



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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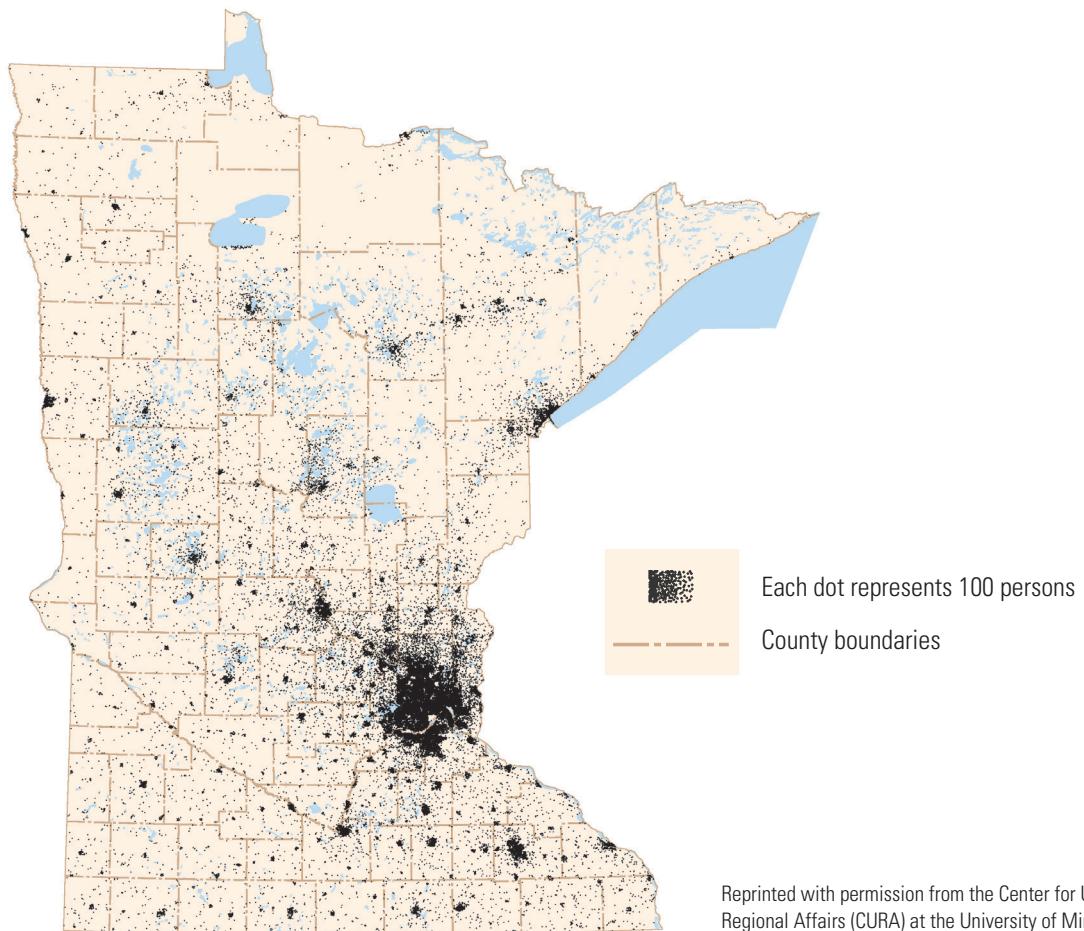
WHERE ARE WE NOW?

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.

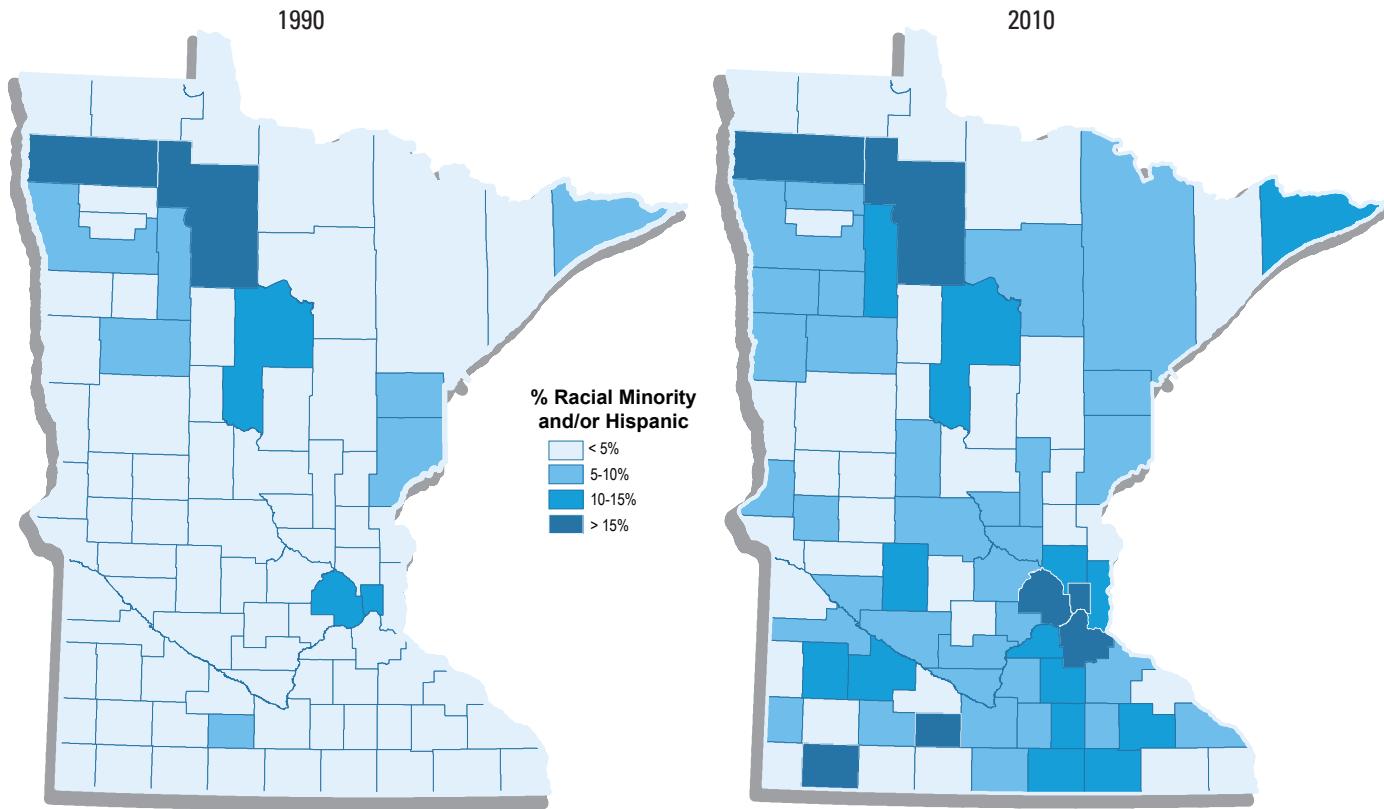
Figure 2-1: Minnesota Population Distribution 2010



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.

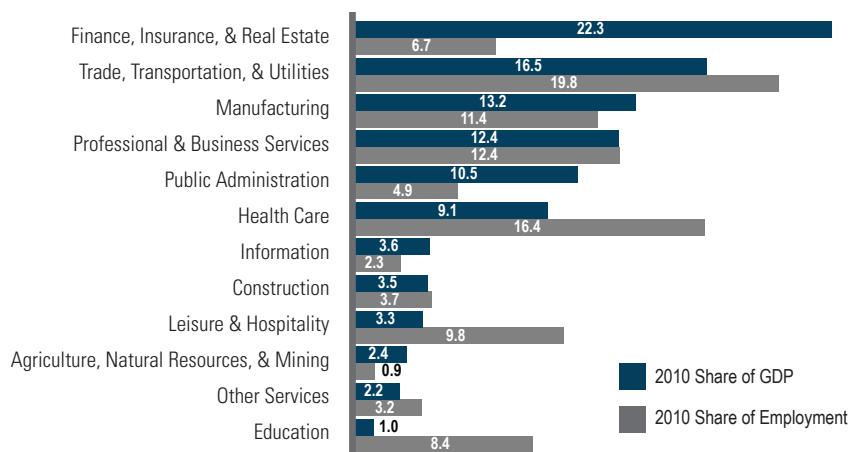
⁸ US Census Bureau

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

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



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

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

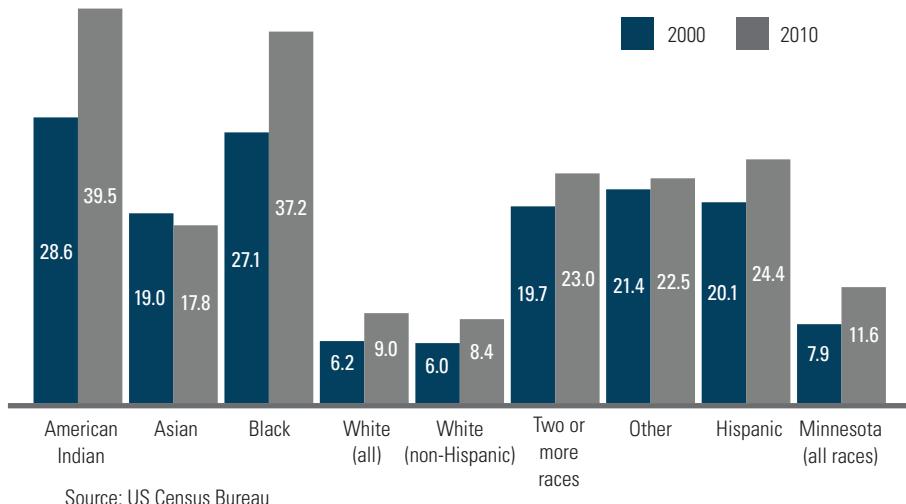
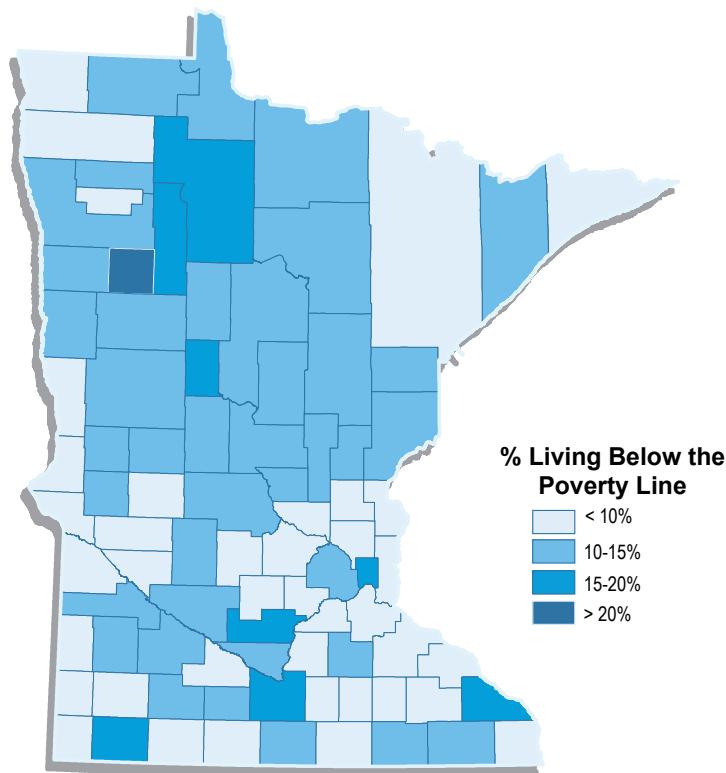


Figure 2-5: Minnesota Population Poverty by County, 2010



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.¹⁹ 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

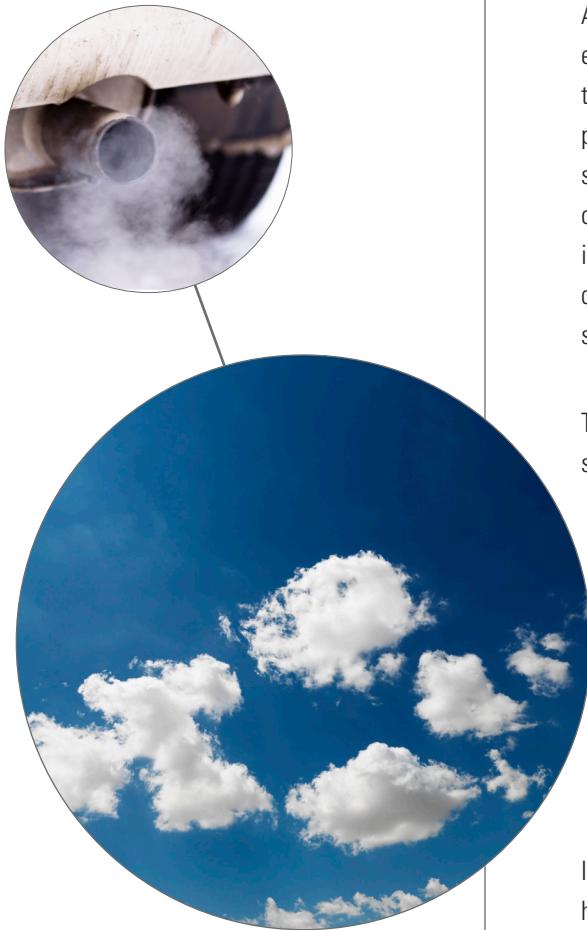
Source: MN DNR

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

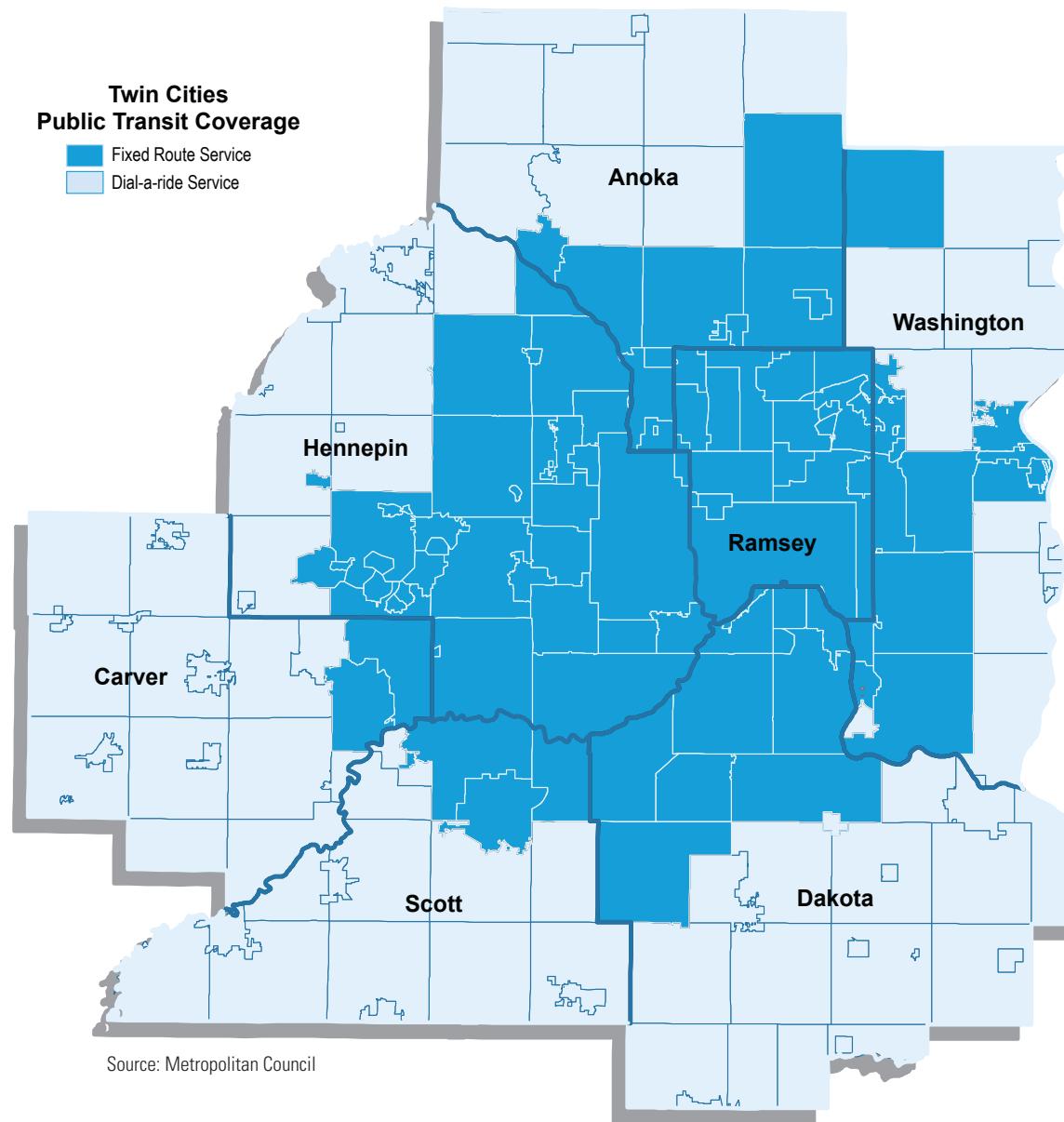
²² Nice Ride Minnesota

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.

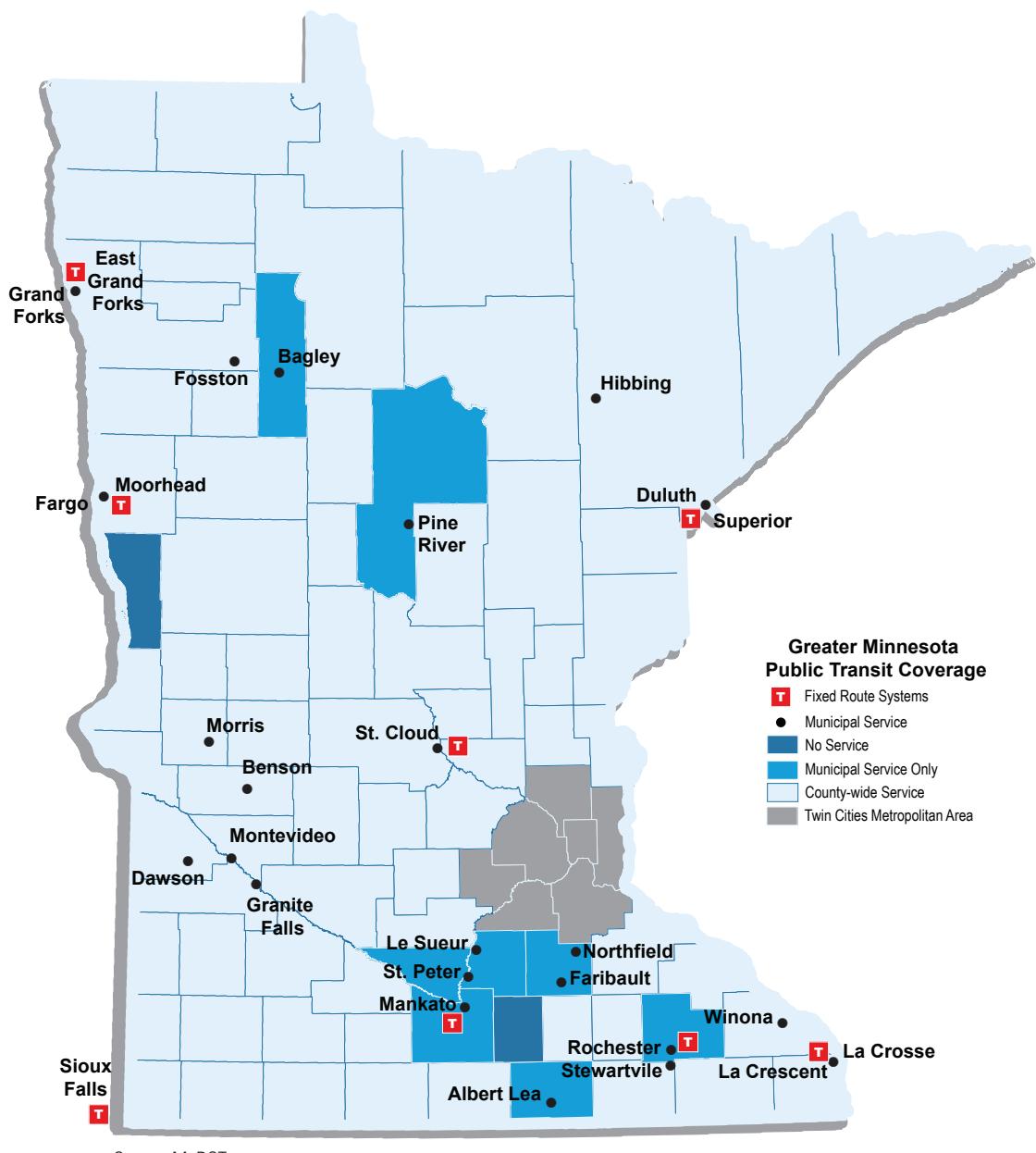
Figure 2-9: Twin Cities Public Transit Service Coverage



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



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.

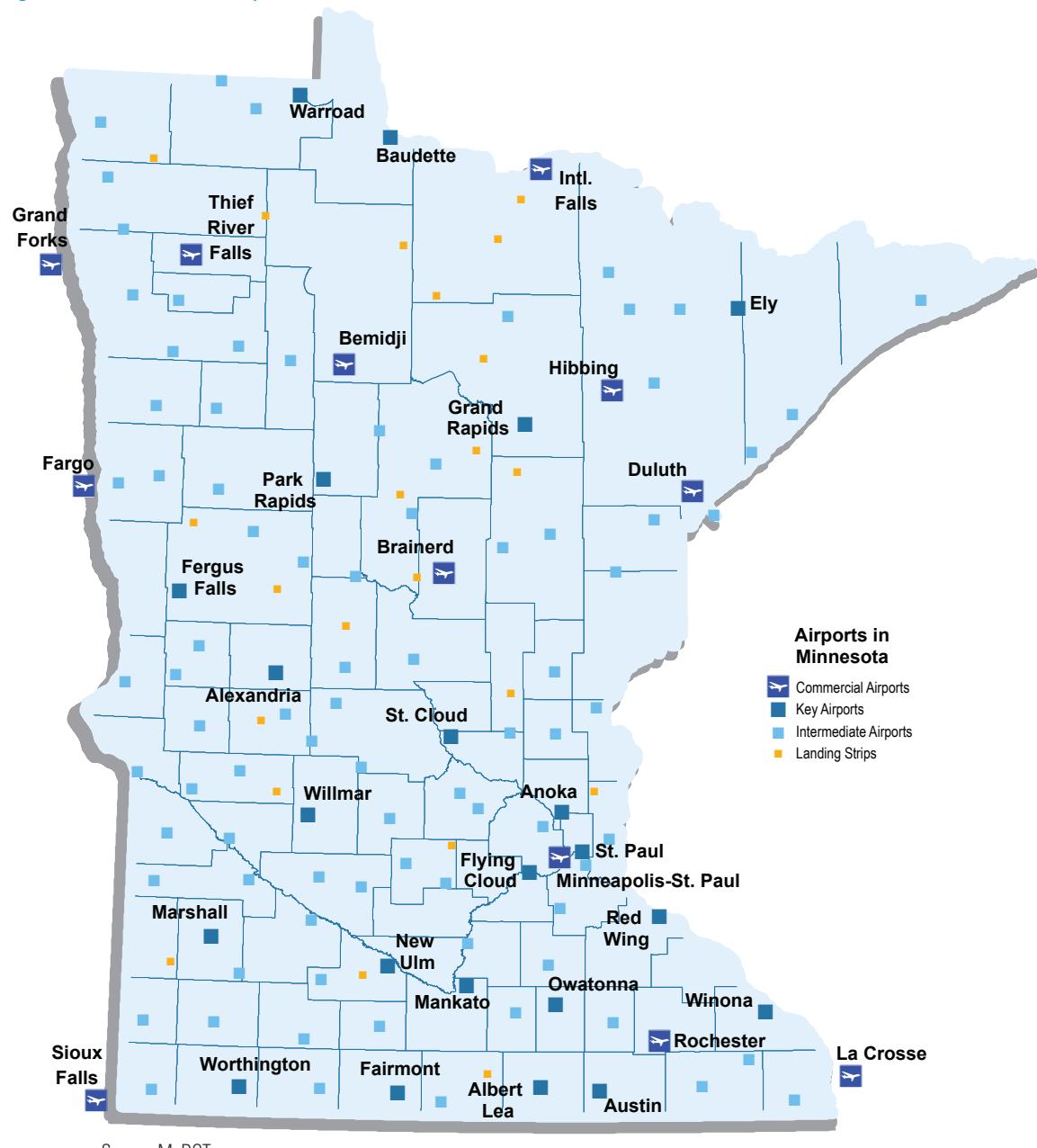
Figure 2-12: Minnesota Freight Rail System



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



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



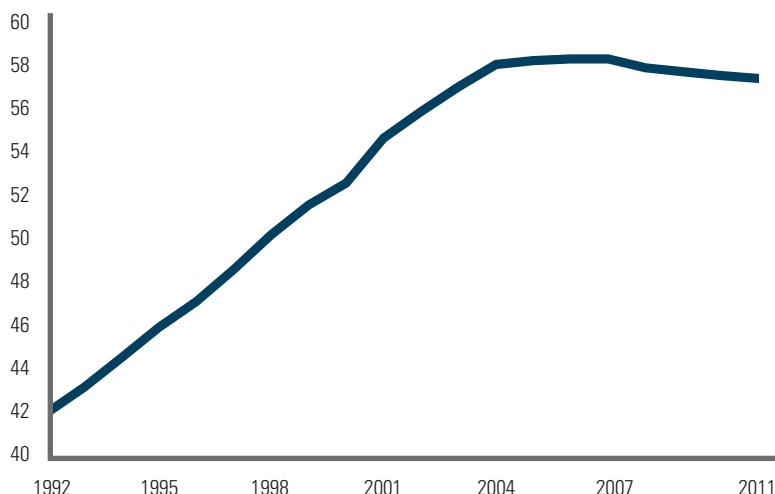
- **MnPASS and other Managed Lanes:** On the Twin Cities freeway system, MnPASS electronic tolled lanes were first implemented in 2005 along I-394. This automated toll lane and other managed lane technologies have been extended to portions of I-35W and are currently being considered for other parts of 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 a reduction in 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)



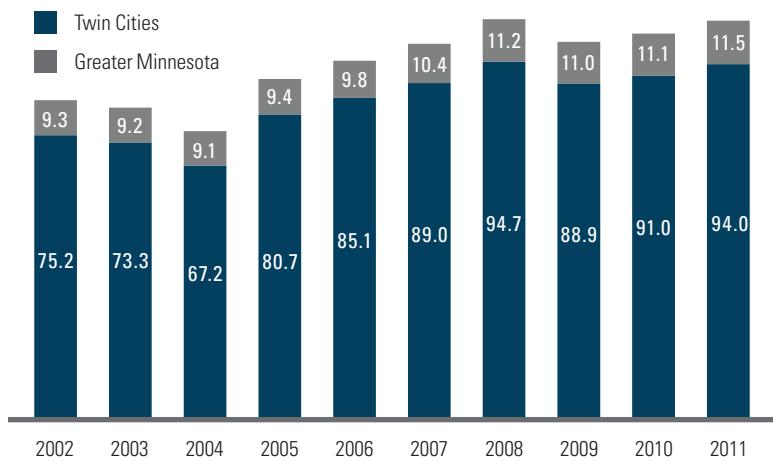
Source: MnDOT

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)



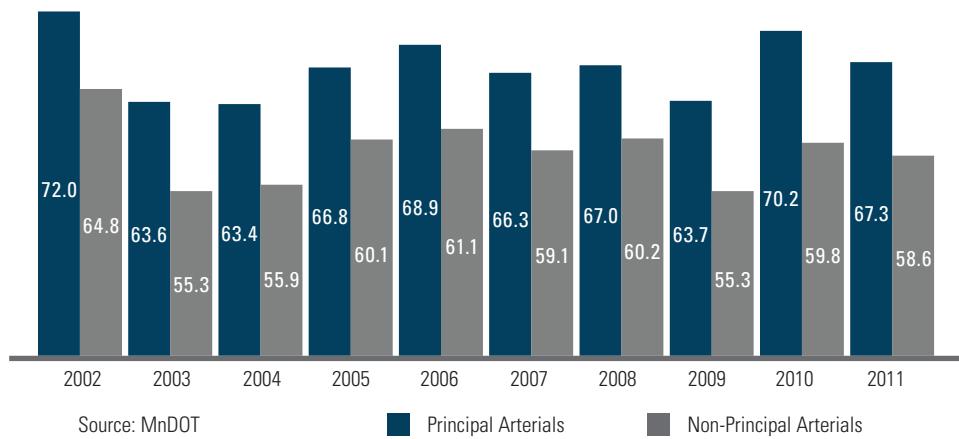
Source: MnDOT and Metropolitan Council

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



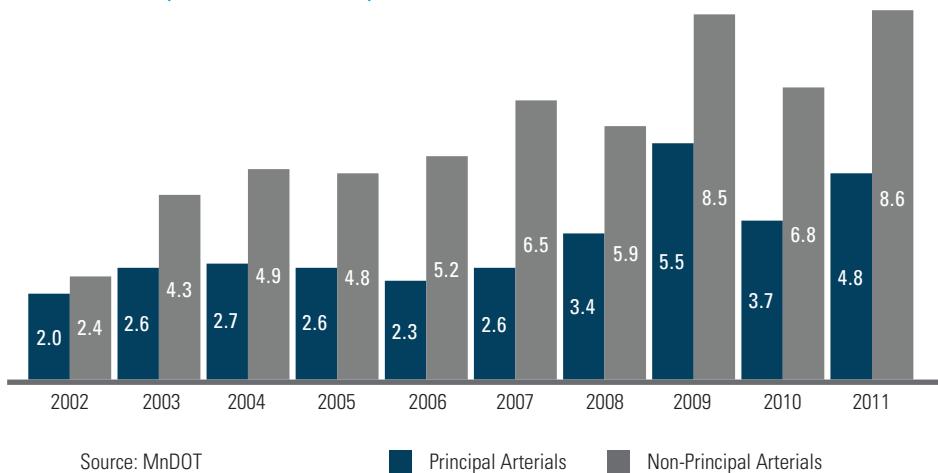
Source: MnDOT

Principal Arterials

Non-Principal Arterials

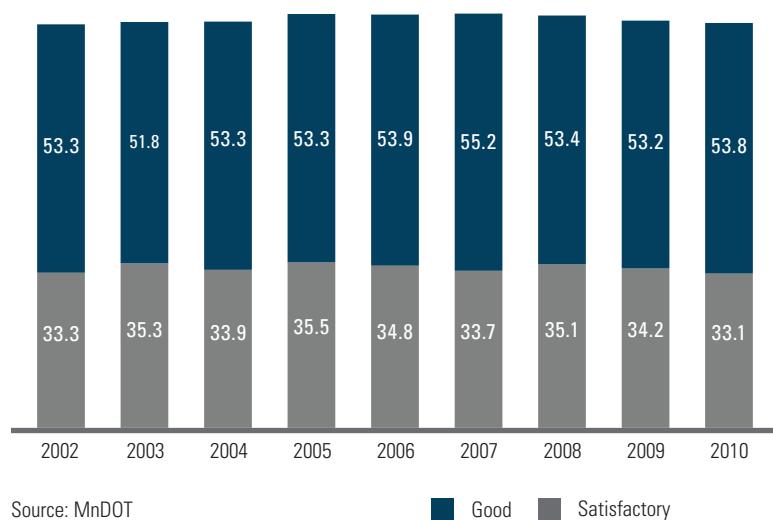
Pavement—Poor Ride Quality: As shown in **Figure 2-18**, the percentage of pavement on the state highway system with a poor ride quality is increasing. The decrease in 2010 was largely due to additional federal money received from the stimulus bill. It is projected that this figure will continue to increase 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.

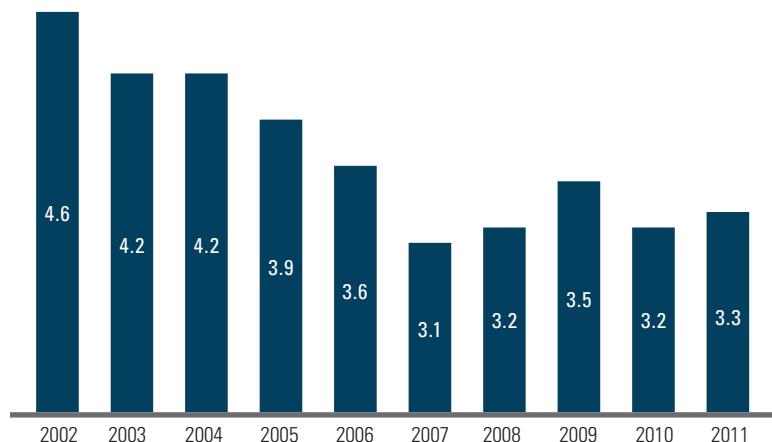
Figure 2-19: Percentage of Bridges in Good and Satisfactory Condition on Minnesota Principal Arterials (sq. ft.)



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.

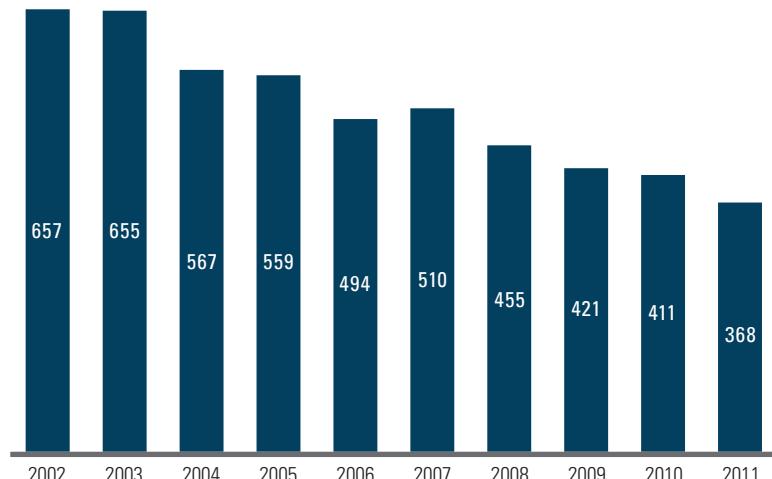
Figure 2-20: Percentage of Bridges in Poor Condition on Minnesota Principal Arterials (sq. ft.)



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.

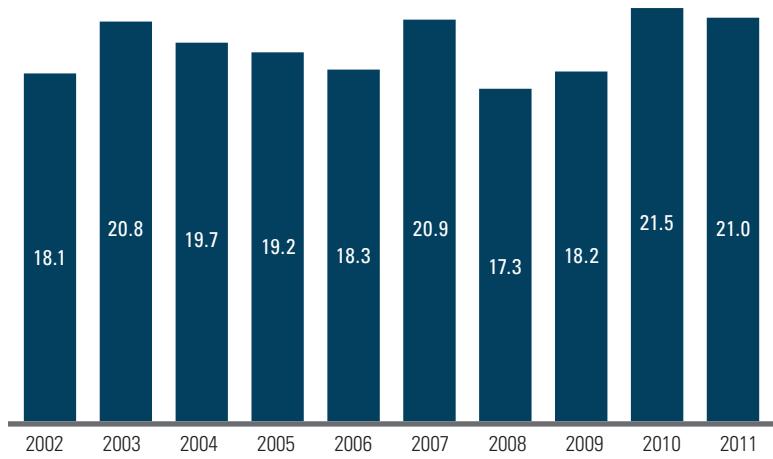
Figure 2-21: Annual Traffic Fatalities on All State and Local Roads in Minnesota



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.

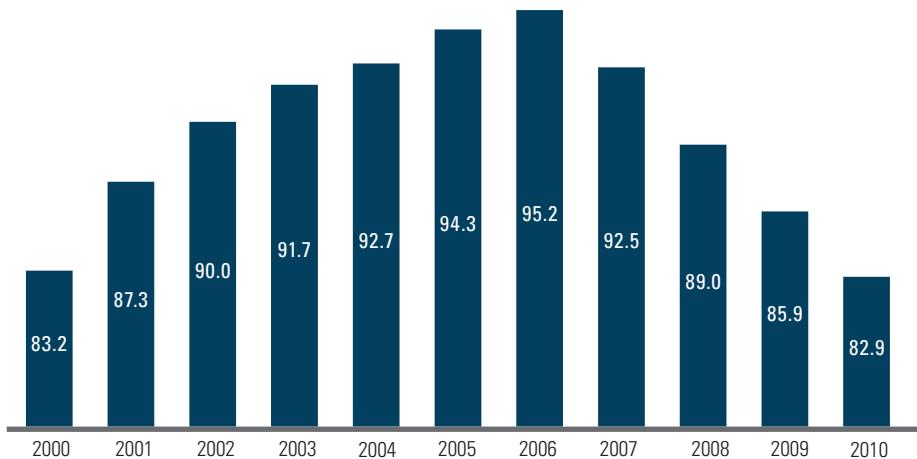
Figure 2-22: Percentage of Twin Cities Urban Freeway Miles Congested



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.

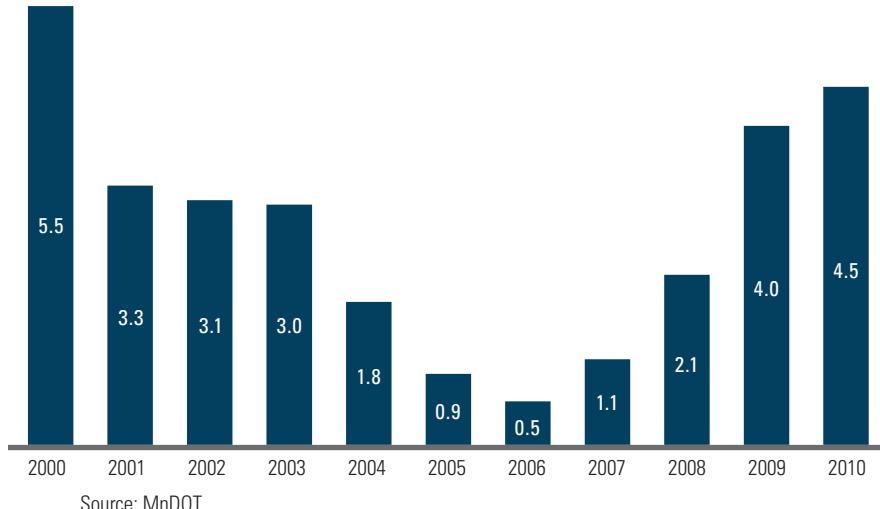
Figure 2-23: Percentage of Minnesota Runway and Taxiway Pavements in Good Condition (MSP, DLH, and RST not included)



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.

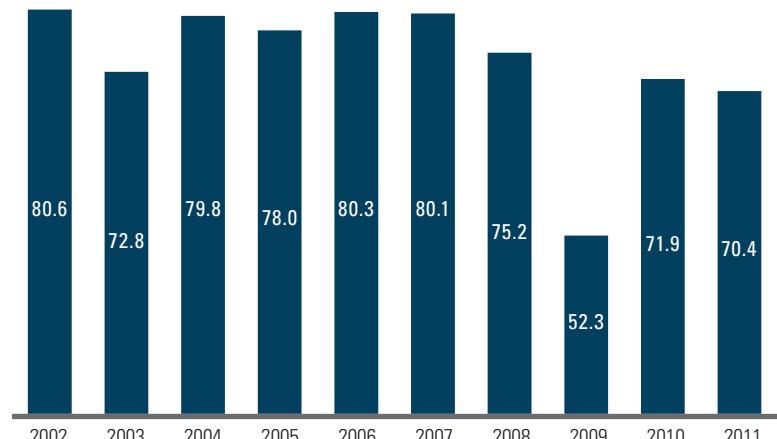
Figure 2-24: Percentage of Minnesota Runway and Taxiway Pavements in Poor Condition (MSP, DLH, and RST not included)



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)

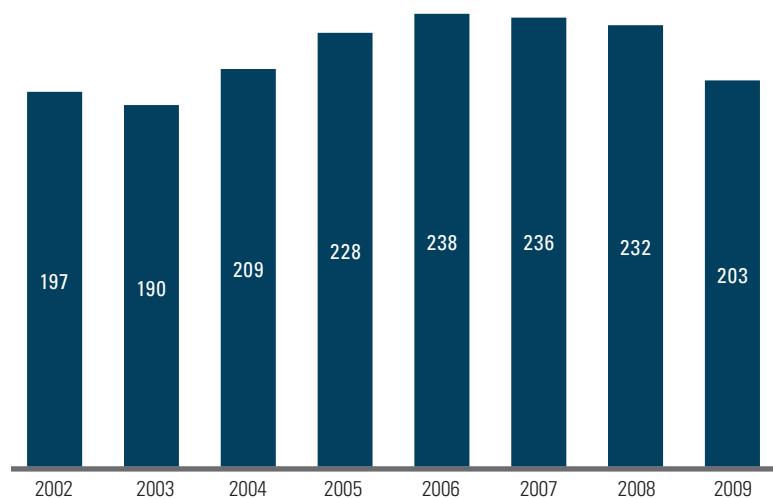


Source: MnDOT

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)



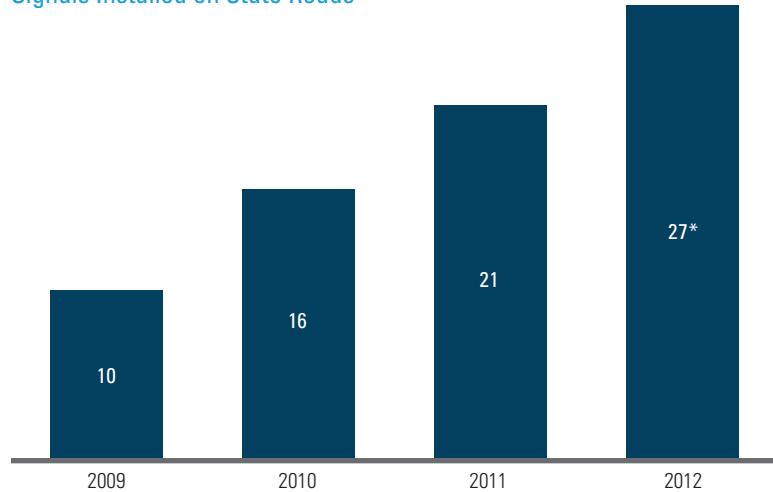
Source: MnDOT

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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