups in less populous areas of the state have few transportation choices due to a lack of intercity services. *Connections 2030* emphasizes multimodal transportation policies to improve intercity travel for the population as a whole, as well as specified groups. Improved intercity bus service and the development of an intercity passenger rail network will enhance service for specified populations and generally provide improved mobility choices for underserved populations.

### Intercity bus

Several private bus companies provide intercity bus service in Wisconsin. In recent years, the level of service has decreased due to financial constraints and low ridership numbers experienced by the private bus companies. As a result, many Wisconsin communities have lost intercity bus service.

*Connections 2030* proposes several new intercity bus stops and routes that will improve intercity bus service. Maps 15-10 through 15-17 show the location of recommended bus stops and Census block groups that exceed a threshold for a specified population. As discussed in Chapter 8, *Provide Mobility and Transportation Choice*, the plan supports development of intercity bus funding assistance programs to improve intercity bus connections between metropolitan areas, and non-metropolitan areas, and feeder service to some intercity passenger rail stations.

The recommended intercity bus stops will increase available service for certain population groups, and the state's population in general. The North Central and Southwest regions will experience the greatest level of service expansion due to the recommended number of new stops - nine new stops in each region. The Southwest region will also experience a higher level of service expansion. While fewer new stops are recommended for the Southeast region, many of the recommended routes already connect to Milwaukee either directly or indirectly. Overall, development of a statewide intercity bus network will significantly increase mobility options for individuals, particularly low-income and zero-vehicle households, in areas already served by intercity bus, such as Madison and Milwaukee.

### Intercity passenger rail

Amtrak currently provides the state's only intercity passenger rail service. The *Hiawatha Service* provides seven daily round-trips (six on Sundays) between Chicago and Milwaukee, with stops in Sturtevant and at the General Mitchell International Airport. The *Empire Builder* service provides one daily round-trip between Chicago and Seattle/Portland, with stops in Milwaukee, Columbus, Portage, Wisconsin Dells, Tomah and La Crosse.

*Connections 2030* recommends implementing the Wisconsin component of the Midwest Regional Rail System. Maps 15-10 through 15-17 show the locations of recommended intercity passenger rail stations and Census block groups that exceed a threshold for a specified population. Under this system, intercity passenger rail service could potentially be expanded to include an additional 14 Wisconsin communities that currently have no intercity passenger rail service: Hudson, Menomonie, Eau Claire, Green Bay, Appleton, Neenah, Oshkosh, Fond du Lac, West Bend, Madison, Watertown, Oconomowoc, Brookfield and Granville (northwest Milwaukee). In addition, some of the recommended intercity bus service is designed to directly connect to selected intercity passenger rail stations.

The Northeast region will experience the greatest level of service expansion since five new stations are recommended. The intercity passenger rail recommendations also expand service to the state's second largest metropolitan area – Madison. As with the intercity bus service, the Milwaukee area will also experience expanded intercity passenger rail service due to a wider range of travel options.

## Public transit

Wisconsin's public transit system comprises 71 transit systems that include 23 fixed-route urban bus systems, six rural fixed route systems, 43 shared-ride taxi systems and four commuter bus systems. In addition, Wisconsin has two fixed-guideway systems – Kenosha streetcar and Metra commuter rail service – both located in Kenosha.

*Connections 2030* recommends continued support for public, specialized, human services and fixed-guideway transit. The plan also recommends actions aimed at improving transit program and planning efficiencies for owners and operators, as well as supporting legislation that enables local governments to raise revenues to support transit costs, allowing local transit systems to expand their service. The plan also notes the importance of coordinating service between different transit providers, which can improve service efficiency, improve access to jobs and expand the area accessible by transit, including areas on the urban fringe.

The *Connections 2030* recommendations will significantly increase mobility options for critical transportation trips needed by individuals who cannot or choose not to drive. These recommendations:

» Increase the level of transit service in urban and rural areas

» Allow transit to be a reasonable travel choice

» Increase access to jobs, health care and shopping

## Intermodal connections

A challenge facing transportation in Wisconsin is the adequacy of intermodal connections. For the purpose of this chapter, intermodal connections allow people to easily travel between different modes of transportation, such as taking public transit to an intercity passenger rail station. In some Wisconsin communities, connections are lacking or schedules do not coordinate. For example, public transit may not serve the intercity bus stop, or the intercity bus schedule many require individuals to wait several hours before boarding an intercity passenger train. This lack of connectivity and poor schedule coordination may discourage individuals from using these forms of transportation.

*Connections 2030* continues WisDOT's efforts to work with transportation providers to identify opportunities to connect transportation modes and provide technical assistance to encourage ticket and schedule coordination between intercity bus and intercity passenger rail providers. In addition,

the plan recommends funding intermodal facilities, including transit, intercity bus and intercity passenger rail, and intermodal stations at airports.

### Economic opportunities

Historically, minority and low-income populations have been underrepresented in the transportation industry. This may result from a lack of awareness of job availability, the inability to access transportation-related jobs due to a lack of transportation, or limited skill levels or training. As discussed in Chapter 7, *Foster Wisconsin's Economic Growth*, WisDOT will continue to encourage and provide for disadvantaged business enterprise participation in the transportation workforce. It will also provide training to individuals and businesses for possible entry into the transportation workforce. Specifically, WisDOT will:

» Create partnerships with minority and low-income communities to build stronger relationships

» Support and enhance ongoing efforts such as the Disadvantaged Business Enterprise program

» Continue efforts to build a diverse, skilled and professional transportation workforce through programs such as Transportation Alliance for New Solutions, National Summer Transportation Institute and the Career Awareness Summer Program

» Target the distribution of information to economically disadvantaged businesses

## Next steps

The analysis presented in this chapter is at the system-level and is only one step in WisDOT's commitment to ensuring that its plans and projects do not result in disproportionate impacts. The analysis demonstrates that minority and low-income populations, as well as persons age 65 and older and zero-vehicle households, are found in all WisDOT regions and often within close proximity to existing and recommended transportation projects. Additional environmental justice analyses will occur at the project level to analyze whether proposed activities may result in disproportionate impacts.

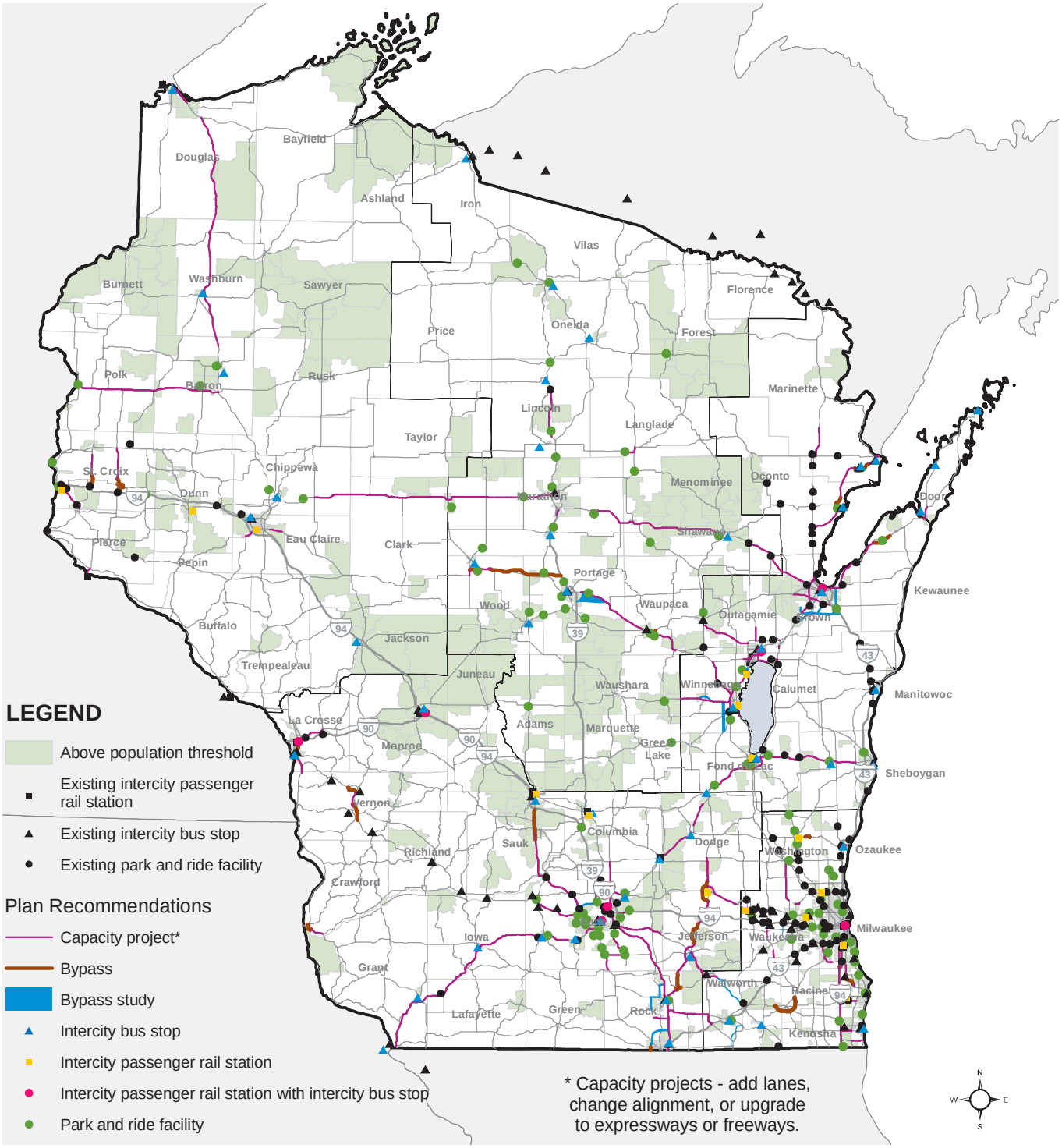
As shown in the preceding discussion, *Connections 2030* promotes an efficient and well-integrated multimodal transportation system that improves transportation access for all Wisconsin residents. As the framework for decision-making and prioritizing investments, *Connections 2030* sets the direction for the department to meet needs and challenges through 2030. At the system-level, the policy recommendations outlined in *Connections 2030* offer a balanced framework for multimodal investment strategies and do not include any inherent disproportionate impacts on minority or low-income populations.

In drafting the policies, WisDOT considered the concerns and needs of minority, low-income, age 65 and older, and zero-vehicle household populations. Implementing the individual actions identified in *Connections 2030* may impact the environment and communities (see Chapter 14, *System-Plan Environmental Evaluation* for more information). In some instances, there will unavoidable impacts. However, for all projects under WisDOT authority, the department will work to avoid, minimize and mitigate impacts.

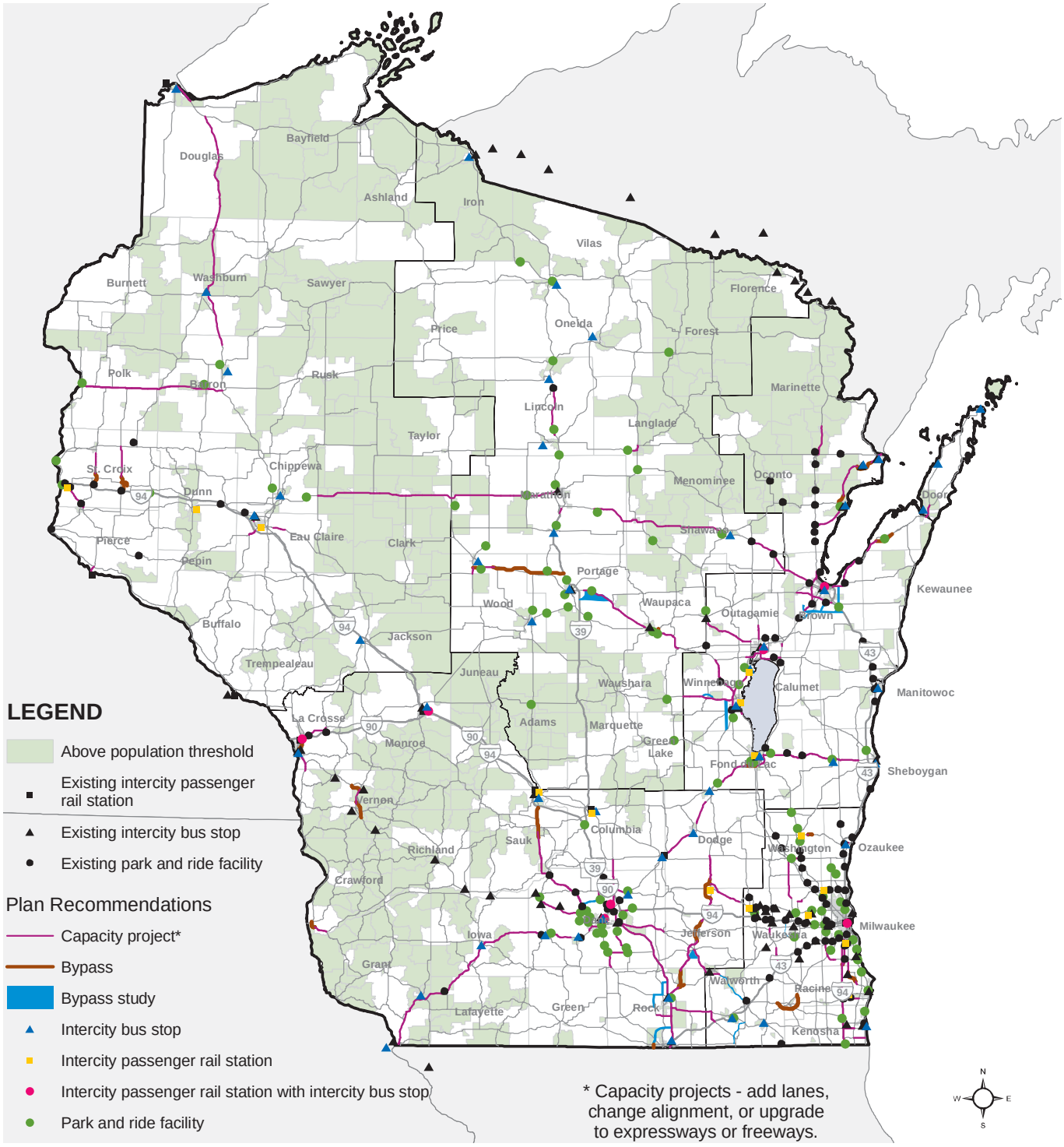
WisDOT is responsible for evaluating the potential environmental and environmental justice impacts of transportation projects occurring on the National Highway System or state trunk highway system in Wisconsin. WisDOT is also required to review environmental documents for any local transportation project using federal funds. Responsibility for evaluating potential environmental and environmental justice impacts on all other transportation projects belongs to the project sponsor. Decisions regarding the nature and amount of transit services provided by a community rest with the owners and operators.

*Connections 2030* identifies numerous policies and actions to mitigate potential impacts. For example, the draft plan identifies department policies and specific implementation strategies to address air quality,

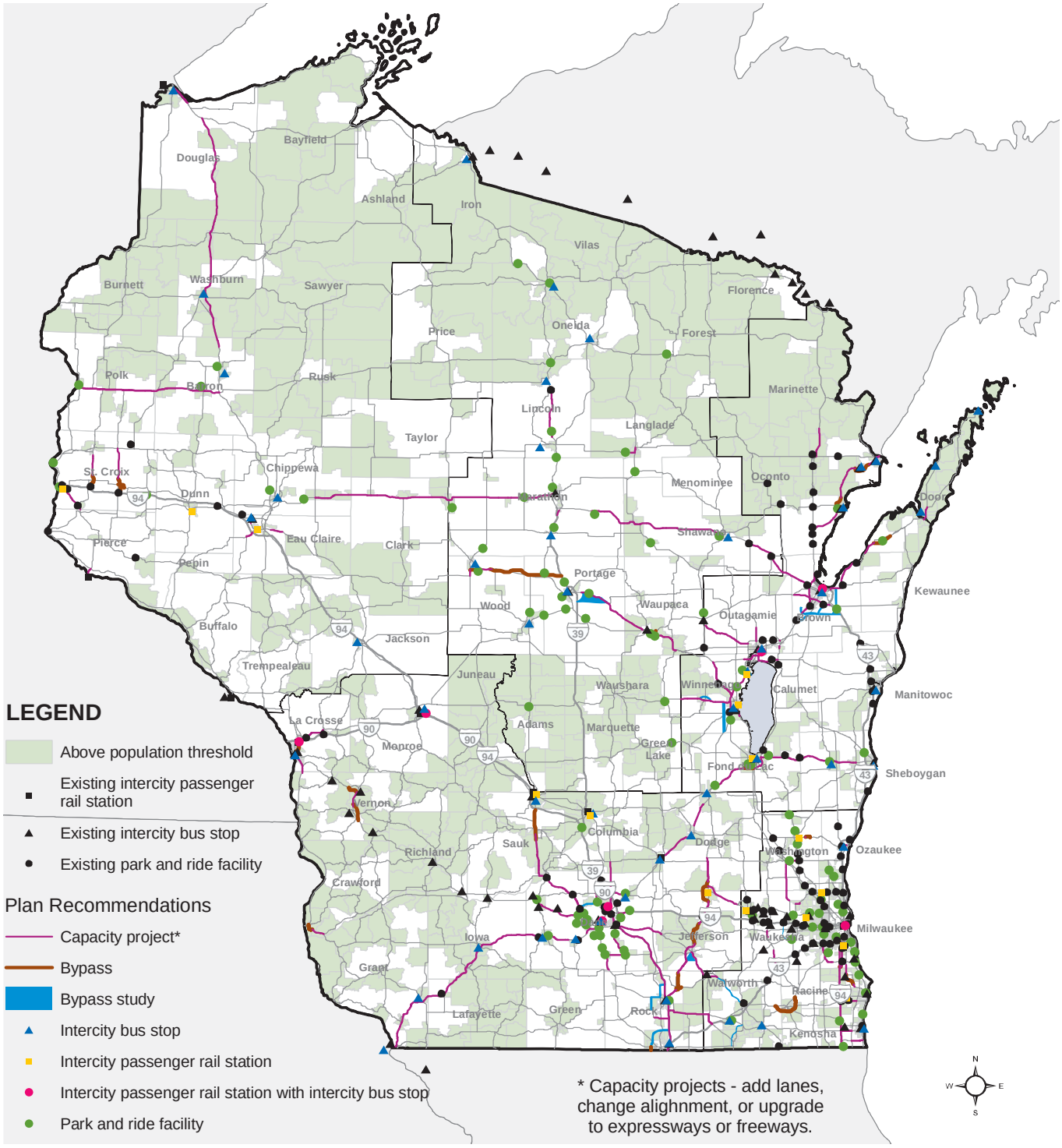
protection of sensitive resources, wetland banking, congestion management, coordination, data sharing to improve communication and analyses, and actions related to the effects of transportation decisions on surrounding land uses. Many of these mitigation strategies are discussed in Chapter 10, *Preserve Wisconsin's Quality of Life*; however, other actions are mentioned throughout the plan. The environmental resource agency and tribal consultation processes identified additional mitigation strategies to minimize the potential impacts of implementing *Connections 2030* (see Appendix B, *Summary of Consultation and Plan Comparison Activities*, for more information).



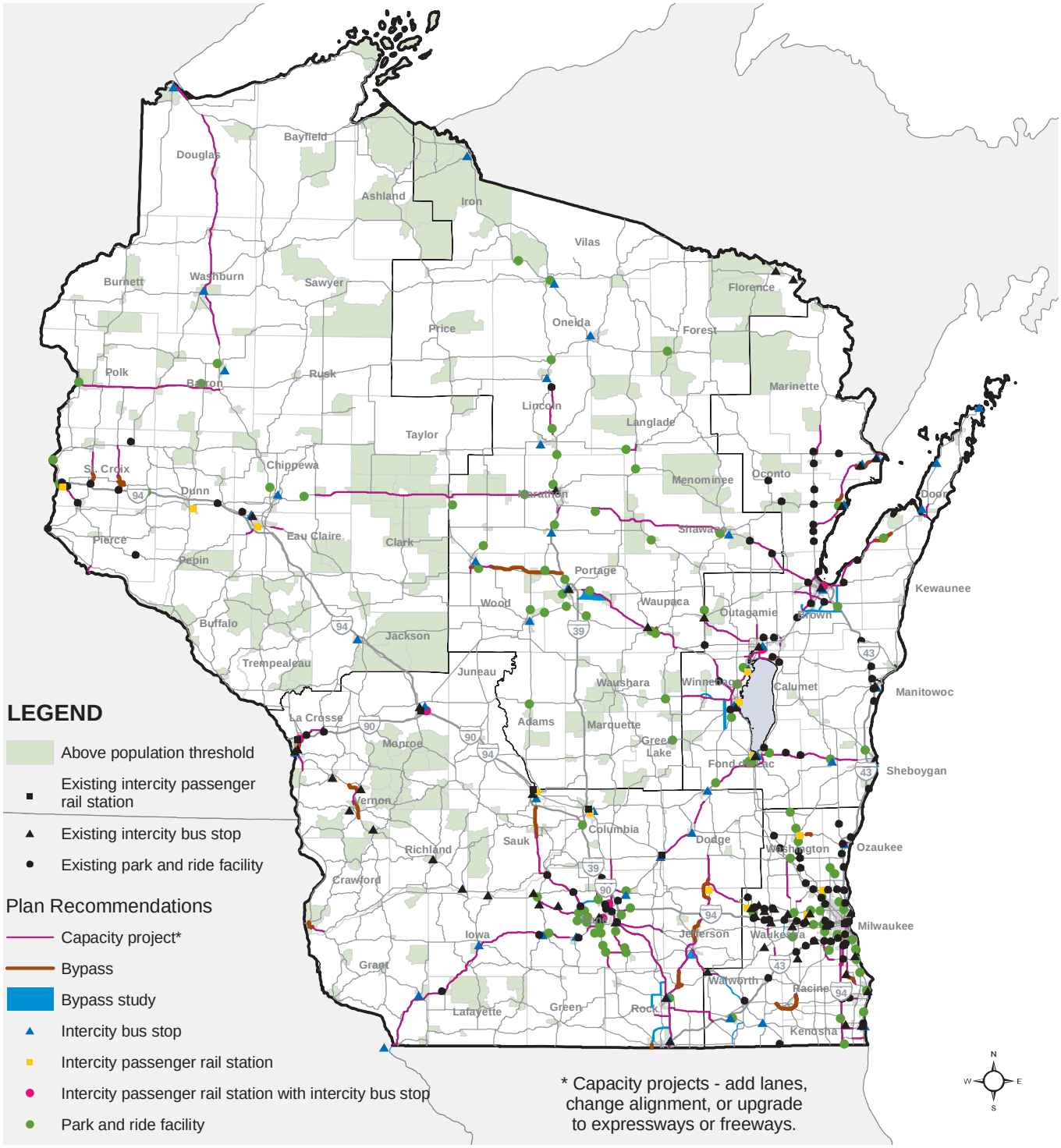

▲ *Map 15-10: Census block groups with minority population above region threshold with recommended highway-related activities and existing and recommended intercity bus stops and passenger rail stations*
*NOTE: Project alternatives are chosen after consideration of environmental and community impacts, and may be influenced by decisions of the Transportation Projects Commission, the Legislature or the Governor, and through coordination with local units of government, with public involvement opportunities.*



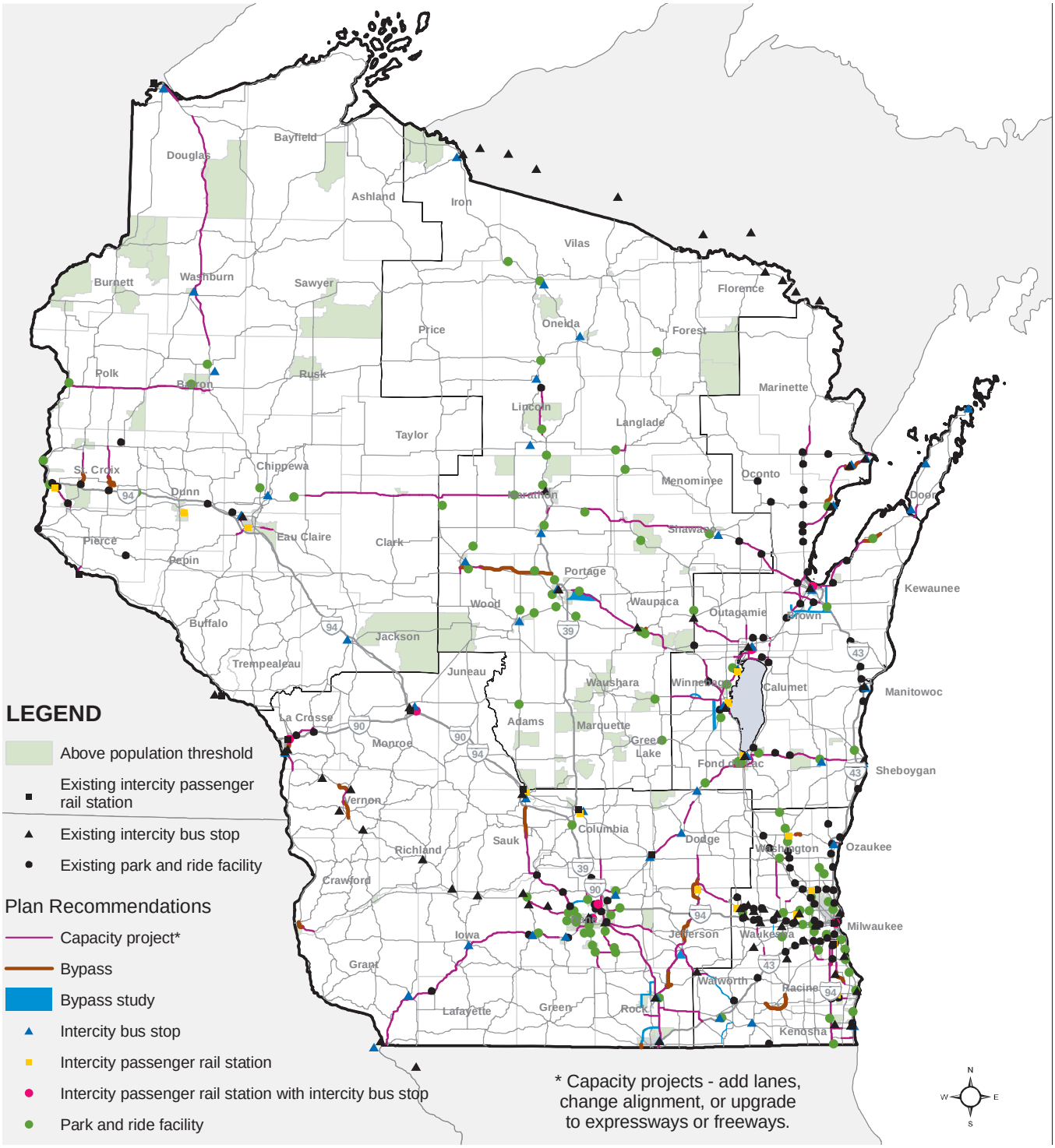

▲ *Map 15-11: Census block groups with **persons in poverty** above region threshold with recommended highway-related activities and existing and recommended intercity bus stops and passenger rail stations*
*NOTE: Project alternatives are chosen after consideration of environmental and community impacts, and may be influenced by decisions of the Transportation Projects Commission, the Legislature or the Governor, and through coordination with local units of government, with public involvement opportunities.*



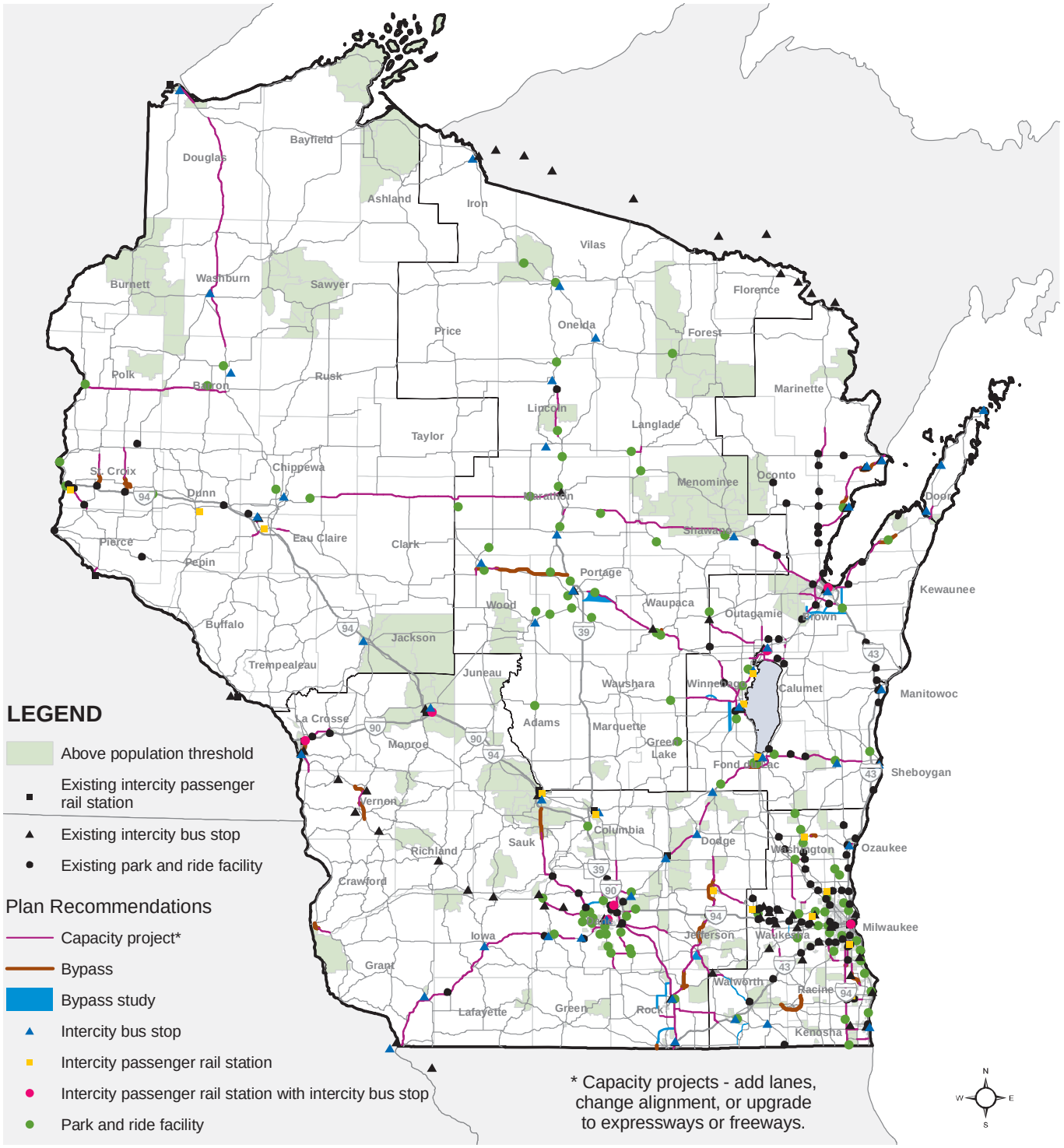

▲ *Map 15-12: Census block groups with **age 65 and older population** above region threshold with recommended highway-related activities and existing and recommended intercity bus stops and passenger rail stations*
*NOTE: Project alternatives are chosen after consideration of environmental and community impacts, and may be influenced by decisions of the Transportation Projects Commission, the Legislature or the Governor, and through coordination with local units of government, with public involvement opportunities.*



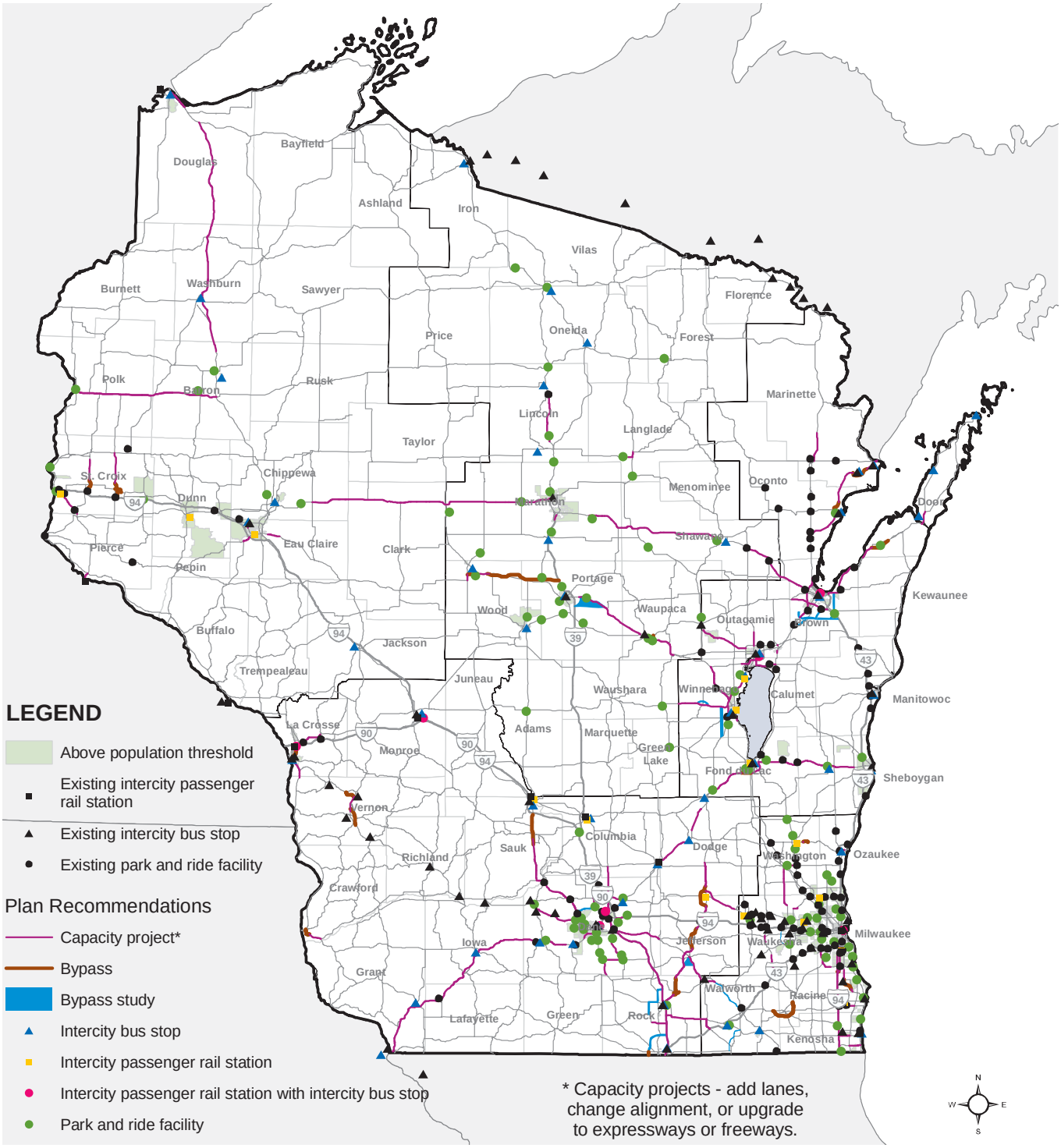

▲ *Map 15-13: Census block groups with **zero-vehicle households** above region threshold with recommended highway-related activities and existing and recommended intercity bus stops and passenger rail stations*
*NOTE: Project alternatives are chosen after consideration of environmental and community impacts, and may be influenced by decisions of the Transportation Projects Commission, the Legislature or the Governor, and through coordination with local units of government, with public involvement opportunities*



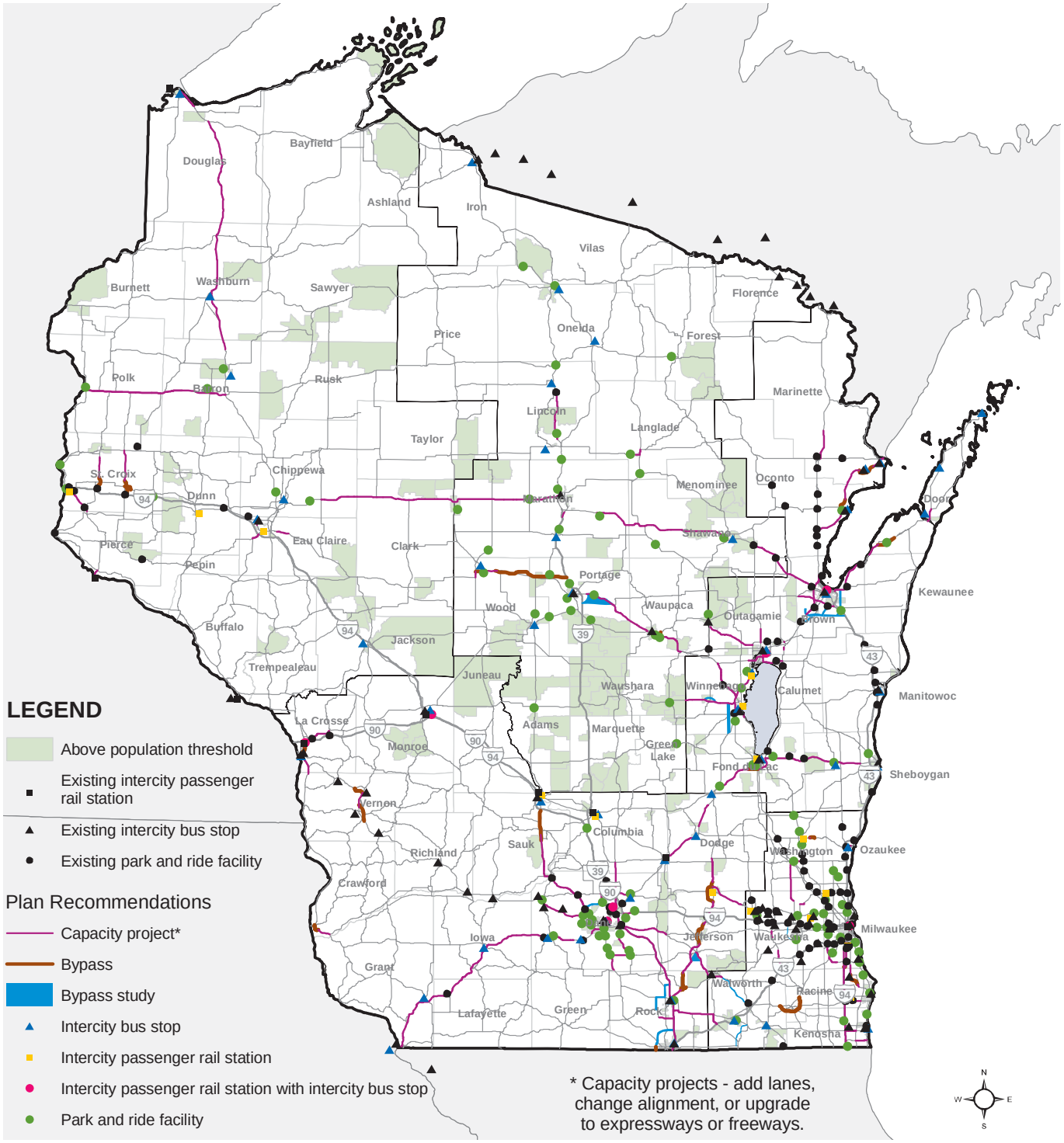

▲ *Map 15-14: Census block groups with **black population** above region threshold with recommended highway-related activities and existing and recommended intercity bus stops and passenger rail stations*
*NOTE: Project alternatives are chosen after consideration of environmental and community impacts, and may be influenced by decisions of the Transportation Projects Commission, the Legislature or the Governor, and through coordination with local units of government, with public involvement opportunities.*




▲ *Map 15-15: Census block groups with **American Indian population** above region threshold with recommended highway-related activities and existing and recommended intercity bus stops and passenger rail stations*
*NOTE: Project alternatives are chosen after consideration of environmental and community impacts, and may be influenced by decisions of the Transportation Projects Commission, the Legislature or the Governor, and through coordination with local units of government, with public involvement opportunities.*




▲ *Map 15-16: Census block groups with **Asian American population** above region threshold with recommended highway-related activities and existing and recommended intercity bus stops and passenger rail stations*
*NOTE: Project alternatives are chosen after consideration of environmental and community impacts, and may be influenced by decisions of the Transportation Projects Commission, the Legislature or the Governor, and through coordination with local units of government, with public involvement opportunities.*




▲ *Map 15-17: Census block groups with **Hispanic population** above region threshold with recommended highway-related activities and existing and recommended intercity bus stops and passenger rail stations*
*NOTE: Project alternatives are chosen after consideration of environmental and community impacts, and may be influenced by decisions of the Transportation Projects Commission, the Legislature or the Governor, and through coordination with local units of government, with public involvement opportunities.*

# **APPENDIX A:** Finding Your Way with the *Connections 2030* Statewide System-Level Priority Corridors

*Connections 2030* identifies 37 statewide, system-level priority corridors (Map A-1). The corridor maps form a conceptual framework that:

» Links policies with investment decisions

» Illustrates statewide priorities linked to regional and local analyses and plans

» Depicts the plan's system-level vision through 2030

» Illustrates short-, medium- and long-term recommendations and activities

The maps are part of the *Connections 2030* corridor management approach. This approach is aimed at better linking statewide policies to implementation activities at the WisDOT regional or corridor level. For more information about the corridor management approach, see Chapter 14, *Implementation*. The corridor maps may be viewed at www.wiconnections2030.gov.

WisDOT produced individual maps for each of the 37 corridors and each of the state's 13 metropolitan planning areas (Map A-2). Since the Southeast Wisconsin Regional Planning Commission planning areas covers seven counties, WisDOT produced an individual map for each county.

Information on the maps is based on programmed projects, plan policy recommendations, and WisDOT region office, metropolitan planning organization, regional planning commission and tribal plan recommendations. Even though the maps identify specific projects, it is not guaranteed that all potential projects will be implemented.

## Getting started

Each corridor map or metropolitan planning area map has four parts:

### Statewide System-Level Priority Corridors

The 37 corridor maps and the metropolitan planning area maps, description of the legend items and a detailed overview of the individual corridors may be viewed at www.wiconnections2030.gov.

» (Figure A-1) which describes the current corridor characteristics and the future corridor vision. Cover pages were not developed for the metropolitan planning area maps.

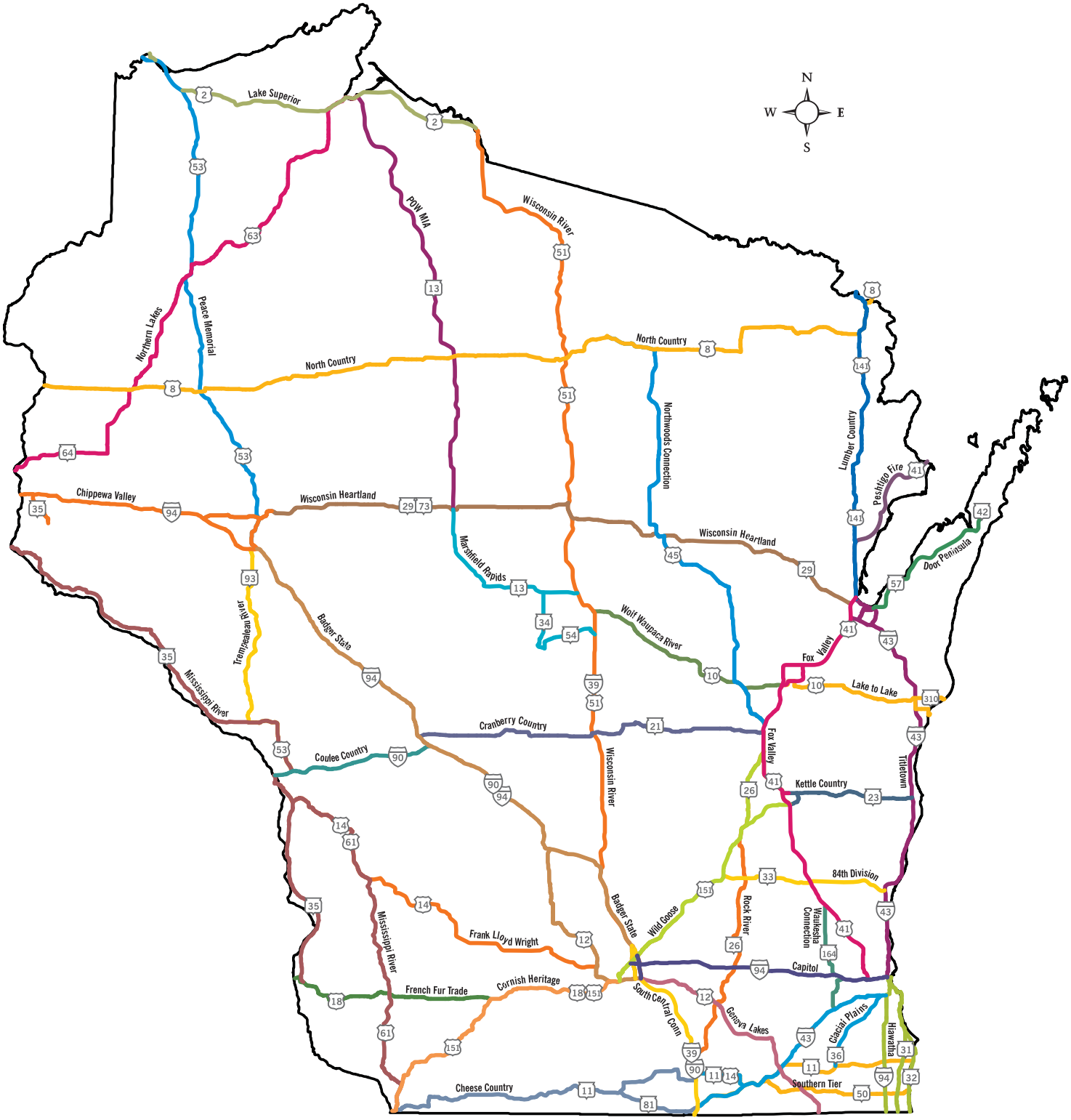
» (Figures A-2, A-3 and A-4) which shows the current transportation infrastructure, facilities and services, with nearby urban areas and water features.

» (Figures A-4, A-5 and A-6) which provides a written description of the project recommendations and activities. For each transportation feature on the map, there is a corresponding table entry that describes the project. Activities are organized by timeframe when they are expected to occur.

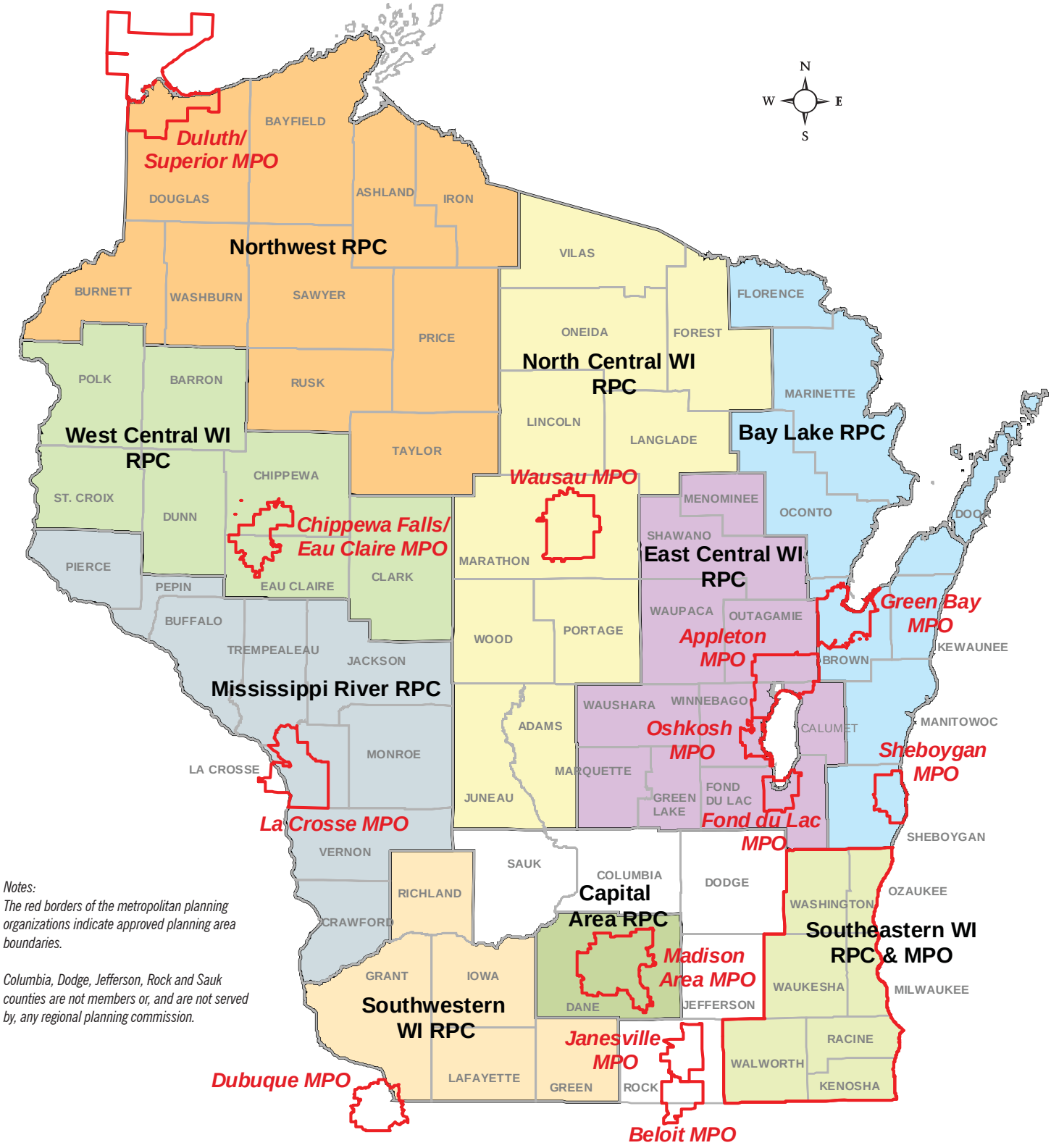
» (Figure A-7) which defines some of the terms discussed and lists the data sources used to create the map set.

The following pages include a sample map set and information about the specific components of the cover page, the map, the table, and the data sources page.

The corridors are identified by name. The name describes the corridor's history, the places it connects or other distinguishing features. The maps can be accessed alphabetically by name, region or county on the *Connections 2030* Web site.




▲ *Map A-1: Statewide System-Level Priority Corridors*




*Notes:*
*The red borders of the metropolitan planning organizations indicate approved planning area boundaries.*

*Columbia, Dodge, Jefferson, Rock and Sauk counties are not members or, and are not served by, any regional planning commission.*

▲ *Map A-2: Wisconsin regional planning commissions and metropolitan planning organizations*

## Origins of the corridor names

Each corridor has been named to provide a regional or local context when viewing potential priorities and implementation strategies. Corridor names do not replace statutorily designated corridor names, nor do they constitute official renaming of any corridor segments.

### 84th Division Railsplitters – Beaver Dam to Port Washington

This corridor is named for the 84th Division Railsplitters memorial highway (WIS 33). The memorial highway honors the men and women of the 84th Division of the U.S. Army. This division served in World Wars I and II and traces its lineage back to the service of Abraham Lincoln.

### Badger State – Eau Claire to Madison

This corridor is named in honor of Wisconsin's state animal, the badger. Closely associated with Wisconsin since territorial days, the ferocious badger has lent its likeness to the state's coat of arms, flag and song. Bucky the Badger is the proud mascot of the University of Wisconsin. This corridor connects two of the UW system's four-year campuses, Eau Claire and Madison.

### Capitol – Madison to Milwaukee

This corridor connects Wisconsin's largest metropolitan area, Milwaukee, to its second largest metropolitan area and state capitol, Madison.

CORRIDOR NAMES DO NOT REPLACE *statutorily designated corridors, nor do they constitute official renaming of any corridor segments.*

### Cheese Country – Dubuque, Iowa, to Rock County

This corridor runs through Green, Grant, and Lafayette counties, which are the top three counties in terms of numbers of cheese factories. In 2006, Wisconsin ranked first in the nation for cheese production and accounted for 26 percent of the national cheese market.

### Chippewa Valley – Twin Cities, Minn., to Eau Claire

This corridor passes through the Chippewa Valley in northwestern Wisconsin. The region, known for its white pine, boasts a proud lumbering history during the mid-19th century. Pine from the Chippewa Valley helped to build homes and cities in the nation's Corn Belt and Great Plains, including Chicago after the Great Fire in 1871.

### Cornish Heritage – Dubuque, Iowa, to Madison

This corridor memorializes the contributions made by the Cornish settlers of southwestern Wisconsin, many of whom worked in the area's lead mines. U.S. 151 passes through Mineral Point, home to the annual Midwest Cornish Festival.

### Coulee Country – La Crosse to Tomah

This corridor runs through a geographic area of Wisconsin characterized by coulees, or deep, dry ravines that were formed by running water. The area, which includes La Crosse and Viroqua, is sometimes referred to as the "Coulee Region."

### Cranberry Country – Tomah to Oshkosh

This corridor runs through Waushara, Adams, Juneau, and Monroe counties, which are among the state's major commercial cranberry production areas. Wisconsin is the nation's leader in cranberry farming and produces more than 300 million pounds of cranberries each year.

### Door Peninsula – Green Bay to Sturgeon Bay

This corridor runs through the Door County Peninsula, a major tourism destination in Wisconsin.

### Fox Valley – Milwaukee to Green Bay

This corridor links the cities of the Fox River Valley to other major metropolitan areas in the state, including Green Bay and Milwaukee.

### Frank Lloyd Wright – La Crosse to Madison

This corridor is named for the Frank Lloyd Wright Memorial Highway (US 14). This memorial highway honors the architectural accomplishments of Frank Lloyd Wright. Wisconsin is Wright's birthplace and home to over 40 of his buildings.

### French Fur Trade – Prairie du Chien to Dodgeville

This corridor is named for its endpoint in Prairie du Chien, a major French fur trading center during the 18th and 19th centuries.

### Geneva Lakes – Madison to Illinois

This corridor runs through the lake-filled region of southeastern Wisconsin, with its southern endpoint near Lake Geneva.

### Glacial Plains – Beloit to Milwaukee

This corridor runs through the southern portion of the Glacial Plains ecological region, which includes much of southeastern Wisconsin. The area, which is home to drumlins, moraines, and kettle lakes, contains some of the world's best examples of glacial continental activity.

### Hiawatha – Milwaukee to Chicago

This corridor runs along Amtrak's *Hiawatha Service*, which provides daily service from Milwaukee to Chicago.

### Statutorily designated highway names

Chapter 84 of the Wisconsin State Statutes identifies the officially designated memorial highways and bridges in the state.

### Kettle Country – Fond du Lac to Sheboygan

This corridor runs through the northern portion of the Kettle Moraine State Forest, which is internationally known for its unique glacial features.

### Lake Superior – Duluth-Superior to Hurley

This corridor connects the areas of northern Wisconsin that border Lake Superior.

### Lake to Lake – Fox Cities to Manitowoc-Two Rivers

This corridor links Lake Winnebago and its surrounding metro areas to Lake Michigan.

### Lumber Country Heritage – Green Bay to Niagara

This corridor runs through the Wolf River region in northeastern Wisconsin, a major lumbering district during the 19th century.

### Marshfield Rapids Connection – Stevens Point to Abbotsford

This corridor is named for two of its endpoints, Marshfield and Wisconsin Rapids.

### Mississippi River – Dubuque, Iowa, to La Crosse to Twin Cities, Minn.

This corridor runs along the Mississippi River, which makes up Wisconsin's western border. The segment of WIS 35 that runs from Keiler to Prescott is known as Wisconsin's "Great River Road."

### North Country – St. Croix Falls to Niagara

This corridor, which connects Minnesota and Michigan, runs through the heart of northern Wisconsin.

### Northern Lakes – Twin Cities, Minn., to Lake Superior

This corridor runs through the lake-filled region of northwestern Wisconsin, with its northern endpoint at Lake Superior.

### Northwoods Connection – Oshkosh to Rhinelander

This corridor links Oshkosh to Rhinelander and the surrounding Northwoods region. This area of the state is home to one of the largest concentrations of freshwater lakes on the globe. The Northwoods also includes several national and state forests, making it a popular destination for outdoor enthusiasts.

### Peace Memorial – Eau Claire to Duluth-Superior

This corridor is named for the Peace Memorial Highway (US 53). This memorial highway commemorates the contributions and devotion of Wisconsin citizens to international peace and greater understanding among nations.

### Peshtigo Fire Memorial – Green Bay to Menominee County, Mich.

This corridor honors the memory of the Peshtigo Fire, which burned through areas surrounding Green Bay and in Northern Michigan. The Peshtigo Fire occurred on October 8, 1871, the same day as the Great Chicago Fire.

### POW-MIA Remembrance – Abbotsford to Ashland

This corridor is named for the POW-MIA Memorial Highway (WIS 13). This memorial highway honors the prisoners of war, ex-prisoners of war, and those who are currently or were formerly missing in action, of all wars in which the United States has engaged.

### Rock River – Janesville to Oshkosh

This corridor runs near the Rock River as it connects Oshkosh and Janesville.

### South Central Connection – Beloit to Madison

This corridor serves as a major commuter and freight route connecting Madison and northern Wisconsin to Janesville, Beloit, and points south in Illinois. It provides access not only to one of the state's key agricultural regions, but also to several major educational institutions, outdoor recreational areas, and a dense concentration of historic sites.

### Southern Tier – Janesville and Beloit to Kenosha and Racine

This corridor connects the major cities near Wisconsin's southeastern border, including Janesville, Beloit, Kenosha and Racine.

### Titletown – Milwaukee to Green Bay

This corridor gets its name from its endpoint in Green Bay. Green Bay has earned the nickname "Titletown" for the performance of the Green Bay Packers, who have earned a record number of National Football League titles, including three Super Bowl victories.

### Trempealeau – La Crosse to Eau Claire

This corridor gets its name from the Trempealeau River, which it crosses on its way from La Crosse to Eau Claire.

### Waukesha Connection – Mukwanago to Hartford

This corridor links the city and county of Waukesha to points north in Washington County.

### Wild Goose – Madison to Oshkosh

The southern portion of this corridor runs near to the Wild Goose State Trail, which links the city of Juneau to the city of Fond du Lac.

## Wisconsin River Part 1 – Madison to Wausau

This corridor, part of a larger north-south route, parallels the Wisconsin River as it runs from Madison north to Wausau.

## Wisconsin River Part 2 – Wausau to Ironwood, Mich.

This corridor, part of a larger north-south route, parallels the Wisconsin River as it runs from Wausau north to Ironwood, Mich.

## Wisconsin Heartland – Eau Claire to Green Bay

This corridor connects major cities in the heart of the state, including Eau Claire, Wausau and Green Bay.

## Wolf/Waupaca Rivers – Stevens Point to the Fox Cities

This corridor runs east from Stevens Point along the Waupaca River, which joins with the Wolf River outside Lake Winnebago and the Fox Cities.

## Corridor Facts Table

This provides details on the corridor's population and traffic characteristics and compares current conditions to those projected to exist in 2030.

Refer to the **Data Sources** page to find more information on: population (both for counties and the 65 and older age group), truck volumes, average annual daily traffic (AADT) estimates, enplanements, and passenger rail ridership.

## Current Corridor Characteristics

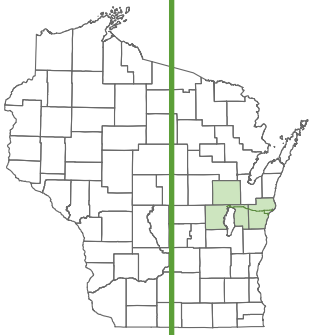
This section lists the currently available transportation modes in the corridor. These include air, highway, public and fixed guideway transit, freight and intercity passenger rail, intercity bus, ports and harbors, ferries, and bicycle and pedestrian facilities.

Refer to the **Data Sources** page to find more information on: Corridors 2030 Backbone and Connector routes, airport classifications, and National Highway System intermodal terminals.

## Future Corridor Vision

This section describes the types of improvements planned for each mode along the corridor. When appropriate, the phase of the improvement will be listed. In some cases, new modes (for example, intercity passenger rail) will be introduced over the course of the planning period.

Refer to the **Data Sources** page to find more information on: the vision in the *State Highway Access Management Plan*.



| | Year 2007 | Year 2030 |
|---|---|---|
| **County populations** | | |
| Winnebago | 164,703 | 188,446 |
| Outagamie | 173,724 | 215,720 |
| Calumet | 45,990 | 58,966 |
| Manitowoc | 84,603 | 91,327 |
| **Population age 65 and older** | 54,621 | 105,662 |
| **Enplanements** | | |
| Outagamie County Regional Airport | 289,116 | 640,000 |
| **Intercity passenger rail ridership** | | |
| Appleton station | NA | 142,000 |
| **Average annual daily traffic along** | | |
| US 10 | 4,400 – 16,400 | 5,400 – 23,900 |
| **Truck volume along** | | |
| US 10 | Low | Low |

Refer to the "Corridor Map - Data Definitions and Sources" for more information.

## Lake to Lake Corridor – Fox Cities to Manitowoc-Two Rivers

### Corridor Overview

**This 50-mile corridor is part of a passenger and freight corridor that links central Wisconsin, the Fox Cities and the Manitowoc-Two Rivers area. With the ferry service across Lake Michigan, it is also part of an interstate corridor that connects west central Michigan and locations east. The corridor includes the Vietnam Veterans Memorial Highway (US 10 from Manitowoc to the Minnesota/Wisconsin state line) as well as the urban and urbanizing areas of Appleton and Manitowoc.**

### Current Corridor Characteristics

- Airports:
  - Air carrier (passenger) airport: Outagamie County (Appleton)
  - Transport/corporate airport: Manitowoc County
- Highways:
  - Primary highway: US 10, WIS 310
  - Corridors 2030 Connector Route: US 10
  - NHS intermodal terminals with local road connections: Manitowoc Ferry
- Public Transit:
  - Bus systems: Fox Cities, Manitowoc
  - Shared-ride taxi: None along this corridor
  - Specialized transit: Available in all counties, level of service depends on location
- Fixed Guideway Transit: None along this corridor
- Rail Freight: Freight rail service exists
- Intercity Passenger Rail: None along this corridor
- Intercity Bus:
  - Connections in Appleton to intercity bus services to Green Bay, Wausau, Milwaukee and Chicago, IL
  - Connections in Manitowoc to intercity bus services to Milwaukee and Calumet, MI
- Ports and Harbors: Manitowoc
- Ferry: Lake Michigan Carferry (Manitowoc)
- Bicycle/Pedestrian:
  - Major trails: Fox River State Trail, Friendship Trail, Mariner's Trail
  - Accommodations, linkages and accessibility along and across some facilities

### Future Corridor Vision

- Airports: Continued service, increased direct air service and infrastructure projects to support jet capable airports
- Highways: Maximized preservation and maintenance of infrastructure and continued user efficiency and reliability
  - Improved traffic movement along US 10 and WIS 310 by implementing
    - New Corridors 2030 Connector Route: WIS 310 (I-43 to WIS 42)
    - *State Access Management Plan* vision; Tier 2B
    - Candidate passing lane corridor (US 10)
- Public Transit: Increased regional coordination and continued service
- Fixed Guideway Transit: None along this corridor
- Rail Freight: Continued freight rail service and corridor preservation
- Intercity Passenger Rail:
  - New intercity passenger rail service between Chicago, IL and St. Paul, MN
    - Phase 3: Green Bay – Milwaukee - Chicago, IL with a stop in Appleton
  - All new intercity passenger rail services will operate within existing corridors
- Intercity Bus:
  - Continued existing services
  - New service:
    - Phase 1: Between Madison and Green Bay with a stop in Appleton
    - Phase 2: Between proposed Green Bay passenger rail station and Milwaukee Intermodal Station with a stop in Manitowoc; and between Wausau and proposed Appleton passenger rail station
- Ports and Harbors: Continued service, preservation, maintenance and infrastructure improvements (Manitowoc)
- Ferry: Continued service, preservation maintenance and infrastructure improvements (Lake Michigan Carferry (Manitowoc))
- Bicycle/Pedestrian: Continued/enhanced accommodations, linkages and accessibility along and across facilities

*Figure A-1: Cover page*

*Figure A-2: Map page – understanding the map*

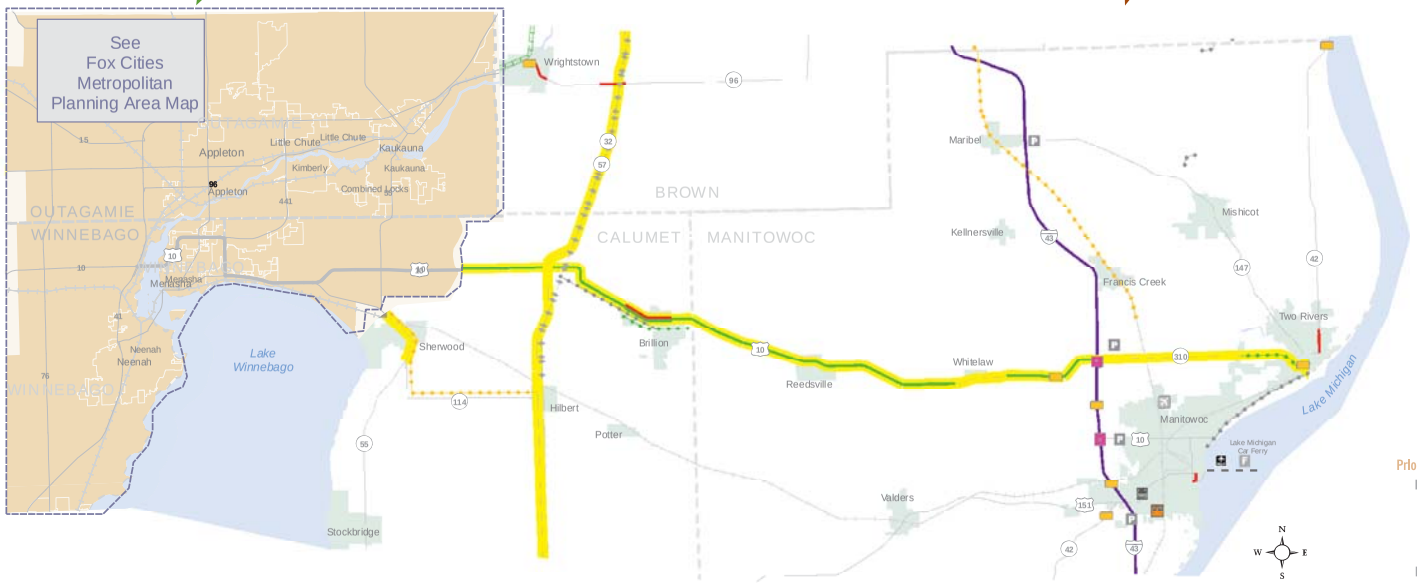
## Metropolitan Planning Areas

In cases when a corridor begins, passes through, or ends in a metropolitan planning area, the portion of the corridor's projects, services, activities, or other features that fall within the metropolitan planning area's borders will not be visible on the corridor map or adjoining table. For information about those projects, services, or activities, refer to the appropriate metropolitan planning area map set.

## The Map

A spatial depiction of each corridor or metropolitan planning area. The buffer area includes projects and activities across modes. It also includes both existing and potential facilities.

## Lake to Lake Corridor – Fox Cities to Manitowoc-Two Rivers




### About Multimodal Corridors

The *Connections 2030* planning process identified statewide multimodal, intercity corridors as visual communication tools to view existing conditions, transportation features and future recommendations. These corridors collectively represent a starting point toward long-term implementation of *Connections 2030* and the corridor management process.

These multimodal corridors:

- Serve critical sectors of the economy or major population centers
- Carry significant travel activity for passenger and/or freight traffic
- Show significant growth in travel or economic development
- Serve an important role for other transportation modes

Corridor selection was also influenced by local land use and development plans. Each corridor is a broad geographical band that follows a general directional flow connecting trips that may include streets, highways, rail, pedestrian, bicycle facilities and routes and transit route alignments. A corridor generally follows the directional flow of a state highway alignment. It includes parallel state and local roads, service roads and facilities for other transportation modes such as rail, pedestrian, transit, etc., which influence the mobility, capacity, safety and other functional elements of the corridor.

*For more information, refer to the Corridor Map Legend Definitions document at www.wiconnections2030.*

**Priority Project Support Areas**

Airport
- Airport project

Intercity Bus
- Intercity bus stop
- Priority route

Park and Ride
- Park and ride

Port, Channel or Waterway
- Port, channel or waterway project

Ferry
- Ferry project

Bicycle and Pedestrian
- Trail connection or extension
- Rail-to-trail

Fixed Guideway
- Commuter, rapid or express bus route
- Study future route
- Commuter rail route
- Commuter rail, proposed station

**Existing Facilities**

- Airport
- Park and ride
- Intercity bus stop
- Rail station
- Fixed guideway (commuter rail station)
- Port or harbor
- Mississippi River lock and dam
- Ferry
- Bicycle/pedestrian trail
- Rail-to-trail
- Railroad – private ownership
- Railroad – public ownership
- State trunk network
- State/county boundary
- Waterway
- City/village
- Metropolitan Planning Area
- Native American land

**Priority Project Action Areas**

Interchange
- Study and/or preserve right of way
- Study and construct new
- Reconstruct existing

Bicycle and Pedestrian
- Provide urban connection
- Provide rural connection

Bridge
- Reconstruct existing or construct new

Intercity Passenger Rail
- Proposed station
- Proposed station with intercity bus stop
- Study future route
- Priority route

Highways
- Construct capacity project
- Prepare corridor plan
- Reconstruct existing
- Construct passing lane
- Convert to Interstate standards
- Study bypass/new arterial

## About Multimodal Corridors

This section explains the process used to select the 37 statewide, system-level priority corridors. It also provides additional detail on the items that fall within the map buffer.

For additional information about the development of the corridor maps and *Connection 2030*'s corridor management approach, see Chapter 13, *Implementing Connections 2030*.

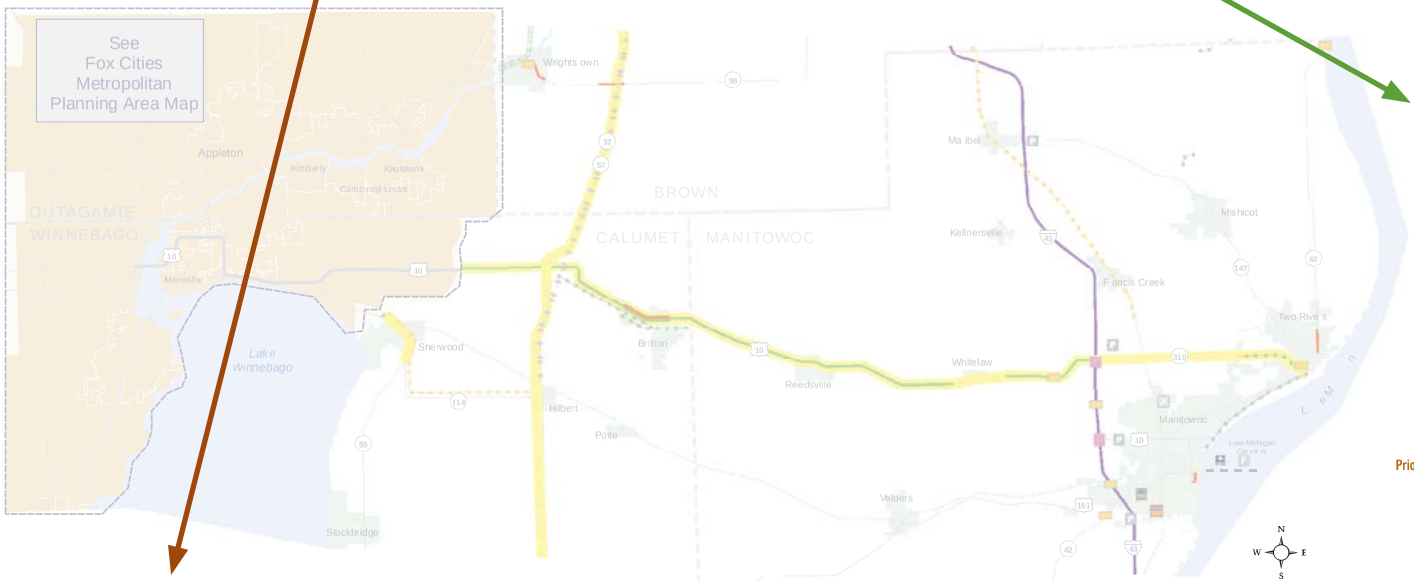
## The Legend

The legend provides information about the symbols representing transportation features, as well as symbols representing municipal areas, boundaries, and natural features.

The legend is divided into three sections: Existing Facilities, Priority Project Action Areas (where WisDOT provides direct control), and Priority Project Support Areas (where WisDOT provides funding, planning, and programmatic support).

For more detail on legend definitions, please see the **Corridor Map Legend Definitions** document at www.wiconnections2030.gov.

## Lake to Lake Corridor – Fox Cities to Manitowoc-Two Rivers




### About Multimodal Corridors

The *Connections 2030* planning process identified statewide multimodal, intercity corridors as visual communication tools to view existing conditions, transportation features and future recommendations. These corridors collectively represent a starting point toward long-term implementation of *Connections 2030* and the corridor management process.

These multimodal corridors:

- Serve critical sectors of the economy or major population centers
- Carry significant travel activity for passenger and/or freight traffic
- Show significant growth in travel or economic development
- Serve an important role for other transportation modes

Corridor selection was also influenced by local land use and development plans. Each corridor is a broad geographical band that follows a general directional flow connecting trips that may include streets, highways, rail, pedestrian, bicycle facilities and routes and transit route alignments. A corridor generally follows the directional flow of a state highway alignment. It includes parallel state and local roads, service roads and facilities for other transportation modes such as rail, pedestrian, transit, etc., which influence the mobility, capacity, safety and other functional elements of the corridor.

*For more information, refer to the Corridor Map Legend Definitions document at www.wiconnections2030.gov.*

**Priority Project Support Areas**

**Airport**
- Airport project

**Intercity Bus**
- Intercity bus stop
- Priority route

**Park and Ride**
- Park and ride

**Port, Channel or Waterway**
- Port, channel or waterway project

**Ferry**
- Ferry project

**Bicycle and Pedestrian**
- Trail connection or extension
- Rail-to-trail

**Fixed Guideway**
- Commuter, rapid or express bus route
- Study future route
- Commuter rail route
- Commuter rail, proposed station

**Existing Facilities**
- Airport
- Park and ride
- Intercity bus stop
- Rail station
- Fixed guideway (commuter rail station)
- Port or harbor
- Mississippi River lock and dam
- Ferry
- Bicycle/pedestrian trail
- Rail-to-trail
- Railroad – private ownership
- Railroad – public ownership
- State trunk network
- State/county boundary
- Waterway
- City/village
- Metropolitan Planning Area
- Native American land

**Priority Project Action Areas**

**Interchange**
- Study and/or preserve right of way
- Study and construct new
- Reconstruct existing

**Bicycle and Pedestrian**
- Provide urban connection
- Provide rural connection

**Bridge**
- Reconstruct existing or construct new

**Intercity Passenger Rail**
- Proposed station
- Proposed station with intercity bus stop
- Study future route
- Priority route

**Highways**
- Construct capacity project
- Prepare corridor plan
- Reconstruct existing
- Construct passing lane
- Convert to Interstate standards
- Study bypass/new arterial

*Figure A-3: Map page – understanding the legend and other information*

## Connecting the Corridor Maps and Tables

For each of the Primary Project Actions Area features and Priority Project Support Area features shown on the corridor map, the table has a corresponding entry that describes the project or activity. Using this portion from the Lake to Lake corridor map and these sections from the Lake to Lake table, the example shows how individual map features link to specific table entries. Each project feature on the map has a number that corresponds to its matching entry on the table.

*Figure A-4: Connecting the maps and tables*

**Short-Term (2008 – 2013)**

| | | |
|---|---|---|
| | US 10 | Replace bridge and approach over Branch River (Manitowoc Co) |
| | US 10 | Reconstruct from County Rd HR to east Brillion municipal limits |
| | US 10 | Reconstruct from 10th St to 8th St in Manitowoc |
| | US 10 | Complete corridor plan from US 10/WIS 114 split to WIS 32/57 |
| | WIS 42 | Reconstruct from 22nd St to 35th Pl (Two Rivers) |
| 1 | WIS 96 | Reconstruct from Old 57 Rd to Deuster St (Town of Wrightstown) |
| 2 | WIS 96 | Reconstruct from Fox River to Shanty Rd (Wrightstown) |
| 3 | WIS 96 | Replace bridge and approaches over Fox River (Wrightstown) |
| | WIS 114 | Prepare corridor plan from US 10 to WIS 55/114 split |
| | Bicycle/Pedestrian | Support the construction of the Devil's River State Trail between Denmark and Town of Rockwood |
| | Bicycle/Pedestrian | Support the construction of a trail between Hilbert and Sherwood along WIS 114 |
| | Port/Harbor | Reconstruct dockwall and dredge at carferry dock at the Port of Manitowoc |
| | Port/Harbor | Dredge Manitowoc River for the Port of Manitowoc |

**Mid-Term (2014 – 2019)**

| | | |
|---|---|---|
| | I-43 | Replace bridge over County Rd CS (Manitowoc Co) if supported by environmental document |
| | I-43 | Reconstruct existing interchange at I-43 and US 10/WIS 310 if supported by environmental document |
| | WIS 32 | Prepare corridor plan from WIS 67 to WIS 96 |
| 4 | WIS 32/57 | Prepare corridor plan from WIS 96 to Pershing Rd (De Pere) |
| | WIS 42 | Replace bridge over Silver Creek (Manitowoc Co) if supported by environmental document |
| | WIS 42 | Replace bridge north of Twin Creeks (near Manitowoc/Kewaunee Co line) if supported by environmental document |
| | WIS 310 | Replace bridge over the West Twin River in Two Rivers if supported by environmental document |
| | Bicycle/Pedestrian | Provide urban and rural accommodations along US 10 from County Rd HR (Brillion) to the Calumet/Manitowoc county line; and along WIS 310 from Woodland Dr (Manitowoc Co) to WIS 42 (Two Rivers) |

## Table Entries

For each of the Primary Project Actions Area features and Priority Project Support Area features shown on the corridor map, the table has a corresponding entry that describes the project or activity. These projects and activities are categorized by priority period (short-term, mid-term, long-term, and entire planning period). They are also organized by highway (Interstate, U.S. Highway, or state trunk highway) or by mode.

The tables also include entries that describe policies not depicted on the map. These entries typically describe ongoing support that will be provided for transportation services and infrastructure, or broad policies that will apply to numerous areas throughout the corridor. Most of these entries fall into the Entire Planning Period category of each table.

## Lake to Lake Corridor – Fox Cities to Manitowoc-Two Rivers

### Current and Proposed Future Activities

These activities may not occur in the time frame identified due to budget constraints, changing conditions or shifting priorities. Refer to the "Important Notes about What is Depicted" for more information or contact the WisDOT Region Office.

**Short-Term (2008 – 2013)**

| | |
|---|---|
| US 10 | Replace bridge and approach over Branch River (Manitowoc Co) |
| US 10 | Reconstruct from County Rd HR to east Brillion municipal limits |
| US 10 | Reconstruct from 10th St to 8th St in Manitowoc |
| US 10 | Complete corridor plan from US 10/WIS 114 split to WIS 32/57 |
| WIS 42 | Reconstruct from 22nd St to 35th Pl (Two Rivers) |
| WIS 96 | Reconstruct from Old 57 Rd to Deuster St (Town of Wrightstown) |
| WIS 96 | Reconstruct from Fox River to Shanty Rd (Wrightstown) |
| WIS 96 | Replace bridge and approaches over Fox River (Wrightstown) |
| WIS 114 | Prepare corridor plan from US 10 to WIS 55/114 split |
| Bicycle/Pedestrian | Support the construction of the Devil's River State Trail between Denmark and Town of Rockwood |
| Bicycle/Pedestrian | Support the construction of a trail between Hilbert and Sherwood along WIS 114 |
| Port/Harbor | Reconstruct dockwall and dredge at carferry dock at the Port of Manitowoc |
| Port/Harbor | Dredge Manitowoc River for the Port of Manitowoc |

**Mid-Term (2014 – 2019)**

| | |
|---|---|
| I-43 | Replace bridge over County Rd CS (Manitowoc Co) if supported by environmental document |
| I-43 | Reconstruct existing interchange at I-43 and US 10/WIS 310 if supported by environmental document |
| WIS 32 | Prepare corridor plan from WIS 67 to WIS 96 |
| WIS 32/97 | Prepare corridor plan from WIS 96 to Pershing Rd (De Pere) |
| WIS 42 | Replace bridge over Silver Creek (Manitowoc Co) if supported by environmental document |
| WIS 42 | Replace bridge north of Twin Creeks (near Manitowoc/Kewaunee Co line) if supported by environmental document |
| WIS 310 | Replace bridge over the West Twin River in Two Rivers if supported by environmental document |
| Bicycle/Pedestrian | Provide urban and rural accommodations along US 10 from County Rd HR (Brillion) to the Calumet/Manitowoc county line; and along WIS 310 from Woodland Dr (Manitowoc Co) to WIS 42 (Two Rivers) |

**Long-Term (2020 – 2030)**

| | |
|---|---|
| I-43 | Replace bridge over the Manitowoc River if supported by environmental document |
| I-43 | Replace interchange at US 10/County Rd JJ (Manitowoc Co) and I-43 if supported by environmental document |
| WIS 310 | Prepare corridor plan from I-43 to WIS 42 |
| Intercity/Feeder Bus | Support new intercity bus service between proposed Green Bay passenger rail station and Milwaukee Intermodal Station with stops in Manitowoc, Sheboygan and Port Washington |
| Intercity Passenger Rail | Implement new intercity passenger rail service between Green Bay and Chicago, IL with stops in Appleton, Oshkosh, Fond du Lac, West Bend, Granville (Northwest Milwaukee Co), Milwaukee, General Mitchell International Airport and Sturtevant if supported by environmental document |

**Entire Planning Period**

| | |
|---|---|
| US 10 | Prepare corridor plan from WIS 32 to I-43 and implement results which may include constructing candidate passing lanes from WIS 114 to Hampton Lake Road (Village of Whitelaw) or from County Road T (Manitowoc Co) to I-43 if supported by environmental document |
| Airports | Support continued preservation, maintenance and infrastructure projects at *State Airport System Plan* airports |
| Bicycle/Pedestrian | Support accommodations and linkages to create a connected network that provides accessibility along and across facilities |
| Ferry | Support continued ferry service of the Lake Michigan Carferry between Manitowoc and Ludington, MI |
| Intercity Bus | Support continued service between Calumet, MI and Chicago, IL with stops in Marinette, Peshtigo, Oconto, Green Bay, Manitowoc, Sheboygan and Milwaukee |
| Intercity Passenger Rail | Work with the Office of the Commissioner of Railroads to preserve intercity passenger rail corridors by discouraging new at-grade crossings of the corridor |
| Local Roads | Support continued preservation, maintenance and infrastructure projects |
| Park & Ride | Support continued preservation and maintenance |
| Park & Ride | Support expansion of existing park and ride facilities if needed and if supported by environmental document |
| Port/Harbor | Support channel preservation, maintenance and infrastructure projects at the Port of Manitowoc |
| Public Transit | Support regional service expansion for Maritime Metro Transit |
| Pubic Transit | Support continued service and vehicle replacement for Maritime Metro Transit |
| Public Transit | Work with counties and transit service providers to coordinate and expand rural transit service |
| Rail Freight | Support the preservation of existing freight services and corridors |
| Soo Locks | Support continued coordination, maintenance and preservation |
| Specialized Transit | Support continued service and encourage improved service coordination |
| State Highways | Construct grade separations at rail crossings if supported by environmental document |
| State Highways | Preserve and maintain infrastructure |
| State Highways | Improve traffic movement with traffic operations infrastructure strategies |

### Important Notes about What is Depicted

The map shows currently programmed and proposed future activities (as of December 31, 2007) that have significant impacts on the corridor. Not all projects or initiatives are mapped, and additional analyses, including an environmental document, will be conducted before any of the projects or activities are completed. These analyses may include studying alternatives (including a no build/no change alternative) with public involvement opportunities as appropriate. Resources and shifting priorities may impact WisDOT's implementation of any proposed activity within the time frames identified. WisDOT will remain flexible in the implementation of *Connections 2030* recommendations. The table and map activities (on the previous page) reflect actions identified in:

- *Connections 2030* policies
- WisDOT's Six-Year Highway Improvement Program (2008 - 2013)
- Other WisDOT program data
- Other WisDOT plans and studies
- Metropolitan planning organizations' (MPOs), regional planning commissions' (RPCs) and tribal long-range transportation plans

For information on funding and implementation priorities, see those *Connections 2030* chapters. For more information on transportation projects, contact the WisDOT Region Office (see *Connections 2030* or www.dot.wisconsin.gov/projects/ for a map of region offices). MPO, RPC and tribal long-range transportation plans offer recommendations on all transportation modes within their boundaries.

*Figure A-5: Table*

*Figure A-6: Notes about what is depicted*

## Important Notes About What is Depicted

This section describes the data and data sources that were used to create the maps and tables. It also describes factors that may have impacts on whether and how projects are implemented, such as the environmental document development process. This section also lists where readers can look to find additional information on projects, funding, and implementation priorities.

Refer to the **Data Sources** page to find more information on Wisconsin metropolitan planning organizations and specific plans, and tribal transportation plans, which helped determine the material that is presented on the tables.

# Lake to Lake Corridor – Fox Cities to Manitowoc-Two Rivers

## Current and Proposed Future Activities

These activities may not occur in the time frame identified due to budget constraints, changing conditions or shifting priorities. Refer to the "Important Notes about What is Depicted" for more information or contact the WisDOT Region Office.

### Short-Term (2008 – 2013)

| | |
|---|---|
| US 10 | Replace bridge and approach over Branch River (Manitowoc Co) |
| US 10 | Reconstruct from County Rd HR to east Brillion municipal limits |
| US 10 | Reconstruct from 10th St to 8th St in Manitowoc |
| US 10 | Complete corridor plan from US 10/WIS 114 split to WIS 32/57 |
| WIS 42 | Reconstruct from 22nd St to 35th Pl (Two Rivers) |
| WIS 96 | Reconstruct from Old 57 Rd to Deuster St (Town of Wrightstown) |
| WIS 96 | Reconstruct from Fox River to Shanty Rd (Wrightstown) |
| WIS 96 | Replace bridge and approaches over Fox River (Wrightstown) |
| WIS 114 | Prepare corridor plan from US 10 to WIS 55/114 split |
| Bicycle/Pedestrian | Support the construction of the Devil's River State Trail between Denmark and Town of Rockwood |
| Bicycle/Pedestrian | Support the construction of a trail between Hilbert and Sherwood along WIS 114 |
| Port/Harbor | Reconstruct dockwall and dredge at carferry dock at the Port of Manitowoc |
| Port/Harbor | Dredge Manitowoc River for the Port of Manitowoc |

### Mid-Term (2014 – 2019)

| | |
|---|---|
| I-43 | Replace bridge over County Rd CS (Manitowoc Co) if supported by environmental document |
| I-43 | Reconstruct existing interchange at I-43 and US 10/WIS 310 if supported by environmental document |
| WIS 32 | Prepare corridor plan from WIS 67 to WIS 96 |
| WIS 32/97 | Prepare corridor plan from WIS 96 to Pershing Rd (De Pere) |
| WIS 42 | Replace bridge over Silver Creek (Manitowoc Co) if supported by environmental document |
| WIS 42 | Replace bridge north of Twin Creeks (near Manitowoc/Kewaunee Co line) if supported by environmental document |
| WIS 310 | Replace bridge over the West Twin River in Two Rivers if supported by environmental document |
| Bicycle/Pedestrian | Provide urban and rural accommodations along US 10 from County Rd HR (Brillion) to the Calumet/Manitowoc county line; and along WIS 310 from Woodland Dr (Manitowoc Co) to WIS 42 (Two Rivers) |

### Long-Term (2020 – 2030)

| | |
|---|---|
| I-43 | Replace bridge over the Manitowoc River if supported by environmental document |
| I-43 | Replace interchange at US 10/County Rd JJ (Manitowoc Co) and I-43 if supported by environmental document |
| WIS 310 | Prepare corridor plan from I-43 to WIS 42 |
| Intercity/Feeder Bus | Support new intercity bus service between proposed Green Bay passenger rail station and Milwaukee Intermodal Station with stops in Manitowoc, Sheboygan and Port Washington |
| Intercity Passenger Rail | Implement new intercity passenger rail service between Green Bay and Chicago, IL with stops in Appleton, Oshkosh, Fond du Lac, West Bend, Granville (Northwest Milwaukee Co), Milwaukee, General Mitchell International Airport and Sturtevant if supported by environmental document |

### Entire Planning Period

| | |
|---|---|
| US 10 | Prepare corridor plan from WIS 32 to I-43 and implement results which may include constructing candidate passing lanes from WIS 114 to Hampton Lake Road (Village of Whitelaw) or from County Road T (Manitowoc Co) to I-43 if supported by environmental document |
| Airports | Support continued preservation, maintenance and infrastructure projects at *State Airport System Plan* airports |
| Bicycle/Pedestrian | Support accommodations and linkages to create a connected network that provides accessibility along and across facilities |
| Ferry | Support continued ferry service of the Lake Michigan Carferry between Manitowoc and Ludington, MI |
| Intercity Bus | Support continued service between Calumet, MI and Chicago, IL with stops in Marinette, Peshtigo, Oconto, Green Bay, Manitowoc, Sheboygan and Milwaukee |
| Intercity Passenger Rail | Work with the Office of the Commissioner of Railroads to preserve intercity passenger rail corridors by discouraging new at-grade crossings of the corridor |
| Local Roads | Support continued preservation, maintenance and infrastructure projects |
| Park & Ride | Support continued preservation and maintenance |
| Park & Ride | Support expansion of existing park and ride facilities if needed and if supported by environmental document |
| Port/Harbor | Support channel preservation, maintenance and infrastructure projects at the Port of Manitowoc |
| Public Transit | Support regional service expansion for Maritime Metro Transit |
| Pubic Transit | Support continued service and vehicle replacement for Maritime Metro Transit |
| Public Transit | Work with counties and transit service providers to coordinate and expand rural transit service |
| Rail Freight | Support the preservation of existing freight services and corridors |
| Soo Locks | Support continued coordination, maintenance and preservation |
| Specialized Transit | Support continued service and encourage improved service coordination |
| State Highways | Construct grade separations at rail crossings if supported by environmental document |
| State Highways | Preserve and maintain infrastructure |
| State Highways | Improve traffic movement with traffic operations infrastructure strategies |

## Important Notes about What is Depicted

The map shows currently programmed and proposed future activities (as of December 31, 2007) that have significant impacts on the corridor. Not all projects or initiatives are mapped, and additional analyses, including an environmental document, will be conducted before any of the projects or activities are completed. These analyses may include studying alternatives (including a no build/no change alternative) with public involvement opportunities as appropriate. Resources and shifting priorities may impact WisDOT's implementation of any proposed activity within the time frames identified. WisDOT will remain flexible in the implementation of *Connections 2030* recommendations. The table and map activities (on the previous page) reflect actions identified in:

- *Connections 2030* policies
- WisDOT's Six-Year Highway Improvement Program (2008 - 2013)
- Other WisDOT program data
- Other WisDOT plans and studies
- Metropolitan planning organizations' (MPOs), regional planning commissions' (RPCs) and tribal long-range transportation plans

For information on funding and implementation priorities, see those *Connections 2030* chapters. For more information on transportation projects, contact the WisDOT Region Office (see *Connections 2030* or www.dot.wisconsin.gov/projects/ for a map of region offices). MPO, RPC and tribal long-range transportation plans offer recommendations on all transportation modes within their boundaries.

## Data Definitions

This section provides definitions for some of the terms and concepts listed on Page 1, the Map, and the Table, as well as sources for the population, traffic, ridership, and enplanement projections detailed on Page 1.

## Data Sources

This section lists the data sources for the population and travel figures and some of the facility information detailed on Page 1. It also lists the Wisconsin metropolitan planning organization plans and tribal transportation plans that served as sources for the corridor maps and tables.

# Corridor Map – Data Definitions and Sources

## Data Definitions

### Corridors 2030

*(See the Connections 2030 Chapter 5, Preserve and Maintain Wisconsin's Transportation System for more information.)*

- Backbone system: Multilane, divided highways interconnecting all major population and economic centers of the state and linking them to the national transportation network
- Connector system: Two- and four-lane highways directly linking other significant economic and tourism centers to the Backbone system

### *State Access Management Plan* vision

*(See the Connections 2030 Chapter 9, Promote Transportation Efficiencies for more information.)*

- Tier 1: By 2030, in rural areas (outside of city and village boundaries), access to the highway will primarily be at interchanges (with some existing safely spaced, locked and gated emergency vehicle driveways and few isolated field entrances possible at select locations)
- Tier 2A: By 2030, in rural areas (outside of city and village boundaries), access to the highway will primarily be at at-grade public road intersections (with some existing safely spaced, locked and gated emergency vehicle driveways and few isolated field entrances)
- Tier 2B: By 2030, in rural areas (outside of city and village boundaries), access to the highway will primarily be at at-grade public road intersections with some existing safely spaced, lower volume private, residential, field or emergency service driveways
- Tier 3: By 2030, in rural areas (outside of city and village boundaries), access to the highway will primarily be at at-grade public road intersections with some existing safely spaced, higher volume private, residential and field or emergency service driveways
- Tier 4: By 2030, in rural areas (outside of city and village boundaries), access to the highway will be at safely spaced driveways and roads

### *State Airport System Plan* classifications

- Air carrier (passenger)/air cargo: Designed to accommodate virtually all aircraft up to and, in some cases, including wide body jets and large military transports
- Transport/corporate: Intended to serve corporate jets, small passenger and cargo jet aircraft used in regional service and small airplanes (piston or turboprop) used in commuter air service
- General utility: Intended to serve virtually all small aviation single and twin-engine aircraft (both piston and turboprop) with a maximum takeoff weight of 12,500 pounds or less
- Basic utility: Intended to serve all small-engine piston aircraft and many of the smaller twin-engine piston aircraft with a gross takeoff weight of 12,500 pounds or less

### Truck volume descriptions

- Low (0 – 501 trucks per day), Medium (501 – 2,500 trucks per day),
- High (2,501 – 8,000 trucks per day), Very High (more than 8,000 trucks per day)

### Urban/urbanized areas

- Urban areas: Areas with populations between 5,000 – 49,999
- Urbanized areas: Areas with populations of 50,000 or more

## Data Sources

### Annual average daily traffic (AADT)

- Current data: WisDOT, *2005 Wisconsin Highway Traffic Volume Data*, December 2006
- Forecast data: WisDOT, August 2007

### Enplanements

- Current data: WisDOT, *2006 Wisconsin Aviation Activity*, April 2007
- Forecast data: Flight Transportation Associates, Inc., *Updated Wisconsin State Airport System Plan Aviation Activity Forecasts*, September 2005; Southeast Wisconsin Regional Planning Commissions, *Review and Update of Regional Airport System Plan Forecasts*, 2005

### National Highway System (NHS) intermodal terminals

- Federal Highway Administration, October 2007

### Passenger rail ridership

- Current data: WisDOT, 2007
- Forecast data:
  - Transportation Economics & Management Systems, Inc., *Midwest Regional Rail Initiative Project Notebook*, 2004
  - Forecast year 2020
  - Forecast Milwaukee station data includes all Milwaukee area stations (Milwaukee Intermodal Station, General Mitchell International Airport and Granville)

### Population

- Current population: Wisconsin Department of Administration, *January 1, 2007 Preliminary Population Estimates for Wisconsin Counties*, 10 August 2007
- 2030 Population: Wisconsin Department of Administration, *Final Population Projections for Wisconsin Counties by Age and Sex: 2000 – 2030*, January 2004
- Current Age 65 and Older Population: 2000 US Census, Summary File 1, Variable P12: Sex by Age
- 2030 Age 65 and Older Population: Wisconsin Department of Administration, *Final Population Projections for Wisconsin Counties by Age and Sex: 2000 – 2030*, January 2004

### Public and specialized transit

- WisDOT, January 2008

### Truck volume

- WisDOT, August 2007

### Wisconsin Metropolitan Planning Organizations (MPOs)

- Chippewa – Eau Claire Metropolitan Planning Organization, *Long Range Transportation Plan 2005 – 2030*, October 2005
- Dubuque Metro Area Transportation Study, *2031 Long-Range Transportation Plan*
- Duluth – Superior Metropolitan Interstate Council, *Access and Mobility for People and Freight 2030*, September 2005
- Fond du Lac Metropolitan Planning Organization, *Long Range Transportation/Land Use Plan for the Fond du Lac Urbanized Area*, October 2005
- Fox Cities Metropolitan Planning Organization, *Long Range Transportation/Land Use Plan for the Fox Cities Urbanized Area*, October 2005
- Green Bay Metropolitan Planning Organization, *Long Range Transportation Plan*, November 2005
- Janesville Metropolitan Planning Organization, *2005 – 2035 Long Range Transportation Plan*, December 2005
- La Crosse Area Planning Committee, *2030 La Crosse and La Crescent Metropolitan Area Transportation Plan*, August 2005
- Madison Area Transportation Planning Board, *Regional Transportation Plan 2030*, November 2005
- Oshkosh Metropolitan Planning Organization, *Long Range Transportation/Land Use Plan for the Oshkosh Urbanized Area*, October 2005
- Sheboygan Metropolitan Planning Organization, *Year 2035 Sheboygan Area Transportation Plan*, January 2006
- Southeastern Wisconsin Regional Planning Commission, *Planning Report 49, A Regional Transportation System Plan for Southeastern Wisconsin 2035*, March 2006
- Stateline Area Transportation Study, *2006 – 2035 Long-Range Transportation Plan*, December 2005
- Wausau Metropolitan Planning Commission, *Wausau Area Metropolitan Area Long-Range Transportation Plan – 2035*, December 2005

### Wisconsin Tribal Transportation Plans

- Bad River Band of Lake Superior Tribe of Chippewa Indians, *Long Range Tribal Transportation Plan*, July 2006
- Forest County Potawatomi Community, *Long Range Transportation Plan*, March 2008
- Ho-Chunk Nation, *Ho-Chunk Nation Long Range Transportation Plan*, June 2005, amended March 2007
- Lac Courte Oreilles Band of Lake Superior Chippewa Indians, *2006 Transportation Plan*, March 2006
- Lac du Flambeau Band of Lake Superior Chippewa Indians, *Long-Range Transportation Plan*, February 2007
- Menominee Nation, *Menominee Indian Reservation Long-Range Transportation Plan*, May 2007
- Oneida Tribe of Indians of Wisconsin, *Transportation Improvement Plan*, December 2003, amended March 2007
- Red Cliff Band of Lake Superior Tribe of Chippewa Indians, *Long Range Transportation Plan for the Red Cliff Reservation*, February 2006
- St. Croix Chippewa Indians of Wisconsin, *St. Croix Tribal Council 2007 Long Range Transportation Plan*, March 2007
- Sokaogon Chippewa Community, *Long Range Transportation Plan*, March 2007
- Stockbridge-Munsee Community Band of Mohican Indians, *2006 Tribal Long-Range Transportation Plan Update*, May 2007

*The information contained in this data set and information produced from this data set was created for the official use of WisDOT. Any other use, while not prohibited, is the sole responsibility of the user. WisDOT expressly disclaims all liability regarding fitness of use of the information for other than official WisDOT business.*

*Figure A-7: Data sources*

# **APPENDIX B:** Summary of Consultation and Plan Comparison Activities

The 2005 federal Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) required states to develop their long-range statewide transportation plans in consultation with state, tribal and local agencies responsible for land use management, natural resources, environmental protection, conservation and historic preservation. The consultation process includes a comparison of the draft plan to state and tribal conservation plans or maps, if available, and to inventories of natural and historic resources, if available.

In addition, SAFETEA-LU requires states to include a discussion of potential environmental mitigation activities and potential areas in which to carry out these activities in their long-range statewide transportation plans. The discussion must be developed in consultation with federal, state and tribal land management, wildlife and regulatory agencies, and may focus on policies, programs or strategies, rather than projects.

This chapter provides a summary of the consultation activities WisDOT undertook with environmental resource agencies and tribes in the development of *Connections 2030*.

## Environmental resource agency consultation

WisDOT held three consultation meetings with environmental resource agencies to request input and dialogue on the proposed *Connections 2030* draft plan prior to public release. Invited agencies were:

- Wisconsin Department of Natural Resources
- Wisconsin Historical Society
- Wisconsin Department of Agriculture, Trade and Consumer Protection
- Wisconsin Department of Administration
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. Department of Agriculture
- U.S. Forest Service
- National Park Service
- U.S. Army Corps of Engineers
- Federal Highway Administration
- Federal Transit Administration
- Federal Aviation Administration
- Federal Railroad Administration
- U.S. Coast Guard, Ninth and Eighth Districts

At the meetings, the draft plan was reviewed, and potential environmental mitigation strategies were discussed. Meeting notes, which include discussions of potential mitigation measures, are available at www.wiconnections2030.gov. WisDOT incorporated many of the comments received during the consultation process into the draft plan. A matrix detailing the comments received and WisDOT's response are also available at www.wiconnections2030.gov.

In addition to the consultation meetings, WisDOT compared the draft plan to available resource agency plans and databases.

### Forest Service

The U.S. Department of Agriculture (USDA) Forest Service manages public lands in national forests and grasslands. The Forest Service mission is to "sustain

the health, diversity, and productivity of the nation's forests and grasslands to meet the needs of present and future generations." The *USDA Forest Service Strategic Plan FY 2007-2012* presents seven goals:

» Restore, sustain, and enhance the nation's forests and grasslands

» Provide and sustain benefits to the American people

» Conserve open space

» Sustain and enhance outdoor recreation opportunities

» Maintain basic management capabilities of the Forest Service

» Engage urban America with Forest Service programs

» Provide science-based applications and tools for sustainable natural resources management

Several draft plan policies support these seven goals. For example, the Forest Service goal to sustain and enhance outdoor recreation activities is directly supported by the draft plan recommendations, as transportation is required to connect people with Forest Service lands. From an economic standpoint, the draft plan contains a number of policies that foster economic growth, including the movement of freight and the promotion of tourism. These policies are consistent with the Forest Service goal of providing and sustaining benefits of the American people as safe, reliable, and efficient transportation is essential to connect Forest Service products and services with markets and provide outdoor recreation opportunities. Similarly, the draft plan's commitment to community sensitive design, including using flexible design standards, minimizing construction impacts, and reducing barrier effects of transportation projects also support Forest Service goals.

## Natural Resource Conservation Service

The mission of the U.S. Department of Agriculture's Natural Resource Conservation Service is "helping people help the land." In order to realize this mission, the Conservation Service provides products and services that allow people to be good stewards of non-federal lands. The *Productive Lands, Healthy Environment, Strategic Plan 2005-2010* includes six goals focused on healthy landscapes:

» High-quality, productive soils

» Clean and abundant water

» Healthy plant and animal communities

» Clean air

» An adequate energy supply

» Working farm and ranch lands

The Conservation Service administers a number of programs in Wisconsin that help sustain agricultural productivity and enhance environmental quality. The Wetland Reserve and the Farm and Ranchland Protection programs involve easements that control land use. The Wetland Reserve Program allows landowners the opportunity to protect, restore and enhance wetlands on their property, while the Farm and Ranchland Protection Program is intended to keep farm and ranchlands in productive agricultural uses.

The draft plan policies support some of the Natural Resource Conservation Service goals. For example, both plans share a common focus on improving air quality and supporting alternative energy sources.

## National Park Service

The National Park Service maintains nearly 400 natural, cultural and recreational sites across the nation. Additionally, the National Park Service helps communities preserve and enhance historic places, recreational opportunities, rivers, streams, trails and greenways. *The Future of America's National Parks* includes five goals to guide the National Park Service for the next nine years:

» Lead America in preserving and restoring treasured resources

» Achieve management and partnership excellence to match the magnificence of the treasures entrusted to its care

» Offer superior recreational experiences where visitors explore and enjoy nature and the great outdoors, culture and history

» Demonstrate environmental leadership to the nation

» Foster exceptional learning opportunities connecting people to parks, especially children and seniors

In Wisconsin, the National Park Service maintains the Apostle Islands National Lakeshore, the Ice Age National Trail, the North Country National Trail and the Saint Croix National Scenic River, each of which has its own management plan or guidance. In addition, the National Park Service maintains 18 national natural landmarks in Wisconsin. These areas are considered outstanding examples of the nation's biological and geological history in both public and private ownership.

The National Park Service also maintains 39 National Historic Landmarks in Wisconsin. These landmarks are significant historic places due to their intrinsic exceptional value or quality associated with interpreting the heritage of the United States. There are also 31 light stations and lighthouses, and over 2,000 places in Wisconsin listed on the National Register of Historic Places.

The draft plan supports several of the National Park Service goals. For example, the draft plan supports tourism and promotes safe and efficient transportation systems. These policies directly support the National Park Service's emphasis on recreational opportunities.

## U.S. Fish and Wildlife Service

The mission of the U.S. Fish and Wildlife Service, a bureau within the U.S. Department of the Interior, is "to work with others to conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people."

The U.S. Fish and Wildlife Service administers nine National Wildlife Refuges and two Wetland Management Districts in Wisconsin. The U.S. Fish and Wildlife Service develops individual plans for each refuge and district to identify goals, objectives and strategies to guide management of the area.

The draft plan includes policies that support the U.S. Fish and Wildlife Service mission. For example, draft plan actions to minimize the spread of invasive species and preserve protected resources offer opportunities to support Fish and Wildlife Service goals.

However, the draft plan also includes several actions that have the potential to conflict with the U.S. Fish and Wildlife Service mission. These potential conflicts arise from the different missions of the two agencies. Early coordination could reveal opportunities for WisDOT to support U.S. Fish and Wildlife Service goals as the draft plan is implemented.

## U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers has three program goals that guide district and division policies as they conduct regulatory business:

» Provide strong protection of the nation's aquatic environment, including wetlands

» Enhance the efficiency of the Corps administration of its regulatory program

» Ensure that the Corps provides the regulated public with fair and reasonable decisions

The primary influence of the Corps' goals on the draft plan is related to water quality and wetland protection; future transportation improvements would invariably impact some water resources and wetlands. However, the draft plan policies emphasizing preservation of natural resources; avoiding, minimizing and mitigating negative environmental impacts, and WisDOT's continued adherence to 'no net loss' wetland strategies would directly support this Corps goal of protecting wetlands.

## U.S. Coast Guard

The U.S. Coast Guard has jurisdiction over bridges that cross navigable waters of the United States as related to location, clearance of bridges, bridge permits, construction activities, and navigation lights and signals at bridges. In addition, the U.S. Coast Guard issues regulations governing the operation of drawbridges. As stated in the Bridge Permit Application Guide, the U.S. Coast Guard's policy is to ensure that "efforts are made to improve the relationship between man and his environment and preserve the natural beauty of the countryside, coastal areas, and natural and cultural resources." The guide also notes that U.S. Coast Guard recommendations and decisions are "based on providing for the reasonable needs of navigation and consideration of these social, economic, and environmental goals."

The draft plan supports U.S. Coast Guard policy by balancing transportation needs with social, economic and environmental goals.

## U.S. Department of Transportation

The U.S. Department of Transportation's *Department of Transportation Strategic Plan: New Ideas for a Nation on the Move, Fiscal Years 2006-2011* addresses goals of all U.S. Department of Transportation agencies, including the Federal Railroad Administration, the Federal Highway Administration, the Federal Transit Administration and the Federal Aviation Administration. The strategic plan consists of six goals:

» Safety

» Reduced congestion

» Global connectivity

» Environmental stewardship

» Security, preparedness and response

» Organizational excellence

The draft plan supports the goals of the U.S. Department of Transportation.

## U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency's mission is to protect human health and the environment, as reflected in the U.S. Environmental Protection Agency's *2006-2011 Strategic Plan*. The plan consists of five goals designed to protect and restore the nation's air, water, and land:

» Clean air and global climate change

» Clean and safe water

» Land preservation and restoration

» Healthy communities and ecosystems

» Compliance and environmental stewardship

The policies listed in Chapter 10, *Preserve Wisconsin's Quality of Life* directly support the goals listed above. These policies deal with WisDOT efforts to continue a comprehensive approach to integrating transportation and the environment, to emphasize air quality and the preservation of protected resources, to incorporate environmental justice, to continue community sensitive design efforts, and to preserve and enhance a positive land use/transportation relationship. Additional draft plan policies also support these goals (such as the increased support of multimodal transportation options).

## Wisconsin Department of Natural Resources

The Wisconsin Department of Natural Resources (DNR) is charged with protecting and enhancing Wisconsin's natural resources, protecting public health and safety, and providing a full range of outdoor recreation opportunities. The *Department-wide Strategic Plan* identified four goals that reflect the Wisconsin DNR's approach to carrying out its mission:

» Making people our strength

» Sustaining ecosystems

» Protecting public health and safety

» Providing outdoor recreation

In addition to reviewing the Wisconsin DNR's strategic plan, WisDOT also considered individual Wisconsin DNR resource plans (Table B-1).

The individual Wisconsin DNR plans focus on different aspects of Wisconsin's natural resources. However, in general, two themes consistently emerge from their goals:

» Wisconsin DNR's commitment to natural resource conservation and protection

» Wisconsin DNR's commitment to continuously improve and develop recreational activities

The draft plan contains a number of policies that support the Wisconsin DNR's efforts to conserve and protect natural resources in Wisconsin. The policies listed in Chapter 10, *Preserve Wisconsin's Quality of Life*, directly support the goals listed above. These policies deal with WisDOT's efforts to continue a comprehensive approach to integrating transportation and the environment, emphasizing air quality and the preservation of protected resources, incorporating environmental justice, continuing community sensitive design efforts and preserving and enhancing a positive land use and transportation relationship. Additional draft plan policies also support these goals, such as the increased support of multimodal transportation options.

The draft plan also contains policies that may conflict with the Wisconsin DNR's efforts to conserve and protect natural resources. For example, the "Optimize traffic movement on the state trunk highway system by utilizing tools to improve existing capacity and, where necessary, adding capacity" policy in Chapter 9, *Promote Transportation Efficiencies*, includes actions that add physical capacity to the system, such as passing lanes, new interchanges and expressway/freeway conversions.

The draft plan supports the Wisconsin DNR's goals related to recreation. The draft plan's goals of safe, efficient, and reliable transportation enable Wisconsin's growing population to access recreational opportunities in the future. Coordination and identification of natural and recreational resources early in the project planning process offers opportunities for WisDOT to support Wisconsin DNR's natural resource and recreation-based goals. Likewise, coordination early in the Wisconsin Department of Natural Resources' project planning process also offers opportunities for WisDOT to support the Wisconsin DNR's goals.

## Wisconsin Department of Agriculture, Trade, and Consumer Protection

The mission of the Wisconsin Department of Agriculture, Trade and Consumer Protection is to serve the citizens of Wisconsin by assuring:

**Table B-1: Wisconsin Department of Natural Resources resource plans**

| Resource plan | Description |
|---|---|
| Land Legacy Report | • Contains descriptions of places in Wisconsin identified as most important for meeting Wisconsin's conservation and recreation needs for the next 50 years |
| Wisconsin Wildlife Action Plan | • Details specific actions for keeping Wisconsin's species off endangered and threatened species lists |
| Fish, Wildlife and Habitat Management Plan | • Identifies broad strategic goals and more specific goals and objectives for a multitude of ecosystems found across the state |
| State Comprehensive Outdoor Recreation Plan | • Classifies, measures and addresses the needs of Wisconsin's recreating public |
| Wisconsin State Trails Strategic Plan | • Provides a vision of a statewide recreational network |
| Statewide Forestry Plan | • Identifies goals and objectives to protect and manage Wisconsin's forest resources |
| State Facility Master Plans | • Identifies goals and objectives for individual state parks, trails and recreation areas, and southern forests |
| Endangered Resource Management Plan | • Identifies actions to manage and conserve specific endangered resources such as the Karner Blue Butterfly and Whooping Crane |
| Outstanding and Exceptional Water Resources | • Provides an inventory of outstanding and exceptional resource waters in Wisconsin |
| Wisconsin State Implementation Plan | • Details strategies and rules that allow the state to meet Clean Air Act requirements |

» The safety and quality of food

» Fair business practices for the buyer and seller

» Efficient use of agricultural resources in a quality environment

» Consumer protection

» Healthy animals and plants

» The vitality of Wisconsin agriculture and commerce

The Department of Agriculture, Trade and Consumer Protection administers a diverse set of programs to address these goals. For the purpose of transportation planning, the department's most relevant goals and programs deal with agricultural needs and protection.

The draft plan notes that WisDOT will continue working with the Wisconsin Department of Agriculture, Trade and Consumer Protection to assess the potential impacts of transportation projects on agricultural lands. Additionally, WisDOT will consider the importance of agricultural land when making project-level decisions and will continue to focus on minimizing, to the extent possible, the negative impacts on agriculture.

The draft plan policies that focus on preserving local roads, and maintaining and improving the safety and efficiency of the transportation network, also support the Department of Agriculture, Trade and Consumer Protection's mission of assuring the vitality of the state's agriculture and commerce.

## Wisconsin Department of Administration

The Wisconsin Department of Administration administers Wisconsin's Comprehensive Grant program. To date, over 740 local governments have submitted comprehensive plans to the department. By 2010, the Department of Administration anticipates over 1,400 local governments will have submitted a comprehensive plan. This program promotes cooperation, collaboration and dialogue among jurisdictions potentially impacted by local planning activities.

In addition, the Department of Administration administers Wisconsin's Coastal Management Program, which was established to preserve and improve access to Wisconsin's Great Lakes coasts. Even though the Coastal Management Program does not issue permits or purchase lands, it does provide funds to various state agencies to improve their management capabilities. This process allows the program to coordinate agency activities so that coastal management is implemented consistently across the state.

The draft plan's policy of preserving Wisconsin's quality of life specifically identifies the goal of preserving and enhancing communities. WisDOT's consideration of local comprehensive plans will encourage cooperative approaches to develop and implement solutions to complex land use issues. The draft plan also presents an opportunity for WisDOT to support Coastal Management Program goals, especially in light of the draft plan's provisions to increase assistance to ports and harbors.

## Wisconsin Historical Society

The Wisconsin Historical Society developed the *Wisconsin Historic Preservation Plan, 2006-2015*, which sets goals and objectives for historic preservation in Wisconsin. Based on the plan, the State Historic Preservation Office will continue its core work, as well as place additional emphasis on partnerships, training, public awareness, and the development of financial resources. The plan's main goals and objectives are:

» Building a strong network of parties interested in historic preservation

» Providing a strong educational structure for historic preservation

» Making preservation a core value for Wisconsinites

» Providing financial stability for preservation activities, ranging from the State Historic Preservation Office to property owners

» Providing citizens and local governments with tools to preserve the states most threatened cultural resources

The draft plan directly supports Wisconsin Historical Society goals through several policies:

» Preserve protected resources

» Continue community sensitive design efforts

## Tribal consultation

WisDOT held one formal consultation meeting with tribes that have a historic interest in Wisconsin to request input and dialogue on the proposed *Connections 2030* draft plan prior to releasing it to the public for review. WisDOT also held follow-up discussions at WisDOT Tribal Task Force meetings. Invited tribes were:

» Oneida Tribe of Indians of Wisconsin

» Menominee Indian Tribe of Wisconsin

» Stockbridge-Munsee Band of Mohican Indians

» Sokaogon Chippewa Community

» Forest County Potawatomi Community

» Lac du Flambeau Band of Lake Superior Chippewa

» Bad River Band of Lake Superior Chippewa

» Red Cliff Band of Lake Superior Chippewa

» Lac Courte Oreilles Band of Lake Superior Chippewa

» St. Croix Chippewa Indians of Wisconsin

» Ho-Chunk Nation

» Sac & Fox Nation of Oklahoma

» Iowa Tribe of Oklahoma

» Prairie Band Potawatomi Nation

WisDOT also invited the U.S. Department of Interior's Bureau of Indian Affairs and the U.S. Department of Transportation's Federal Highway Administration to participate.

At the meetings, the draft plan was reviewed, and potential environmental mitigation strategies were discussed. Meeting notes, which include discussions of potential mitigation measures, are available at www.wiconnections2030.gov. WisDOT incorporated many of the comments received during the consultation process into the draft plan. A matrix detailing the comments received and WisDOT's response are also available at www.wiconnections2030.gov.

In addition to the consultation meeting, WisDOT compared the draft plan to available tribal plans and databases. The comparison was limited to tribal long-range transportation plans. In general, tribes are required to prepare long-range transportation plans to receive Bureau of Indian Affairs Indian Reservation Road funding. As a result, the tribal long-range transportation plans predominantly focused on Bureau of Indian Affairs roads. The plan comparison focused on either tribal activities that impacted a state trunk highway or tribal activities that may qualify for WisDOT program funding, such as transit programs and harbor assistance programs. The draft plan supports the transportation-related activities identified in the tribal transportation plans.

### Bad River Band of Lake Superior Chippewa Indians

The Bad River Band of Lake Superior Chippewa Indians adopted their *Long Range Tribal Transportation Plan* in 2006. The plan identified several transportation issues including:

» Improved coordination among transportation providers

» Continued maintenance and preservation of existing roads

» Construction of new roads to meet development needs

» Improved transportation safety

## Forest County Potawatomi Community

The Forest County Potawatomi adopted its *Long Range Transportation Plan* in 2008. The plan identified transportation needs and issues including:

» Continued maintenance of existing roads

» Transportation safety for non-motorized vehicles and pedestrians

» New roads to meet development needs

## Ho-Chunk Nation

The Ho-Chunk Nation adopted its *Long Range Transportation Plan* in 2005. The plan's recommendations focused on:

» Roads – maintaining existing roads and constructing new roads as needed

» Trails – establishing new trail links, as well as sidewalks

» Transit – considering whether to establish a transit system

## Lac Courte Oreilles Band of Lake Superior Chippewa Indians

The Lac Courte Oreilles Band of Lake Superior Chippewa Indians adopted its *2006 Transportation Plan* in 2006. The plan's goal is "to provide an efficient, safe and sustainable transportation network while preserving the culture of the Lac Courte Oreilles community." The plan identified three objectives to help achieve this goal:

1. Monitor maintenance and future road improvements
2. Improve transportation safety awareness within the communities
3. Create a system of support for walking, biking and other modes of transportation

## Lac du Flambeau Band of Lake Superior Chippewa Indians

The Lac du Flambeau Band of Lake Superior Chippewa Indians adopted its *Long-Range Transportation Plan* in 2007. The plan identifies 10 strategies that address:

» Maintaining existing roads and constructing new roads, as needed, to meet the community's needs and improve transportation safety

» Creating additional sidewalks in the downtown area

» Starting the planning process to establish public transit service

## Menominee Indian Tribe of Wisconsin

The Menominee Indian Tribe of Wisconsin adopted their *Menominee Indian Reservation Long-Range Transportation Plan* in 2007. The plan identified several needs, such as:

» Additional sidewalks and trails

» Bicycle lanes

» Continued maintenance of existing roads

» New roads to accommodate future development

» Continued coordination with other agencies responsible for transportation

## Oneida Tribe of Indians of Wisconsin

The Oneida Tribe of Indians of Wisconsin adopted their *Transportation Improvement Program* in 2003. The plan identified short- and long-term planning priorities including:

» Improved public transit service, including coordinating and cooperating with other transit programs

» Maintenance of existing roadways

» Proposed routes to service housing, economic and community development

» Updating and maintaining roadway information

### Red Cliff Band of Lake Superior Chippewa Indians

The Red Cliff Band of Lake Superior Chippewa Indians adopted their *Long Range Transportation Plan for the Red Cliff Reservation* in 2006. The plan identified several transportation needs including:

» New roadways for planned housing developments; maintenance of existing roadways; and new and improved roadways for commercial and industrial developments

» An expanded marina for recreation, tourism and commercial development

» Safety improvements to separate motor vehicles from pedestrian and recreational vehicles such as ATVs and snowmobiles

» Transit bus shelters and improved transit links to the airport and ferry

### St. Croix Chippewa Indians of Wisconsin

The St. Croix Chippewa Indians of Wisconsin adopted the *St. Croix Tribal Council 2007 Long Range Transportation Plan* in 2007. The plan's goal is "to provide an efficient, safe and sustainable transportation network for the St. Croix Chippewa Indians of Wisconsin while taking care to preserve tribal culture and causing little to no damage to the tribal natural resource base." The plan identified three objectives to achieve this goal:

1. Monitor maintenance and future reservation area roadways
2. Improve transportation safety awareness within the tribe and surrounding communities
3. Create a system of support for walking, biking and other modes of transportation for the St. Croix Chippewa Reservation

### Sokaogon Chippewa Community

The Sokaogon Chippewa Community adopted their *Long Range Transportation Plan* in 2007. The plan's goal is "to provide an efficient, safe and sustainable transportation network while preserving the culture of the Sokaogon Chippewa Community." The plan identified three objectives to achieve this goal:

1. Monitor maintenance and future road improvements
2. Improve transportation safety awareness within the communities
3. Create a system of support for walking, biking and other modes of transportation

### Stockbridge-Munsee Band of Mohican Indians

The Stockbridge-Munsee Band of Mohican Indians adopted their *2006 Tribal Long-Range Transportation Plan Update* in 2006. The plan identified three issues of concern:

» System preservation

» Efficient movement of people and goods

» Improved highway safety

## References

Bad River Band of Lake Superior Chippewa Indians, *Long Range Tribal Transportation Plan*, 2006.

Forest County Potawatomi, *Transportation Plan, Version 2*, 2006.

Ho-Chunk Nation, *Long Range Transportation Plan*, 2005.

Lac Courte Oreilles Band of Lake Superior Chippewa Indians, *2006 Transportation Plan*, 2006.

Lac du Flambeau Band of Lake Superior Chippewa Indians, *Long-Range Transportation Plan*, 2007.

Menominee Indian Tribe of Wisconsin, *Menominee Indian Reservation Long-Range Transportation Plan*, 2007.

Red Cliff Band of Lake Superior Chippewa Indians, *Long Range Transportation Plan for the Red Cliff Reservation*, 2006.

Sokaogon Chippewa Community, *Long Range Transportation Plan*, 2007.

Stockbridge-Munsee Band of Mohican Indians, *2006 Tribal Long-Range Transportation Plan Update*, 2006.

United State Coast Guard, *Bridge Permit Application Guide*, COMDTPUB P16591.35, June 1999.

United States Department of Agriculture, Forest Service, *USDA Forest Service Strategic Plan FY 2007-2012*, FS-880, July 2007.

United States Department of Agriculture, Natural Resource Conservation Service, *Productive Lands, Healthy Environment, Strategic Plan 2005-2010*.

United States Department of the Interior, National Park Service, *The Future of America's National Parks: A report to the President of the United States by the Secretary of the Interior Dirk Kempthorne*, May 2007.

United States Department of the Interior, *Government Performance Resources Act Strategic Plan FY 2007-2012*.

United States Department of Transportation, *Department of Transportation Strategic Plan: New Ideas for a Nation on the Move, Fiscal Years 2006-2011*.
United States Environmental Protection Agency, *2006-2011 Strategic Plan*, EPA-190-R06-001, September 2006.

Wisconsin Department of Administration, Coastal Management Program, *Wisconsin Coastal Management Needs Assessment and Strategy 2006-2010*, January 2006.

Wisconsin Department of Natural Resources, *Department-Wide Strategic Plan*, www.dnr.state.wi.us/aboutdnr/plans/, last revised 12 July 2006.

Wisconsin Historical Society, Division of Historic Preservation – Public History, *Wisconsin Historic Preservation Plan*, 2006-2015.

## Additional data provided

» Forest Service: Maps of existing Forest Service lands

» Natural Resource Conservation Service
  – Maps of Wetland Reserve Program and Farm and Ranchland Protection programs
  – Prime and unique farmland soils

» U.S. Fish and Wildlife Service: Maps of Fish and Wildlife Service properties