

# 2 Existing Rail System

## 2.1 Railroad Industry Organization and Investment Strategies

The institutional structure of the rail industry in North America is quite different from the other transportation modes (highways, air, water, etc.) that have typically been the subject of public planning studies and policy development efforts. In contrast to highway, air, and water facilities, which are generally owned and maintained at public expense and accessible to any licensed operator, rail carriers provide not only the service but also maintain and control the tracks and other facilities that are required to provide service. Thus, physical conditions, service, and institutional structure are closely linked.

Understanding how the rail industry is structured, and the varying scale, ownership and operating arrangements that are present in Minnesota is critical to developing responsive strategies that will meet the goals set forth in a vision for rail. While the North American rail system is an integrated network, the individual carriers, which range from very small railroads that operate in only a county or two to the largest carriers that service much of the nation, have significantly varying perspectives and needs.

This chapter provides an overview of Minnesota's railroads, their economic structure, and a delineation of the major differences among them. It concludes with an estimation of the value of the railroad industry to the Minnesota economy using selected metrics.

## 2.2 Composition of Minnesota's Freight Railroad Industry

Railroads are typically categorized by measures of size and geographic reach. This classification is important in that carrier size is a critical determinant of the rail services that are available in a region, competitive posture, market access, physical condition, and financial strength.

In the United States, railroads are classified by size following a scheme developed by the Association of American Railroads (AAR).<sup>7</sup> This scheme is based on a combination of revenues and carrier characteristics.

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<sup>7</sup> The Surface Transportation Board uses a similar but not identical classification scheme that is purely revenue based.



- **Class I** – The largest railroads with revenues exceeding \$319.3 million are designated Class I carriers. Since 2000, there have been seven such carriers operating in the United States, of which four – Burlington Northern Santa Fe (BNSF), Union Pacific (UP), Canadian National (CN), and Canadian Pacific (CP) have operations in Minnesota. Smaller regional and short line railroads fall into the following three categories (based on 2004 dollar values).
- **Class II** – A non-Class I line-haul railroad operating 350 miles or more with operating revenues of at least \$40 million but less than \$319.3 million. Class II railroads are called regional railroads, though they are often classified with and referred to as short lines. Minnesota currently has no independent Class II railroads.
- **Class III** – The remaining railroads that have revenues of less than \$40 million and are engaged in line-haul movement. Class III railroads are commonly referred to as short line railroads.
- **Switching or Terminal** – A railroad engaged primarily in switching and/or terminal services for other railroads (i.e., they are not typically involved in line-haul moves between two geographical locations). Switching and terminal railroads are often categorized with short line railroads due to their operational and revenue characteristics, except in cases where they are owned by one or more Class I carriers.

Small railroad ownership takes on many different forms, of which many are represented by one or more Minnesota railroads:

- **Class I Parent(s)** – Typically a jointly owned switching or terminal railroad, such as the Terminal Railroad Association (TRRA) of St. Louis and the Belt Railway Company (BRC) in Chicago. Minnesota does not host any such railroads at this time.
- **Industry** – Usually operated for one industry, but can provide service to other unrelated firms. The most common owners are steel and forest products companies. Over the years, Minnesota has had several significant industry-owned railroads, most notably the Duluth Minnesota and Iron Range (DMIR), which was acquired by the CN in 2004 from an affiliate of U.S. Steel. A current example is the Cloquet Terminal Railroad Company, a three-mile switching railroad located in the City of Cloquet that is owned by SAPPI Paper.
- **Holding Company** – A railroad that is owned by a corporation holding several short lines. The two largest are RailAmerica, currently with 47 short line properties, and the Genesee & Wyoming, with 43 properties. RailAmerica owns one property in Minnesota, the Otter Tail Valley Railroad; Anacostia and Pacific, another major short line holding company, operates the Northern Lines Railway.
- **Public** – This includes state and county/city/municipality owned, as well as Federally owned (typically for military purposes). At present, there are no publicly operated railroads in Minnesota; however, several Minnesota short lines operate under a lease agreement over trackage that is owned by regional railroad authorities. Most notably, these include the Minnesota Prairie Line, the North Shore Scenic, and the Minnesota Southern Railway.
- **Independent** – Railroads that are independently owned and operated (e.g., Progressive Rail, Inc., Minnesota Commercial Railway, etc.), with the underlying infrastructure either



directly owned by the operator or by a third party, such as a Class I railroad or public agency. Most of the short lines in Minnesota are independently owned.

A listing of each of Minnesota’s active freight railroads, their parent companies, and miles operated, is shown in Table 2.1. In the case where the railroad property is owned by a public entity, the owning agency and parent company of the operator are both indicated.

**Table 2.1 Freight Railroads Operating in Minnesota**

Railroad	SCAC <sup>a</sup>	Parent Company/ Owning Agency	Miles Operated in Minnesota <sup>b</sup>	Percent of Total Miles Operated
<b><i>Class I Railroads</i></b>				
Burlington Northern Santa Fe	BNSF		1,686	29.3%
Canadian National	CN		479	8.3%
Canadian Pacific	CP		1,804	31.3%
Union Pacific Railroad Co.	UP		665	11.5%
<b><i>Regional and Short Line / Railroads</i></b>				
Minnesota Northern Railroad, Inc.	MNN	KBN Inc.	257	4.5%
Minnesota Prairie Line	MPLI	TCWR; Minnesota Valley Regional RR Authority	94	1.6%
Minnesota Southern Railway, Inc.	MSWY	Independent; Buffalo Ridge Regional Rail Authority	42	0.7%
Minnesota, Dakota, and Western	MDW	Independent	6	0.1%
North Shore Scenic Railroad	NSSR	Independent; St. Louis and Lakes Counties Regional Railroad Authority	25	0.4%
Northern Plains Railroad	NPR	Independent	51	0.9%
Otter Tail Valley Railroad	OTVR	RailAmerica	72	1.3%
Progressive Rail, Inc.	PGR	Independent	97	1.7%
Red River Valley & Western Railroad Co.	RRVW	Independent	32	0.6%
St. Croix Valley Railroad, Inc.	SCXY	KBN Inc.	60	1.0%
Twin Cities & Western Railroad Co.	TCWR	Independent	234	4.1%
<b><i>Switching and Terminal Railroads</i></b>				
Cloquet Terminal Railroad Company, Inc.	CTRR	SAPPI Fine Paper	3	0.1%
Minnesota Commercial Railway	MNNR	Independent	125	2.2%
Northern Lines Railway	NLR	Anacostia and Pacific	28	0.5%
Total Miles Operated (including Trackage Rights)			5,760	100.0%

<sup>a</sup> Standard Carrier Alpha Code, an industry standard 2 to 4 letter abbreviation.

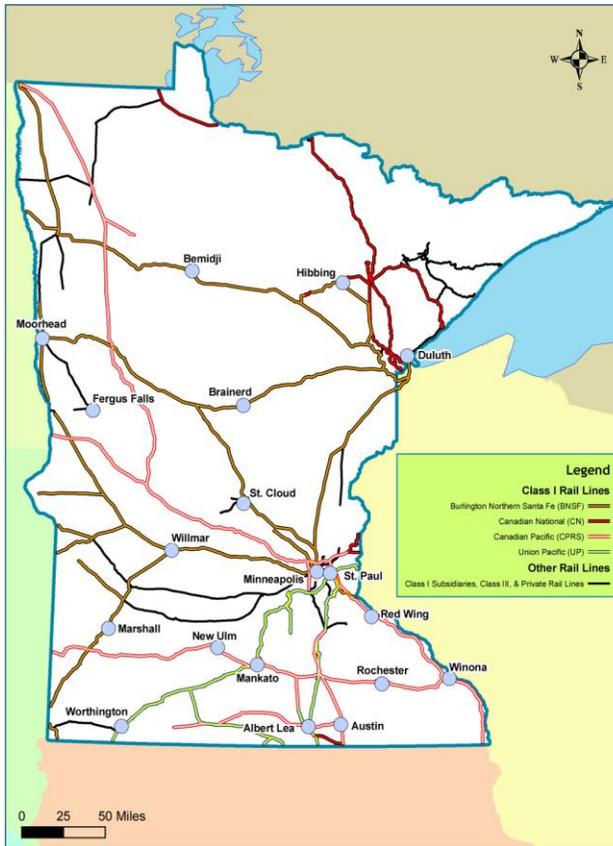
<sup>b</sup> Mileage shown for each carrier includes trackage rights mileages; thus the total miles shown for all carriers exceeds physical mileage.

<sup>c</sup> Includes 564 miles of the former Dakota, Minnesota, and Eastern (includes former Iowa, Chicago, and Eastern) railroads.

In Minnesota, four Class I railroads and their affiliates provide the substantial majority of rail service from the standpoint of many key measures such as traffic handled and mileage operated (over 80 percent). Given their importance, it is useful to take a closer look at the characteristics



Figure 2.1 Minnesota Class I Railroads



and recent trends of each of these four Class I railroads. The available information for the smaller railroads is quite limited; in many cases they are privately held, and, until recently, only one of the major holding companies was publicly held and thus subject to reporting requirements.

The Class I route system is shown in Figure 2.1.

### BNSF Railway

The BNSF Railway is one of the four largest U.S. railroads, along with the Union Pacific Railroad, CSX, and Norfolk Southern. It operates in 28 states and two Canadian provinces; has 32,000 route-miles (1,598 in Minnesota); and employs 40,000 people systemwide (2,422 in Minnesota). In 2008, the railroad had total assets of \$36.4 billion, and annual revenues of \$18 billion systemwide (\$752 million in Minnesota). BNSF dominates many markets in

Minnesota; its business strategy in the State emphasizes bulk freight, consisting primarily of coal, ore, and agricultural commodities, along with intermodal traffic along the northern corridor “High Line” between the Pacific Northwest, the Twin Cities, and Chicago. BNSF intermodal service in the Twin Cities is split between St. Paul’s Hub Center, which handles domestic traffic, and nearby Union Yard in Minneapolis, which serves the international liner trade. While BNSF is the dominant railroad in Minnesota, its operations in the State constitute only a small part of its total network and revenue.

BNSF’s network covers the western half of the U.S., serving all of the major markets in the region. The firm connects to eastern markets through all five primary gateways (Chicago, St. Louis, Kansas City, Memphis, and New Orleans) and several minor interchange locations, including a southeastern connection at Birmingham, Alabama. North American service is provided through connections with Canadian and Mexican railroads.



BNSF moves more intermodal traffic than any other rail system in the world. In 2008, more than 4.6 million intermodal shipments (truck trailers or containers) were transported on BNSF's rail lines. According to the BNSF, the railroad is one of the largest grain-hauling railroads in the United States, transporting more than 1 million carloads of agricultural commodities in 2008, nearly one-half of which were corn and wheat movements. Among the industrial products carried by BNSF's carload services are lumber, newsprint, printing paper, paperboard, propane, lube oil, motor oil, asphalt, canned beverages, coiled sheet steel, recycled iron and steel, cement, asphalt, gypsum, crushed stone, limestone, iron ore, soda ash for glass, and kaolin clay for paper.

**BNSF moves more intermodal traffic than any other rail system in the world.**

### *Union Pacific Railroad*

The Union Pacific Railroad (UP) is the largest railroad in North America, operating 32,400 route miles in the western United States, and employing over 50,000 people, of which 456 work in Minnesota. 2008 gross revenues virtually matched BNSF's revenues of \$18 billion, and carloads totaled 9.26 million. The railroad serves 23 states, every major West Coast and Gulf Coast port, and the five largest gateways between the East and West at Chicago, St. Louis, Memphis, Kansas City, and New Orleans. The railroad has one of the most diversified commodity mixes in the industry, including chemicals, coal, food and food products, forest products, grain and grain products, metals and minerals, automobiles and parts, and of course intermodal. UP is the nation's largest hauler of chemicals, much of which originates along the Gulf Coast near Houston, Texas. With access to the coal-rich Powder River Basin in Wyoming and coalfields in Illinois, Colorado, and Utah, the railroad moves more than 250 million tons of coal annually. UP's intermodal services, which largely parallel BNSF's network linking the large West Coast ports with major markets in the interior, handled 3.16 million units in 2008, 31 percent less than BNSF. BNSF's longstanding dominance of the Nation's largest intermodal lane between Los Angeles and Chicago provided a substantial boost over UP; differences in intermodal market strategy account for the rest.

UP gained entry to Minnesota through its 1995 acquisition of the Chicago and North Western. At present the firm owns approximately 462 miles of track in the State, and operates over an additional 203 miles through trackage rights. Volume in 2008 amounted to 19.1 million tons of freight originated and/or terminated in Minnesota. UP's business strategy in the region has focused on developing unit train and carload markets, which are heavily oriented toward agricultural crops, ethanol, and coal. Intermodal is not much in the picture at present, with the exception being a twice-weekly Road Railer service between Chicago and Minneapolis that is operated under contract with the Norfolk Southern's Triple Crown subsidiary. There has been some interest in starting service to the south and southwestern U.S.

**UP is the nation's largest hauler of chemicals, much of which originates along the Gulf Coast near Houston, Texas.**



### *Canadian National*

Canadian National Railway Company (CN), headquartered in Montréal, Canada, operates the largest rail network in Canada and the only transcontinental railroad in North America. The CN operates approximately 20,264 track miles in eight Canadian provinces and 16 U.S. states. CN's Canadian operations span across Canada from Nova Scotia to British Columbia. Through a series of acquisitions that began in 1999 with the purchase of the Illinois Central, CN gained control of an extensive network in the central United States along the Mississippi River valley from the Great Lakes to the Gulf of Mexico.

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In Minnesota, CN has had a long-standing presence with its Duluth Winnipeg and Pacific (DW&P) subsidiary. However, much of CN's current 436 miles of track came through its recent acquisitions of the Wisconsin Central (2001) and the Duluth, Minnesota and Iron Range (DMIR) (2004). The latter had the well-known operation between the Iron Range and the ports of Twin Harbors and Duluth/Superior, and has made the CN the largest carrier of iron ores in North America. The Wisconsin Central acquisition allowed the CN to create a through route to Chicago, thereby forming a transcontinental link from western Canada through the United States; secondarily, it also gave the road access to St. Paul from the east. However, volumes on that route are modest, as CN lacks a yard in the Twin Cities, and enters the region over trackage owned by the CP. CN does not offer intermodal service in Minnesota, even though several intermodal trains linking Chicago and western Canada ply its northern Minnesota main line daily.

Company-wide, the firm employed an average of 22,000 people in Canada and the United States in 2008, with 440 located in Minnesota. In the same year, gross revenues amounted to \$8.4 billion Canadian and carloads totaled 4.61 million, placing CN in fifth place among the seven Class I railroads. Traffic mix is quite evenly balanced among carload, unit train, and intermodal, and between the United States and Canada. Thus, 54 percent of traffic is U.S. domestic and cross-border, 23 percent is international, and 23 percent is Canadian domestic.

### *Canadian Pacific Railroad*

Based in Calgary, Alberta, the Canadian Pacific Railway (CP) provides freight transportation services with 15,700 employees over a 14,000-mile network in Canada and the United States, of which 1,240 miles and 1,050 employees (does not include DME/ICE) are located in Minnesota. CP's rail network stretches from Vancouver to Montréal, and also serves major cities in the United States such as Minneapolis, Chicago, and New York City. In 2008, 2.64 million carloads generated revenues of \$4.9 billion Canadian, placing the firm in sixth place among the Class I railroads, behind CN and ahead of Kansas City Southern (KCS). Over one-half of the CP's freight traffic is in coal, grain, and intermodal freight. It also ships automotive parts and automobiles, sulfur, fertilizers, other chemicals, forest products, and



other types of commodities. The busiest part of its railway network is along its main line between Calgary and Vancouver.

CP has had a lengthy presence in the State through its controlling ownership of the Soo Line Railroad, which served the upper Midwest. In 1985, CP purchased the remaining assets of the Milwaukee Road, giving it a more direct through route between Chicago and the Twin Cities. Combined with CP's existing lines west of the Twin Cities, a stronger link between Chicago, the upper Midwest and western Canada could thus be established through gateways at Portal, North Dakota and Noyes, Minnesota. Subsequent to the Milwaukee acquisition, the CP's Midwestern network shrank considerably through a series of line spin-offs. This trend was reversed in September 2007 when CP initiated acquisition of the Dakota Minnesota and Eastern (DME) and its affiliate the Iowa, Chicago, and Eastern (ICE); ironically, the latter had been spun off by the CP in 1997, and had passed through several owners prior to its reacquisition. Combined, the DME and ICE properties added 472 miles of track (564 total, including trackage rights) in Minnesota, and 2,500 route miles throughout the Upper Midwest to the CP's portfolio. Many elements of DME's operations are slowly being absorbed into the CP, but the firm is expected to remain as an identifiable subsidiary entity under the CP umbrella.

The DME acquisition brought with it rights to build an extension west into Wyoming's Powder River Basin (PRB). Planning for this controversial and costly (\$6 billion in 2006<sup>8</sup>) extension began in 1997, with the DME receiving final Surface Transportation Board approval to construct the line nine years later in February, 2006. By the time this approval was secured however, the future of this project had started to dim. The likelihood of its construction was further diminished subsequent to the CP transaction, with the recession, turmoil in the financial markets, flattening electricity demand, and possible imposition of new regulations on carbon-based fuels from pending climate change legislation all contributing factors. Although CP remains publicly committed to its construction and is preserving its option to build into the PRB, recent actions indicate that the project is not presently a high priority.

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Prior to the DME acquisition, Minnesota had become more of a through state for the CP, and traffic volumes thus depend heavily on general economic trends in North America, and not so much on local conditions. However, with the DME acquisition this trend has been reversed to some degree. The commodity mix remains largely the same, consisting largely of agricultural products, ethanol, fertilizers, and coal, most of which moves in high volume unit train service. Intermodal service is available at Shoreham Yard in the Twin Cities, with access to all major markets on the CP, including

<sup>8</sup> <http://www.dmerail.com/Media/News%20Releases/060815%20STB%20WDR%20Ruling.pdf>.



Chicago, Calgary, Winnipeg, Vancouver, and points east. Service to Kansas City and Mexico is likely to be implemented in the near future. In 2009, CP projects to handle approximately 83,000 lifts at Shoreham, a decline of more than 20 percent from previous years.

## **2.3 Freight Rail Industry Environment**

### **2.3.1 Economics of Class I Railroads**

The present rail industry is a reflection on its history as one of America's oldest large-scale geographically dispersed commercial enterprises. From its beginnings in the 1830s to World War I, the railroad industry had established itself as the dominant form of land transportation through its ability to move large volumes of passengers and freight much more rapidly and efficiently than any other mode. However, by the 1920s, when the rail network had reached its largest size of more than 250,000 miles, it was generally recognized that too many lines had been constructed, that competition among railroads had weakened the financial outlook for the once all-powerful industry, and that trucks were evolving to the point where they could compete for freight. It was also apparent that automobiles, buses, and – somewhat later – airplanes would take most of the passenger traffic away. The faster and more flexible highway mode had begun to make inroads into the railroads' traffic during the 1920s, a trend that then continued largely unbroken – with the exception of World War II – for almost 70 years.

By the 1990s, the size of the rail network had declined by almost one-half, and the rail industry's shares of traffic and especially transportation revenue had dropped dramatically. Mergers, which had begun almost as soon as railroads were first constructed, have continued until only a handful of major carriers remain.

In Minnesota, mileage declined from a peak of over 9,100 miles in 1920 to 4,545 in 2007, with most of the reduction occurring between 1970 and 1990, and the number of Class I carriers dropped from 10 to four over a space of just 14 years between 1970 and 1985.

At the same time as the primary railroad network was being consolidated, many lower density lines were spun off as small railroads. By 2007, these railroads operated one-third – 45,800 miles – of the 140,100-mile U.S. network, and, for commodities other than coal and intermodal, they handled 41.5 percent of all rail shipments in North America.<sup>9</sup> Short lines have come to perform a critical transportation function for smaller agricultural and industrial product shippers, connecting them to the Class I railroad mainline services, for whom they generate a significant volume of revenue (20 percent for BNSF, for example).

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<sup>9</sup> Martland, Carl D., and Steve Alpert Research Priorities for Regional and Short Line Railroads, Research Report prepared for the American Short Line and Regional Railroad Association, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, December 2006.



In addition to rationalizing the network, the industry greatly improved operating efficiency through the use of better technologies for track, equipment, and communications and operations control. New technologies allowed the operation of longer trains with heavier cars and smaller crews, and the costs of shipping by rail continued to decline. New vehicle designs allowed railroads to compete effectively with both barge and truck competition. Larger cars, dedicated unit trains, and better track structure enabled much cheaper transport of coal, grain and other bulk materials. Multilevel automobile carriers allowed railroads to compete effectively with trucks for serving automobile assembly plants. Intermodal innovations, especially the introduction of double-stack container trains, allowed railroads to remain competitive for long-haul shipments of general merchandise.

The net effect of these improvements, combined with long-term economic growth, has resulted in a situation where rail traffic has grown in terms of ton-miles and tonnage, but not in terms of revenue and commodity value transported. Whereas railroads produced 28 percent of intercity freight ton-miles in 2005, they carried only five percent of the value of commodities transported by all modes in the U.S.<sup>10</sup> The railroads' modest share of overall freight value and revenues produced is caused by several factors, of which the nature of the commodities handled by the railroads, service quality (trip times, reliability) vis-à-vis motor freight, and the markets served by the railroads have had the most influence. Railroads attain their greatest efficiency and competitive advantage over other modes when handling large volumes over longer distances in point to point service. Thus, coal has been the single largest commodity hauled for many years, accounting for around 40 percent of originated tons, followed by chemicals, farm products, and nonmetallic minerals, each with between seven percent and nine percent of total tons. Intermodal is in fifth place with over six percent of originated tons. The actual share is somewhat higher, as figures for the commodity-specific categories include some traffic that moves intermodally in addition to carload and unit train service.

Competitive pricing has been a critical factor in the railroads' ability to stabilize and at least maintain its market share. Rail rates to shippers dropped following economic deregulation in 1980, allowing the railroads to hold market share, but at the cost of revenue and profitability. Between 1980 and 2002, railroad freight revenues remained essentially flat in current dollars, and were only partially offset by increases in productivity, asset sales, and other business strategies. The result was a relatively low rate of return on investment for the railroads. In the 1980s, calculations by the Interstate Commerce Commission (predecessor to the Surface Transportation Board) indicated that the railroads' return on net investment (ROI) fluctuated between two and six percent, compared to a cost of capital that ranged between 12 and 18 percent. Since then, the industry's rate of ROI has improved, albeit slowly.

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<sup>10</sup>From forthcoming AASHTO Freight Bottom Line Update, based on IHS-Global Insight TRANSEARCH Insight data.



Following the recession of 2001 to 2002, the railroads' ROI began to surpass historic trends, reaching a high of 10.17 percent in 2007 for the Class I railroads as a whole. However, this still placed the industry below the Surface Transportation Board's calculated cost of capital of 11.33 percent, and the industry as a whole continues to generate less revenue than is desirable from the standpoint of its needs. While these rates of return may seem robust for transportation carriers, railroads must carry the full burden of building and maintaining their own infrastructure. They are among the most capital intensive of all industries and thus require far greater access to capital. Between 1995 and 2004, the rail industry invested 17.8 percent of its revenues in capital (16.7 percent between 1998 and 2007). By contrast, U.S. manufacturing industries spent an average of 3.5 percent, with the electric utility industry topping the group at 11.6 percent. And with few exceptions, the rail industry must continue to make capital investments and maintain track, bridges, and locomotives across its network regardless of the business cycle. It cannot disinvest itself of mainline track or discontinue maintenance during recessions without ceasing revenue-generating service. This situation encourages railroads to be highly risk-averse.

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The relatively low rates of return, high capital needs, and lack of liquidity (i.e., the inability to quickly and easily sell track and right-of-way), has traditionally made railroad stock less attractive to Wall Street and investors looking to invest in high growth and profit industries. This has resulted in a persistent shortfall or gap between what the railroads "should" be investing out of their revenues to maintain the rail network, expand it, and grow market share and what they can afford to invest. Through the 1990s, this shortfall was about \$2 billion annually for the Class I railroads. The gap closed during the 2002 to 2007 traffic boom, but was still estimated at about \$1 billion per year despite record revenues and investment by the railroads in those years.

It should be noted that the largest share of capital investment goes to maintaining existing infrastructure in a state of good repair, and purchasing new rolling stock. Relatively little is left over for infrastructure expansion and this investment is focused on high growth, high density, and most profitable lanes.

The rise in returns from 2003 onward has in part occurred due to a rapid rise in traffic volumes without associated increases in capacity among both the railroads and their highway competition. This allowed railroads to raise rates and generate greater profits, thereby boosting stock prices and generating greater attention on Wall Street. To deal with this new business



environment, the railroads adopted a number of strategies. A primary strategy has been to focus on their “hook and haul” business – the high-density, long-haul freight movements where large volumes enable economies of scale in operation and revenue generation. This meant giving priority to intermodal container movements from West Coast ports, unit coal trains from the Powder River Basin to Midwest, Southeast, and East Coast utilities, and unit grain trains to Pacific Northwest and Gulf ports. Railroads also faced strong political pressure to maintain capacity, service, and price in the energy and intermodal markets, so infrastructure expansion has been focused on the coal lines out of the Powder River Basin and the intermodal lines out of Ports of Los Angeles and Long Beach.

A second strategy has been to increase prices and reduce service to divest of lower-profit traffic. This happened across many rail markets, where growing bulk and intermodal traffic was squeezing out carload traffic. The use of such strategies to allocate rail service makes business sense from the railroads’ perspective, but for individual shippers and some short lines that are “captive” to a single railroad, higher rail rates and inferior service mean lower profits, smaller market share, and in some cases the risk of business failure.

Because the carload business still accounts for a large and profitable element of the railroads’ business, the railroads are pushing a third strategy, which is to encourage consolidation of carload traffic at centers on their main lines. Logistics parks, transload centers, and grain consolidation facilities enable the railroads to continue to provide carload service, but do it as a more operationally simple “hook and haul” operation. To provide collection and distribution services to these centers, the Class I railroads continue to transfer low-density branch lines to short line railroads, who can operate at lower cost than the Class I railroads, and encourage shippers to truck shipments to the centers. This has been an effective strategy in maintaining rail services in some markets, but at the cost of transferring risk to the short line operators and, where trucks are substituted for rail, increased pavement and bridge maintenance costs to the public sector.

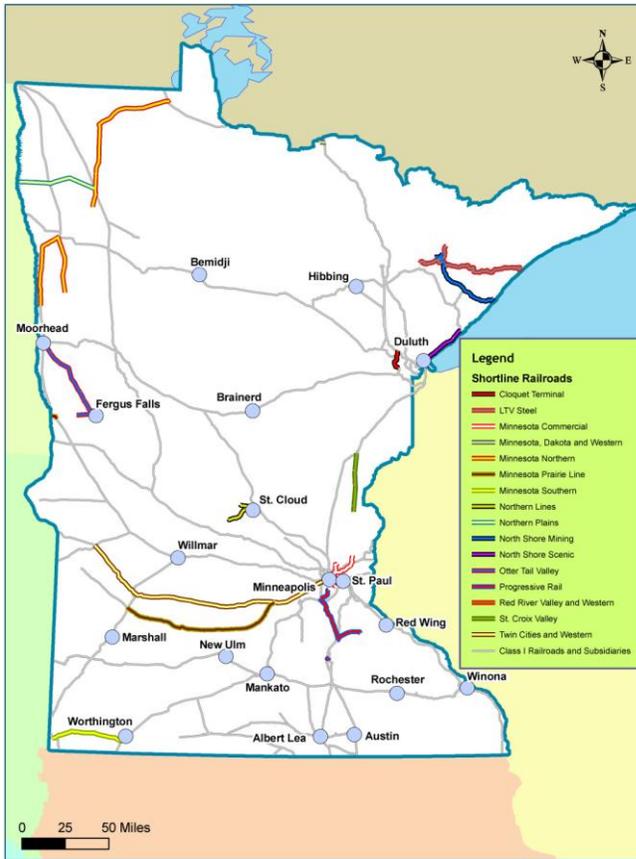
### **2.3.2 Short Lines**

In recent years, the short line industry has consisted of a mix of profitable and marginal performers. The short line route network in Minnesota is shown in Figure 2.2.

The volume of traffic handled by a short line has a direct impact on track maintenance levels, speeds, service reliability, and ultimately the financial viability of the short line service. High-volume markets and lines have done relatively well; low-volume markets and lines struggle. The national trend toward consolidation of short line ownership and some consolidation of low-density lines and collector/distributor functions has improved the business outlook for short lines in some areas. This trend has not emerged in Minnesota, which can be attributed to the minimal presence of short line holding company ownership in the State. It is apparent that some Minnesota short lines operating in Minnesota and elsewhere are not meeting critical volume thresholds, and services and investment in track and equipment is declining.



Figure 2.2 Regional and Short Line Railroads in Minnesota



Beyond volume, short lines face several challenges as an industry as follows.

Infrastructure conditions tend to be inferior to those of the large railroads. Track is less well maintained, with lighter weight rail, inferior tie and ballast conditions, and no active signaling system. As a result, mainline train speeds are lower, typically 40 mph or less for freight trains, and operations are far less automated. Although these conditions are usually adequate for existing business, many carriers struggle to maintain track at minimal commercially acceptable levels, and are unable to accommodate some modern rolling stock. With the large railroads moving from 263,000 to 286,000 pounds as the standard maximum car weight, the ability to handle standard modern rolling stock has become a particular concern; without accommodation of these heavier cars, the competitive position of many short lines will be substantially compromised.

The availability of suitable railcars for short line shippers can be problematic. Although railcar supply has exceeded demand in recent years, some smaller carriers continue to have difficulty obtaining proper equipment on a timely and cost-effective basis. Most commonly, this issue occurs when equipment supply is controlled by contractual agreements with the prior owners of the line.

Smaller railroads, with their narrow geographic coverage, must rely far more heavily on connecting carriers to serve the market needs of their customers. Key are the agreements between short lines and their Class I connections, which are the result of a line's prior history and present ownership. A short line may or may not have independent rate making authority, i.e., the ability to negotiate its own revenue levels for local and interchanged traffic. If carloads are interchanged with one or more railroads, traditionally each rail entity would be entitled to individually establish a rate for its participation in transporting a shipment. In the case of several short lines in the State, this ability to make rates is superseded or preempted by agreements with their Class I connections. These agreements, which were established when the line was spun off by the former Class I owner, often restrict independent rate making, car



supply, and the interchange of cars to the line's original owner, even if connections to other Class I carriers are available. This process was designed to allow the seller to retain some of the benefits of unique access to businesses on the branch, often in return for favorable purchase terms. These rate and operating restrictions, or the ability of the short line to only interchange with one railroad due lack of other connections, creates what is known as a "captive" short line.

Although most of these restrictive terms are contractually agreed relationships, with advantages or compensation accruing to both parties to the agreement, in a few cases the restrictions have led to ongoing inefficiencies, such as unintended increases in short-haul switching moves at or near the interchange point, and insufficient revenue yields with detrimental effects on the carriers' ongoing viability. In some cases, short lines have had to forego new business that would have been logically routed onto another connecting Class 1, or divert natural rail traffic onto trucks to reach final destinations that are otherwise rail accessible.

While the terms creating these "captive" conditions are a matter of private contract and have been deemed acceptable under Federal law concerning interstate commerce, it is notable that if and when the State of Minnesota were to purchase track that is being abandoned, and maintain it in revenue service for local economic benefit (similar to state-owned rail properties in Wisconsin, Michigan, Georgia, and Vermont), these restrictions should not be acceptable to the State. Any operating entity on this track would be expected to have unrestricted access to all connections and freedom to negotiate compensation with shippers, within the strictures of both interchange agreements, STB case law, and state oversight.

## **2.4 What's Next for the Freight Rail Industry?**

Overall, the rail industry today has become stable, productive, and competitive, with enough business and profit to operate, but not to replenish its infrastructure quickly or grow rapidly. The railroads' return on investment has been increasing; a major achievement of an industry that just a few decades ago was struggling financially. However, as economic growth picks up, it is risky to assume that rail traffic (or freight in general) will simply resume its former growth patterns, and with it, that the private railroad industry will be able to maintain, let alone increase investment to expand capacity and improve service. More likely, the railroads stand at the threshold of major changes that may be as extensive as those that occurred following deregulation in 1980. Three factors are particularly concerning:

- A rapidly changing customer base;
- Ongoing initiatives to modify economic regulation; and
- Shifting modal economics.

Although any or all of these potential changes may impart some beneficial effects on railroad industry, they also have the potential to be negative, or at the very least engender substantial uncertainty that will affect their willingness to invest. Each of these elements is elaborated on below.



### 2.4.1 Customer Base

Although a railroad's traffic base constantly evolves to some degree, three of its most important sectors are expected to undergo major transformations: automobiles, international trade, and coal. With the bankruptcy of General Motors, the United States' largest domestic automaker, and the substantial distress by most others, longstanding patterns of auto manufacturing and distribution are being upended. Annual sales volumes, which regularly exceeded 17 million units only a few years ago, are now running at less than 10 million, and few analysts expect them to exceed 14 to 15 million any time in the next decade. Not only is the automobile industry a significant railroad customer, ranking sixth in 2007 revenues by commodity, many other important rail-oriented industries, such as chemicals and steel, also are substantial suppliers to the auto industry.

International trade, the primary driver behind the boom in intermodal traffic from the mid-1980s until 2006, has ceased being an engine of growth for the railroads. Although volumes are expected to increase as the economic recovery gets underway, it is unlikely to reach the levels of growth that were achieved in recent years.

Coal, which has represented roughly one-quarter of the railroad's revenues and upward of 40 percent of its ton-miles, faces considerable uncertainty as a fuel. Major recent discoveries of natural gas in the United States as well as rising concerns about greenhouse gas emissions are likely to result in either stable or lower demand for coal in future years. Compounding these effects are pending regulations that mandate cleaner emissions. These will require all coal-burning plants to implement scrubbing, which will affect the heavy dependence on low sulfur Powder River Basin (PRB) coal. Once PRB coal requires scrubbing, coalmines that are located closer to the Midwestern electric utility plants will become more attractive, since the cost of transportation far exceeds that of the coal itself. Midwestern coal fields will benefit, as will the barge industry operating on the Mississippi River System, which has served some of these markets in the past.

### 2.4.2 Economic Regulation

The Staggers Rail Act of 1980 substantively deregulated the rail industry. The railroads have successfully fended off a series of legislative attempts at changing the fundamental conditions of the Staggers Act. However, since 2006 the Surface Transportation Board has made significant changes to their procedures to make them more attuned toward shippers. This more "shipper-friendly" attitude also was evident recently when the STB issued several rate case decisions in favor of shippers that only a short time ago would likely have favored the railroads. Furthermore, the current Congress is developing legislation that may further tilt the regulatory balance against the railroads by modifying longstanding provisions that the industry has enjoyed. How these changes may impact the financial performance of the industry is not known, but they are very unlikely to improve them.



### 2.4.3 Shifting Modal Economics

Significant challenges faced by motor freight, the railroad's primary competitor and sometime collaborator, stand to influence future rail traffic in a direction that could either benefit or disadvantage them. The rail industry's improving financial performance that began in the early 1990s is in part attributable to disproportionate increases in costs faced by motor carriers versus railroads. Rising diesel prices, growing highway congestion, reduced driver utilization resulting from new hours of service regulations, and a continuous shortage of long-haul truck drivers at prevailing wages, not only raised costs but also narrowed the service gap. One outcome was the development of new intermodal business with long-haul trucking firms which could use the railroads to carry their shipments in some major lanes as a transparent substitute for over-the-road line-haul operation. Two of the largest truckload firms, J.B. Hunt and Schneider National, have subsequently become among the railroad's largest customers.

The impacts of evolving Federal transportation policy add to the uncertainty. The Highway Transportation Trust Fund, which for decades has funded most capital investment in highways through user fees, is insolvent. Starting in FY 2009, the Federal Government has used general funds to bridge shortfalls, but longer-term solutions are very much still in flux. However, some form of increased user fees seem inevitable, irrespective of how highway investments will be funded. While there is some agreement in the trucking industry about the need to increase these fees, many in the industry are demanding a productivity boost in return through changes in Federal truck size and weight regulations. Maximum weight has been set to 80,000 pounds since 1983, and long combination vehicles were limited to certain highways located primarily in the West since 1991.

The economic impact of a nationwide increase in truck size and weight on the rail industry has been a matter of contentious discussion for many years. However, any significant changes in truck size and weight beyond current limits that are broadly applicable will provide productivity gains to trucking firms that will tilt modal economics toward highway transport. Short lines are likely to bear the brunt of these impacts disproportionately, given their heavy orientation toward small volume carload traffic hauling commodities that are most readily divertible to truck. Perhaps the impact on Minnesota's short lines may be less severe, given a traffic mix that is more oriented toward low-value bulk commodities.<sup>11</sup>

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<sup>11</sup> Mn/DOT examined changes in truck size and weight standards within the state in a 2006 study. However, the study did not quantify the impact on railroads; in large part because most of the scenarios affected short-haul truck trips that were not attractive to railroads, even to short lines. One recent study found that an increase in truck weight from 80,000 to 97,000 pounds could reduce merchandise traffic volumes by 44 percent and overall traffic by 17 percent. Carl Martland, *Estimating the Competitive Effects of Larger Trucks on Rail Freight Traffic*, September 2007.



## 2.5 Freight Rail Investment and Financing Practices

Being privately owned, it is obvious that the sources of funds to operate, maintain, and improve a freight railroad are drawn from private capital. However, while this is largely true, there are exceptions, some recent, and others longstanding. This is particularly the case with short lines, where some degree of public funding has been rather common. Table 2.2 lists the typical sources of funding for operations and maintenance, and the primary categories of capital investment by carrier type. Entries marked with a green background indicate funding from public sources, which could be through direct (grants, loans, etc.) or indirect (tax credits, abatements, etc.) means.

**Table 2.2 Typical Sources of Funding of Rail Operations and Infrastructure**

Cost Category	Typical Sources of Funding	
	Class I Carriers	Class II and III Carriers
Operations and Maintenance	Private capital – Cash flow	Private capital – Cash flow, loans, etc.
Capital Maintenance and Expansion	Private capital – Cash flow, loans, stock, etc.	Private capital – Cash flow, loans, stock, etc. Tax credits, public loans and grants
Cars and Locomotives	Private capital – Direct ownership, third-party lease	Private capital – Direct ownership, third-party lease
Grade Crossings	Private capital – Cash flow Federal Section 130 and state/local match	Private capital – Cash flow
Customer Facilities	Private capital – Customer cash flow, loans, etc. Freight rail and economic development assistance programs	Private capital – Customer cash flow, loans, etc.

## 2.6 Value of Rail Industry to Minnesota

Economic development of Minnesota was heavily shaped by the railroads, which opened up access to its fertile lands and connected the region together through an integrated network. They continue to provide considerable value to the State, through their services to shippers, employment of its residents, and support of its institutions through various taxes.

Direct measures of value include carrier revenues associated with traffic handled in Minnesota, payroll size, services purchased, taxes paid, capital invested, and valuation of plant and property. More indirect measures include the value of goods transported, indirect employment, and the contribution to state GDP of industries served. In this section three direct measures are examined:



- Employment;
- Plant and property; and
- Corporate tax contributions to the State.

The following sections detail and provide estimates for each of these measures. Data for much of the material that follows was obtained through e-mail correspondence with the Minnesota Department of Revenue (MNDOR).

## 2.6.1 Employment, Wages, and Payroll Taxes

Employment is an indication of the importance of the railroad industry to the State's workforce, directly as a career choice, and indirectly as a market to which goods and services can be sold, in effect the multiplier effect from employment driven economic activity. Given the massive contraction in rail employment over the past 50 years, it is useful to note not only current employment, but also the number of retirees and beneficiaries that are drawing railroad pensions.

Data on industry employment and wages are readily available from several sources. The Railroad Retirement Board (RRB), a Federal agency that administers the railroad retirement system (which is separate from Social Security), maintains statistics on active and retired employees. Information on aggregate wages paid by the State was drawn from the AAR's state fact sheets, for which 2007 is the most current year.<sup>12</sup>

In 2008, Minnesota RRB records indicated employment of 4,500 individuals. With typical average wages of \$71,400 (plus \$28,400 in fringe benefits), the total freight-related payroll of Minnesota's railroad employees was \$321.3 million. These figures include Amtrak employees domiciled in Minnesota, which totaled 43 individuals in 2008.<sup>13</sup> The net revenue to the State from payroll taxes of active railroad employees amounts to 4.66 percent of \$321.3 million, or \$15.0 million.

In addition to the 4,500 active employees, 7,600 retired employees live in Minnesota, and a further 7,986 are beneficiaries of railroad retirement. This latter group is made up of spouses and survivors of deceased railroad employees. For all retired railroad employees, the industry-wide average annual remittance was \$23,760, \$8,800 for spouses, and \$14,580 for survivors. In Minnesota, the net payout to these beneficiaries amounted to approximately \$277 million in 2008, not much less than the active payroll.

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<sup>12</sup>[http://www.aar.org/~media/AAR/InCongress\\_RailroadsStates/Minnesota2.ashx](http://www.aar.org/~media/AAR/InCongress_RailroadsStates/Minnesota2.ashx).

<sup>13</sup><http://www.amtrak.com/pdf/factsheets/MINNESOTAo8.pdf>.



## 2.6.2 Plant, Property, and Corporate

In Minnesota, railroads pay an annual assessment on the property that they use for conducting their business. The Commissioner of Revenue, using data supplied by the railroads, estimates the value of property that is used for operating purposes annually. The estimate is not based on direct evaluation of each individual property, but rather carrier financial data. For publicly held carriers, property values are calculated on the basis of cost, income, stock price, and debt levels; for privately held firms, original cost and income are used. In Minnesota, these property tax rates are uniform, and the treatment for rail yards and main lines is identical. Property that is not used for operating purposes is assessed and taxed by the local jurisdiction in which it is located.

For taxes payable in 2008, MNDOR estimated a market value of rail property at \$676,443,314, resulting in a net tax of \$20,657,836.

Since the market value of rail property is estimated from an allocation of current revenues attributed to activity in Minnesota, the current average capital spending to revenue ratio for the industry as a whole, 14.7 percent between 1998 and 2007, can be applied to estimate annual expenditures for capitalized maintenance and infrastructure improvements. This permits an indication of the industry's ability and willingness to maintain its plant and property, and offers a comparison with estimates for capital needs. Using the above figures, 2008 capital investment in Minnesota would have been roughly \$100 million. This amount appears to represent a minimum, and reflects continued disinvestment from non core routes, particularly among the smaller railroads. This amount is used in Chapter 7 to estimate the ability of the railroads to contribute to the proposed capital program.

In addition to property and payroll taxes, railroads also pay income and corporate franchise taxes to the State. According to the Minnesota Department of Revenue (MDOR), the liability for these taxes was \$12.8 million in 2007.

## 2.7 Passenger Rail

Minnesota has two active passenger rail services – Amtrak's Empire Builder and the Northstar commuter rail service. The Empire Builder operates one train per day between Chicago and Seattle/Portland, with stops in Minnesota in Winona, Red Wing, St. Paul, St. Cloud, Staples, Detroit Lakes, and Fargo. The Northstar commuter rail service began operations between Big Lake and Minneapolis as this Plan was being completed.

Although Amtrak's presence in Minnesota is limited to the one daily train each way, both the Empire Builder and its patronage by Minnesota riders are standouts in Amtrak performance. The Twin Cities boasts the highest boardings and alightings of any station in the U.S. served by a single frequency. Local stops in Red Wing, St. Cloud, Staples, and Fargo/Moorhead show above-normal ridership generation. The Empire Builder's cost recovery performance is near the top among national system trains, second only to the Auto Train between the east central states and Florida. During the run-up in gasoline prices in 2008, every Minnesota station showed ridership increases of up to 15 percent despite a perpetually sold-out condition on this service, limiting any larger potential for growth.



Over the years, a number of studies have examined proposed new intercity passenger services in Minnesota. The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 identified HSR corridors throughout the nation. At around the same time, the state departments of transportation from Minnesota, Wisconsin, and Illinois were completing the Tri-State Rail Study, outlining route and service alternatives between Chicago, Milwaukee, and the Twin Cities. That study looked at two broad corridors – a northern and a southern option. The Southern Corridor studied three alternative routings within the corridor – along the existing Amtrak route, a corridor through La Crosse and Rochester, and a corridor that included both Madison and Rochester. The Northern Corridor included four alternative routings in northern Wisconsin.

By 1996, Minnesota was part of the Midwest Regional Rail Initiative (MWRRI), which envisioned a HSR network serving the Midwestern states centered around a Chicago hub. In 2000, Minnesota and Wisconsin commissioned the Tri-State Study II. This study showed that a Milwaukee to Twin Cities connection through Rochester, including a route that involved new alignments between Rochester and the Twin Cities and Winona, had the best benefit/cost ratio of the alternatives studied and should be implemented following the incremental upgrading of the existing Amtrak route. By 2004, the MWRRI routes showed Milwaukee to Twin Cities through Madison but not Rochester. Development of the Madison-Twin Cities route continued through 2008 with the preparation of environmental documentation.

As these studies were underway, two other intrastate intercity HSR corridors were being examined. The Minneapolis-Duluth/Superior corridor, now known as the Northern Lights Express, was studied to restore and improve upon passenger rail service that was suspended in 1985. In 2000, an initial concept study for intercity passenger rail service was produced. In 2007, a more comprehensive business plan for 110 mph rail service was prepared for a consortium of counties and regional rail authorities, which led to the creation of the Minneapolis-Duluth/Superior Passenger Rail Alliance (the “Alliance,” a consortium of county regional rail authorities). Mn/DOT has received FRA funding for the preparation of a Preliminary Environmental Impact Statement, including associated engineering reviews, for the proposed route along the BNSF rail lines. SRF Consulting Group is leading a consultant team performing this work with the Alliance in cooperation with the Minnesota and Wisconsin DOTs and the FRA.

HSR via Rochester has been discussed in Midwest HSR studies going back to the 1991 Tri-State Study and in early MWRRI reports. In 2003, Mn/DOT, with the cooperation of the City of Rochester, produced a study on the feasibility of a new route for HSR between the Minneapolis/St. Paul International Airport and the Rochester International Airport. The City of Rochester, Olmsted County, Mayo Clinic, and Rochester Area Chamber of Commerce formed the Southeast Minnesota Rail Alliance, which advocates for passenger rail service through Rochester and a new freight rail bypass around Rochester called the Southern Rail Corridor alignment. In September 2009, the Southeast Minnesota Rail Alliance produced a new study on the Rochester route, the “Tri-State III High-Speed Rail Study: Minnesota Segment Assessment.” This study supports an alignment of Twin Cities to Chicago service through Rochester on a new alignment, and questions extensive investment in the River Route.



The Minnesota High-Speed Rail Commission is a joint powers board which also plays a role in advancing HSR projects. The group, focused on the River Route for HSR between the Twin Cities and Chicago, involves Regional Rail Authorities from Ramsey, Washington, Dakota, Goodhue, Wabasha, and Winona counties. Just as the St. Louis and Lakes County Regional Railroad Authority acts as the financial agent and lead Authority for the NLX Alliance, so the Ramsey County Regional Railroad Authority serves as the financial agent and lead Authority for the Commission. The Commission will comment on corridor plans, advocate with the Legislature for HSR funding and corridor alignments, and coordinate public outreach and education efforts on behalf of passenger rail in the corridor.

As this Plan was just getting underway, in February 2009, the United States Congress enacted the American Recovery and Reinvestment Act of 2009, appropriating \$8 billion for HSR and intercity passenger rail services. This appropriation followed the enactment of the Passenger Rail Investment and Improvement Act of 2008 in October 2008, authorizing new programs for high-speed and intercity passenger rail. More information about these programs is found in Chapter 7 of this report. In order to develop consensus recommendations on how to respond to grant application cycles before the completion of the State Rail Plan (and identification of HSR corridors therein), Mn/DOT created the Intercity Passenger Rail Forum.<sup>16</sup> The Forum advised Mn/DOT on which projects to seek funding through the 2009 FRA grant application cycle. The Forum is likely to participate in further public discussion of the State Rail Plan itself, and may have an ongoing role in advising Mn/DOT and the Legislature as passenger rail investment decisions are made in the future (more discussion of post-Rail Plan implementation also is in Chapter 7 of this report).

Mn/DOT submitted two grant applications in August 2009:

- St. Paul Urban Depot construction – Mn/DOT, in cooperation with the Ramsey County Regional Railroad Authority, prepared an application for final design and construction of the St. Paul depot renovation project, to serve as a multimodal hub for light rail, commuter rail and intercity rail services.<sup>14</sup> The application sought \$135,800,000 in Federal funding, to match \$101,700,000 in other Federal and local funds applied to the project.
- Minnesota-Wisconsin Service NEPA – Mn/DOT, on behalf of the Wisconsin Department of Transportation, sought \$600,000 in Federal funding,<sup>15</sup> to be matched by \$600,000 from both state DOTs, to support the completion of a high-level environmental review of corridors between Milwaukee and the Twin Cities. This would result in a Service Level NEPA document, which combined with other materials of the MWRRRI, would comprise a Service Development Plan, and permit both states to seek further development funds for the entire corridor from the FRA.

<sup>14</sup>This application for construction and final design was submitted as a Track 1 funding grant, referring to FRA's Strategic Plan and Grant Application guidance documents issued in 2009.

<sup>15</sup>This application for planning funds was submitted as a Track 3 funding grant, which required a 50%/50% federal/state funds match.

<sup>16</sup>More information about the Passenger Rail Forum, including membership and meetings, can be found at <http://www.dot.state.mn.us/planning/passengerrailforum/index.html>.

