CAMBRIDGE SYSTEMATICS

Minnesota Comprehensive Statewide Freight and Passenger Rail Plan

Task 1: Vision for Rail in Minnesota

draft technical

memorandum

prepared for

Minnesota Department of Transportation

prepared by

Cambridge Systematics, Inc.

with

Kimley Horn & Associates
TKDA

June 2009

www.camsys.com

draft technical memorandum

Minnesota Comprehensive Statewide Freight and Passenger Rail Plan

Task 1: Vision for Rail in Minnesota

prepared for

Minnesota Department of Transportation

prepared by

Cambridge Systematics, Inc.
100 Cambridge Park Drive, Suite 400
Cambridge, Massachusetts 02140

with

Kimley Horn & Associates
TKDA

date

June 2009

Table of Contents

List of Tables

List of Figures

Summary

This technical memorandum presents a preliminary vision for rail in Minnesota. It is based on an initial review of prior studies, current stakeholder aspirations, and established policy directions. The preliminary vision will be reshaped and refined during the study using the information generated by the subsequent study tasks and stakeholder input. The final report will incorporate the vision for rail in Minnesota, defining a state rail plan to achieve the vision.

The preliminary vision for rail in Minnesota is as follows:

- **Rail contributes to the long-term growth and productivity of business and industry** by providing cost-effective and reliable access to resources, markets, and labor.
  - It improves economic competitiveness, enabling development that benefits the citizens of Minnesota and the Upper Midwest; and
  - It ensures that Minnesota continues to be a growth leader in region.
- **Rail knits together Minnesota communities** by providing a network of connections between Chicago and Minneapolis/St. Paul, and between the Twin Cities and the major cities and regions of the State.
  - It opens up new options for traveling for work, family and personal business, health care, and recreation;
  - It improves mobility for people and communities that are economically disadvantaged, senior citizens, and persons with disabilities; and
  - It improves the quality of living and working in Minnesota.
- **Rail balances the State's transportation network** by offering an alternative to highways for freight transportation and an alternative to highway and air travel for passenger transportation.
  - It offers cost-effective long-distance transport for freight shippers and receivers;
  - It reduces congestion for highway users; and
  - It leverages private investment in rail and public investment in roads by making possible intermodal freight and intermodal passenger trips.
- **Rail sustains the environment** by reducing fuel use and greenhouse gas emissions.

Minnesota's rail program shares the benefits, costs, and risks of its evolving rail system equitably among users, regions and the public and private sectors, building on an existing rail network and a legacy of innovation. The program seeks to meet the demand for rail services in the most cost-effective way possible.

The program represents a long-term investment strategy which will be implemented in phases over multiple planning generations, in much the same way as the Interstate Highway System was built. Initial investments should provide short-term benefits while serving as down-payments on the long-term strategy. Over time, the development of a fully integrated railroad system should generate synergistic benefits and demand in excess of those generated by individual routes serving specific corridors.

1.0 Objective

The objective of this technical memorandum is to develop a preliminary vision for freight and passenger rail in Minnesota as part of the State's overall transportation network.

2.0 Approach

To develop the preliminary vision for rail in Minnesota, we reviewed prior studies, current stakeholder aspirations, and established policy directions. We considered:

- Short- and longer-term (2030 and beyond) economic growth projections for the Minnesota economy and communities;
- Industry sectors and communities that could benefit from better freight and passenger rail services based on their current and anticipated freight logistics and passenger travel needs;
- Rail corridors and rail services needed to support social, economic, and environmental goals;
- Role of rail in Minnesota's highway, air, and water transportation systems;
- Benefits of improved services to rail stakeholders, the State, and the region; and
- Initial policies, procedures, and key criteria for evaluating and programming specific freight and passenger rail programs and projects for state participation, whether directly through investment or indirectly through regulation.

The key findings, which are summarized in the next sections, were then reviewed with Mn/DOT senior staff and a preliminary vision was drafted. The preliminary vision will be reshaped and refined during the study using the information generated by the subsequent study tasks and stakeholder input. The final report will incorporate the vision for rail in Minnesota, defining a state rail plan to achieve the vision.

3.0 Findings

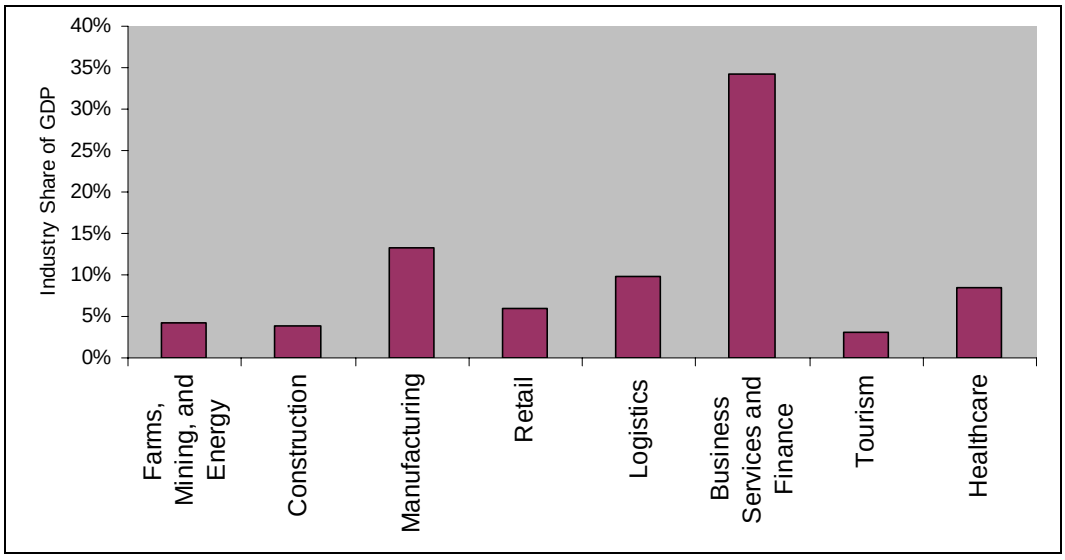
3.1 ECONOMY

The structure of the Minnesota economy – the types of businesses and industries, their size, location, and trading patterns – determines the volumes of freight moving in the State and strongly influences population size and settlement patterns. Understanding the structure of the economy and how it may change over the next decades provides a foundation for assessing the overall demand for freight and passenger transportation and – of interest in this study – the demand for freight and passenger rail transportation.

This section provides an overview of the structure of the Minnesota economy and how it is expected to change. The following sections look at employment and population projections, which are closely tied to the structure of the economy.

Figure 3.1 shows the relative shares of gross state product (GSP) contributed by the major industries in Minnesota.[1]

Figure 3.1 Minnesota GSP by Industry Sector
2007



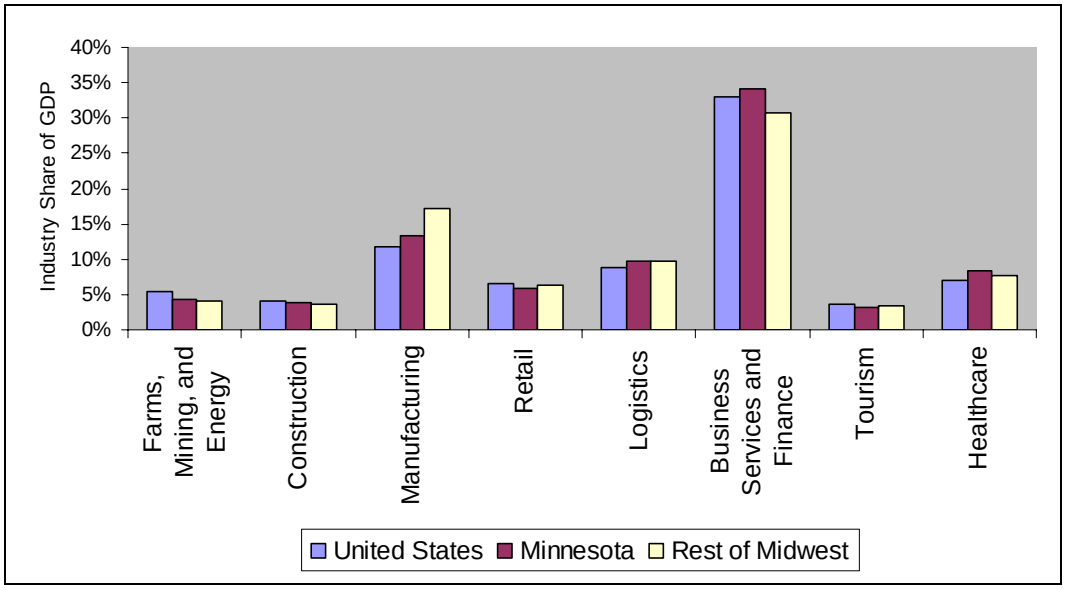
Source: Bureau of Economic Analysis, 2007.

[1] Gross state product (GSP) or for the nation, gross domestic product (GDP), is a measure of the output – the market value – of all final goods and services produced by labor and property in a year.

The economy is dominated by four sectors: business services and finance, manufacturing, logistics (i.e., transportation, warehousing and distribution), and healthcare. All four are dependent on truck, intermodal rail, and air cargo services. The other significant sectors are retailing, farming/mining/energy, construction, and tourism. Retailing is also dependent on truck, intermodal rail, and air cargo services, while farming/mining/energy are dependent on rail, water and truck services, and tourism on auto, air and passenger rail service. Each of these industries relies heavily on automobile and transit for employee commuting and automobile and air for business travel.

Figure 3.2 compares the structure of the Minnesota economy to the rest of Midwest and the U.S. economy. Relative to the rest of the Midwest states, Minnesota's economy is stronger in business services and finance; health care; logistics; and farming, mining, and energy. Relative to the U.S. as a whole, the dominant sectors in Minnesota's economy are again business services and finance, health care, and logistics, but also manufacturing.

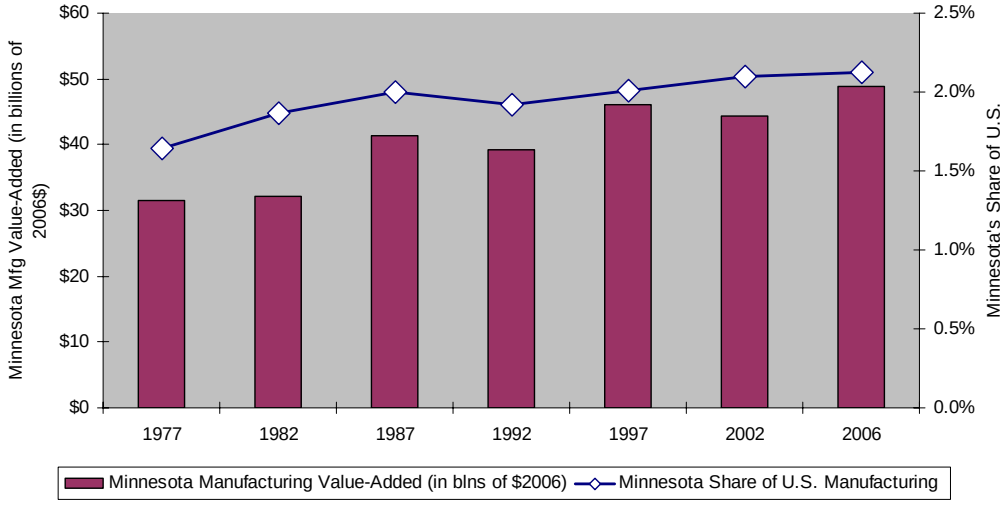
Figure 3.2 U.S., Minnesota, and Rest of Midwest GDP by Industry Sector



Source: Bureau of Economic Analysis, 2007.

While Minnesota is less dependent on manufacturing than its sister states in the Midwest, Minnesota's manufacturing sector has been gaining strength steadily relative to manufacturing across the U.S. The columns in Figure 3.3 shows the value-added to products produced and sold by Minnesota manufactures. (Value-added is measured in million of 2006 dollars.) The trend line shows the share of U.S. manufacturing value-added generated by Minnesota manufacturers. This is significant because it indicates a growing need for the transportation of materials, parts, and finished products into and out of the State.

Figure 3.3 Minnesota Manufacturing Value-Added
1977-2006

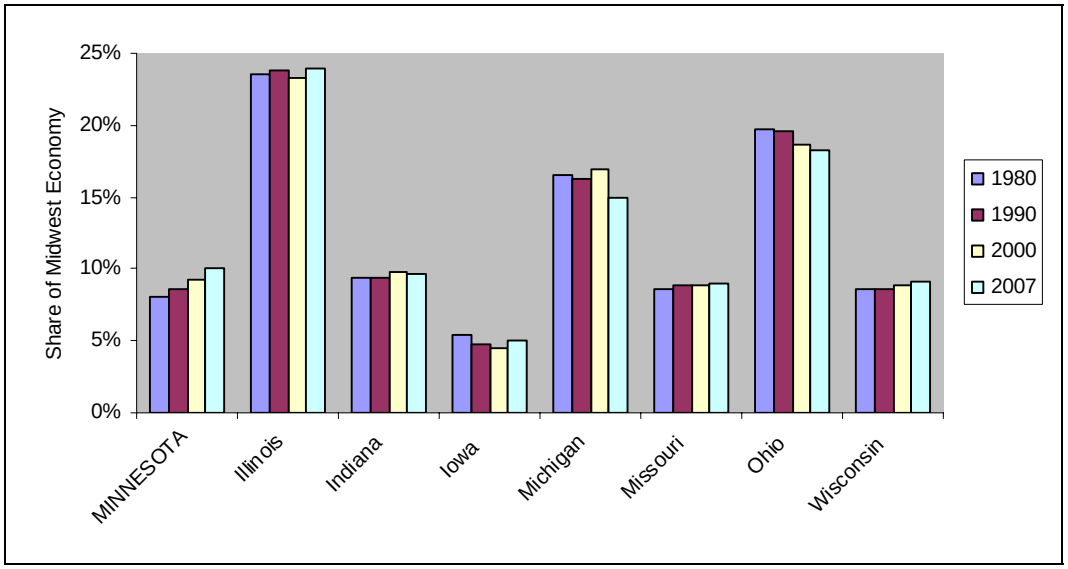


Source: U.S. Census Bureau.

Moreover, between 1980 and 2007, Minnesota's economy grew significantly faster compared to other Midwest states, as shown in Figure 3.4, accounting for a steadily rising share of the Midwestern economy. The economies of Wisconsin and Missouri grew modestly over the period; the economies of Illinois, Indiana, and Iowa held their own; while the economies of Michigan and Ohio declined, relative to the Midwest as a whole, as the automotive industry contracted. This means that Minnesota's demand for freight transportation – and associated business and commuter travel – has been growing despite media focus on the decline of the automotive industry in neighboring states.

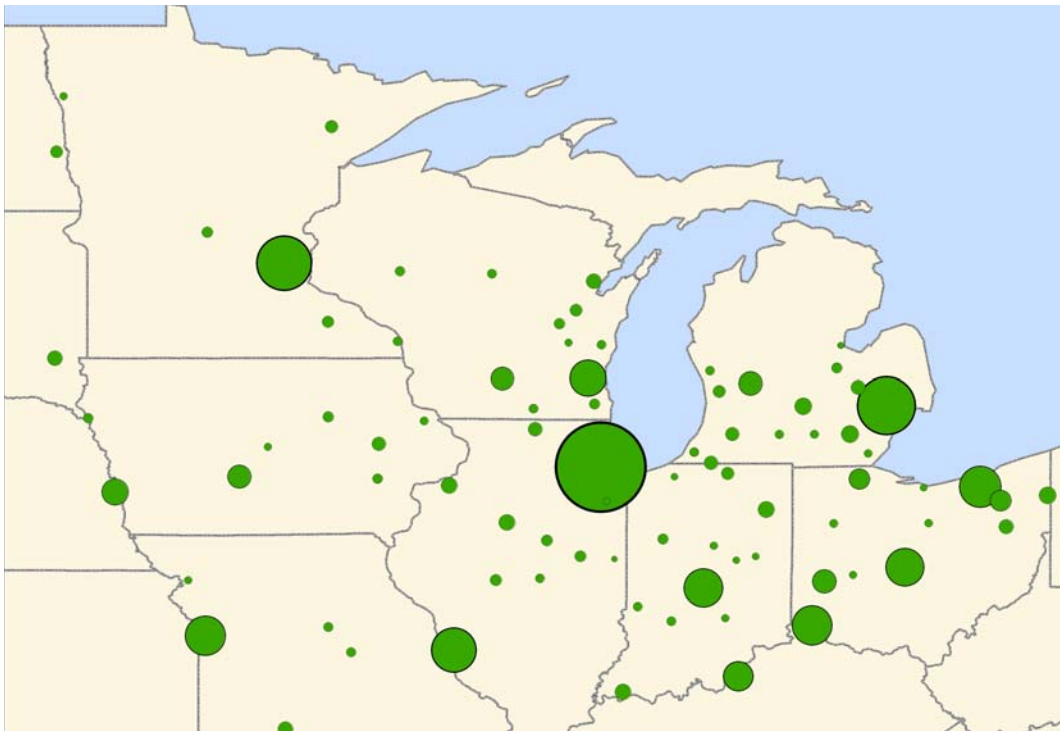
If we look below the state level and compare the relative size of the gross metropolitan products (GMP) of the major cities in the Midwest, the Twin Cities of Minneapolis and St. Paul are the third-largest economy in the region behind only Chicago and Detroit (see Figure 3.5). Depending on how the automotive industry is restructured and what new industries emerge in Michigan-Ohio-Indiana region, the Twin Cities could become the second largest metropolitan economy in the region. This underscores the importance of examining the role of freight and passenger rail in linking the Twin Cities to Chicago as well as to other parts of the Midwest and the global markets.

Figure 3.4 Share of Midwestern Economy by State
1980-2007



Source: Bureau of Economic Analysis, 2007.

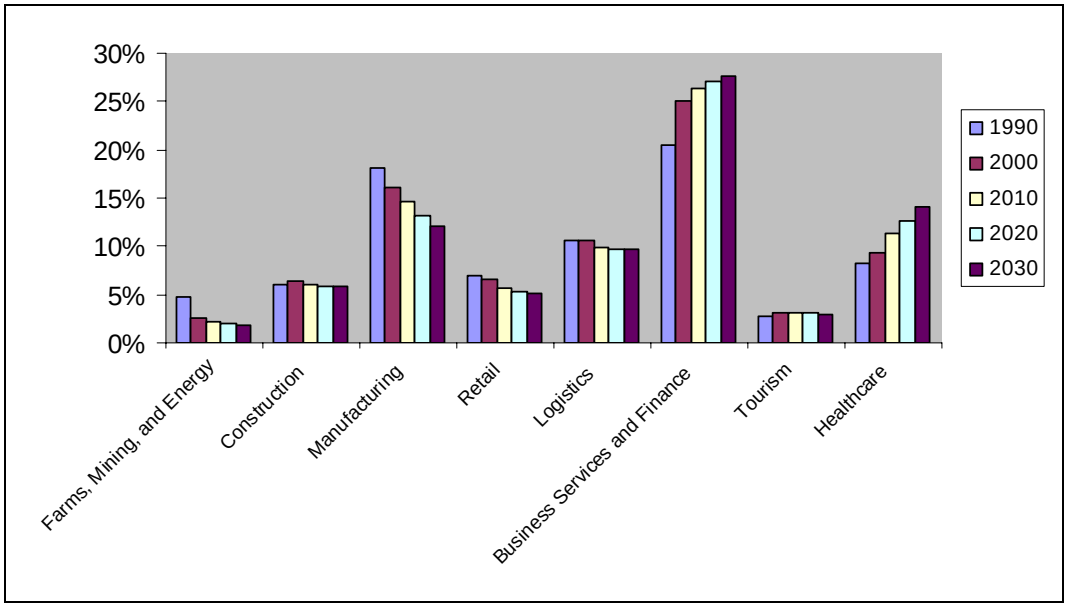
Figure 3.5 Midwest Metropolitan Areas by Gross Metropolitan Product (GMP)
20007



Source: Bureau of Economic Analysis, 2007.

Figure 3.6 shows how the structure of the Minnesota economy has changed since 1990 and how it is projected to change between now and 2030. These projections look at long-term trends, averaging out the effects of short-term business cycles. The recovery from the current recession may shift economic development patterns more significantly than currently anticipated, and we will be updating the economic forecasts during the study, but the initial projections suggest that as the economy recovers, Minnesota will continue to see strong growth in business services and finance and healthcare. Construction and tourism will hold their own, while farming/mining/energy, retailing, and logistics may contract moderately.

Figure 3.6 Projected Change in Earnings by Industry
1990-2030



Source: Woods & Poole (forecast); industry share of earnings.

Within these broad tends, there is considerable variation in industry growth rates and prospects. An initial and limited scan of recent business activity in Minnesota provides the following anecdotes about trends and opportunities:

- **Mining –** A mining company from India is expected to make an investment of $2 to $3 billion in Northeast Minnesota to expand its mining operations and steel plant. Interest in the area's steel and copper is expected to pick-up once the economy improves. Such development would stimulate demand for truck, rail, and water freight transportation.
- **Ethanol –** Conversion of land to grow corn for production of ethanol and soybeans for production of soy diesel (an alternative fuel) is taking place primarily in the south and southwestern regions of the State. Although the price of gasoline is down at this time and with it investment in ethanol

plants, demand is expected to increase again as petroleum-based fuel prices rise. Additional production will stimulate demand for short-haul truck service as well as longer-haul rail tank car service.

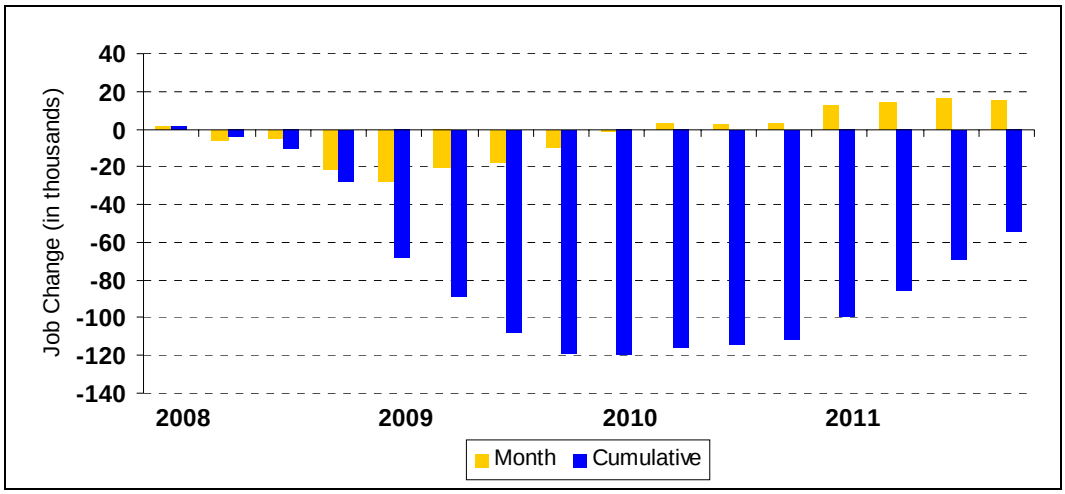
- **Dairy –** Central Minnesota is the heart of Minnesota's dairy industry. The industry is facing increased competition from factory farms, especially in California and the Southwest. Minnesota's dairy farms tend to be small, making it difficult for them to compete with larger, more mechanized operations. Dairy production is expected to decline but at a slow rate. Interest in locally sourced food and green production practices may help sustain and revive the industry.
- **Paper and Building Materials –** The paper and building materials (e.g., millwork, doors, windows) industries in northeastern Minnesota have been hit hard by the recession and the collapse of the housing market. However, companies with high value-added products are doing better. Marvin Windows and Anderson Windows, for example, have been selling into international markets and are benefiting from the increase in building and home remodeling.
- **Medical Devices –** Manufacturers of medical devices provide about 30,000 jobs, mostly in the Twin Cities and Rochester areas. The demand for medical devices is strong and growing. High value-added components for Boston Scientific medical equipment are manufactured in Minnesota and shipped by air to Ireland for final assembly. This makes Ireland one of Minnesota's leading export destinations.
- **Computers and Electronic Equipment –** This industry is doing well despite the recession. IBM's AS400 servers are made in Rochester and are selling robustly.
- **Processed Food –** The processed food industry is losing jobs and plants are closing. It is not yet clear to industry observers whether this is due to consolidation, productivity increases, or the recession. As with the dairy industry, interest in locally sourced food and green production practices may help sustain and revive the industry.
- **Logistics –** The logistics sector is doing better than the manufacturing sector at present. Minnesota's population base, combined with good north-south and east-west access to U.S. and Canadian markets, support this sector. As an example, Digi-Key, a distributor of computers and high-tech components, employs 2,000 people in Thief River Falls.

In summary, Minnesota's economy has been growing more strongly than other Midwestern states. The growth has come in business services and finance, manufacturing, logistics (i.e., warehousing and distribution), and healthcare, industries that tend to produce higher-value and more time-sensitive products and services and therefore rely heavily on truck, intermodal rail, and air cargo freight services.

3.2 EMPLOYMENT

Consistent with the rest of the nation, employment has been dropping. Job creation and hiring is expected to lag the overall economic recovery by 12 to 18 months. Minnesota is expected to lose upward of 120,00 jobs by early 2010 before the recovery bring more people back to work. Figure 3.7 shows the Minnesota Management and Budget forecast for the State as of February 2009.

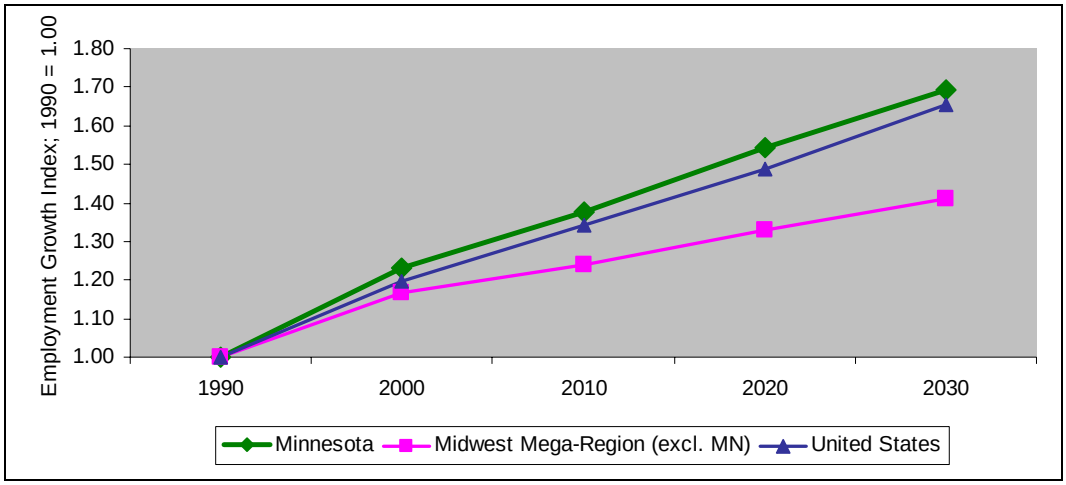
Figure 3.7 Minnesota Employment Forecast, Monthly and Cumulative Job Change
2008 to 2011



Source: Minnesota Management and Budget, February 2009 Forecast.

As the recession eases, Minnesota's employment growth rate is expected to recover and exceed the average growth rates for both the Midwest and the U.S. as a whole. Figure 3.8 plots the anticipated employment growth rates for Minnesota, the Midwest states and the U.S. through 2030. As with the industry forecasts, the employment forecasts suggest that Minnesota will see a steady growth in demand for employees' commuting and related business travel.

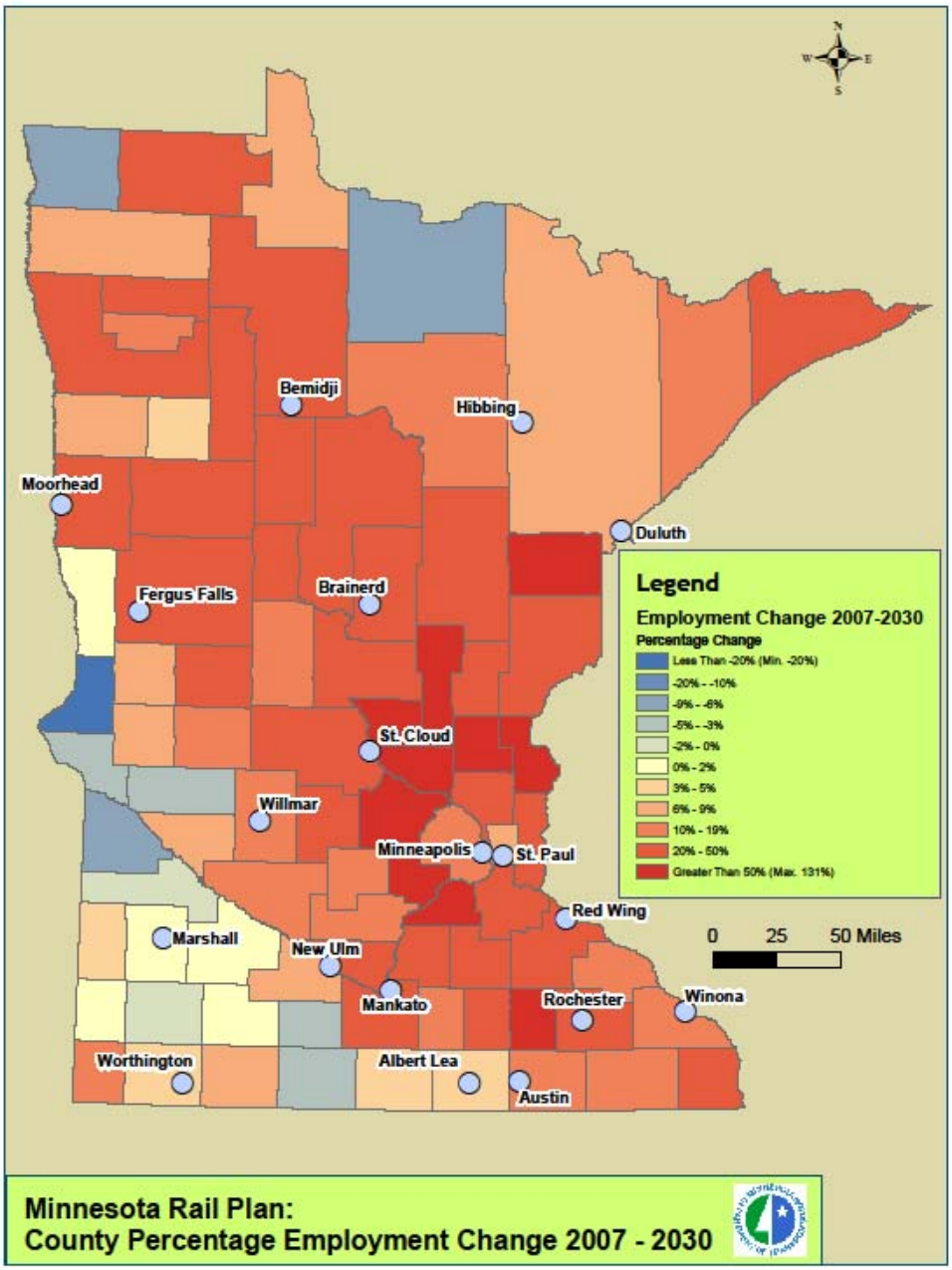
Figure 3.8 Minnesota, Midwest, and U.S. Employment Growth Rates
1990 to 2030



Source: Woods & Poole and U.S. Census Bureau, 2008; adjusted by CS to conform to current U.S. Census forecasts.

Projection of employment by county of job location indicates how jobs and the economic growth underpinning them will be distributed across the State. Figure 3.9 plots the forecast percentage change in employment by county from 2007 through 2030. The map shows that the majority of Minnesota counties will experience positive growth in employment over the next decade, with the increases across most of the State. The areas showing a relative decline in employment growth are primarily in the southwest and western counties and in a few of far northern counties.

Figure 3.9 Minnesota Employment, Percentage Change by County
2007 to 2030

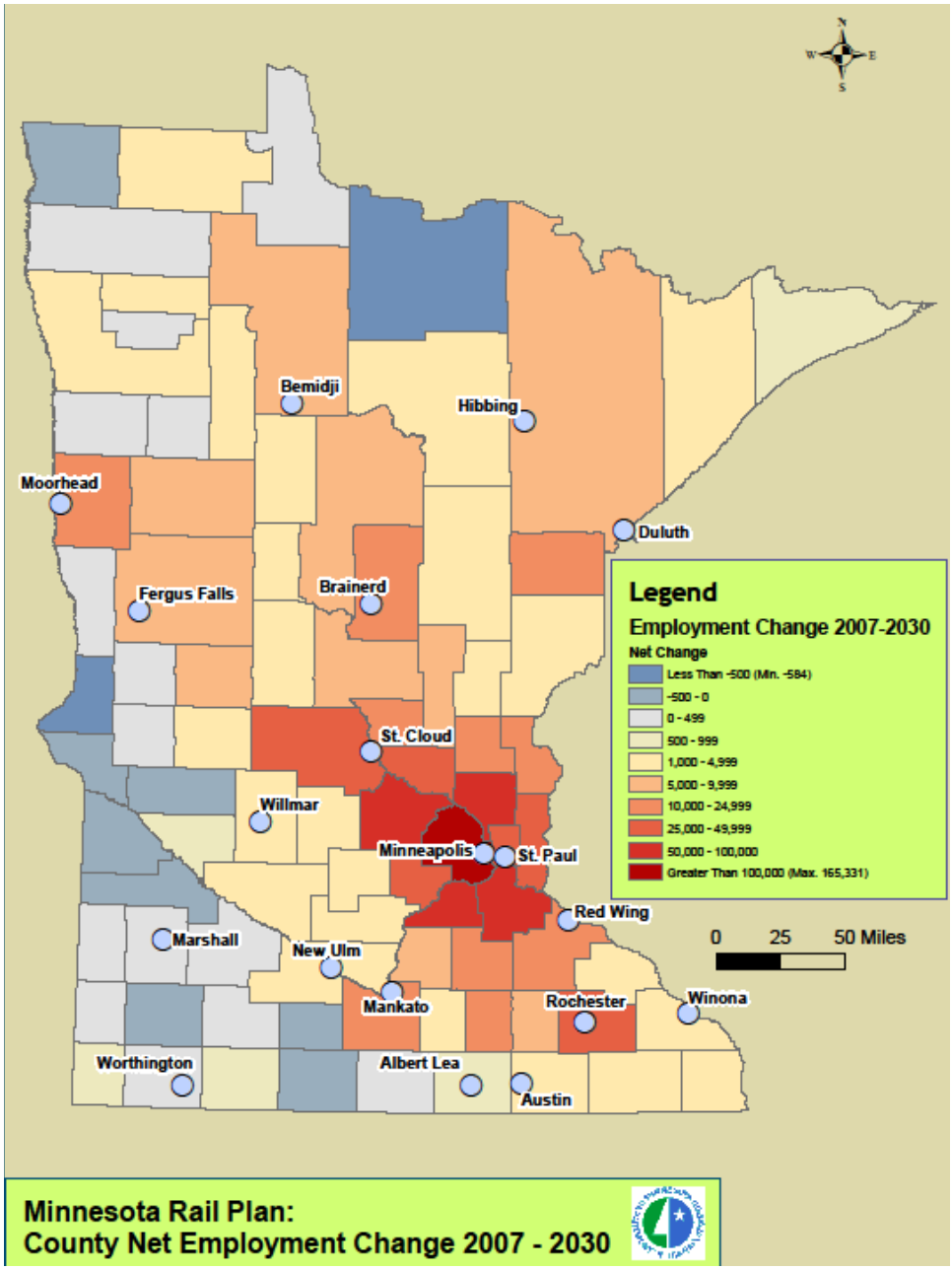


Source: Cambridge Systematics, Inc., based on Minnesota State Demographic Center and Woods & Poole data.

However, a more precise picture emerges if we look at net employment growth by county to 2030 as illustrated in Figure 3.10. The map shows a decided concentration of growth in the Twin Cities area and northward along the I-94 corridor toward St. Cloud. This reinforces the importance of connecting the Twin Cities metropolitan economy with the Chicago economy and also the

importance of examining opportunities to link smaller cities around the State to the Twin Cities by commuter rail or intercity passenger rail where the volumes will support sufficiently frequent services.

Figure 3.10 Minnesota Employment, Net Change by County
2007 to 2030

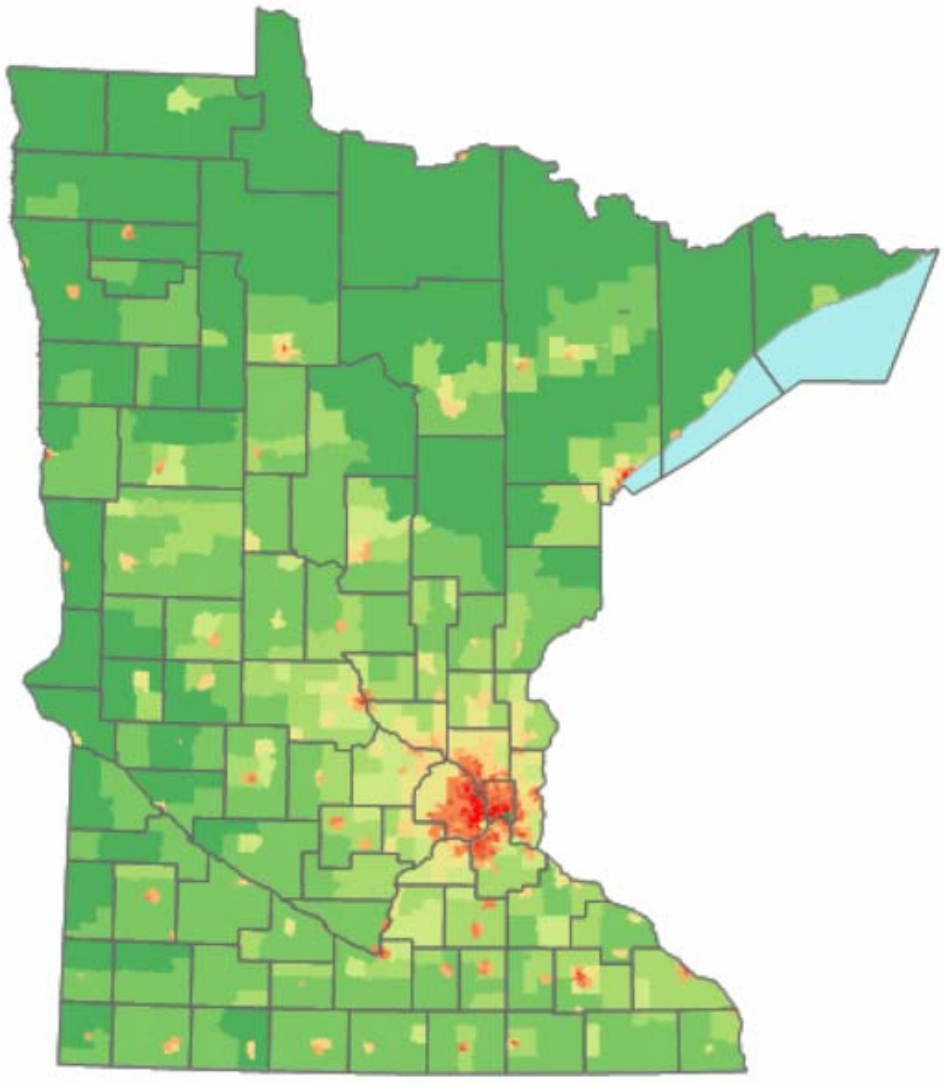


Source: Cambridge Systematics, Inc., based on Minnesota State Demographic Center and Woods & Poole data.

3.3 POPULATION

Population and settlement patterns generally follow employment and industry location, but knowledge-based industries such as business services and finance, health care, distribution/warehousing, and retail also follow population density. Figure 3.11 shows Minnesota population density by census tract for 2000. It shows in even sharper relief than the maps of employment by county, the concentration of population in and around the Twin Cities metropolitan area and within cities such as Duluth, St. Cloud and the southeastern communities.

Figure 3.11 Minnesota Population Density by Census Tract
2000

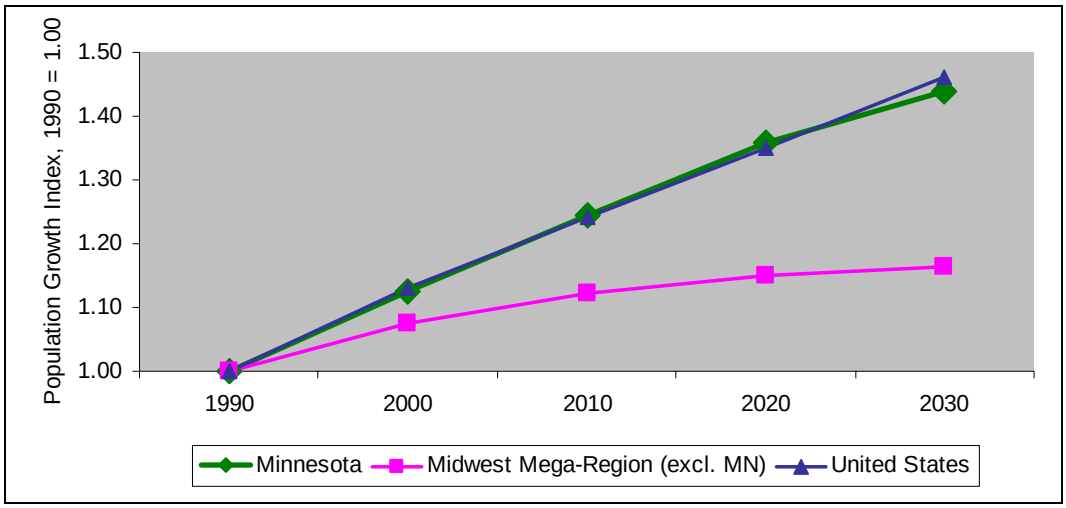


Source: http://en.wikipedia.org/wiki/Minnesota, based on U.S. Census Bureau Census 2000, Summary File 1 Population by Census Tract.

The concentration of population into the Twin Cities area is decades-long pattern, reflecting internal migration from the Upper Midwest's farming, mining and forest communities into the capital region. The pattern is documented by the Minnesota Department of Administration, Office of Geographic and Demographic Analysis, Land Management Information Center (http://www.lmic.state.mn.us/datanetweb/) in their animated maps of Minnesota's population growth by county from 1900 to 2030 (http://www.lmic.state.mn.us/datanetweb/PopAni/FadeInShow.html) and their animated maps of Minnesota's population density change from 1900 to 2003 (http://www.lmic.state.mn.us/datanetweb/PopAni/FadeInShow_mcd15red.html).

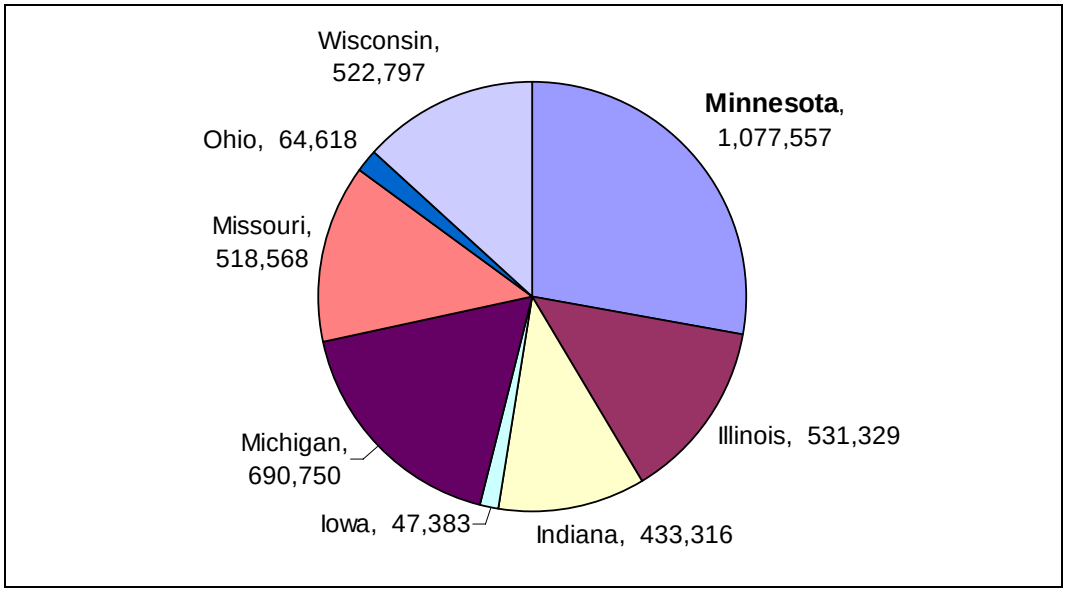
Minnesota State Demographic Center and U.S. Census Bureau projections indicate that Minnesota's population will grow apace with the U.S. average and significantly faster than the Midwest region as a whole. Figure 3.12 shows the actual growth rates from 1990 to present (as an index with 1990 = 1.00) and from the present to 2030. Figure 3.13 shows the net growth projected by state from 2008 through 2030. The projections suggests that Minnesota will see a net addition to its population about twice as large as its neighboring states.

Figure 3.12 Minnesota, Midwest and U.S. Population
1990 to 2030



Source: Minnesota State Demographic Center and U.S. Census Bureau data.

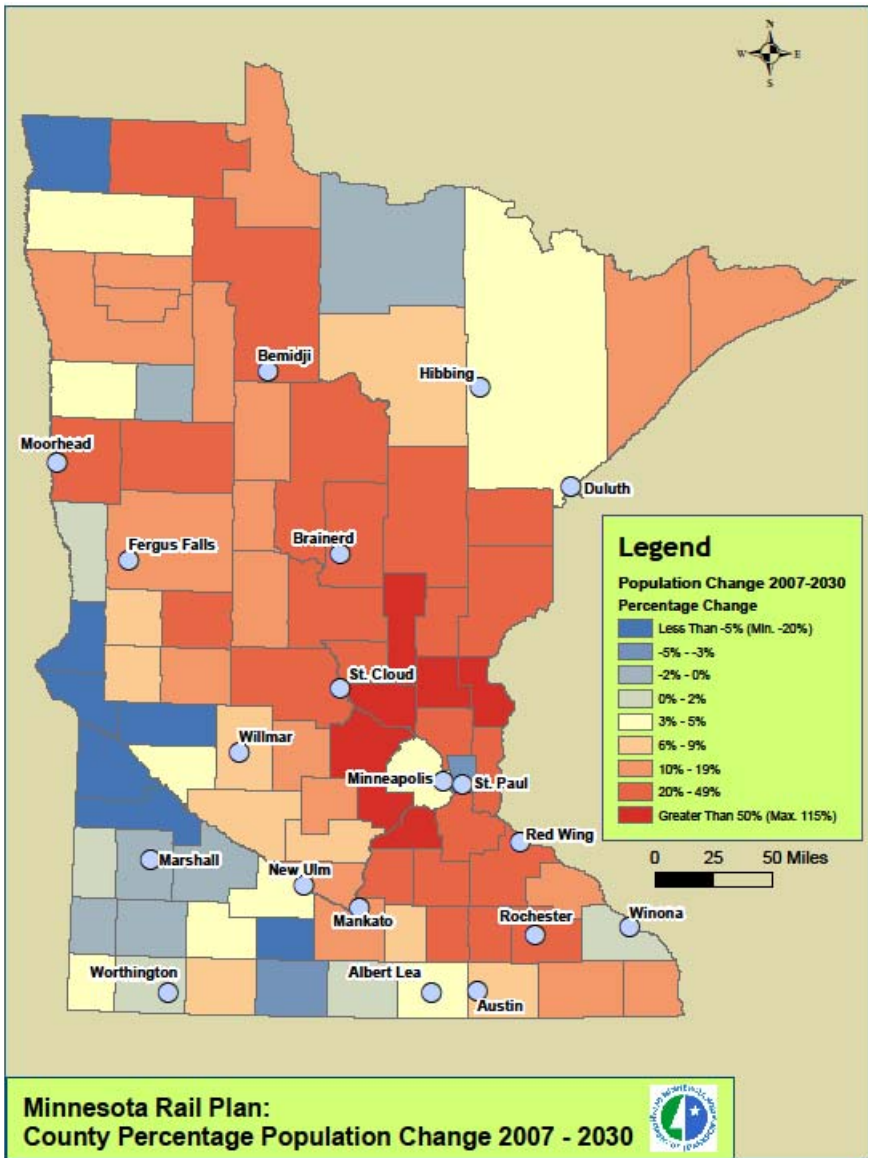
Figure 3.13 Midwest Population, Net Growth by Midwest State
2008 to 2030



Source: Minnesota State Demographic Center and U.S. Census Bureau.

Figure 3.14 shows the anticipated percentage changes in population by Minnesota county from 2007 through 2030. As with the employment percentage changes, the map shows that about half of Minnesota counties will experience positive growth in population over the next decade. The counties in the southwest and western counties and a few of far northern counties will see little or no population growth.

Figure 3.14 Minnesota Population, Percentage Change by County
2007 to 2030

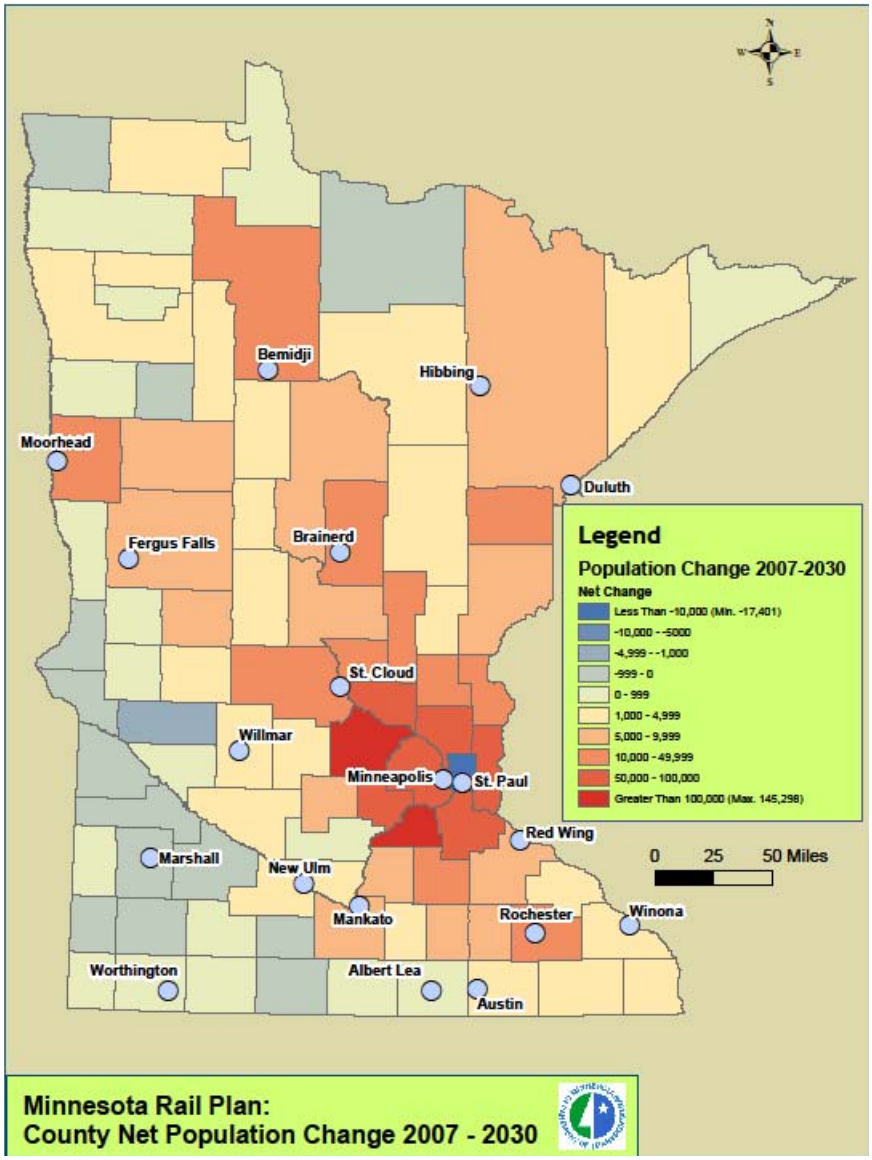


Source: Cambridge Systematics, Inc., based on Minnesota State Demographic Center data.

Figure 3.15 shows the forecast net change in population by county from 2007 to 2030. A detailed analysis of the changing settlement patterns shows pronounced growth in the exurban areas, especially northwest and south of the Twin Cities. Time-series data show that until about 25 years ago, migration into the Twin Cities area was focused tightly within the metropolitan area. In recent decades, development has become less focused within the metropolitan area, spreading into the exurban areas at a fairly rapid pace. While Minneapolis will see some substantial net population growth over the next decades, most of the growth will

be at commuter rail distances.[2] Expansion of rail services could both serve settlements in the I-94 corridor for example, but could also help to accelerate development along the corridor.

Figure 3.15 Minnesota Population, Net Change by County
2007 to 2030



Source: Cambridge Systematics, Inc., based on Minnesota State Demographic Center data.

[2] Ramsey County/St. Paul is forecast to experience a slight population decline through 2030 according to the Minnesota State Demographic Center, but that Metropolitan Council forecasts higher urban core growth rates for both Ramsey and Hennepin Counties.

3.4 FUTURE DEVELOPMENT

The industry, employment, and population projections suggest that Minnesota will continue to grow. This growth will generate more demand for transportation – of housing materials, food, clothing, and merchandise to support a large population; of materials, parts, and finished products to support the State's substantial and growing manufacturing sector; and of people to commute work and travel. There will also be a continuing demand for transportation to support the State's agricultural and resource extraction industries, which while not projected to grow significantly, are still productive and profitable, generating jobs and sustaining many Minnesota communities.

The pattern of development suggest that much of the development will be centered around the Twin Cities, but that there will also be development northwest toward St. Cloud and southeast toward Rochester and the river cities of Red Wing and Winona. The latter will influenced strongly by the strength and patterns of future economic development along the mega-corridor between Chicago and Minneapolis.

The next decades could see either a reconcentration of growth in the Twin Cities area or more diffuse settlement along the I-94 corridor. For example, rising fuel costs – whether driven by oil shortages or climate change regulations – are factors which could make travel by automobile and truck more expensive than it is today, pushing employment and population back into the Twin Cities. Conversely, new energy sources and new engine technologies could make travel by automobiles and truck less expensive, reinforcing more dispersed settlement around the Twin Cities and along the entire I-94 corridor from Chicago to Minneapolis/St. Paul.

To account for these possibilities in developing a rail plan for Minnesota, it is suggested that two development and settlement pattern futures be examined:

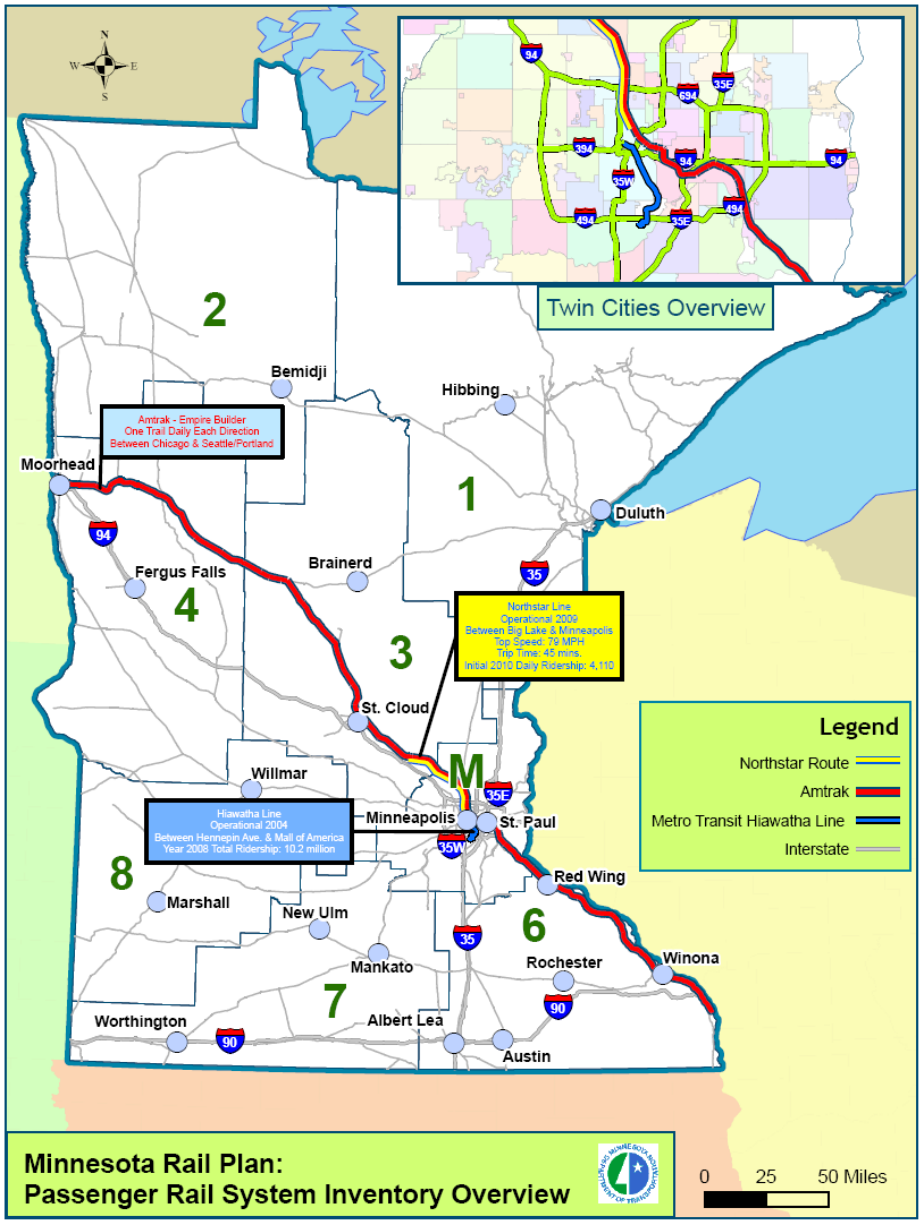
- **Future A: Twin Cities-Centered Development –** This future would assume that growth and development are concentrated in the Twin Cities region with some expansion toward St. Cloud. It would look to intercity rail between Chicago and Minneapolis/St. Cloud, with expansion of commuter rail services to support continued radial development.
- **Future B: Multicentered Development –** This future would assume multicentric growth and development, with substantial growth in the Twin Cities region, but also high growth rates in St. Cloud, Rochester, and Duluth. It would look to intercity rail between Chicago and Minneapolis/St. Cloud, but anticipate a more corridor-oriented pattern of development with stronger intercity links to outlying cities such as Duluth.

Within each of these development futures, higher and lower growth rates could be examined. For example, higher rates of growth than currently projected could be a factor in accelerating development toward a mega-corridor Future B. Assumptions about future energy costs will also be a factor in the eventual development pattern.

3.5 PASSENGER RAIL

Figure 3.16 maps the current passenger rail system in Minnesota. Amtrak's Empire Builder provides intercity service between Chicago, the Twin Cities and points west. The newly developed Northstar commuter rail line will shortly provide commuter service between the Twin Cities and the communities to along the I-94 corridor toward St. Cloud.

Figure 3.16 Minnesota Passenger Rail Lines and Services
2009



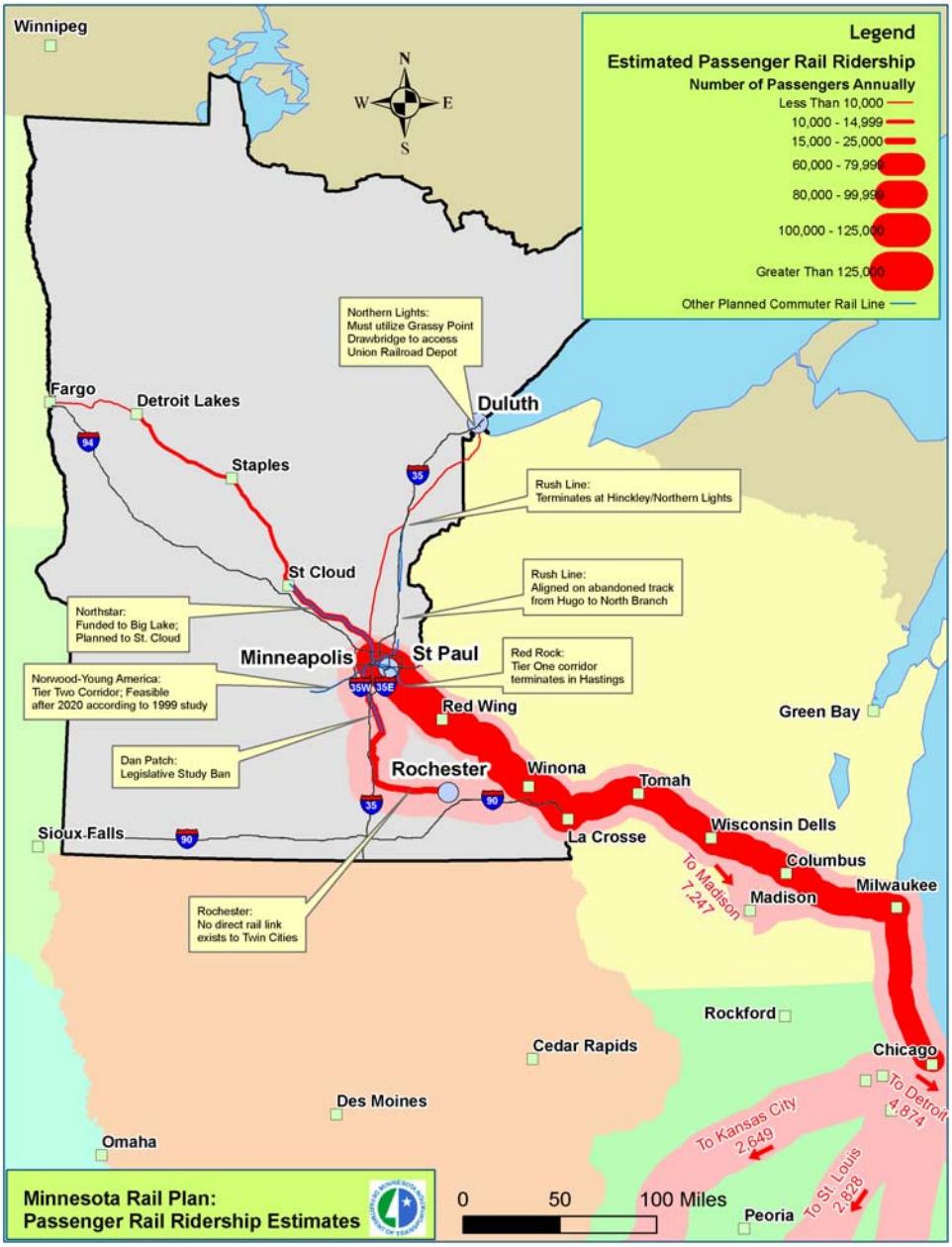
Source: Cambridge Systematics, Inc. based on Mn/DOT and METRO data.

Figure 3.17 maps passenger rail routes that have been proposed for the upper Midwest and Minnesota. Figure 3.18 shows the volume of annual passenger rail trips along a number of the major corridors. The estimates are preliminary and do not yet cover all possible passenger rail routes. It is expected that the estimates will be revised multiple times over the course of the study. These initial estimates are based on relative sizes of the city pairs, total trip-making between the city pairs, Amtrak ridership data, and air travel volumes between the cities. The estimates do not yet take into account the frequency and quality of the passenger rail services nor the feasibility and availability of feeder bus, commuter rail, or automobile park-and-ride facilities, and the potential aggregation of demand created by an entire system of rail services as compared to individual routes. However, even at this very preliminary stage, the patterns of potential ridership suggest the possibility of providing service between Chicago and the Twin Cities, and then considering phased development of commuter rail and intercity links within Minnesota.

Figure 3.17 Potential Minnesota Passenger Rail Routes

Source: Minnesota Department of Transportation.

Figure 3.18 Estimated Passenger Rail Ridership by Line
Preliminary

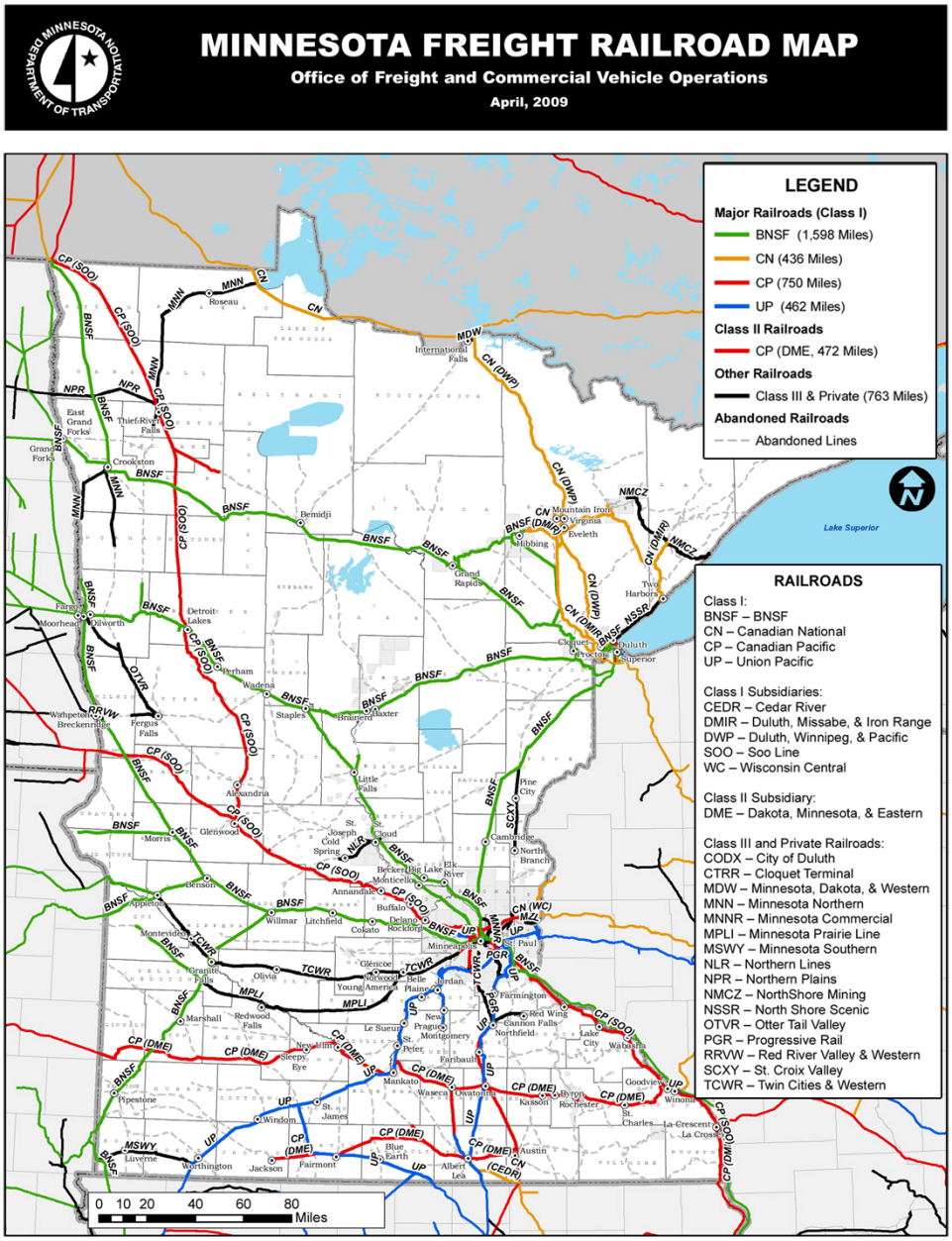


Source: Cambridge Systematics, Inc. estimates (preliminary).

3.6 FREIGHT RAIL

Figure 3.19 maps Minnesota's freight rail lines and railroads as of 2009. Minnesota has a richly developed rail network, reflecting its history as a center for grain and ore shipments through Minneapolis/St. Paul and Duluth and its role as the major gateway city to the Pacific Northwest and the central Canadian provinces.

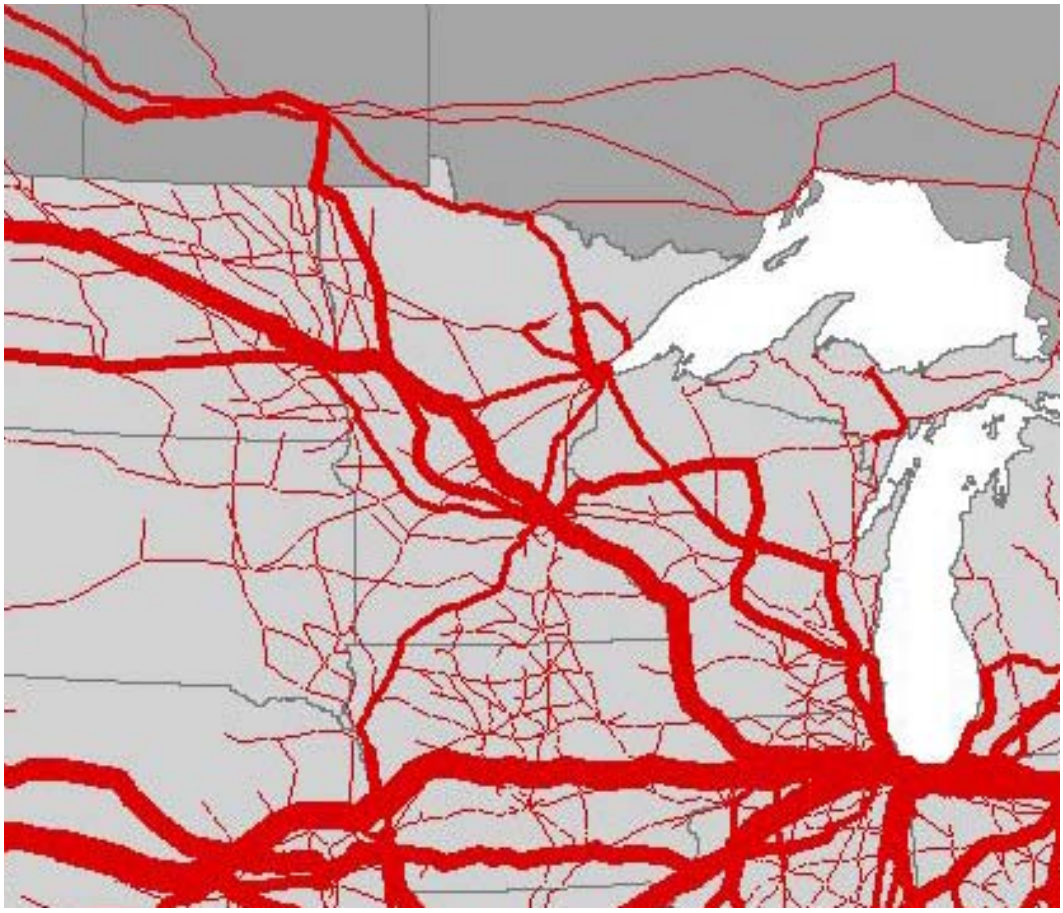
Figure 3.19 Minnesota Freight Rail Lines and Railroads
2009



Source: Minnesota Department of Transportation.

Figure 3.20 provides a snapshot of freight railcar volumes traveling over the Minnesota and upper Midwest rail lines in 2006. The wider the band, the greater the volume of rail traffic on the line.

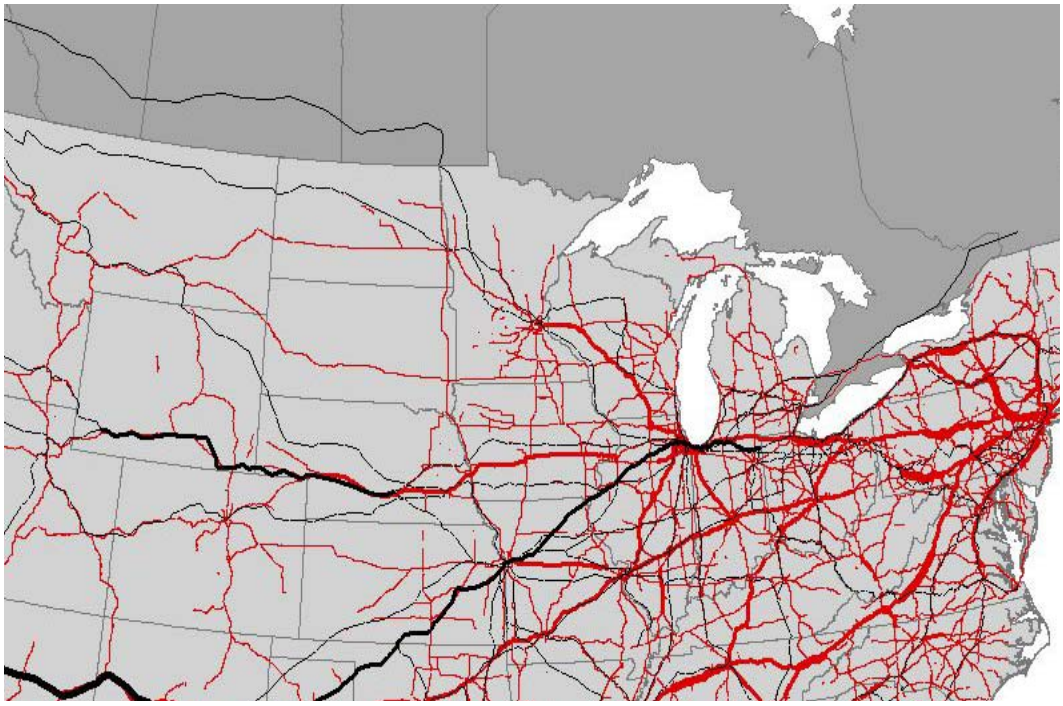
Figure 3.20 Freight Railcar Flows by Line
2006



Source: IHS-Global Insight, Inc., prepared for Cambridge Systematics, Inc., for the AASHTO Freight Transportation Bottom Line Reports, 2006.

Figure 3.21 shows freight flows by both truck and by rail. In this figure, rail flows are marked in black, emphasizing the extent to which truck freight transportation dominates in both Minnesota and the upper Midwest.

Figure 3.21 Freight Rail and Highway Flows, 2006
Freight Rail – Black Lines; Freight Truck – Red Lines



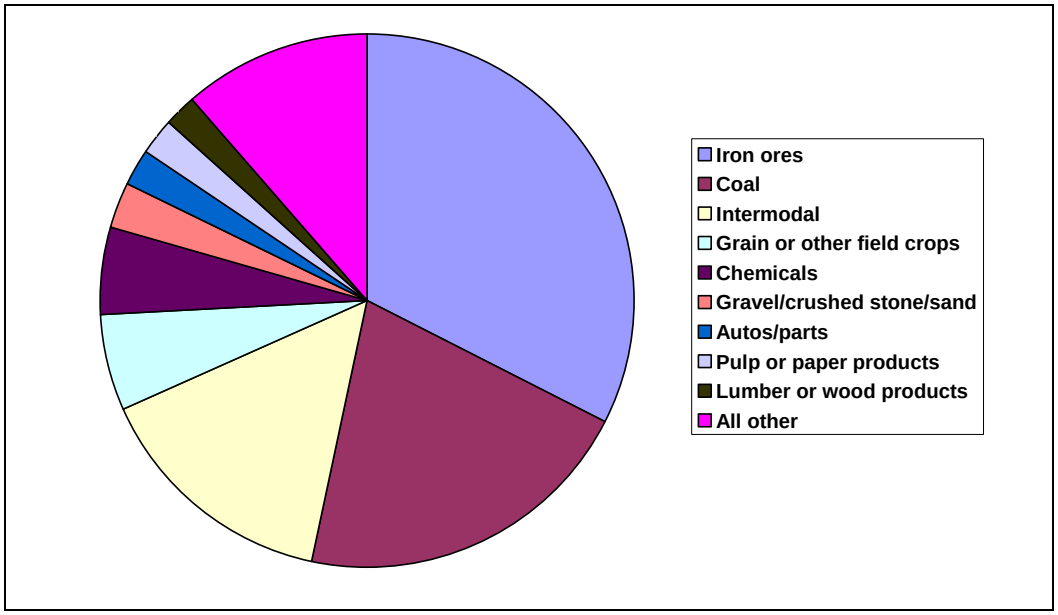
Source: HS-Global Insight, Inc., prepared for Cambridge Systematics, Inc., for the AASHTO Freight Transportation Bottom Line Reports, 2006.

If the rail freight flows were disaggregated by commodity they would show several distinct patterns: flows of intermodal railcars moving merchandise in containers from China, Japan, and Korea via the ports of Seattle and Tacoma to Chicago for distribution to Midwest and East Coast markets; flows of grain to Duluth and Minneapolis/St. Paul for transshipment to Europe and down the Mississippi; and a moderate amount of carload traffic carrying gravel, construction stone, iron ore, coal, sugar beets, forest products, and machinery to, from, and through the State.

Figure 3.22 shows the distribution of rail tonnage inbound to Minnesota by commodity in 2007. Iron ore, coal, intermodal merchandise in containers, and grain dominate inbound traffic. Figure 3.23 shows the corresponding distribution of rail tonnage outbound from Minnesota. Here, iron ores, grain, intermodal merchandise, and food products dominate.

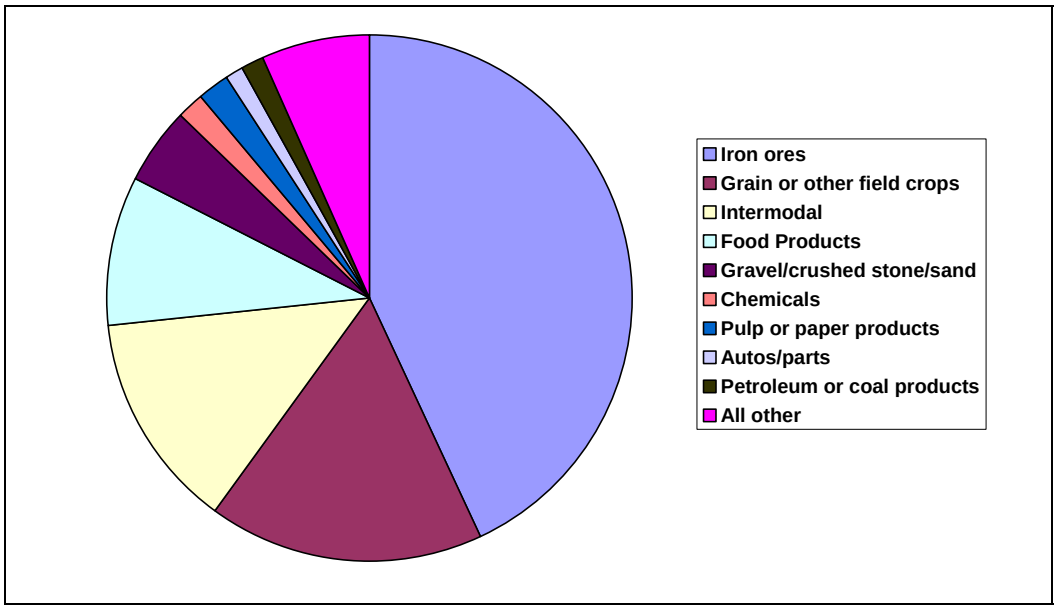
More detailed breakouts of freight rail flows by type of commodity, origin and destination, and volume will be developed by subsequent tasks. However, this preliminary data suggest that Minnesota's freight rail lines are heavily used and are carrying commodities (e.g., grain, ore, intermodal merchandise) that are important to Minnesota's economy (see Figure 3.23).

Figure 3.22 Minnesota Inbound Rail Tonnage by Commodity
2007



Source: American Association of Railroads Minnesota Fast Facts, 2007.

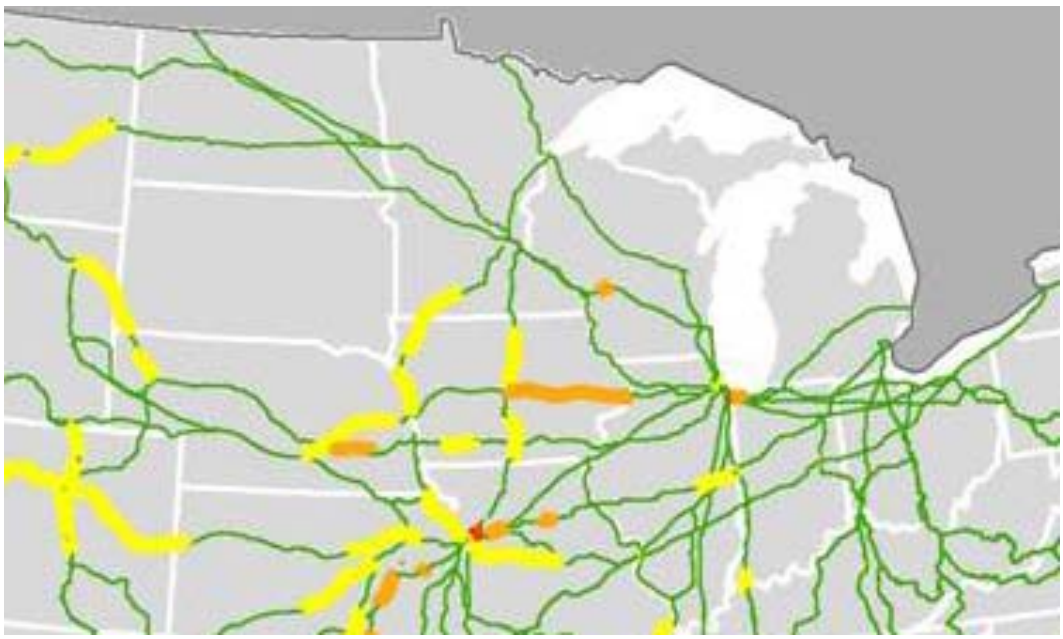
Figure 3.23 Minnesota Outbound Rail Tonnage by Commodity
2007



Source: American Association of Railroads Minnesota Fast Facts, 2007.

Figure 3.24 shows train volumes compared to rail line capacities in 2007. The train volumes include both freight and Amtrak intercity passenger services. The line segments are color coded with green indicating that the lines are operating below capacity; yellow indicating that the lines are operating at levels approaching capacity; and orange indicating substantial congestion, with line operation at or above practical capacity. The map covers only primary rail corridors operated by the large Class I railroads. It was done as a part of a broad-brush, national assessment of rail capacity, but indicates that rail service on most of the primary lines in Minnesota is operating below capacity. It also shows that rail access south and west of Minnesota is more constrained. Since most rail shipments tend to be longer-distance moves, this suggests that Minnesota's rail plan needs to consider not just the condition and capacity of rail lines within Minnesota, but also the capacity of rail lines outside of the State. Because Minnesota is located in the center of continent, its businesses, industries, and consumers depend on rail to provide reliable and cost-effective transportation both to ensure that Minnesota products can reach national and global markets cost-competitively, and to ensure that cost are kept low to bring in materials, parts, and finished goods.

Figure 3.24 Current Train Volumes Compared to Current Rail Line Capacity *2007*



Source: Cambridge Systematics, Inc., *National Rail Freight Infrastructure Capacity and Investment Study*, prepared for the Association of American Railroads, Washington, D.C., September 2007. Volumes are for the 85th percentile day.

3.7 RAIL PLAN SCENARIOS

Based on the brief review of prior studies, current stakeholder aspirations, and established policy directions for this task, it is suggested that a set of alternative rail plan scenarios (i.e., alternative policy, program, and project investment packages) be considered. Alternative plans should be sketched out for two development future (e.g., A – Twin Cities Centered Development; and B – Multicentered Development). The alternative plans should be phased in over three periods (e.g., near-term or 1-5 years; mid-term or 6-10 years; and longer-term or 10 or more years) as indicated in Table 3.1. Each scenario should sketch out the envisioned passenger rail service/corridor improvements and freight rail service/corridor improvements. The scenarios should pay particular attention to connections and transfer options within the Minneapolis/St. Paul region and to capacity and safety issues where passenger and freight rail services will share the same tracks or the same rights-of-way. Where appropriate, the pros of cons of mixed use services on existing rights-of-way versus new rights-of-way should be assessed.

Table 3.1 Rail Plan Scenarios
Preliminary

Rail Plan Scenarios *(Phased)*	Development Futures *Employment/Population*	
	Twin Cities-Centered	Multicentered
Near-Term *1-5 years*	Passenger Corridors ... Freight Corridors...	Passenger Corridors ... Freight Corridors...
Mid-Term *6-10 years*	Passenger Corridors ... Freight Corridors...	Passenger Corridors ... Freight Corridors...
Longer-Term *10 or more years*	Passenger Corridors ... Freight Corridors...	Passenger Corridors ... Freight Corridors...

Source: Cambridge Systematics, Inc.

3.8 ASSESSMENT OF RAIL BENEFITS AND COSTS

In assessing the alternative rail plan scenarios, the benefits, costs, and risks of the plans should be arrayed by key stakeholder and should focus on the measures of most interest to each of the stakeholders. Table 3.2 provides an initial list of stakeholders and the key measures of interest to each based on a brief review of prior studies and stakeholder comments. The list should be focused and refined as alternatives are developed and stakeholders and measures are better defined.

Table 3.2 Assessment of Rail Plan Packages by Stakeholder and Key Performance Measures
Preliminary

Stakeholder	Measures	Existing	Future Rail Plans		
			No Action	MnRail X	MnRail Y
State	Jobs				
	Tax/Fee Benefits				
	System Efficiency				
	Environmental Benefits				
	Safety Benefits				
	Partner Funding				
	Cost to State				
	Benefit/Cost Ratio				
Shippers	Business Cost Impacts				
	Access to Service				
	Service Reliability				
	Transit Time				
Rail Passengers	Capacity for Passenger Trains				
	Travel Costs				
	Travel Time				
	Increased Modal Choice/Access				
Freight Railroads	System Velocity Improvements				
	Hours of Train Delay				
	Yard Dwell Time				
	Increased Revenue Traffic				
	Equipment Utilitization				
Highway Users	Delay Hours, Driver and Fuel Costs				
	Safety and Maintenance Costs				
Ports	Throughput				
	Market Share				
	Environmental Benefits				
Communities	Safety Benefits				
	Reduced Roadway Delays				
	Local Jobs				
National	Pct Benefits in Upper Midwest region				
	Other States Benefiting				

Source: Cambridge Systematics, Inc.

3.9 STATE ROLE IN RAIL

Finally, Table 3.3 provides an initial framework for considering the roles that Minnesota DOT might take in passenger and freight rail improvements based on the distribution of benefits among the key stakeholders. For example, if proposed Plan A generates high (H) benefits for the State and all other stakeholders, then the State should consider participating in proportion to its level of benefits. Conversely, if proposed Plan B generates high (H) benefits primarily for the State and its communities, then the State should consider a lead role in developing, financing, and implementing the plan.

Table 3.3 Potential State Roles in Passenger and Freight Rail Improvements Based on the Distribution of Benefits Distribution of Benefits
Preliminary

Proposed Action	State	Rail Passengers	Rail Shippers	Railroads	Communities	Likely Recommendation	Level of Action	Example
A	H	H	H	H	H	State should participate, but only if other beneficiaries contribute appropriate share.	Consider direct investment and supporting legal and institutional mechanisms.	Consider sources such as additional dedicated state freight rail funds, Federal funding sources through the SAFETEA-LU, and other state matching sources.
B	H	L	L	L	H	State should participate and be prepared to contribute more than other groups.	Consider direct investment and supporting legal and institutional mechanisms.	Consider sources such as additional dedicated state freight rail funds, Federal funding sources through SAFETEA-LU, and other state matching sources.
C	M	M	M	M	M	State should participate with caution and only if costs to do so are low.	Consider tax exempt financing loans or other methods that have limited costs to State, but benefit private industry.	Consider public-private partnerships, tax credits, and other nonfinancing incentives.
D	L	H	H	H	L	State should probably not participate.	State should probably not participate with financial, institutional, or legal mechanisms.	No state role is anticipated.
E	L	L	L	L	L	State should probably not participate.	State should probably not participate with financial, institutional, or legal mechanisms.	No state role is anticipated.

Source: Cambridge Systematics, Inc.

4.0 Preliminary Vision Statement

This technical memorandum presents a preliminary vision for rail in Minnesota. It is based on an initial review of prior studies, current stakeholder aspirations, and established policy directions. The preliminary vision will be reshaped and refined during the study using the information generated by the subsequent study tasks and stakeholder input. The final report will incorporate the vision for rail in Minnesota, defining a state rail plan to achieve the vision.

The preliminary vision for rail in Minnesota is as follows:

- Rail contributes to the long-term growth and productivity of business and industry by providing cost-effective and reliable access to resources, markets, and labor.
  - It improves economic competitiveness, enabling development that benefits the citizens of Minnesota and the Upper Midwest; and
  - It ensures that Minnesota continues to be a growth leader in region.
- Rail knits together Minnesota communities by providing a network of connections between Chicago and Minneapolis/St. Paul, and between the Twin Cities and the major cities and regions of the State.
  - It opens up new options for traveling for work, family and personal business, health care, and recreation;
  - It improves mobility for people and communities that are economically disadvantaged, senior citizens, and persons with disabilities; and
  - It improves the quality of living and working in Minnesota.
- Rail balances the State's transportation network by offering an alternative to highways for freight transportation and an alternative to highway and air travel for passenger transportation.
  - It offers cost-effective long-distance transport for freight shippers and receivers;
  - It reduces congestion for highway users; and
  - It leverages private investment in rail and public investment in roads by making possible intermodal freight and intermodal passenger trips.
- Rail sustains the environment by reducing fuel use and greenhouse gas emissions.

Minnesota's rail program shares the benefits, costs, and risks of its evolving rail system equitably among users, regions and the public and private sectors, building on an existing rail network and a legacy of innovation. The program seeks to meet the demand for rail services in the most cost-effective way possible.

The program represents a long-term investment strategy which will be implemented in phases over multiple planning generations, in much the same way as the Interstate Highway System was built. Initial investments should provide short-term benefits while serving as down-payments on the long-term strategy. Over time, the development of a fully integrated railroad system should generate synergistic benefits and demand in excess of those generated by individual routes serving specific corridors.