



TRANSPORTATION POLICY PLAN

Chapter 8: Freight Investment Direction

2040





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Freight Investment Direction

Overview



The transportation of freight plays a critical role in supporting the region's economy, competitiveness, and quality of life, enabling the region to stand out as an important business and transportation hub. With a safe, efficient, reliable, and robust freight transportation system, the region's residents have access to the goods and materials they need to live and work, and businesses would not be able to distribute their products to customers or receive shipments needed to manufacture items.

As described in the Overview of this plan, the growth of the Twin Cities region for the past 150 years has always been tied to its function as a major trade center. While 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, the Twin Cities region is the primary freight hub for Minnesota and the upper Midwest. The metro region is a major distribution hub for goods produced and consumed in Minnesota, Wisconsin, North and South Dakota and eastern Montana. The region offers freight connections to national and international markets for businesses throughout Minnesota.

As a freight hub, the Twin Cities region is at the center of many of the mobility and access issues affecting the freight transportation system in Minnesota. Because of this broad reach, the Metropolitan Council does not plan for freight within the region by itself, but works closely with the Minnesota Department of Transportation (MnDOT) and other partners to ensure that the regional freight system continues to support a thriving and sustainable economy for the entire state and beyond.

The federal government’s role in freight planning expanded in 2011 with the adoption of the surface transportation bill known as Moving Ahead for Progress in the 21st Century (MAP-21), which includes a new National Freight Policy, and provisions for a designated National Freight Network that will focus on improving freight roadway connections between major metropolitan areas. The Federal Highway Administration was also directed to establish freight system performance measures for states and regions to utilize such as truck travel time and reliability.

The Twin Cities region is fortunate to be served by four modes of freight transportation, each with its own role in moving goods into, out of, through and within the region. These modes include:

- **Roadways** serve freight carried in trucks, including long-haul trucks traveling through the region, connections to river ports and rail yards, direct truck service to and from distribution facilities and freight-generating industries such as manufacturers and processing plants, as well as deliveries to a variety of businesses and retail establishments and directly to consumers’ homes.
- **Railroads** move a variety of commodities, especially heavy bulk goods and containerized freight. The region’s railroads provide important local and regional connections to the national railroad network, serving national markets and coastal ports for international trade.
- **Barges** provide water transportation over the inland river system and offer less costly and higher-volume shipping options than other modes, which is particularly beneficial for long-distance bulk freight. A number of key industries rely on the affordability provided by water freight transportation.
- **Air** freight services allow regional businesses to ship low-weight, high-value and/or time-sensitive goods to both domestic and international markets.

Other chapters of this long-range plan explain the [existing freight system](#) in the region and future public investments to be made in two of these four freight modes, [roadways](#) and [air](#). In addition, the [2012 Transportation System Performance Evaluation](#) contains a more detailed discussion about freight movement in the region, as does “[The Story of Freight in the Twin Cities.](#)”

Many freight-related improvements will be the responsibility of private entities that own and operate the transportation modes and freight terminal facilities. Freight railroads are privately owned so each rail company makes its own plans for future infrastructure investments. The Army Corps of Engineers maintains and operates the Mississippi River waterway system, including the Minnesota River and Saint Croix River, so the federal government is responsible for investment decisions on locks, dams, and channel dredging on these vital waterways.



Challenges and Opportunities

While the Overview of this plan discussed general challenges and opportunities for transportation within the region, there are some challenges unique to the freight system.

Freight Capacity and Congestion

Economic and population growth in the metropolitan area continues to increase the amount of freight movement in the region. Deregulation of motor carriers and railroads have also added to the total amount of freight through increased competition and lowered shipping costs. Together, these forces will continue to increase the size of and need for an efficient freight transportation system.

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 recurring highway congestion, in addition to that caused by incidents such as weather and crashes. Freight motor 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.

The significant growth of the Bakken oil field area in North Dakota and Montana has also caused significant congestion on the east-west rail mainlines through the northern part of the country. Undersized terminal facilities, restrictive or outdated bridges, limited track capacity, and a lack of options for alternative routes and interchanges also contribute to rail congestion.

High Fuel Costs

The cost of fuel 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 or barge modes, but limited rail and waterway coverage to national markets and few intermodal terminal connections may dampen any shift away from trucks. In addition, Class I railroads in the region are already 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 within 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. Although the metropolitan highway system is designed for loads of 10-tons per axle, some of the rural areas within the seven-county region have an underdeveloped 10-ton road network. These roads are important for freight connections from farms and other businesses in rural areas in the region.

Exacerbating the connectivity issue is the steady growth of large semi trucks for expanded parcel and local delivery networks. Many minor arterials and collector streets in the urbanized area were designed for smaller delivery trucks, and newer traffic control strategies like roundabouts and curb bump-outs are not always designed with consideration for the turning radius needs of these larger trucks.

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, a state responsibility, is critical to ensuring safe roads, bridges, and highways. Trucking companies develop and implement driver training and apply performance measures to monitor safety and compliance with regulations.

For railroads, safety is also a primary consideration. While the rail freight industry enjoys lower accident and fatality rates than the truck industry, rail accidents are high-profile events with serious liability concerns for the railroad and safety concerns for the public and railroad employees. The recent surge of highly volatile Bakken crude oil moving in unit trains

through the region has multiplied the possible risks involved in this essential transport, with eight daily trains by early 2014 and more expected in the future.

To improve rail safety, the Federal Railroad Administration has developed a National Rail Safety Action Plan. The plan identifies a number of possible actions for the nation's freight and passenger railroads to improve safety, including the implementation of grade-crossing improvements, application of in-vehicle safety devices, and strengthening railcars used in transporting hazardous materials. New technologies and careful routing will allow railroads to identify potential risk factors and make routing decisions that maximize rail safety.

Finally, adequate 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.

Freight Security

Security is a major concern in freight transportation. Security includes the protection of goods and commodities as well as safeguards against potential threats of terrorism. Nationwide, initiatives to improve freight security have included electronic tracking of shipments, sealed freight containers, vehicle-tracking technologies, and inspection of vehicles at 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. In Minnesota, more people die from pedestrian/

rail accidents than from vehicular/rail accidents. Unlike the policies in 48 other states, state and local law enforcement statutes in Minnesota do not support railroad policing of their own property to address this problem.

Rail is also the mode of choice for many hazardous materials, including dangerous chemicals and nuclear material, and rail trespassers pose a security threat to these shipments.

Freight Terminals and 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 rail and barge freight modes are limited to locations which are adjacent to a navigable river or a rail line. Over the last few decades in the Twin Cities there has been increasing competition for land adjacent to the Mississippi River system. Many industrial uses have been redeveloped into residential or park land as demand for industry adjacent to the river has declined. The Mississippi River Critical Area identifies an urban diversified district whose purpose is to maintain the present diversity of uses, including the transportation use of the river. However, some cities report that there has been pressure from regulators to constrain these historic and important industrial uses. The Council will continue to work with local units of government, the Department of Natural Resources and park agencies to balance these various uses, as there remains a need for freight activities adjacent to the rivers, especially in Saint Paul and the Savage/Burnsville areas on the Minnesota River, to handle commodities that are most efficiently carried by water.

To address congestion, environmental impacts, and the state's competitiveness, railroads remain a viable alternative for many of our transportation needs. One train can take over 400 trucks off the highway system, at one-fifth of the fuel use and one-third of the cost. However, the growth of intermodal rail/truck movement over the past three decades has also increased conflicts between the rail intermodal container terminals and adjacent residential neighborhoods. This is of particular concern in the Shoreham area of northeast Minneapolis and the Midway area of Saint Paul. Cities and counties will need to continue working with MnDOT and the Council to ensure an adequate minor arterial system exists to provide truck access between these intermodal rail terminals and the principal arterial system.

The Council will continue to work with MnDOT to study ways to minimize the external impacts of these essential freight activities. With respect to the inherent tension between industrial and residential/commercial uses, it is worthy to note that railroad operations are unique in that, as interstate common carriers, they are regulated by the federal government and not by state and local governments. However, local governments do retain powers over the truck traffic generated by these terminals through local police powers (including traffic routing), land use zoning, and the design, construction, and maintenance of highway connectors.

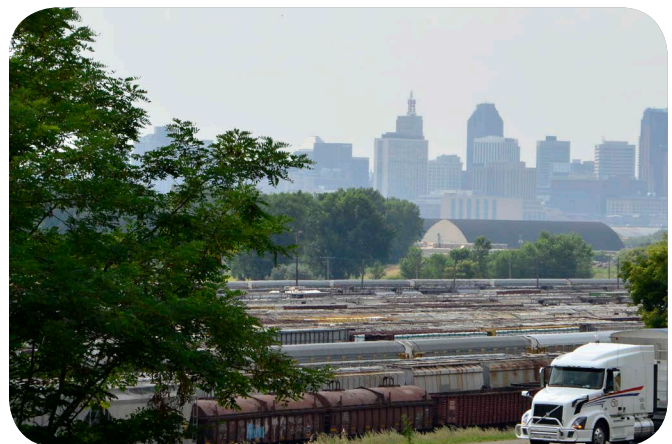
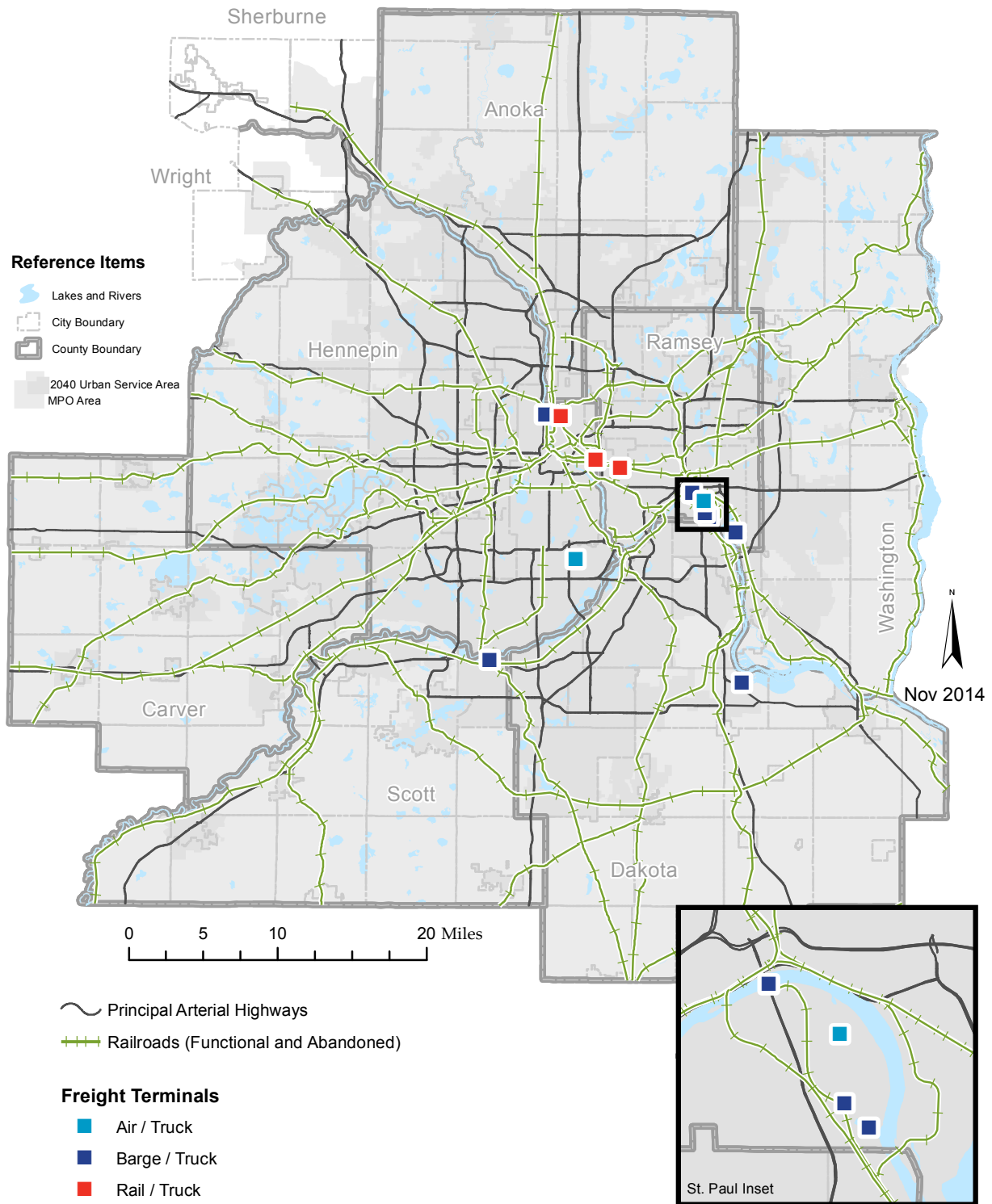


Figure 8-1: Metropolitan Freight Infrastructure

Metropolitan Freight System



Future Direction of Freight by Mode

Trucks on Roadways

Within this region, freight will continue to move primarily by truck. Many freight shippers and commercial/industrial land uses are located adjacent to the region's principal arterials, all of which are National Highway System (NHS) routes, allowing trucks direct and convenient access to safe, high speed travel corridors. The Interstate system in particular, is vital to the movement of freight and goods through and within the region, although a significant amount of freight also uses A-minor arterials, especially for local travel and deliveries within the region.

This *2040 Transportation Policy Plan* includes a "[Highway Investment Direction and Plan](#)" that focuses its limited financial resources in general categories. Investments in all of these areas will benefit truck movements on highways.

Operations and maintenance are critical, especially snow removal to assure timely all-weather freight delivery. Rebuilding and replacing both bridges and pavement is very important for freight movement. Bridges which have weight restrictions caused by their poor condition can greatly affect trucks, which may have to spend a significant amount of time and fuel costs detouring to alternative crossings. Recent freight research with businesses in western Minnesota showed that poor pavement quality can cause significant damage to cargo such as precision instruments and high tech machinery, in addition to damaging the truck itself.

Regional mobility improvements are also important for trucks. The implementation of traffic management technologies on regional highways, such as traveler information systems, incidence response programs, traffic signal operations and coordination, queue warning systems, and the dynamic rerouting of trucks along congested corridors may reduce breakdowns in traffic flow. These in turn will benefit freight by maintaining delivery schedules and improving safety for trucks and other vehicles.

Implementing spot mobility improvements will also be critical to relieving congestion. Some of these improvements, like truck climbing lanes and auxiliary lanes between freeway interchanges, can alleviate some of the specific congestion problems trucks can create for other vehicles when accelerating up to the same speed as general traffic.

The highway investment plan also calls for the development of a system of MnPASS lanes such as those already developed along I-394 and I-35W. While the planned network of MnPASS lanes on the freeway 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 truck. MnPASS lanes will directly benefit shipments by single-unit commercial vehicles (dual-axle trucks less than 26,000 pounds), vans, pickups and courier cars because those vehicles are allowed to "buy in" to the lane to receive the benefit of an uncongested trip. 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 Fed Ex 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 MnPASS network may also benefit traditional freight movements by large trucks because MnPASS lanes can free up capacity and increase traffic flow in adjacent general purpose lanes. By delaying the frequency and reducing the duration of breakdowns in general purpose lanes, the total hours of corridor congestion can be minimized, thereby improving conditions for moving freight.

Funds for strategic capacity improvements are limited, but the highway investment plan does specify that highway improvements that would provide access to job centers and/or freight terminals may be considered for potential investment. Among the regional highway system prioritization factors listed in the highway investment plan, investments that improve travel time predictability and dependability are especially useful for commercial truck traffic.

In addition, the highway investment chapter notes that in many rural parts of the metro region, and in the extended urban area in Wright and Sherburne counties, improvements to highways that would primarily benefit freight and residents of Greater Minnesota should be considered for funding from sources that would otherwise be designated for use outside the Twin Cities metro area, such as the Greater Minnesota portion of the Corridors of Commerce program funded by the legislature in recent years.

Rail and Intermodal

There has been a surge in rail traffic in and through the Twin Cities area in the last five years due to the development of the Bakken oil fields in North Dakota and eastern Montana. The Bakken area has very few pipelines but is served by the BNSF and CP Railroads, which enable oil to be shipped through the Twin Cities to Chicago and points east via rail. Westbound shipments to the Bakken area include sand used for hydraulic fracturing of the wells, much of which originates in Wisconsin and southeastern Minnesota and thus must travel through the Twin Cities to North Dakota.

Since new pipeline construction involves a long process of design, permitting, and construction, and the oilfields are substantial enough to support many years of significant production growth as well as decades of continued production, this heavy demand for rail transport is expected to continue. The railroads, especially the Burlington Northern Santa Fe, will continue to make investments in the system to resolve the delays caused by this significant new commodity movement. These investments will also be critical to passenger rail movements to and within the Twin Cities as these delays are impacting Amtrak and Northstar passenger rail performance as well as freight rail performance for other goods.

The safety of this Bakken crude-by-rail flow has also caused an associated concern for community safety in the region. Bakken crude is a highly volatile material, classified by the U.S. Department of Transportation as a hazardous material requiring specialized testing, handling, and rail equipment regulated by the Federal Railroad Administration (FRA) and the Pipeline and Hazardous Materials Safety Administration (PHMSA).

The volume of these crude oil shipments has increased the amount of hazardous material moving by rail in the metro region 400%, and may increase further since the Twin Cities is a

key gateway from North Dakota to the refineries in the east. This has heightened the need for rail safety measures and inspections, better emergency response training for local fire and police departments, and a renewed emphasis for planning sufficient spatial separation between transportation and industrial corridors and residential and employment concentrations. In 2014 the state legislature funded two additional MnDOT rail inspectors to assure tracks in the state are maintained to safely handle oil trains. MnDOT has also recently completed a study of which oil train rail/highway crossings should be given priority for safety improvements.

Rail traffic also includes container-based shipping which has substantially increased the efficiency of goods movement since containers can be moved between modes without the need to repack goods. The region's two primary rail-truck intermodal terminals, the Canadian Pacific Shoreham Yard in Minneapolis and the Burlington Northern Santa Fe Midway Hub in Saint Paul are operating near full capacity. Physical restrictions at these current sites have translated to growing congestion in their operations, in turn raising rates for containers destined to or originating from the Twin Cities, and driving container transloading to compete with facilities as far away as Chicago and Kansas City. This has resulted in additional truck traffic, especially on the interstate highways, in the metro area and the Upper Midwest.



While the Canadian Pacific, the Burlington Northern Santa Fe, and the Union Pacific are all considering intermodal terminal facility expansions, the status of Minneapolis/Saint Paul as a second tier destination for container traffic in the eyes of major shipping lines has delayed planning and investment. Public/private initiatives, including those of Export MSP and the Minnesota Grain Shippers Association, are working to develop a solution; these efforts are consistent with the regional outcomes expressed in the *Thrive MSP 2040*

emphasis on economic competitiveness.

The *Minnesota Comprehensive Statewide Freight and Passenger Rail Plan* (2010), prepared in cooperation with the Council, has also identified a list of significant rail bottlenecks in the metro region as shown in Figure 8-2, including virtually all the river crossings and several yards and junctions. The foremost bottleneck is Hoffman Junction, in the Dayton's Bluff area east of downtown Saint Paul. This junction handles up to 120 freight train movements daily, as well as Amtrak passenger rail with its access to Saint Paul Union Depot. Six railroads regularly operate in parallel through this network and handle freight at several nearby rail yards. This confluence of track also directly serves the Port of Saint Paul. Five percent of the entire nation's rail traffic travels through this single junction on a daily basis. This traffic is expected to grow by 40% through 2030.

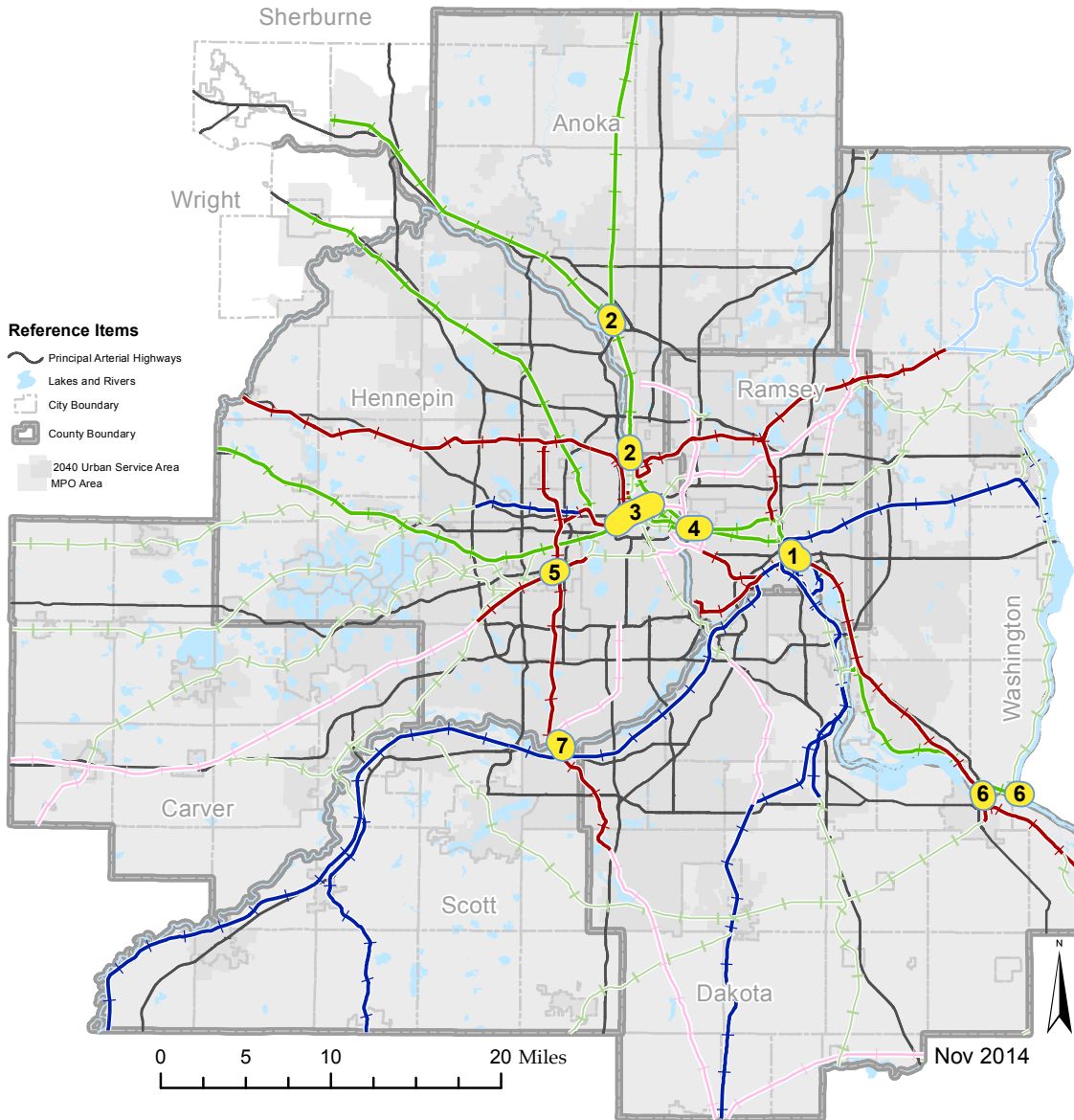
After completion of the State Rail Plan, Ramsey County Regional Railroad Authority commissioned the *East Metro Rail Capacity Study* (2012) that outlines a phased framework for public and private expansion for this rail complex over the next 20 years to handle this projected growth in rail traffic. The Council cooperated in this project and supports the continued project development concepts outlined in the study, including cooperative planning with the partner railroads and supporting applications for federal and state funding for the public portions of the project work.

A significant recent trend regarding the regional freight rail system is that there is, and will continue to be, greater competition between freight and passenger demands for rail service within the limited capacity constraints of established freight rail corridors. Rail studies and planning similar to that done in Hoffman Junction will be needed in other sub-areas and corridors of the region before potential expansions and additions to passenger rail service.

As a result of the state's vision for enhanced and expanded passenger rail service in corridors shared with freight rail operations, there is a need for long-term partnering between public agencies and rail carriers to plan, fund, and implement rail system improvements that will achieve public sector goals for passenger rail transportation while maintaining the ability of the private railroads to safely operate existing and future freight rail service.

Figure 8-2: Railroad System Bottlenecks

Railroad Bottlenecks



Railroads by Class

- Class 1 - BNSF Railway
- Class 1 - Canadian National Railway
- Class 1 - Canadian Pacific Railway
- Class 1 - Union Pacific Railroad
- Class 3 & Private
- Abandoned

Bottlenecks

Source: MN Statewide Freight + Pass. Rail Plan, 2010

Considering the potential growth in freight and passenger rail, communities with rail corridors should expect continued and potentially increased railroad operations. The Metropolitan Council will work with its partners to preserve linear rights-of-way for transportation purposes in the event any rail line is abandoned, if appropriate to do so. However, about half of the railroad mileage that existed in the metro area in 1990 has since been abandoned and few excess or redundant lines remain in the system, so communities should expect few additional railroad abandonments.

River Barges

The region’s river port terminals are currently concentrated in Saint Paul and Minneapolis along the Mississippi river, and in Savage on the Minnesota River. Some are private terminals on private land, while others are private terminals on land leased from the City of Minneapolis and the Saint Paul Port Authority. The head of navigation on the Mississippi was traditionally at Saint Paul, but construction of the upper lock at Saint Anthony Falls allowed development of the Minneapolis Upper Harbor in north Minneapolis in the 1960s. In recent years, traffic through the Saint Anthony locks has been below a million tons each year, leading Minneapolis to close their Public Terminal, one of three users in the Upper Harbor. The Army Corps threshold for a lock closure on a tributary, or at the end of navigation, has typically been 1 million tons, which is not currently achieved by these remaining businesses. And in spring of 2014, Congress passed the Water Resources Reform and Development Act of 2014, which requires that the upper lock close by spring 2015.



Thus, Saint Paul and Savage will be the only remaining riverport terminal areas in the region, making preservation of sufficient riverfront land for barge terminals increasingly important in those areas, especially in Saint Paul. Saint Paul is expected to continue as the single largest river traffic generator on the Upper Mississippi above Saint Louis, and in 2013, for the first time, the port handled more cargo inbound to the Twin Cities than outbound, reflecting growth and diversification in the commodities being handled by this mode.

Air

The freight terminal area of Minneapolis-Saint Paul International Airport was relocated and rebuilt during the last decade when construction of the new north-south runway displaced the previous freight area. The new area is conveniently accessed off of State Highway 77 at 66th street, and can also be reached via secured access onto the airport property near 34th Avenue and Post Road. The interchange at I-494 and 34th Avenue was rebuilt in 2013. Due to these recent upgrades there are currently no plans for future major investment in air freight facilities during the next 20 years, although there may be minor improvements for freight resulting from ongoing upgrades to the airfield and passenger facilities.

Other Freight Planning Activities

Several previous plans influenced the development of this regional freight section and provide more detail on the expected future of freight in the region. The [Minnesota Statewide Freight Plan](#) (MnDOT, 2005) identified freight transportation system deficiencies and provided a policy framework and a set of recommendations for planning and programming solutions. MnDOT began updating this plan in mid-2014, and any information pertinent to the metro region will be incorporated into future updates of the TPP.

The *Minnesota Comprehensive Statewide Freight and Passenger Rail Plan* (2010) provides additional guidance for rail initiatives and investments, including a vision for effective utilization of the rail network and its future development, and identified rail bottlenecks in the region. MnDOT also began updating this plan late in 2014, and any information pertinent to the metro region will be incorporated into future updates of the transportation plan.

The [Statewide Multimodal Transportation Plan](#) adopted by MnDOT in 2012 encourages greater accessibility and more efficient movement of goods throughout the Twin Cities metropolitan area and Minnesota. It aims to improve freight operations and connections for better access to the transportation system and to define priority networks for all modes based on connectivity and accessibility.

In 2013, MnDOT completed the first-ever Minnesota [Statewide Ports and Waterways Plan](#). The plan includes an overview and history of Minnesota's waterways, industry shipper profiles, and an inventory of facility conditions for metro region ports and locks, as well as for facilities throughout the state's Mississippi River navigable waterway.

In addition to these plans, the [Twin Cities Metropolitan Region Freight Study](#) completed jointly by MnDOT and the Council in 2013, provides more details about freight in the region.