

Chapter 3: Transportation Systems Description

People and communities throughout the state depend on transportation services to meet their mobility needs. While the population increases and the state's economy expands, the demand for these services continues to grow. The transportation systems within the state provide an essential link for individuals traveling to work, school, medical appointments, and social activities.

There are a number of transportation systems that make up the state's transportation network. The first section of this chapter describes the state's highway system, and the second section highlights other modes of transportation including transit, passenger and freight rail, passenger aviation, air cargo, and waterway transportation.

Highway System

Mn/DOT is directly charged with constructing, operating, maintaining, and managing the state highway system (i.e., Interstates, US Highways, and State Trunk Highways) shown in Figure 3.1. Minnesota has more than 141,000 miles of streets and highways and 20,265 bridges. The state's 3.9 million licensed drivers own approximately 4.8 million registered vehicles. Minnesota's roadway network includes state highways, county roads and highways, and city and township streets and roads. State highways account for eight percent of all roadway miles but carry 58 percent of all traffic. Table 3.1 shows how roadway mileage and travel are distributed among jurisdictions in Minnesota.

Table 3.1 Minnesota Roadways: 2007 Vehicle Miles of Travel Share and Mile Share

Road System	Annual Vehicle Miles Traveled (VMT, Billion)	Share of Annual VMT (%)	Miles	Share of Miles (%)
State Highways	33.41	58	11,883	8.4
County State Aid Highways	12.87	22	30,544	21.7
Municipal State Aid Streets	4.53	8	3,221	2.2
County Roads	1.04	2	14,403	10.2
Township Roads	1.19	2	58,166	41.2
City Streets	4.33	8	18,800	13.3
Other Roads	0.04	<1	4,025	2.9
Total	57.41	100	141,042	100

Note: Shares may not sum to 100 percent due to rounding.

Source: Mn/DOT Office of Transportation Data and Analysis

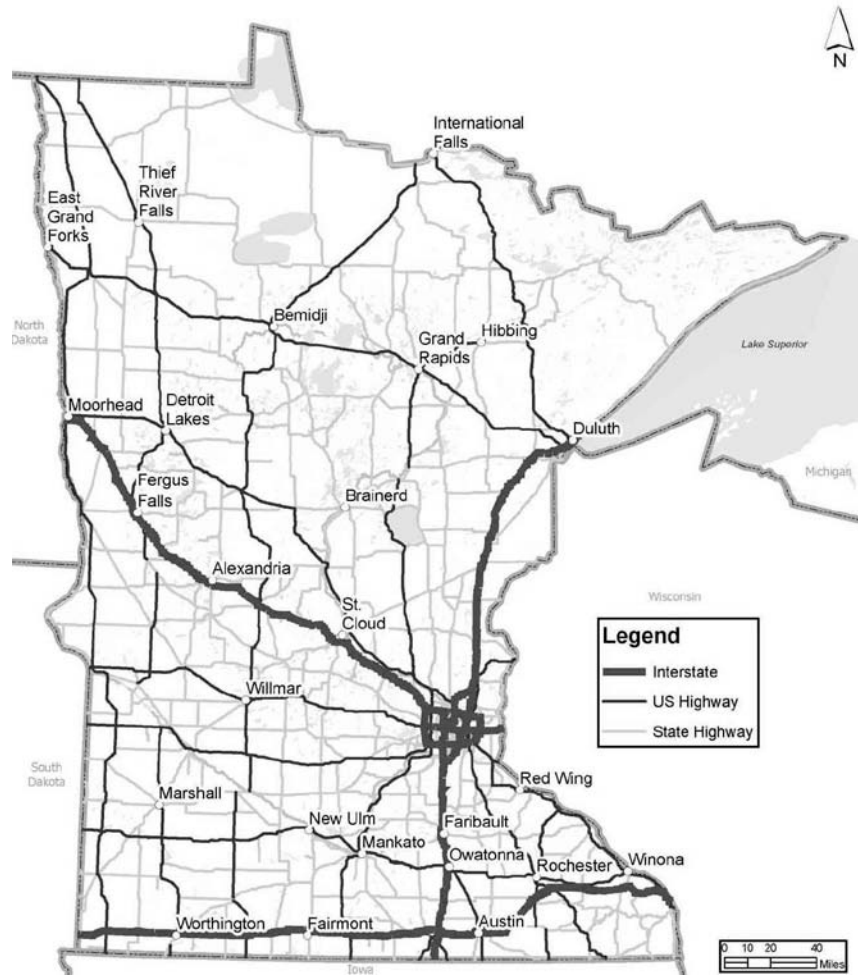


Figure 3.1 Minnesota State Highway System

Source: Mn/DOT Office of Investment Management

The state highway system consists of 11,883 miles of roadways and 3,585 bridges. Table 3.2 shows the mileage and travel on the state highways by functional classification. The Highway Functional Classification System is a means of classifying roads and distinguishing among them by the service function they provide. The majority of daily travel, 83 percent, takes place on roadways classified as principal arterials, which are intended to provide the highest level of mobility on the highway system.

Table 3.2 State Highway System, Miles and Travel by Functional Classification

Functional Classification	Miles	Share of Miles (%)	Daily VMT (Million)	Share of Daily VMT (%)
Principal Arterial	5,250	44	75.70	83
Minor Arterial	5,577	47	14.62	16
Collector	1,046	9	1.21	1
Local	10	0.1	0.01	0.01
Total	11,883	100	91.54	100

Source: Mn/DOT Office of Transportation Data and Analysis, 2007

Figures 3.2 and 3.3 illustrate how daily travel was distributed on the nearly 12,000 miles of state highways. In 2007, heavy commercial vehicle travel on state highways made up five percent of total vehicle miles traveled (VMT) on that system. From 2001 to 2007, VMT for all vehicles on the state highway system increased by three percent, as did heavy commercial VMT.

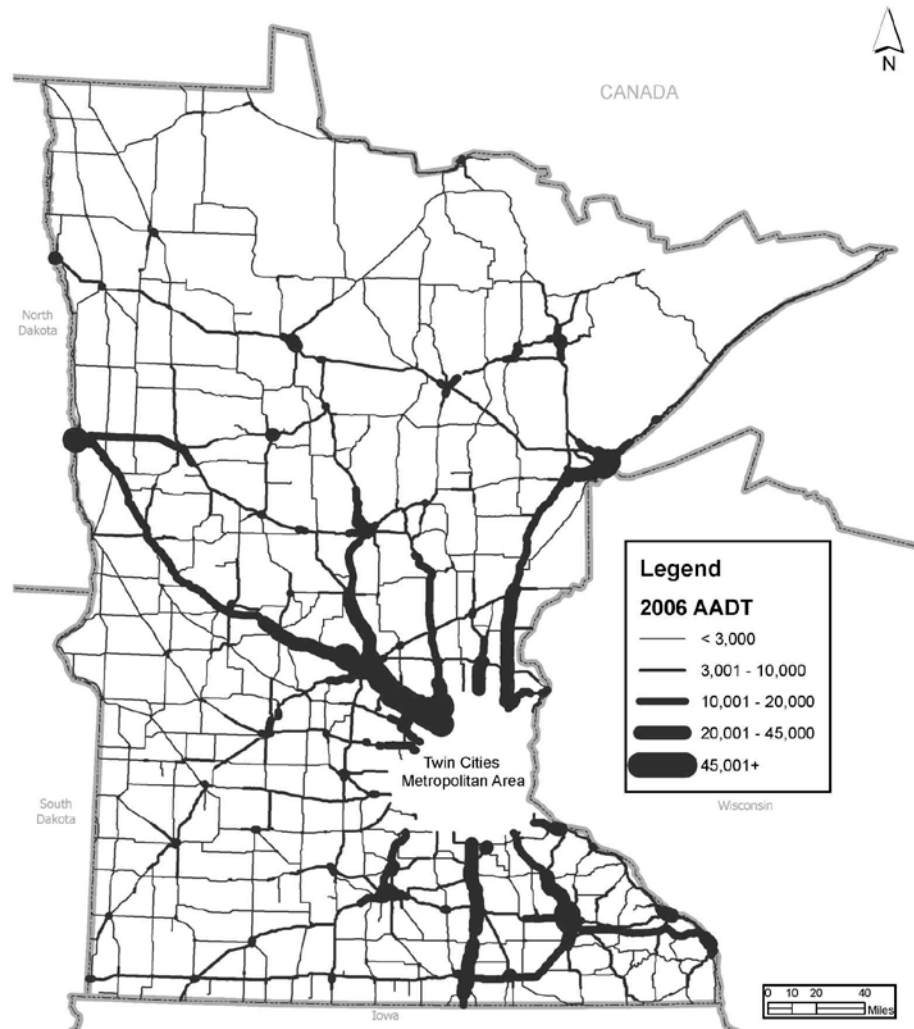


Figure 3.2 Average Daily Traffic Volume, Greater Minnesota State Highways

Source: Mn/DOT Office of Transportation Data and Analysis, 2006

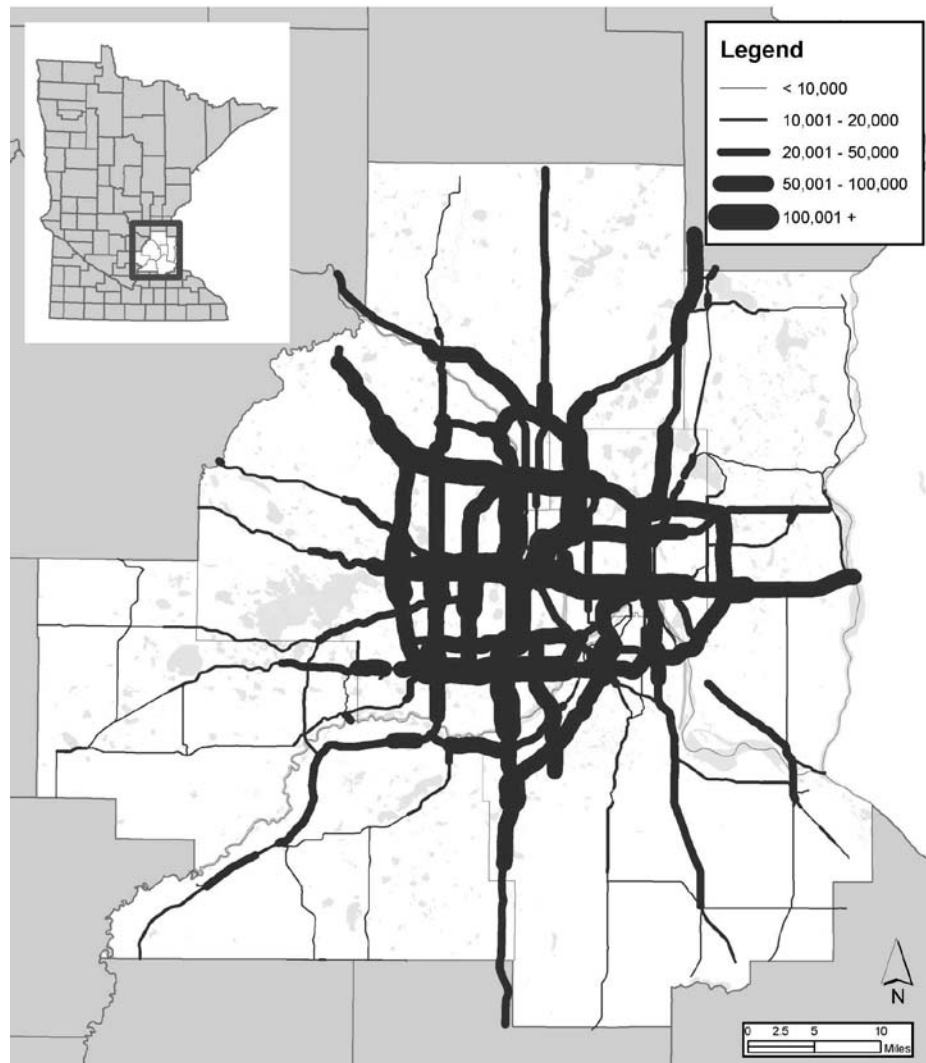


Figure 3.3 Average Daily Traffic Volume, Twin Cities Metropolitan Area State Highways

Source: Mn/DOT Office of Transportation Data and Analysis, 2006

Figure 3.4 shows the percent change in VMT on all streets and highways by region for the period 2001 to 2007. Notable is the VMT increase in the Central Region of 16.7 percent, where correspondingly high levels of population and employment growth have increased demands on the transportation system.

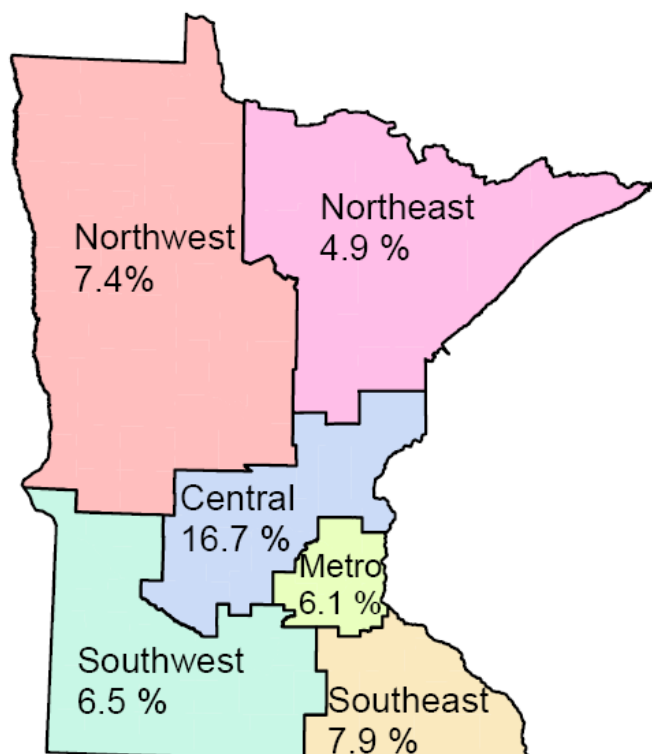


Figure 3.4 2001 to 2007 Percent Change in Vehicle Miles Traveled by Region

Source: Mn/DOT Office of Transportation Data and Analysis

Figure 3.5 shows Minnesota's Interregional Corridor System and regional trade centers (RTCs). The goal of the Interregional Corridor System is to maintain safe, timely, and efficient transportation services between regional centers. (The Interregional Corridor designation terminates at the Twin Cities' I-494/694 Beltway.)

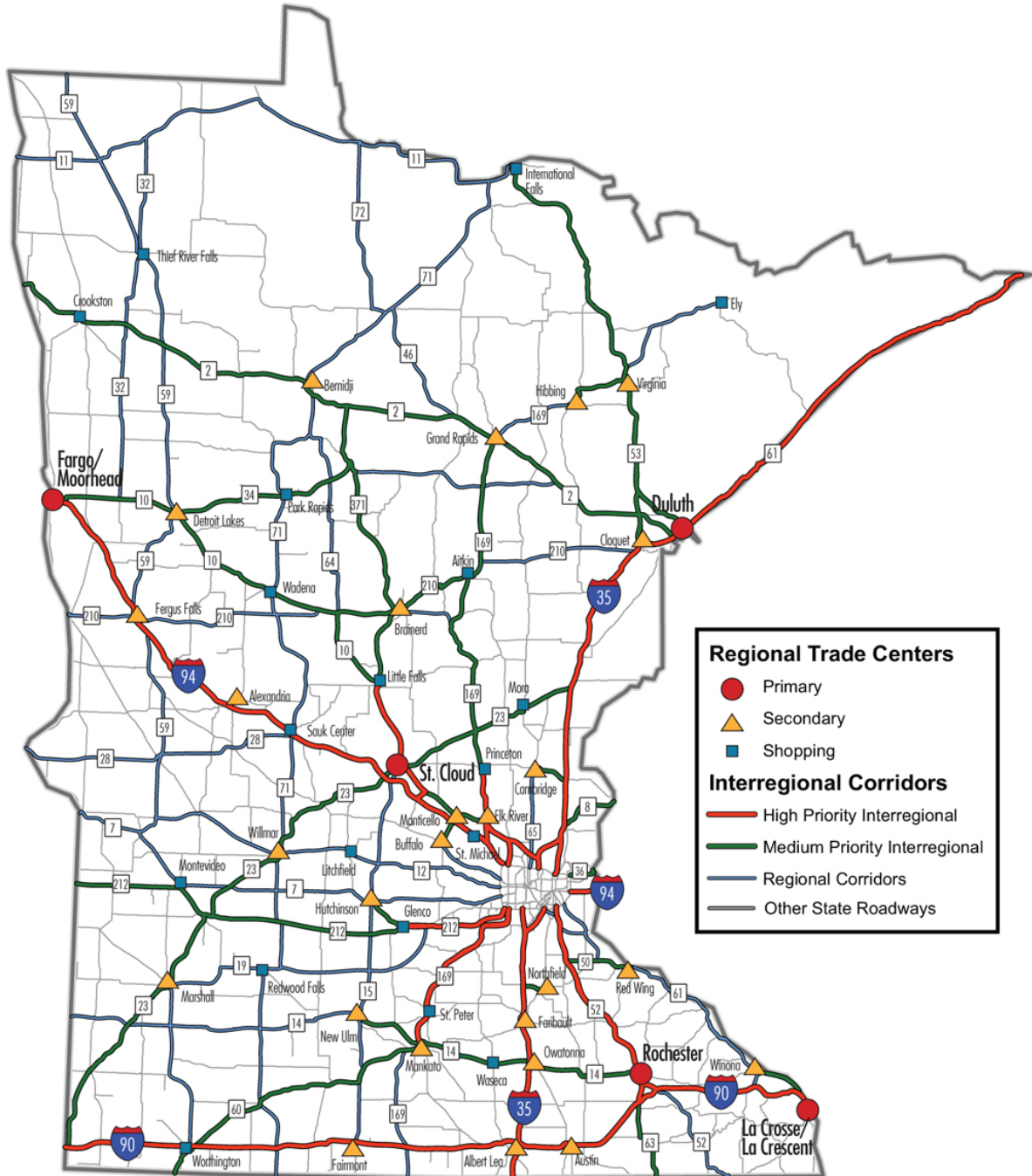


Figure 3.5 Interregional and Regional Corridors and Regional Trade Centers

Source: Mn/DOT Office of Investment Management

Regional trade centers (RTCs) were defined in a study conducted by the University of Minnesota Center for Urban and Regional Affairs (CURA). The study developed a model for ranking RTCs in an eight-level hierarchy that uses population and the number and diversity of businesses in an area to determine each ranking. Mn/DOT's Interregional Corridor System was developed to connect higher-order trade centers serving relatively large geographic areas. Mn/DOT defines RTCs as cities in levels 0 to 3 of the hierarchy. These communities provide specialized businesses and services to trade area markets beyond the immediate community.

The IRC System is approximately two percent of all roadway miles, but it accounts for 27 percent of all vehicle miles traveled.

The Interregional Corridor System shown in Figure 3.5 consists of high priority and medium priority corridors. These 2,938 miles comprise only two percent of all roadway miles in Minnesota, but carry approximately 27 percent of VMT. As such, they are critical to the economic vitality of the state. Figure 3.5 also shows Regional Corridors that provide connections between communities of regional significance and the Interregional Corridor System. Table 3.3 shows state highway mileage included in the Interregional Corridor and Regional Corridor Systems.

Table 3.3 Interregional and Regional Corridor System Mileage

Highway Type	Miles	Share of State Highways (%)
High-Priority Interregional Corridor	1,219	10
Medium-Priority Interregional Corridor	1,720	15
Regional Corridor	2,544	21
Other State Highways	6,400	54
Total	11,883	100

Source: Mn/DOT Office of Investment Management

Multimodal Transportation

Other transportation modes meet specialized passenger and freight needs for heavy loads, time-sensitive transport, and long-distance national and international trips.

While the highway system described in the preceding section serves, to a large degree, private automobile users, roadways are also the primary transportation infrastructure support system for bus transit, motor carriers, and bicycles. In addition, roadways are the primary means of access to water ports, airports, and railroad transfer facilities and terminals. Other transportation modes meet specialized passenger and freight needs for heavy loads, time-sensitive transport, and long-distance national and international trips.

Highways are critical for ensuring continued access and mobility for travelers and for maintaining the state's economic vitality. However, the efficient and effective movement of people and goods requires a balanced transportation system offering a variety of transportation modes. For example, many commodities like grain and coal are most efficiently transported over long distances by rail or water, people who do not or cannot drive a car are dependent on transit options, and many commuters choose transit service to make their trips to work. The remainder of this chapter describes those and other transportation options, the markets they serve, and Mn/DOT's role in providing these services.

Multimodal Transportation Defined

Modes are forms of transportation that move people and freight. Transport modes for people include automobiles/vans (single and multiple occupants), bus transit, passenger rail transit (light rail, commuter rail), air passenger service, bicycle, and walking. Freight modes include motor carriers, rail freight, water modes (ships and barges), air freight, and pipelines. When more than one mode of transportation is available for moving people or freight between multiple trip origins and destinations, this is referred to as a multimodal transportation system. When the movement of people or freight involves more than one mode for a given trip, this is referred to as intermodal transportation. Intermodal transportation involves transfers between different modes.

Transportation planning and policy-making have in the past focused on single transportation modes. In a multimodal transportation system, modes are provided and operated in a seamless system that is more efficient, flexible, and environmentally sustainable and meets the needs of travelers and shippers alike. A multimodal planning approach ensures that transportation alternatives are addressed concurrently and evaluated on the basis of overall needs and investment strategies. The multimodal approach also allows comparative environmental effects to be considered in the planning process.

A multimodal and intermodal approach offers the promise of lower overall transportation costs, increased economic productivity and efficiency, congestion reduction, improved mobility, reductions in energy consumption, and a more sustainable transportation system.

An extensive system of highways, railways, waterways, and airports supports people and goods movement within the state as well as to and from other states and countries. As global competition increases, maintaining the quality and capacity of this system is crucial to the economy of Minnesota. Improving the system to include transportation alternatives to passengers is equally important to ensure the mobility and quality of life Minnesota's citizens deserve and have come to expect.

Modes Moving Freight

In 2001, more than 636 million tons of freight moved in and through Minnesota with a value of \$562 billion, an amount equivalent to 129 tons and \$114,000 per resident.

An efficient freight system is an essential component in enhancing Minnesota's economic competitiveness in the national and global marketplace. In 2001, more than 636 million tons of freight moved in and through Minnesota with a value of \$562 billion¹, an amount equivalent to 129 tons and \$114,000 per resident. This is projected to grow to 1,329 million tons (109 percent increase) and \$1,238 billion value (120 percent increase) by 2035². Freight movement is essential for Minnesota's 9,000 manufacturers, 28,000 retail stores, 15,000 wholesale trade companies, and 3,000 agricultural businesses. These industries together employ nearly 50 percent of the state's workers. Preserving and enhancing the freight system is critical to maintaining the high quality of life expected by Minnesotans.

Global competitiveness is a key factor in supporting Minnesota's current and future economic strength. Two-thirds of all freight tonnage moving in Minnesota crosses Minnesota's borders, including state imports, exports, and through

traffic. Minnesota exports to nearly 200 countries around the world. It is home to 19 Fortune 500 companies and 32 Fortune 1,000 companies. National and international companies, including Supervalu, CHS, General Mills, Land O'Lakes, Hormel Foods, Polaris Industries, and Toro are headquartered in the state. These businesses, as well as thousands of smaller businesses, need competitive access to raw materials and to markets for distributing products and providing services.

Freight, in the context of this plan, is defined as the transportation of commodities and/or cargo. These commodities and cargo may be raw or finished. In Minnesota, freight moves on an integrated network of roadways, railways, waterways, and air transport. This includes routine intermodal movements of freight between modes determined by the most efficient and cost-effective combinations. Table 3.4 summarizes the percent of freight in terms of weight and value moved in Minnesota by the aforementioned modes.

Table 3.4 Freight Mode by Weight and Value, 2001

Freight Mode	Weight (%)	Value (%)
Truck	59	79
Rail	33	14
Water	8	1
Air	<1	6

Source: Mn/DOT Office of Freight and Commercial Vehicle Operations

Trucks

Trucks are an important mode for moving high-value goods both in Minnesota and nationally.

Trucks are an important mode for moving high-value goods both in Minnesota and nationally; trucks move more freight in Minnesota both in terms of weight and value than any other mode. Trucks account for 59 percent of freight movement by tonnage and 79 percent by value in the state. Their movement necessitates use of the full range of road networks, from local roads to federal highways. A description of these trucking networks in Minnesota follows.

The National Highway System (NHS) was developed by the United States Department of Transportation (USDOT) in cooperation with states, municipalities, and metropolitan planning organizations. The NHS includes interstate roadways, the Strategic Highway Network (STRAHNET), which is the system of public highways that provide access, continuity, and emergency transportation of military personnel and equipment. The NHS also includes some of the roadways designated as principal arterials, STRAHNET connectors, and intermodal connectors.³ The NHS system in Minnesota is approximately 3,924 miles. Figure 3.6 identifies the NHS system.

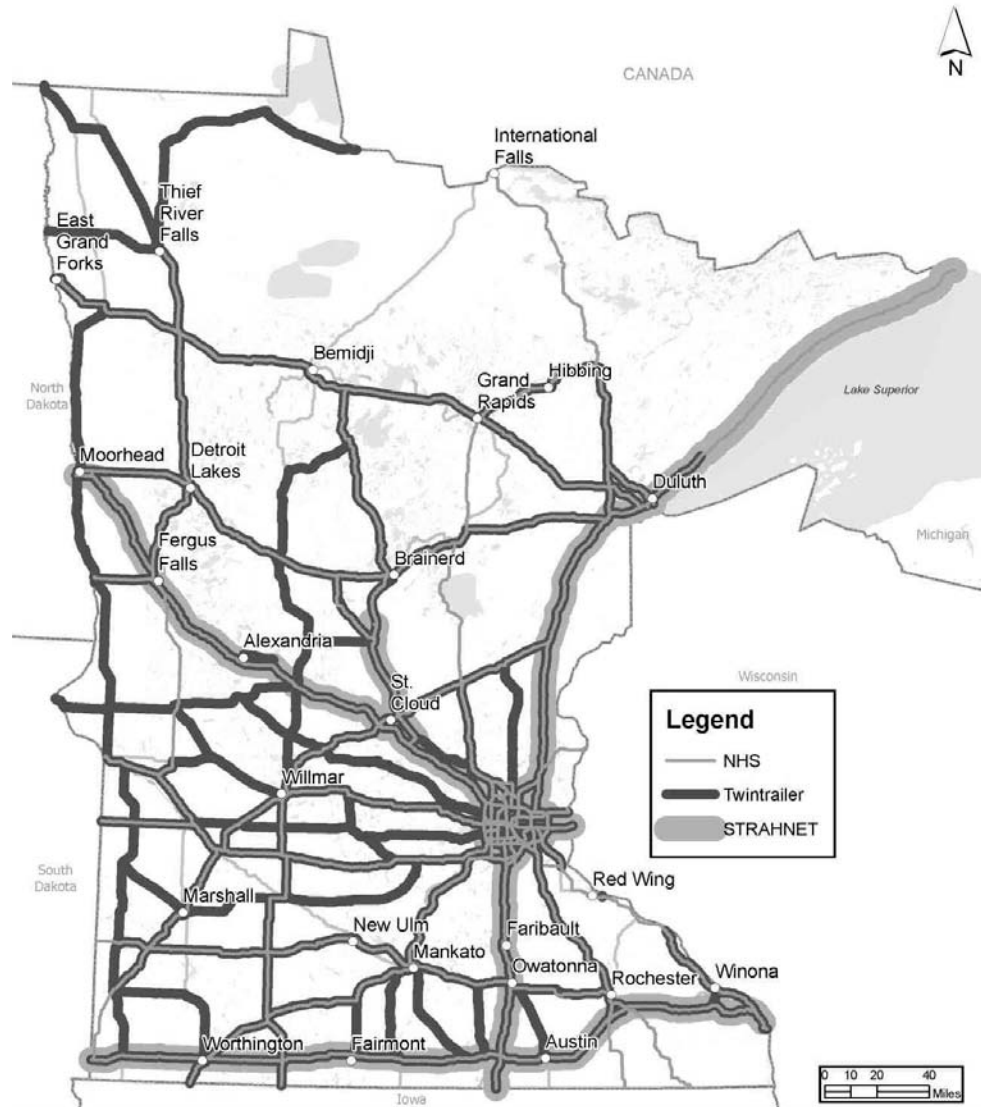


Figure 3.6 Key Minnesota Truck Routes

Source: Mn/DOT Office of Freight and Commercial Vehicle Operations

The National Truck Network (NTN) consists of a separately designated set of state and federal roadways throughout the U.S. that allows long-combination vehicles (LCVs), semi-trailer trucks with two trailers, and single-trailer trucks with an extra-long trailer. In Minnesota, 4,974 miles of roadway are part of the NTN. Minnesota’s Twin Trailer Network is a system composed of 1,741 miles of state highways and local highways on which LCVs may operate in addition to the NTN.

The Interregional Corridor System previously described is also important to trucking as it enhances the economic vitality of the state by providing safe, timely, and efficient movement of goods between major regional trade centers. Figure 3.7 illustrates average daily heavy commercial vehicle (truck) volumes on key Minnesota highways.

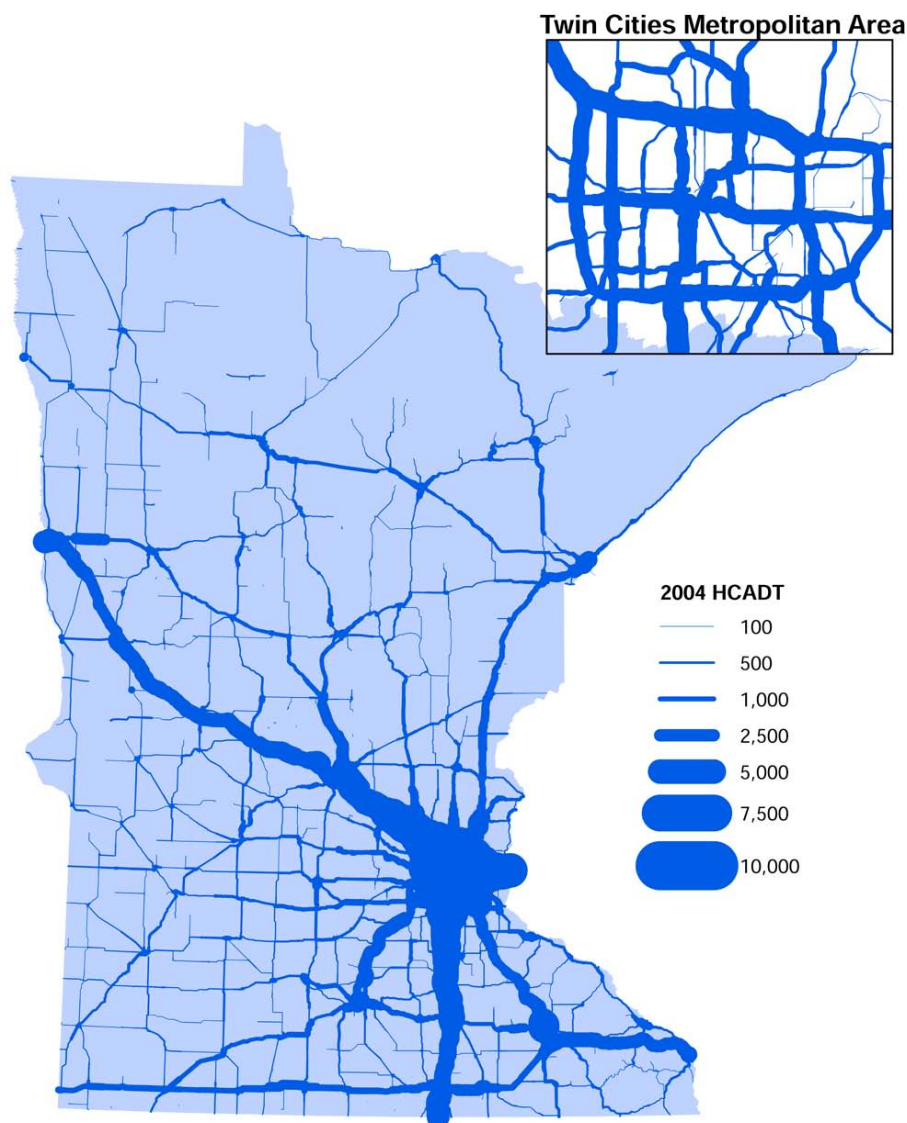


Figure 3.7 Heavy Commercial Vehicle Average Daily Traffic Volumes (HCADT)

Source: Mn/DOT Office of Transportation Data and Analysis, 2004

City and county routes that receive state aid funding generally connect freight generating/receiving facilities to the state and federal systems.

In addition to these federal- and state-designated routes, local system roadways play an important role in freight movement. City and county routes that receive state aid funding generally connect freight generating/receiving facilities to the state and federal systems. These roadways are often referred to as the “last mile” of the system.

There are several ancillary roadway facilities that ensure that freight is moving safely and efficiently across Minnesota. The Minnesota Department of Public Safety’s State Patrol Unit carries out enforcement of statutory size and weight limits at truck weigh and inspection stations. Additionally, the State Patrol operates portable scales and conducts inspections at non-fixed locations.

Other important ancillary freight facilities are safety rest areas that provide access and parking for commercial vehicles. An adequate system of safety rest areas is critical to highway safety. Due to the safety concerns identified by the

USDOT and other agencies, regulations and rules regarding driver hours of operation have been recently strengthened. The new regulations underscore the importance of having enough high-capacity truck rest areas for long-haul freight carriers.

Mn/DOT, in partnership with local agencies, performs an ongoing role in freight planning, safety, and system improvements, including programs like Minnesota Rail Service Improvement, Rail Grade Crossing Improvement Program, Operation Lifesaver, and the Port Development Assistance program.

Rail Freight



Minnesota's rail network is important for moving heavy bulk goods and a variety of commodities that amount to 33 percent of freight tonnage and 14 percent of freight value in Minnesota. Twenty-three railroad companies and three private industries haul rail freight in Minnesota on approximately 4,496 miles of track. The rail companies are divided into three classes, based on operating revenues and status as defined by the federal Surface Transportation Board. Figure 3.8 identifies Minnesota's existing rail network.

Class I railroads, the largest long-haul carriers, have annual gross operating revenue exceeding \$346.8 million. The Class I companies operate 3,246 miles of rail lines in Minnesota and include:

- Burlington Northern Santa Fe Railway (1,598 miles)
- Canadian National Railway (436 miles)
- Canadian Pacific Railway (750 miles)
- Union Pacific Railroad (462 miles)

Class II railroads, also referred to as regional railroads, have annual gross operating revenue between \$27.8 million and \$346.7 million. Minnesota has one Class II railroad, the Dakota Minnesota and Eastern (DM & E), operating 472 miles of rail lines. The DM & E has been recently purchased by the Canadian Pacific Railway.

Class III railroads, also referred to as shortline or local railroads, have annual gross operating revenue of less than \$27.8 million. There are currently 14 Class III railroads operating approximately 763 miles of rail lines in Minnesota.

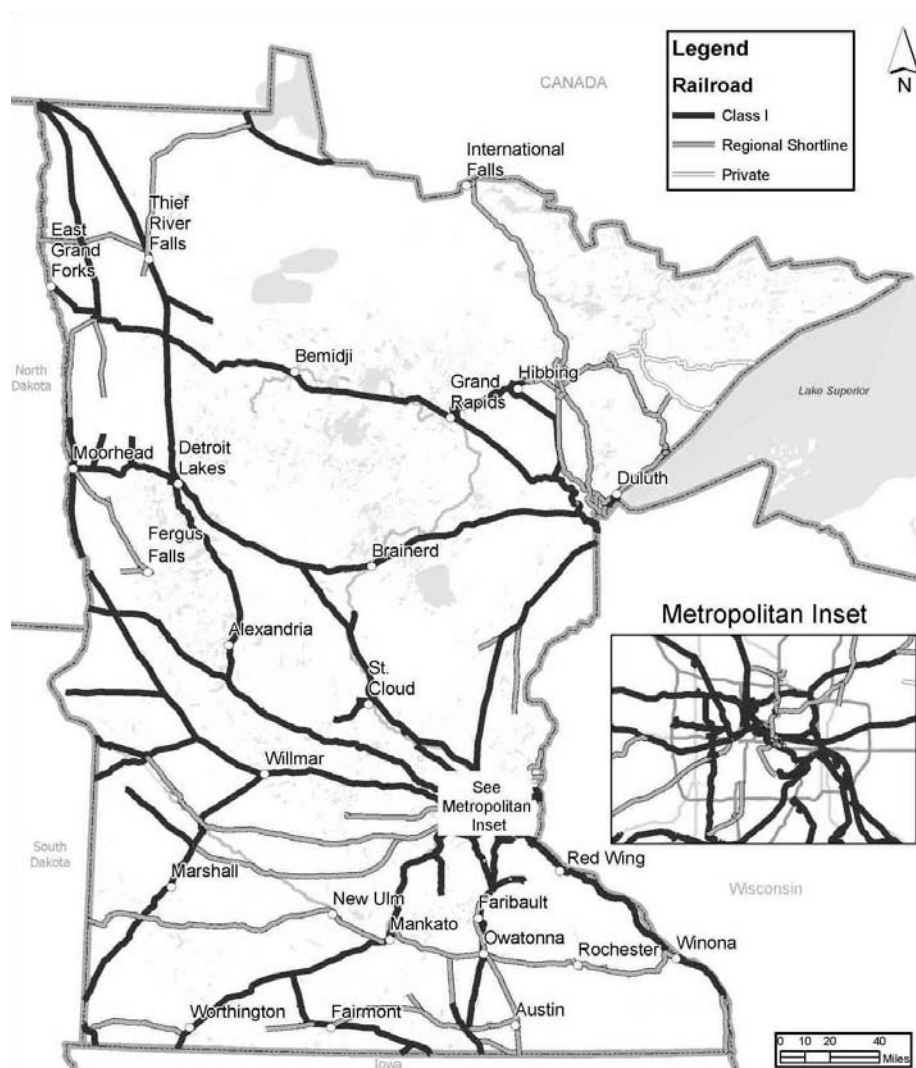


Figure 3.8 Existing Railroad Network

Source: Mn/DOT Office of Freight and Commercial Vehicle Operations

Ports and Waterways

The waterway system provides an effective means for transporting bulk products over long distances.

Minnesota is served by two waterway systems: the Mississippi River and the Great Lakes/St. Lawrence Seaway. These bodies of water provide a low-cost and effective means of transporting bulk products over long distances that account for eight percent freight tonnage and one percent of freight value in Minnesota.

The Mississippi River system, which also includes 23 navigable miles of the St. Croix River and 14.7 navigable miles of the Minnesota River, connects Minnesota with 17 states and the international port of New Orleans. Within Minnesota, the system is 222 miles long and encompasses five ports (i.e., Savage, Minneapolis, Saint Paul, Red Wing, and Winona) and a series of 11 locks and dams. These ports handled a total of 13 million tons in 2006. The U.S. Army Corps of Engineers is responsible for maintaining a navigation

channel to accommodate a nine-foot draft, and operates all locks and dams on the Mississippi River system from Minneapolis to St. Louis, Missouri.⁴ Local authorities and private companies provide port operations.

Barge tows and diesel towboats are used to haul freight up and down the Mississippi River between the Twin Cities and New Orleans.⁵ They haul a wide range of bulk commodities, ranging from grain, coal, fertilizer, and other dry bulk goods to liquid chemicals and petroleum products. The Mississippi River system in Minnesota remains in operation for approximately eight months of the year, from the middle of March through November when it closes in anticipation of ice.

Minnesota has four ports on Lake Superior as part of the Great Lakes and St. Lawrence Seaway System (i.e., Duluth, Two Harbors, Silver Bay, and Taconite Harbor). These ports handled a total of 67 million tons of freight in 2006. The taconite industry in Minnesota accounts for 80 percent of the iron ore used in the U.S. and represents a major portion of Great Lakes. Other major commodities include grain, coal, limestone, and aggregate. Great Lakes cargo is moved by a combination of dedicated bulk freighters known as “lakers,” often up to 1,000 feet long. “Salties” are a smaller class of oceangoing vessels that can travel the St. Lawrence Seaway to the ocean. The U.S. Army Corps of Engineers and the Canadian government operate the locks on the Great Lakes/St. Lawrence Seaway system and maintain a 29-foot-deep navigational channel.⁶

Air Freight

Airports in Minnesota provide a direct link to economic hubs and metropolitan areas throughout the U.S. and the world.

Airports in Minnesota provide a direct link to economic hubs and metropolitan areas throughout the U.S. and the world. The aviation system in Minnesota is the preferred mode for moving high-value or time-sensitive goods over long distances, including links to international destinations. Air transports make up about one percent of Minnesota’s freight by tonnage and six percent by value. Because more frequent and comprehensive air freight service is available in Chicago, air cargo is often shipped there via truck and then transhipped to aircraft.

There are 14 airports in Minnesota that support scheduled air cargo operations. An additional 18 airports provide on-demand charter operations for air cargo. The Minneapolis-Saint Paul International (MSP), Duluth International, and Rochester International Airports are major air-freight hubs offering dedicated freight and express service as well as freight carriage via commercial passenger aircraft. Over 91 percent of the air cargo moving into and out of the state goes through MSP, with Duluth and Rochester accounting for an additional seven percent. The remaining two percent moves through Minnesota’s other air cargo terminals.⁷

Mn/DOT'S Role in Moving Freight

Mn/DOT is directly charged with constructing, operating, maintaining, and managing the state highway system. In contrast, private businesses are directly charged with moving freight in Minnesota and Mn/DOT provides support through its Office of Freight and Commercial Vehicle Operations and Office of Aeronautics.

The Mn/DOT Office of Freight and Commercial Vehicle Operations provides a number of services, including:

- Develop statewide freight, railroad, and waterway plans that guide investment and policy decisions and impact the freight carriers.
- Provide support in delivering infrastructure improvements.
- Develop agreements.
- Provide loans or grants to public port authorities, regional railroad authorities, railroads, and shippers.
- Represent the state's interest in the movement of freight by railroads, administers highway/railroad construction projects, and manages investment in rail service improvements.
- Participate in the development of freight-related data sources and tools to facilitate greater incorporation of freight issues and needs into statewide, modal, and district plans.
- Administer commercial vehicle licensing and safety regulations, including property carriers, passenger carriers, hazardous materials, and oversize/overweight permits.

Mn/DOT's Office of Aeronautics promotes general and commercial aviation throughout the state consistent with federal aviation authorization legislation as well as state legislation and goals. Several of its services include:

- Airport development — providing technical and financial assistance to municipalities for the development and maintenance of existing and planned airports.
- Aviation education — forming liaisons with industry, government, and education institutions to identify and meet education and training needs.
- Navigational system — establishing, operating, and maintaining electronic navigation aids to augment the federal system in Minnesota.
- Planning, research, and information regarding statewide and regional strategic, system, intermodal, and master planning for aviation; develop forecasts of aviation activity and revenue needs; assist airport owners in meeting federal and state environmental requirements; and monitor aviation issues and legislation.
- Air transportation in Mn/DOT-owned aircraft for Mn/DOT and other state employees, the Legislature, and constitutional officers when conducting official business.
- Other functions include airport licensing, aircraft registration, and safety training.

Modes Moving People

In addition to the highway system and private vehicles, the air, rail, bus, and bicycle-pedestrian systems in Minnesota move millions of people each year to jobs, shopping, and recreational areas. These systems are a mix of both public and private infrastructure and are critical in supporting Minnesota's economy.

Passenger Aviation and Airports

There are 136 public general aviation and commercial airports in Minnesota. Of those, 127 are part of the Greater Minnesota airport system while nine are located in the Twin Cities Metropolitan Area (TCMA), including MSP and eight general aviation airports. Figure 3.9 highlights the location of all of Minnesota's public general aviation and commercial airports.

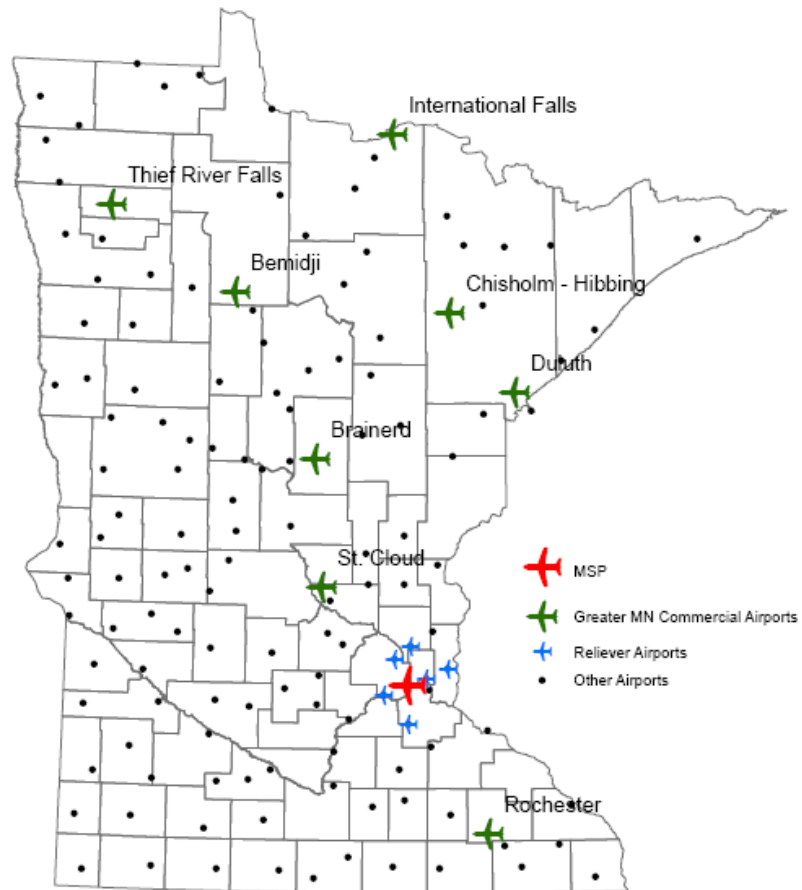


Figure 3.9 Minnesota Public General Aviation and Commercial Airports

Source: Mn/DOT Office of Investment Management

Greater Minnesota Passenger Aviation

While MSP handles the majority of annual enplanements (the number of passengers departing from an airport) in the state, airports throughout Greater Minnesota serve a crucial role in connecting regional trade centers. Each of the 127 airports in the Greater Minnesota system is classified in one of three ways described below. The classifications are an important way to help manage and plan Minnesota's airport system.

Key Airports are distinguished by paved and lighted primary runways 5,000 feet or greater in length. They are capable of accommodating all single engine aircraft along with larger multiengine aircraft and most corporate jets. There are 24 Key Airports in Greater Minnesota.

Intermediate Airports are characterized by paved and lighted primary runways that are less than 5,000 feet long. They can accommodate all single-engine aircraft, some multiengine aircraft, and some corporate jets. There are 80 Intermediate Airports in Greater Minnesota.

Landing Strips have turf runways that can accommodate most single-engine aircraft and some twin-engine aircraft. They may be unusable during wet weather, winter months, and the spring melt. There are 23 Landing Strips in Greater Minnesota.

In 2006, Mn/DOT's Office of Aeronautics completed the current version of the Minnesota Aviation System Plan. The plan acknowledges that the airline industry and business is fluid in nature; however, it is still important to have an estimate of how and where growth will occur in the future. The plan includes demand projections through 2025 for passengers boarding commercial airlines (enplanements) and for commercial airline operations. Many factors were considered in developing these projections including national trends in both commercial and general aviation, continued impact of low cost carriers, and bankruptcies. There are eight commercial airports in Greater Minnesota. Table 3.5 presents enplanement forecasts.

Table 3.5 Greater Minnesota Commercial Enplanement Forecasts

Airports	1995	2005	2010	2015	2020	2025	Growth (1995 to 2025)	
							(Number)	(%)
Bemidji	16,100	29,900	33,900	38,500	43,400	48,000	31,900	198
International Falls	19,100	21,800	21,700	21,800	21,800	21,900	2,800	15
Brainerd Lakes	11,800	20,700	22,000	22,800	22,900	23,000	11,200	95
Rochester	156,500	143,200	153,600	159,300	165,500	171,400	14,900	10
Chisholm-Hibbing	13,100	11,600	11,700	11,700	11,700	11,700	-1,400	-11
St. Cloud	8,400	25,900	25,600	27,100	29,100	31,100	22,700	270
Duluth	119,200	155,800	182,500	201,300	216,000	226,200	107,000	90
Thief River Falls	3,700	5,000	5,000	5,000	5,000	5,000	1,300	35

Source: Mn/DOT Office of Aeronautics

Key areas of projected growth include Bemidji, Brainerd Lakes, St. Cloud, and Duluth. Passenger enplanements at Greater Minnesota commercial airports from 1995 to 2025 were/are projected to increase by 50 percent, from 348,000 to 538,300, respectively. Their share of statewide commercial enplanements, however, is expected to decline as a greater percentage of air travelers drive to MSP to begin their airline trip.

Mn/DOT is responsible for the registration of all general aviation aircraft in Minnesota. This registration process revealed that 6,458 general aviation aircraft

were registered by Minnesota owners in 2005. Roughly 40 percent of these planes are reportedly based at Greater Minnesota airports.

Future growth in general aviation demand at airports in Greater Minnesota is expected to mirror actual growth that occurred between 1995 and 2005. The 2006 Minnesota Aviation System Plan's general aviation demand projections indicate that most Greater Minnesota airports should have ample operational capacity to accommodate projected demand. However, most airports will need additional aircraft storage capacity to meet growing demand from based aircraft.

TCMA Passenger Aviation

In 2007, MSP was the nation's 14th busiest airport in terms of number of passengers served.

MSP and six reliever airports, identified in Figure 3.10, are owned and operated by the Metropolitan Airports Commission (MAC), a public corporation created by state law in 1943 to coordinate aviation services throughout the TCMA. The MAC's mission is to serve the community by ensuring the safety of airport users and to provide efficient services and facilities for air travelers. In this role, the MAC has been a fundamental contributor in making the Twin Cities region a strong force in the global economy.

MSP was the 14th busiest airport in the U.S. in 2007 in terms of number of passengers served.⁸ It has two passenger terminals, Lindbergh and Humphrey, comprising 2.4 million square feet. The Humphrey Terminal has considerably fewer terminals compared to the Lindbergh Terminal, with 10 and 117, respectively. MSP's airfield has four runways: two running parallel, one running north-south, and one crosswind runway. They are between 8,000 and approximately 11,000 feet in length. The airfield also supports FedEx and UPS cargo facilities. Both terminals are accessible by public transportation (light rail transit and bus) as well as personal and for-hire automobiles. MSP has served as a major hub for Northwest Airlines.

In terms of total annual passengers between 1990 and 2007, MSP experienced an increase of more than 14.9 million for a total of 34.1 million total revenue passengers in 2007. The airline industry remains unpredictable across the globe, and MSP is not insulated from the resulting challenges. As the major hub for Northwest Airlines, in many ways as that airline goes so does MSP. Some recent challenges include a 2005 mechanics strike followed by a bankruptcy filing in the same year. The airline emerged from bankruptcy in 2007 and completed a merger with Delta Airlines resulting in the world's largest airline in 2008.

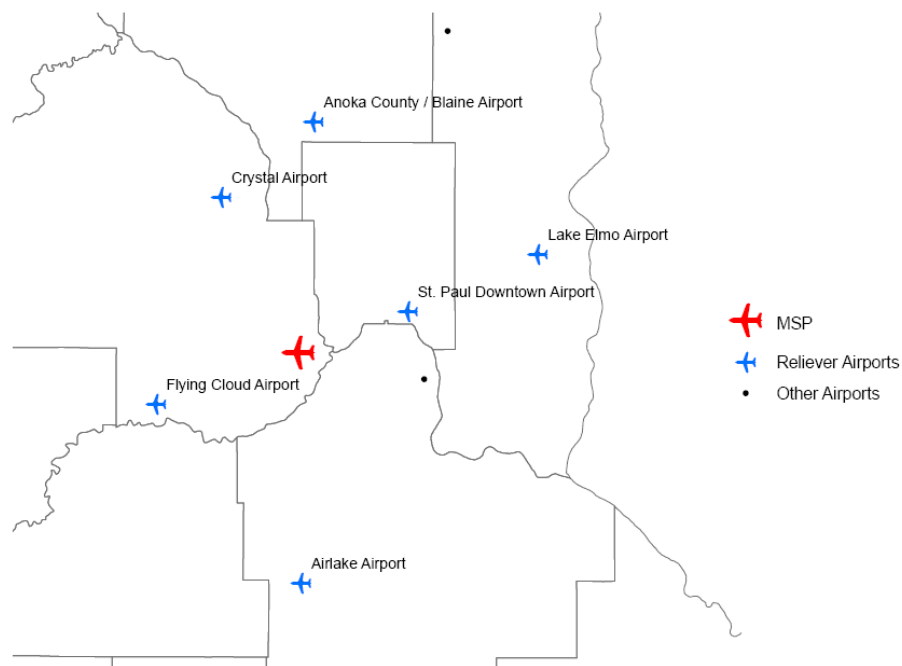


Figure 3.10 MSP and Reliever Airports

Source: Mn/DOT Office of Investment Management

More than half of all registered aircraft in Minnesota are based at reliever airports.

The Twin Cities' six reliever airports, also operated by MAC, comprise one of the largest reliever airport systems in the nation. Nearly 830,000 takeoffs and landings a year occur at the six reliever airports — nearly 300,000 more than at MSP. The airports are strategically positioned throughout the region to address special aviation needs, such as flight training, military operations, and medical evacuations. More than half of all registered aircraft in Minnesota are based at reliever airports, which generate an estimated \$1.4 billion annually for the economy of the TCMA.

Passenger Rail

Minnesota's multimodal transportation system provides choices for Minnesota rail travelers including intercity rail service, light rail transit (LRT), and, by the end of 2009, commuter rail services.

In the right circumstance, passenger rail can provide cost-effective transportation services for travelers. After a rail line is in place, the addition of capacity to commuter, LRT, or intercity rail can generally be accomplished by adding passenger cars to existing trains. Additional train frequencies also add capacity, enabling more passengers to travel with greater flexibility. Passenger rail projects offer the additional benefits of reduced emissions, reduced parking demand in central business districts, and improved accessibility for those who cannot drive and often encourage new development oriented toward new transit facilities.

Passenger rail continues to evolve as a transportation mode in Minnesota. A brief description of existing and planned passenger rail efforts follows.

Light Rail Transit (LRT)

LRT is generally defined as electric rail cars that operate in short trains. Powered from an overhead wire, LRT can run on exclusive, semi-exclusive, or shared alignments with or without grade crossings or even in traffic lanes on city streets. In the U.S., stations typically are 0.5 to 1.5 miles apart and rail service often operates nearly 24 hours a day. LRT corridors are usually 10 to 20 miles long.



The Hiawatha LRT opened in 2004 and has consistently exceeded expectations.

Hiawatha LRT

In 2004, Minnesota opened its first LRT line traveling along the Hiawatha Avenue Corridor. The 12-mile LRT line connects downtown Minneapolis, MSP Airport, and the Mall of America in Bloomington with a travel time of 36 minutes. The Hiawatha LRT opened in two stages: (1) revenue service from Minneapolis's Warehouse District to Fort Snelling began in June of 2004 and (2) service to the MSP Airport and the Mall of America commencing December of 2004.

Ridership has consistently exceeded expectations and the projections prior to operation. The line, which currently operates 27 light-rail vehicles, cost approximately \$715 million to build with funds coming from multiple sources.

Central Corridor LRT

Minnesota's second LRT line, scheduled to begin operations in 2014, uses the Central Corridor. The corridor spans 11 miles and links the downtowns of Minneapolis and Saint Paul with a projected travel time of just over 39 minutes for the length of the line. Additional major activity centers along this line include the University of Minnesota, Saint Paul's Midway Area, and the State Capitol Complex. The Central Corridor line will connect with the existing Hiawatha line at the Metrodome station and will terminate at the planned multimodal station located at the western edge of downtown Minneapolis. The line will share five stations with the Hiawatha line, use 15 new stations, and have infrastructure constructed for three future stations. Projections indicate weekday ridership at 38,000 by 2020 and 44,000 by 2030.

The Central Corridor LRT is scheduled to begin operation in 2014.

Southwest Transitway LRT

The Southwest Transitway is being considered for Minnesota's third LRT line. Though multiple routes for the line are still under consideration, it would connect the residents and workers of the southwest metropolitan communities, including Eden Prairie, Minnetonka, Edina, and Hopkins, with downtown Minneapolis. This line would also connect with the Hiawatha and Central Corridors in downtown Minneapolis. Ridership projections are currently between 23,500 and 28,100 per day by 2030. This ridership is comparable to the Hiawatha line's current ridership. The Southwest Transitway is currently in the Draft Environmental Impact Statement (DEIS) phase, which should be complete in 2009.



The Northstar Commuter Rail Line is scheduled to begin operations in late 2009.

Commuter Rail

Commuter rail passenger service is generally defined as passenger train service that operates on existing freight railroad tracks. Commuter rail service primarily operates during "peak" travel times, usually the hours of 6:00 to 9:00 A.M. and again from 3:00 to 6:00 P.M. Trains run inbound to the city center in the morning and run outbound service to suburban areas in the evening.

In 1997, the Minnesota Legislature instructed Mn/DOT to conduct a feasibility study to determine if the TCMA could support commuter rail service. As a result, in January 1999, Mn/DOT presented to the legislature the Twin Cities Metropolitan Commuter Rail Feasibility Study. Subsequently, the Commuter Rail System Plan was published in February of 2000 and became a prescriptive tool to ensure commuter rail development would be accomplished in a cooperative and consistent manner that provides, to the maximum extent possible, coordination amongst stakeholders.

Northstar Commuter Rail Line

The Northstar Commuter Rail Line is on schedule to begin operation in late 2009. The rail line runs for 40 miles on existing track owned by Burlington Northern Santa Fe (BNSF) Railway between Big Lake and downtown Minneapolis. There are currently five stations under construction including Big Lake, Elk River, Anoka, Coon Rapids Riverdale, and downtown Minneapolis. When in operation, the trains will reach a top speed of 79 miles per hour and will make the trip between Big Lake and Minneapolis in an estimated 41 minutes. The train will make five trips in the direction of the morning and evening commute, with one reverse trip during each peak travel period as well. Limited weekend service will also be available. There will be an estimated 4,110 daily riders in 2010 and 5,900 by 2030.

Red Rock Corridor

The Red Rock Corridor is being considered as a potential expansion of commuter rail service in the Twin Cities. The envisioned line would run on a 30-mile corridor from Hastings to downtown Minneapolis, through downtown Saint Paul along Trunk Highways 10 and 61.

Intercity Rail and High-Speed Rail

There is a renewed interest in passenger rail as an alternate means of transport.

There exists in the U.S. a renewed interest in passenger rail as an alternate means of transport over significant distances. Minnesota shares in this interest, and there are a number of efforts underway to enhance the existing passenger rail service and/or explore high-speed rail as an option for future investment. High-speed rail is a generic name for a family of technologies, both steel-wheel on rail and magnetic levitation (maglev) systems involving trains traveling at top speeds of 90 to 300 miles per hour for steel-wheel and maglev, respectively. Following is a summary of Minnesota's existing rail service and some of the efforts underway to expand the network. The upcoming Statewide Freight and Passenger Rail Plan will address the future of intercity and high-speed rail efforts in the state.

Amtrak Service

Minnesota is a recipient of Amtrak service with the Empire Builder, a long-distance train from Seattle/Portland to Chicago. Stations in Minnesota include Detroit Lakes, Staples, St. Cloud, Minneapolis/Saint Paul, Red Wing, and Winona. Currently, one train serves these cities going eastbound and a second train travels westbound daily.

Midwest Regional Rail Initiative

The Midwest Regional Rail Initiative (MWRI), which is supported by nine Midwest states (i.e., Indiana, Illinois, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin), Amtrak, and the Federal Railroad Administration, is an effort to develop a 3,000-mile regional passenger rail system. This study includes the 400-mile corridor from the Twin Cities to Chicago. The Minnesota portion of the study includes 150 miles in southeastern Minnesota from La Crescent to Saint Paul that could accommodate high-speed trains. The MWRI plan could mean the addition of up to six trains daily to Chicago with a reduction of rail travel time from eight and a half hours to five hours when the system is implemented.

In support of the MWRI's overall objective to develop a regional passenger rail system, several specific corridors have been identified and studied. For example, the Tri-State High Speed Rail Feasibility Study focused on connecting the Twin Cities and Chicago via Milwaukee.

Northern Lights Express

Another high-speed passenger rail corridor under consideration connects Duluth and the Twin Cities. The Federal Railroad Administration awarded this service, known as the Northern Lights Express, a \$1.1 million grant to complete an Environmental Impact Statement for the project.

Rochester Rail Link

The Rochester Rail Link is another rail line under consideration and would connect the MSP Airport with the Rochester International Airport. The envisioned high-speed rail line would be capable of moving passengers and cargo. This corridor was the subject of a feasibility study that was conducted in 2003, which concluded that "the development of the high-speed rail link will help Rochester and the Twin Cities meet the transportation challenges of the 21st century. This should ensure that both the prosperity and the long-term economic growth of the region are achieved."

Bus Service

Many people and communities throughout the state depend on bus transit services to meet their mobility needs. Public transportation can provide an efficient, cost-effective alternative for individuals in metropolitan areas, suburbs, small towns, and rural communities alike. As the population and demographics in Minnesota continue to change, the need for transit services becomes an even more important link for individuals traveling to work, school, medical appointments, and social activities.

Regional fixed-route bus services provide almost 89 percent of all passenger trips made on the regional transit system.

TCMA Bus Service

Regional fixed-route bus services provide almost 89 percent of all passenger trips made on the regional transit system. The Metropolitan Council is responsible for distributing state and federal transit assistance funds to public transit systems within the TCMA. They are also responsible for the majority of transit planning and operations for the Twin Cities.

Several public transit systems serve the TCMA including Metro Transit, Metro-Mobility, suburban providers, small urban and rural systems, and private operators. These systems provide fixed-route and demand response services. In 2007, metropolitan bus transit systems carried nearly 80 million passengers. Table 3.6 displays the ridership experienced by all Twin Cities transit providers from transit providers from 2003 to 2007 as well as the associated growth rates.

Table 3.6 TCMA Public Transit System Ridership from 2003 to 2007

Provider	2003	2004*	2005	2006	2007	2003 to 2007 Growth	
						(Number)	(%)
Suburban Providers	3,429,684	3,574,212	3,953,219	4,377,498	4,786,315	1,356,631	40
Dial-a-Ride	502,185	492,562	499,168	496,410	491,047	-11,138	-2
Contracted Routes	1,910,737	1,719,068	2,048,901	2,438,660	2,293,765	383,028	20
VanGo Vanpools	103,120	130,693	131,192	157,523	176,288	73,168	71
Metro Mobility/ADA	1,289,906	1,334,777	1,276,429	1,287,056	1,363,743	73,837	6
Metropolitan Transportation Services Subtotal	7,235,632	7,251,312	7,908,909	8,757,147	9,111,158	1,875,526	26
Metro Transit LRT	0	2,938,777	7,901,668	8,957,912	9,101,036	9,101,036	–
Metro Transit Bus	65,955,804	53,224,192	60,933,016	63,517,250	67,270,136	1,314,332	2
Metro Transit Subtotal	65,955,804	56,162,969	68,834,684	72,475,162	76,371,172	10,415,368	16
Met Council Total	73,191,436	63,414,281	76,743,593	81,232,309	85,482,330	12,290,894	17
Northstar/Ramsey Star***	144,277	174,237	180,235	181,924	188,008	43,731	30
U of MN**	0	3,582,992	3,801,495	3,687,649	3,273,100	3,273,100	–
Regional Total	73,335,713	67,171,510	80,725,323	85,101,882	88,943,438	15,607,725	21

Notes:

* Metro Transit operations were suspended for 41 days in 2004 due to a strike. LRT operation began June 26, 2004.

** The University of Minnesota began reporting its regional ridership in 2004 but had been providing service prior to this date.

*** Ramsey Star operations began in 2007.

Source: Metropolitan Council 2030 Transportation Policy Plan

As evidenced by Table 3.6, transit use in the TCMA has increased over the five-year period from 2003 to 2007 by 21 percent. The Metropolitan Council's 2030 Transportation Policy Plan lays out the future direction for transit in the TCMA and supports the goal of doubling 2004 ridership numbers by 2030. According to the plan, the Twin Cities transit system has 218 regular routes that are

complemented by a dial-a-ride system covering most of the seven-county area. The system is served by 1,250 regular route buses and 460 dial-a-ride buses. Bus transit amenities in the region include 141 park-and-rides and 27 transit centers and stations.

Two new BRT routes are being planned on I-35 and Cedar Avenue.

Bus Rapid Transit

Several plans are currently underway to further develop and diversify the Twin Cities' transit system through bus rapid transit (BRT). Two BRT lines, using portions of I-35W and Cedar Avenue, south of Minneapolis, have begun construction due in large part to an Urban Partnership Agreement (UPA) grant recently secured by Minnesota. BRT uses buses as the vehicles but takes on several premium characteristics of rail transit, such as frequency, dedicated running ways, and similar vehicle technology, with the goal of greater efficiency and schedule adherence, among other benefits. Because BRT uses rubber-wheeled vehicles rather than vehicles that ride on rails, it is considerably more flexible and demand-responsive than LRT or commuter rail.

The Metropolitan Council's 2030 Transit Master Study identified several additional arterial corridors with future BRT potential. The Metropolitan Council's 2030 Transportation Policy Plan recommends their study and that nine new arterial bus rapid transitways be implemented by 2030.

Commuter Coach

Commuter coach services are designed to offer individuals traveling from outer ring suburbs and Greater Minnesota the opportunity to use express bus service to their destination in the Twin Cities downtown centers.

The first Mn/DOT-sponsored commuter coach service was the Northstar Commuter Coach, which began service in October 2001 between Elk River and downtown Minneapolis. The service provides eight trips to and from downtown Minneapolis during peak hours, picking up and dropping off at park-and-ride lots in Elk River and Coon Rapids.

The Ramsey Star is the newest commuter coach service to begin operation in the Twin Cities region. This operation provides regular-route coach bus service between the City of Ramsey and the 5th Street Transit Station in downtown Minneapolis. The coach buses run four inbound and four outbound trips each weekday.

Greater Minnesota Bus Service

Public transportation in Greater Minnesota has changed significantly over the years. New transit systems are continually being added while others are being contracted. Improvements in transit systems, including expanding existing public transportation networks, have given passengers additional access to transit services by improving routes and route schedules and by adding more destinations.

As of 2005, a total of 73 counties in Greater Minnesota have some level of public transit with 66 public transit systems in operation.

As of 2005, a total of 73 counties in Greater Minnesota have some level of public transit with 66 public transit systems in operation. These services operated over 14 million miles of service, provided over 9.3 million rides per year, and used a fleet of over 500 vehicles. This changed significantly from 1990 when public transit was available in only 59 counties throughout Greater Minnesota. Productivity of services, as measured by passengers per mile, has increased concurrently with the increases in transit services throughout Greater Minnesota. Passengers per mile for statewide services were 0.57 in 2002 and increased to 0.65 in 2005.

Public transit services throughout Greater Minnesota will provide an essential link in meeting future transportation challenges. As the population in Minnesota continues to grow and age, public transit will ensure that Greater Minnesota residents will have access to a safe, reliable, and affordable transportation mode.

Intercity Bus

Mn/DOT is in the process of updating its 1997 Minnesota Intercity Bus Needs Study in an effort to properly meet basic mobility needs of rural populations, promote practical travel mode options, and enhance the quality of life for all Minnesotans. In Minnesota, intercity bus is described as regularly scheduled bus service for the general public that operates with limited stops over fixed routes connecting two or more urban areas not in close proximity, has the capacity for transporting baggage carried by passengers, and makes meaningful connections with scheduled intercity bus service to more distant points.

In Minnesota, there are two primary private intercity carriers, Greyhound and Jefferson Lines. Greyhound makes stops at more than 60 locations around the state, although some locations have very limited service, and has 2,400 locations in North America. Jefferson Lines operates on a more regional level, transporting Minnesotans to several locations across the state and 12 other states, including Iowa, Wisconsin, Nebraska, and Texas. A third for-profit operation, known as Megabus, also operates out of Minneapolis and Saint Paul and offers connections to other major Midwest cities, including Milwaukee, Madison, and Chicago. Figure 3.11 shows Minnesota's existing intercity bus routes.

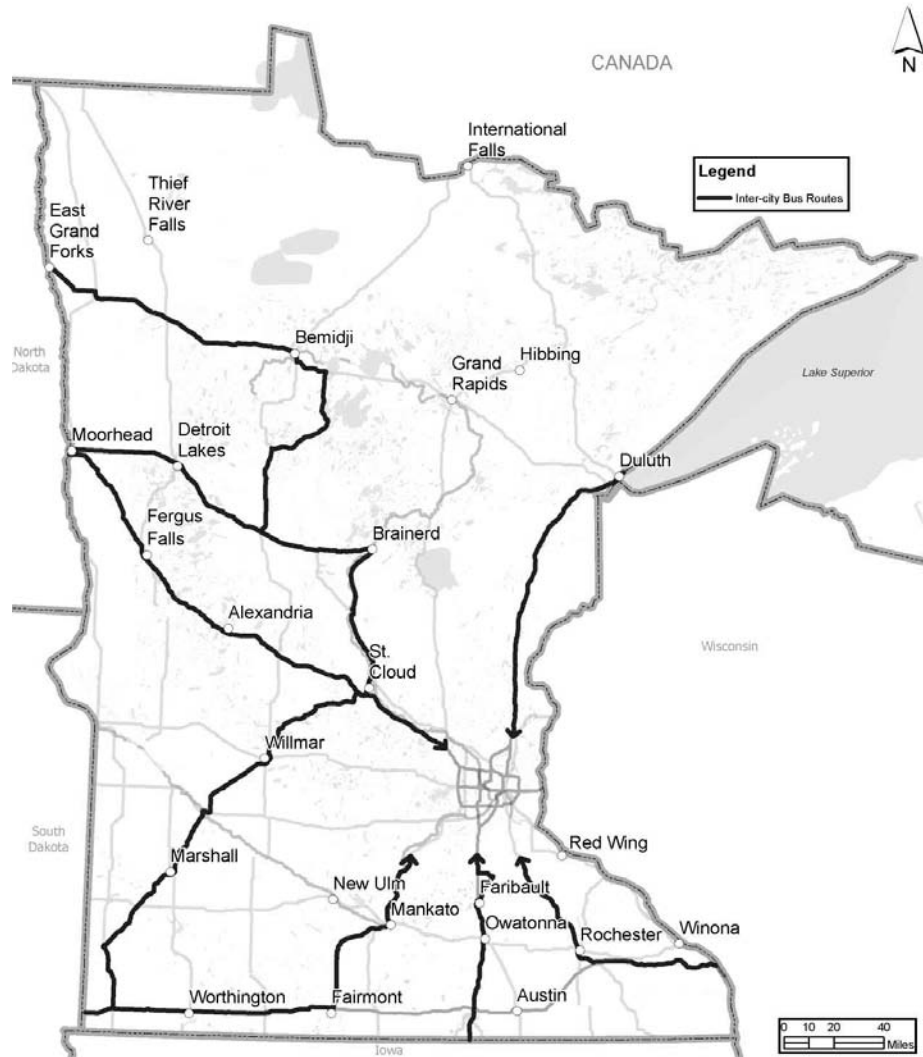


Figure 3.11 Existing Intercity Bus Routes

Source: *Russell's Guide July 2008, Metro Transit, and Mn/DOT Office of Transit*

Transit Advantages and Ridesharing

Transit advantages are improvements or modifications made to the highway system that provide a service advantage or benefit to transit and vehicles carrying two or more people. Examples of these improvements include the following:

High-Occupancy Vehicle and High-Occupancy Toll Lanes (HOV/HOT)

An HOV lane is a lane reserved, at least during peak periods, for the exclusive use of high occupancy vehicles (carrying two or more people) such as buses, vanpools, and carpools. The Twin Cities' HOV system operates in two separate corridors: I-35W and I-394.

In May of 2005, Mn/DOT broke ground on the state's first high-occupancy toll (HOT) lane set to operate in the I-394 corridor. The overall program, known as Mn/PASS, sought to improve the usage of the existing HOV lane constructed in 1992. HOT lanes permit single occupant drivers to pay a user fee to access the HOV lanes while speeds and capacity of the HOT lane are maintained by

dynamically changing the toll according to the demand and use of the lane. The tolls range from \$0.25 up to \$8.00 and in-vehicle transponders are used to allow for electronic and seamless collection of the toll.

Included as part of the UPA grant awarded to Minnesota, the existing HOV lanes along I-35W between I-494 and Burnsville Parkway are being converted to HOT lanes. Additionally, the left northbound shoulder between 46th Street and downtown will be converted to a Priced Dynamic Shoulder Lane (PDSL). These improvements will be in place and impact congestion and commute times during 2009 and 2010.

Signal Preemption

Traffic control signals may be designed and operated to respond to certain classes of approaching vehicles by altering the normal signal timing and phasing as vehicles approach. Options may be as simple as extending a currently displayed green light or as complex as replacing the entire set of signal phases and timing.

Preemption control and priority control are two different types of traffic controls. Preemption control is typically given to emergency vehicles and to vehicles such as boats (at lift-bridges) and trains. Examples include a prompt green signal at signalized intersections for fire vehicles, police cars, ambulances, and other official emergency vehicles and special signal phases and timing to allow additional clearance time for vehicles to clear railroad tracks prior to an oncoming train.

When priority control is used, it is typically given to non-emergency vehicles such as buses to gain an early or extended green signal at an intersection. Priority control helps public transit vehicles remain on schedule or improve their travel time and to use special phasing to enable public transit vehicles to enter the travel stream ahead of a platoon of traffic.

Bus-Only Shoulders

Bus-only shoulders are transit advantages designed to provide faster and more reliable transit commutes in congested corridors. Bus-only shoulders look and operate like any other shoulder with the exception that certain buses are permitted to use the shoulders in designated areas in order to bypass slow-moving traffic. There are more than 280 miles of bus-only shoulders in the TCMA.

Authorized transit vehicle operators are allowed to use bus-only shoulders only when mainline traffic is moving at speeds less than 35 miles per hour. The maximum allowable speed is 35 miles per hour, and vehicles may not exceed the speed of the adjacent traffic by more than 15 miles per hour.

Dedicated Busways

Exclusive busways may play an important role in the region's transit system effectiveness in the next 25 years. As congestion grows, keeping the TCMA mobile will become more and more difficult. Busways typically provide faster service than traditional on-street bus service and may be less expensive to build and operate than light rail.

There is currently one operating busway in the region serving primarily the University of Minnesota's campuses.

Experience elsewhere in the U.S. shows that busways emphasize speed and frequency, with a minimal number of stations at timed transfer points. Busways need to be designed and operated in ways that minimize noise and pollution through appropriate vehicle technology and reduce visual impacts through landscaping and roadway configuration.

There is currently one operating busway in the region serving primarily the University of Minnesota's Minneapolis and Saint Paul campuses. The Metropolitan Council's 2030 Master Transit Study identifies the Bottineau Corridor connecting Minneapolis with Maple Grove or Brooklyn Park as having dedicated busway potential.

Ridesharing

Supplementing the bus and rail transit systems, park-and-ride lots, park-and-pool lots, ridesharing programs, and carsharing programs further promote ridesharing in Minnesota. Park-and-ride lots provide a place for people to park their vehicle and access the bus or rail transit system. Park-and-pool lots provide a place where people can park their vehicle and access a car or vanpool.

Car and vanpool programs are supported by the Metropolitan Council and Mn/DOT. The Metropolitan Council organizes ridesharing options for commuters who live or work in the Twin Cities Metropolitan Area. Mn/DOT, through its Rideshare Coordinator funded by the Federal Highway Administration, offers technical assistance to employers in Greater Minnesota in the development, marketing, and promotion of ridesharing options.

Bicycle and Pedestrian Travel

Minnesota's elderly population may require a greater level of service for accessible pedestrian and bicycle facilities to promote active living.

Bicycle and pedestrian transportation is at a critical point in Minnesota as demand for bicycle and pedestrian systems that connect residential areas, work places, libraries, parks, and schools increases. Increasing the number of trips taken by bike and by walking is a goal shared by many across the state, from healthcare providers to school systems, and from cities responding to the growing number of elderly and transit users. Anticipated increases in Minnesota's elderly population may require a greater level of service for accessible pedestrian and bicycle facilities to promote active living. Bicycle and pedestrian facilities can include shoulders, sidewalks (walkways), shared use paths, trails, pedestrian bicycle tunnels or bridges, and connecting paths.

Due in part to an increased interest in alternate modes of transportation, many cities and counties are developing their first-ever bicycle and pedestrian plans in an effort to establish more walkable and bikeable communities. For example, Minneapolis recently completed its first Pedestrian Master Plan and Bicycle Master Plan.

Minnesota leads the country in miles of off-road bicycle and pedestrian trails.

In addition to having an extensive roadway system serving bicyclists and pedestrians, Minnesota leads the country in miles of off-road bicycle and pedestrian trails. In Minnesota, bicyclists are allowed to ride on all roads except where signed to prohibit biking, which includes limited-access expressways. Most residential streets are considered safe for bicyclists because of low traffic volumes and lower vehicle speeds.

Bicycle parking facilities are an important part of planning for bicyclists. They help to encourage riding and discourage bicycle theft. Bicycle parking facilities also serve as a visual reminder to people that bicycles and bicyclists are welcome. Because many bicyclists also take advantage of public transportation to increase the distance they can cover, all LRT stations have bicycle parking and many transit hubs have bicycle racks and lockers. Additionally, most transit systems across the state have bicycle racks on-board their vehicles.

According to a recent City of Minneapolis evaluation of the Census Bureau's 2007 American Community Survey, Minneapolis ranks high compared to other U.S. cities in alternative forms of transportation, particularly bicycling. According to the data, Minneapolis ranks second behind Portland out of the 50 cities with the most workers for its share of commuters who commute to work by bicycle and ninth for its share of commuters who commute to work by walking. The survey also highlights other Minnesota cities (with populations greater than 57,000 persons) with a noteworthy bicycle commute mode share including Saint Paul, Duluth, St. Cloud, Rochester, Plymouth, Bloomington and Brooklyn Park.

Mn/DOT'S Role in Moving People

Mn/DOT serves a direct role in moving people through its charge of constructing, operating, maintaining, and managing the state highway system. In addition to this direct role, Mn/DOT also provides administrative and coordination support in moving people throughout Minnesota, including the following:

- Develop long-range, statewide plans for passenger rail, intercity bus, bicycle and pedestrian accommodation on state highways, Greater Minnesota transit, and Greater Minnesota Aeronautics.
- Administer the state and federal programs for passenger rail transit. Mn/DOT has statutory responsibility for overseeing the delivery and construction of commuter rail and light rail projects and for production of the state commuter rail plan.
- Coordinate Commuter Challenge (formerly Bike, Bus, or Pool – B-BOP) activities throughout the state. Commuter Challenge is a year-round effort that helps to coordinate and provides information about alternative transportation use. It is promoted through an Office of Transit web page that is used statewide.
- Construct, operate, maintain, and manage transit advantages on the state highway system.
- Provide safe bicycle and pedestrian access along and across state highways by ensuring that these modes are appropriately planned for and accommodated within the context of Mn/DOT plans, policies, standards, and projects.

- Provide interjurisdictional coordination to develop efficient and continuous bikeway systems and walkways that cross jurisdictional boundaries, railroads, rivers, and interstates in an effort to eliminate barriers and critical gaps and ensure adequate interjurisdictional connections and signage. Primary among those roles is to provide leadership and support for bicycle and pedestrian accommodation efforts in Minnesota. This is performed through a variety of functions, including:
 - Identify statewide trends and issues that affect bicycle and pedestrian travel and facility development.
 - Prepare policies and standards for bike and pedestrian facility development.
 - Provide training to state and local planners, engineers, and staff.
 - Administer federal and state aid funding to implement local governments' bicycle and pedestrian infrastructure projects.

¹ Reebie Associates, 2001 TRANSEARCH® Commodity Flow Data. (1997 Community Flow Survey data used.)

² *Freight Analysis Framework*, Federal Highway Administration, 2004.

³ *What is the National Highway System?*, Federal Highway Administration, <http://www.fhwa.dot.gov/hep10/nhs>.

⁴ *River Transportation in Minnesota*, Minnesota Department of Transportation, Ports and Waterways Section, 2001, p. 10, 43.

⁵ *River Transportation in Minnesota*, Minnesota Department of Transportation, Ports and Waterways Section, 2001, p. 10, 43.

⁶ *Great Lakes Transportation in Minnesota*, Minnesota Department of Transportation, Ports and Waterways Section, 1994, p. 3.

⁷ *Minnesota Aviation System Plan*, Minnesota Department of Transportation, Office of Aeronautics, 2006.

⁸ *Information Brief*, Airports Council International, July 2008.