Statewide
Multimodal
Transportation Plan

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

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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.

Minnesota GO
Crafting a Transportation Vision for Generations

Environment
Economy
Quality of life

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.

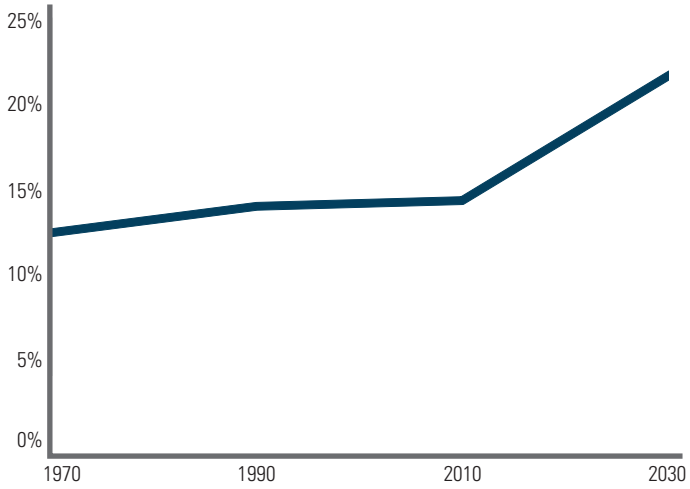
Future Challenges and Opportunities

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

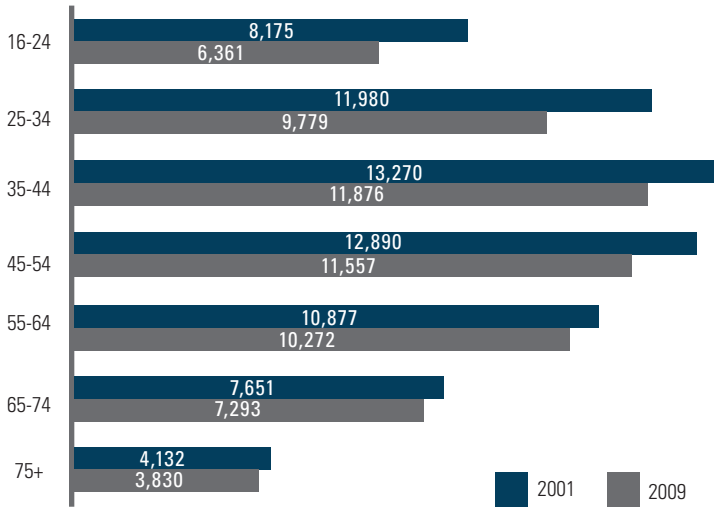
Over the next 20 years, as the peak of the baby-boom generation approaches the age of 65 and beyond, their travel patterns are likely to change. Although many will continue to drive personal vehicles well into their elder years, they are likely to adjust the amount, time, and destinations of their travel; 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

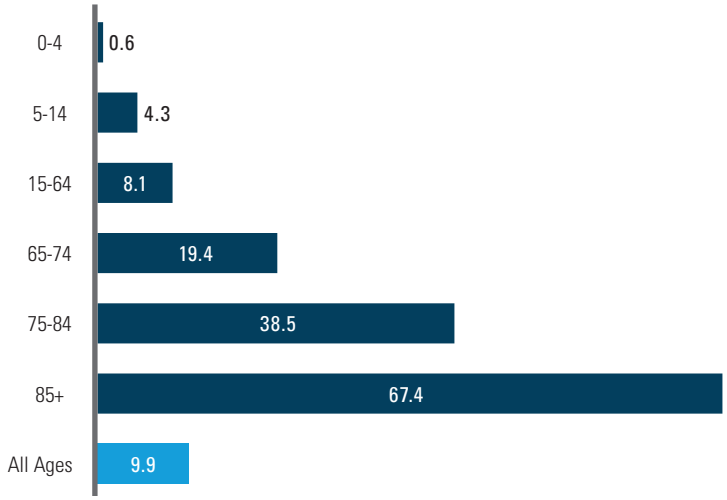
Figure 1-2: National Average Annual Vehicle Miles Traveled by Age Group



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

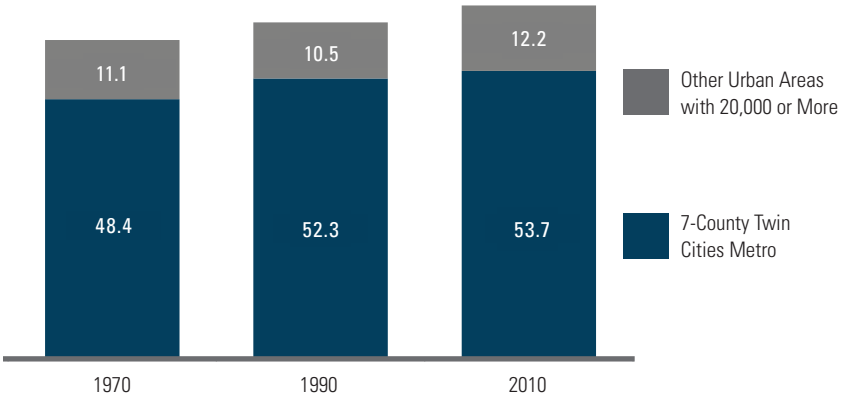
Minnesota is also becoming more ethnically and culturally diverse. It is increasingly important for transportation agencies and communities to understand and seek out diverse perspectives in the planning process as the housing, transportation, and service needs of populations vary.

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

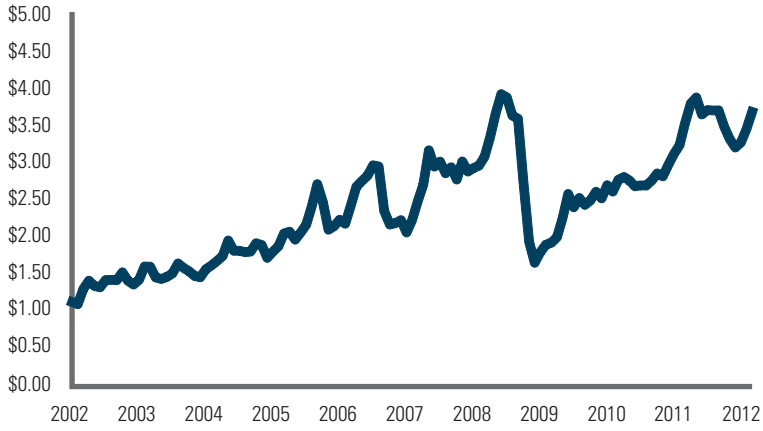
ENERGY SHIFTS

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 vehilcle 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

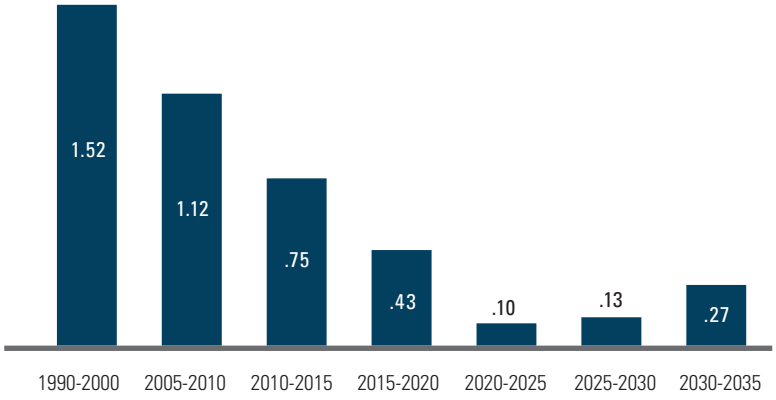
2 https://www.cms.gov/NationalHealthExpendData/25_NHE_Fact_Sheet.asp

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.

eWorkPlace

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.

[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