

4.0 INFRASTRUCTURE

This section describes Central Minnesota's primary freight transportation infrastructure, which is defined as follows:

- Roadways to include ancillary facilities;
- Railroads, Rail Bank Corridors, Public Rail Crossings;
- Intermodal facilities ;
- Airport facilities;
- Pipelines; and,
- Waterways

4.1 Roadways

This Central Regional Freight Plan will concentrate on roads under the control of Mn/DOT, roads that carry the largest volume of freight. The Plan will highlight the significance of local roads not under the control of Mn/DOT because of their importance in completing the freight trip between origin and destination.

The roadway networks include:

- Interstate/National Highway System/Strategic Highway Network;
- National Network and Minnesota Twin Trailer Network;
- Interregional Corridor (IRC) System;
- 10-Ton Roadways;
- Local Roadways (less than 10 tons); and,
- Minnesota Tiered Roadway Network (Designated State Trunk Network)

Trucks are an important mode for moving high-value goods in Central Minnesota, regionally, and nationally. Roadway designated by the state and federal governments, local roadways serve as important connectors between freight generating and receiving facilities (farms, processing plants, manufacturing centers, and distribution centers) and the significant roadway network. The following section describes the components of the highway system.

4.1.1 Interstate/National Highway System/Strategic Highway Network

The National Highway System (NHS) was developed by the United States Department of Transportation in cooperation with states, municipalities and metropolitan planning organizations (MPO). The NHS includes the Interstate Highway System and the Strategic Highway Network (STRAHNET), which is a system of public highways that provides access, continuity and emergency capabilities for military personnel and equipment. Other principal arterials and connector routes are also part of the NHS. There is a total of 588 miles of NHS and STRAHNET system within the region. Routes in the region include Interstate 94, US 2, US 10, US 12, US 169, MN 23, MN 24 and MN 371.

4.1.2 National Network and Minnesota Twin Trailer Network

The National Network (NN) consists of designated roadways throughout the United States that allow truck access including long combination vehicles (LCV), semi-trailer trucks with two trailers and single-trailer trucks with an extra-long trailer. In Minnesota, 4,904 miles of roadway

are part of the NN. The NN is supplemented by Minnesota's Twin Trailer Network (TTN), a system of other trunk and local highways on which LCVs may also operate. These networks permit oversize and overweight movements, usually within specific routes and travel times defined by a permit. The region is well-served by the NN and TTN, with a total of 820 miles. Routes in the region include Interstate 94, US 2, US 10, US 12, US 71, US 169, MN 23, MN 24, MN 55, MN 210 and MN 371.

4.1.3 Interregional Corridor (IRC) System (Currently updating)

A statewide Interregional Corridor (IRC) system was first designated by Mn/DOT in 1999 to enhance the economic vitality of the state by providing safe, timely, and efficient movement of goods and people. The 2,939-mile IRC system is a subset of Minnesota's trunk highway system, consisting of the corridors of greatest significance for interregional travel. The system is grouped into two categories: high-priority and medium-priority interregional corridors.

High-priority IRCs connect the Twin Cities Metropolitan Area (TCMA) with primary Regional Trade Centers (RTCs) throughout the state, and medium-priority IRCs connect secondary RTCs to each other, to the TCMA, and to the primary RTCs. **Exhibit 44** displays the IRC system along with primary and secondary RTCs.

Saint Cloud is the only primary RTC located in the region. Secondary RTCs in this region include Brainerd, Buffalo, Elk River and Monticello-Big. High-priority IRCs within the region include I-94, US 10, US 169 and MN 24. Medium-priority IRCs in this area include US 2, US 53, US 169, MN 371, and MN 33. In general, the region is well served by the Interregional Corridor system.

Exhibit 44: Minnesota's Inter-regional Corridor (IRC) System

4.1.4 Ten-Ton Roadways

Ten-ton roadways provide important connections between intermodal freight facilities/major freight generators and the IRC system. These roadways generally include city and county routes that receive state aid funding, as well as trunk highways, Interstates and some local roads. Year-round, 10-ton roadways make up virtually all of state and federal trunk highways and major county and local paved arterials. These provide a predictable core freight roadway network. Although recent Minnesota legislation named all paved county roads as nominally 10-ton rated, bridge ratings remained unchanged, and local counties have the authority to down-post any roads they deem necessary. As a result, a significant percentage of local paved roadways and essentially all unpaved roads have axle load limitations below 10 tons, especially when factoring in seasonal load restrictions. Mn/DOT State Aid, in partnership with the Minnesota County Engineers Association, is currently identifying an approach to develop an upgraded statewide network of year-round local 10-ton roadways to improve freight movements throughout the state and to limit routes with load restrictions.

Mn/DOT has identified Tier 1 and Tier 2 routes within the conceptual 10-ton roadway system. Tier 1 roads are those that currently are 10-ton with minor gaps, light bridges, or deficiencies that can be improved with relatively limited investments. The Tier 2 routes represent roads that would essentially complete a comprehensive year-round local 10-ton network, but which will require a more significant and longer-term investment strategy.

In general, Central MN has a fair amount of local 10-ton roadways identified for these system upgrades. Tier 1 roadways are mostly concentrated in the northern counties of the region, whereas Tier 2 roadways are located throughout the region. The current 10-ton paved local roads in the study area do not consistently connect with one another, resulting in routing challenges, and these system discontinuities are significantly worsened by extended spring thaw restrictions in the north. An expanded year-round 10-ton system would better serve freight movements throughout the region and the state.

4.1.5 Local Roadway System (Less than 10-tons)

Local roadways, such as unpaved county roads, township roads, and village and city streets, play an important role in freight movement, as a large volume of freight shipments either begins or ends on this local roadway system. Many local roads may have posted maximum axle load ranges from five to nine tons, based upon design capacity and materials, and are not intended to consistently handle 10-ton shipments. Mn/DOT and local jurisdiction authorities can impose temporary limitations on local roadways due to seasonal variations and special circumstances.

Variations in actual weight capacity in roadbeds or road surfacing caused by ground thawing and water incursion can prohibit 10-ton freight, due to severe road damage or total failure that can result. However, local roadways with lower design strengths can function satisfactorily under heavy loads in periods of dry weather and with good substructure conditions.

The low weight capacity of these local roadways limits the ability to efficiently move freight across the region. Additionally, seasonal and other load limits have a notable impact on freight mobility. Expansion of the year-round 10-ton roadway network is widely recognized as a need to better serve freight movements, especially agriculture and forestry, within and between regions.

4.1.6 Tiered Roadway Network (Proposed)

As described above, there are many different roadway networks, with differing levels of importance/significance to truck freight movement. Taken in combination, this roadway network proved too large to provide any specific and useful investment guidance. In May 2008, Mn/DOT began an analysis to identify trunk highways in Minnesota that are significant to the movement of freight. Developed as part of the 2008 Statewide Transportation Plan, this network was to be designated as a truck network that would supplement the Interregional Corridor (IRC) system. Therefore, Mn/DOT's Tiered Roadway Network identifies the roadways that are most important to truck traffic. The tiered approach combines truck traffic and roadway design characteristics to help identify the roadways essential to the efficient movement of freight.

Heavy commercial annual average daily traffic (HCAADT) was used to validate the existence of elevated levels of HCAADT on the existing systems. HCAADT is an estimate of the total number of vehicles with at least two axles and six tires, using a specific segment of roadway on any given day of the year. Heavy Commercial vehicles include trucks only. Based on observed statewide data, tiers were classified based on breaks of 650 and 300, resulting in the following tiers:

- Tier 1: Roads on the network with HCAADT greater than 650;
- Tier 2: Roads on the network with HCAADT between 301 and 650; and,
- Tier 3: Roads on the network with HCAADT less than 300

The three tiers together form the State's Designated Truck Network. Roadway design characteristics were used to verify appropriate design for each tier and to identify network deficiencies. Multi-lane segments of roadways provide a safe route for a vehicle envelope of 14 feet tall, 14 feet wide and 67 feet long. Almost all segments of multi-lane roadways are on Tier 1. In addition, shoulders of at least 10 feet in width provide a similar safety benefit. Roadway segments with shoulder width less than 10 feet are sporadically distributed across the network. Major truck corridors (e.g., Tier 1) in central Minnesota include I-94, US 10, US 169, MN 23, and MN 210. The Tier 1 network in northern MN supports adequate movements throughout the region as routes link major cities together allowing freight to be shipped in all directions.