

Minnesota
A Collaborative Vision
for Transportation



Statewide Multimodal Transportation Plan



SEPTEMBER 2012





Statewide Multimodal Transportation Plan

September 28, 2012

Dear Citizens of Minnesota,

I am pleased to share with you the Minnesota Statewide Multimodal Transportation Plan 2012-2031. This plan is the result of extensive collaboration over the past year among the Minnesota Department of Transportation and citizens, stakeholders and partners throughout Minnesota. I want to thank everyone who took the time to participate in our outreach meetings and provide input on the plan. To create an accessible plan, truly reflective of Minnesotans' interests, this plan was crafted with the citizen in mind—a plan for everyone.

The social, economic and environmental climates of Minnesota are rapidly changing, and it is critical that our state's transportation system adapt. This Statewide Multimodal Transportation Plan is based on the adopted Minnesota GO 50-year Vision for transportation and provides guidance to help our state achieve this Vision. **The Plan places emphasis on building and maintaining a multimodal transportation system through solutions that ensure a high return-on-investment, given constrained resources, and that complement the unique social, natural and economic features of Minnesota.**

Along with the Minnesota GO Vision, the Statewide Multimodal Transportation Plan will be used to shape subsequent MnDOT plans and investment decisions while serving as a framework and providing guidance for our partners moving forward. The broader multimodal objectives and strategies in this plan will directly affect the direction of modal investment plans beginning with the State Highway Investment Plan, which is being developed this year and completed in 2013. MnDOT's planning efforts support Minnesota Governor Dayton's Better Government strategy by ensuring that MnDOT programs strengthen the state's social and economic fabric as efficiently and cost-effectively as possible.

Performance-based and Risk-based Planning

MnDOT has used performance measures to inform management and investment decisions since the mid-1990s and made it a formal part of the statewide planning process in 2003. This was the first performance-based statewide transportation plan in the nation. Performance measures illustrate how well the transportation system is functioning in relation to quantifiable targets. Measures cover all modes, system assets, and operations. A few examples include average speed for travelers, crash rates and incidence of fatalities, pavement and bridge condition, and age of transit vehicles.

Heightened emphasis on the growing disparity between available resources and the work needed to maintain sound infrastructure was a major theme for the 2009 plan update. This challenge remains. Currently, the investments required to meet existing performance targets exceed projected resources. As a result, MnDOT has begun formally incorporating risk management into the transportation planning process.

Using risk to inform investment and project decisions is not a new concept for MnDOT. However, moving forward, the use of risk management will be more standardized, transparent, and an integral part of the modal investment plans. It will serve as a starting point for discussions with the public and transportation partners regarding investment decisions and required tradeoffs in light of fiscal constraints.

The following represent significant changes to MnDOT's planning and investment approach.

- **Apply multimodal solutions that ensure a high return-on-investment, given constrained resources, and that complement the unique social, natural and economic features of Minnesota.** This approach will be applied throughout the state and across modes. In Greater Minnesota, examples may include coordinating signal timing along a corridor, reducing risk at intersections, and extending transit service both in terms of area and hours of service. In the Twin Cities, examples include active traffic management and the development of a managed lane system.
- **Strategically fix the system.** Based on recent revenue projections, it will not be feasible to maintain all assets in current condition or better over the near to medium term. MnDOT will work with its partners to define priority networks based on connectivity and accessibility and invest in these assets accordingly.
- **Build to a maintainable scale to keep Minnesota's transportation system on a sustainable track for the future.** Using a risk based approach, make capital, operations, and maintenance investment decisions by considering impacts to the state's economy, environment, and quality of life. MnDOT will identify, assess and manage the potential risks and trade-offs for the transportation assets within the agency's control.
- **Better align ownership of Minnesota's roadways with statewide and local priorities.** Working with critical partners, including cities, counties, and townships, MnDOT will initiate a comprehensive review of current roadway use and ownership and identify barriers to making ownership changes. Recommended adjustments will allow project selection to better reflect priorities at all levels.
- **Establish multimodal strategies.** This plan includes truly multimodal objectives and strategies. In previous transportation plans, all modes were included but addressed separately. This plan brings it to the next level in terms of modal integration and includes objectives and strategies that can be applied across transportation modes.

The success of Minnesota's transportation system depends on the coordinated efforts of many public and private providers. The objectives and strategies outlined in this plan provide the framework for our joint efforts. MnDOT will continue to involve citizens, stakeholders and partners in the implementation of this plan and in future investment and policy decisions. Through continued collaboration, together we can maintain and build a transportation system that realizes the Minnesota GO 50-year Vision for transportation and maximizes the health of people, the environment, and our economy.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas K. Sorel". The signature is fluid and cursive, with a long horizontal stroke at the end.

Thomas K. Sorel
Commissioner

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INTRODUCTION

The social, economic, and environmental climate of Minnesota is rapidly changing, and it is critical that our state's transportation system adapt. This Statewide Multimodal Transportation Plan for Minnesota takes into account the state's ever-evolving landscape. It is based on the adopted Minnesota GO 50-year Vision, which places unprecedented emphasis on building and maintaining a transportation system that complements and strengthens the unique social, natural, and economic features of Minnesota. Additionally, this document was developed to align with state legislative goals and federal guidance.

Throughout a yearlong process of engaging key stakeholders, members of the public, and transportation professionals, the Minnesota Department of Transportation (MnDOT) worked to develop a multimodal plan truly reflective of statewide interests. In December 2011 at two forums,



Minnesota's transportation stakeholders were asked to provide feedback to help shape draft plan objectives. Stakeholders were also asked to identify the next steps to help realize the Minnesota GO Vision. Feedback resulted in revised objectives and development of statewide multimodal strategies. These draft objectives and strategies served as the primary content for review at a series of ten public open houses conducted around the state in January and February of 2012. The result was further input on draft plan language. After reviewing and addressing comments and feedback, MnDOT returned to its stakeholders in April to share revised text and solicit comments about the refined draft language.

As the Statewide Multimodal Transportation Plan, this document is reflective of Minnesotans' voices, as expressed throughout this intensive engagement and review process. The content is strategically organized into chapters that address the most pertinent questions facing Minnesota's transportation system.

The result is a transportation policy framework for all Minnesota partners and transportation modes for the next 20 years that focuses on multimodal solutions that ensure a high return-on-investment while considering the context of place, and how land use and transportation systems should be better integrated.

Transportation planning involves public and private interests and all levels of government. Some are responsible for the delivery of the transportation system, either a specific mode or at a specific level. Others are responsible for providing guiding input, either technical or advocating for a specific interest.

The key players that this plan relies on to develop, manage, and operate Minnesota’s multimodal transportation system include all transportation partners—local, regional, state, tribal, federal, private-sector, and other partners. A more comprehensive definition of partners is included in the beginning of **Chapter 4 “How will we guide ourselves moving forward?”**

The Statewide Multimodal Transportation Plan is divided into six chapters. The following is a brief summary of each.

Chapter 1 “Where are we going?” sets the scene with the adopted Minnesota GO 50-year Vision for transportation. It outlines what Minnesotans said they want their transportation system to be able to do now and in 50 years. This is the long-term goal toward which all transportation plans should lead.

To achieve the Minnesota GO Vision, it is important to know the starting point.

Chapter 2 “Where are we now?” discusses the state of the state. It defines the existing transportation system and provides crucial context on Minnesota’s quality of life, environmental health, and economic competitiveness.

Chapter 3 “What is directing this plan?” provides information on the recent history of transportation planning in Minnesota and how changes in policy affect this planning effort.

With this context on the past, present, and future of Minnesota transportation established, we can effectively plan for the development and maintenance of Minnesota’s transportation system. **Chapter 4 “How will we guide ourselves moving forward?”** articulates objectives and strategies that will guide Minnesota toward the 50-year Vision over the next two decades.

To ensure that the objectives and strategies set forth in this plan are used effectively, **Chapter 5 “What comes next for MnDOT?”** provides the steps necessary for implementation. It outlines how this plan will influence MnDOT’s modal investment plans as well as capital programs and operating plans.

Chapter 6 “How do I get more information?” connects readers to additional information that guided the development of this plan.



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Chapter 1

WHERE ARE WE GOING?

The Minnesota GO Vision for the transportation system—a multimodal transportation system that maximizes the health of people, the environment and our economy

SEPTEMBER 2012

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WHERE ARE WE GOING?

Shaping a Collaborative Vision

In early 2011, MnDOT launched the Minnesota GO visioning process. Teaming with the University of Minnesota and the Citizens League, MnDOT asked Minnesotans to help shape a Vision that answers the question, “What are we trying to achieve for transportation over the next 50 years?” The intent of this visioning effort was to collectively define a desired destination toward which state, regional, and local transportation planning could navigate. The end result was a shared Vision that aligns the transportation system with what Minnesotans expect for their quality of life, economy, and natural environment.

The Minnesota GO visioning process included interviews with experts about transportation, the economy, and factors unique to our state. These experts’ views about current trends and potential for transformational changes in the decades ahead were presented to stakeholders to stimulate a discussion about Minnesota’s challenges and opportunities and what it means for our future quality of life, economic competitiveness, and environmental health.

Throughout the process, Minnesotans were engaged through a website and various forms of social media. Teens participated in online and in-person discussions. Public workshops were held across the state to discuss several future scenarios of what the world might look like and common solutions regardless of the future. The Minnesota GO visioning process was guided by a 31-member steering committee that considered all of the input and ultimately advised the Commissioner of Transportation on what should be included in the Minnesota GO Vision. The steering committee was made up of representatives from eight state agencies, local and regional transportation planning organizations, transportation and business community interests, and broad representatives of Minnesota’s diverse society.

Altogether, thousands of Minnesotans played a role in helping craft the Minnesota GO Vision for transportation for future generations. It also includes a set of Guiding Principles that are intended to be used collectively to help guide future policy and investment decisions for all forms of transportation.



The Minnesota GO Vision and Guiding Principles were adopted in November of 2011.



The Minnesota GO Vision was adopted in November 2011. It is included on the following pages along with the Guiding Principles and a discussion of some of the anticipated challenges and opportunities over the coming 50 years. This is the first long-range transportation vision adopted for Minnesota. It provides the desired outcomes for this Statewide Multimodal Transportation Plan over the next 20 years and for all modes and transportation partners.

MINNESOTA GO VISION FOR TRANSPORTATION

Minnesota’s multimodal transportation system maximizes the health of people, the environment and our economy.

The system:

- Connects Minnesota’s primary assets—the people, natural resources and businesses within the state—to each other and to markets and resources outside the state and country
- Provides safe, convenient, efficient and effective movement of people and goods
- Is flexible and nimble enough to adapt to changes in society, technology, the environment and the economy

QUALITY OF LIFE

The system:

- Recognizes and respects the importance, significance and context of place—not just as destinations, but also where people live, work, learn, play and access services
- Is accessible regardless of socioeconomic status or individual ability

ENVIRONMENTAL HEALTH

The system:

- Is designed in such a way that it enhances the community around it and is compatible with natural systems
- Minimizes resource use and pollution

ECONOMIC COMPETITIVENESS

The system:

- Enhances and supports Minnesota’s role in a globally competitive economy as well as the international significance and connections of Minnesota’s trade centers
- Attracts human and financial capital to the state

GUIDING PRINCIPLES

The following principles will guide future policy and investment decisions for all forms of transportation throughout the state. These are listed in no particular order. The principles are intended to be used collectively.

Leverage public investments to achieve multiple purposes:

The transportation system should support other public purposes, such as environmental stewardship, economic competitiveness, public health and energy independence.

Ensure accessibility: The transportation system must be accessible and safe for users of all abilities and incomes. The system must provide access to key resources and amenities throughout communities.

Build to a maintainable scale: Consider and minimize long-term obligations—don't overbuild. The scale of the system should reflect and respect the surrounding physical and social context of the facility. The transportation system should affordably contribute to the overall quality of life and prosperity of the state.

Ensure regional connections: Key regional centers need to be connected to each other through multiple modes of transportation.

Integrate safety: Systematically and holistically improve safety for all forms of transportation. Be proactive, innovative and strategic in creating safe options.

Emphasize reliable and predictable options: The reliability of the system and predictability of travel time are frequently as important or more important than speed. Prioritize multiple multimodal options over reliance on a single option.

Strategically fix the system: Some parts of the system may need to be reduced while other parts are enhanced or expanded to meet changing demand. Strategically maintain and upgrade critical existing infrastructure.

Use partnerships: Coordinate across sectors and jurisdictions to make transportation projects and services more efficient.



Future Challenges and Opportunities

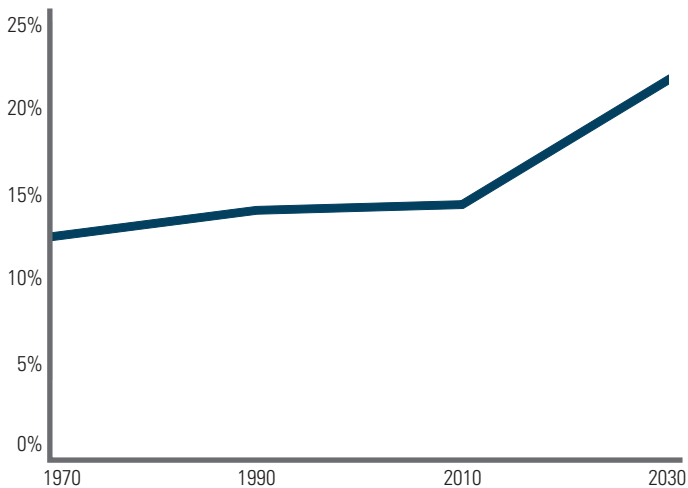
This Statewide Multimodal Transportation Plan covers the next 20 years—likely to be a time of great change and transition for Minnesota. The Minnesota GO visioning process identified nine key factors, described below, that are both challenges as well as opportunities the state will likely face. All affect Minnesota’s transportation needs and the facilities and services available to meet them.

AGING AND INCREASINGLY DIVERSE POPULATION

Over the next 20 years, as the peak of the baby-boom generation approaches the age of 65 and beyond, their travel patterns are likely to change. Although many will continue to drive personal vehicles well into their elder years, they are likely to adjust the amount, time, and destinations of their travel; many also will seek or require alternatives to driving their own vehicle. This demographic shift will increase the urgency to improve the accessibility of the transportation system and increase transportation options. **Figure 1-1** highlights the rapid increase of Minnesota’s population aged 65 and older. Between 1970 and 2030 the population 65 and older is projected to increase by approximately 220 percent compared to a general increase in population of only 63 percent.

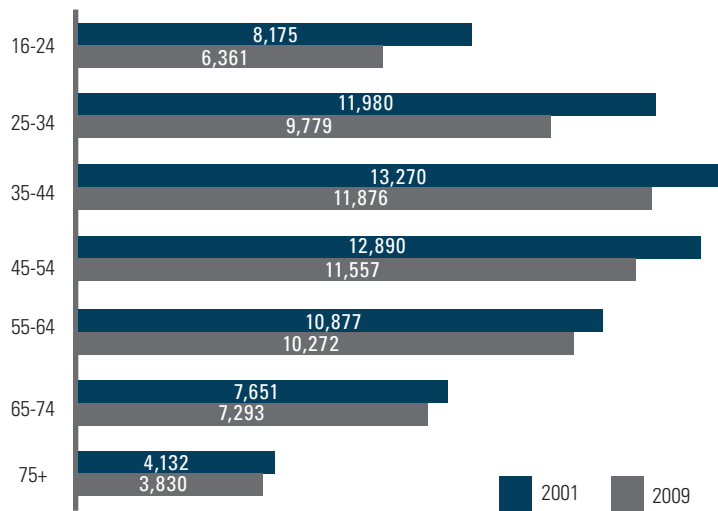
Figure 1-2 illustrates how annual miles driven changes with age, showing both how average miles driven decreases in older populations as well as the recent trend of younger adults driving less and choosing to ride transit, bicycle, or walk more.

Figure 1-1: Percentage of Minnesota’s Population Aged 65 and Older



Source: US Census Bureau and Minnesota Demographer’s Office

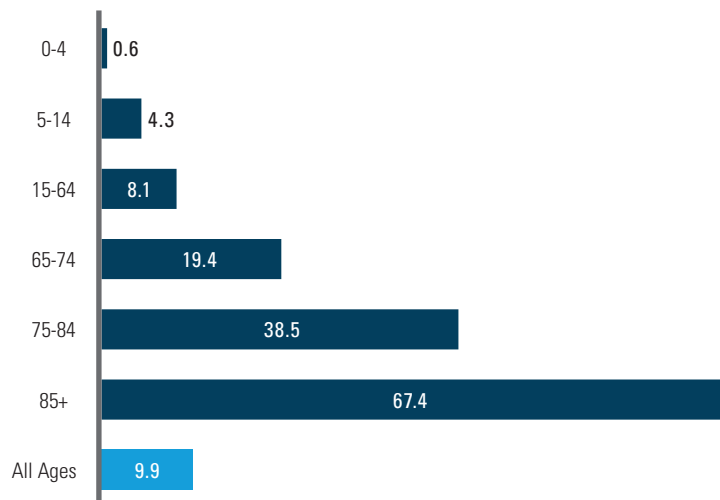
Figure 1-2: National Average Annual Vehicle Miles Traveled by Age Group



Source: National Household Travel Survey

Almost one out of ten Minnesotans has one or more physical or cognitive disabilities. For those 85 or older, nearly seven out of ten have at least one disability. Disabilities can make transportation more difficult or impossible without assistance. As the population ages, the number of Minnesotans living with disabilities is likely to increase substantially, as illustrated in **Figure 1-3**.

Figure 1-3: Percentage of Minnesotans with Disability by Age (2009)



Source: US Census Bureau, American Community Survey

Minnesota is also becoming more ethnically and culturally diverse. It is increasingly important for transportation agencies and communities to understand and seek out diverse perspectives in the planning process as the housing, transportation, and service needs of populations vary.



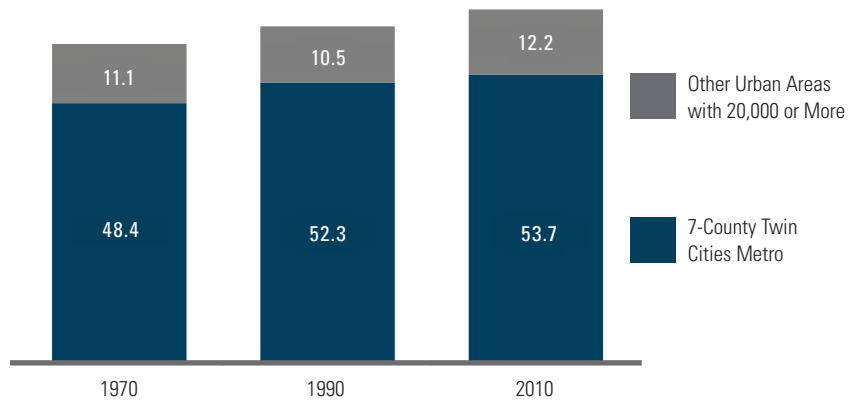
MORE MINNESOTANS LIVE IN URBAN SETTINGS

Minnesotans are increasingly settling in urban areas. The 2010 Census reported that only about 19 percent of Minnesotans live in rural settings. About 15 percent live in small towns and cities. More than 65 percent live in urban areas with populations greater than 20,000; more than half the state's population lives in the Twin Cities metropolitan area, as shown in **Figure 1-4**. The other urban areas greater than 20,000 are scattered throughout Greater Minnesota: Austin, Brainerd/Baxter, Duluth/Superior, Faribault, Fargo/Moorhead, Grand Forks/East Grand Forks, La Crosse/La Crescent, Mankato, Owatonna, Rochester, St. Cloud, and Winona.

While not all cities in the state continue to grow, jobs and services are consolidating in Minnesota's regional centers. Suburban areas are likely to see increases in population as well as changes in basic community design as activity/town centers develop. Access to transit and vibrant walkable/bikeable neighborhoods and city centers has made urban living attractive to young professionals and active retirees alike. Continuation of this trend will further increase demand for more urban forms of transportation and strain resources available for maintenance of existing transportation systems in rural areas.



Figure 1-4: Percentage of Minnesota's Population Living in Urban Areas of 20,000 or More People



Source: US Census Bureau

ENERGY SHIFTS

The Next Generation Energy Act of 2007 calls for at least 25 percent of Minnesota’s energy to come from renewable sources by 2025. It also set a target of reducing greenhouse gas emissions 30 percent by 2025 compared to 2005 levels and 80 percent by 2050. In 2010, Minnesota was ranked fourth in the nation for wind production capacity. Geothermal, natural gas, and solar are all seeing increased use.

Due in large part to global demand, the price of gasoline in Minnesota has more than doubled, and the stability of supply and prices has become increasingly erratic since 2002 (see **Figure 1-5**). Drivers have adapted by driving less and switching to more efficient vehicles or using different fuels. U.S. and Canadian oil sourced from shale and sand deposits is increasing, but production costs are comparatively higher than traditional oil production. Electric and hybrid passenger vehicles are increasingly available and charging infrastructure is more common, but to-date these vehicles are only a small portion of the vehicle fleet. Electrification of heavy commercial vehicles does not appear to be viable in the short to medium term.

Since 2005, by [Executive Order](#), Minnesota state agencies have been managing vehicle fleets to cut gasoline and diesel use dramatically. And since 2006, state vehicles are required to use E85 or biodiesel fuels whenever practical. Although biofuels hold promise to help reduce oil dependence—particularly as a replacement for diesel—they are not likely to fully satisfy all fuel needs and are not yet widely available as an economical option.

Figure 1-5: Average Retail Price of Regular Gas per Gallon in Minnesota



Source: US Energy Information Administration



TRANSPORTATION TECHNOLOGY

Technology for traffic signals, transit systems, and other aspects of transportation is improving and becoming more integrated. Vehicle technology also has advanced rapidly in recent years and is projected to continue improving in the coming decades. Vehicles are becoming more efficient and cleaner. In addition, sensors and increasing levels of automation are more commonplace. Options such as collision avoidance systems and adaptive cruise control, which use sensor technology to improve safety, are available on many of today's vehicles.

Recent tests have demonstrated the viability of fully autonomous vehicles, and technology giant Google was awarded a patent for self-driving vehicle technology in 2011. Also in 2011, Nevada passed a law allowing driverless cars to legally operate in the state. While experts disagree on whether there will ever be a system of fully autonomous vehicles ("robot cars"), the potential safety and efficiency benefits of emerging transportation technologies are enormous.



PERSISTENT BUDGET CHALLENGES

Transportation in the state is funded through a mix of sources including, but not limited to, fuel taxes, vehicle sales and registration taxes, property taxes, general sales taxes, special assessments, fares, advertising, private investment, and a variety of other fees. Many of these revenue sources are anticipated to see little to no growth or to potentially decline. For those sources not dedicated exclusively to transportation, increased pressure to reallocate funds toward non-transportation purposes may occur over the next decade or more. Continued strains are expected for the budgets of governments at all levels raising concerns that, if unaddressed, consolidation, reduction, and elimination of services and facilities are all possible. Heightened innovation, exploration of shared services, and other collaborative solutions also are likely.

HEALTH IMPACTS

According to the Centers for Disease Control, the obesity rate for adult Minnesotans jumped from fewer than ten percent in 1990 to a quarter of the population in 2010.¹ With that change comes an increased frequency of several chronic diseases related to obesity—heart disease, diabetes, and cancer. This trend coupled with the higher health needs of an aging population are contributing factors that strain the state’s ability to pay for health care. Nationally, expenditures on health care have increased from 12.5 percent of Gross Domestic Product (GDP) in 1990 to 17.6 percent of GDP in 2009 and are projected to increase further by 2020.²

Health professionals, experts, and advocates assert that active lifestyles that include regular and sustained physical activity can help Minnesotans lead healthier lives. Transportation choices such as bicycling and walking have great health benefits. Depending on land use, travel demand, transportation system design, and the safety of different types of transportation, the built environment and the transportation system constrain or enable physical activity depending on how far apart destinations are from each other and how well-integrated bicyclists and pedestrians are in facility design. Higher density, mixed-use development in urban areas that accommodates walking, bicycling and takes advantage of nearby transit facilities and services, also referred to as Transit-Oriented Development (TOD), can provide large but often overlooked health benefits. People who live or work in communities with public transportation tend to drive significantly less and rely more on walking, bicycling and public transit. This helps to reduce traffic crashes and vehicle emissions while improving physical and mental health.

Even though individual vehicle emissions have fallen dramatically over past decades, transportation remains a substantial contributor to air pollution including fine particulates and air toxics.



¹ <http://www.cdc.gov/obesity/data/trends.html>

² https://www.cms.gov/NationalHealthExpendData/25_NHE_Fact_Sheet.asp

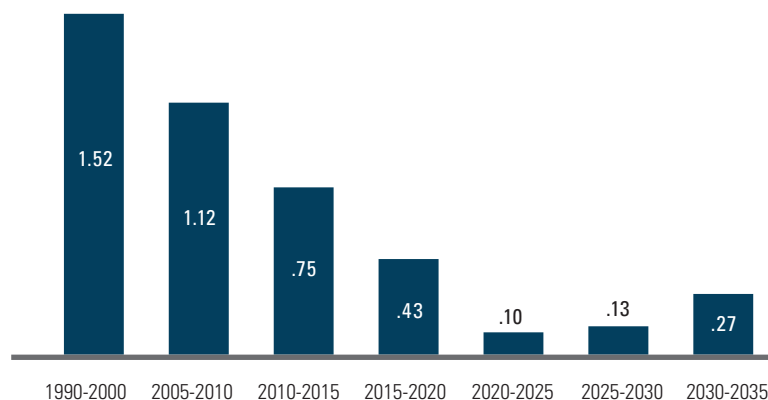


INCREASED GLOBAL COMPETITION

The global economy is likely to become even more competitive as the economies of countries like China, India, and Brazil continue to expand. According to the United Nations, the world’s population surpassed seven billion people in 2011, which was an increase of one billion people in just 12 years.³ Global population growth will put enormous pressure on basic resources such as water, food, energy, metals as well as transportation infrastructure. Minnesota’s diversified economy, natural resources, food production systems, educational system, and increasingly diverse population offer the potential to compete globally, but Minnesota will also need to compete with the rest of the world for talent and other human capital to maintain innovation and competitiveness. It will be important for Minnesota’s transportation system to integrate and be compatible with national and international systems.

As baby-boomers retire, and without significant increases of in-migration, Minnesota’s workforce is not likely to increase substantially, even as the total population grows (see **Figure 1-6**). Combined with greater global competition, this creates pressure to increase the productivity of our workforce and improve the efficiency of our transportation system.

Figure 1-6: Average Annual Percentage Growth Rate of Minnesota’s Workforce



Source: Minnesota Demographer’s Office

³ <http://www.un.org>

CHANGING WORK ENVIRONMENTS, TELECOMMUNICATIONS, AND ACCESS TO SERVICES

While not all jobs can be done remotely or through flexible schedules, many jobs and businesses will take advantage of options for telecommuting and flexibility in work arrangements. These options could ease pressure on congested urban areas by shifting the timing and destinations of peak period travel. Through participation in the eWorkPlace program, a state-sponsored program focused on telecommuting and flexible work practices for Twin Cities metropolitan area employers, employees at 48 businesses reduced their combined travel by an average of 150,000 miles each week over a two year period.⁴ Some of the state's largest employers have already adopted flexible work arrangements and telecommuting.

Remote access to health care and other services also are likely to increase and may help meet the need for health care in more geographically isolated parts of the state. Expanding virtual access will improve smaller communities' abilities to participate in the global economy.



eWorkPlace

⁴ <http://www.eworkplace-mn.com>

FLOODS/WATER QUALITY

Minnesota is likely to experience more flooding, particularly flash floods, in the future. In the last 30 years, the average temperature in Minnesota has increased by approximately 3.5 degrees Fahrenheit.⁵ As the climate changes, precipitation patterns are projected to shift from large fronts of precipitation to more thunderstorm-like events. This could lead to regular incidences of simultaneous drought and flood conditions. This is an issue that affects design for roads, bridges, ponding needs, and other runoff management strategies as experienced in northeast and southeast Minnesota in recent years. Flooding can dramatically damage roads and other transportation facilities. During the past decade, Minnesota has spent an average of almost two million dollars a year fixing flood-damaged roads.

More frequent and more severe flooding also will further exacerbate water quality issues in the state. According to the Minnesota Pollution Control Agency, the number of water impairments in the state has increased from 1,772 in 2002 to 2,171 in 2012.⁶

SUMMARY

Some of these challenges and opportunities are already having impacts on Minnesota's quality of life, economic competitiveness, and environmental health. Some will become more noticeable over the next ten years, while others may take longer for their effects to become obvious. Because transportation infrastructure can last up to 50 years or more, it is important for MnDOT and transportation agencies to monitor and assess the risks of impacts and the need to adapt designs and operation of the transportation system.



⁵ <http://www.youtube.com/user/minnesotago>

⁶ <http://www.pca.state.mn.us/enzq94b>



Chapter 2

WHERE ARE WE NOW?

A current snapshot of Minnesota's population, economy, and environment along with information about the existing multimodal transportation system

SEPTEMBER 2012

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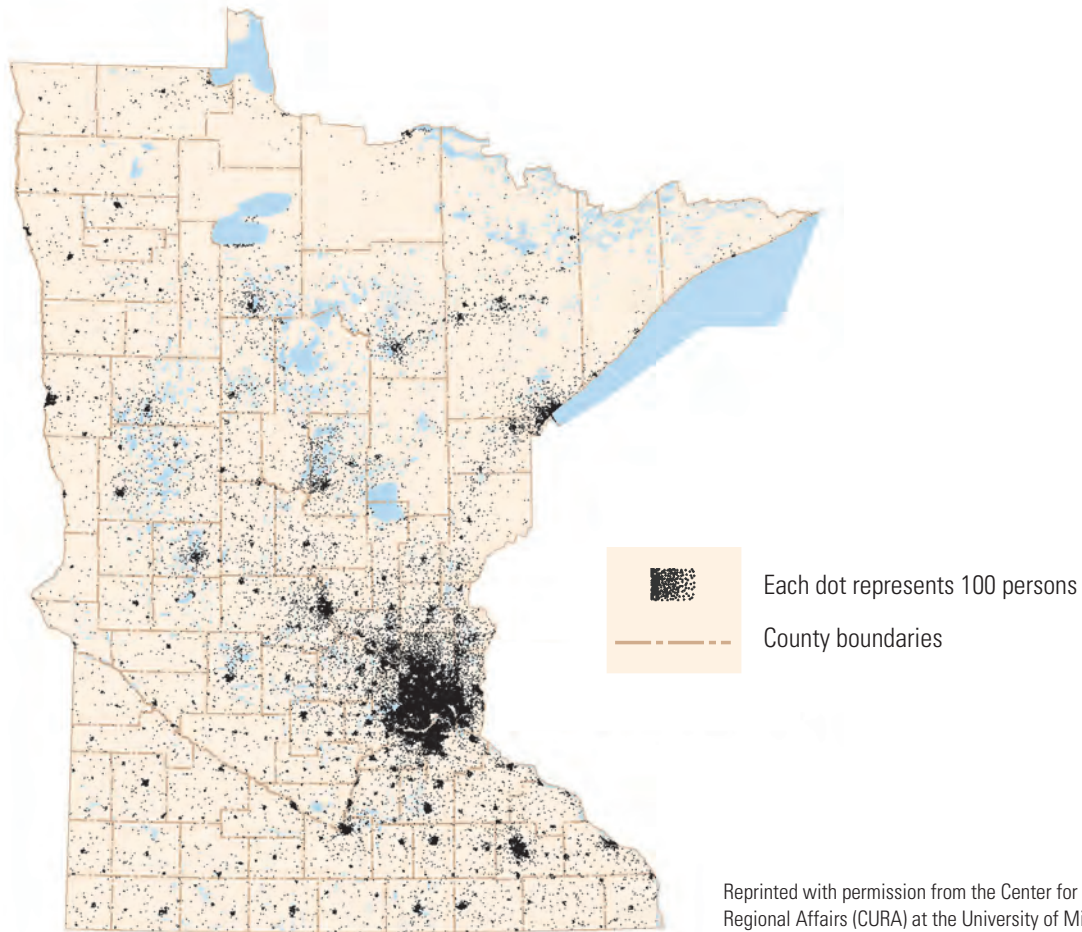
WHERE ARE WE NOW?

Minnesota is a great place to live, work, play, start a business, visit, and raise a family. Minnesota's transportation system contributes to the state's overall quality of life and economic competitiveness. The transportation system connects businesses to suppliers and customers around the nation and world. Minnesotans rely on the transportation system to get to their jobs and school, visit the doctor, enjoy the natural environment, shop, and take advantage of the amazing cultural, entertainment, and recreational opportunities available in the land of 10,000 lakes. Both the state and the transportation system have great strengths as well as challenges.

Minnesota's Population

As of 2010, 5.3 million people called Minnesota home.⁷ More than half of Minnesotans live in the seven-county Twin Cities metropolitan area. **Figure 2-1** shows the population distribution across the state.

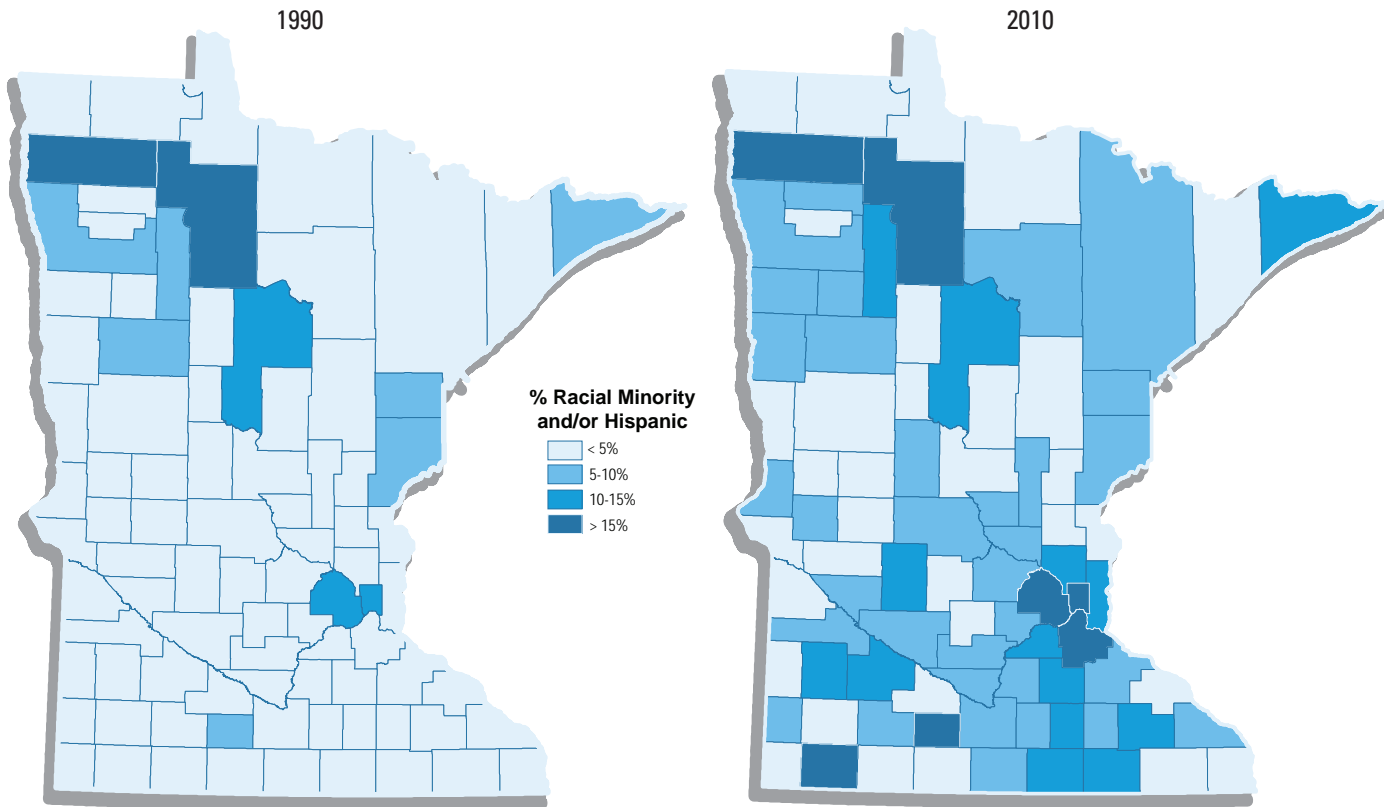
Figure 2-1: Minnesota Population Distribution 2010



⁷ US Census Bureau

As highlighted in **Figure 2-2**, over the last 20 years the population of Minnesota has diversified throughout the entire state. Between 2000 and 2010, the state's population of color increased 55 percent, while the population of the state as a whole grew only 7.8 percent. Currently, approximately 6.5 percent of Minnesotans are foreign-born.⁸

Figure 2-2: Minnesota Population Diversity by County



Source: US Census Bureau

Understanding the population makeup of Minnesota is critical for transportation decision-making. It is important that the people included in the decision-making process are representative of the state's demographics to ensure that the decisions being made are reflective of the needs and priorities of the people of Minnesota.

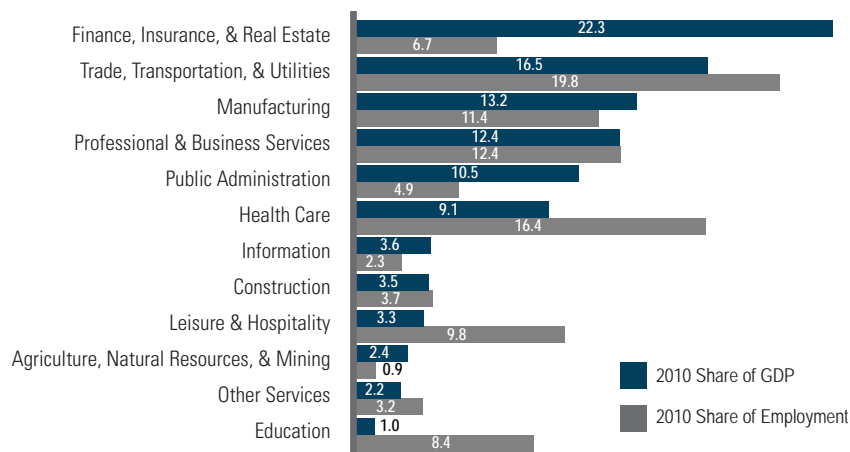
⁸ US Census Bureau

Economy

Minnesota has a strong, diversified economy with unemployment typically below the national average. As of January 2012, the Minnesota unemployment rate was 5.9 percent versus 8.3 percent nationally.⁹ Per capita GDP, a common measure of economic activity, is approximately \$3,000 more than the national average.¹⁰ On a per capita basis, Minnesota ranks second in the number of Fortune 500 companies.¹¹ It also is home to world-class research and medical facilities such as the Mayo Clinic in Rochester.

Finance, insurance, real estate, trade, manufacturing, professional services, public administration, and health care are the largest sectors in Minnesota's economy (see **Figure 2-3**). Minnesota is the nation's largest producer of iron ore and taconite¹² as well as the sixth largest agricultural state.¹³ Although heavily reliant on freight systems for product transport, mining, forestry, and agriculture collectively make up less than three percent of the state's economic activity.

Figure 2-3: Percentage of Minnesota's Gross Domestic Product and Employment by Economic Sector (2010)



Source: US Bureau of Economic Analysis

In 2010, Minnesota was ranked 14th in the nation with a median annual household income of just over \$55,000.¹⁴ Additionally, more than 30 percent of adults in Minnesota have at least a bachelor's degree, which is the 10th highest in the nation. Both Minnesota's median income and educational attainment are above the national average. However, disparities along racial lines exist. In the United States, the Twin Cities metropolitan area has one of the most severe racial employment disparities.¹⁵

⁹ Bureau of Labor Statistics

¹⁰ Bureau of Economic Analysis

¹¹ MN Department of Employment and Economic Development

¹² MN Department of Natural Resources

¹³ US Department of Agriculture

¹⁴ US Census Bureau

¹⁵ Economic Policy Institute

Minnesota is the nation's largest producer of iron ore and taconite¹² as well as the sixth largest agricultural state¹³



As shown in **Figure 2-4**, on average approximately 11 percent of the state's population was living below the poverty line in 2010, an increase from approximately eight percent in 2000. **Figure 2-4** also highlights how poverty levels vary by race. **Figure 2-5** highlights the geographic distribution of poverty across the state. To better address these trends and align with the Minnesota GO Vision and Guiding Principles, "The system should be accessible regardless of socioeconomic status or individual ability" and "must be accessible and safe for users of all abilities and incomes."

Figure 2-4: Percentage of Minnesota's Population Below Poverty Line by Race

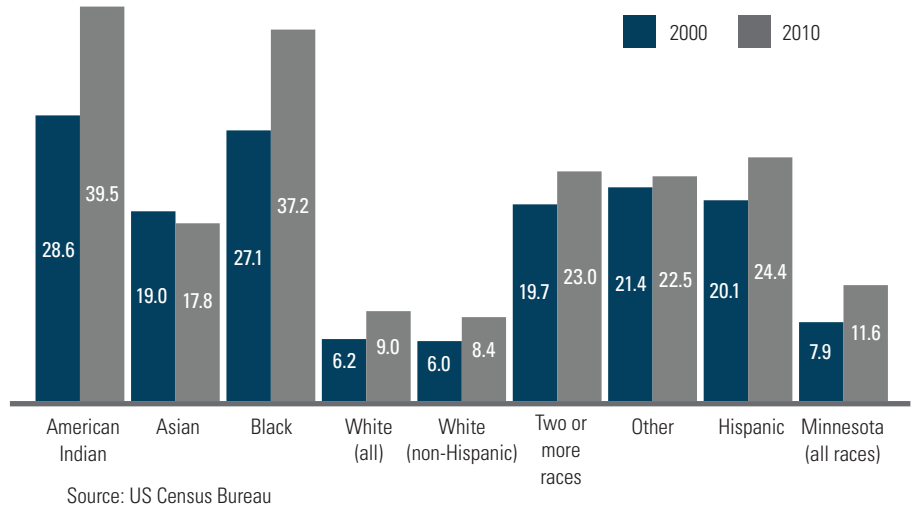
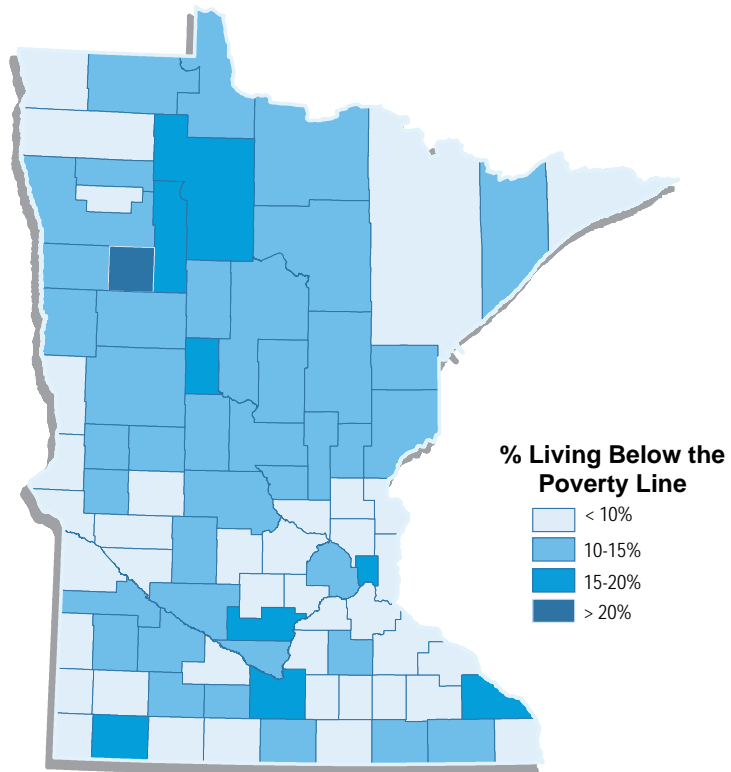


Figure 2-5: Minnesota Population Poverty by County, 2010



Source: US Census Bureau

Access to technologies like broadband is important to the economic competitiveness of Minnesota. There are efforts underway to expand access to high-speed broadband service (greater than ten mbps¹⁶) to everyone in the state. Currently 99 percent of urban residents in Minnesota have access to high-speed broadband service, compared with only 52 percent of the population in rural areas.¹⁷

Economic conditions greatly impact the use of the transportation system, whether it is how and when employees get to work, the transportation needs of companies, or the changes in travel that result from technologies such as broadband. It also is important to recognize that the transportation system can influence the economy of the state by allowing for the easy movement of goods, connecting to critical markets, and attracting human and financial capital to Minnesota.

Environment

Minnesota’s landscape varies from the evergreen forested north, to western prairies, central oak-savanna, and the “big woods” forests and hills of the east and southeast. Despite the changes over the past 200 years from logging, agricultural production, mining, and other development, the state retains vital wildlife populations. Of the lower 48 states, Minnesota hosts the largest number of timber wolves as well as the second largest breeding bald eagle population.¹⁸ The Mississippi River system is a major flyway for migratory birds.

Water plays a crucial role in Minnesotan culture, climate, and economy, and it is inherently connected to statewide transportation. In fact, Minnesota has more shoreline than California, Florida, and Hawaii combined.¹⁸ Historically major cities, including Minneapolis, St. Paul, St. Cloud, and Duluth, were sited along waterways for transportation and economic advantages. **Table 2-1** shows that the land of 10,000 lakes is actually home to:

Table 2-1: Minnesota Water Resources

Lakes (10+ acres)	11,842
Natural Rivers and Streams	6,564 (69,200 miles)
Wetlands	9.3 million acres

Source: MN DNR

¹⁶ Minnesota Ultra-High-Speed Broadband Task Force

¹⁷ National Telecommunications and Information Administration; urban/rural definitions from US Census

¹⁸ MN Department of Natural Resources





Air quality in Minnesota is generally good and improving. Nationwide, vehicle emissions account for nearly half of the volatile organic compounds that lead to smog, more than half of nitrogen oxide emissions, and half of toxic air pollutants.¹⁹ In Minnesota most air pollution, including from transportation sources, is associated with the combustion of fossil fuels for one purpose or another. While population and other indicators of economic activity have increased over the past decade, major pollutant emissions have steadily declined. Greenhouse gas emissions from transportation sources and other sectors have also declined.²⁰

The Minnesota Pollution Control Agency reports daily on ground-level ozone, sulfur dioxide, carbon monoxide, and fine particles in Minnesota’s air. While Minnesota generally receives high marks for air quality, there are still areas with elevated pollution. In 2009 and 2010, there were a number of days with high levels of fine particles. For ozone, local pollutants mingling with pollution from other regions occasionally come close to unhealthy levels. The federal government has standards for air quality that impact transportation policy since vehicle emissions are a major contributor to air pollution. Currently, the federal government is considering tighter standards that could trigger changes for transportation in Minnesota.

In addition to air pollution, if left unconsidered, the transportation system can have severe impacts on other aspects of the environment including water quality and critical habitat. It is important that transportation decision-makers recognize the importance of natural resources in Minnesota and the potential impacts that transportation may have on them.

Existing Transportation System

Minnesota has a vast multimodal transportation system that requires substantial annual investment to operate and maintain. This is the responsibility of MnDOT and local, regional, state, tribal, federal, private sector, and other partners.

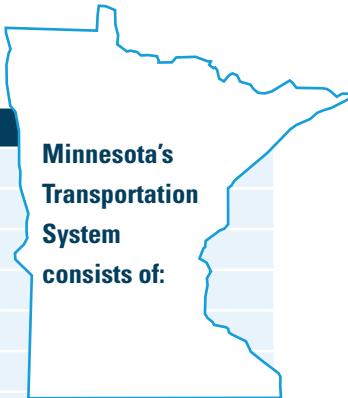
¹⁹ US Environmental Protection Agency

²⁰ MN Pollution Control Agency

Table 2-2 provides an overview of the current multimodal transportation system in Minnesota.

Table 2-2: Minnesota's Transportation System

Streets, Roads and Highways		141,482 miles
State Trunk Highways		11,896 miles
County State Aid Highways		30,548 miles
Other County Roads		14,348 miles
Municipal State Aid Streets		3,321 miles
Other City Streets		18,837 miles
Township Roads		58,101 miles
Other Public Roads		4,431 miles
Bicycles and Trails		
Designated Trails		More than 3,880 miles including 22 state trails
Bike Sharing (Nice Ride MN)		1,328 bicycles and 146 stations (July 2012)
Bus and Light Rail Transit		
Twin Cities Area (seven counties)		218 bus routes, and one light rail transit (LRT) corridor with another under construction
Greater Minnesota		70 of 80 (non-Twin Cities metro) counties with county-wide transit service, eight counties with municipal service only, two counties with no service
Intercity Bus		87 destinations served in the state as well as every metropolitan area in the Midwest
Rail		
Freight		4,458 track miles (19 railroad companies)
Commuter		Northstar commuter rail line (see also transit above for light rail)
Intercity Passenger		Amtrak Empire Builder (Chicago to Seattle)
Air		
Passenger and Cargo		135 airports; eight with airline service
Waterways		
Great Lakes		Four ports on Lake Superior
Rivers		Five ports on 222 miles of the Mississippi River system (including the Minnesota and St. Croix rivers)
Miscellaneous		
Carsharing		2 systems (HOURCAR and Zipcar)



Source: 2010 Transportation Performance Report

Figure 2-6 highlights key elements of the existing multimodal transportation system across the state.

Figure 2-6: Key Elements of Minnesota's Existing Transportation System



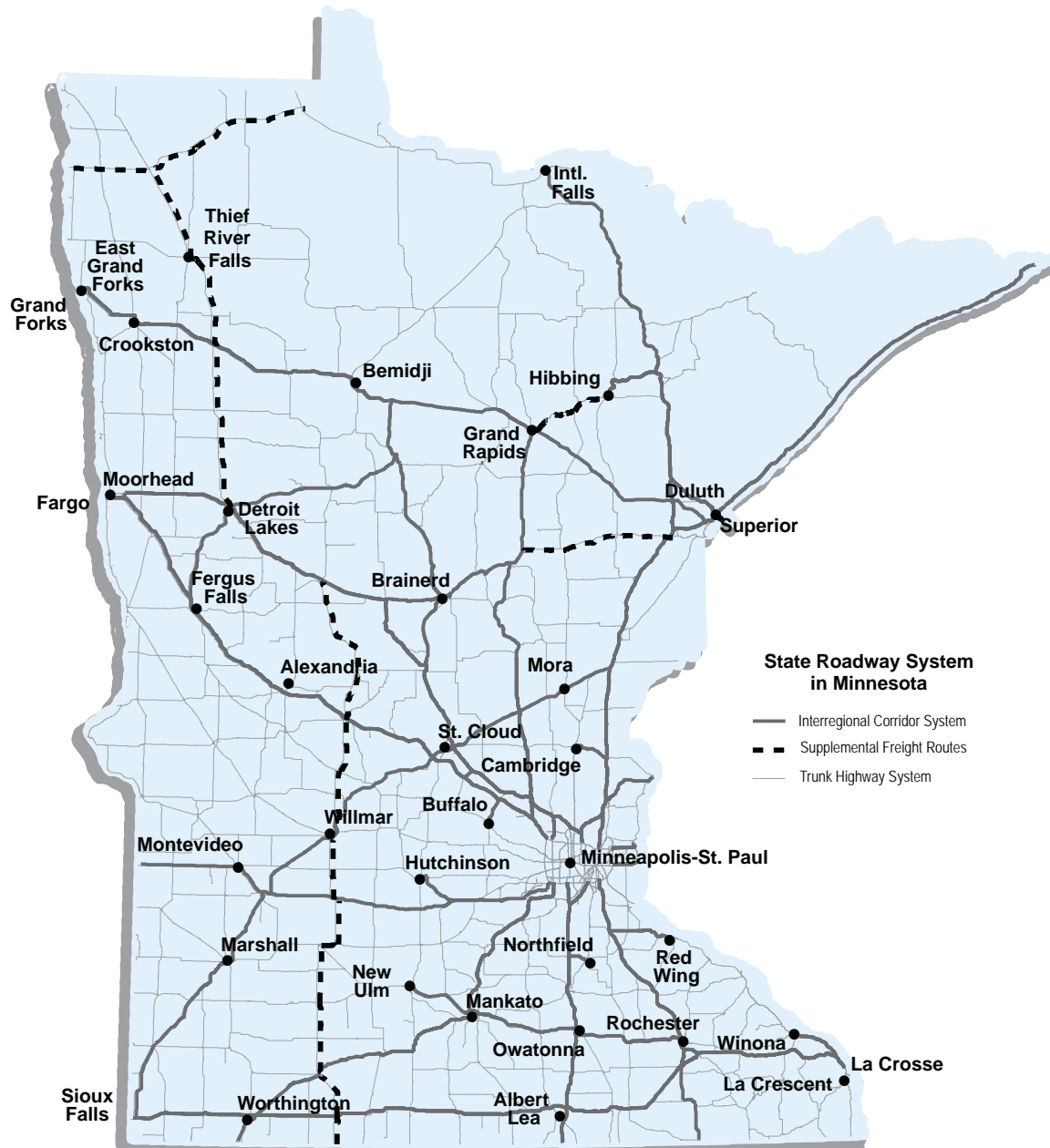
Source: MnDOT

MINNESOTA STREETS, ROADWAYS AND HIGHWAYS

With 141,482 miles of publicly-owned roads, streets, and highways, Minnesota's roadway system ranks fifth in the nation. To put this in perspective, the state ranks 21st in terms of population and 12th in geographic area.²¹

Figure 2-7 highlights the interregional corridor network (with proposed changes) and trunk highway network of the existing multimodal transportation system.

Figure 2-7: Minnesota Roadway System



Source: MnDOT

²¹ US Census Bureau

MINNESOTA BICYCLES AND STATE TRAILS

There are 22 designated state trails, and collectively the state boasts more than 3,880 miles of designated walking and biking trails. **Figure 2-8** highlights the state trail network of the existing multimodal transportation system. Additionally, there are many more thousands of miles of designated bicycle routes and sidewalks and bicycle and pedestrian friendly roads throughout the state not identified on the map. Nice Ride Minnesota, a bike sharing initiative, became operational in summer 2010 and now includes 1,328 bicycles in the Twin Cities metropolitan area.²² In recent years, Minneapolis has been identified as a top tier bicycle friendly city.

Figure 2-8: Minnesota State Trails



Source: MnDOT

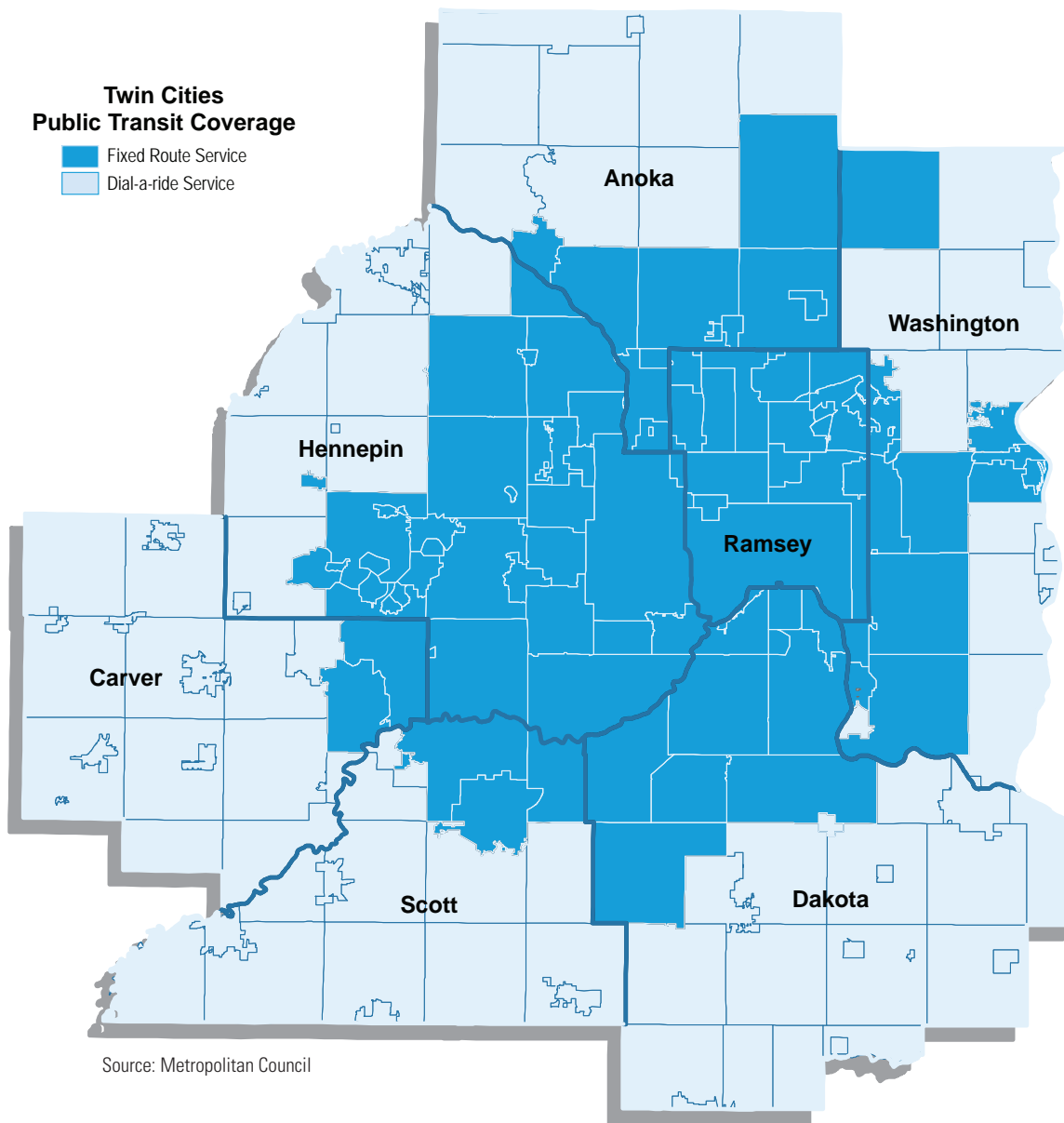
²² Nice Ride Minnesota

MINNESOTA PUBLIC TRANSIT: TWIN CITIES

Within the Twin Cities metropolitan area there are a variety of public transit services offered. These options include fixed-route services such as regular and express bus routes, light rail transit (LRT), commuter rail, and bus rapid transit (BRT) as well as dial-a-ride service. All 187 communities within the metropolitan area have access to some form of public transit service.

Figure 2-9 shows the public transit service availability within the Twin Cities metropolitan area.

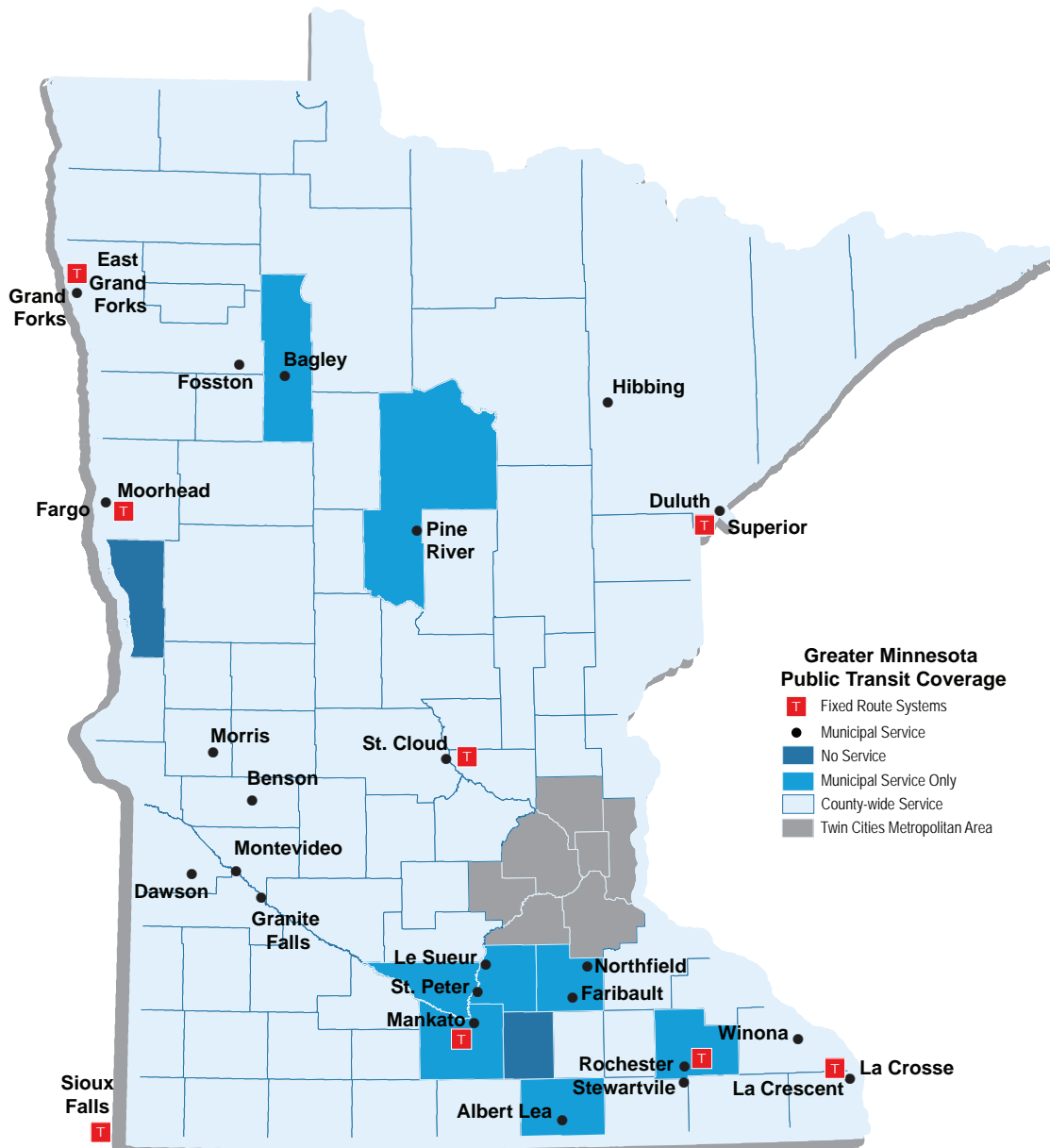
Figure 2-9: Twin Cities Public Transit Service Coverage



MINNESOTA PUBLIC TRANSIT: GREATER MINNESOTA

In Greater Minnesota, 70 of the 80 non-metro counties have access to county-wide public transit service. Eight counties have access to some municipal service but no county-wide service. Two counties have no access to public transit services. **Figure 2-10** shows the breakdown of public transit service in Greater Minnesota.

Figure 2-10: Greater Minnesota Public Transit Service Coverage



Source: MnDOT

MINNESOTA INTERCITY PASSENGER SERVICES

The state of Minnesota has both intercity passenger rail and bus service. Greyhound, Jefferson Lines, and Megabus provide intercity bus service to 87 destinations within the state as well as connections to every metropolitan area in the Midwest. Amtrak offers passenger rail service to the state and runs diagonally through the state along BNSF and CP rail lines between La Crosse, Wisconsin and Fargo, North Dakota. **Figure 2-11** shows the intercity passenger rail and bus networks in Minnesota.

Figure 2-11: Minnesota Intercity Passenger Services



MINNESOTA FREIGHT RAIL

In 2011, there were 19 railroad companies operating in Minnesota on 4,458 route miles of track. The state ranks eighth in the nation for total track mileage. In terms of product originating and traveling by rail, Minnesota ranks first in the nation in the number of tons of iron ore, third in food products, and fourth for farm products.²³ **Figure 2-12** highlights the freight rail network of the existing multimodal transportation system.

Figure 2-12: Minnesota Freight Rail System



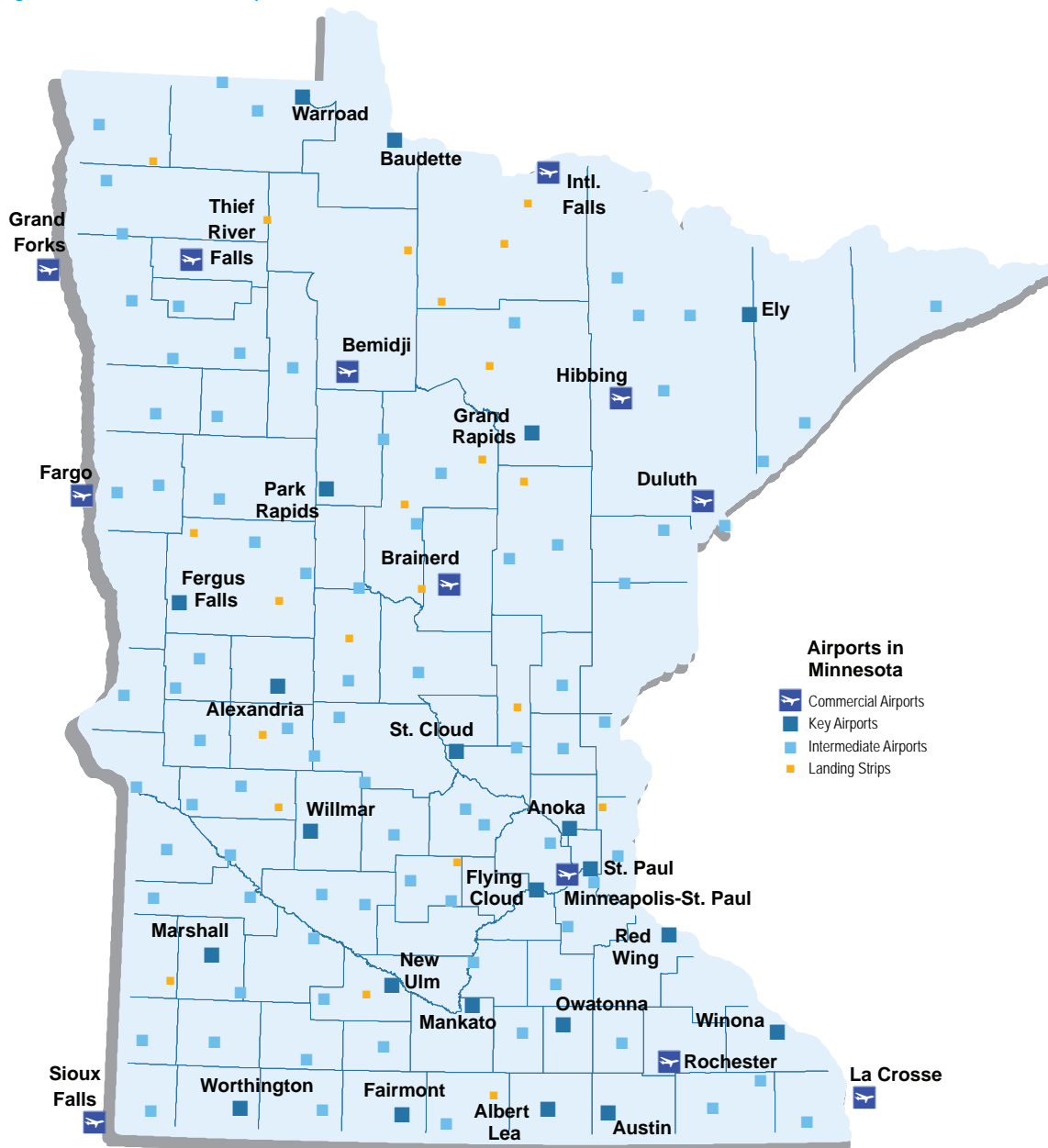
Source: MnDOT

²³ <http://www.minnesotarailroads.com>

MINNESOTA AIR

Minnesota's aviation system includes 135 state-funded airports that support a range of services to benefit the citizens, businesses, and economy of the state. Some of the general aviation activities include personal travel, cargo services, medical transport, agricultural spraying, and aerial surveying. In addition, eight airports provide airline service. Airports are classified depending on their size and the role the facility plays in supporting its community. **Figure 2-13** highlights the air network of the existing multimodal transportation system.

Figure 2-13: Minnesota Airports



Source: MnDOT

MINNESOTA PORTS AND WATERWAYS

Minnesota has four ports on Lake Superior located at Taconite Harbor, Silver Bay, Two Harbors, and Duluth/Superior. Their combined waterway transported tonnage for 2011 was just short of 60 million net tons. The Mississippi River system stretches more than 222 miles in Minnesota and supports five (Minnesota) port areas whose combined 2011 waterway transported tonnage was 10.6 million net tons. **Figure 2-14** highlights the waterway network of the existing multimodal transportation system.

Figure 2-14: Minnesota Ports and Waterways



Source: MnDOT

Recent System Innovations

The state's multimodal transportation system continues to evolve. The following list identifies some relatively new elements of the transportation system that have been implemented more widely in recent years. This list does not include every change made to the transportation system but rather is just a selection of recent additions. There is more information about innovative approaches for the planning and operations of the transportation system in **Chapter 3, "What is directing this plan?"**.

- **Transitways:** In the seven years since Hiawatha LRT service went into operation connecting downtown Minneapolis to the Minneapolis-St. Paul International (MSP) Airport and Mall of America, a network of transitway services in the Twin Cities has grown steadily. The Central Corridor LRT line is under construction and scheduled to begin service in 2014 connecting downtown Minneapolis and downtown St. Paul. Planning is in progress for the Southwest Corridor LRT line that will connect Downtown Minneapolis to the western suburbs. Cedar Avenue BRT service as well as BRT on I-35W in Minneapolis will connect places in the southern portion of the Twin Cities metropolitan area to each other and to downtown Minneapolis. Since 2010, Northstar, Minnesota's first commuter rail line between downtown Minneapolis and Big Lake, has offered commuter-oriented round-trips each workday as well as additional trips on weekends and for special events. Transitway development was greatly accelerated with the formation of the Counties Transit Improvement Board in 2008.
- **Bike Sharing:** Minneapolis launched Nice Ride Minnesota, one of the nation's largest bike share systems, in 2010 and the system has grown rapidly. More than 200,000 trips were taken on the bikes in 2011.²⁴ The system was expanded to include downtown St. Paul in 2012.
- **Cable Median Barriers:** Cable median barriers are a safety solution with a high return-on-investment. MnDOT has installed cable median barriers in strategic locations as an effective method to prevent cross-median crashes thus reducing fatal and serious injury crashes. In addition to being cost effective, there is great flexibility in the installation of barriers.



²⁴ Nice Ride Minnesota



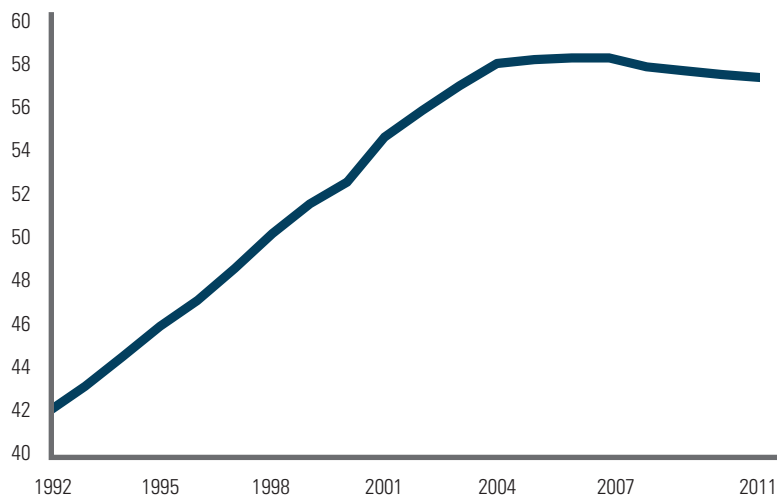
- **MnPASS and other Managed Lanes:** On the Twin Cities freeway system, MnPASS electronic tolled lanes were first implemented in 2005 along I-394. This automated toll lane and other managed lane technologies has been extended to portions of I-35W and are currently being considered for other parts of the metropolitan area. First introduced in 2010 on I-35W, Smart Lanes use electronic signs above each lane of traffic to improve traffic flow, reduce congestion, and improve safety by providing real-time information about road conditions.
- **Real-time Traveler Information:** Real-time information about highway and transit conditions and estimated travel times is now available online, via smart phones, overhead messaging, 511 service, and other sources.
- **Alternative Intersection Treatments:** A number of investment strategies with a high return-on-investment exist to reduce risks and improve the flow of vehicular traffic at intersections. An example strategy is Reduced Conflict Intersections, which take away high-risk actions, such as making a left turn from a side-street and instead allow drivers to make a left turn using two lower-risk actions. For example, to make a left turn onto a four-lane road, drivers would first make a right turn, travel a short distance, then move into a left turn lane where they can make a U-turn, and proceed toward their desired direction. In some instances, U-turns can be made at adjoining intersections or through an existing interchange.
- **Roundabouts:** Although roundabouts have existed for years, these circular intersections are still relatively new to Minnesota and are increasingly being built throughout the state. Roundabouts offer significant advantages over right-angled intersections with stop signs or signals because traffic speeds are slowed and right-angle collisions are avoided. The results are fatal crashes, improved traffic flow, and reduced air pollution. When appropriately designed, roundabouts can effectively handle bus and truck traffic.

System Use and Performance

Minnesota is in a period of change and transition, including the transportation system. Some of the changes are positive and encouraging. Safety has dramatically improved over the last decade, with fatalities dropping to World War II-era lows.²⁵ Transit ridership is increasing and freight connections on all systems (roadways, rail, waterways, air cargo) continue to provide increasingly important access to national and global markets for our economy. At the same time, congestion in the Twin Cities remains virtually unchanged from a decade ago. Faced with an extensive aging infrastructure statewide, flat revenues, and increasing costs, Minnesota transportation partners are struggling to keep the existing system in a state of good repair.

After decades of increasing at a higher rate than population growth, in 2004 vehicle miles traveled on the state's roadways began to level off (see **Figure 2-15**). Rising fuel costs and shifts in travel behavior, including fewer, shorter trips and greater use of transit, bicycling, and walking, have all contributed to this pattern. Higher unemployment may also be a contributing factor in recent years.

Figure 2-15: Annual Vehicle Miles Traveled in Minnesota (billions)



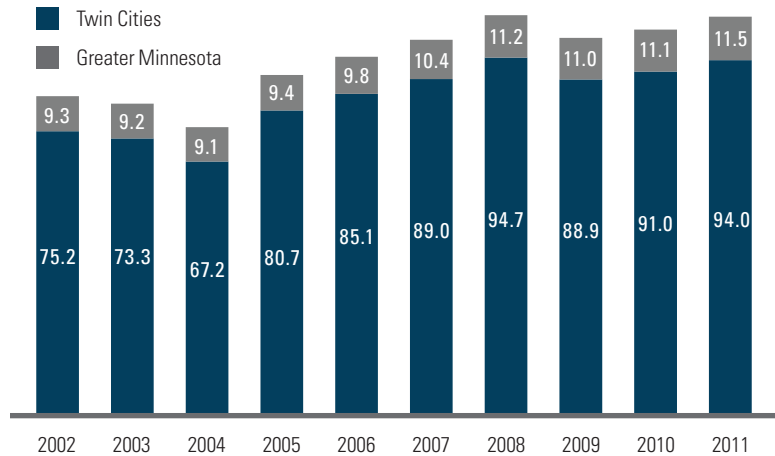
Source: MnDOT

Between 2002 and 2011, transit ridership increased by roughly 25 percent in both the Twin Cities and across Greater Minnesota (see **Figure 2-16**). In 2011, Greater Minnesota transit ridership was at a decade high of 11.5 million. Twin Cities ridership in 2011 was 94 million, a level reached only once before in the previous 30 years.²⁶

²⁵ MN Department of Public Safety

²⁶ <http://www.minnpost.com/cityscape/2012/03/minnesotans-are-driving-less-mndot-says>

Figure 2-16: Annual Minnesota Transit Ridership (millions)



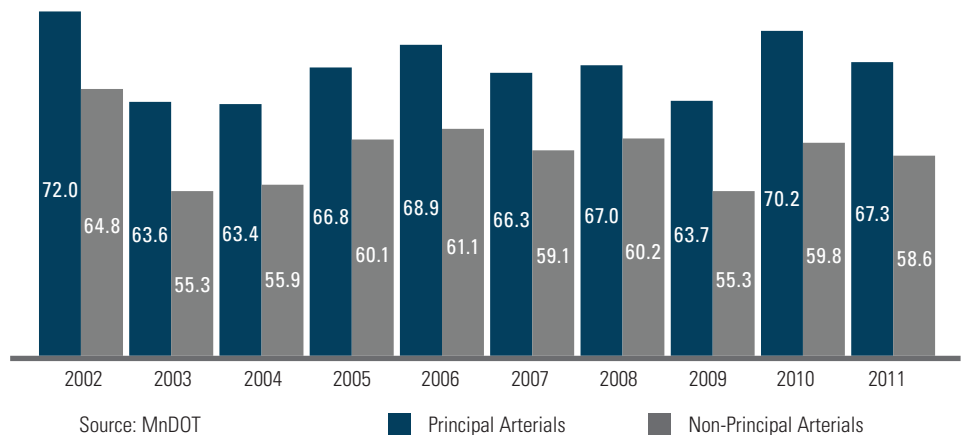
Source: MnDOT and Metropolitan Council

TRACKING PERFORMANCE

MnDOT tracks the overall performance of the transportation system and reports on system conditions in an [annual performance report](#). Measures can help show successes of the transportation system as well as identify challenges. A selection of these measures and summaries from the report are provided below.

Pavement—Good Ride Quality: As shown in **Figure 2-17**, the percent of pavements on the state highway system with a ride quality rating of good fell in 2009 but increased again in 2010, meeting the target of 70 percent for the first time since 2002. The increase was largely due to additional federal money received from the stimulus bill—the American Recovery and Reinvestment Act (ARRA). Percentages fell again in 2011, and it is projected that pavement condition will resume deterioration without increased investment.

Figure 2-17: Percentage Good Pavement Ride Quality on Minnesota Principal and Non-Principal Arterials



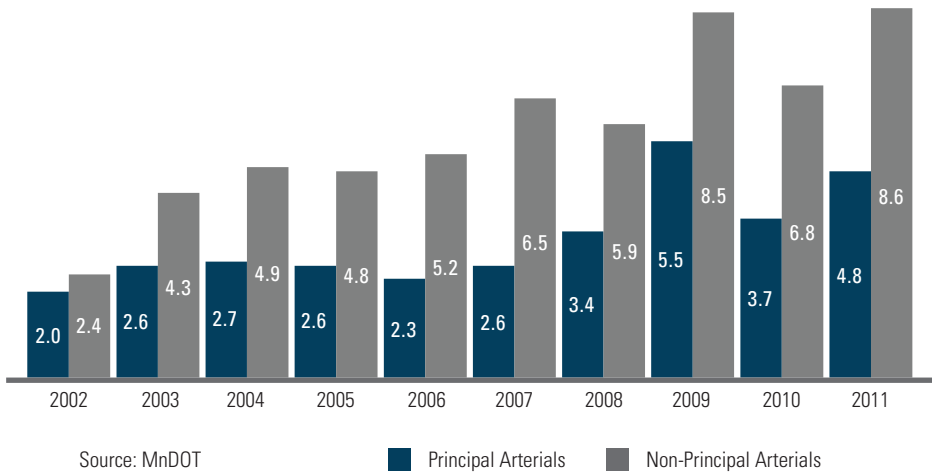
Source: MnDOT

■ Principal Arterials

■ Non-Principal Arterials

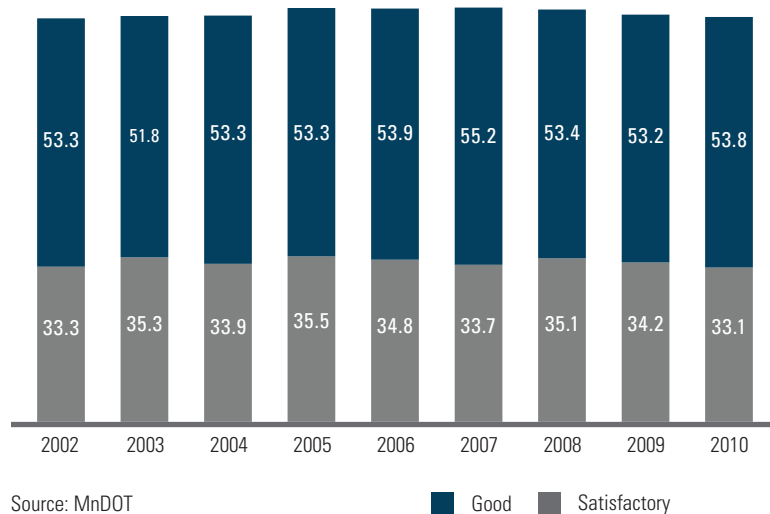
Pavement—Poor Ride Quality: As shown in **Figure 2-18**, the percentage of pavement on the state highway system with a poor ride quality is increasing. The decrease in 2010 was largely due to additional federal money received from the stimulus bill. It is projected that this figure will continue to increase in future years under the currently planned investment levels. Compared to other states, Minnesota’s interstates are ranked 44 out of 50 for this measure, 50 being the worst for pavement poor ride quality.

Figure 2-18: Percentage Poor Pavement Ride Quality on Minnesota Principal and Non-Principal Arterials



Bridge Condition—Percent Good and Satisfactory: **Figure 2-19** shows the percentage of bridges (by deck area) on state principal arterials, that has been rated in good or satisfactory structural condition between 2002 and 2010. Bridges in good or satisfactory structural condition have consistently exceeded targets.

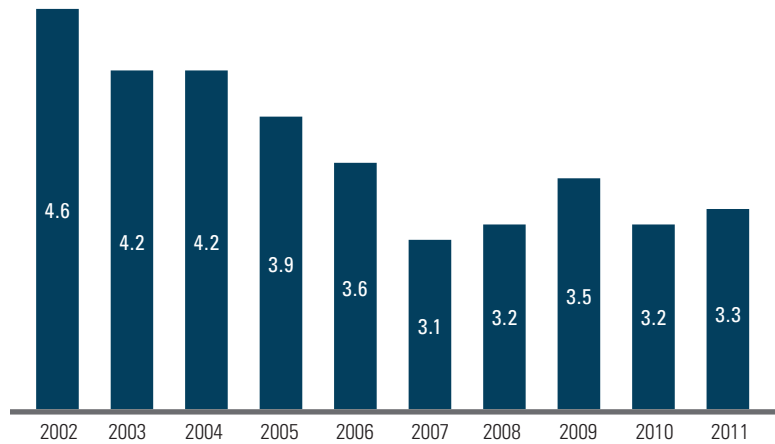
Figure 2-19: Percentage of Bridges in Good and Satisfactory Condition on Minnesota Principal Arterials (sq. ft.)



Minnesota has the fourth lowest percentage of bridges rated structurally deficient or functionally obsolete in the nation.

Bridge Condition—Percent Poor: Figure 2-20 shows the percentage of bridges (by deck area) on state principal arterials rated in poor structural condition, has consistently exceeded the two percent or less target. Performance is still generally good as Minnesota has the fourth lowest percentage of bridges rated structurally deficient or functionally obsolete in the nation.

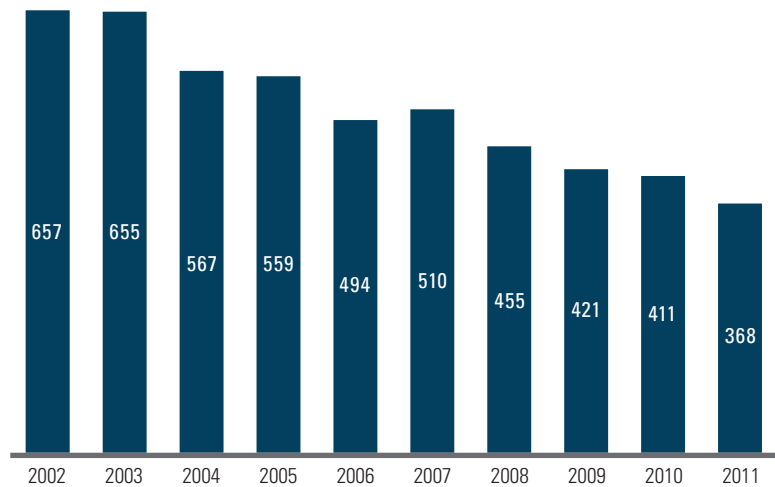
Figure 2-20: Percentage of Bridges in Poor Condition on Minnesota Principal Arterials (sq. ft.)



Source: MnDOT

Minnesota Traffic Fatalities: As shown in Figure 2-21, the number of traffic fatalities in Minnesota was 411 in 2010. The numbers are on the decline, with a significant decrease from the peak of 657 in 2002. The number of fatalities for 2011 was at 368. Nationwide, Minnesota was the third best state in this measure, with a fatality rate significantly below the national average.

Figure 2-21: Annual Traffic Fatalities on All State and Local Roads in Minnesota

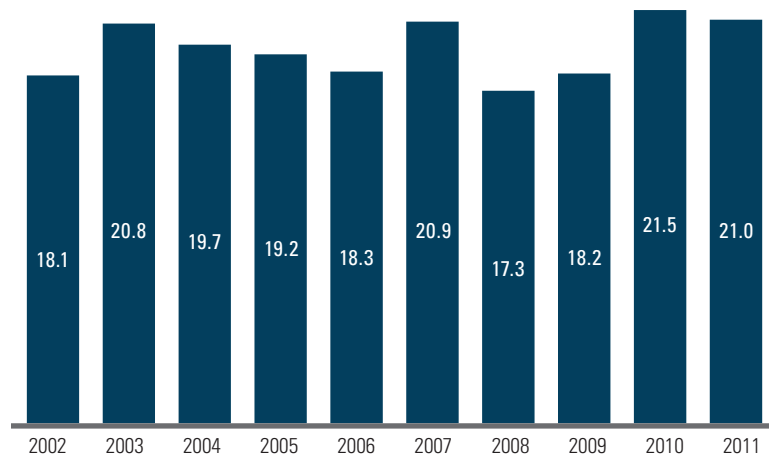


Source: Minnesota Department of Public Safety

Minnesota had the third lowest number of fatalities of all 50 states, significantly below the national average.

Twin Cities Urban Freeway System Congestion: As shown in **Figure 2-22**, the percent of urban freeway miles congested in the Twin Cities metropolitan area has remained relatively constant over the past decade, ranging from 17.3 percent to 21.5 percent. During the same time frame, the number of measured centerline miles did not significantly increase. Compared to a selection of 31 similar metropolitan areas across the nation, the Twin Cities is the seventh most congested. It should be noted that other factors also contribute to system congestion such as system size, land use densities, transit availability, etc.

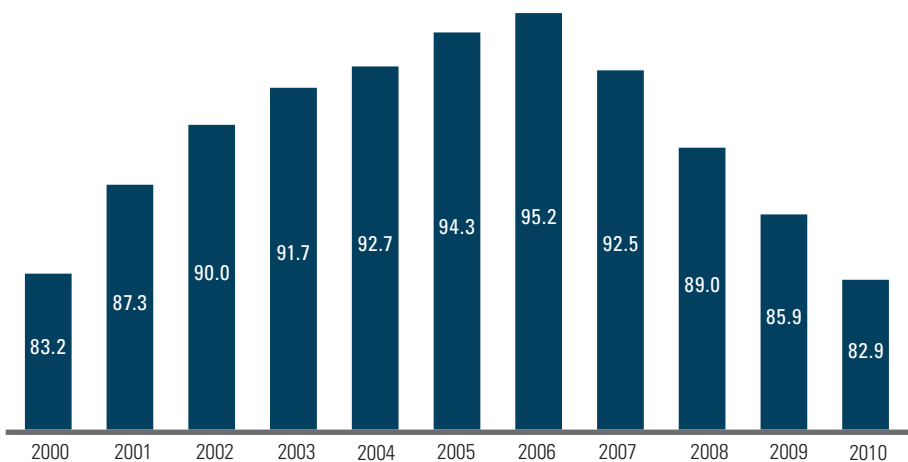
Figure 2-22: Percentage of Twin Cities Urban Freeway Miles Congested



Source: MnDOT

Airport Runway and Taxiway Pavement—Good Condition: As shown in **Figure 2-23**, the percentage of Minnesota airport and taxiway pavements in good condition, excluding Minneapolis-St. Paul (MSP), Duluth (DLH), and Rochester (RST) airports, has continued to decrease since peaking in 2006. Minnesota airports met target for good pavement in 2010 with 82.9 percent.

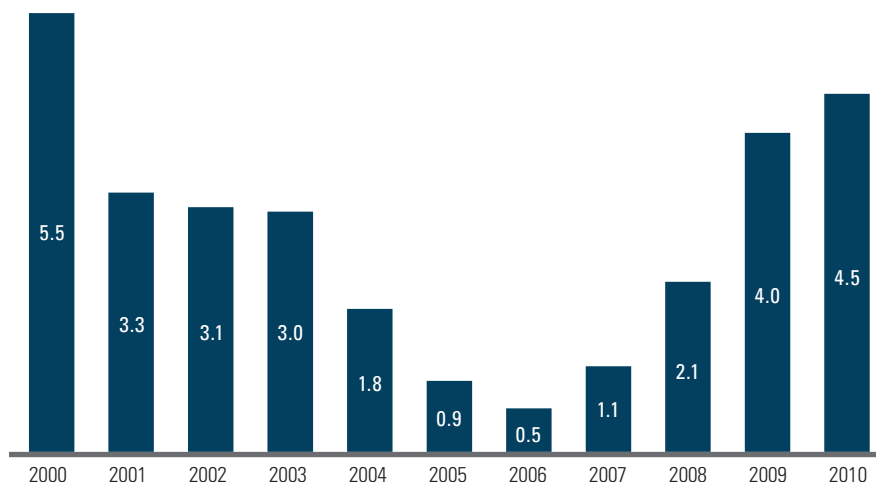
Figure 2-23: Percentage of Minnesota Runway and Taxiway Pavements in Good Condition (MSP, DLH, and RST not included)



Source: MnDOT

Airport Runway and Taxiway Pavement—Poor Condition: As shown in **Figure 2-24**, the percentage of Minnesota airport and taxiway pavements in poor condition, excluding MSP, DLH, and RST airports, has continued to increase since 2006. The relative decline in pavement condition reflects an aging system in which an increasing number of runways are reaching the end of their useful life. Minnesota airports fell short of the target for poor pavement in 2010 at 4.5 percent.

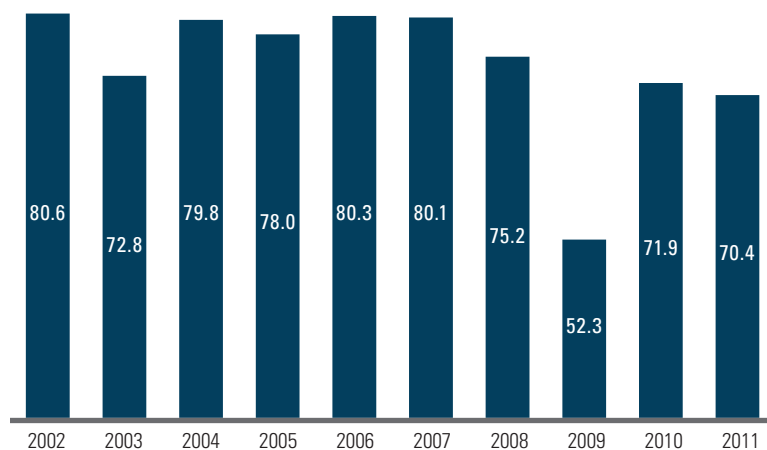
Figure 2-24: Percentage of Minnesota Runway and Taxiway Pavements in Poor Condition (MSP, DLH, and RST not included)



Source: MnDOT

Port Shipments: As shown in **Figure 2-25**, shipments to and from Minnesota ports have generally been decreasing over the past decade. This is largely attributed to corn having been processed locally for ethanol and not going for export and some fluctuation in taconite shipments due to domestic and foreign demand for steel. Based on tonnage, the Duluth/Superior port is the largest port on the Great Lakes and ranked 25th largest in the nation.

Figure 2-25: Annual Minnesota Port Shipments (millions of tons)

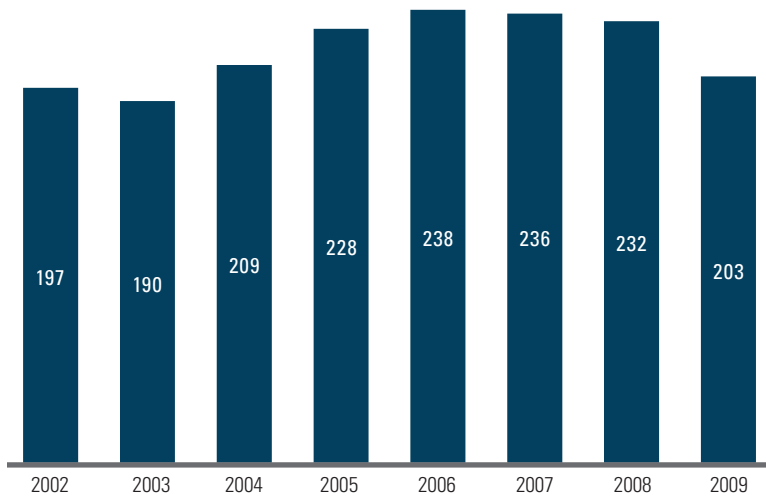


Source: MnDOT

Based on tonnage, the Duluth port on Lake Superior is the 25th largest in the nation.

Shipments on Minnesota Railroads: As shown in **Figure 2-26**, rail freight shipments generally have increased over the past decade with decreases in 2008 and 2009. This decrease is largely attributed to the recession, and growth is predicted for 2010. Compared to other states, Minnesota is ranked 13th out of 50 based on tons carried by rail.

Figure 2-26: Annual Minnesota Rail Freight Shipments (millions of tons)



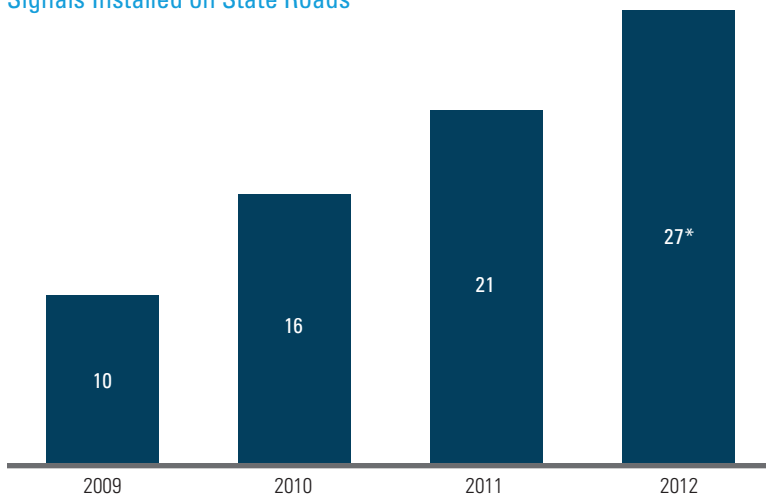
Source: MnDOT

Compared to other states, Minnesota is ranked 13th out of 50 based on tons carried by rail.

Americans with Disabilities Act (ADA) Pedestrian Accessible Signals:

As shown in **Figure 2-27**, 21 percent of the signalized intersections on state roads have accessible pedestrian signals. MnDOT has a goal of achieving 100 percent in this measure by 2030. Dedicated funds and new road design guidelines will allow this percentage to continue to increase each year.

Figure 2-27: Percentage of Intersections with Accessible Pedestrian Signals Installed on State Roads



Source: MnDOT

* Planned

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Chapter 3

WHAT IS DIRECTING THIS PLAN?

Recent changes in policy that affect this planning effort

SEPTEMBER 2012

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WHAT IS DIRECTING THIS PLAN?

For decades, there have been state and federal requirements for a statewide transportation plan. This includes updating the plan every four years and ensuring a sound and safe transportation system that is aligned with national, state, and local goals—from economic development to environmental protection. MnDOT is responsible for working with the public, local governments, metropolitan planning organizations (MPOs), regional development commissions (RDCs), tribes, and other transportation interests to produce a 20-year plan that sets statewide policy direction and guidance. Over the years, emphasis has shifted from an almost exclusive focus on automobile and truck movement to an approach that considers all transportation modes and connections between them.

This chapter describes how innovation and changing transportation policy direction has shaped the context for this plan.

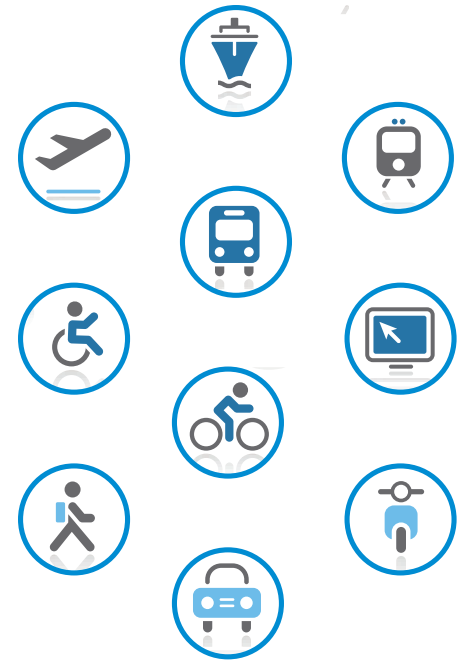
Purpose of Transportation Planning

Transportation shapes our patterns of community development. The entire transportation system has required an enormous amount of financial investment to create. The system also requires a substantial amount of financial reinvestment to maintain and operate. Growth and other changing community needs require system adjustments as years go by.

Transportation planning is the process of bringing together public expectations with public and private providers of transportation facilities and services to identify priorities, choices, and risks and to schedule resources for future investments to meet public expectations. Long-range planning for the transportation system is a prerequisite to be eligible for federal and state transportation funding assistance and important given the magnitude of system costs.

Federal direction for statewide transportation plans now requires a multimodal approach that supports economic vitality in ways that enhance global competitiveness; increases safety and security of the transportation system; improves accessibility and mobility for both people and freight; fosters environmental protection, energy conservation, and coordination between transportation and local plans; improves connections between transportation modes; achieves efficient system operations and management; and emphasizes preservation of the existing transportation system.²⁷

²⁷ Federal planning factors, 23 CFR, 450.206



Minnesota law requires a similar focus on safety, system condition, the importance of transportation for the economy, and compatibility with state environmental goals, as well as specific goals about transit access, reasonable commutes, and healthy bicycling and walking.²⁸

Links to both federal direction and state law as they pertain to this plan are referenced in **Chapter 6, “How do I get more information?”**.

Changes in Approach and Emphasis

PERFORMANCE-BASED AND RISK-BASED PLANNING

MnDOT has used performance measures to inform management and investment decisions since the mid-1990s and made it a formal part of the statewide planning process beginning in 2003. That was the first performance-based statewide transportation plan in the nation. Performance measures illustrate how well the transportation system is functioning in relation to quantifiable targets. Measures cover all modes, system assets, and operations. A few examples include average speed for travelers, crash rates and incidence of fatalities, pavement and bridge condition, and age of transit vehicles.

Heightened emphasis on the growing disparity between available resources and the work needed to maintain sound infrastructure was a major theme for the 2009 plan. This challenge remains. Currently, the investments required to meet existing performance targets exceed projected resources. As a result, MnDOT has begun formally incorporating risk management into the transportation planning process.

Using risk to inform investment and project decisions is not a new concept for MnDOT. However, moving forward, the use of risk management will be more standardized and transparent, and it will be an integral part of the modal investment plans. It will serve as a starting point for discussions with the public and transportation partners regarding investment decisions and required tradeoffs in light of fiscal constraints.

²⁸ State transportation goals, [Minn Stat 174.01](#)

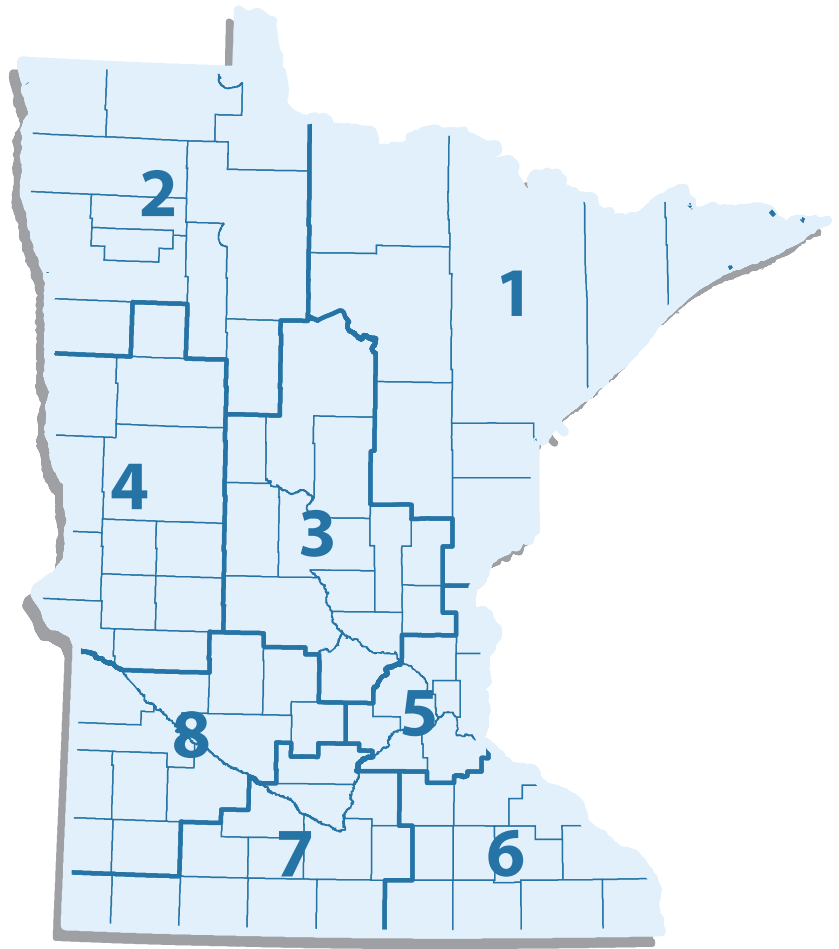
THE SIGNIFICANCE OF FREIGHT

Beginning in the early 1990s, federal transportation planning requirements shifted. One aspect of this shift was an increased emphasis on the role freight plays in our economic well-being. Over the years there has been considerable work to improve our understanding of Minnesota's freight system and investment needs for ports and waterways, highways, rail, and aviation systems. The 2005 Statewide Freight Plan, freight studies for all regions of the state, and completion of the Minnesota Comprehensive Statewide Freight and Passenger Rail Plan in 2010 have all helped improve the understanding of how goods move across the state and reach local, regional, national, and international destinations. These plans and studies also begin to identify system priorities. Minnesota has major air service connections (for both passengers and freight), rail service that transects the state, highway connections between Minnesota's urban centers and beyond, and exceptional water-based shipping options via the Mississippi River system and the Great Lakes. Together these freight systems connect all parts of Minnesota as well as to regional, national, and global marketplaces.

CONSULTATION

The 1990s shift in federal direction also heightened insistence that statewide planners consult with many different transportation interests—from metropolitan areas to representatives from rural areas and many others. In part, Minnesota met this obligation through its unique Area Transportation Partnerships (ATPs), which bring local, regional, state, and tribal interests together within each MnDOT district to more collaboratively decide priorities for available federal transportation funding. While there is considerable variation in total membership from one ATP to another, every ATP includes city, county, MPO, and RDC representatives from within the ATP area. American Indian tribes within an ATP have the option to participate on the ATP. For the Twin Cities area, the Transportation Advisory Board (TAB) functions as the metro area ATP. The TAB is the only ATP that includes several citizen representatives. **Figure 3-1** shows the eight ATP districts and identifies the membership of each group. **Figure 3-2** identifies the RDCs and MPOs in Minnesota.

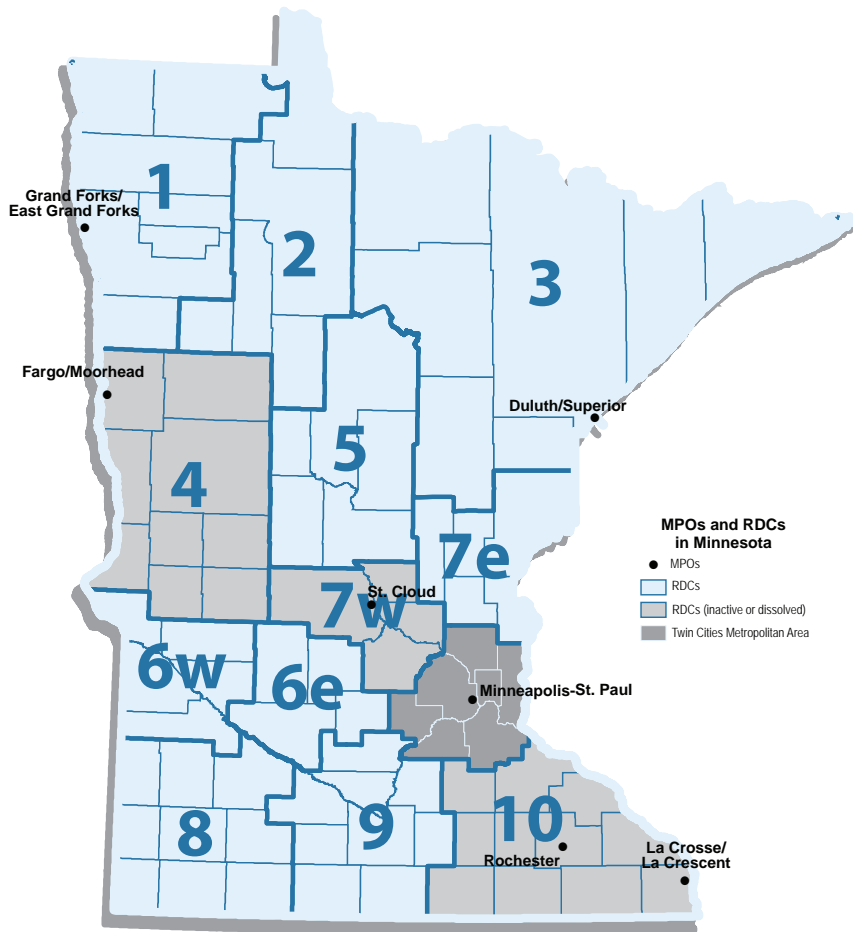
Figure 3-1: ATP Districts and Membership



ATP Membership				
	<i>Total Members</i>	<i>No. of MPOs</i>	<i>No. of RDCs</i>	<i>Elected Officials</i>
ATP 1	54	1	2	17
ATP 2	11	1	2	2
ATP 3	24	1	2	4
ATP 4	18	1	3	4
Metro TAB	33	1	1	17
ATP 6	12	2	0	0
ATP 7	14	0	2	5
ATP 8	15	0	3	6

Source: MnDOT

Figure 3-2: Minnesota RDCs and MPOs



Recognition of the sovereignty of tribes was formalized through a 2002 [Accord](#) between Minnesota’s 11 tribes, MnDOT, and the Federal Highway Administration, which established commitments for regular consultation. Reinforcement of the government-to-government character of relationships between the tribes and state agencies was the focus of state an [executive order](#) in 2005.

SAFETY

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) law called for states to develop performance-based, data-driven plans to improve the safety of the traveling public. Minnesota’s subsequent plans and collaborative interagency strategies for public education, enforcement, improved emergency medical and trauma services, and engineering solutions have been remarkably successful, reducing annual traffic fatalities to levels not seen since World War II even while travel has increased significantly.



CONTEXT SENSITIVE SOLUTIONS

Minnesota has been a leader in developing transportation projects that adapt to the surrounding social, environmental, and economic context. This Context Sensitive Solutions (CSS) approach is progressing from limited case studies to agency-wide application at MnDOT. Through careful planning, CSS can help tailor a project to its setting by addressing alternatives that consider all transportation options through different design choices and flexibility. Flexibility in design choices allows for preserving and enhancing cultural and natural resources while improving or maintaining accessibility, safety, and mobility. CSS is not limited to the scope of a single project but looks beyond to the broader impacts of the system. CSS accomplishments have included widespread training for transportation professionals in addition to award-winning projects completed in partnership with local communities.

Figure 3-3 shows how reconstruction of Trunk Highway 169 through St. Peter, MN was accomplished with a design that echoes historic features.

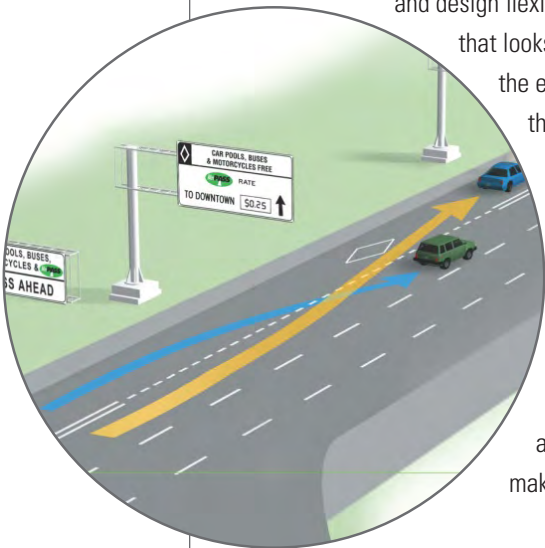
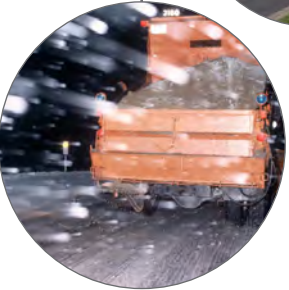
Figure 3-3: Reconstruction of TH 169



Figure 3-4 illustrates how the type and form of transportation system elements vary based on the function of the roadway and level of development.

Figure 3-4: Choosing Transportation System Elements to Fit the Setting





COMPLETE STREETS

Streets and roadways are inherently multimodal, accommodating the travel of people using autos, trucks, buses, emergency vehicles, bicycles as well as those walking. State legislation in 2008 directed MnDOT to lead an evaluation of feasibility for complete streets policy. The collaborative study found the approach feasible, beneficial, and closely aligned with CSS principles, but also emphasized that complete streets should not mean “all modes on all roads.” Subsequent legislation in 2010 defined complete streets as “the planning, scoping, design, implementation, operation, and maintenance of roads in order to reasonably address the safety and accessibility needs of users of all ages and abilities. Complete streets considers the needs of motorists, pedestrians, transit users and vehicles, bicyclists, and commercial and emergency vehicles moving along and across roads, intersections, and crossings in a manner that is sensitive to the local context and recognizes that the needs vary in urban, suburban, and rural settings.” MnDOT was directed to shape and implement a policy. An ongoing partnership with cities, counties, advocates, and others is helping to identify and address obstacles to implementation and specifically helping inform MnDOT’s approaches to implementation. In addition to state legislation, more than 28 Minnesota cities, counties, and planning organizations have developed supporting policies. An up-to-date list of jurisdictions with complete streets policies can be found on the Minnesota Complete Streets Coalition [web page](#).

TECHNOLOGY

Recent advances in technology have had a dramatic impact on transportation system operations. Real-time traffic and travel time data is now available on computers, phones, roadway signage, and more. The combination of technology and design flexibility has spurred a major shift in system planning that looks for ways to optimize system performance within the existing footprint. Examples now include monitoring the system via cameras and embedded sensors and other strategies to ensure quick responses to traffic crashes and other incidents that disrupt reliable travel. Widespread ramp metering, MnPASS priced-lanes on some of the Twin Cities most congested roadways, real-time information about transit arrivals, and the “bus-only” shoulders that give a travel reliability advantage to transit riders are all part of the story. GPS-guided systems help make snow clearance safer and quicker.

These are only a few of the ways that the rapid evolution of technology has helped to make the system more efficient in ways previously unimaginable. Technology has been applied to stretch limited resources and has allowed for improvements in operations that maximize return-on-investment and yield more widespread improvements than expensive traditional approaches.

Technology is also changing whether and when travel occurs. Telework, online education, even over-the-computer medical appointments are all examples of evolving changes to traditional travel patterns.

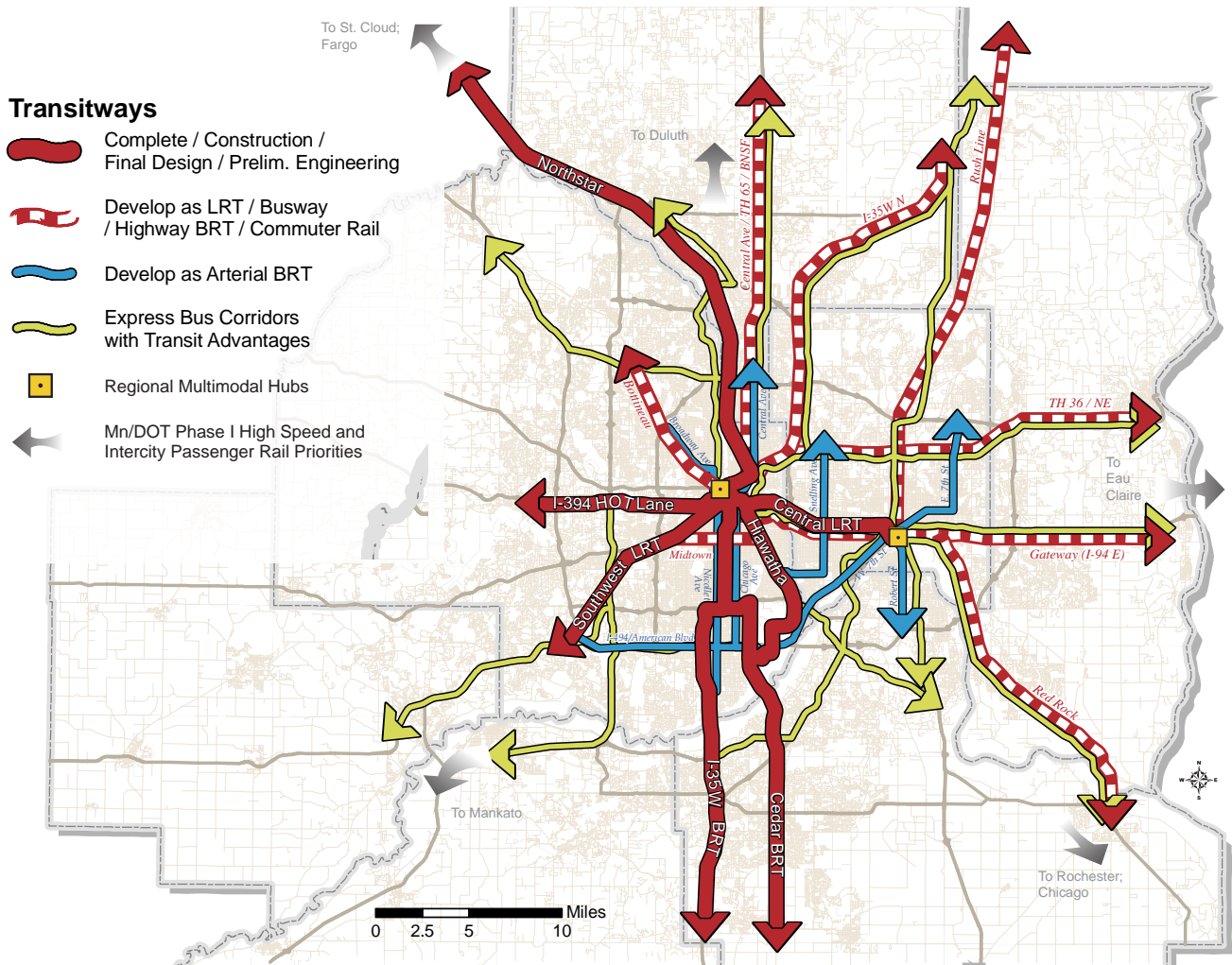
INTEGRATED MULTIMODAL TRANSPORTATION SYSTEM

Heightened understanding of how all elements of the transportation system interact also has improved planning for all modes. For example, the Metropolitan Council's 2030 Transportation Policy Plan (TPP) reported that 40 percent of employees in downtown Minneapolis regularly commute using transit. As many as a third of all travelers on some Twin Cities highways rely on transit during peak travel times. There is increased recognition that provisions for travel by transit, bicycling, walking, as well as driving greatly enhance overall system capacity and efficiency, and the strength of Minnesota's economy. Performance measures are expanding beyond simply measuring congestion-related delay to track such things as accessibility to desired destinations and the reliability and predictability of the overall multimodal transportation system.



The 2030 TPP reflects a regional commitment, with supporting investment from metro counties, to extend substantial transit improvements throughout the region over the next 20 years. **Figure 3-5** shows the planned transitways for the Twin Cities metropolitan area. Additionally, fixed route and other transit systems in Greater Minnesota continue to provide and deliver important services, showing regional commitment in Greater Minnesota cities and counties.

Figure 3-5: 2030 Planned Transitways



Source: Metropolitan Council

Broadening beyond coordination among transportation modes, the federal sustainable communities partnership between the Department of Transportation, Environmental Protection Agency, and Housing and Urban Development is helping to support the Twin Cities Corridors of Opportunity efforts to capitalize on planned transitway developments to create sustainable, healthy, vibrant communities.

Another example of multimodal integration and efficiency comes from the 2010 Comprehensive Statewide Freight and Passenger Rail Plan. Coordination between freight rail system investments along with standardization for passenger rail development showed very considerable savings when managed systematically rather than on a corridor-by-corridor basis.

RESEARCH AND ANALYSIS

MnDOT and its local partners have put a high value on innovation as a strategy for improving both transportation system performance and the efficiency of transportation agencies. Transparency and accountability are cornerstones for MnDOT that call for input from the public and transportation partners. The views of users of the transportation system about performance and future needs have been regularly tapped through market research and policy plan development. In addition to an annual outreach survey, thousands have been engaged over the past two years in helping to identify what Minnesotans feel contributes to their quality of life and how transportation helps or hinders.

Substantial research also is supported every year that helps to identify better, more durable, or efficient materials and methods for improving the safety and efficiency of the transportation system. Analysis of travel behavior and priorities as well as potential future system management and funding innovations all add insights that help shape future statewide plans. For example, MnDOT's [Study of Long-Range Solutions for Transportation Funding](#) considers implications of increasing vehicle efficiency, fuel type (including electric vehicles), changing travel patterns, and fuel price volatility on gas tax-based revenue levels and other implications.

Connecting to the Minnesota GO Vision

Even in the few years since the 2009 plan was developed, there have been dozens of plans and studies completed that improve our understanding of Minnesota’s transportation system and options to manage it over the coming years. **Chapter 6 “How do I get more information?”** includes links to these resources and additional information.

A key difference for this 2012 Statewide Multimodal Transportation Plan update is that it has been shaped substantially by the Minnesota GO Vision for transportation in Minnesota—a statement of the long-range (50-year) Vision and Guiding Principles for our transportation system (see **Chapter 1 “Where are we going?”**). Extensive public engagement and stakeholder input shaped the Minnesota GO Vision which was adopted in November 2011. **Chapter 4 “How will we guide ourselves moving forward?”** synthesizes this rich background to shape a framework of objectives and strategies that will help MnDOT and other transportation partners implement projects, programs, and services to better align with the Minnesota GO Vision.



Chapter 4

HOW WILL WE GUIDE OURSELVES MOVING FORWARD?

*Objectives and related strategies that will help achieve the
Minnesota GO Vision*

SEPTEMBER 2012

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HOW WILL WE GUIDE OURSELVES MOVING FORWARD?

In light of the challenges and opportunities that will influence transportation over the next 20 years, this plan focuses on six objectives and subsequent strategies that create a foundation for making progress toward the Minnesota GO Vision. The Minnesota GO Vision and Guiding Principles provide the basis for everything in this plan. The objectives and strategies were crafted having considered the key elements of the Vision—Minnesota’s quality of life, environmental health, and economic competitiveness. Additionally, federal and state requirements were also an integral part of the objective development. Furthermore, in identifying critical topics and developing the specific strategies for this plan, existing policies from a number of MnDOT plans as well as plans from other transportation partners were reviewed and checked against the Vision and Guiding Principles.

It is important to ensure that progress will be made over the coming years to improve the transportation system and move toward the desired outcomes of the Vision. Widespread use of the Vision and Guiding Principles is one way to move toward achieving the desired future for Minnesota’s transportation system.

All transportation partners are engaged in some activities that work toward realizing the Vision on a daily basis. The goal of this plan is not to reiterate these efforts but to focus on key areas where additional action is needed and to identify pivotal steps for the upcoming years. As such, the objectives and strategies do not capture all that is needed to make positive impacts. Every mode may not be addressed equally, however, the next tier of MnDOT’s Minnesota GO planning effort, the modal investment plans, will apply the Vision and Guiding Principles and address how these objectives and strategies apply directly to each mode.

Linking the adopted Vision to what is being said in this plan as well as the subsequent plans is important. **Figure 4-1** provides an example of how a desired outcome of the Vision is carried through the objectives and strategies of this plan. While this serves as an overall example, each objective in this chapter includes an example that illustrates a strong connection to a Minnesota GO Vision statement and Guiding Principle.

Figure 4-1: Connecting the Vision



Partners

Public and private interests and all levels of government are involved in transportation planning in order to provide a system that meets people's transportation needs. Some are responsible for the delivery of the system, either a specific mode or at a specific level. Others are responsible for providing guiding input, either technical or advocating for a specific interest. The key players that this plan relies on to develop, manage, and operate Minnesota's multimodal transportation system are outlined below. In addition to the partners identified below, state and federal legislators and leaders and the general public are also active participants in the state's transportation system.

- **Transportation partners**—Transportation Partners include all parties responsible for the delivery of the state's transportation system. This includes local, regional, state, tribal, federal, private sector, and other partners and includes all modes of transportation.
- **Local partners**—Partners primarily serving local areas include agencies and organizations responsible for transportation systems and decisions at the local level. Primarily this includes cities, counties, townships, public transit providers, ports, and airports.
- **Regional partners**—Regional partners include both MPOs and RDCs. Regional partners are primarily involved in the planning and programming of transportation projects. However, there are different levels of involvement, responsibilities, and requirements for the different regional partners.
- **State partners**—State partners include all state agencies and organizations with a statewide mission in Minnesota that have transportation interests or impacts. Key state partners include MnDOT, the Minnesota Department of Employment and Economic Development (DEED), the Minnesota Department of Health (MDH), the Minnesota Department of Agriculture (MDA), the Minnesota Chamber of Commerce, the Minnesota Housing Finance Agency (MHFA), the Minnesota Department of Public Safety (DPS), the Minnesota Pollution Control Agency (MPCA), the Minnesota Department of Natural Resources (DNR), and Explore Minnesota Tourism.

- **Tribal partners**—Tribal partners include the 11 sovereign nations of American Indian peoples with jurisdiction over lands and resources within Minnesota: Bois Forte Band of Chippewa, Fond du Lac Band of Lake Superior, Grand Portage Band of Lake Superior, Leech Lake Band of Ojibwe, Lower Sioux Community, Mille Lacs Band of Ojibwe, Prairie Island Indian Community, Red Lake Nation, Shakopee Mdewakanton Sioux Community, Upper Sioux Community, and White Earth Nation.
- **Federal partners**—Federal partners include federal agencies that provide a necessary source of federal funding and have policies that impact the delivery of the state’s transportation system. Primarily this includes direct policies and regulations from the U.S. Department of Transportation (USDOT), including the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Federal Aviation Administration (FAA), Federal Railroad Administration (FRA) and others. However, other agencies such as the Environmental Protection Agency, Housing and Urban Development, Department of Commerce/Economic Development Administration, U.S. Corps of Engineers, and Fish and Wildlife Service can indirectly impact transportation decisions.
- **Private sector partners**—Private sector partners include transportation advocates, non-profits, developers, and private industry. Developers play an important investment role in bringing new transportation infrastructure to Minnesota communities. Private industry partners that own and operate parts of the overall transportation system consist primarily of railroads and other shippers and carriers.

Guiding Principles

The development, maintenance, and operation of a transportation system that enhances quality of life and supports Minnesota’s prosperity while minimizing impacts to the environment depend on coordination between all units of government and between public and private sectors—not only for transportation facilities and services, but for the land uses and development practices that shape our communities. The Minnesota GO Guiding Principles were adopted to serve as a compass or touchstone for all transportation partners to help guide progress toward achieving the Vision for a multimodal transportation system that maximizes the health of people, the environment, and the economy. The Guiding Principles are identified on the following page.

GUIDING PRINCIPLES

The following principles will guide future policy and investment decisions for all forms of transportation throughout the state. These are listed in no particular order. The principles are intended to be used collectively.

Leverage public investments to achieve multiple purposes:

The transportation system should support other public purposes, such as environmental stewardship, economic competitiveness, public health and energy independence.

Ensure accessibility: The transportation system must be accessible and safe for users of all abilities and incomes. The system must provide access to key resources and amenities throughout communities.

Build to a maintainable scale: Consider and minimize long-term obligations—don't overbuild. The scale of the system should reflect and respect the surrounding physical and social context of the facility. The transportation system should affordably contribute to the overall quality of life and prosperity of the state.

Ensure regional connections: Key regional centers need to be connected to each other through multiple modes of transportation.

Integrate safety: Systematically and holistically improve safety for all forms of transportation. Be proactive, innovative and strategic in creating safe options.

Emphasize reliable and predictable options: The reliability of the system and predictability of travel time are frequently as important or more important than speed. Prioritize multiple multimodal options over reliance on a single option.

Strategically fix the system: Some parts of the system may need to be reduced while other parts are enhanced or expanded to meet changing demand. Strategically maintain and upgrade critical existing infrastructure.

Use partnerships: Coordinate across sectors and jurisdictions to make transportation projects and services more efficient.

While all eight principles may not apply in every instance, taken together, the principles are a tool for transportation planning, evaluating alternatives and trade-offs, and making decisions about investment priorities. The following bullets are a few potential ways the Guiding Principles may be used:

- Transportation partners communicate and encourage the use of the Minnesota GO Vision and Guiding Principles.
- Local and regional partners consider and incorporate the Guiding Principles into their transportation planning activities.
- State and federal partners consider how their policies and actions can support the Guiding Principles.
- MnDOT integrates the Guiding Principles into modal investment plans and programming decisions.

Objectives and Strategies

The objectives and subsequent strategies on the following pages are listed in no particular order. Their order is not meant to indicate priority; all are critical focus areas for the upcoming years. Under each objective heading is the objective statement—a few key phrases that describe the goal that transportation partners are working toward. Following the objective statement is supporting text that provides the context for each objective—background information and what each objective is about. The subsequent bulleted list is the strategies identified for each objective. The bold part of each bullet is the strategy itself, followed by text to better clarify each strategy through description or examples.

A connection to
Vision/Guiding Principles

**IS FLEXIBLE AND
NIMBLE ENOUGH TO
ADAPT TO CHANGES
IN SOCIETY,
TECHNOLOGY, THE
ENVIRONMENT AND
THE ECONOMY**



The Vision identifies a future system that is able to adapt to changes in society, technology, the environment, and the economy. Transparency and communication are critical to understanding trends and changes, making it possible to adapt the system to meet shifting needs.

USE PARTNERSHIPS



The Guiding Principles call for partnerships to be used in making future policy and investment decisions, to coordinate across sectors and jurisdictions, and to be more efficient. The accountability, transparency, and communication objective emphasizes the importance of partnership and collaboration. The strategies identify a number of ways in which all transportation partners can work together and with the public to create a better transportation system for Minnesota. Some ways in which the strategies respond are educating stakeholders and improving coordination and communication.

1. ACCOUNTABILITY, TRANSPARENCY, AND COMMUNICATION

Make transportation system decisions through processes that are open and supported by data and analysis; provide for and support coordination, collaboration, and innovation; and ensure efficient and effective use of resources.

What This Is About

The importance of accountability, transparency, and communication to the transportation decision-making process is recognized and supported in federal legislation and state regulations. Current legislation calls out specific requirements for state departments of transportation and MPOs related to public involvement and collaboration.

While legislation related to public participation is important, true accountability, transparency, and communication go beyond just meeting requirements. They are about building public trust, one of MnDOT's priorities. Since the majority of transportation funding comes from the public through fees and taxes, transportation decision-makers need to be accountable for the system they provide, ensuring that public resources are used efficiently and effectively. This means achieving the most "bang for the buck" on transportation investments, including completing projects on time and within budget as well as performing timely and efficient operations and maintenance. Additionally, it is the responsibility of transportation providers to continually explore technology, innovation, and the driving forces behind the system as important tools for improving transportation planning processes and increasing the efficiency of the transportation system.

Transportation decision-makers are stewards of the transportation system and have the responsibility to be open about how and why decisions are made. Communication is an essential component of this transparency. Good communication is not just making information available, but also making it easy to find and understand. Education is the foundation for understanding. This includes telling the big-picture story of the transportation system and the importance of investing in it.

Strategies

- **Work with users of the system to better understand what is important to meet their needs today and what will matter tomorrow.** Consistent with the guidance of [Hear Every Voice](#), transportation partners should evaluate and implement technologies and other improved methods to engage transportation users. In particular, it is important to identify more effective means to engage non-English speaking and other traditionally underserved populations. For example, Metro Transit currently conducts a biannual, on-board transit rider survey to capture riders' opinions and perceptions about effectiveness and importance of transit service and communications to inform future decision making. MnDOT has relied on market research as a way to tap into citizen's priorities and perspectives. This work has recently explored how Minnesotans define quality of life (QOL) and how transportation is a benefit or hinderance. Additionally, the La Crosse Area Planning Committee, through their Coulee Vision 2050 process, is using engagement tools such as surveys and focus groups to gather input from area residents related to the future of transportation and land use.
- **Align all plans and performance measures with the Minnesota GO Vision and Guiding Principles, Statewide Multimodal Transportation Plan objectives and strategies, and how Minnesotans define quality of life.** MnDOT is a leader in the use of performance measures to evaluate services and guide plans, and will continue to use them to track progress toward meeting state priorities. The Minnesota GO Vision and Guiding Principles will require making adjustments to how MnDOT tracks and measures condition and performance of the transportation system. MnDOT will also track its performance by annually reporting progress toward meeting each of the identified Statewide Multimodal Transportation Plan objectives and strategies.

Who will act?

TRANSPORTATION
PARTNERS

Who will act?

MNDOT



- **Educate stakeholders on systemwide and project-specific transportation issues.** Important topics include system- and project-level funding, the benefits and limitations of transportation investments, involvement opportunities, the status of ongoing projects, as well as project selection and overall decision-making, including trade-offs. Providing open, honest, accessible, and timely information will allow the following common questions to be answered: (1) How are projects identified and by whom? (2) Where does the money come from and how is it spent? (3) What are the benefits of transportation investments? (4) What are the goals for our transportation system and progress toward these goals? (5) What is the timeline for a specific project? (6) How and when do stakeholders get involved?



- **Improve early communication and coordination on projects to minimize resource use and maximize benefits.** Coordinating early in the planning process may present opportunities to combine resources and leverage public and private investments. This allows transportation projects to address multiple needs, including non-transportation issues and goals related to health, housing, the environment, and economy. For example, MnDOT currently coordinates with MDH through the [Statewide Health Improvement Program](#) on collaborative projects that increase biking and walking.

2. TRAVELER SAFETY

Safeguard travelers, transportation facilities, and services; apply proven strategies to reduce fatalities and serious injuries for all travel modes.

What This Is About

Safety is a top priority for Minnesota. MnDOT is partnering with the Minnesota Department of Public Safety (DPS) and Minnesota Department of Health (MDH) on the [Toward Zero Deaths \(TZD\)](#) program. This program is the state's cornerstone traffic safety initiative with the goal to raise awareness of traffic safety issues and develop tools to reduce the number of deaths and injuries resulting from traffic crashes in Minnesota.

Traveler safety applies to all users on all types of transportation and involves an integrated approach that includes the "4Es" of safety—education, enforcement, engineering, and emergency medical and trauma services. MnDOT, in coordination with DPS and MDH, has also developed a [Strategic Highway Safety Plan \(SHSP\)](#) that brings together all safety plans and programs from agencies and advocacy groups working to improve transportation safety.

An example of a contributing plan to the SHSP is the annual [Commercial Vehicle Safety Plan \(CVSP\)](#) where MnDOT and DPS coordinate to further enhance safety and reduce the number of commercial vehicle crashes and fatalities. This plan outlines the state's commercial motor vehicle safety objectives, strategies, activities, and performance measures.

A connection to Vision/Guiding Principles

PROVIDES SAFE, CONVENIENT, EFFICIENT AND EFFECTIVE MOVEMENT OF PEOPLE AND GOODS



The Vision identifies a future system that provides safe travel of people and goods. The traveler safety strategies identify the key ways in which safe travel will be ensured and improved in the upcoming years.

INTEGRATE SAFETY



The Guiding Principles call for future policy and investment decisions to systematically and holistically improve safety for all forms of transportation and to be proactive, innovative and strategic in creating safe options. Some ways in which the traveler safety objective and strategies respond include increasing involvement in [Toward Zero Deaths \(TZD\)](#), which provides a holistic, systematic and collaborative approach to safety; proactively sharing educational materials about safety related concerns; and supporting the use of technology and innovation to improve safety.

Strategies



- **Increase participation of all road authorities in the collaborative safety initiative TZD and explore new opportunities to work together to improve safety for all modes.** TZD is a highly-successful, collaborative program aimed at eliminating fatal and life-changing injury crashes in Minnesota by strategically addressing education, enforcement, engineering, and emergency response issues. As the umbrella traffic safety program for Minnesota, all modes can adopt this integrated approach and leverage the statewide program structure to improve safety.
- **Develop and share critical safety information and support educational initiatives.** For example, the MDH supports educational programs related to bicycle safety for youth as a part of a broader goal of encouraging life-long active transportation, and improving safety for active transportation is an important component of MDH's active living goals. DPS develops and distributes child passenger safety materials to child care centers, preschools, and teachers to help educate on keeping kids safe in vehicles. MnDOT provides educational information on rail crossings, work zone safety, distracted driving, and Share the Road, which is a statewide campaign targeted at bicyclists, pedestrians, and motorists. Collaboration and coordination of these educational efforts is critical.
- **Collaborate with law enforcement to promote compliance with traffic laws, affect driver behavior, and reduce unsafe driving practices for all modes.** For example, cities, counties, MnDOT, and DPS work together on efforts to prevent impaired driving. Minnesota's enhanced driving while intoxicated law enforcement efforts have been a factor in the continued reduction of alcohol-related crash deaths. Compliance of motorists, commercial vehicles, bicyclists, and pedestrians with traffic laws plays an important role in improving safety for all modes.
- **Work with local and regional partners that are public transit providers to ensure enforcement of safety and security requirements.** For example, MnDOT provides continuing safety education and training for Greater Minnesota transit operators on topics such as passenger assistance, defensive driving, and driver and passenger safety. This also includes the development of vehicle and facility safety and security plans, implementation of drug and alcohol testing programs, and major incident reporting. In the Twin Cities metropolitan area the Metropolitan Council is the primary entity with responsibility for transit passenger assistance and safety as well as transit operator training and security.

- **Ensure that transportation facilities are planned, engineered, operated, and maintained with consideration for the safety of all users.** Transportation should be designed for the safety of all users regardless of socioeconomic status, individual ability, or choice of travel mode. For example, many local and regional partners have adopted Complete Streets ordinances or policies that change their approach to how roads are designed to enable safe access for drivers, transit users, pedestrians, and bicyclists. Additionally, MnDOT and other transportation partners continually work to ensure the compliance of the transportation system with Americans with Disabilities Act (ADA) standards.
- **Implement strategic and sustainable engineering solutions to improve traveler safety.** This primarily includes systematically implementing improvements such as cable median barriers, rumble strips, intersection lighting, and turn lanes. Other examples include performing proper maintenance and improving access management. Technology can also play a critical role in improving traveler safety. Technology examples include intelligent transportation system applications such as intersection conflict warning systems, bus driver guidance assist systems, smart phone applications for the visually impaired, emergency vehicle preemption, as well as electronic air navigation aids and positive train control technology, which is train location and collision avoidance technology for freight and passenger rail service.
- **Work with emergency medical and trauma services to reduce response time and increase survivability.** Implementation and support of a statewide trauma system is critical. Law enforcement officers are often first responders to the scene of a crash and it is important that their first responder training be current.

Who will act?

TRANSPORTATION PARTNERS

Who will act?

MNDOT, LOCAL, REGIONAL, AND TRIBAL PARTNERS

Who will act?

TRANSPORTATION PARTNERS

A connection to Vision/Guiding Principles

RECOGNIZES AND RESPECTS THE IMPORTANCE, SIGNIFICANCE AND CONTEXT OF PLACE—NOT JUST AS DESTINATIONS, BUT ALSO WHERE PEOPLE LIVE, WORK, LEARN, PLAY AND ACCESS SERVICES



The Vision identifies a future system that recognizes the importance of place—where people live, work, learn, play and access services. The transportation in context objective and strategies will help ensure that transportation decisions lead to projects that are sustainable and consider their surroundings.

LEVERAGE PUBLIC INVESTMENTS TO ACHIEVE MULTIPLE PURPOSES



The Guiding Principles call for future policy and investment decisions that leverage public money to achieve multiple purposes, that in addition to meeting transportation needs also support other public purposes such as environmental stewardship, economic competitiveness, public health, and energy independence. Some ways in which the transportation in context objective and strategies respond include integrating land use and transportation to leverage both public and private money; planning, designing, developing and maintaining projects consistent with CSS; and minimizing adverse impacts to Minnesota's natural and cultural resources.

3. TRANSPORTATION IN CONTEXT

Make fiscally responsible decisions that respect and complement the natural, cultural, and social context; and integrate land uses and transportation systems to leverage public and private investments.

What This Is About

Transportation projects do not occur in a vacuum; they are surrounded by context. Context refers to the things people care about—the people, places, and circumstances of their lives. Transportation and context are intrinsically linked, and together they shape the communities where life takes place. It is important that transportation decisions are made with consideration of contextual elements such as land use, energy consumption, the environment, economy, public health, and the needs of traditionally underserved populations. Transportation decisions impact the surrounding context; they can shape the ways in which people live, work, play, and access services. More importantly, the surrounding context should impact transportation decisions. Not all places are the same; there is no one size fits all solution. Considering context when making transportation decisions leads to projects that are safer, sustainable in scale, and tailored to the specific places in which they exist—projects that respect and complement the economy, environment, and quality of life of a place.

MnDOT has embraced the importance of context through its [Context Sensitive Solutions \(CSS\)](#) initiative. CSS has proven itself as a principle-based and benefit-driven approach that can better serve and balance the needs of all transportation stakeholders and users more successfully and cost-effectively within existing constraints. MnDOT has identified integration of CSS principles and best practices as one of the highest priorities for the department. Specific to transportation project development and maintenance, CSS is defined as an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources while improving or preserving transportation safety, mobility, and infrastructure conditions. CSS requires ongoing and broad-based involvement of interdisciplinary perspectives and stakeholders to foster the continuing communication and collaboration that build and achieve consensus in decision-making. Other familiar programs and initiatives, such as sustainability, Safe Routes to School, Complete Streets, and Americans with Disabilities Act (ADA) requirements and opportunities, can be implemented more effectively with a CSS approach.

Strategies

- **Support the development of land use plans or policies that minimize long-term costs by taking advantage of investments made in existing and planned infrastructure.** Transportation and land use are fundamentally linked and must be supportive of one another. Community land use plans and complementary zoning are important tools to enhance the efficiency and affordability of the transportation system. Local land use decisions can have great impacts on transportation that affect the economy, environment, energy use, public health, and quality of life not just at the local level but regionally and statewide. The parties responsible for land use and transportation decisions should recognize the connection between land use and transportation and work together to coordinate plans, projects, and services. Where appropriate, Transit-Oriented Development (TOD) is a tool for accommodating and maximizing walking, bicycling and transit through higher density residential and commercial development. TOD often incorporates features to encourage transit ridership.
- **Work together to improve accessibility and safety for everyone traveling on, along, and across roads.** Examples range from improved pedestrian crossings, consideration of truck movements in intersection design, and accommodating transit stops. Additionally, the Complete Streets initiative seeks to develop a balanced transportation system that integrates all modes, safely includes transportation users regardless of socioeconomic status or individual ability, and enhances quality of life. MnDOT is committed to the principles of Complete Streets and is working with an external advisory group to articulate a Complete Streets vision and policy.
- **Plan, design, develop, and maintain projects in a way that is consistent with the principles of CSS.** The principles of CSS lead to projects that consider alternatives; address environmental, economic, and social needs; involve a broad range of stakeholders; and create lasting value for communities. MnDOT will also increase the content and availability of CSS resources and training that serve internal and external stakeholders who seek to better understand, apply, and advance CSS implementation and best practices.

Who will act?

LOCAL, REGIONAL, AND
TRIBAL PARTNERS

Who will act?

MNDOT,
LOCAL, AND
TRIBAL PARTNERS

Who will act?

MNDOT



- **Work together to support and implement both system-wide and project-specific approaches to avoid, minimize and mitigate adverse impacts to Minnesota’s natural and cultural resources.** It is important to address these concerns at the project level while still considering broader impacts such as air pollution and greenhouse gas emissions, water quality, and noise impacts from transportation system operation and use. For example, MnDOT currently implements a system-wide wetland banking program to address project-specific wetland mitigation.
- **Support statewide economic vitality and create and maintain jobs through transportation infrastructure investments.** MnDOT will work with public and private partners, such as DEED, to define economic development objectives and leverage local and private resources through the use of Transportation Economic Development funding. All transportation stakeholders should continue to be actively involved to ensure that the projects selected for funding achieve net economic gains for the state.

4. CRITICAL CONNECTIONS

Identify global, national, statewide, regional, and local transportation connections essential for Minnesotans' prosperity and quality of life; maintain and improve these connections by maximizing return-on investment, given constrained resources; and consider new connections.

What This Is About

Each person identifies different connections as critical based on where they live and their individual needs. In urban areas, critical connections may mean providing safe and reliable alternatives to driving during peak travel periods. In rural areas, it may mean roadway connections to regional centers for both people and goods. Critical connections also vary by type of transportation. For example, the key connections needed for driving may be different than those for transit, bicycling or walking. There also are different scales of connections. There are connections that move people and goods across the state, connections that move people and goods throughout a region, and connections that move people and goods within a community. All of these connections are important to the overall economic prosperity and quality of life in Minnesota.

While many types of connections are important, given finite resources, it is necessary to set priorities to provide complete, efficient, and affordable movement of both people and goods. Though all connections are important to someone at some time, there are critical connections that serve as the backbone for movement across and within Minnesota. Identifying, maintaining, and enhancing these priority connections are shared responsibilities. As a state agency, MnDOT, in cooperation with other transportation stakeholders, strives to ensure connections that move people and goods across the state and within regions. This includes, but is not limited to, roadways, waterways, intercity and regional bus, airports, and rail. MPOs, as regional units of government, strive to ensure connections that move people and goods throughout their region. This means developing regional transportation plans and programming projects of regional significance. Local units of government, such as cities and counties, strive to ensure connections that move people and goods within their community. This could mean an integrated network of local roads, safe options to bicycle and walk, or last-mile freight connections. All connections regardless of level, location, or transportation type need to be developed in coordination with one another to ensure a truly connected Minnesota.

A connection to Vision/Guiding Principles

CONNECTS MINNESOTA'S PRIMARY ASSETS—THE PEOPLE, NATURAL RESOURCES AND BUSINESSES WITHIN THE STATE—TO EACH OTHER AND TO MARKETS AND RESOURCES OUTSIDE THE STATE AND COUNTRY



The Vision identifies a future system that connects the people, natural resources, and businesses of Minnesota not only to each other but also to outside the state and country as well. The critical connections objective and strategies will help ensure the key connections are identified, maintained, and enhanced where appropriate.

ENSURE REGIONAL CONNECTIONS



The Guiding Principles call for future policy and investment decisions that ensure key regional centers are connected to each other through multiple modes of transportation. Some ways in which the critical connections objective and strategies respond include developing intercity passenger rail, improving intercity bus and transit services, and improving freight operations and connections.

Who will act?
MNDOT, LOCAL,
REGIONAL, AND
TRIBAL PARTNERS

Who will act?
TRANSPORTATION
PARTNERS

Who will act?
MNDOT, LOCAL,
REGIONAL, AND
TRIBAL PARTNERS

Strategies

- **Apply multimodal solutions that ensure a high return-on-investment, given constrained resources, and that complement the unique social, natural and economic features of Minnesota.** This approach will be applied throughout the state and across modes. In Greater Minnesota examples may include coordinating signal timing along a corridor, reducing risk at intersections, and extending transit service both in terms of area and hours of service. In the Twin Cities, the Metropolitan Council has identified what it calls “lower cost, high benefit” projects as primary focus areas for addressing congestion and improving safety.
- **Support and develop multimodal connections that are accessible for all Minnesotans regardless of socioeconomic status or individual ability.** The connections should enhance quality of life by providing links to key resources and amenities within communities and throughout the state. For example, local and regional partners are working to provide active, safe transportation options for bicycling and walking to school through the Safe Routes to School program. The St. Cloud Area Planning Organization included Safe Routes to School planning for a number of schools as a part of the development of a City-Wide Transportation Plan for the City of Sauk Rapids.
- **Work together to define priority networks for all modes based on connectivity and accessibility.** This means identifying the connections essential for local, regional, statewide, national, or global travel to ensure that Minnesotans can reach the destinations important to them. This may include both existing and proposed facilities. Priority networks should be defined at the local, regional, statewide, national, and global levels. MnDOT will focus on priorities for travel across the state and within regions, MPOs will focus on travel throughout their metropolitan area, and local units of government will focus on travel within their community. Coordination with all transportation partners is necessary to ensure connectivity between the priority networks at all levels and across all modes. For example, the Metropolitan Council, in its 2030 Transportation Policy Plan, has identified the metropolitan highway network and a system of transitways as priority areas for investment within the Twin Cities metropolitan area. MnDOT has identified the interregional corridor system and supplemental freight routes as the priority roadway network for connectivity and accessibility in Greater Minnesota.

- Collaborate to provide greater accessibility and more efficient movement of goods and people throughout the Twin Cities metropolitan area.** As the major population and economic center in the state, the efficient movement of goods and people into and throughout the region are critical to the overall economy and quality of life in Minnesota. Multimodal options including transit, bicycling, and walking are important contributors to the efficient movement of people throughout the region. A better defined and connected freight network—air, rail, truck, ports, and waterways—will provide greater accessibility, more efficient movement of goods, and contribute to the overall economy and quality of life of the region and state. The Metropolitan Council has identified active traffic management, the development of a managed lane system, and the expansion of the metropolitan area transit system as primary focus areas for reducing congestion and improving safety.
- Work together to improve the connections between transit services to provide greater transportation options for travel within and between cities.** Primary partners include MPOs, RDCs, local human service agencies, transit providers, and other local agencies. For example, the RDCs and MPOs developed Human Service Public Transit Local Coordination Plans to identify strategies and potential projects to coordinate transit services for older adults, persons with disabilities, and low-income populations.
- Work to develop intercity passenger rail and improve intercity bus service for better connections between cities and regions in Minnesota and across the nation.** For example, MnDOT and partners will work to advance intercity passenger rail projects incrementally and simultaneously as demand warrants and funding is identified.
- Work together to ensure the people and businesses of Minnesota have convenient access to the air transportation network.** Air transportation provides a critical connection to markets and resources outside the state and country. Providing viable connections may include maintaining or enhancing airline services in the Twin Cities and in Greater Minnesota where appropriate. Air transportation connections are essential to enhancing Minnesota’s role in a globally competitive economy.

Who will act?

MNDOT,
THE METROPOLITAN
COUNCIL AND LOCAL
AND PRIVATE-SECTOR
PARTNERS

Who will act?

MNDOT, LOCAL,
REGIONAL , AND
TRIBAL PARTNERS

Who will act?

MNDOT, LOCAL,
REGIONAL , TRIBAL,
FEDERAL, AND
PRIVATE SECTOR
PARTNERS

Who will act?

MNDOT, LOCAL, REGIONAL,
FEDERAL AND PRIVATE SECTOR
PARTNERS AND NEIGHBORING
STATES AND PROVINCES

Who will act?

MNDOT, LOCAL, REGIONAL, AND
FEDERAL PARTNERS, NEIGHBORING
STATES AND PROVINCES, AND
PRIVATE SHIPPERS AND CARRIERS

- **Work together to improve freight operations and connections for better access to the transportation system.** Important freight connections include last-mile links for manufacturers and distribution centers; farm-to-market routes; forestry access; terminals on the rail, waterway, and air cargo systems; and others. Protecting and improving these connections is an essential part of ensuring the prosperity of Minnesota. As an example, the Duluth-Superior Metropolitan Interstate Council formed a Harbor Technical Advisory Committee to discuss harbor-related issues and concerns, promote the harbor's economic and environmental importance to the community, and provide sound planning and management recommendations to decision makers. Other near-term activities may include using region-level freight studies to inform planning and decision making, reviewing the designations of National Highway System terminals, identifying and preserving a network of routes appropriate for oversize/overweight truck loads, and defining a primary freight network.

5. ASSET MANAGEMENT

Strategically maintain and operate transportation assets; rely on system data, partners' needs, and public expectations to inform decisions; put technology and innovation to work to improve efficiency and performance; and recognize that the system should change over time.

What This Is About

Asset management is a systematic process of cost-effectively operating, maintaining, and upgrading assets once they are built or purchased. It includes both keeping individual assets viable as well as managing for long-term system needs, including adjusting for change. Asset management involves planning for the appropriate changes that will allow the system to adapt to future needs. This includes supporting research that helps improve materials and practices to be more efficient and effective. In strategic asset management, it is essential to set priorities and manage based on those priorities. This includes making appropriate trade-offs when necessary. It is critical to think in terms of risk and to assess likely impacts to Minnesota's quality of life, economy and the environment.

Transportation assets include all aspects of the transportation system such as travel ways, vehicles, and support facilities. Examples include waterways, rail trackage, trails, roadways, runways, airspace, and transit vehicles.

A connection to Vision/Guiding Principles

PROVIDES SAFE, CONVENIENT, EFFICIENT AND EFFECTIVE MOVEMENT OF PEOPLE AND GOODS



The Vision identifies a future system that provides for safe, efficient and effective travel of both people and goods. The asset management objective and strategies will help ensure that assets of the transportation system are properly operated, maintained and upgraded.

STRATEGICALLY FIX THE SYSTEM



The Guiding Principles call for future policy and investment decisions to be aimed at strategically fixing the system, to maintain and upgrade critical existing infrastructure and to recognize that some parts of the system may need to be reduced. Some ways in which the asset management objective and strategies respond include giving priority to maintaining and operating assets on identified priority networks, supporting technology and innovation to improve system performance, and recognizing that the system should change over time.

Who will act?
MNDOT, LOCAL,
REGIONAL, AND
TRIBAL PARTNERS

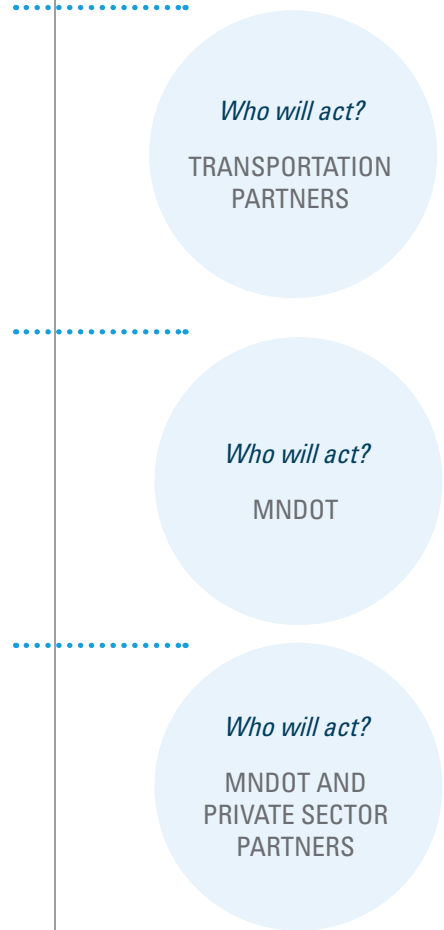
Who will act?
MNDOT, LOCAL,
REGIONAL, AND
TRIBAL PARTNERS

Who will act?
TRANSPORTATION
PARTNERS

Strategies

- **Prioritize maintaining and operating assets on identified priority networks.** Based on recent revenue projections, it will not be feasible to maintain all assets in current condition or better over the short to medium term. Given this outlook, MnDOT will work with its partners to define priority networks based on connectivity and accessibility and invest in these assets accordingly. These priority networks will be maintained to a higher standard than the rest of the systems. This may include strategically maintaining and upgrading critical existing infrastructure where appropriate.
- **Keep Minnesota’s transportation system on a sustainable track for the future.** Using a risk-based approach, make capital, operations, and maintenance investment decisions by considering impacts to the state’s economy, environment, and quality of life. Considering these potential impacts before making decisions allows the system to change over time to address present and future needs. Specifically, MnDOT will identify, assess, and manage the potential risks and trade-offs for the transportation assets within the agency’s control. MnDOT also will use a risk-based approach to identify appropriate investment levels for the agency’s assets.
- **Ensure that safety, operations, and maintenance needs are considered and addressed in transportation planning and programming.** Investment decisions have many implications in regards to safety, operations, and maintenance. For example, capital investments in technology add value but also carry with them additional operational and maintenance needs. It is critical that these implications are factored into the decision-making process during project planning and programming.

- Better align ownership of Minnesota’s roadways with statewide, regional, and local priorities.** Working with critical partners, including cities, counties, and townships, MnDOT will initiate a comprehensive review of current roadway use and ownership and identify barriers to making ownership changes. Recommended adjustments will allow project selection to better reflect priorities at all levels.
- Work with transportation partners to implement a transparent and collaborative approach to corridor investment along the state highway system.** This approach will help MnDOT and partners generate and implement sustainable and cost-effective investment strategies that are consistent with MnDOT’s performance and risk-based investment framework and responsive to local priorities.
- Monitor and report system condition and identify investment needs for key transportation infrastructure that is owned and operated within the private sector.** Transportation infrastructure owned and operated by the private sector is an important component of the overall transportation system in Minnesota. It is important that these private assets remain in good condition and connect to the publicly-owned system. Currently within the state, key privately-owned transportation assets include select rail and port vehicles and facilities.



A connection to Vision/Guiding Principles

IS FLEXIBLE AND NIMBLE ENOUGH TO ADAPT TO CHANGES IN SOCIETY, TECHNOLOGY, THE ENVIRONMENT AND THE ECONOMY



The Vision identifies a future system that is adaptive, which, in essence, is a secure system. It is able to respond to emergency, disaster, and special events.

EMPHASIZE RELIABLE AND PREDICTABLE OPTIONS



The Guiding Principles call for future policy and investment decisions to recognize that reliability of the system and predictability of travel time are frequently as important as speed, and to prioritize multiple multimodal options over reliance on a single option. Reliability and options are the essence of system security. Meeting the system security objective means ensuring reliable options exist, that there is system redundancy to meet essential travel during emergencies. Some ways in which the system security objective and strategies respond include collaborating to ensure coordinated and timely response to security related events and expanding communications infrastructure across the state for more reliable and predictable dissemination of information.

6. SYSTEM SECURITY

Reduce system vulnerability and ensure system redundancy to meet essential travel needs during emergencies.

What This Is About

In times of emergency, the focus of the transportation system shifts to ensuring essential travel needs. Essential travel refers to the movement of goods and people that are critical to public well-being. This could mean ensuring access to hospitals and pharmacies, improving emergency response, as well as ensuring that food and supplies are able to reach all parts of Minnesota.

System redundancy and reliability are important components to ensuring system security. It is important not only to have the availability of alternatives in both transportation route and type, but to have a system that is consistent. In terms of reliability, it will be important to identify potential security risks the system may face in the next 20 years.

Strategies

- **Collaborate with emergency planning efforts to ensure efficient and coordinated response to special, emergency, and disaster events.** For example, MnDOT has developed an emergency response plan that provides for mitigation, response, and recovery to events that impact transportation. The emergency response plan is supplemented with mutual aid agreements with various agencies and local jurisdictions. Other individual organizations, including state and local agencies, emergency responders, and public transit providers also have prepared emergency response plans. The Grand Forks - East Grand Forks Metropolitan Planning Organization has established a Bridge Traffic Incident Management Plan to address traffic impacts during closure of any of the four major bridges across the Red River in their area.
- **Expand emergency communications infrastructure across the state.** MnDOT maintains a statewide shared safety communication system for Minnesota public safety providers through a communication backbone service known as the Allied Radio Matrix for Emergency Response.
- **Collaborate with local emergency management to address security issues in their planning efforts.** This includes, 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. For example, MPOs address system security issues in their long range transportation plans.

Who will act?

TRANSPORTATION
PARTNERS

Who will act?

MNDOT, LOCAL,
REGIONAL, AND
TRIBAL PARTNERS

Who will act?

TRANSPORTATION
PARTNERS

OVER THE NEXT 20 YEARS

It is important to track the outcome of this plan to gauge whether progress is being made toward achievement of the objectives and the broader Minnesota GO Vision. As a part of this tracking, MnDOT has identified a number of performance measures, targets, and indicators that are regularly evaluated and reported via the annual Minnesota Transportation Performance Report.

For this Statewide Multimodal Transportation Plan, the identified strategies are key focus areas for the upcoming years, not a comprehensive list of every action related to transportation in Minnesota. In the upcoming years, the ongoing performance measurement efforts will continue along with broader, interagency summaries about the quality of life, economy, and public and environmental health of our state. All of this data, as well as customer and partner input, will help to identify whether the strategies have been realized and where more effort is required. Analysis of these outcomes will provide input for the next update of this plan.

Over the next 20 years, strategic investments will be focused on maintaining and improving facilities, accessing travel options, managing congestion, and fostering greater safety. Closer coordination of land use and transportation resources can enhance our communities and neighborhoods. Technologies are evolving, which will facilitate achievement of some plan objectives during this timeframe. New capabilities for rail and urban transit systems are expected to progress. As the system is presently funded, constraints will force a focus toward preservation of aging infrastructure and resources. Alternatives that stretch resources, including new arrangements of roles and responsibilities, will be welcomed and supported.



Chapter 5

WHAT COMES NEXT FOR MnDOT?

Connecting the Minnesota GO Vision, Statewide Multimodal Transportation Plan, and modal investment plans and identifying how performance measures will be used to guide investments

SEPTEMBER 2012

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WHAT COMES NEXT FOR MnDOT?

The Minnesota GO Vision and Guiding Principles were shaped with the input of Minnesotans from all walks of life. They also draw from the plans and policies of the tribes, MPOs, and other regional and local transportation partners.

The Minnesota GO Vision and Guiding Principles with the objectives and strategies set out in **Chapter 4 “How will we guide ourselves moving forward?”** provide a framework for all transportation partners to work together to develop, maintain, and operate Minnesota’s multimodal transportation system more efficiently and effectively. They also provide the policy direction for MnDOT’s modal investment plans that come after this plan.

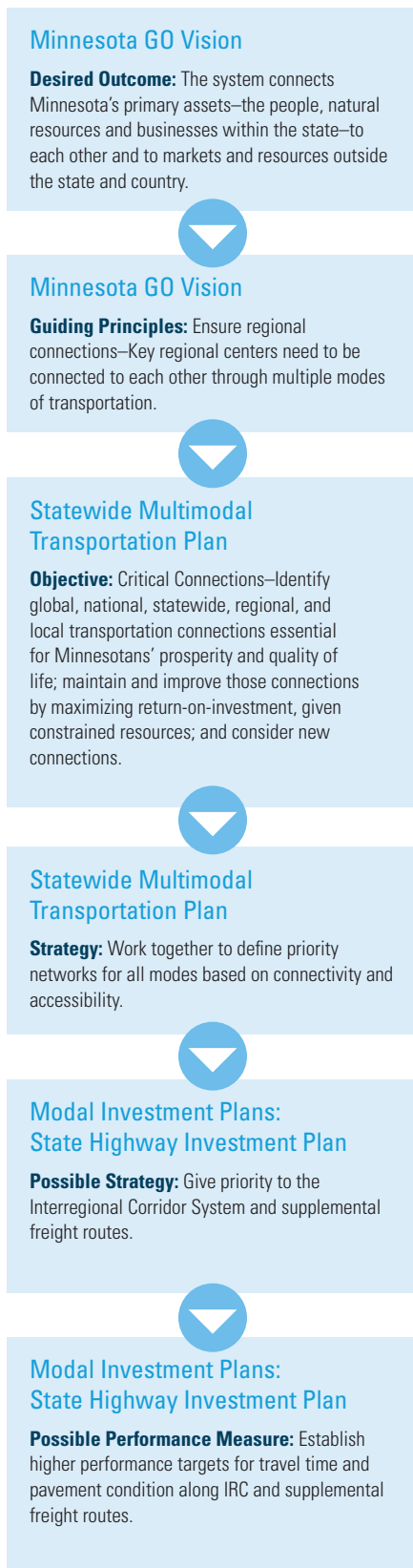
This chapter describes how the Minnesota GO Vision, Statewide Multimodal Transportation Plan, and performance measures will be used to shape subsequent MnDOT plans and investment decisions. Additionally, it identifies how the objectives and strategies provide policy direction for MnDOT and serve as a framework or guidance for our partners moving forward. Working with our transportation partners through better coordination and collaboration is a priority.

Figure 5-1 shows the three main planning areas that make up the Minnesota GO planning process and provide the strategic planning framework for MnDOT, starting with the Vision and ending with the modal investment plans.

Figure 5-1: Minnesota GO Planning Areas



Figure 5-2: Connecting the Vision



MnDOT's Family of Plans

Minnesota GO started with just the Minnesota GO 50-year Vision, but extends to an entire Family of Plans that provide direction for different transportation modes (highways, transit, rail, bikes, pedestrians, waterways, aviation).

MnDOT's Family of Plans includes four tiers of planning. The first two tiers of planning are the Minnesota GO Vision and the Statewide Multimodal Transportation Plan. The third tier consists of the modal investment plans. The last tier is supporting plans which complement and inform the Statewide Multimodal Transportation Plan and modal investment plans. The Minnesota GO plans and other supporting plans provide the information that feeds into capital programs and operating plans. The main capital programming planning document is the four-year Statewide Transportation Improvement Program. Collectively, these four tiers of planning meet state and federal requirements.

Linking the adopted Minnesota GO Vision to what is being said in this plan as well as the subsequent plans is important. **Figure 5-2** provides an example of how a desired outcome of the Vision (connections) may carry through to the State Highway Investment Plan.

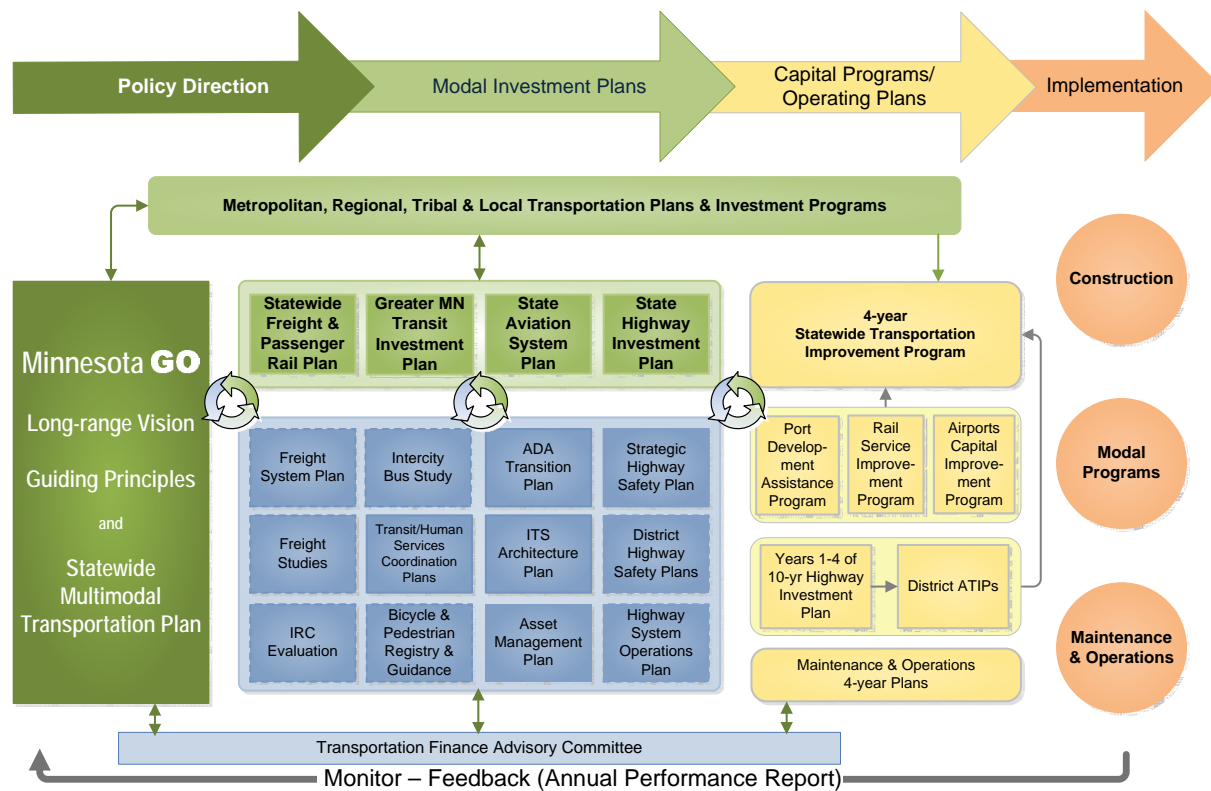
Figure 5-3 shows how MnDOT plans and programs fit together to make up the Family of Plans. Minnesota tribes, MPOs, RDCs, and other locals are part of MnDOT's planning process from start to finish.

MODAL INVESTMENT PLANS

MnDOT's modal investment plans will use the Minnesota GO Vision and Guiding Principles and the objectives and strategies identified in this plan as their framework for development. These plans draw on a broad array of other plans and studies to set out mode-specific strategies, performance measures, performance-based needs over upcoming years, risk-based investment trade-offs, and recommended priorities.

Modal investment plans will use risk-based planning to determine investment direction for the programming of available transportation funding. Each is updated every four to six years.

Figure 5-3: MnDOT Plans and Programs

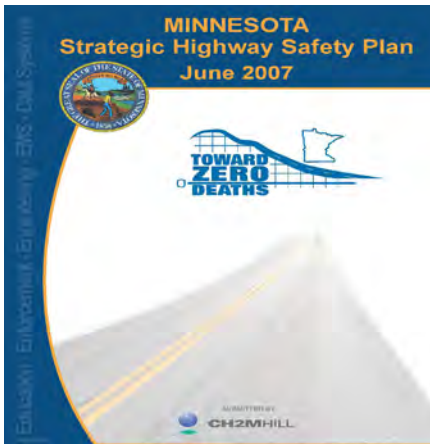


No Legislative Requirement

MnDOT's four modal investment plans are:

- [State Aviation System Plan](#)—This document broadly plans for Minnesota public airports. It informs decision making and guides the development of Minnesota’s system of airports. The State Aviation System Plan will be adopted in 2012.
- [State Highway Investment Plan](#)—This plan sets a performance-based, 20-year plan for future capital improvements on Minnesota’s trunk highway system by prioritizing investments based on estimated risk. The next State Highway Investment Plan will be completed in 2013.
- [Greater Minnesota Transit Investment Plan](#)—This plan sets priorities for transit investments and determines the level of funding necessary for the state to meet its transit needs in Greater Minnesota. The Greater Minnesota Transit Investment Plan was adopted in 2011.
- [Minnesota Comprehensive Statewide Freight and Passenger Rail Plan](#)—This plan establishes guidance for Minnesota initiatives and investments for both freight and passenger rail services. The Comprehensive Statewide Freight and Passenger Rail Plan was adopted in 2010.





SUPPORTING PLANS

On-going monitoring of system performance offers feedback on the results of system investment decisions and provides key information about future needs to guide updates of the Family of Plans. MnDOT is currently in the process of completing a Bicycle Planning Study that will be a supporting document to the Statewide Multimodal Transportation Plan and State Highway Investment Plan. The study will assist in defining the Department's approach to bicycle infrastructure investment.

Other Plans and Studies

Many other plans complement and inform the statewide plan, modal investment plans, and capital programs. These include long-range transportation plans shaped by [Minnesota's tribes](#) and by seven designated [MPOs](#) that are developed in coordination with MnDOT.

Other plans that directly influence strategies and investment priorities include the following federally-required plans:

- [Minnesota Strategic Highway Safety Plan](#)
- [MnDOT Americans with Disabilities Act Transition Plan](#)
- [Intelligent Transportation Systems Architecture Plan](#)
- [Transit/Human Services Coordination Plans](#)

MnDOT-originated plans and studies also add fuller understanding of transportation system needs and options, for example:

- [Minnesota Statewide Freight Plan and studies](#)
- [Interregional Corridor System](#)
- [Intercity Bus Network Study](#)
- [Bicycle and Pedestrian Resources and Guidance](#)
- MnDOT Asset Management Plan (in development)
- [Highway System Operations Plan](#)
- [Study of Transportation Long-range Funding Solutions](#)



CAPITAL PROGRAMS

Investment priorities and funding programs are developed based on the information in the MnDOT Family of Plans. They are updated annually, taking into account changing conditions and reports about system performance. These documents guide implementation for construction, modal programs, and maintenance and operations within the constraints of available funds and resources.

Drawn together into the [Statewide Transportation Improvement Program](#) are priority lists of projects to be funded and implemented over the upcoming four years. MnDOT and transportation partners, including Minnesota tribes and MPOs, collaborate at the regional level to guide investment decisions by working through the ATPs to prioritize and select projects for funding and implementation. The [Overview of Planning and Programming in Minnesota](#) is a helpful source to explain these partnerships and transportation investment processes.



Performance Measurement

The Minnesota GO planning process (Vision, Statewide Multimodal Transportation Plan, and modal investment plans) aims to enhance and protect the transportation assets and services that affect Minnesotans' quality of life, environment, and economy. MnDOT will continually track economic and demographic trends as well as the effectiveness of the strategies identified in this plan. This information coupled with data about the multimodal transportation system's condition and performance helps to identify best practices and ways to improve results.

Performance measures provide quantitative information to help make better investment decisions. They are an integral part of system management and have been used by MnDOT since the 1990s to evaluate services and guide plans, projects, and investments. **Figure 5-4** includes selected existing MnDOT performance measures for each of the six objective areas of this plan that have been drawn from MnDOT's ongoing performance management program. Performance measures are by no means static and should evolve to better align with the Minnesota GO Vision.

Mode-specific performance measures and targets will be set by the highway, aviation, transit, and rail investment plans within the Family of Plans (e.g. pavement and bridge condition, miles of bicycle and walking facilities, installation of flight navigation aids, transit ridership and service availability, rail-grade crossing warnings). Measures such as snow/ice clearance time are also established for trunk highway operations. Each modal investment plan includes a comparison of measured system condition and performance, targets, and performance trends and concerns. The resulting understanding of system performance is then reflected in scenarios to compare risks of varying investment levels, strategies, and priorities. Final plans reflect public review and stakeholder input, setting a course for near-term investments and priorities over the following 20 years.

The Statewide Multimodal Transportation Plan and modal investment plans are updated every four to six years. In the interim, MnDOT provides an [annual report](#) on system performance. The report helps to understand how well planning strategies are working and whether any mid-course revisions are necessary.

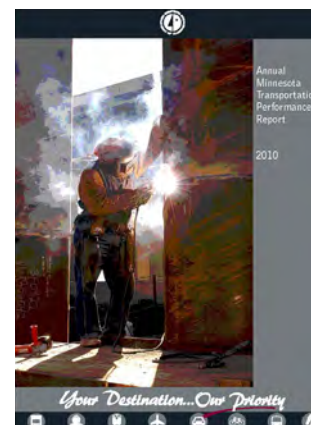


Figure 5-4: MnDOT Performance Measures

Objective Area	Performance Measures
Accountability, Transparency and Communication	Projects Let on Schedule, STIP Projects, Current Year: Percentage of projects in the first year of the STIP let in the planned year
	Customer Satisfaction with Reliability of MnDOT Communications: Percentage of respondents to the Omnibus survey that rate the reliability of MnDOT Communications
Transportation in Context	Airport Airspace and Land that is Protected: Percentage of publicly funded Minnesota airports that have Airport Safety Zoning
	Compliance with Criteria Air Pollutant Standards: Federal compliance standards. Outdoor levels of ozone, nitrogen dioxide, carbon monoxide, and particulate matter
	MnDOT Use of Cleaner Fuels: Gallons of fuel (with the percent ethanol subtracted) purchased for use in MnDOT on-road vehicles
Critical Connections	Travel Speed on Greater Minnesota Interregional Corridors (IRC): Percentage of Greater Minnesota Interregional Corridor miles meeting or close to target speed
	Access to Scheduled Air Service: Percentage of Minnesota's population within 60 minutes of an airport with scheduled airline service
	Travel Time Index (TTI) and National Ranking: Ratio of peak to free-flow travel time
	Transit Ridership: Passengers served in the Twin Cities Region
	Greater Minnesota Public Transit Bus Service Hours: Total number of public transit bus service hours provided compared to the total number of hours needed to meet transit demand
	Greater Minnesota Transit Coverage: Number of Greater Minnesota counties with countywide transit service
Asset Management	Structural Condition of State Highway Bridges: National Bridge Inventory (NBI) Structural Condition Index
	Ride Quality Index (RQI) for State Highway Pavements: Ride Quality Index
	Bridge Inspection: On time routine and fracture critical bridge inspections
	Snow and Ice Removal: Frequency of achieving bare lane within targeted number of hours
Traveler Safety	Fatalities on All Roads: Annual vehicle-related fatalities on all state and local roads
	General Aviation Fatalities: Annual fatalities resulting from general aviation crashes in Minnesota
System Security	Traffic Signal, Lighting and ITS Maintenance (developmental)
	Road Drainage Infrastructure Maintenance and Repair (developmental): Tracking of maintenance and repair of highest priority condition for (very poor condition) cross culverts - pipes that go underneath roadways

Working With Transportation Partners

Implementation of this plan's policy framework relies on effective coordination and collaboration among Minnesota's transportation partners. Working with our transportation partners through early and better coordination and collaboration is a priority. Both public outreach and stakeholder meetings during plan development identified this as the factor most critical to the success of Minnesota GO now and in the years to come.

MnDOT has a long-standing planning partnership with Minnesota's MPOs. MPOs carry out a continuing, cooperative and comprehensive transportation planning process within the state's larger urbanized areas. Both MnDOT and the MPOs share the responsibility of assuring that regional and statewide transportation plans align. Moving forward, MnDOT planners will participate in the development of MPO regional plans and work to ensure a high level of coordination and cooperation.

Regular consultation with Minnesota's tribes, participation on the Advocacy Council for Tribal Transportation, and co-sponsorship of Tribes and Transportation conferences are examples of established partner relations. Minnesota's unique ATPs bring local and state interests together to determine priorities for surface transportation investment programming. The Minnesota Freight Advisory Committee, Passenger Rail Forum, Minnesota Public Transit Association, State Non-Motorized Transportation Advisory Committee, ADA community, and other advisory groups regularly provide insights from the perspectives of particular interests. Engagement with these established partners and appropriate advisory groups is an expected step whenever the Statewide Multimodal Transportation Plan or Family of Plans are updated.

Two example initiatives that reflect MnDOT's new approaches and commitment to collaboration across all aspects of transportation system management include:

- The Disadvantaged Business Enterprise and Workforce Collaborative is working to build skills and create opportunities so that participation in the jobs and contracted work of Minnesota's transportation industry reflects the state's population demographics. The Collaborative is broadening the involvement of traditionally under-represented communities in all aspects of the transportation system, from planning to construction and operation.
- MnDOT's Corridor Investment Management Strategy (CIMS) advances the Minnesota GO Vision. It brings together many state agencies and local interests to share information about infrastructure investment needs and opportunities along interstates, freight routes, and some other trunk highway corridors. CIMS intended outcomes include a more transparent and inclusive decision-making process, cost-effective investments and innovative management strategies, as well as partnerships that leverage public resources to achieve multiple purposes.

Public Engagement

MnDOT's [Hear Every Voice](#) guidance voices the agency's aim to enable all to effectively participate in the transportation planning process and to have ready access to information about the transportation system.

When updated, the Statewide Multimodal Transportation Plan and modal investment plans must each develop a public involvement plan that provides the public and stakeholders with information about the planning effort and opportunities to “weigh-in” on proposed policies, priorities, investments, and other plan analysis and recommendations. As part of the public engagement process MnDOT will strive to ensure an orderly development of future planning initiatives to maximize engagement opportunities while avoiding redundancy and confusion.

Plan development outreach includes both face-to-face meetings and online communication with established partners, stakeholders, and the public. Ensuring that interested individuals have options to participate throughout plan development is expected, beginning with early discussions about the plan update process and schedule, exchange of information and views about trends and system changes, along with early review of draft recommendations. Both meetings and posted information must be accessible, consistent with ADA requirements.

MnDOT's goal to engage traditionally under-represented communities can involve making information available in different languages, providing translation services on request, publicizing meetings, and other opportunities via ethnic media, as well as strategizing to meet in community gathering locations when possible and at convenient times.

Both state and federal law requires a formal public review process for major plan updates. Whenever a draft plan is released for public review and comment, MnDOT has made it easier to participate in the required formal public hearings by scheduling them in MnDOT facilities across the state that have video conference technology.

For additional information on working with transportation partners and public involvement information, a link to the public involvement plan and summary is included in **Chapter 6 “How do I get more information?”**





SUMMARY

Beyond this plan, MnDOT will work with transportation partners to realize the objectives and strategies outlined in the previous chapter. It is important to track the outcome of this plan both internally and externally to gauge whether progress is being made toward achievement of the Minnesota GO Vision and plan objectives and strategies. Surveying our partners to identify how objectives and strategies are being used as a framework is important.





Chapter 6

HOW DO I GET MORE INFORMATION?

SEPTEMBER 2012

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HOW DO I GET MORE INFORMATION?

Additional Information

More information on this plan is available at www.minnesotagoplan.org or www.state.mn.us/minnesotago.

Key documents available online include:

- **Project Management Team**
Click [here](#) for a list of people and organizations who contributed to the development of this plan.
- **Public Involvement**
Click [here](#) to access a summary of the public outreach and the public involvement plan implemented to develop this document.
- **Plan Acronyms and Glossary**
Click [here](#) to access a list of acronyms and terms used in this plan and their definitions.
- **MnDOT Modal Investment Plans**
Click [here](#) to access each of MnDOTs modal investment plans online (State Highway Investment Plan, Greater Minnesota Transit Investment Plan, Statewide Freight and Passenger Rail Plan, and Statewide Aviation System Plan).
- **Metropolitan Planning Organization Plans**
Click [here](#) to access each of the Minnesota MPO long-range transportation plans.
- **MnDOT Annual Performance Summary**
Click [here](#) for a summary of 2010 status regarding transportation performance measures and indicators.
- **Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)**
Click [here](#) for a list of planning factors identified in SAFETEA-LU and how this plan addresses them, as identified by the FHWA and FTA.
- **Minnesota Legislative Goals**
Click [here](#) for a list of Minnesota legislative goals for transportation and how this plan addresses these goals.
- **Environmental Justice**
Click [here](#) for environmental justice information as it relates to this plan.

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