



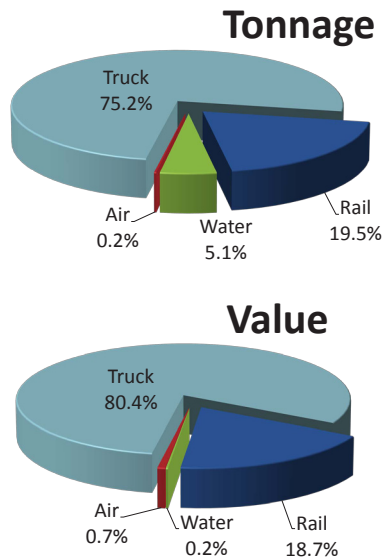
## Chapter 8: Freight and Goods Movement

A safe, efficient, high-capacity freight transportation system is essential to the economic well being of the region and the state. Producers and consumers alike rely on an effective and efficient freight system to prosper.

### Existing System

Many freight-related improvements are the responsibility of private entities that own and operate the transportation modes and freight terminal facilities. Public freight-related improvements are limited to those components of the transportation system operated and maintained by the public sector, such as highways and connecting roadways, navigable waterways, river ports, and airports. The existing freight system includes several modes of freight travel and intermodal facilities. The relative share of freight tonnage and value in Minnesota is shown in Figure 8-1. A map of freight infrastructure in the region is shown in Figure 8-4.

**Figure 8-1:  
Twin Cities Freight  
Movement by  
Tonnage and Value**



Source: TRANSEARCH, 2007



*Figure 8-2: Trucks are an essential freight element*



*Figure 8-3: Rail traffic comprises a large portion of the regional tonnage total*

### Roads

Within the region, freight moves primarily by trucks. Many freight shippers and commercial/industrial land uses are located adjacent to National Highway System (NHS) routes, or are connected to the NHS on routes eligible for federally funded improvements, if needed, through the Surface Transportation Program. NHS routes in the Twin Cities region include all Interstates and specific connector roadways to designated regional intermodal terminals. The Interstate System in particular, is vital to the movement of freight and goods through and within the region.




### Water

Portions of the Mississippi and Minnesota Rivers in the region are navigable by barge via channels and locks maintained by the U.S. Army Corps of Engineers. Barges carry bulk commodities to domestic and international markets. The region's river port terminals are concentrated in Saint Paul, Minneapolis and Savage.

### Rail

Four Class I railroads and three regional or short line railroads serve the region's freight rail customers. Class I railroads link the region with major national markets and short lines predominantly operate local service, generally within 100 miles of the region. The railroad industry has continuously grown since the 1980s, and rail lines continue as an increasingly important component of the region's freight system. The



-  Major Intermodal Freight Terminals
-  Principal Arterial Highways
-  Railroads

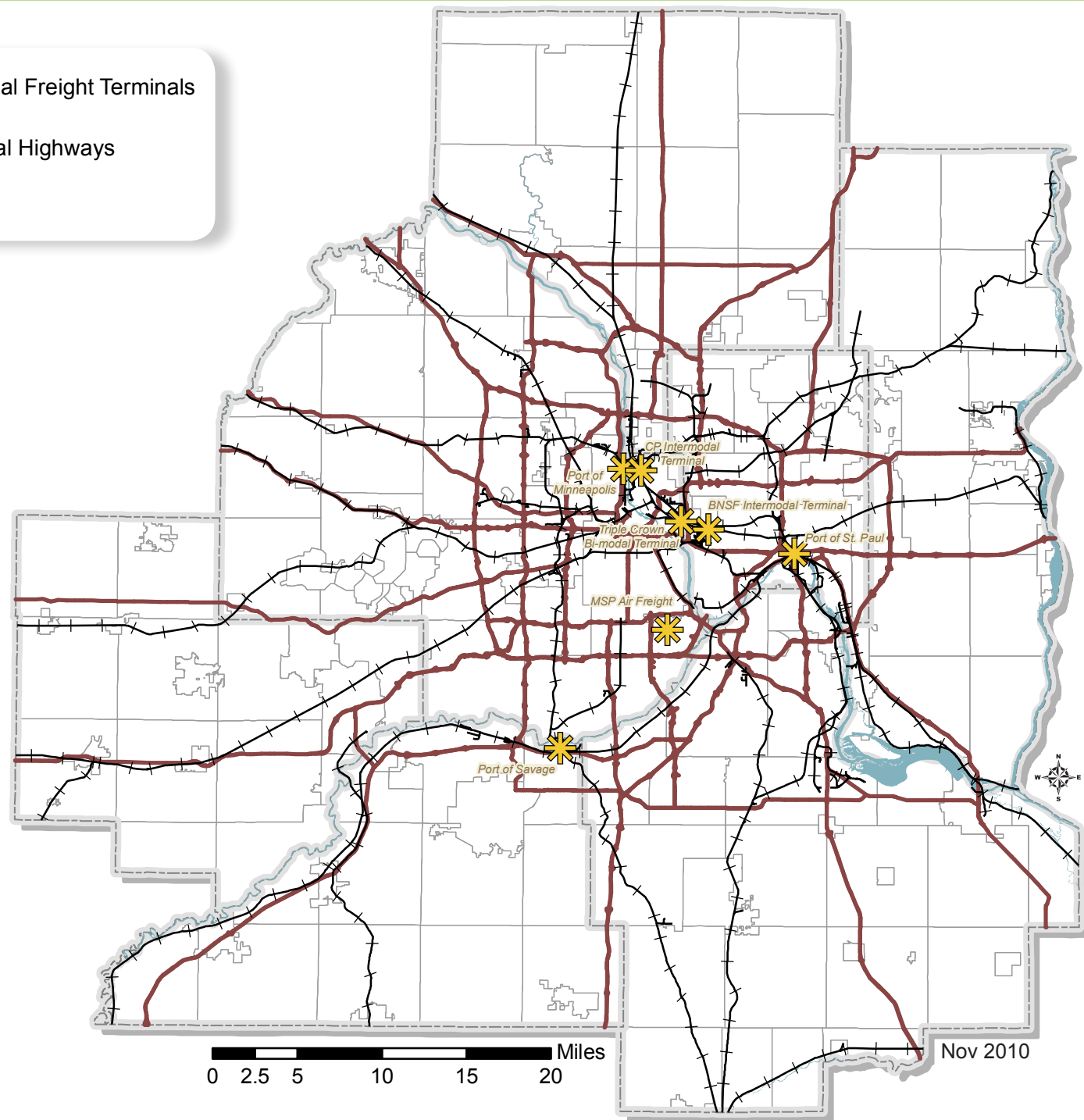


Figure 8-4: Regional Freight System





Figure 8-6: Barge facilities



Figure 8-7: Freight aircraft facilities



Figure 8-8: Intermodal railroad yard



Figure 8-9: Freight warehouse facilities

seven-county region has over 550 miles of class I railroads, and over 700 total miles of commercial freight railroad.

## Air

Air freight service providers ship goods through Minneapolis-Saint Paul International Airport. High-tech and biomedical companies in the region are major air freight customers that rely on expedited delivery of high-value, time-sensitive products via air freight service.

## Intermodal

Container-based shipping has substantially increased the efficiency of goods movement. Containers can be moved between modes without the need to repack goods. The region has two primary rail-truck intermodal terminals. These include the Canadian Pacific Shoreham Yard in Minneapolis and the Burlington Northern Santa Fe Midway Yard in Saint Paul .

## Freight Movement

Hundreds of millions of tons of goods enter the region every year, supplying goods to residents and supporting business and commerce in the state and region. Freight moves into, through, out of, and within the region. Much of the region's freight movement serves local movement of freight inside the seven-county metro area and the state of Minnesota.

Continued population and employment growth will further expand the regional and state economy, creating new demand for freight movement. Figure 8-5 shows forecast growth in the value and tonnage of freight movements in the state of Minnesota from 2001 to 2020. Because the Twin Cities region is a freight hub for the state, and the region includes a substantial share of the state's economy, much of the forecast increase in state freight movement will travel through the region.

As shown in Figure 8-10, the region does not carry a major share of national freight movement when compared to major shipping ports such as Los Angeles or rail hubs such as Chicago. Still, the Twin Cities region is a major freight hub for Minnesota and the upper Midwest. Due to strong economic growth in the state and region, freight movements by truck and rail are becoming constrained due to congestion of our highways and rail lines.

Figure 8-5: Forecast Increase in Minnesota Freight Movement to 2020

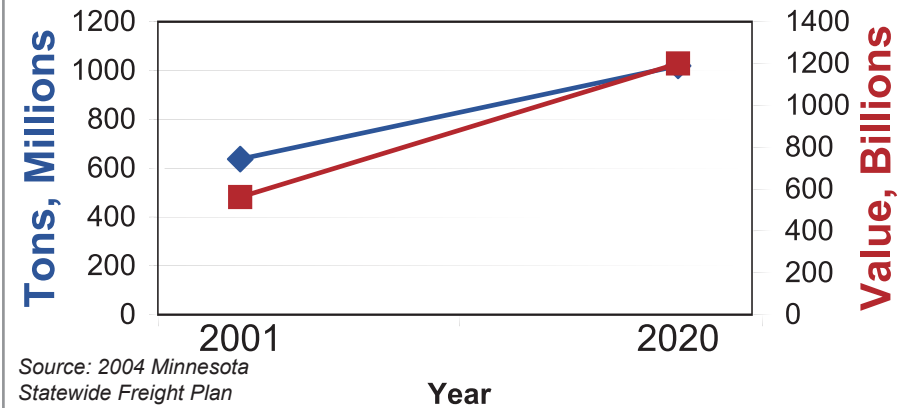
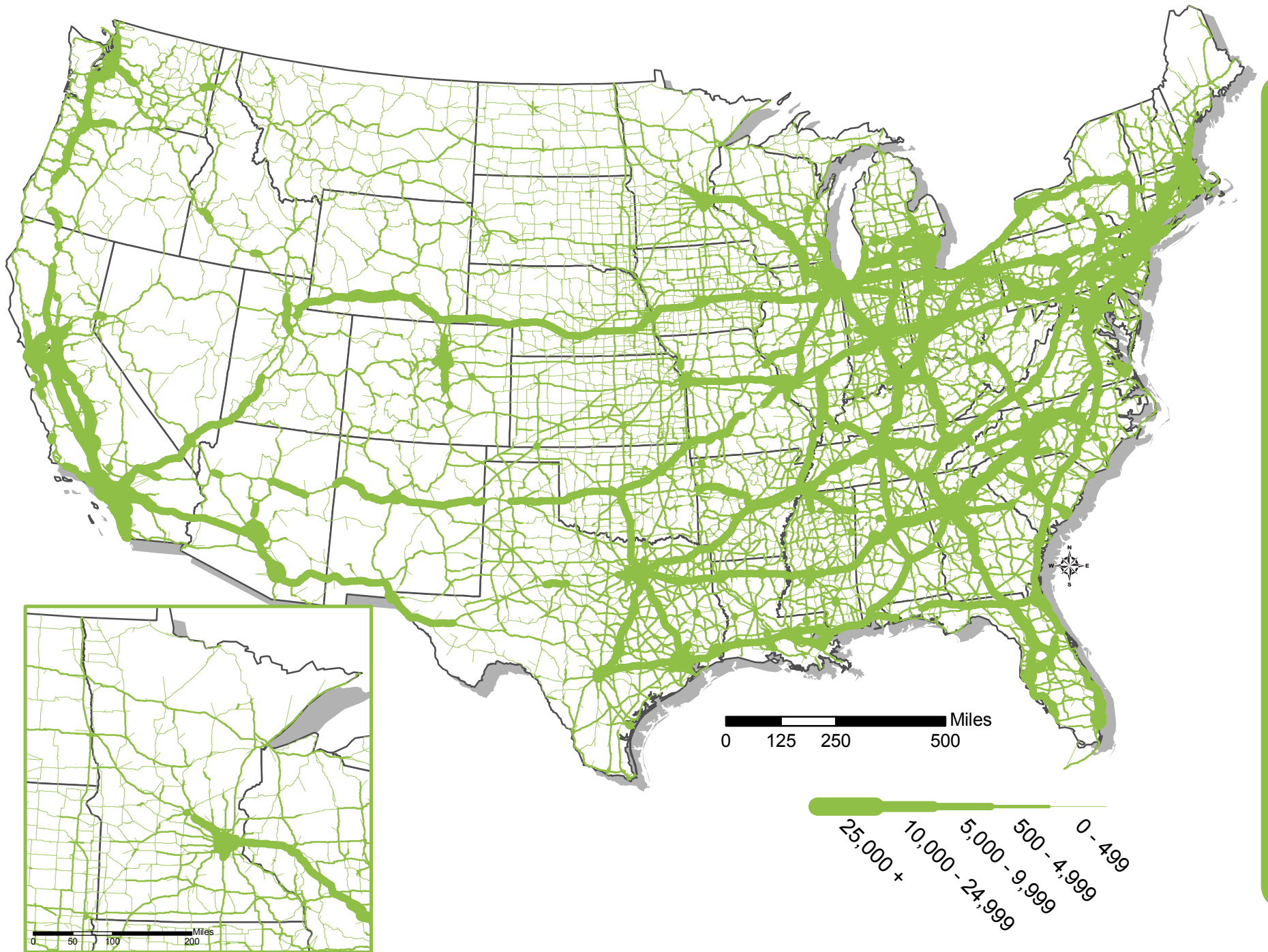
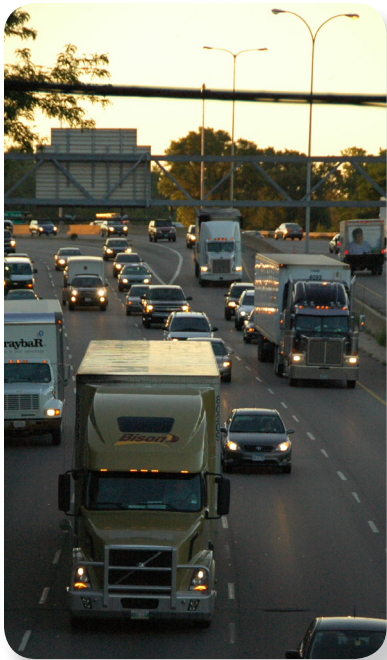




Figure 8-10: Average Daily Truck Traffic 1998



June 2010



*Figure 8-11: Road congestion impacts truck traffic and the freight system*

## Trends and Issues

### Freight Capacity and Congestion

Economic and population growth in the seven-county metropolitan area has significantly increased the amount of freight movement in the region. Deregulation of motor carriers and railroads have added to the total through increased competition and lowered shipping costs. Together, these forces increased the efficiency of the freight transportation system.

Still, all goods movement relies on a high-capacity freight transportation system. Freight shippers, carriers, and other users have expressed concern that the freight system is not adding capacity to meet growing freight needs in the region. Some freight modes are already hampered by an existing lack of capacity. In particular, truck movement in the region is impacted by highway congestion. Freight carriers have taken steps to avoid driving in peak-congestion periods when possible, but the growing duration and extent of congested highways and local roads reduces the efficiency and competitiveness of the region's freight system.

### Global Competition

Today's freight system is increasingly affected by global competitive forces. Shippers, freight forwarders, and carriers respond to this competition through technological advancements such as integrated logistics and complex supply-chain management systems. The supply chain consists of the logistics system beyond the physical infrastructure, including competitive carriers, dispatch, support facilities and warehousing, local distributors, inventory tracking and order systems.



*Figure 8-12: International freight movements are essential to regional vitality*



*Figure 8-13: Diesel fuel price increase may cause changes to freight mode selections*

### High Fuel Costs

The cost of fuels used in freight movement, including diesel and jet fuel, has varied but generally has increased in recent years. Some goods movement may shift from trucks to (comparatively fuel-efficient) rail, but limited rail coverage to national markets and few intermodal terminal connections may dampen any modal shift. Class I railroads in the region are also operating near capacity on some corridors.

Demand for ethanol as a passenger automobile fuel has also grown as gasoline prices spiked in recent years. Since Minnesota is a leading producer of ethanol, significant quantities of ethanol must be transported through the state. Ethanol is a caustic fuel that cannot be transported by pipeline, so shipment of ethanol places further demand on limited rail and highway capacity in the state and the metro region.



## Connectivity

Freight connectivity is another issue in the region. Some major freight truck and intermodal terminals within the region have poor connections to major highways. Also, the seven-county region includes many rural areas with an underdeveloped 10-ton road network. These roads are important for freight connections from farms and other businesses in rural areas in the region.

## Freight Safety

Increased concern over safety affects the freight system. Trucking is a regulated industry with strict operating rules that improve safety for freight movement and motorists, but continued enforcement and inspection of vehicles is critical to ensuring safe roads, bridges, and highways. Trucking companies develop and implement driver training and performance measures to improve safety and guarantee compliance with regulations.

For railroads, safety is also a primary consideration. While rail freight movement enjoys lower accident and fatality rates than trucks, rail accidents are high-profile events with serious liability concerns for the railroad and safety concerns for the public and railroad employees. To improve rail safety, the Federal Railroad Administration has developed a *National Rail Safety Action Plan*. The plan identifies a number of safety improvements for the nation's freight and passenger railroads to improve safety, ranging from grade-crossing improvements to in-vehicle safety devices to strengthened railcars used for hazardous material transport. New technologies and careful routing will allow railroads to identify potential risk factors and make routing decisions to maximize rail safety.

## Freight Security

Security is a major concern in freight transportation. Security includes the protection of goods and commodities as well as safeguards against threats. Nationwide, initiatives to improve freight security have included electronic tracking of shipments, sealed freight containers, vehicle-tracking technologies, and inspection of vehicles at some security-sensitive facilities and destinations.

Rail trespassing is a safety concern as well as a security concern. Rail bridges and corridors are sometimes attractive (though illegal) shortcuts for pedestrians and cyclists, with sometimes fatal results. Nationally, over 500 people die each year in railroad trespass-related incidents.

Trains are also the mode of choice for many hazardous materials, including dangerous chemicals and nuclear material, but rail trespassers pose a security threat to these shipments. Finally, right-of-way adjacent to rail tracks is an important safety feature to provide a clear space in the event of a derailment or material spill. Encroachment on rail property by adjacent properties or other interests increases the risk of accident and injury.

## Impacts of Freight Terminals on Adjacent Land Uses

Trucking terminals can be located in a wide variety of locations as long as they have roadway connections, and are often specifically located in industrial areas to be near potential shippers and away





from housing and other incompatible land uses. However, terminals for other freight modes are limited to locations which are adjacent to a navigable river or railroad. Over the last few decades there has been increasing competition for land adjacent to the Mississippi River. Many industrial uses have been redeveloped into residential or park land as demand for industry adjacent to the river has declined. The Council will continue to work with local units of government and park agencies to balance these various uses, as there remains some need for freight activities adjacent to the rivers to handle commodities that are most efficiently carried by water.

For the purposes of addressing congestion, environmental impacts, and the state's competitiveness, railroads remain a positive solution to many of our transportation needs. One train can take over 400 trucks off the highway system, at a fifth of the fuel use and a third of the ton-mile cost. However, the growth of intermodal rail/truck movement over the past three decades has also increased conflicts between the rail intermodal terminals and adjacent residential neighborhoods, especially in the Shoreham area of Northeast Minneapolis and the Midway area of Saint Paul. The Council will continue to work with Mn/DOT to study ways to minimize the external impact of these essential freight activities, although railroad operations are unique in that they are controlled by the federal government as interstate common carriers, and not state and local governments.

## **Freight and Goods Movement Policies and Strategies**

### **Policy 17: Providing for Regional Freight Transportation**

The region will maintain an effective and efficient regional freight transportation system to support the region's economy.

**Strategy 17a. Freight Terminal Access:** The Council will work with its partners to analyze needs for freight terminal access.

**Strategy 17b. Congestion Impacts on Freight Movement:** The Council will work to reduce the impacts of highway congestion on freight movement.

## **Related Policies and Strategies:**

### **Policy 2: Prioritizing Regional Transportation Investments**

Strategy 2a. System Preservation

Strategy 2e. Multimodal Investments

### **Policy 4: Coordination of Transportation Investments and Land Use**

Strategy 4f. Local Transportation Planning

### **Policy 6: Public Participation in Transportation Planning and Investment Decisions**

Strategy 6b. Interjurisdictional Coordination and Participation

### **The Minnesota Freight**

#### **Advisory Committee (MFAC)**

provides a forum for the exchange of ideas and addressing of issues between Mn/DOT and the private sector to develop and promote a safe, reliable, efficient and environmentally responsible freight transportation system for the state. The objectives are to:

- Ensure freight transportation needs addressed in planning, investment and operation of Minnesota's transportation system.
- Establish guidelines to measure and manage the state's freight transportation needs.
- Provide input and direction to Mn/DOT's freight investment committee on freight transportation policies, needs and issues.
- Recommend program and research areas for Mn/DOT follow-up and direction.
- Represent the needs and requirements of freight transportation to the public, elected officials and other public agencies and organizations.

For more information on MFAC, visit: <http://www.dot.state.mn.us/ofrw/mfac.html>

Strategy 6d. Public Awareness of Transportation Issues

### **Policy 7: Investments in Preserving of Right-of-Way**

**Strategy 7a:** Preservation of Railroad Rights-of-Way

### **Policy 8: Energy and Environmental Considerations in Transportation Investments**

Strategy 8a. Reduction of Transportation Emissions

Strategy 8e. Reduction of Greenhouse Gas Emission

### **Policy 9: Highway Planning**

Strategy 9b. Multimodal System

Strategy 9e. Interconnected Roadway Network

## **2030 Freight and Goods Movement Plan**


The region's challenge is to establish a common vision to coordinate public and private investments to support the region's economy by improving freight mobility. This requires effective and continuous partnership between public agencies, local government, and private industry with respect to infrastructure design and investment. The Minnesota Freight Advisory Committee, described at right, is an example of this partnership.

The private sector will seek to make the most efficient use of the supply chain. Given the competitive business climate in which freight services must operate, changes in freight service strategies should be anticipated. These continuously evolving business strategies could affect freight modes and industries located in the region. While remaining mindful of these changes, the public sector can work with the private sector to identify, program and fund specific infrastructure projects to leverage investment in a high-capacity regional freight system. The plan components described below build on existing partnerships to address freight mobility issues in the region.

### **Freight Connectors**

Within the Twin Cities region, several roads are officially designated as "Intermodal Connectors" to the National Highway System (NHS), as designated by the Federal Highway Administration (FHWA). Freight-related NHS Intermodal Connectors include Post Road near the Minneapolis-St. Paul International Airport and a recently designated Intermodal Connector in Minneapolis, connecting Canadian Pacific Railway's Shoreham Yard (an intermodal truck/rail terminal) with I-94, crossing the Mississippi River at Lowry Avenue. This designation may give these routes special consideration for freight-related investment. The Metropolitan Council will work with its partners, including the Mn/DOT Freight Planning Office, to identify other important intermodal freight connectors and pursue designation of appropriate routes to connect these sites to the National Highway System.





Freight terminals in the region are not intermodal, but these truck terminals do serve much freight movement in the region. The Metropolitan Council and its partners will work to identify these sites and adequate connections to the Metropolitan Highway System, where appropriate. Many roads currently used to connect freight terminals with the Metropolitan Highway System are located on “A” minor arterials, which qualify for improvement funding under existing Surface Transportation Program. Further designation of major freight corridors may qualify some routes for freight-specific or additional state or federal funding sources.


## **Truck Parking**

The Minnesota Department of Transportation recently completed the Minnesota Interstate Parking Study- Phase I, a study of issues regarding truck parking on Interstate highways in Minnesota. Recommendations from the study did not specifically address the seven-county region, though some corridors in the study entered the region. Mn/DOT will continue work on Phase II of the study. Phase II work will include identification of the State’s role in the provision of truck parking; determining which provisions of long term truck parking will provide the greatest support to the State’s economy; and, identifying which actions will provide the greatest impact on traffic safety, while taking maximum advantage of effective technology and available federal programs. Though this study does not directly analyze the seven-county region, the Metropolitan Council will continue work with Mn/DOT and MFAC to identify appropriate opportunities to apply the study findings in the region.

## **Managed Highway System**

As described in Chapter 6: Highways, this TPP calls for the development of a system of managed lanes similar to the MnPASS / High-Occupancy Toll (HOT) lanes already developed along I-394 and I-35W and the application of Active Traffic Management (ATM) strategies. While the planned network of managed lanes for the Metropolitan Highway System is not based directly on specific freight-related congestion points, implementing managed lanes will have multiple benefits to local and regional freight moved by trucks. MnPASS / HOT lanes will directly benefit shipments by single-unit commercial vehicles by allowing those vehicles to “buy in” to the lane to receive the benefit of an uncongested trip. Specifically, dual-axle trucks less than 26,000 pounds are allowed to use the MnPASS network with an on-board transponder and valid MnPASS account. These vehicles are already using the I-394 and I-35W MnPASS lanes and this practice will likely continue for future MnPASS corridors. This is especially beneficial to air freight companies like Federal Express and UPS which transport freight for the biomedical, high-tech and other industries that rely on expedited deliveries of high-value, time-sensitive products.

The development of a managed lane network may also benefit traditional freight movements by large trucks. Based on findings from other metropolitan areas around the country, converting shoulders to HOT lanes provides added operational capacity to specific corridors thereby freeing up capacity and congested traffic flows in general purpose lanes. By delaying the frequency and duration of breakdowns in traffic flow in general purpose lanes, the total hours of corridor congestion can be minimized, thereby improving conditions for moving freight. In addition, the implementation of active traffic management



strategies, such as speed harmonization, variable sign messaging, and dynamic rerouting along congested corridors, as recommended in the Metropolitan Highway Investment Study completed in 2010, may further reduce breakdowns in traffic flow and improve safety for trucks and other vehicles using the general purpose lanes.

## **Freight Railroads**

Increasing roadway congestion and high fuel costs have prompted new interest in freight rail for movement of goods. Freight rail offers fuel-efficiency benefits, as rail is about three times more fuel-efficient than truck freight per ton-mile. In the context of rising fuel costs, rail could gain a competitive edge in shippers' choice of freight mode. National, regional and short-line freight carriers could see increased business through a shift to freight rail, and may upgrade capacity in the region to accommodate this growth, potentially adding new intermodal truck/rail facilities. Given the potential growth in freight rail commerce, communities with freight rail corridors should expect continued operation of railroads in their communities. The Metropolitan Council will work with its partners to preserve linear rights-of-way in the event any rail line is abandoned, if appropriate to do so, but communities should expect few additional railroad abandonments.

Additional investment in railroad capacity in the region could shift freight inflow, outflow and through-traffic to intermodal rail containers. Containerized intermodal movement of freight traffic could improve regional freight mobility by shifting the growing demand on the region's highways to more-efficient rail corridors.

## **Metropolitan Freight Study**

Mn/DOT completed the Minnesota Statewide Freight Plan in 2005 and has completed several district-specific implementation plans for freight. In addition, Mn/DOT adopted the Statewide Passenger and Freight Rail Plan in early 2010. A metropolitan area data collection, analysis and policy review will be made through the Twin Cities Metropolitan Area Regional Freight Study, a coordinated effort jointly led and funded by the Mn/DOT Office of Freight and the Metropolitan Council. The project will study the Metro District and seven-county metropolitan region to determine freight and economic trends and issues; develop a vision statement, strategic goals, and performance targets for metropolitan area freight movements; and to generate, evaluate and select among alternative future freight scenarios through actively engaging freight industry stakeholders.

