2010 Montana State Rail Plan

FINAL REPORT

Prepared for:

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MONTANA MDT DEPARTMENT OF TRANSPORTATION

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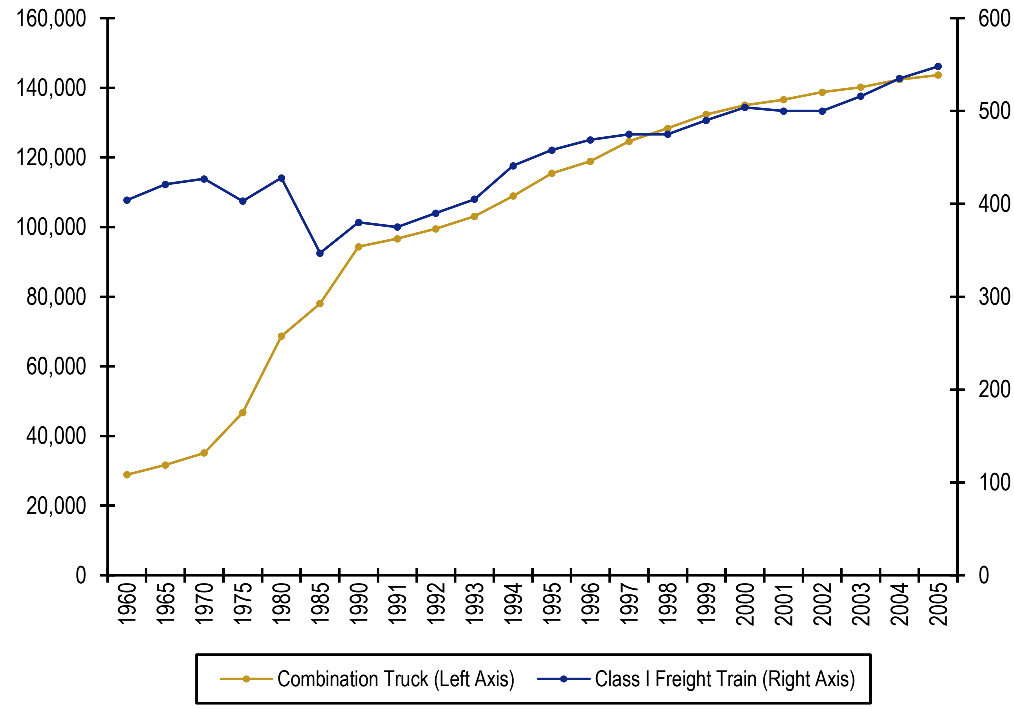
Executive Summary

The 2010 Montana State Rail Plan describes historical and forecasted freight trends, provides operating and system characteristics of the State's freight rail system, and summarizes ongoing efforts to expand and secure funding for additional passenger rail service through the State. The Plan also describes the impact of grain facility consolidation; identifies potential rail funding programs to acquire, improve, establish, or rehabilitate intermodal rail equipment or facilities; and lists several other ongoing issues affecting rail service in Montana, such as rail competition and growing freight volumes. The following sections summarize the key topics in each chapter of the 2010 Montana State Rail Plan.

FREIGHT TRENDS

As consumer demand for goods has increased over the past several decades, freight service demand has grown along with it (Figure ES.1). In 2005, over 4.5 trillion ton-miles of freight were shipped in the United States – about 15,300 ton-miles per capita. Rail transportation, the fastest growing among the freight modes, represented the largest share (38 percent) of the freight ton-miles shipped in the United States. National increases in freight volume between 2002 and 2035 are generally balanced among modes, and increases in volume will be strongest in intermodal and truck movements. In Montana, growth in freight volume and value is concentrated in truck and intermodal movements, as rail shipments of coal and agricultural products are not expected to expand dramatically in volume or value. This section of the report has extensive data on the modal shares of freight in Montana. Although the current national recessionary conditions have contracted both truck and train volumes, freight volumes are likely to pick up again once the economy improves.

Figure ES.1 U.S. Combination Truck Vehicle-Miles and Train-Miles



By 2035, total freight tonnage in Montana is projected to increase by 101 percent to 216.8 million tons. In both 2002 and 2035, truck shipments account for the largest share of within-state tonnage, with rail transport a distant second. The majority of freight shipped to Montana is similarly split between truck and rail. However, rail dominates from-state tonnage and is expected to account for 81 percent of exports from the State in 2035. This reflects the fact that rail is the preferred mode for transporting basic bulk commodities produced by Montana's mining and agricultural industries.

Montana is situated on a trade corridor that links the midwestern and northwestern port markets. As a result, there is significant demand for through-bound rail service. Table ES.1 shows that almost three quarters of all rail freight by revenue passes through the State, hauling high-value interurban shipments and bulk commodity shipments originating elsewhere. Shipments originating from Montana account for most of the remainder (22 percent by revenue). Rail trips terminating in Montana (3 percent by revenue) and those completely contained within the State (1 percent by revenue) make up smaller shares of the total, reflecting the State's relatively low population and status as a net exporter of goods shipped by rail. Most higher-value (i.e., finished) goods produced and consumed in the State rely on truck traffic.

Table ES.1 Summary of Rail Freight Tonnage and Revenue by Trip Type

Trip Type	Tonnage (Millions)	Revenue (Millions Dollars)
Through Trips	56.4	$2,673.9
Originated Trips	42.0	$800.4
Terminated Trips	2.8	$94.5
Intrastate Trips	2.1	$20.4
Total	**103.4**	**$3,589.0**

Source: Cambridge Systematics analysis of STB waybill sample data.

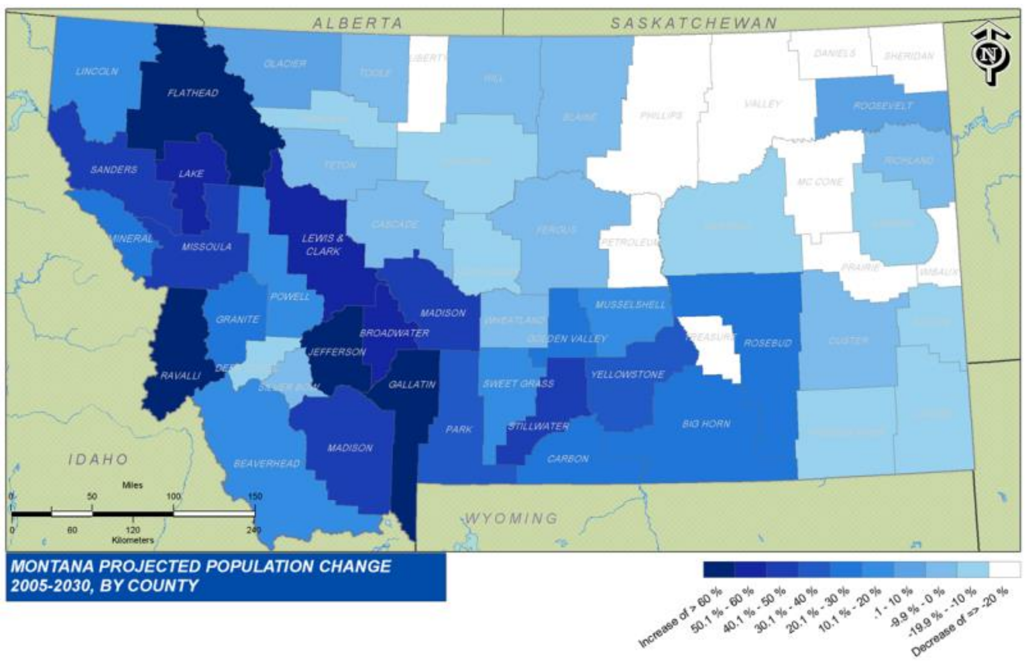
Measuring in tonnage alters the picture slightly, primarily because of the high amount of bulk commodities shipped by rail from Montana, such as coal, minerals, metallic ores, and cereal grains. Through trips account for 54 percent of the total tonnage, while 41 percent originates in the State. This section of the report describes in greater detail the rail traffic originating and terminating in Montana and traffic moving through the State.

Of rail shipments originating in Montana, coal accounts for 71 percent of the tonnage, followed by farm products (15 percent), petroleum or coal products (5 percent), with all other commodities less than 10 percent of tonnage. Coal accounts for 48 percent of the value of rail shipments originating in Montana, followed by farm products (24 percent), petroleum and coal products (10 percent), lumber and wood products (10 percent) and all other commodities less than 8 percent. This difference in volume and value indicates that farm products (particularly wheat) are a high-value product for Montana rail shippers. The top states receiving rail traffic are Minnesota, Wisconsin, Washington, and Oregon. Three of these states have export ports that distribute Montana products.

Of rail traffic moving through Montana (the majority of shipments moving in the State), intermodal/miscellaneous mixed shipments and farm products comprise the two highest value commodities (each are 25 percent of total value), followed by lumber/wood products. In terms of tons, farm products are the largest commodity (37 percent of volume), followed by intermodal/miscellaneous mixed shipments (19 percent), lumber/wood products (9 percent). The Pacific Basin ports in Washington and Oregon are the prime origins or destinations for through rail traffic by value, including Washington-Illinois (both ways), Minnesota to Washington and South Dakota to Washington. The largest state pairs by tons are Minnesota to Washington and South Dakota to Washington. Data indicates that other movements (almost 50 percent of value and 45 percent of tons) are generally from West Coast states and the Midwest and Mountain West, and from states and Canada.

Forecast population growth (greater than 60 percent from 2005 to 2030 in some counties) will increase the size of local consuming markets in Montana, further increasing the demand for freight transportation. Figure ES.2 shows population change in Montana counties from 2005 to 2030. Through-rail freight – which is the largest component of rail movements in Montana by both weight and value – will also expand as population, production, and distribution centers on the West Coast and Midwest grow. Overall, these trends point to long-term growth in demand for freight rail service in Montana.

Figure ES.2 Projected Population Change 2005-2030
By County



Source: Census and Economic Information Center, Montana Department of Commerce, analysis by NCS Data Services, 2007.

STATE RAIL PLANNING

In 2006, eight freight railroads operated 3,270 rail miles in Montana. Combined, Montana's railroads carried over 2.1 million total carloads, accounting for nearly 110 million total tons of freight, in 2006.[1] Table ES.2 summarizes the rail miles contributed by each carrier and Figure ES.3 illustrates the State's freight railroad network. This section of the report describes each subdivision of Burlington Northern Santa Fe (BNSF) and Montana Rail Link railroads, and maps and describes each other railroad operating in the State.

Table ES.2 Montana Railroad Statistics

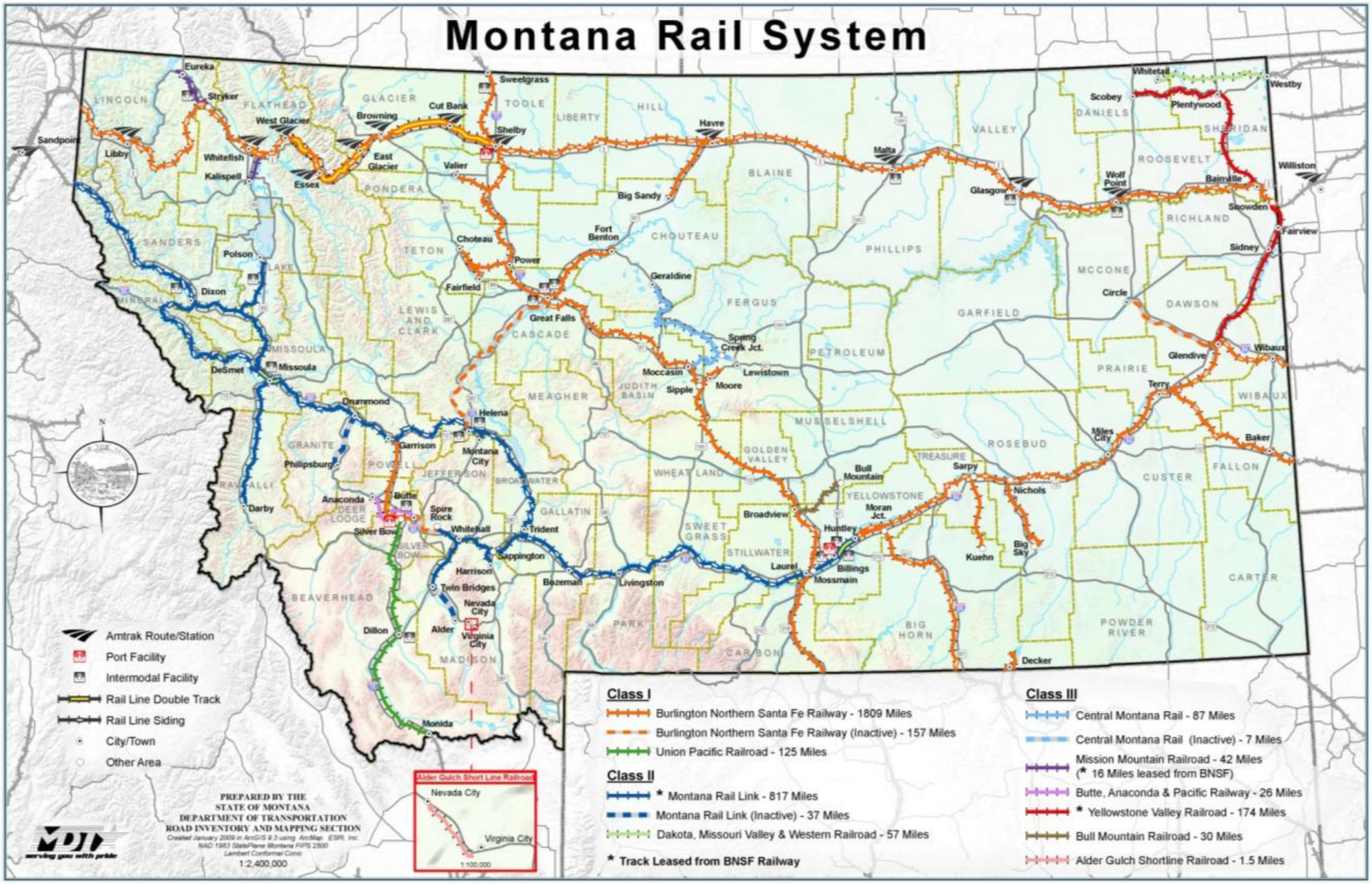
	Miles of Railroad Operated in Montana		
	2000	2005	2006
BNSF Railway	2,135	1,983	1,942
Union Pacific	125	125	125
Class I Railroads Total	**2,260**	**2,108**	**2,067**
Dakota, Missouri Valley, and Western	57	58	58
Montana Rail Link	812	807	807
Regional Railroads Total	**869**	**865**	**865**
Central Montana Rail	87	88	88
Mission Mountain Railroad	N/A	39	39
Yellowstone Valley Railroad	N/A	186	186
Montana Western Railway	59	N/A	N/A
Butte, Anaconda and Pacific Railway	69	25	25
Local Railroads Total	**215**	**338**	**338**
Network Total	**3,344**	**3,311**	**3,270**

Source: 2005 and 2006 data from the Association of American Railroads, 2000 data from the 2000 Montana State Rail Plan Update.

Note: Miles operated includes trackage rights. One mile of single track is counted the same as one mile of double track.

[1] Association of American Railroads, Railroad Service in Montana 2006, June 2008. Available at: http://www.aar.org/PubCommon/Documents/AboutTheIndustry/RRState_MT.pdf.

Figure ES.3 Montana Rail System



BNSF is the largest railroad operator in Montana, accounting for 94 percent of the State's Class I rail miles. In 2007, BNSF hauled $131 million of revenue freight within Montana, realizing a 6 percent growth since 2005.[2] Coal accounts for approximately 75 percent of BNSF's revenue freight (in terms of tonnage) originating within Montana. Other key commodities hauled by BNSF in Montana include farm products, lumber and wood products, and petroleum and coal products. BNSF rail lines with the most traffic include the entire route across the northern section of the State, from Snowden east to Libby and beyond (generally referred to as the Hi-Line), the routes with coal traffic – from the Big Horn subdivision to the line from near Billings to Glendive, and then to North Dakota beyond Wibaux. The BNSF line from Laurel to Great Falls and Shelby has moderately heavy volume.

Union Pacific (UP) is the other Class I railroad operating in Montana. Despite having a relatively limited number of track miles in the State, UP provides a critical connection between the Port of Montana in Silver Bow County (where UP owns and operates an automotive distribution center) and markets in the western U.S. and southwestern U.S., which are not accessible by other rail carriers in the State. Forest products, combined with lumber and wood products, accounted for approximately 75 percent of UP's tonnage originating in Montana. Other key commodities transported on the line include chemicals and allied products, petroleum and coal products, and nonmetallic minerals (except fuels).

Dakota, Missouri Valley, and Western Railroad (DMVW) is a regional railroad, formerly part of the Soo Line Railroad, with 364 total track miles in Montana and North Dakota. Located in the northeast corner of the State, DMVW operates 57 miles of road in Montana. Wheat is the primary commodity hauled on this line, accounting for almost 96 percent of total revenue freight in 2007.[3]

After assuming control of Montana's southern route from the Burlington Northern Railroad in 1987, Montana Rail Link (MRL) is one of two Class II regional railroads operating in the State. Of the 875 miles of MRL track located in Montana, MRL leases approximately 70 percent of its road, including 557 miles of main line leased from BNSF.[4] Between 2005 and 2007, MRL experienced notable increases in both carloads and tonnage primarily due to increases in coal movements. In addition to coal, the primary commodities transported by MRL in Montana include farm products, petroleum and coal products, and lumber and wood products. The main line from Laurel to Bozeman, Helena, Missoula northwest to Sandpoint, Idaho is the heaviest traveled MRL line.

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[2] BNSF Railway, 2005 and 2007 Annual Reports to the Montana Public Service Commission.

[3] Dakota, Missouri Valley, and Western Railroad, Annual Report to the Montana Public Service Commission, 2007.

[4] Montana Rail Link, Annual Report to the Montana Public Service Commission, 2007.

Central Montana Rail, Inc. (CMR), a Class III local railroad, operates 87 route miles in the center of the State with a connection to a BNSF main line at Moccasin. While wheat accounts for approximately 92 percent of CMR's total revenue freight, CMR also hauls barley, fertilizer, and scrap.[5] In 2007, CMR transported a total of 82,100 tons, attributing to an intrastate operating revenue of $617,827. A seasonal passenger/tourism train also operates on the line.

The Mission Mountain Railroad (MMR), a subsidiary of Watco Industries that owns and operates 17 short-line railroads across the country, consists of two rail segments totaling nearly 47 miles in Montana. In 2007, MMR hauled 164,620 freight car-miles and 9,790 gross ton-miles, primarily transporting barley, lumber, and various wood products.[6]

Similar to MMR, Watco Industries also operates the Yellowstone Valley Railroad (YVR) short-line railroad. YVR operates in Northeast Montana and serves several grain elevators along its 179-mile route. With intrastate operating revenues totaling $353,000 in 2007, YVR's primary commodities included fertilizer, petroleum, and wheat.[7]

Butte, Anaconda & Pacific Railway (BA&P), formerly referred to as the Rarus Railway, operates 25 miles of road between Butte and Anaconda in the southwest area of the State. While an excursion train also operates on the line between June and September, the principal commodities hauled on the line include copper concentrate and mine tailings.[8]

Two additional Montana freight rail lines are in various planning stages. Global Rail Group, a division of Signal Peak Energy (formerly Bull Mountain Rail), finished construction in 2009 of a 36 miles single-track rail spur to serve the Signal Peak Coal Mine in southeastern Montana. The line's initial haulage capacity is 10 million gross tons annually, and will increase to 15 million tons as necessary. Portions of the Tongue River Railroad have been proposed for construction since 1983, and have been subjects of various proceedings at the U.S. Surface Transportation Board (STB) and its predecessor, the Interstate Commerce Commission. While legal challenges remain, however, no definitive timeframe has been set for construction and operation of the Tongue River Railroad.

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[5] Central Montana Rail, Inc., Annual Report to the Montana Public Service Commission, 2005-2007.

[6] Mission Mountain Railroad, Annual Report to the Montana Public Service Commission, 2007.

[7] Yellowstone Valley Railroad, Annual Report to the Montana Public Service Commission, 2007.

[8] Butte, Anaconda, and Pacific Railway, Annual Report to the Montana Public Service Commission, 2007.

Several segments of existing rail lines are currently at risk for abandonment. Changing economic conditions, such as the relocation of a major shipper or a reduction in commodity value or variety, may entice a rail carrier to pursue abandonment if revenues do not support a line segment's operating and maintenance costs. On the BNSF network, abandonment is in process for nearly two miles of road near Great Falls, while abandonment of a section near Glendive-Circle is currently on hold. Several segments of MRL are currently out of service and the YVR segment between Plentywood and Scobey has been a candidate for abandonment for several years.

Passenger Rail Service

For most of the last century, passenger rail service was available between the Midwest and the Pacific Northwest, over the Empire Builder along the Great Northern Railroad, and the North Coast Limited along the Northern Pacific Railroad. Today, the Empire Builder still serves Montana communities and remains one of Amtrak's most popular long-distance routes, but no passenger rail service has been available in southern Montana since the late 1970s. In FY 2009, the Empire Builder had the highest ridership of all of Amtrak's long-distance trains, 515,444, as well as the highest revenue, $59.7 million. Nationally, this train was the second best performing long-distance train, as measured by the operating loss per passenger-mile.[9] The Empire Builder provides valuable benefits to northern Montana residents who depend on passenger rail for medical appointments, sending children to college, and traveling to larger cities along the route for shopping.

Passenger rail advocates, Montana legislators, and Montana Department of Transportation (MDT) officials have been discussing the possibilities of resuming passenger rail service among Montana's largest cities in the south once served by the North Coast Hiawatha. In most cases, Amtrak is authorized and generally willing to provide intrastate passenger rail service if a state government is willing to provide capital costs for infrastructure and equipment and pay the difference between operating expenses and revenues on an annual basis. Many states support these kinds of services, and some state-supported routes are among Amtrak's most financially successful services. Amtrak's legacy routes from its 1971 creation, generally referred to as long-distance trains (such as the Empire Builder), are supported by Federal appropriations for Amtrak operating expenses.

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[9] Operating loss per passenger mile is calculated as the difference between operating expense and operating revenue divided by the number of passenger miles. Operating expenses include direct expenses directly attributable to train operations (crews, fuel, equipment maintenance, ticketing, route stations) and indirect expenses shared by all Amtrak routes (shared stations, training and supervision, police and safety, insurance, marketing, yard operations). Revenues include ticket revenue and sleeper car revenues.

In 2008, Congress directed Amtrak to examine the possibility of reinstating passenger rail service on the North Coast Hiawatha route. [10] Amtrak published the resulting study findings in October 2009. The report examined the route generally followed by the former North Coast Hiawatha (NCH) route with a few exceptions. Amtrak estimated the capital and up-front costs of the NCH route to total $1.043 billion. Amtrak estimated that the NCH annual operating cost would be $74.1 million, resulting in a $31.1 million operating loss. The NCH revenues would cover 58 percent of operating costs, which suggests that the NCH would perform better financially than most Amtrak long-distance trains.

Amtrak produced a study in 2010 for Montana that analyzes two route segments in southern Montana: the corridor between Billings and Missoula (considered in greater depth, and referred to in this text as the Tier 1 analysis); and a longer corridor that includes the Billings-Missoula segment extending from Williston, North Dakota to Sandpoint, Idaho (referred to as the Tier 2 analysis).[11]

The two-tiered study of new passenger rail service in Montana provided by Amtrak, illustrated in Figure ES.4, addresses:

1. Capital and operating costs, ridership, and revenue for intercity passenger rail service from Billings to Missoula along routes operated by the Montana Rail Link (MRL), via Bozeman, Livingston, and Helena (Tier 1) (see Figure 4.3); and
2. Route assessment and implementation of intercity passenger rail service from Williston, North Dakota to Sandpoint, Idaho over routes operated by the Yellowstone Valley Railroad, BNSF, and MRL (Tier 2).

The Tier 1 analysis estimated capital and up-front costs, developed a proposed operating schedule for Tier 1 service, and estimated annual ridership, revenues, and operating costs. Table ES.3 lists the summary information from the Tier 1 analysis.

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[10] PRIIA Section 224 North Coast Hiawatha Passenger Rail Study ("NCH Study"), found on http://www.amtrak.com/servlet/ContentServer/Page/1241245669222/1237608345018, under PRIIA submissions and reports, October 16, 2009.

[11] Amtrak Montana Report, 2010: Feasibility and Route Assessment.

Figure ES.4 Amtrak Analysis
Two Tiers

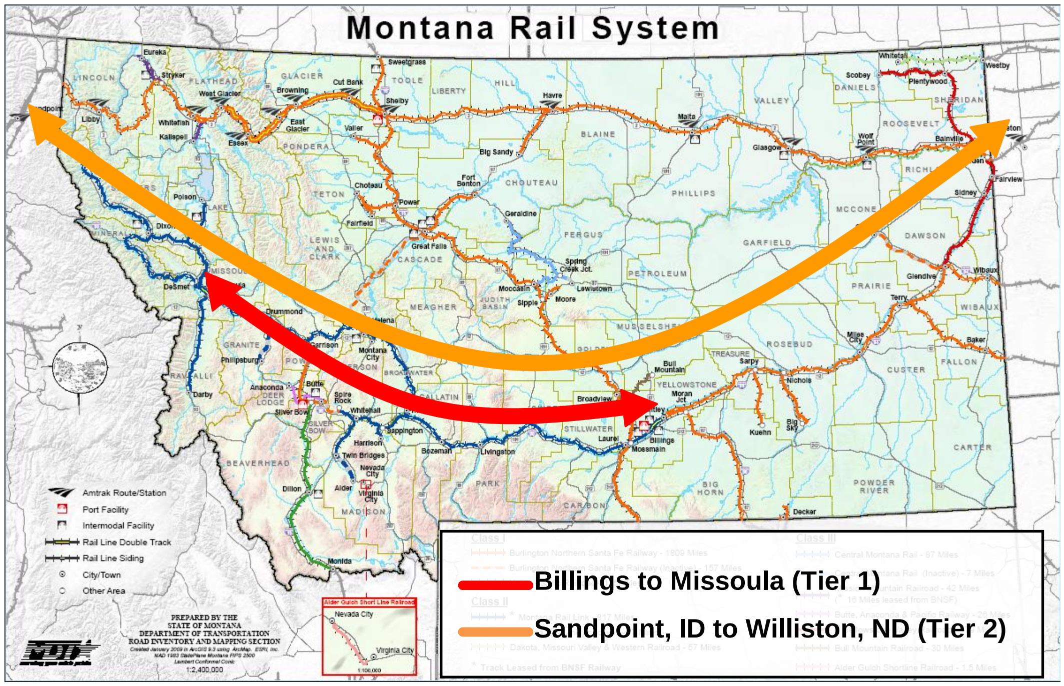


Table ES.3 Summary Information for Tier 1 Route

Element	Amount
One Time Capital Costs	$159,050,000
Estimated Annual Ridership	15,300
Estimated Annual Passenger Revenue	$400,000
Estimated Annual Operating Costs	$12,600,000
Estimated Annual Operating Subsidy	$12,200,000

Source: Amtrak Montana Report, 2010: Feasibility and Route Assessment.

For the Tier 2 analysis, Amtrak assessed capital improvements that would be necessary between Williston, North Dakota, and Sandpoint, Idaho to meet both the requirements of passenger service and the operating needs of the host railroads. This assessment was accomplished by a limited sample of route inspections and through information from the host railroads.

The Tier 2 analysis did not include capital cost estimates similar to those in Tier 1. The MRL segments of the line (Missoula to Sandpoint) are in excellent condition and would likely require only modest capital investments. However, the eastern segments from Glendive to Snowden will require more extensive infrastructure improvements: track and signal upgrades and maintenance, expanded sidings, and grade crossing protection upgrades. Capital cost estimates for these segments would be highly speculative without more detailed engineering analysis, and therefore this 2010 State Rail Plan does not include those capital cost estimates.

To begin new service, non-Federal funding will likely be required to leverage Federal grants for planning and capital improvements (infrastructure and rolling stock) and to provide ongoing operating support for new service.

Various new Federal funding programs for passenger rail have been authorized in the past 12 months and further appropriations for passenger rail are expected in the 2010 fiscal year and beyond. These programs include:

- American Recovery and Reinvestment Act (ARRA) of 2009 Discretionary Multimodal program, providing $1.5 billion for passenger rail improvements;
- ARRA High-Speed Rail program, allocating $8 billion for projects with environmental clearance, corridor planning, and state rail planning;
- Intercity Passenger Rail Improvements (IPR), providing $90 million to augment ARRA and fund corridor and state rail planning;
- Passenger Rail Investment and Improvement Act (PRIIA) of 2008, which has allocated $1.9 billion to intercity passenger rail, $1.5 billion to high-speed rail, and $0.3 billion for congestion relief; and
- Rail Rehabilitation and Improvement Financing (RRIF) Loans, providing up to $35 billion for rail infrastructure capacity.

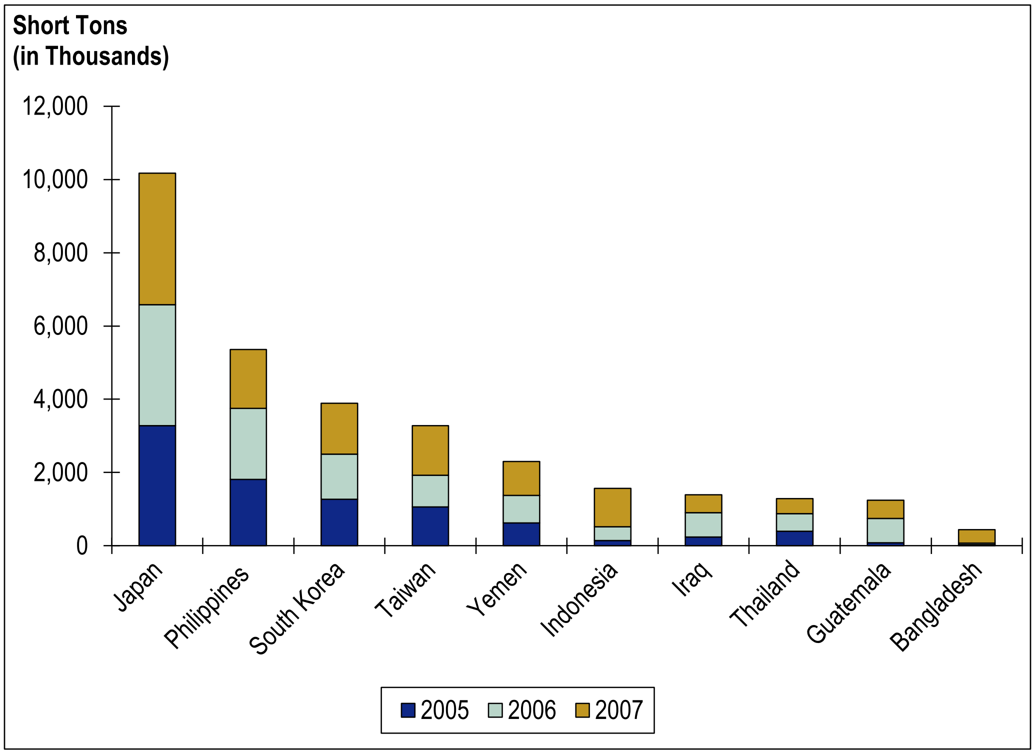
Additional provisions for passenger rail improvements may be included in the next Surface Transportation Authorization Bill.

Grain Car Consolidation Facility Impact Analysis

Grain shuttle facilities – large grain elevators designed to load 100 to 110-car trainloads quickly – are playing an increasingly important role in the distribution of Montana grain. Their emergence and increasing prominence represents a technological shift that affects Montana farmers, grain elevator operations, short-line and larger railroad operators, and the State's roadway system.

Wheat is Montana's primary international export, representing 31.64 percent of the State's export value in 2006. Pacific rim countries are the biggest consumers of Montana wheat, led by Japan, the Philippines, South Korea, and Taiwan, illustrated in Figure ES.5.

Figure ES.5 Wheat Exports from Pacific Northwest Ports
2005 to 2007



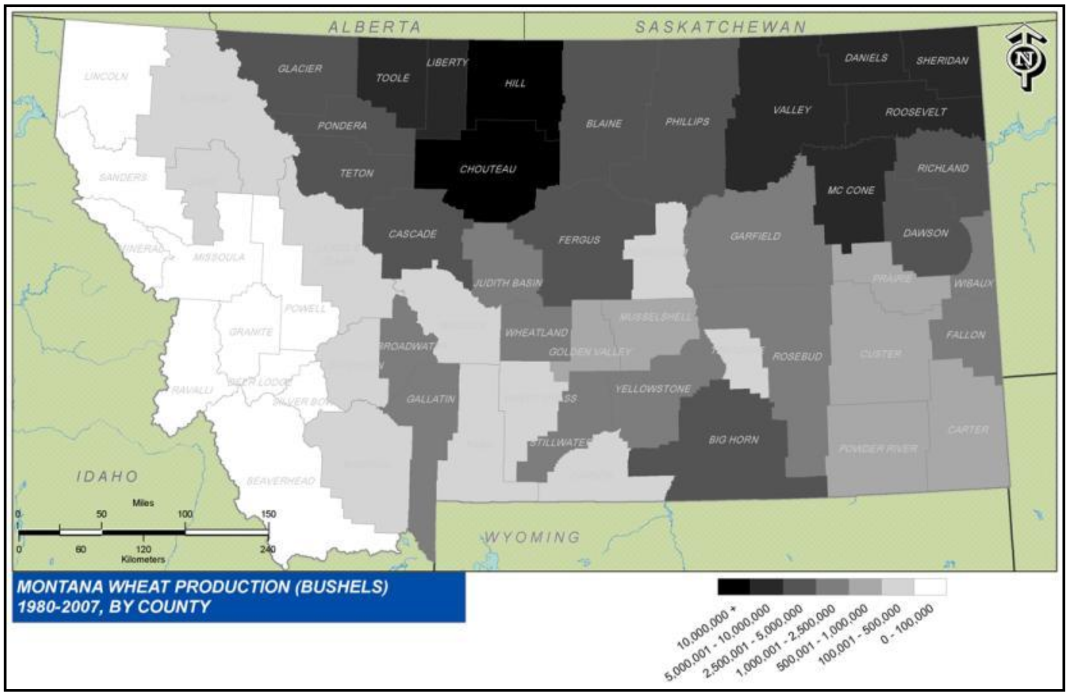
Source: U.S. Department of Commerce, Bureau of the Census, World Trade Atlas.

Figure ES.6 shows the counties in Montana that produce the most wheat.

Historically, Montana producers relied upon smaller, local elevators, which provided train service in 52-car units, 26-car, or fewer. The increasing prevalence of larger, more centralized grain shuttle facilities represents a substantial shift in transportation demand for the regional economy of northern and eastern Montana. There are 15 of these facilities in Montana, each estimated to cost around $4 million apiece to construct. Unit train movements of grain from shuttle facilities to port elevators offer faster transit times and quicker turnaround of grain cars, economies of scale that benefit railroads and the shuttle facilities. The growing market share for these larger facilities has led to a reduction in the number of grain elevators available for grain producers, from a total of 189 elevators in 1984 to 121 elevators by 2006.

Wheat producers nearer shuttle facilities may receive more reliable rail service and may benefit from product prices that reflect the exporters' lower rail transportation costs. However, other producers must travel further to reach shuttle facilities, and they tend to use larger trucks to do so, which increases their transportation costs. The combination of heavier trucks over longer distances is expected to accelerate maintenance needs of roadways, some of which may need to be redesigned to accommodate the needs of larger trucks.

Figure ES.6 Wheat Production by County
1980 to 2007



Source: Cambridge Systematics analysis of data from the National Agricultural Statistics Service, U.S. Department of Agriculture, downloaded from http://www.nass.usda.gov/QuickStats/Create_County_Indv.jsp.

While the railroads and export shippers (who own many of the shuttle facilities and the port loading facilities in the Pacific Northwest) appear to be reaping the financial benefits of the efficiency improvements grain shuttle facilities provide, transportation costs are shifting to farm producers in the form of higher transportation costs and higher costs to governments to maintain roadway networks. These trends are indicated in data collected in the Montana Rail Grain Transportation Surveys produced for the Montana Wheat and Barley Committee in cooperation with MDT.

Over the long term from a statewide perspective, potentially negative effects to producers, independent elevators, and short-lines are somewhat offset by positive impacts for rail and elevator operators, benefits that could move downstream to producers in the form of better prices and services, better market access and greater regional competitiveness.

Public Rail Funding Programs

In the 1970s, rail planning became a requirement of states wishing to participate in the Local Rail Service Assistance program, a Federal rail financing program. In 1989, the Federal Railroad Administration (FRA) updated the program and renamed it the Local Railroad Financing Assistance (LRFA) program. Federal appropriations to the program stopped in 1995, and states continued to make grants and loans for rail-related projects under Federal oversight. Under these programs, between 1979 and 2008, Montana made a total of $11,112,682 in grants and loans for rail improvements.

In 2005, the Montana Essential Freight Rail Act established in state law guidelines for the Montana Essential Rail Freight Loan Program. The program is a revolving loan fund administered by MDT to encourage projects for construction, reconstruction, or rehabilitation of railroads and related facilities in the State. Although the program enables bonding and includes statutory authority of up to $2 million annually, no additional funds have been budgeted for the program to date. The MRFL fund currently has a balance of about $1.14 million, comprised of repayments from previous Federal loans.

Various other Federal programs provide financial support for rail improvements. Federal support to states go to safety improvements for road-rail crossings through the Highway Safety Improvement Program (HSIP), which became a core Federal-aid funding program with the passage in 2005 of the Federal transportation reauthorization bill, SAFETEA-LU. Federal funds for grade crossing protection devices have been a feature of Federal highway funding programs for decades, and are distributed to states on a formula basis.

In October 2008, Congress enacted legislation, the Rail Safety Improvement Act of 2008 and the Passenger Rail Investment and Improvement Act (PRIIA) of 2008 (Federal passenger rail investment programs are described in more detail in the Passenger Rail section). The safety provisions do not authorize the scale of Federal investments included in PRIIA, but two authorized grant programs may provide opportunities for Montana. Also, the Rail Rehabilitation and Improvement Financing (RRIF) program provides loans and credit assistance to both public and private sponsors of rail and intermodal projects. RRIF funding may be used to acquire, improve, establish, or rehabilitate intermodal rail equipment or facilities, and is a good match for Montana rail carriers and shippers with projects with revenue potential for loan repayments.

Montana Rail Issues

Limited rail competition in Montana provides shippers with few competitive options to moderate rail rates, car availability, or services. However, a 2004 rail competition study by R.L. Banks & Associates found that limited rail competition is only one of several other factors contributing to the dual problems of high rates and limited service for general freight, agriculture, and intermodal rail shippers in Montana.[12] Other factors in Montana include:

- Relatively small transportation market;
- Geographic position and distance from the more robust West Coast and Midwest markets;
- Staggers Rail Act emphasis on financial health of the railroads, and interpretation of that law by the Interstate Commerce Commission (ICC) and its successor entity the Surface Transportation Board (STB); and
- Limited transportation options in Montana other than rail (distance to barge option and long trucking distances).

Since three of these four factors lie beyond the influence of public policy, much of the efforts of Montana shippers and elected officials to expand service or reduce rail rates have focused on legal remedies through new laws at the Federal level or changing interpretation of laws by Federal regulators. These new laws include changes to economic regulation procedures by the Surface Transportation Board, and changes to Federal antitrust laws to change some railroad practices that may offer rate relief or access to competitive rail service.

In 2005, the Montana Legislature created the Rail Service Competition Council and charged it to promote rail service competition, reevaluate the State's railroad taxation practices, and perform various coordination efforts to increase competitive options for smaller shippers. The 2009 Railroad Rate Report prepared by the State Attorney General's Office found that Montana shippers continue to be charged high rates compared to other wheat producing states, pay excessive fuel surcharges, and receive inadequate services, such as fewer grain elevators, poor car availability, and poor shipment timing.[13] Recent private initiatives include a rate arbitration agreement between BNSF and the Montana Wheat and Barley Commission.

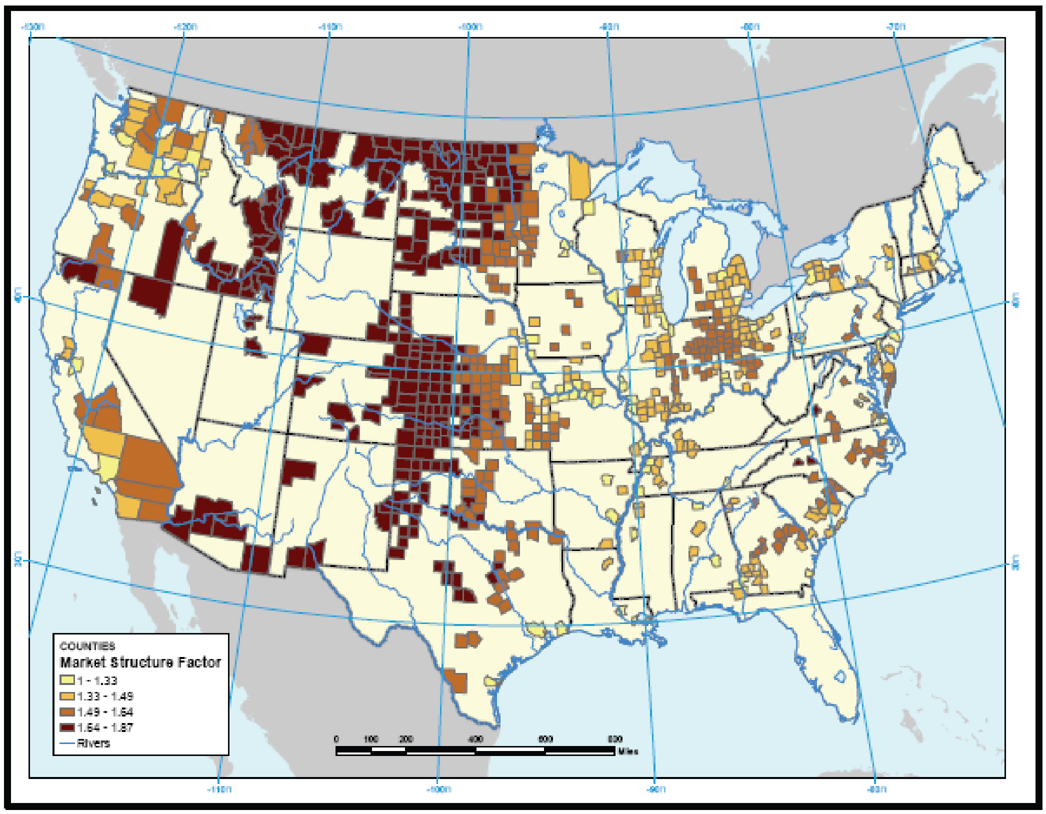
The balancing act for railroads, shippers, and policy-makers is in the difference between rates that are "reasonable" and rates that are "fair." Rate fairness would give shippers similar rates for similar shipments, while rate reasonableness could allow railroads to set rates by considering fixed network costs and competitive options available to shippers, subject to some upper limit on how much the rate exceeds marginal costs. According to new Federal studies of rail competition, potential changes in the regulation of railroad rate-setting practices might benefit shippers of larger quantities of homogenous products whose quantities and

[12] R.L. Banks & Associates. *Rail Freight Competition Study as Provided by Montana Senate Bill 315*, October 29, 2004, page ES-2.

[13] Cutler, John, et al. *Railroad Rates and Services Provided to Montana Shippers: A Report Prepared for the State of Montana*, prepared by the State Attorney General's Office, February 2009.

frequencies of carloads would attract service rather than smaller shippers. Those same competition studies still report that Montana is an area of the country with relatively higher rail rates because of limited modal alternatives and limited rail competition, and longer shipment distances. This shows both in rate measures such as the ratio of Revenue over Variable Costs (R/VC) and in correlations between market structure factors limiting competition and wheat pricing models (shown in Figure ES.7). The new Federal competition study admits that there are markets – geographic and commodity – for which additional regulatory attention may be needed to offer reviews of rate reasonableness.

Figure ES.7 County-Level Effects of Market Structure Variables in Wheat Pricing Models on Real Revenue per Ton-Mile



Source: Figure ES.4, 2008 Christensen Study, page ES-14.

MDT also studied the potential for new intermodal shipment points in the State, as Montana only has one intermodal terminal, in Billings on the BNSF. Montana shippers contacted in surveys reported that they were interested in new intermodal service. Fifty-nine percent of those surveyed stated that they would use intermodal services for export movements, and 52 percent of those surveyed reported that they would use intermodal services even if offered less than daily. However, studies of possible intermodal container volumes supported by

Montana economic activity indicated an insufficient amount of container activity to support another intermodal terminal.

Another issue discussed is possible public support for private rail infrastructure investment. Unlike most other modes of freight transport, railroads are largely responsible for the substantial capital investments necessary to maintain and expand their operations. A study released by the Association of American Railroads in 2007 provided a comprehensive evaluation of long-term capacity needs along major freight rail corridors. Without recommended infrastructure improvements to accommodate the expected increase in overall national freight traffic by the year 2035, the study indicates that several of Montana's primary main lines could potentially be above capacity. These congested lines in Montana are a result of the increase in overall national freight traffic expected by the year 2035, and are not a short-term projection of rail system congestion. The current economic downturn, and decrease in both rail and highway shipping may affect the pace of overall freight volume growth. In the long term, overall freight expansion will resume and strain the national rail network. With expected growth, Montana rail lines will experience significant congestion unless railroad capital spending expands system capacity. The AAR report suggests that meeting such capital investment needs will require some form of matching public financial assistance.[14]

A number of major issues also could affect railroad transportation in Montana:

- New Federal surface transportation program authorization could expand funding and flexibility for states to fund freight rail improvements or allow incentives for railroads to expand capacity to meet goods movement trends;
- New Federal climate change or environmental laws could lead to modal shifts of freight from truck to rail, and could impact long-term prospects for some rail commodities such as coal; and
- New Federal energy policy could affect the rail locomotive fleet, or changes in fuel prices could lead to long-term changes in goods movement away from a global sourcing economy and accompanying lengths of movements by rail and truck.

[14] American Association of Railroads, *National Rail Freight Infrastructure Capacity and Investment Study*, September 2007.

1.0 Overview

1.1 INTRODUCTION

Background and Purpose

With more than 3,200 miles operated and 3,000 employees living in the State, rail has a strong presence in Montana from a transportation and economic perspective. The State began its rail planning efforts in 1979 and this document serves as an update to the Montana State Rail Plan, which was previously updated in 2000. The multiple goals of this plan include:

1. Providing an overall update to elements of the 2000 Rail Plan which focused on the State's role in rail planning, retaining eligibility for Local Rail Freight Assistance (LRFA) funding, updating the description of Montana's rail system, and examining the feasibility of new passenger rail service;
2. Providing an in-depth exploration of passenger rail feasibility along the Southern Rail Corridor of the State;
3. Examining the potential impacts of grain car consolidation facilities in the State; and
4. Discussing the issues and implications of recent Federal legislation on Montana's rail planning efforts.

Federal Basis for State Rail Planning

Federal rail planning requirements are outlined in 49 Code of Federal Regulations Part 266 (49 CFR 266). One of the original intent of the regulations were to provide clear and concise directions for states to compete for LRFA funds (which have not been appropriated by Congress since 1995). Section 266.15 outlines the Federal requirements for state rail plans and prescribes that they should be "based on a comprehensive, coordinated, and continuing planning process for all transportation services within the State and shall be developed with an opportunity for participation by persons interested in rail activity in the State and adjacent states where appropriate."

The Code also specifies format and content of the State Rail Plan. Aside from various funding assistance eligibility requirements, rail plan content is to achieve the following:

- Describe the planning process participation of local and regional governmental bodies, the railroads, the railroad labor, rail service users, and the public in general;
- Describe the overall planning process for all transportation services in the State;
- Contain an illustration of the State's entire rail system on suitable scale maps with a written description of service on each line; and
- Identify lines by class of service in the State (abandonments, potential abandonments, assistance eligible, etc.).

Among the elements that State Rail Plan *Updates* are to include:

- An update of information in previous submittals which is no longer accurate as a result of plan implementation, action by a governmental entity or railroad, or changed conditions;
- An update of maps and line descriptions;
- Changes in agency responsibility and/or authority; and
- Revisions in the State's policies, objectives, or long-range expectations.

Montana State Rail Planning History

Montana's state rail planning process began in the 1970s with the advent of the Federal government's local rail assistance (LRSA) funding. The first state rail plan was released in 1979, with updates published in 1982, 1984, 1993, and 2000. State rail plan supplements were published in 1980, 1983, and 1985-1986; an addendum produced in 1990, and an Amendment was published in 1997.

Responsibility for state rail planning has shifted among departments since the initial plan. In 1979 the Montana Department of Highways published the plan, while the Montana Department of Commerce was responsible for state rail planning functions from 1981 until 1991. Montana law MCA 60-11-101 designated the Montana Department of Transportation (MDT), also established in 1991, as the state rail planning agency. The 1993 and 2000 Updates have been produced by MDT, Rail and Transit Planning Division.

Throughout its history, Montana has faced a host of rail planning issues. While the State has traditionally had a strong rail presence, the 1970s and 1980s brought rail line service preservation concerns as the Milwaukee Road, operating over a major east-west interstate route in Montana, faced bankruptcy. Rail service competition has also been a long-standing issue in Montana, given that the vast majority of rail mileage has been owned by a single operator; originally Burlington Northern (BN) and subsequently the merger combination of Burlington Northern and Santa Fe (BNSF).

As a response to this market dominance, Montana utilized Federal funding to both preserve and increase rail competition. Montana administered LRSA grants and loans in the 1980s, until Federal funding sources became exhausted. At that point Montana shifted toward loans as opposed to grants, with funding concentrated toward branch lines. As an example, the Moccasin-Geraldine line is now operated by Central Montana Rail, Inc (CMR). In this case the rail right-of-way is owned by the State of Montana. The State also acquired the Butte Hill Line, a short-line in Butte, which was in turn donated to the Butte Historic Parks Railroad. The State utilized $1.7 million in LRSA funds at Silver Bow to construct a 52-car grain loading terminal as a means of promoting competition on the Union Pacific (UP) line.

In sum, $4.4 million in LRSA funds have been invested in the Moccasin-Geraldine line, and have translated into reduced highway impacts which would have resulted from truck shipment, as well as socioeconomic impacts caused by the closure of the branch line.

Also, $3.7 million was loaned to BN to improve the Power-Choteau-Fairfield and Conrad-Valier branch lines between Great Falls and Shelby. The loan has since been repaid and reallocated.

LRSA became the Local Rail Freight Assistance (LRFA) program in 1989. The Whitetail line rehabilitation, beginning in 2000, has been the only federally funded rail project in the State since the 1980s. The LRFA has not received congressionally appropriated funds since 1995, though Montana continues to reallocate loan repayments.

1.2 Project Approach

The 2010 Montana State Rail is based upon six primary tasks which seek to provide an update of previous planning efforts while exploring key contemporary freight and passenger rail topics in detail:

Task 1 – Rail System Description

This task is a result of coordination with MDT staff and rail operators in order to begin developing a geographic information system (GIS) which contains data and attributes of Montana's rail lines from a combination of sources, including Federal, state, and rail operators. This plan also provides descriptions of rail lines operating in Montana at the subdivision level based on information obtained from the railroads and other sources.

This task also provides a historical perspective of rail planning in the State and summarizes changes in the rail system since the last update, describes Montana's current passenger rail service, and the status of the construction of new lines, including the Tongue River Railroad and the Bull Mountain Rail Spur (Global Rail Spur).

Task 2 – Analysis of Passenger Rail Along Southern Corridor

In coordination with projections and estimates by Amtrak, this analysis includes estimates for capital costs for intercity passenger rail service from Billings to

Missoula, as well as an operating cost analysis at a scale similar to the operating analysis for the Missoula to Billings route in the 2000 Rail Plan Update (referred to as Tier 1 in this State Rail Plan). The task also involves a high-level assessment of the conditions along rail lines for intercity service through southern Montana, from Williston, North Dakota to Sandpoint, Idaho. This task also describes regulatory and financial issues associated with passenger rail operations on private rail lines and provides a summary of potential funding sources for expanded passenger rail service.

This task also includes a history of passenger rail service in Montana, and proposals to reinstate passenger service along Amtrak's former North Coast Hiawatha route.

Task 3 – Grain Car Consolidation Facility Impact Analysis

In order to deliver the 110-car unit trains preferred by Class I railroads, a number of private firms have constructed grain elevator/train loading facilities capable of consolidating grain shipments from a variety of shippers into unit trains. The 2004 Rail Competition study described this phenomenon and the likely affects on other smaller grain elevators and rail branch lines.

This task also discusses grain production patterns, historical and projected, based on statistics from the Montana Department of Agriculture, and determines how the consolidation facilities are handling grain harvests (including any regions not being adequately served by the current facilities). This includes an assessment of how these facilities have impacted rail access (not necessarily the price) for grain shipments. Further, this task graphically depicts global grain distribution patterns from Montana points of origin.

Task 4 – Discussion of Implications of Other Montana Rail-Related Studies and Plans

This task considers the role and implications of rail-related studies that have been completed since the 2000 Rail Plan Update. This includes a 2008 intermodal study, *Research in Support of Container/Trailer on Flatcar in Intermodal Service on Montana's Mainlines*, the 2004 *Montana Branch Line Study, Phases I and II*, the *Montana Rail Freight Competition Study (provided Montana S.B. 315),* as well as available data, resources, interviews, and other sources regarding pending issues facing the State's freight and passenger rail service.

Task 5 – Identification of Potential Abandonments

Using information from previous tasks and the 2004 Montana Branch Line Study this task serves to identify rail lines that are potentially threatened with abandonment due to declining or nonexistent traffic volumes and/or infrastructure deficiencies. The task also provides a high-level summary of methods that could be pursued to either preserve rail service on these lines or preserve the right-of-way if they are abandoned through the purchase of the rights-of-way by the State or through other means.

Task 6 – Summary of Rail Program Funding Procedures

This task provides a summarization of project application, review, and selection procedures for rail programs administered by MDT, including the Local Rail Freight Assistance Program (LRFA) and the Railroad and Intermodal Transportation Facility Loan Program.

1.3 ORGANIZATION OF THIS REPORT

The 2010 Montana State Rail Plan is organized as follows:

- **Section 2.0, Freight Trends –** This section discusses Montana freight trends in the context of nationwide freight flows, and goes on to analyze state freight rail characteristics in detail; including commodity flow information and external factors which influence goods movement in the State.
- **Section 3.0, State Rail Planning –** This section addresses the basis for rail planning in Montana, featuring in-depth descriptions of the physical and operating characteristics of railroads within the State, including the subdivision level.
- **Section 4.0, Passenger Rail Service –** This section describes current and historical passenger rail service in Montana. The section also involves an analysis of possible new service once served by the Amtrak North Coast Hiawatha route discontinued in 1979. This section includes analysis of capital and operating costs provided by Amtrak.
- **Section 5.0, Grain Car Consolidation Facility Impact Analysis –** This goal of this section is to thoroughly portray wheat and barley market, shipping, and distribution trends for producers in Montana, and to analyze the emergence of 110-car shuttle facilities and their resultant impacts.
- **Section 6.0, Summary of Rail Funding Procedures –** This section outlines historical rail funding provided by MDT, and outlines other Federal funding programs possible for rail projects.
- **Section 7.0, Montana Rail Issues –** This section explores several contemporary issues pertaining to rail transportation: rail competition in Montana, Federal rail re-regulation, intermodal service in Montana, coal transportation, rail infrastructure investment and funding, railroad safety and at-grade railway-highway crossings, preparing for potential modal shifts due to energy costs, and environmental implications of rail service in Montana.

2.0 Freight Trends

Population and consumption increases, along with technological advances in manufacturing and shipping have raised freight to be among the most important of modern transportation issues. In 2005, over 4.5 trillion ton-miles of freight were shipped in the United States – about 15,300 ton-miles per capita. Rail transportation represented the largest share of that, 38 percent, and the fastest growing.

The United States and its trading partners are engaged in a continual pursuit to move goods more efficiently and cost-effectively. Montana shippers and their trading partners are no exception. This section begins with a discussion of current national freight trends, then proceeds to profile freight flows at the state level. It concludes with an analysis of Montana freight rail operations in relation to state and national freight movements.

2.1 National Freight Trends

In order to frame the role of Montana rail freight, it is important to recognize state and local goods movement in the context of the national freight trends. Historically, truck shipments have largely dominated the freight transportation system in the United States; however, recent trends indicate gradual but consistent increases in rail freight shipments. This increase in rail may be related to the benefits of rail over truck freight, which include: transportation system capacity and highway cost savings; economic development and productivity; international trade competitiveness; environmental health and safety; and improved emergency response.[15]

As a resource to assist in understanding goods movement origin and destination patterns in the United States, the Federal Highway Administration (FHWA) produced the Freight Analysis Framework (FAF and FAF2), which represents an extensive commodity flow database incorporating data from a range of public sources and is representative of each major mode of freight transportation.[16] FAF2 is a useful tool for identifying broad freight trends and goods movement interactions between regions. That said, this information is not likely to accurately capture aspects such as the effect of current volatility in the global economy or specific short-term nuances in freight trip patterns between sectors at the local level.

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[15] AASHTO *Freight-Rail Bottom Line Report*, http://freight.transportation.org/doc/FreightRailReport.pdf.

[16] While FAF2 has resulted in vast improvements over the initial FAF database, this dataset is based on commodity flow survey data, and its results are inherently subject to both sample size limitations as well as the accuracy of economic growth projections.

At the national level, FAF2 projects substantial freight growth across all modes, with domestic shipments showing exceptionally large increases. Table 2.1 displays tonnages by mode for the entire United States for 2002 and 2035. The data shows that total freight tonnage is expected to nearly double by 2035, and to remain dominated by truck transport (+96 percent). Rail (+87.5 percent), intermodal (+101 percent), and pipeline (+83.6 percent) also are projected to increase at impressive paces.[17]

Table 2.1 Summary of U.S. Shipments by Mode
2002 and 2035 (Millions of Tons)

	(Millions of Tons)	
	2002 Total	**2035 Total**
Truck	11,539	22,814
Rail	1,879	3,525
Water	701	1,041
Air, Air, and Truck	10	27
Intermodal	1,292	2,598
Pipeline and Unknown	3,905	7,172
Total	**19,326**	**37,178**

When analyzing shipments by mode and value – shown in Table 2.2 – projections reveal substantial gains across every category. With total value of shipments expected to increase nearly 193 percent from $13,120 billion to $38,399 billion, all modes increase: truck by 168 percent, rail by 83 percent, and intermodal and pipeline by 356 percent and 105 percent, respectively.

[17] Intermodal freight transport is a separate category characterized by the movement of freight in a container or vehicle across multiple modes of transportation, including rail, ship, and truck.

Table 2.2 Summary of U.S. Shipments by Mode
2002 and 2035 (Billions of Dollars)

	(Billions of Dollars)	
	2002 Total	**2035 Total**
Truck	$8,856	$23,767
Rail	$382	$702
Water	$103	$151
Air, Air, and Truck	$663	$455
Intermodal	$1,967	$8,966
Pipeline and Unknown	$1,149	$2,357
Total	**$13,120**	**$38,399**

Tables 2.3 and 2.4 show total freight flows by mode for 2002 and 2035, broken down by domestic trade, exports, and imports, by volume and value, respectively. In 2002, domestic movements made up the lion's share of freight flows by both weight (91 percent) and value (84 percent). This trend is expected to continue in the future, with domestic movements accounting for about 91 percent (by weight) and 77 percent (by value) of total freight flows by 2035. In Montana, this likely will be reflected by increasing shipments of basic commodities like grain and minerals.

Although domestic freight shipments clearly make up the majority of total goods movement in the United States, foreign trade (imports and exports) is expected to grow faster. According to FAF2, the total weight of foreign freight shipments will grow by 2.3 percent annually between now and 2035, compared to 2 percent per year for domestic movements. This will cause the total volume of these shipments to expand by 112 percent (to about 3.5 million tons) by 2035. When measured by value, the growth is even more dramatic: 4.5 percent annually for foreign trade compared to 3 percent per year for domestic. As a result, the value of foreign trade will more than quadruple in the coming years, to $8.8 trillion. In Montana, this growth will manifest itself in terms of increasing cross-border trade with Canada as well as growing east-west movements; for example, of goods imported through West Coast seaports on their way to midwestern and eastern markets.

Table 2.3 U.S. Shipments by Mode and Weight
2002 and 2035 (Millions of Tons)

	2002			2035		
	Domestic	**Exports**	**Imports**	**Domestic**	**Exports**	**Imports**
Truck	11,336	106	97	22,231	262	320
Rail	1,769	32	78	3,292	57	176
Water	595	62	44	874	114	54
Air, Air, and Truck	3	3	4	10	7	10
Intermodal	196	317	780	334	660	1,604
Pipeline and Unknown	3,772	4	130	6,926	5	240
Total	**17,670**	**524**	**1,133**	**33,668**	**1,105**	**2,404**

Notes: Intermodal includes U.S. Postal Service and courier shipments and all intermodal combinations except air and truck.

Pipeline and unknown shipments are combined because FAF2 data on region-to-region flows by pipeline are statistically uncertain.

Table 2.4 U.S. Shipments by Mode and Value
2002 and 2035 (Billions of Dollars)

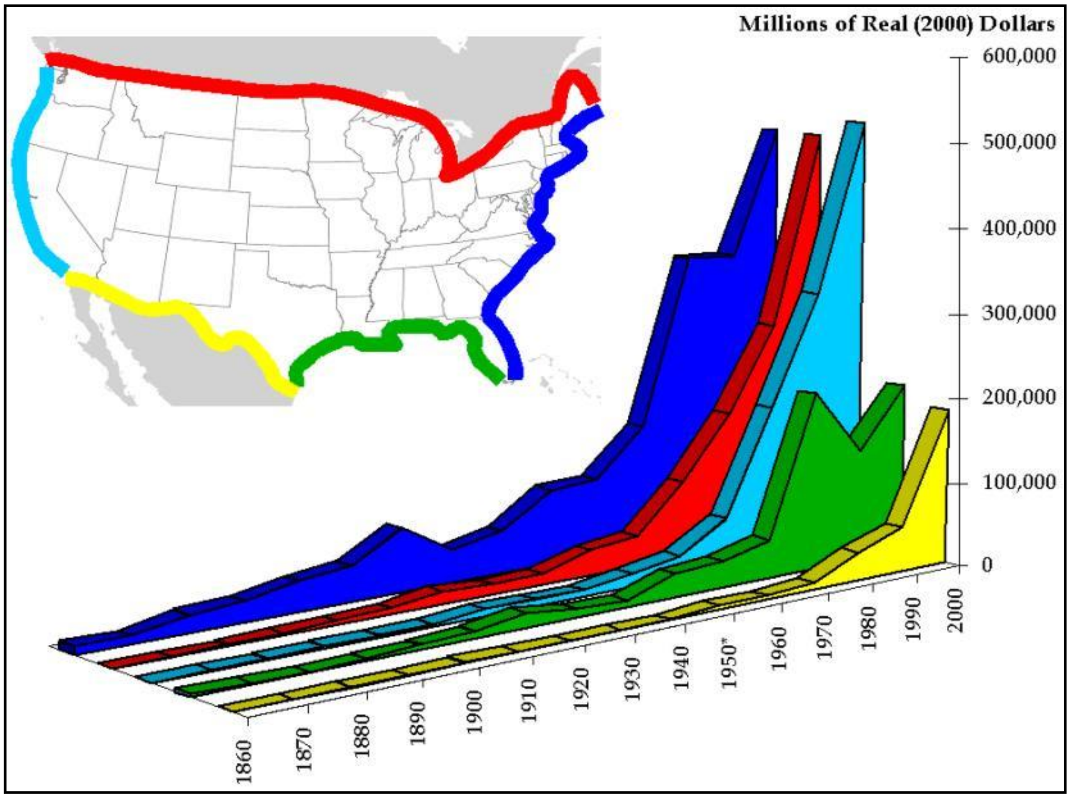
	2002			2035		
	Domestic	**Exports**	**Imports**	**Domestic**	**Exports**	**Imports**
Truck	$8,447	$201	$208	$21,655	$806	$1,306
Rail	$288	$26	$68	$483	$63	$156
Water	$76	$13	$13	$103	$31	$18
Air, Air, and Truck	$162	$226	$275	$721	$778	$955
Intermodal	$983	$268	$716	$4,315	$943	$3,708
Pipeline and Unknown	$1,127	$1	$22	$2,315	$1	$41
Total	**$11,083**	**$735**	**$1,302**	**$29,592**	**$2,623**	**$6,184**

Notes: Intermodal includes U.S. Postal Service and courier shipments and all intermodal combinations except air and truck.

Pipeline and unknown shipments are combined because FAF2 data on region-to-region flows by pipeline are statistically uncertain.

The above tables suggest the growing role of the U.S. in the global economy. Both imports and exports are expected to continue to increase in volume and value in the long term, notwithstanding current downward trends in freight shipments and the general weakening of the economy since 2008. Figure 2.1 depicts historical trade value trends on each U.S. border. This figure helps illustrate several patterns. Historically, the East Coast has been dominant in value of goods shipped in comparison to other borders. However, both the West Coast and Canadian border regions grew in importance beginning in the 1960s and achieved relative parity by 2000.

Figure 2.1 Growth in Value of Imports and Exports from 1860 to 2004
By U.S. Coast and Border Region



Source: Analysis by Cambridge Systematics, Inc.

This trend has been driven by several key factors. For instance, the advent of containerization (generally assumed to be higher-value goods) in the 1950s and the continuing advances in technology enabled larger ships and efficient port and intermodal operations. West Coast growth also is due in large part to the emergence of Asian shipping utilizing direct shipping lanes to West Coast ports. The North American Free Trade Agreement, which went into effect in 1994, greatly expanded trade opportunities between the United States, Canada, and Mexico and likely contributed to higher trade volume and value along the Canadian border. Generally speaking, each border region can be seen making gradual recovery from decreases in the early 2000s. This figure is particularly germane from a Montana perspective, due to the State's active trading relationships with both the Canadian border as well as the West Coast trade centers.

2.2 State Freight Trends

By narrowing the focus to Montana statewide freight data and forecasts (using the FAF2 database), it is evident that national freight flows are not representative of Montana freight trends. Table 2.5 identifies Montana shipments by weight for the 2002 base year and as projected for 2035.[18]

Table 2.5 Montana Shipments by Weight
2002 and 2035 (Millions of Tons)

	2002			2035		
	Within State	From State	To State	Within State	From State	To State
Truck	36.6	7.2	8.6	92.7	15.6	26.0
Rail	4.4	48.1	1.6	1	71.8	6.5
Water	0.1	0.1	0.1	0.1	0.1	0.1
Air, Air, and Truck	0.1	0.1	0.1	0.1	0.2	0.1
Intermodal	0.2	0.6	0.2	1.1	0.9	0.5
Total	**41.4**	**56.1**	**10.6**	**95.0**	**88.6**	**33.2**

Source: Freight Analysis Framework 2.2, State Summary Information, FHWA, Office of Freight Management and Operations.

Freight shipments by value (Table 2.6) differ significantly from shipments by weight. Trucks typically haul higher-value, time-sensitive cargo, and the data reflects that. Without exception, the estimated value of truck shipments is substantially higher than all the other modes. Higher-volume, lower-value goods tend to be shipped by rail, and the FAF2 data shows that, in 2035, rail shipments to, from, and within the State will expand. Higher-value intermodal shipments (mostly truck-and-rail) to the State will more than quadruple. By value, however, the major growth is expected in truck freight.

By 2035, total tonnage is projected to increase by 101 percent to 216.8 million tons. In both 2002 and 2035, truck shipments account for the largest share of within-state tonnage, with rail transport a distant second. The majority of freight shipped to Montana is similarly split between truck and rail. However, rail dominates from-state tonnage and is expected to account for 81 percent of exports from the State in 2035.

[18]FAF2 includes pipeline movements with those of unknown mode. Because these shipments are subject to large uncertainty and can skew results when analyzing mode split patterns, pipeline and unknown movements are analyzed separately.

Table 2.6 Montana Shipments by Value
2002 and 2035 (Millions of Dollars)

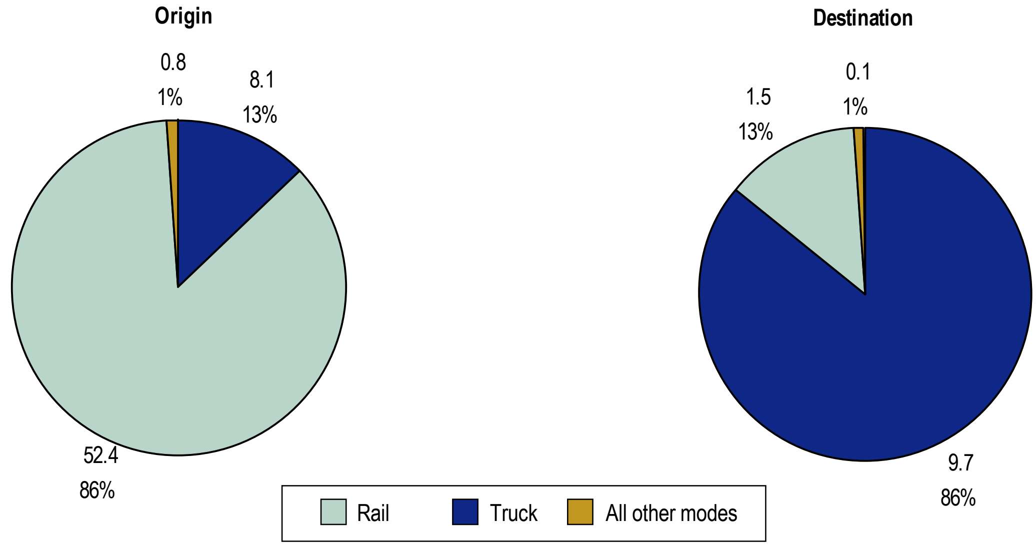
	2002			2035		
	Within State	**From State**	**To State**	**Within State**	**From State**	**To State**
Truck	$13,908	$3,885	$11,046	$39,780	$8,337	$39,923
Rail	$122	$1,769	$223	$381	$2,033	$394
Water	$0	$0	$0	$0	$0	$0
Air, Air, and Truck	$7	$91	$358	$21	$166	$755
Intermodal	$308	$633	$2,312	$852	$1,874	$10,500
Total	**$14,345**	**$6,379**	**$13,939**	**$41,034**	**$12,410**	**$51,572**

Source: Freight Analysis Framework 2.2, State Summary Information, FHWA, Office of Freight Management and Operations.

In 2008, FHWA released a provisional FAF2 database intended to establish interim adjustments to previous versions. That database includes information for 2007, and provides richer detail about the specific commodities being shipped in, from, and to the State. As mentioned, commodity flow databases' utility tends to be in their ability to identify broader trends rather than to establish highly detailed commodity interactions. But in the case of Montana, the FAF2 2007 provisional database provides a useful frame of reference. The next several graphics consider state freight movements by weight, value, and commodity from this data source.

Figure 2.2 displays weights by mode (excluding pipeline and unknown) for freight with Montana both as an origin and destination. There is a dramatic difference in rail tonnage for shipments that are entering versus leaving the State. Overall, origin tonnage is more than five times destination tonnage, and for rail, the disparity is even greater (more than 52 million tons leaving the State, compared to about 1.5 million tons entering it). Truck freight is the reverse, with the vast majority (86 percent) of tonnage entering the State coming in by truck, compared to 13 percent of originating tonnage.

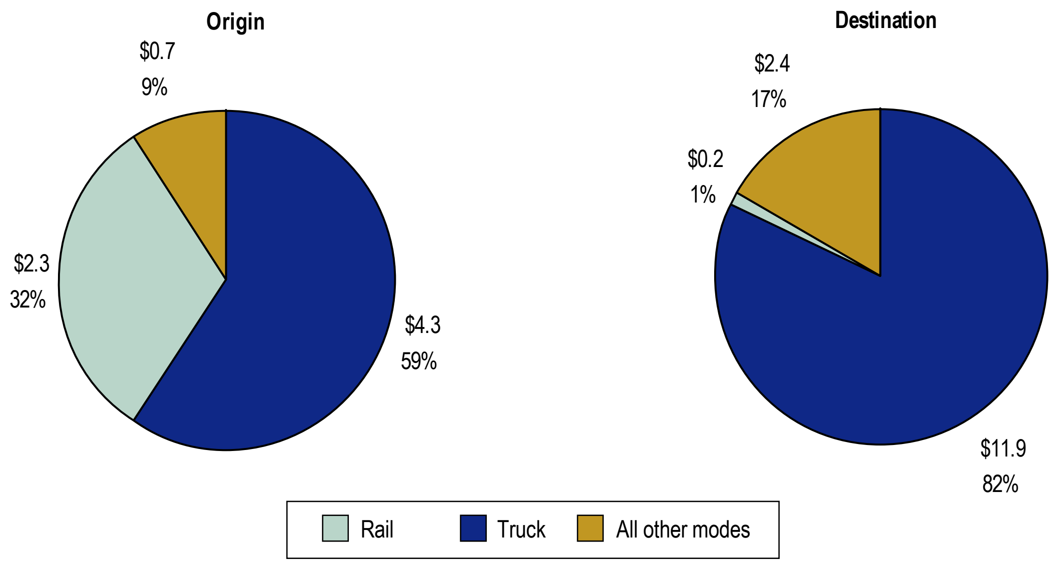
Figure 2.2 Montana Freight Weight by Mode
2007 (Millions of Tons)



Source: Freight Analysis Framework, 2007 Provisional Database. Excludes pipeline and unknown movements.

Freight by value for 2007 is shown in Figure 2.3, again excluding pipeline and intermodal shipments. The chart shows that trucks carry a substantial majority of freight value both originating and terminating in Montana. Rail accounts for 32 percent of the freight value originating in Montana but only 1 percent of terminating value. Other modes occupy a notable portion of total value in both categories, which mostly reflects higher-value truck-rail intermodal shipments. The truck and intermodal modes represent a large proportion of overall value of freight shipped because more valuable commodities tend to be transported as containerized or truck trailer freight. Moreover, trucks (hauling containers or trailers) are better suited to distributing finished goods to diffuse markets – e.g., retail and commercial locations, restaurants and grocery stores, and various types of manufacturing and light industrial establishments – and this type of freight tends to be higher value.

Figure 2.3 Montana Freight Value by Mode
2007 (Billions of Dollars)



Source: Freight Analysis Framework, 2007 Provisional Database. Excludes pipeline and unknown movements.

As discussed earlier, the FAF2 database bundles pipeline and unknown modes due to the large amount of uncertainty associated with pipeline movements and the difficulties associated with validating these movements. As a result, pipeline and unknown shipments have been excluded from the discussion to this point. Table 2.7 summarizes the volume and value of all shipments made via pipeline and unknown modes in Montana for 2002 and 2035. Given the importance of the energy industry to Montana's economy, it is reasonable to assume that most of these movements are by pipeline. As can be seen from the table, these movements constitute a significant portion of the volume and value of freight movements in Montana, and are particularly important to the State's growing oil and gas industries. Pipelines in Montana principally carry petroleum and natural gas, which is both high value and high volume, with growth in all flows.

Table 2.7 Shipments via Pipeline and Unknown Modes in Montana
2002 and 2035

	2002			2035		
	Within State	From State	To State	Within State	From State	To State
By Weight (Millions of Tons)	18.4	20.3	9.3	79.5	50.4	25.9
By Value (Billions of Dollars)	$1.3	$5.7	$2.1	$4.3	$13.3	$7.1

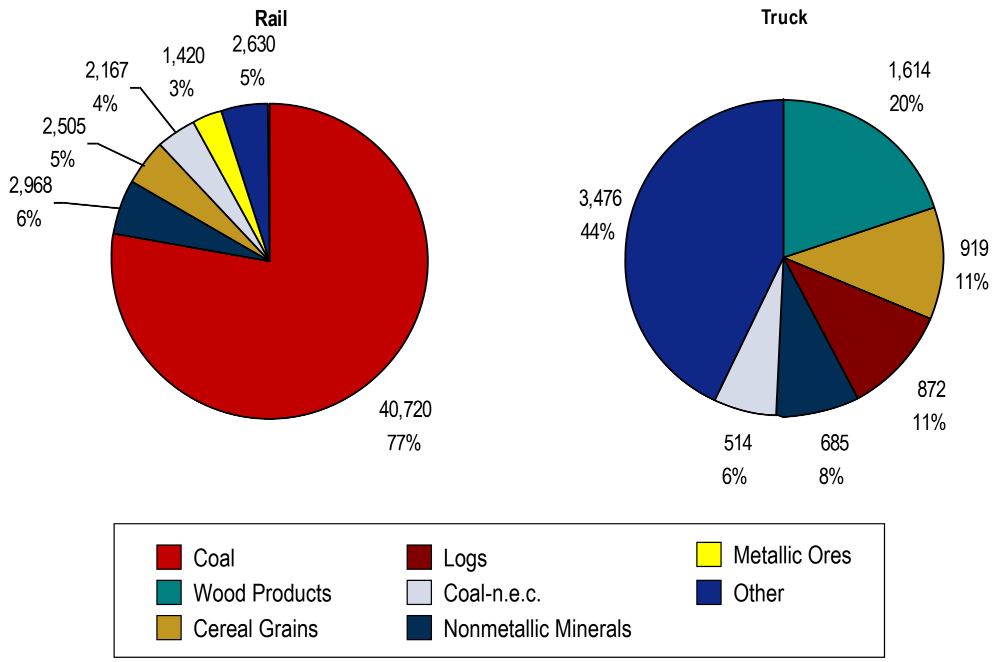
Source: Freight Analysis Framework 2.2.

The following graphics focus on the types of commodities which have a shipping origination or destination point in Montana.

Figure 2.4 provides a breakdown of the top five commodities – by tonnage – originating in the State by rail and truck. Coal (and coal not elsewhere classified) shipments are the dominant presence among goods shipped by rail; combined, they make up 81 percent of the tonnage originating in Montana. Other important rail commodities include minerals, metallic ores, and cereal grains.

The truck commodity mix is more diverse. Wood products make up 20 percent of tonnage leaving Montana by truck (about 1.6 million tons). Cereal grains and logs each comprise another 11 percent. Other commodities, which include things like food products, mixed freight, and manufactured goods, makes up about 3.5 million tons, or 44 percent of truck freight originating in Montana.

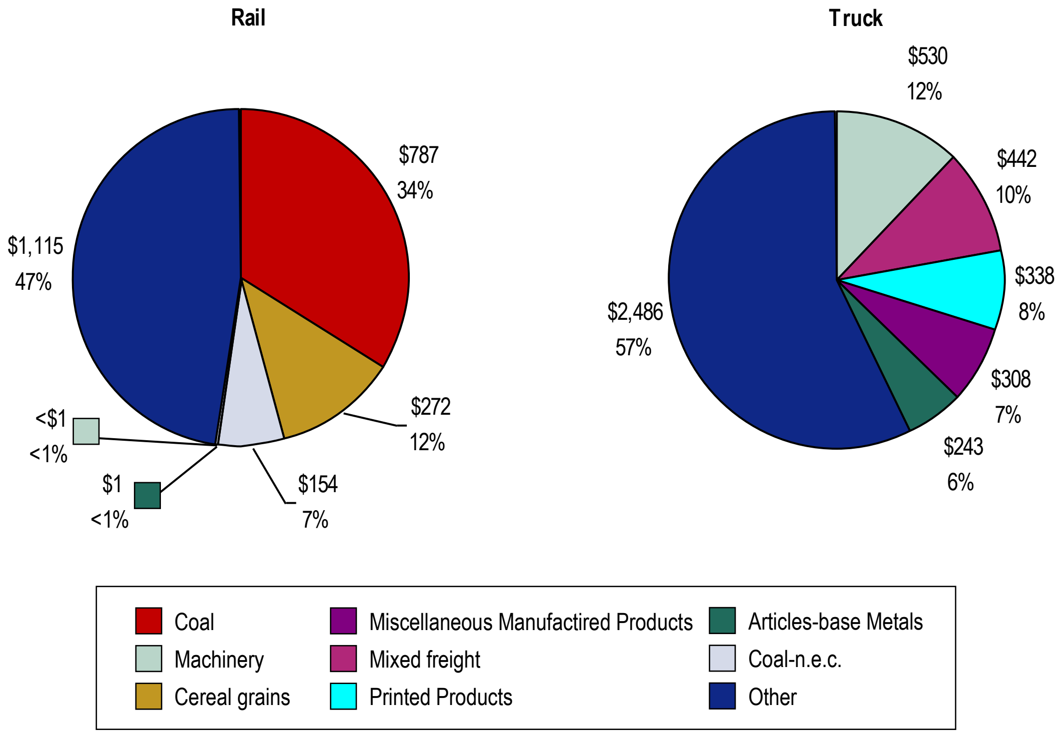
Figure 2.4 Commodities Originating in Montana by Weight
2007 (Thousands of Tons)



Source: Freight Analysis Framework, 2007 Provisional Database.

Figure 2.5 presents the top five commodities originating in Montana by value for the truck and rail modes. The commodity mix is noticeably more diversified, with “Other” commodities representing 47 percent of rail value and 57 percent of truck value. Rail shipments are predominately coal, cereal grains, and other commodities. Truck shipments constitute about twice the value of the rail shipments, and include machinery, miscellaneous manufactured products, mixed freight (intermodal), and articles of base metal, as well as the large “other” commodity group.

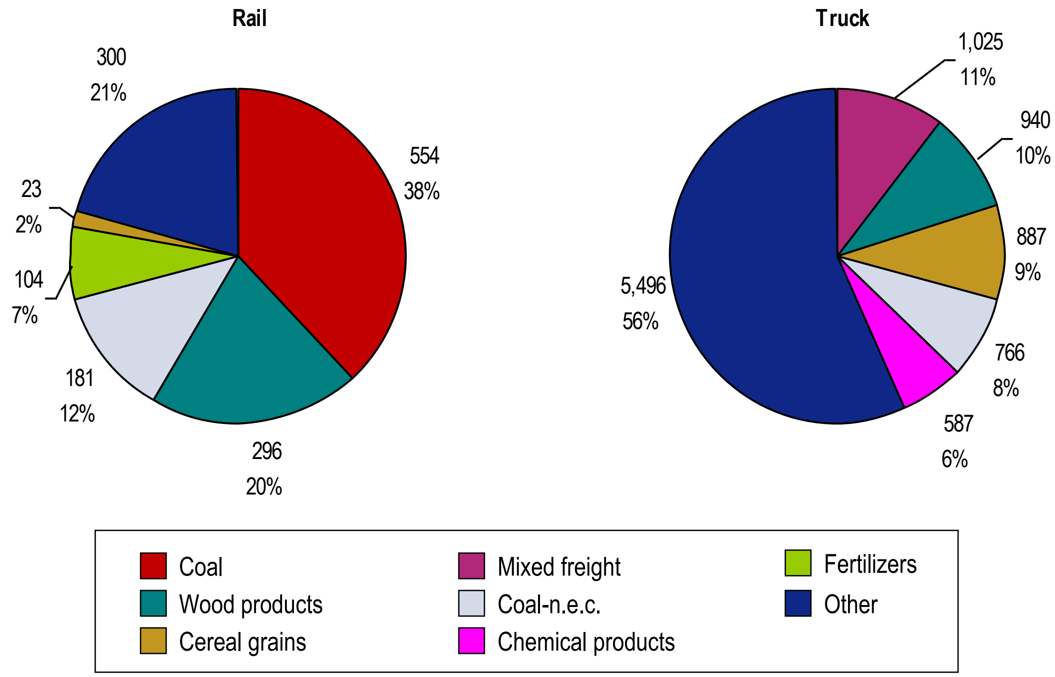
Figure 2.5 Value of Commodities Originating in Montana by Mode
2007 (Millions of Dollars)



As previously shown, the amount of freight tonnage terminating in Montana is far less than tonnage originating. The graphics below show the mix of commodities destined for Montana.

Figure 2.6 depicts top commodities terminating in Montana by tonnage. Note that this source (the 2007 provisional FAF2) estimates that total truck tonnage terminating in the State exceeds rail tonnage by more than nine times (a much greater difference than was shown in the FAF2 database, where the multiple is about five times as much). Inbound truck cargo is spread among several commodity categories, the largest being "all other commodities" (56 percent of the total); followed by mixed freight (intermodal), wood products, cereal grains, coal and petroleum products not elsewhere classified, and chemical products.

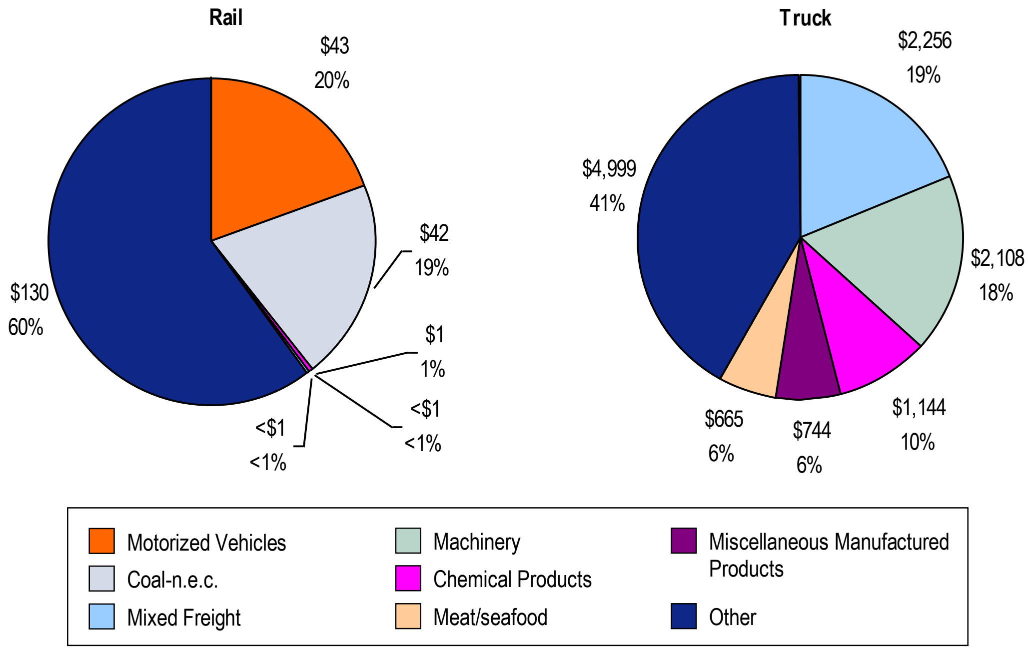
Figure 2.6 Tonnage of Freight Commodities Terminating in Montana
2007 (Thousands of Tons)



When measured by value, freight moving into Montana is dominated by the truck mode. Overall, truck freight terminating in Montana was worth almost 55 times total rail freight value in 2007. This reflects the fact that trucks are the preferred mode for transporting light, higher-value commodities.

Figure 2.7 shows the top five commodities destined for Montana by value for the truck and rail modes. Top inbound goods shipped via truck include mixed freight (intermodal), machinery, chemical products, and other miscellaneous manufactured goods. Motorized vehicles (which are predominantly moved by train) and coal and petroleum products each make up about one-fifth of the incoming rail freight bill, followed by chemical products, mixed freight, machinery, and all other commodities.

Figure 2.7 Value of Commodities Terminating in Montana
2007 (Millions of Dollars)



2.3 STATE FREIGHT RAIL TRENDS

Data from the Freight Analysis Framework (FAF) helps describe freight movements from a multimodal perspective but does not provide a level of detail needed to examine some conditions and trends of interest in rail planning. To consider the role of freight rail in the context of statewide goods movement, this section examines characteristics specific to rail freight in Montana using the 2005 Carload Waybill Sample, maintained by the Federal Surface Transportation Board. The Waybill Sample identifies rail-specific commodity flow trends by:

- Isolating goods that were transported on rail;
- Describing the weight of rail shipments by commodity, and the line-haul freight revenues received by the railroads for transporting them; and
- Characterizing the nature of rail moves, considering specific origins, destinations, and through trips.

The Waybill Sample reports four types of movements in relation to Montana:

1. **Intrastate –** Originating and terminating within the State;
2. **Through –** Passing through the State but neither begin nor end in the State;
3. **Originating –** In the State but terminating in another state; and
4. **Terminating –** In the State but originating in another state.

The section also examines common trip combinations, rail commodities, and county-level shipments. Table 2.8 presents summary information extracted from the Waybill Sample regarding trip type, tonnage, and line-haul freight revenue.

Table 2.8 Summary of Rail Freight Tonnage and Revenue by Trip Type

Trip Type	Tonnage (Millions)	Revenue (Millions Dollars)
Through Trips	56.4	$2,673.9
Originated Trips	42.0	$800.4
Terminated Trips	2.8	$94.5
Intrastate Trips	2.1	$20.4
Total	**103.4**	**$3,589**

Rail Freight Trip Types

Montana is situated on a trade corridor that links the midwestern and northwestern port markets. As a result, there is significant demand for throughbound rail service. Figure 2.8 highlights the dominant role of through traffic to Montana. Fully 74 percent of rail freight by revenue is just passing through the State. Originating shipments account for most of the remainder (22 percent by revenue). Rail trips terminating in Montana (3 percent by revenue) and those completely contained within the State (1 percent by revenue) make up smaller shares of the total, reflecting the State's relatively low population and status as a net exporter of goods shipped by rail.

When measured in tonnage in Figure 2.9, the picture is altered slightly, primarily because of the high amount of bulk commodities shipped from Montana. Through trips account for 54 percent of the total tonnage, while 41 percent originates in the State. Total terminated and intrastate tonnage account for far smaller shares at 3 percent and 2 percent, respectively.

Figure 2.8 Total Rail Revenue by Trip Type
Millions of Dollars

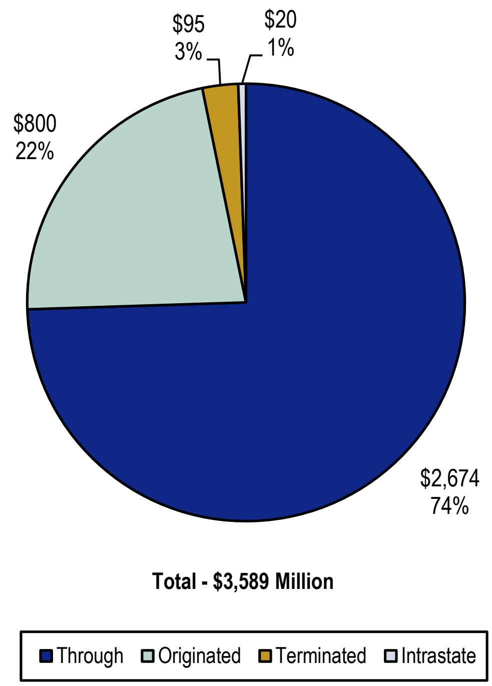
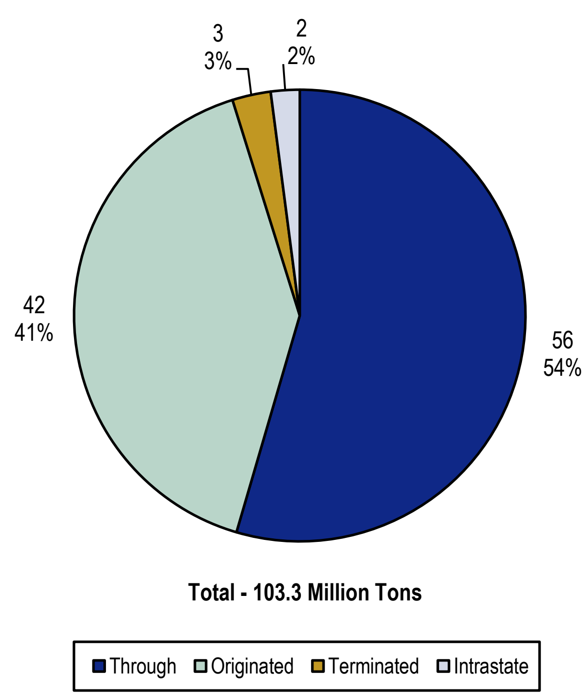


Figure 2.9 Total Rail Tonnage by Trip Type
Millions of Tons



Rail Freight Originating in Montana

Montana provides over 7 percent of U.S. wheat, 5 percent of coal, and about 2 percent of nonmetallic minerals.[19,20] These shipments reach markets across the United States and around the world, and rely on rail services. The Waybill Sample shows what is shipped from Montana by rail by commodity.

Coal shipments dominate both the tonnage and revenue categories in relation to other commodities shipped by rail from the State. The commodities were categorized into broad groups using Standard Transportation Commodity Codes (STCC) at the two-digit level. (STCC codes represent more detailed commodity descriptions, using up to seven digits. For example, wheat and barley products are classified under the broader "Farm Products" classification, and plywood, treated lumber, and saw logs are all classified under "Lumber or Wood Products.") The following figures show top originating commodities by revenue (Figure 2.10) and tonnage (Figure 2.11). Coal represents nearly half of the overall commodity mix by revenue ($381 million) and 71 percent by weight (about 30 million tons). Farm products (which includes grain) makes up the next largest share, comprising 24 percent ($187 million) by revenue and 15 percent (6 million tons) by weight. Petroleum or coal products, lumber or wood products, and clay, concrete, glass, or stone products round out the top five commodities. All other commodities make up only 6 percent of the total by revenue ($51 million) and 4 percent by weight (about 2 million tons).

[19] U.S. Department of Agriculture, National Agricultural Statistics Service.

[20] Freight Analysis Framework, 2007 Provisional database.

Figure 2.10 Top Originating Commodities by Revenue
Millions of Dollars

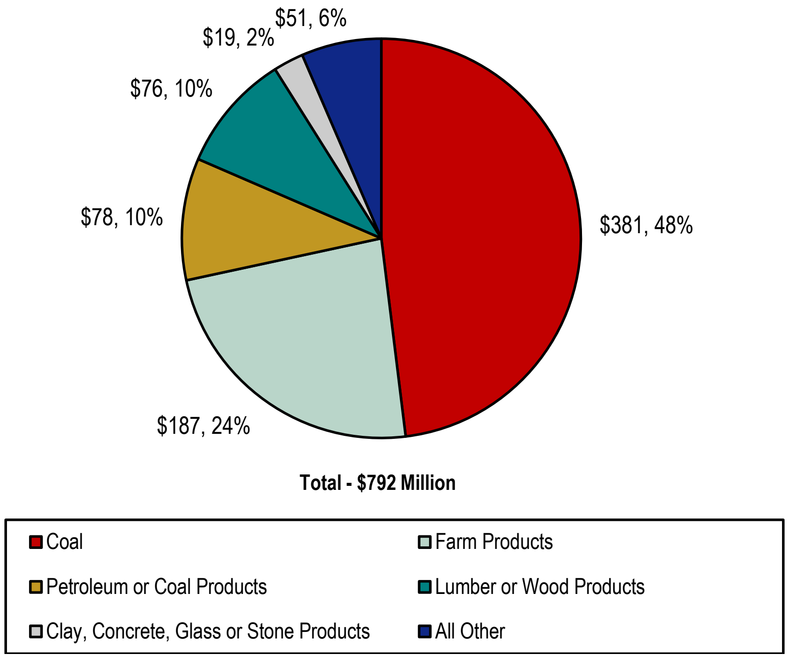
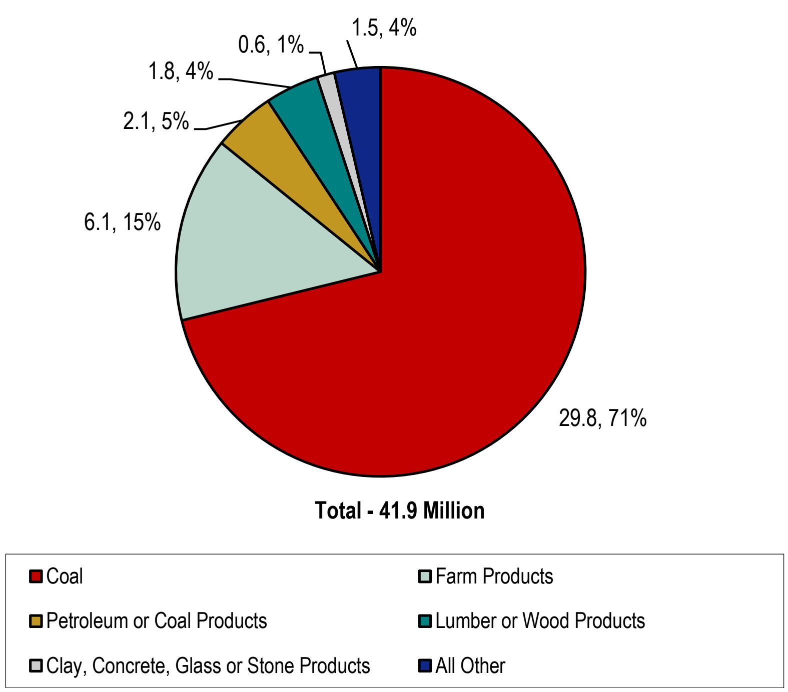


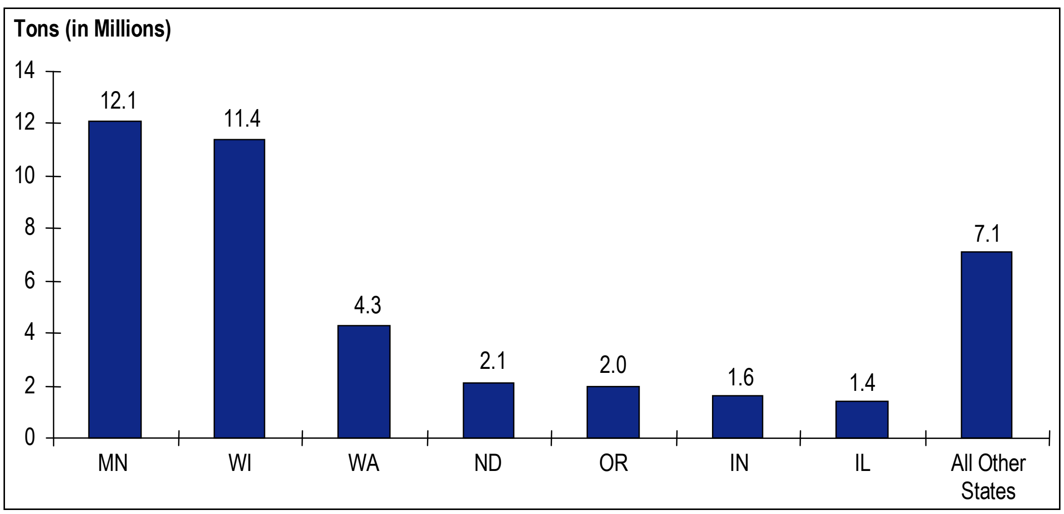
Figure 2.11 Top Originating Commodities by Tonnage
Millions of Tons



The two following figures consider the main destination states of rail freight originating in Montana, by weight (Figure 2.12) and by revenue (Figure 2.13). The majority (56 percent) of rail freight originating in Montana, by weight, is bound for either Minnesota (29 percent, or 12.1 million tons) or Wisconsin (27 percent, or 11.4 million tons). Washington is the terminus for 10 percent (4.3 million tons), and the remaining 34 percent is spread across North Dakota, Oregon, Indiana, Illinois, Texas, and others. By revenue, Minnesota receives the highest percentage (19 percent, or $154 million), followed by Washington (14 percent, or $108 million), Wisconsin (13 percent, or $102 million), and Oregon (8 percent, or $62 million).

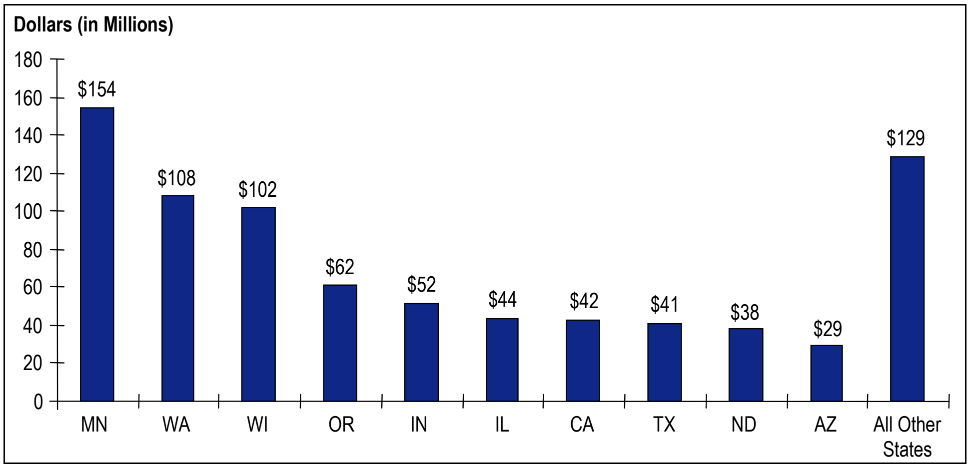
Many of these shipments are destined for export markets throughout the world. For instance, grain shipments are often transshipped at ports on the West Coast or Great Lakes for further distribution to Montana's foreign trading partners. In addition, Montana conducts significant cross-border trade with Canada, which is the State's number one foreign trading partner. According to *Export Montana*, the top five export markets for Montana products in 2007 were: 1) Canada ($584.7 million); 2) Japan ($101.7 million); Germany ($58.9 million); Taiwan ($52.5 million); and China ($43.6 million).[21]

Figure 2.12 Total Tonnage by Destination State



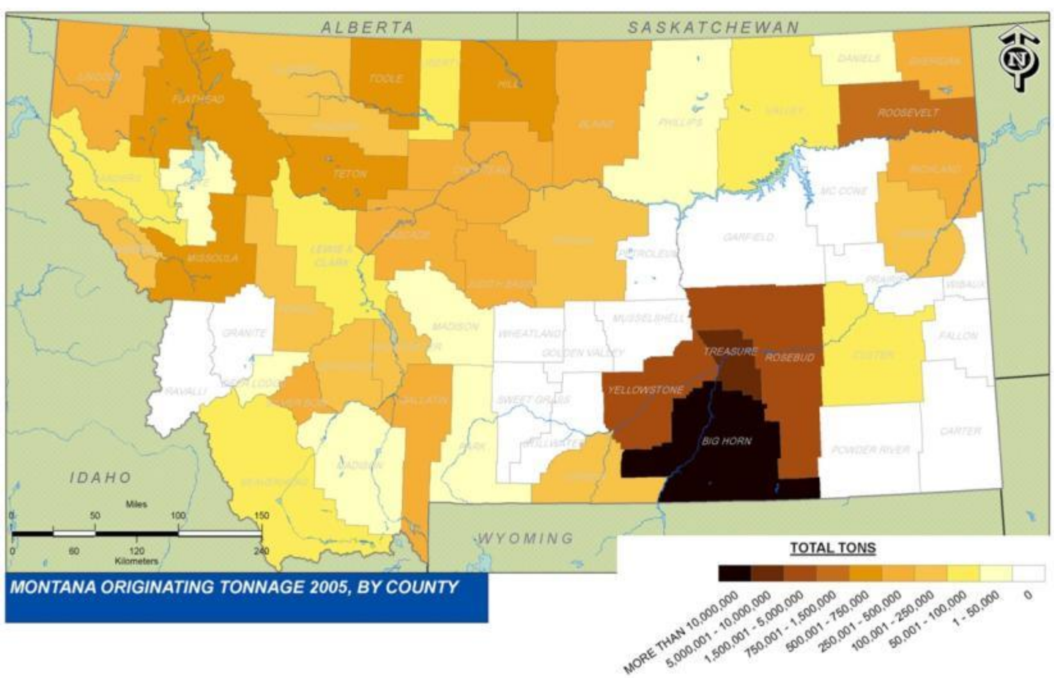
[21] http://www.exportmontana.com/Exstats.asp.

Figure 2.13 Total Revenue by Destination State



At the county level, a substantial amount of tonnage originates from a select group of the coal-producing counties. As shown in Figure 2.14, Big Horn and Treasure generate the most tonnage, followed by Yellowstone and Rosebud counties. The remainder of the tonnage primarily comes from counties in the north-central and northwest quadrant of the State – Missoula, Flathead, Teton, and surrounding counties – which ship other products, including grains and forest products.

Figure 2.14 Originating Tonnage by County



Rail Freight Terminating in Montana

As noted earlier, terminating trips are a relatively minor percentage of overall rail freight trips in the State compared to through-bound or originated traffic. Rail freight terminated in Montana is more diverse by commodity types. Figure 2.15 exhibits, by revenue, the top 10 commodities imported to the State by rail. Transportation equipment, lumber or wood products, chemicals or allied products, petroleum or coal products, and coal combine to represent about two-thirds of the total ($59.5 million) in this category. Figure 2.16 shows the top 10 commodities terminating in the State by tonnage. Coal, lumber products, chemicals, and petroleum are the top 4 commodities.

The majority of freight originating in other states/provinces and terminating in Montana by tonnage (Figure 2.17) is from: Wyoming (31 percent); Alberta (13 percent); British Columbia (7 percent); and Washington (7 percent). By revenue (Figure 2.18), Illinois is largest, at 21 percent, followed by Alberta (13 percent), Wyoming (10 percent), and British Columbia (7 percent).

Figure 2.15 Top Terminating Commodities by Revenue

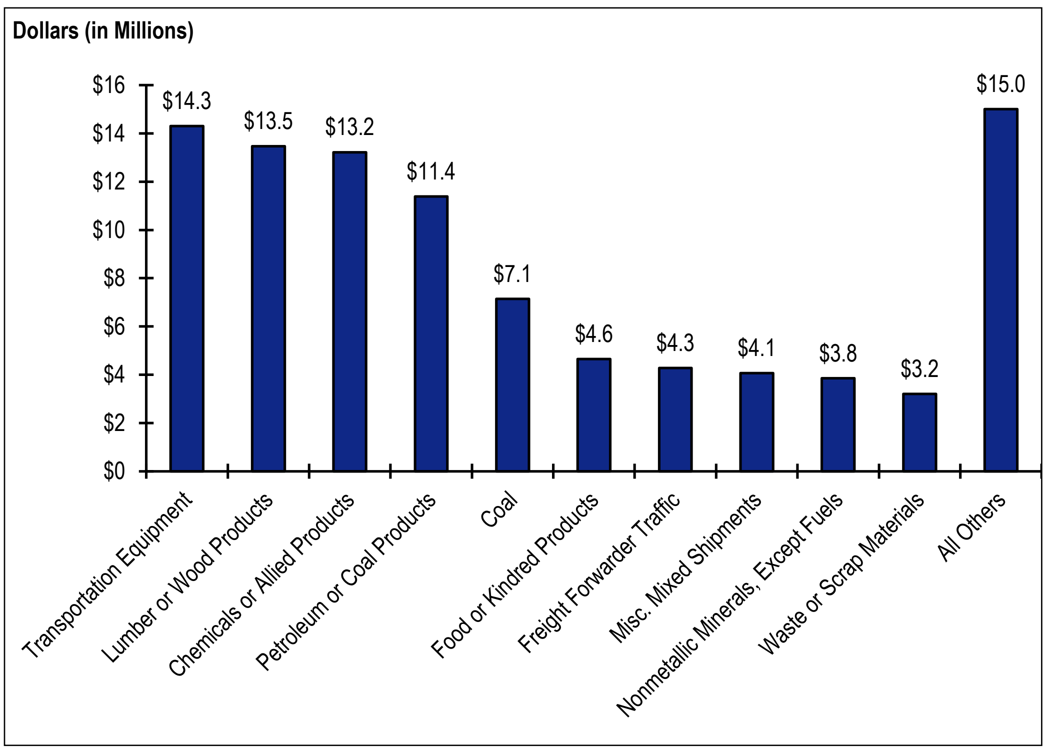


Figure 2.16 Top Terminating Commodities by Tonnage

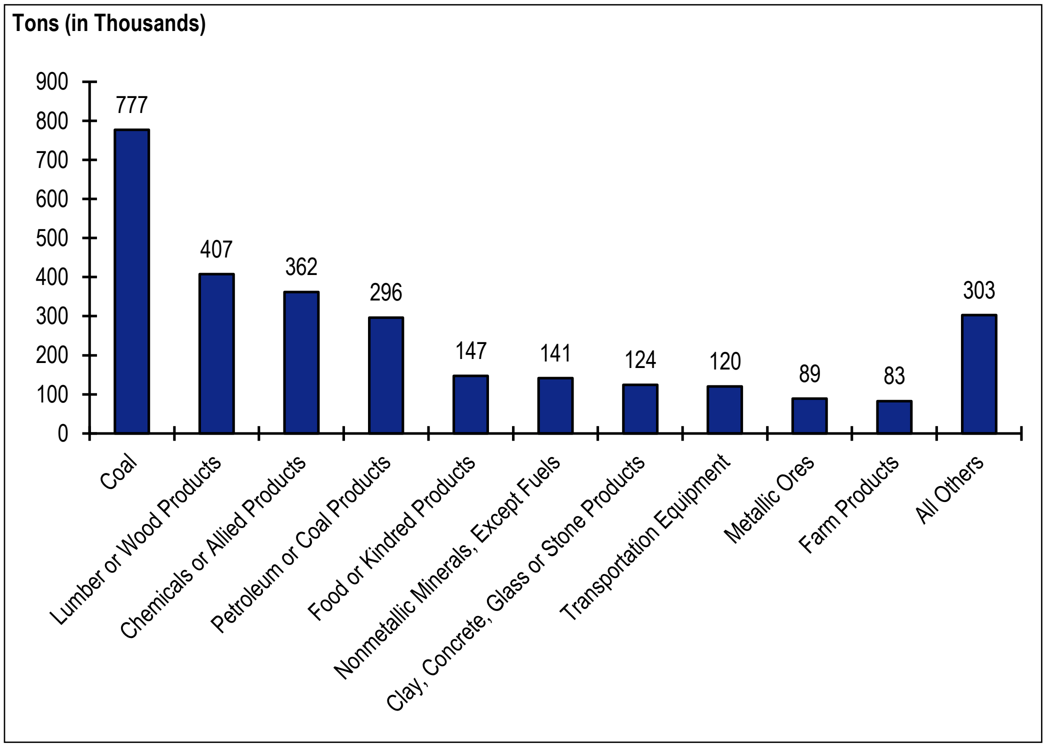


Figure 2.17 Total Tonnage by Origin State

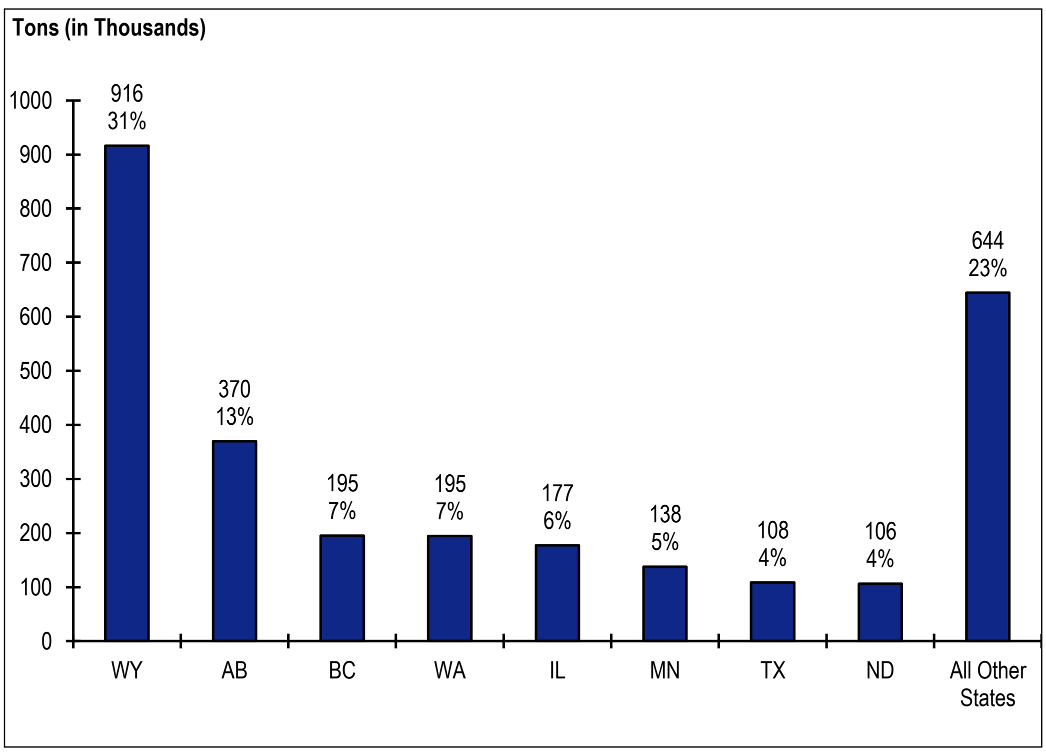


Figure 2.18 Total Revenue by Origin State

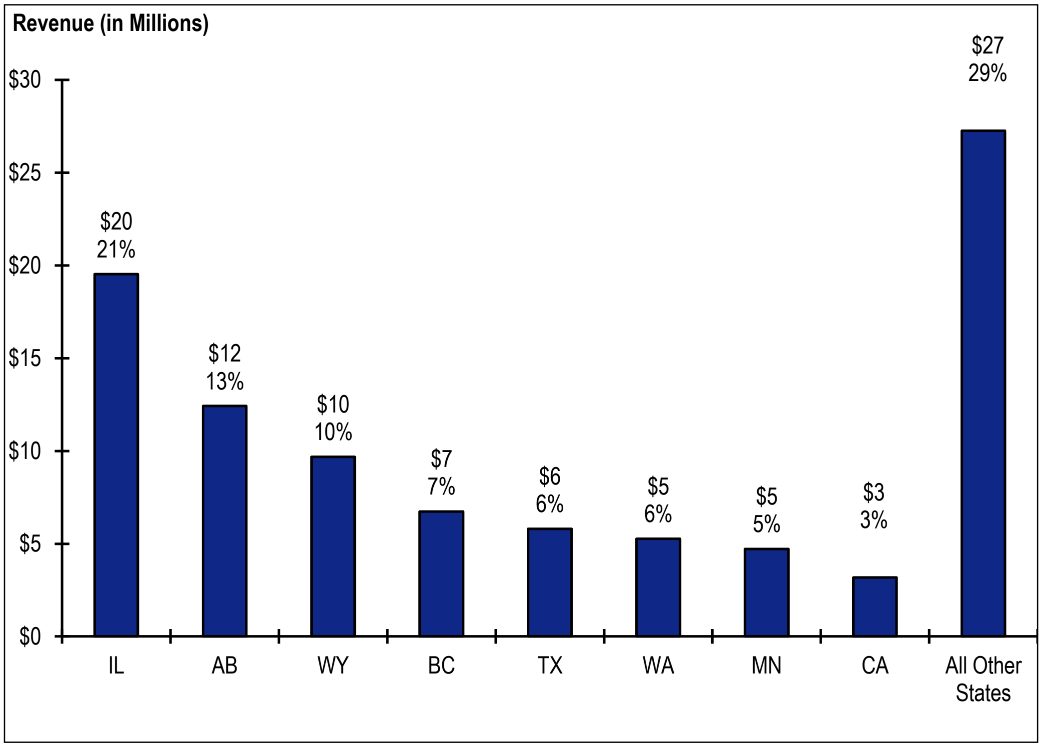
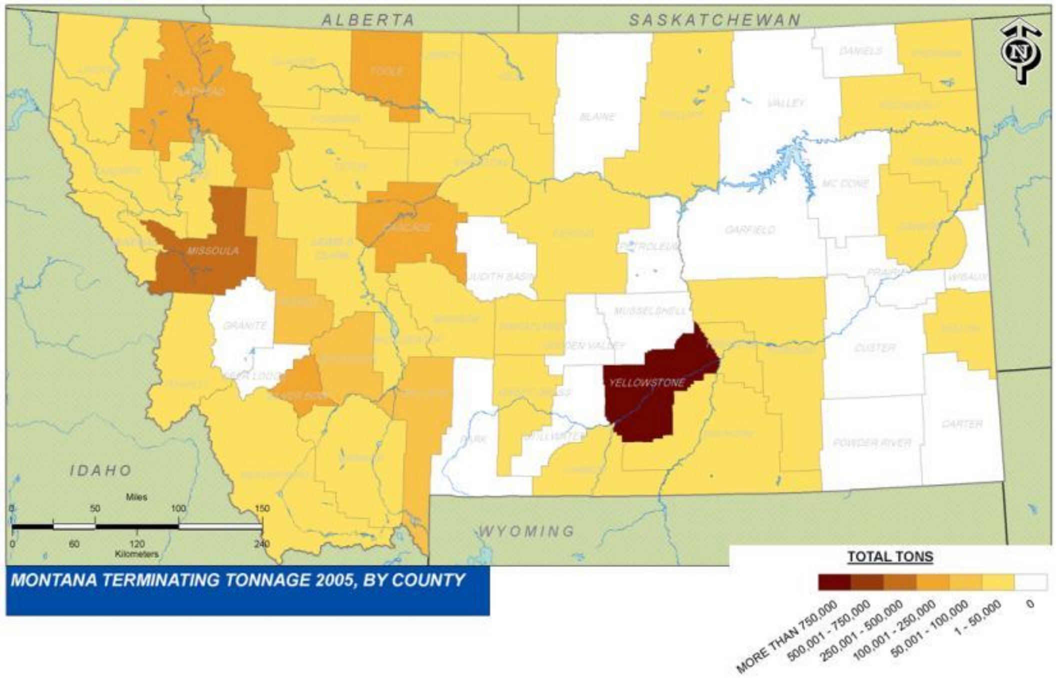


Figure 2.19 shows rail freight terminating in Montana at the county level. Yellowstone County is the single largest destination for rail freight tonnage. The area has large-scale refineries, major manufacturing operations, and the city (Billings) is an expansive trade and distribution center for eastern Montana, Wyoming, and the western Dakotas. The next level shown on the map (500,000 to 750,000 tons delivered) includes only Missoula County, the State's second largest economic center. The next highest category includes Lake, Cascade, Silver Bow, and Hill counties. In all, the pattern suggests distribution and processing centers as locations of relatively concentrated rail freight destination.

Figure 2.19 Terminating Tonnage by County



Montana Rail Freight Through Trips

As stated earlier, the Waybill Sample data show that through trips dominate rail freight traffic in Montana by both tonnage and revenue. The following figures highlight top through-bound commodities. The largest by revenue (Figure 2.20) are two product categories: miscellaneous mixed shipments, which is mostly intermodal traffic ($674 million); and farm products, including grain ($659 million). Of the remaining commodities, lumber/wood products represent approximately $250 million, and transportation equipment, food/kindred products, containers, hazardous materials, and pulp/paper/allied products each fall into the $100 to $200 million range.

By tonnage (Figure 2.21), farm products generates the most through trips, more than 21 million tons. Miscellaneous mixed shipments are a distant second, at 10.5 million tons, followed by lumber or wood products, food and kindred products, and coal. With anticipated new coal development in Montana (and Wyoming) more coal traffic can be expected on Montana rail lines.

Figure 2.20 Through Trip Commodities by Revenue

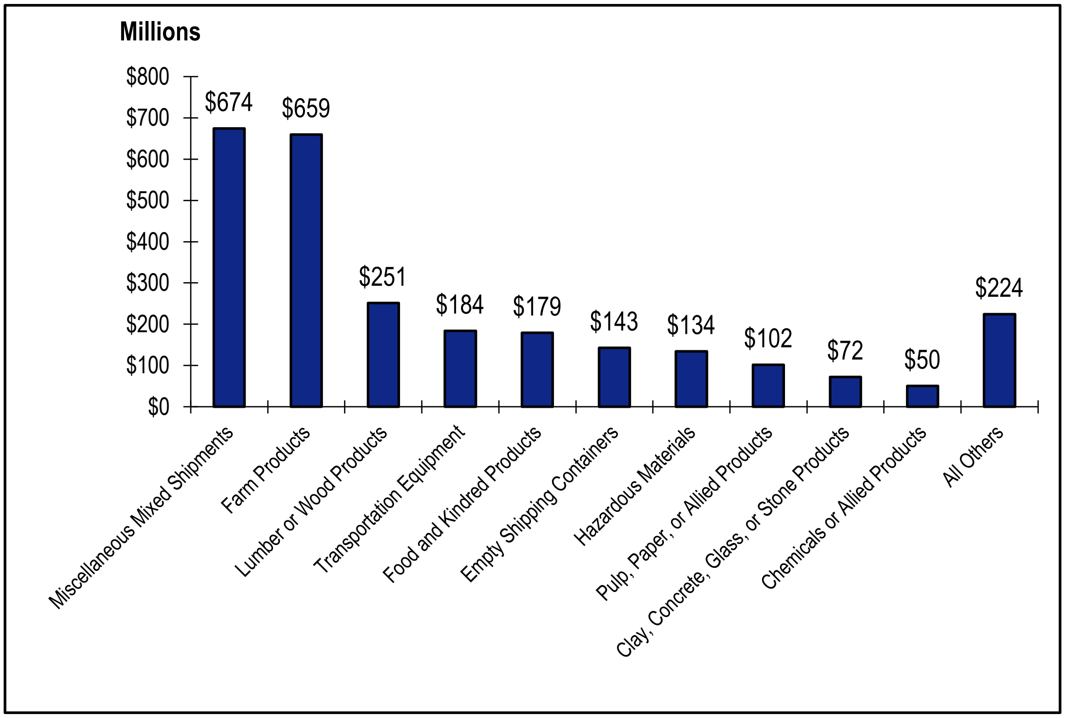
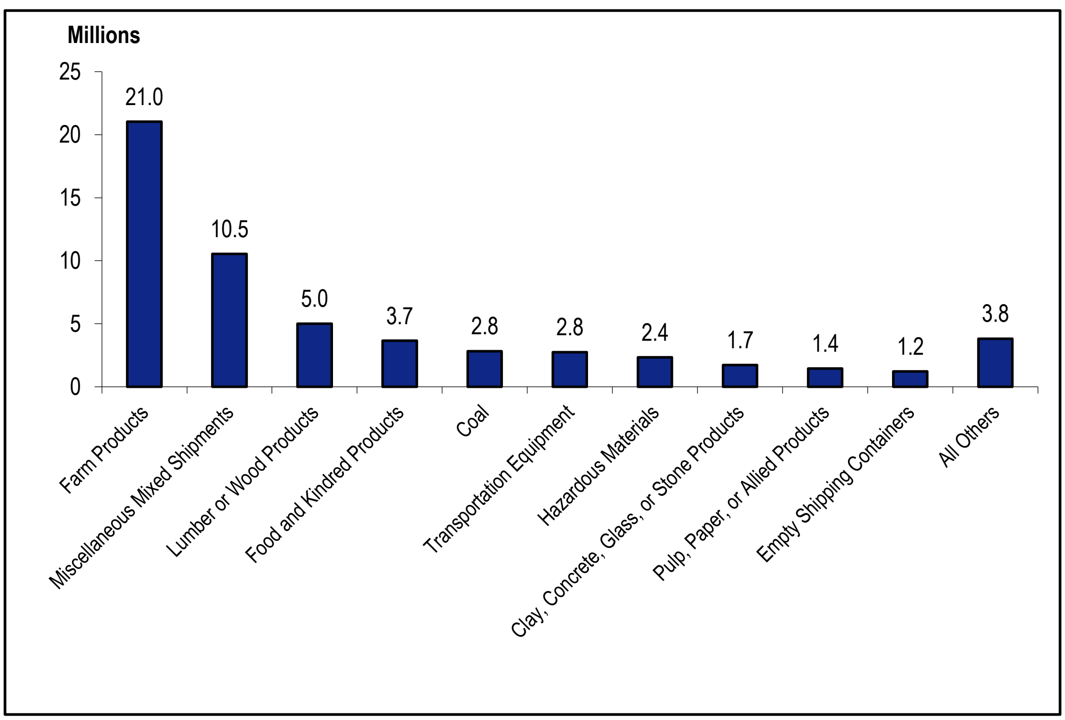


Figure 2.21 Through Trip Commodities by Tonnage



The following figures show the states in terms of most-often reported origins and destinations for rail traffic through Montana. Most of the traffic is between the upper Midwest and the Pacific port states, and most of it is westbound.

By revenue (Figure 2.22), Washington to Illinois and Illinois to Washington account for more than 26 percent of total through trips, suggesting the significant role of intermodal facilities in the Chicago area. Other significant state-to-state combinations include: Minnesota to Washington (9 percent), South Dakota to Washington (7 percent), Illinois to Oregon (4 percent), and North Dakota to Washington (4 percent). The remaining origin-destination pairs combined are about 50 percent of total through-bound freight by revenue. The majority of these are movements between the West Coast states (Washington, Oregon, and California) and various Midwest states (such as Nebraska, Iowa, and Minnesota). There are also significant movements between these West Coast states and several Rocky Mountain states like Colorado and Wyoming, and between various states and Canada.

Tonnage of through trips, shown in Figure 2.23, reflects the role of bulk commodities. Linkages between Illinois and Washington total only 18 percent by weight (versus 26 percent by value). Largest linkages by weight are Minnesota to Washington (13 percent) and South Dakota to Washington (12 percent), followed by the eastbound link, Washington to Illinois (11 percent), then Illinois to Washington (7 percent). Shipments from Nebraska and North Dakota to Washington are 6 percent each. Nearly half (45 percent) of remaining trip combinations are dispersed in smaller tonnages between other origins and destinations. As with revenue, most of these remaining through shipments are made up of movements between the West Coast and Midwest/Rocky Mountains, and between U.S. states and several Canadian provinces.

Figure 2.22 Through Trip Revenue by Route
Millions of Dollars

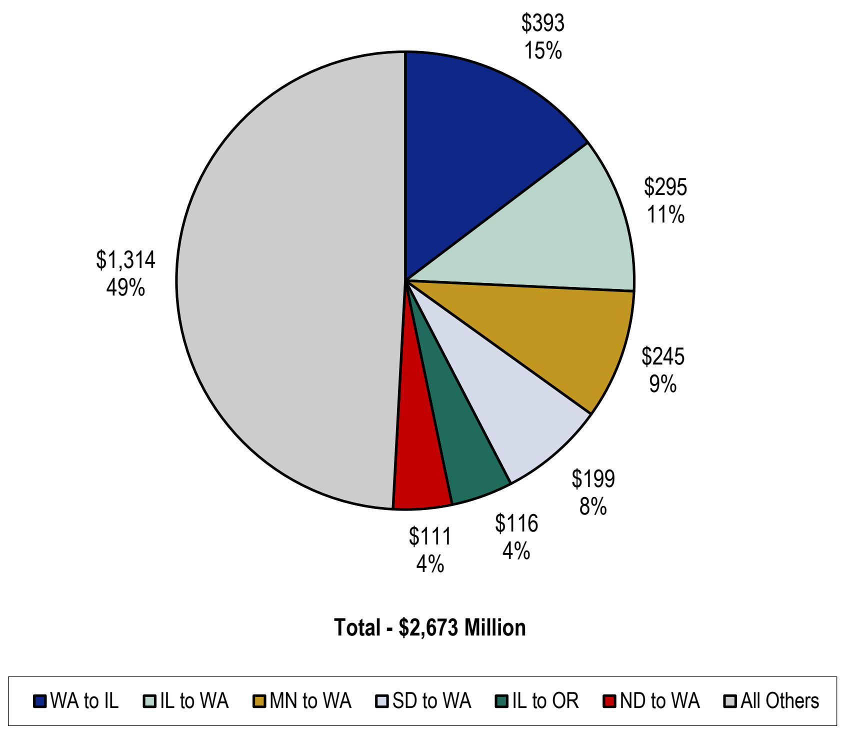
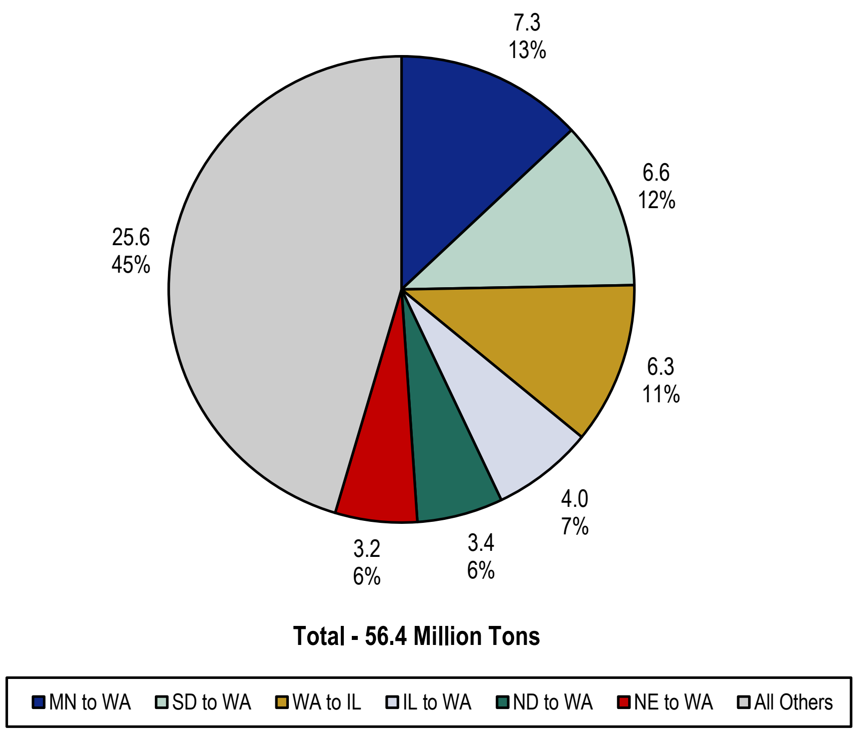


Figure 2.23 Through Trip Tonnage by Route
Millions of Tons



2.4 Population Issues Influencing Rail Transportation

Montana ships bulk commodities out of the State by rail, and transports freight through the State by rail. Through shipments include high-value interurban shipments and bulk commodity shipments originating elsewhere. Most higher-value (i.e., finished) goods produced and consumed in the State rely on truck traffic. Overall population and economic projections suggest that this will probably remain the pattern of transportation through the planning horizon.

Montana has a small population (44th smallest by Census 2008 estimates) and large land mass (4th largest).[22] In 2007, the United States had 85 people per square mile, on average, while Montana's average was 6.6. The State's situation between more populous areas shapes transportation services within the State.

County-level population projections for Montana suggest that, at the state level, population growth rates will keep pace with other states, but that Montana is expected to remain in the bottom 20 percent of state populations through 2030.[23]

The map in Figure 2.24 shows projected population growth of Montana counties between 2005 and 2030. Several counties in western Montana are expected to grow, in some cases by more than 60 percent. Population growth in Flathead, Ravalli, Jefferson, Gallatin, Lake, Lewis and Clark, and Broadwater counties is expected to exceed 50 percent in the 25-year period. The counties that comprise the larger population centers in Montana – such as Yellowstone, Missoula, Cascade, Gallatin, Flathead, and Lewis and Clark counties – will absorb the bulk of these population gains. Meanwhile, counties located adjacent to larger urban areas (such as Ravalli County, near Missoula) will also experience significant growth.

Both consumption and production of goods may be expected to increase roughly proportionally with these population increases. However, since the State's share of total U.S. population will remain roughly the same, growth in some parts of the State appears unlikely to change the overall balance of freight shipment by rail, truck, intermodal service to and from the State. However, freight volumes will increase to serve these growing populations.

Census County Business Patterns 2006 data for the State is shown in Table 2.9. Industries that are relatively reliant on freight transportation are shown here. These industries include agriculture/forestry, mining, utilities, construction, manufacturing, wholesale trade, retail trade, and transportation and warehousing. These seven sectors total about 15,890 establishments (43 percent of the state total) and nearly 140,000 employees (41 percent of the total).

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[22] U.S. Census Bureau. National and State Population Estimates. Available at: http://www.census.gov/popest/states/NST-ann-est.html.

[23] Census and Economic Information Center, Montana Department of Commerce, analysis by NCS Data Services, 2007.

Figure 2.24 Projected Population Change 2005-2030
By County

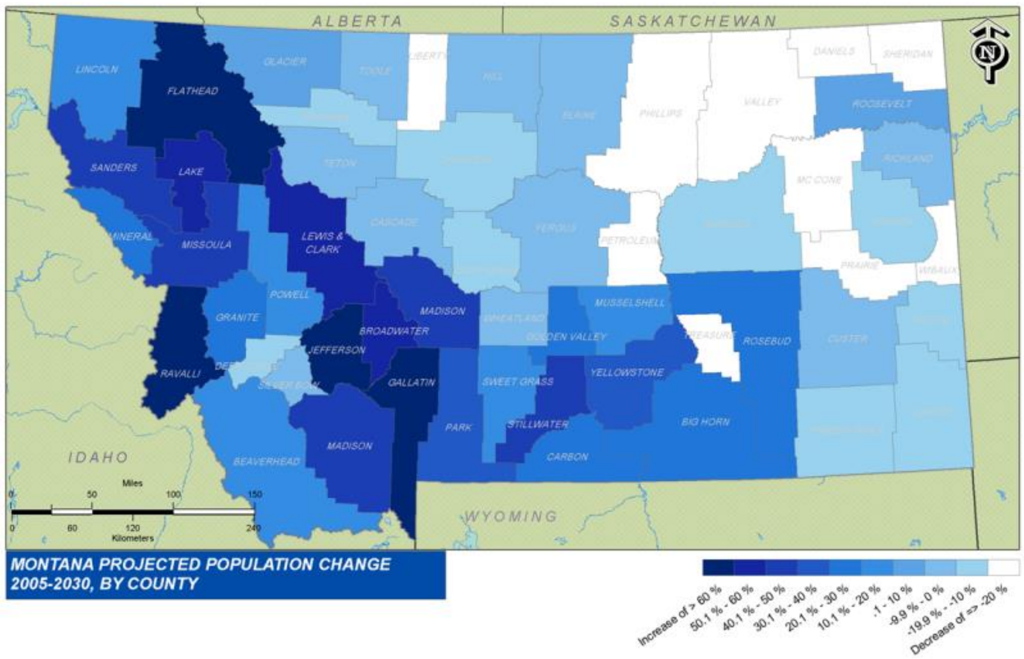


Table 2.9 Montana Industry Information by Industry Classification
2006

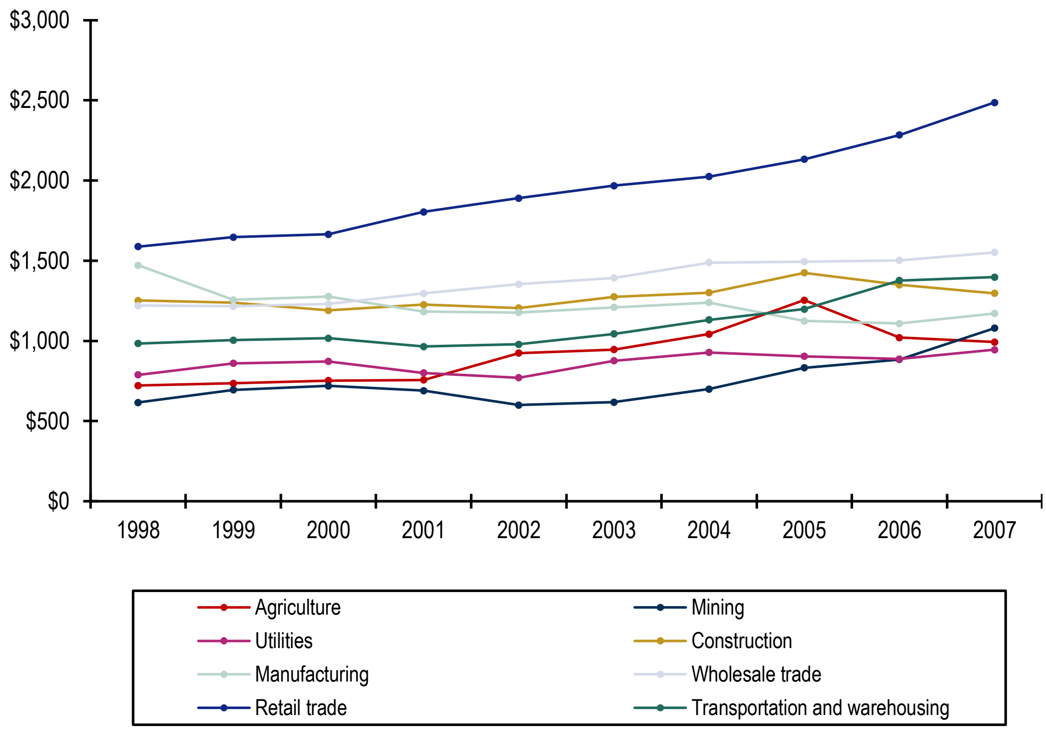
Industry	Establishments	Employees	Annual Payroll (Millions)
Forestry, Fishing, Hunting, and Agriculture Support	399	1,580	$56.1
Mining	310	5,863	$393.3
Utilities	217	2,744	$177.1
Construction	5,769	26,879	$1,039.6
Manufacturing	1,274	19,878	$763.5
Wholesale Trade	1,480	14,643	$568.7
Retail Trade	5,192	57,949	$1,261.3
Transportation and Warehousing	1,249	10,339	$327.6
All Other	20,759	202,651	$5,251.4
Total Transportation Reliant	15,890	139,875	$4,587.2
Total Montana	36,649	342,526	$9,838.6
Percent Transportation Reliant	43%	41%	47%

Source: U.S. Census Bureau, 2006 County Business Patterns.

Not only do these industries account for a significant share of Montana employment, they also contribute a large share of the State's economic output. Figure 2.25

shows the growth in Gross State Product (GSP) for transportation reliant industries in Montana. Over the past 10 years, there has been significant output expansion in these key industries. Growth has been especially pronounced in agriculture, retail and wholesale trade, mining, utilities, and transportation and warehousing. Output growth in these freight transportation-dependent industries leads directly to increasing freight volumes by all modes, including rail.

Figure 2.25 Montana Gross State Product by Industry
1998 to 2007 (Millions of Chained 2000 Dollars)



Source: U.S. Bureau of Economic Analysis Regional Economic Accounts.

2.5 DEMAND FOR RAIL SERVICE

As consumer demand for goods has increased over the past several decades, freight service demand has grown along with it. Figure 2.26 plots combination truck vehicle miles and Class I train miles from 1960 through 2005.[24] The graph shows parallel growth of the modes after about 1990. Prior to that, combination

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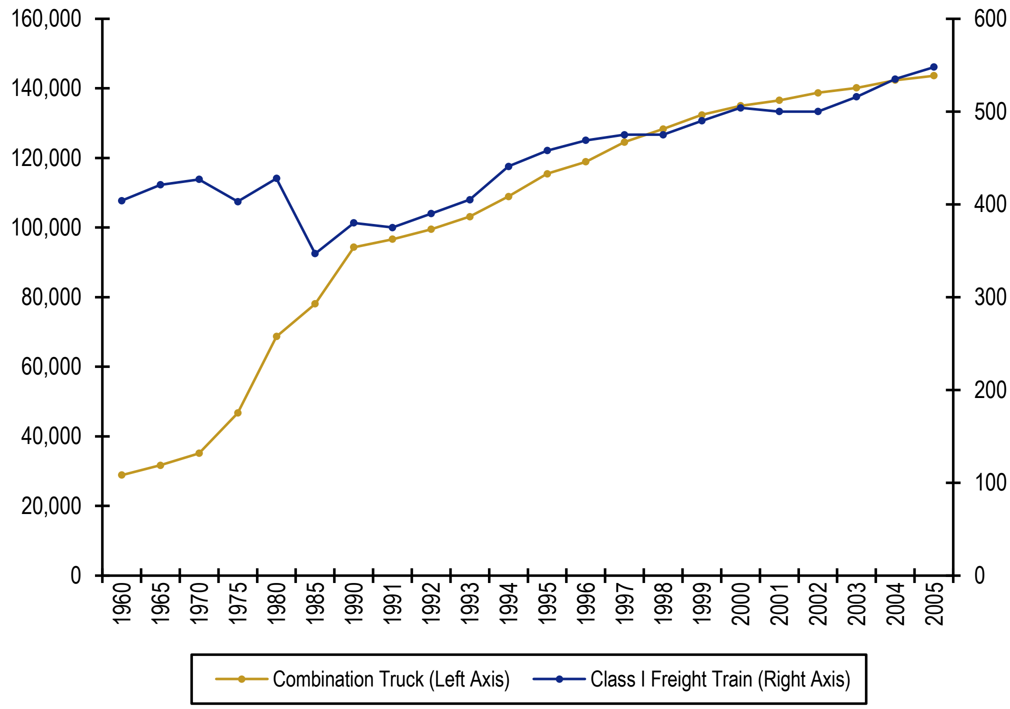
[24] U.S. Bureau of Transportation Statistic, National Transportation Statistics 2008. Available at: http://www.bts.gov/publications/national_transportation_statistics/. A train-mile is the movement of a train, which can consist of multiple vehicles (cars), the distance of one mile.

truck vehicle miles increased rapidly, gaining market against rail as the nation's highway system (particularly the Interstate system) developed. Rail has grown from slightly over 400 million train-miles in 1960 to about 550 million train-miles in 2005.

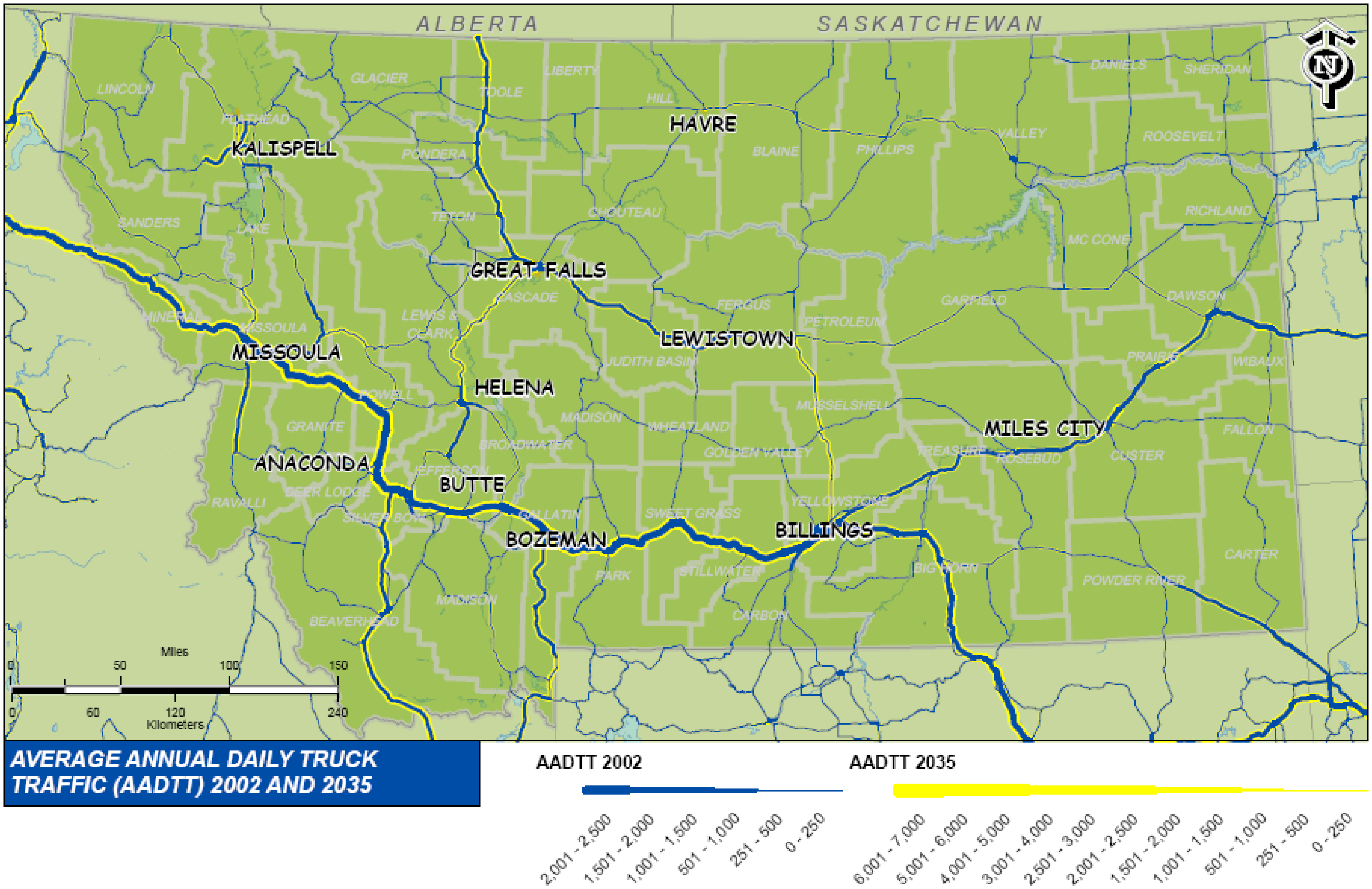
Figure 2.26 U.S. Combination Truck Vehicle-Miles and Train-Miles



Current national recessionary conditions have affected both truck and train volumes. Total vehicle-miles traveled (VMT) declined by 3.6 percent in 2008, according to FHWA Traffic Volume Trends data. The American Association of Railroads reports a comparable downturn in rail traffic.

Much of the State's railway system parallels primary and secondary roadways that are expected to see growing truck volumes over coming decades. Figure 2.27 shows 2002 and 2035 projected Average Annual Daily Truck Traffic (AADTT) in Montana based on the FAF2 database. The map illustrates projected increases in truck traffic along the main highway corridors, growing from the 2,000 range to the 5,000 to 7,000 range west of Billings with modest increases on sections of I-15. Modest increases are also expected on some non-Interstate routes around the State, such as between Lewistown and Great Falls, and in western and southeastern Montana.

Figure 2.27 Average Annual Daily Truck Traffic (AADTT)
2002 and 2035



Source: FHWA Freight Analysis Framework 2.2.

Table 2.10 displays 2005 to 2007 statistics for all U.S. Class I railroads, which include: BNSF Railway, Union Pacific (UP), Kansas City Southern, Canadian Pacific, Canadian National, and CSX Transportation.[25] In recent years, railroads have continued to reinvest in infrastructure and streamline operations in efforts to meet expanding demand for service. The table shows that in the most recent three years, Class I carriers have increased incomes, revenues, and profitability. Overall, the railroads reported a 26 percent increase in return on average equity. Volumes rose as well, with tons per train increasing by 5.1 percent and total ton-miles 4.4 percent from 1.696 trillion to 1.771 trillion in the three-year period.

Table 2.10 U.S. Class I Railroad Statistics

	2005	2006	2007	Percent Change 2005-2007
Traffic				
Carloads Originated (Million)	31.14	32.11	31.46	1.0%
Intermodal Units (Million)				
Containers	8.71	9.40	9.43	8.3%
Trailers	2.98	2.88	2.60	-12.8%
Total	11.69	12.28	12.03	2.9%
Tons Originated (Billion)	1.899	1.96	1.94	2.2%
Ton-Miles (Trillion)	1.696	1.772	1.771	4.4%
Operating Statistics				
Freight Revenue Per Ton-Mile	2.621¢	2.840¢	2.990¢	14.1%
Average Tons Per Carload	61.0	60.9	61.7	1.1%
Average Tons Per Train	3,115	3,163	3,274	5.1%
Average Length of Haul (Miles)	893.2	905.6	912.8	2.2%
Financial				
Freight Revenue (Billion)	$44.5	$50.3	$52.9	18.9%
Operating Revenue (Billion)	$46.1	$52.2	$54.6	18.4%
Operating Expense (Billion)	$37.8	$41.0	$42.7	13.0%
Net Income (Billion)	$4.9	$6.5	$6.8	38.8%
Operating Ratio	82.1%	78.6%	78.3%	-4.6%
Return on Average Equity	9.12%	11.30%	11.49%	26.0%

Source: AAR, Class I Railroad Statistics, July 17, 2008. Available at: http://www.aar.org/~/media/AAR/Industry%20Info/Statistics.ashx.

[25] Association of American Railroads.

2.6 Conclusions

Demand for rail service has been growing in recent years both nationwide and in Montana. Although the current economic environment has led to significant idle capacity issues for the railroads, volumes are likely to pick up again once the economy improves. Increasing agricultural output from Montana farms will likely contribute to this volume growth, as will through-trains (including intermodal containers). At the same time, output growth from Montana's key transportation-dependent industries will increase freight demand for all modes, including rail. Many of these industries – such as mining and agriculture – produce basic bulk commodities which are especially dependent on efficient rail transportation. Expected new development in coal mining activity in both Montana and Wyoming will lead to additional rail traffic in Montana.

Forecast population growth (greater than 60 percent from 2005 to 2030 in some counties) will increase the size of local consuming markets in Montana, further increasing the demand for freight transportation. Through-rail freight – which is the largest component of rail movements in Montana by both weight and value – will also expand as population, production, and distribution centers on the West Coast and Midwest grow. Overall, these trends point to long-term growth in demand for freight rail service in Montana.

3.0 State Rail Planning

3.1 Montana Rail System Summary

In 2006, eight freight railroads operated 3,238 rail miles in Montana (excluding trackage rights).[26] These eight carriers include: BNSF Railway (BNSF); Union Pacific (UP); Dakota, Missouri Valley, and Western (DMVW); Montana Rail Link (MRL); Central Montana Rail (CMR); Mission Mountain Railroad (MMR); Yellowstone Valley Railroad (YVR); and Rarus/Butte, Anaconda, and Pacific Railway (BAP). Table 3.1 summarizes the rail miles contributed by each carrier and Figure 3.1 illustrates the State's freight railroad network.

Table 3.1 Montana Railroad Statistics

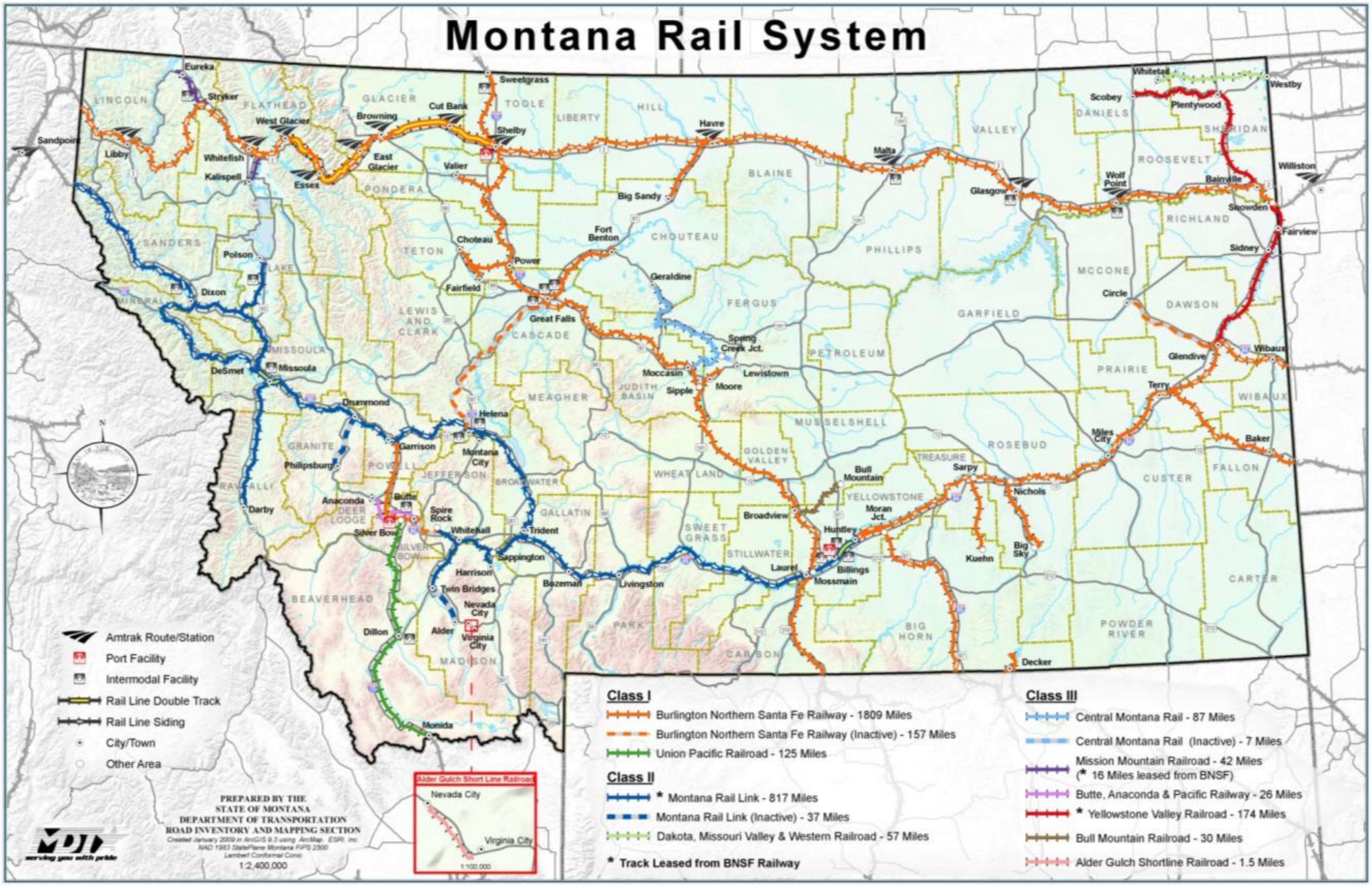
	Miles of Railroad Operated in Montana		
	2000	2005	2006
BNSF Railway	2,135	1,983	1,942
Union Pacific	125	125	125
Class I Railroads Total	**2,260**	**2,108**	**2,067**
Dakota, Missouri Valley, and Western	57	58	58
Montana Rail Link	812	807	807
Regional Railroads Total	**869**	**865**	**865**
Central Montana Rail	87	88	88
Mission Mountain Railroad	N/A	39	39
Yellowstone Valley Railroad	N/A	186	186
Montana Western Railway	59	N/A	N/A
Butte, Anaconda and Pacific Railway	69	25	25
Local Railroads Total	**215**	**338**	**338**
Network Total	**3,344**	**3,311**	**3,270**

Source: 2005 and 2006 data from the Association of American Railroads, 2000 data from the 2000 Montana State Rail Plan Update.

Note: Miles operated includes trackage rights. One mile of single track is counted the same as one mile of double track.

[26] Rail miles, synonymous with route miles, represents the total miles of road in freight service operation. One mile of single track is counted the same as one mile of double track. Lines operated under trackage rights are attributed only to the owning railroad. The total excludes sidings, turnouts, yard switching mileage, and mileage not in operation.

Figure 3.1 Montana Rail System



Montana railroads carried over 2.1 million total carloads in 2006, accounting for nearly 110 million total tons of freight. The railroads employed 3,157 people in the State, an increase of 35 employees from the previous year.[27]

Rail Density

The Federal Rail Administration (FRA) maintains a database of density codes for rail segments along the rail network throughout the country. Figure 3.2 displays rail density throughout Montana for 2006. The FRA density coding system consists of values 1 through 6, with 6 being the most densely traveled. The density codes are based on a measurement of million gross ton-miles per mile (MGTM) and reflect the volume of freight traffic flowing over railway segments. In Montana, the BSNF main lines have the highest freight rail densities, followed by the Montana Rail Link main line between Sandpoint, Idaho and Billings. All of the short-line railroads have a density of 1, hauling between 0.1 to 4.9 MGTM in 2006.

[27] Association of American Railroads, Railroad Service in Montana 2006, June 2008. Available at: http://www.aar.org/PubCommon/Documents/AboutTheIndustry/RRState_MT.pdf. Association of American Railroads, Railroad Service in Montana 2005, November 2006.

Figure 3.2 Montana Rail Density
2006

Source: Federal Rail Administration.

3.2 MONTANA'S RAILROADS

Introduction

This section describes the operating characteristics of Montana's freight rail system by owner. System characteristics include key station mileposts, maximum operating speeds (for both freight and passenger trains, where applicable), maximum gross car weight, annual operating statistics, primary commodities hauled, and track control processes.

Track control processes, defined for each railroad segment, provide authorization for a train to occupy a main track. Defining the terminology used throughout this section, the railroads in Montana operate under the following track control processes:

- **Centralized Traffic Control (CTC) –** A system in which signals indicate authorized train movements and when it is safe for a train to proceed. Signals may be used to control traffic in both directions and may be automatic or directly controlled by a dispatcher.
- **Occupancy Control System (OCS) –** Also known as "dark territory," OCS refers to a nonsignal-based system designed to ensure that no more than one train occupies a given section of main track at a time. Two examples of unsignalized systems used in Montana include:
  - *Track Warrant Control (TWC)* – Used on unsignalized systems, a track warrant provides permission to occupy main track between two specific points, typically defined by stations and mileposts. Dispatchers typically issue track warrants verbally by radio.
  - *Block Register Territory (BRT)* – Typically used on branch lines normally occupied by one train at a time, BRT requires that a train crew record the date and time of a proposed movement in the Block Register before proceeding. Previous entries in the Block Register are completed after a train has cleared the territory. If a second train needs to occupy the BRT at the same time, movements of both trains are required to operate at Restricted Speed (typically no faster than 15 mph).
- **Automatic Block Signal (ABS) –** A series of signals that control blocks of track between the signals. The signals automatically detect track occupancy by way of a low-voltage current running through the track and protects following trains traveling in a signaled direction. Unlike CTC signals, ABS system signals are not centrally controlled.

The rail operating characteristics for each rail segment were compiled from each owning railroad's timetables and track charts. Operating statistics were compiled from annual reports to the Montana Public Service Commission for the reporting years from 2005 to 2007. Where rail operators have divided their system into multiple subdivisions, the operating characteristics of each subdivision are summarized individually. Note that detailed information on certain characteristics – such as track weight capacity and speed limits – is not available for all railroads in the State.

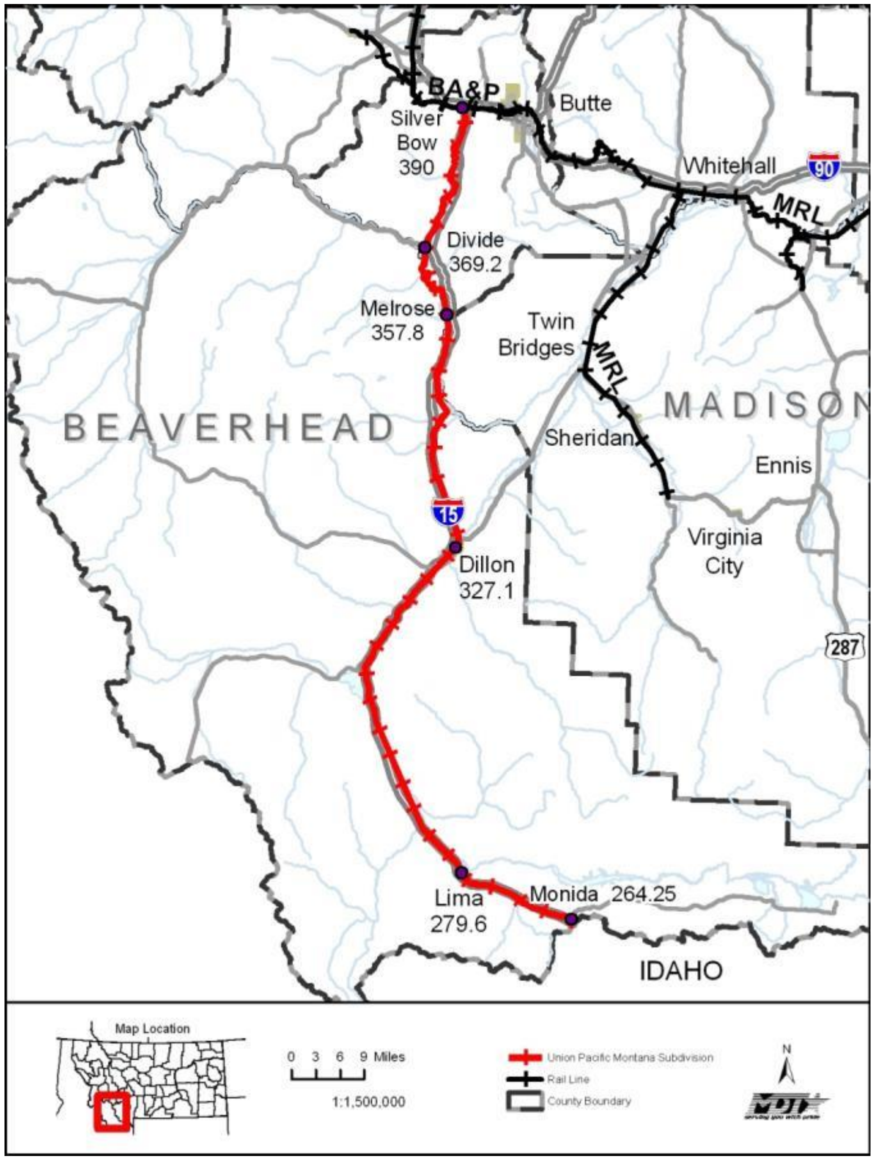
Union Pacific Railroad (UP)

Within the United States, Union Pacific (UP) controls 50,900 track miles, including route miles, other main line track, passing lanes, turnouts, and switching and classification yards. Headquartered in Omaha, Nebraska, the UP system serves 23 states in the western two-thirds of the country.[28]

UP is one of two Class I railroads in Montana. As of 2007, UP operated a total of 141 track miles in the State, consisting of 125.8 main line miles, seven miles of running track, 1 mile of way-switching, and eight miles of yard switching. Figure 3.3 displays UP's Montana Subdivision. Despite having a relatively limited number of track miles in the State, UP provides a critical connection between the Port of Montana (MP 390) in Silver Bow (a name for a track interchange area in Silver Bow County) and markets in the Western U.S. and southwestern U.S. which are not accessible by other rail carriers in the State. The border is at MP 264.25.

[28] Figures as of December 31, 2007. Union Pacific Corporation, 2007 Analyst Fact Book.

Figure 3.3 Union Pacific – Montana Subdivision



Source: Montana Department of Transportation.

Table 3.2 exhibits UP operating statistics in Montana from 2005 through 2007. UP owns and operates an automotive distribution center in Silver Bow County, which delivered 1,107 carloads of transportation equipment in 2007. Forest products, combined with lumber and wood products, accounted for approximately 75 percent of the tonnage originating in Montana. Other key commodities transported on the line include chemicals and allied products, petroleum and coal products, and nonmetallic minerals (except fuels).

Table 3.2 Union Pacific Operating Statistics in Montana
2005-2007

	Carloads			Tons		
Commodity	**2005**	**2006**	**2007**	**2005**	**2006**	**2007**
Originating						
Forest Products	948		997	97,362		104,127
Lumber and Wood Products	1,689		1,038	151,631		96,836
Stone, Clay, Glass, and Concrete Products	607		648	47,287		52,045
Other Commodities	275		76	20,464		4,293
Total Moves	**3,519**	**N/A**	**2,759**	**316,744**	**N/A**	**257,301**
All Other						
Chemicals and Allied Products	1,399		1,843	137,320		181,126
Petroleum and Coal Products	1,715		1,984	152,365		180,077
Forest Products	870		944	86,531		90,259
Nonmetallic Minerals except Fuels	860		801	83,039		77,600
Other Commodities	2,479		2,259	126,970		118,555
Total Moves	**7,323**	**N/A**	**7,831**	**586,225**	**N/A**	**647,617**
Terminating						
Chemicals and Allied Products	429		470	41,298		45,551
Transportation Equipment	–		1,107	–		20,075
Primary Metal Products	34		38	3,251		3,699
Nonmetallic Minerals except Fuels	57		40	4,935		3,609
Other Commodities	1,193		43	28,231		3,471
Total Moves	**1,713**	**N/A**	**1,698**	**77,715**	**N/A**	**76,405**

Source: 2005-2007 Annual Reports to the Montana Public Service Commission.

Note: Carload and tonnage data not reported for 2006.

BNSF Railway (BNSF)

BNSF Railway (BNSF) operates in 28 U.S. states and two Canadian provinces. The total system consists of approximately 32,000 route miles of track or 50,000 operated miles of track (including single and multiple main tracks, easements, yard tracks and sidings). In Montana, BNSF is one of two Class I railroads and operates 94 percent of the State's Class I rail miles. Headquartered in Fort Worth, Texas, BNSF employs approximately 40,000 personnel company-wide.

As of 2007, BNSF employed 1,855 employees in Montana with a payroll of over $118 million.

Table 3.3 displays summary operating information for BNSF, while Table 3.4 provides detailed operating statistics within the State between 2005 and 2007. Coal accounts for approximately 75 percent of BNSF's revenue freight (in terms of tonnage) originating within Montana. Other key commodities hauled by BNSF in Montana include farm products, lumber and wood products, and petroleum and coal products.

Table 3.3 BNSF Operating Statistics Summary
2005-2007

	Within Montana							
	Revenue Freight Originating		All Other Freight Carried		Total Revenue Freight Carried		Total Revenue Freight Terminating	
	Carloads	Tons	Carloads	Tons	Carloads	Tons	Carloads	Tons
2005	355,157	38,885,116	1,896,538	84,309,209	2,251,695	123,194,325	30,218	2,153,003
2006	374,475	41,160,754	1,863,358	84,950,022	2,237,833	126,110,776	32,258	2,456,956
2007	379,789	41,650,904	1,758,106	89,365,914	2,137,895	131,016,818	33,500	2,648,026
Percent Change 2005-2007	+6.9%	+7.1%	-7.3%	+6.0%	-5.1%	+6.3%	+10.9%	+23.0%

Source: 2005-2007 Annual Reports to the Montana Public Service Commission.

The BSNF rail system operating in Montana is divided into the 23 subdivisions shown in Figure 3.4. The remainder of this section describes the location and operating characteristics of each BNSF branch and main line subdivision operating in Montana.[29]

Table 3.4 BNSF Operating Statistics
2005-2007

	Carloads			Tons		
Commodity	2005	2006	2007	2005	2006	2007
Originating						
Coal	249,478	263,771	269,186	28,998,932	30,796,817	31,530,939
Farm Products	43,223	48,210	45,862	4,497,106	5,031,514	4,829,250
Petroleum and Coal Products	20,118	19,491	19,958	1,755,792	1,698,854	1,740,472
Lumber and Wood Products	17,852	16,282	13,594	1,587,808	1,484,380	1,256,006
Stone, Clay, Glass, and Concrete Products	5,307	5,182	5,878	515,927	506,981	576,780
Food and Kindred Products	4,513	6,330	6,235	432,310	573,717	552,113
Other Commodities[a]	14,666	15,209	19,076	1,097,241	1,068,491	1,165,344

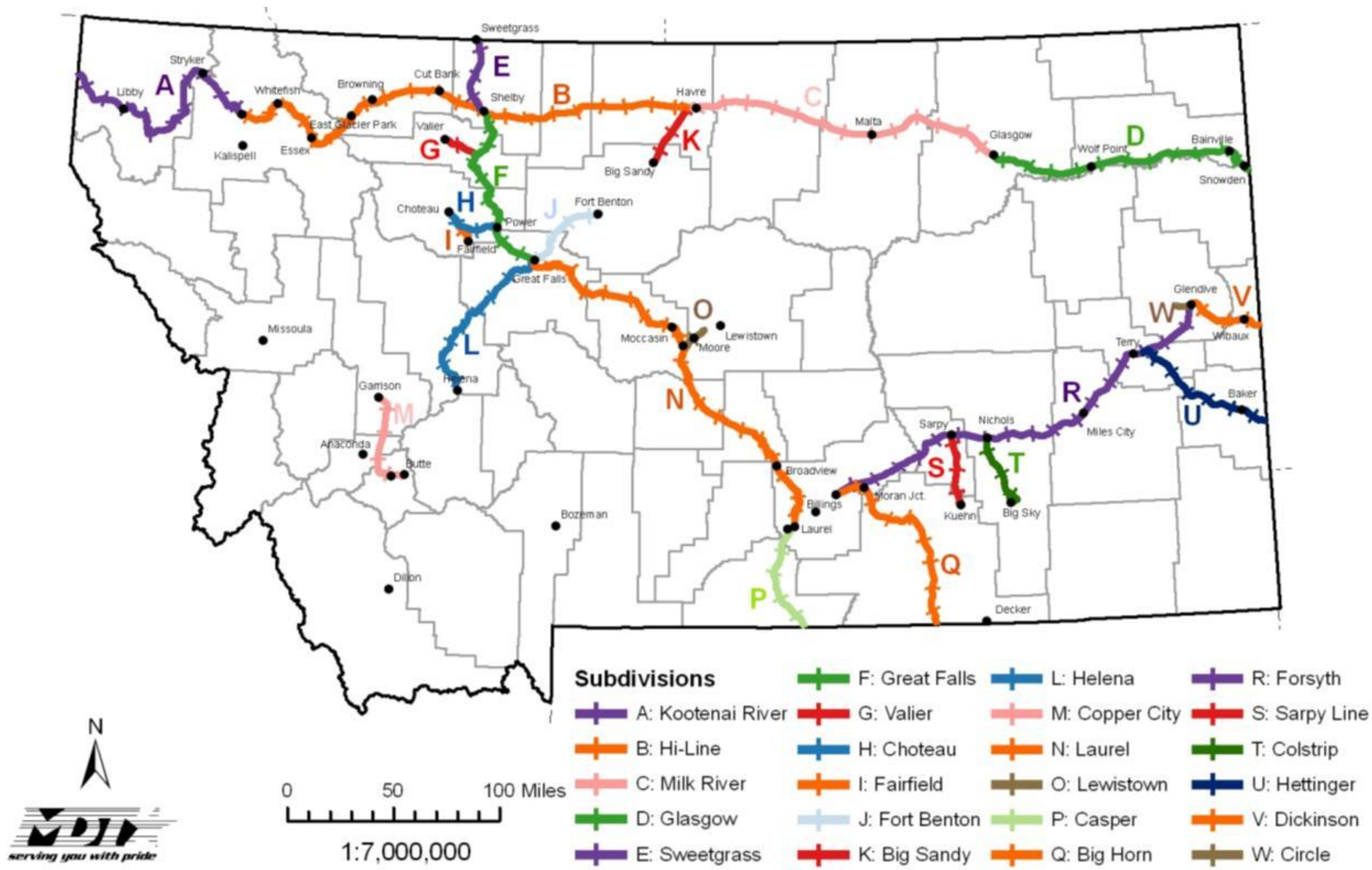
[29] Line information compiled from BNSF Railway Timetable No. 7, Montana Division, dated December 19, 2007; and Subdivision Track Charts provided by the BNSF Montana Director of Government Affairs.

Total Moves	**355,157**	**374,475**	**379,789**	**38,885,116**	**41,160,754**	**41,650,904**
All Other (Carried Within State)						
Coal	313,443	334,433	360,508	36,699,295	39,305,066	42,429,636
Farm Products	185,275	170,485	215,695	18,989,315	17,787,192	20,343,454
Miscellaneous Mixed Shipment	736,976	696,968	615,922	10,345,363	9,781,432	8,462,655
Food and Kindred Products	48,813	45,616	62,933	3,630,313	3,210,782	4,042,695
Lumber and Wood Products	60,275	54,755	41,217	4,872,784	4,650,993	3,544,249
Chemicals and Allied Products	16,232	16,678	20,000	1,152,083	1,270,229	1,626,073
Pulp, Paper, and Allied Products	29,771	34,380	34,778	1,328,710	1,445,448	1,434,719
Other Commodities	507,751	510,042	407,052	6,883,993	7,498,876	7,482,433
Total Moves	**1,896,538**	**1,863,358**	**1,758,106**	**84,309,209**	**84,950,022**	**89,365,914**
Terminating						
Coal	6,724	7,344	7,710	766,239	849,333	872,255
Petroleum and Coal Products	2,525	2,428	3,089	194,889	235,866	282,909
Lumber and Wood Products	3,554	3,988	2,486	295,205	342,651	224,010
Chemicals and Allied Products	1,469	1,555	2,399	139,097	144,602	220,330
Food and Kindred Products	1,739	1,994	2,190	140,333	172,234	203,438
Metallic Ores	760	806	2,026	76,374	79,842	198,777
Other Commodities	13,447	14,133	13,600	540,866	632,428	646,307
Total Moves	**30,218**	**32,258**	**33,500**	**2,153,003**	**2,456,956**	**2,648,026**

Source: 2005-2007 Annual Reports to the Montana Public Service Commission.

[a] Other Commodities include categories such as: Metallic Ores; Crude, Petro, Natural Gas; Nonmetallic Minerals except Fuels; Pulp, Paper, and Allied Products; Primary Metal Products; Fabricated Metal Products; Machinery; Transportation Equipment; Waste and Scrap; Shipping Containers, Returned Empty; and Hazardous Waste.

Figure 3.4 BNSF Statewide System Overview

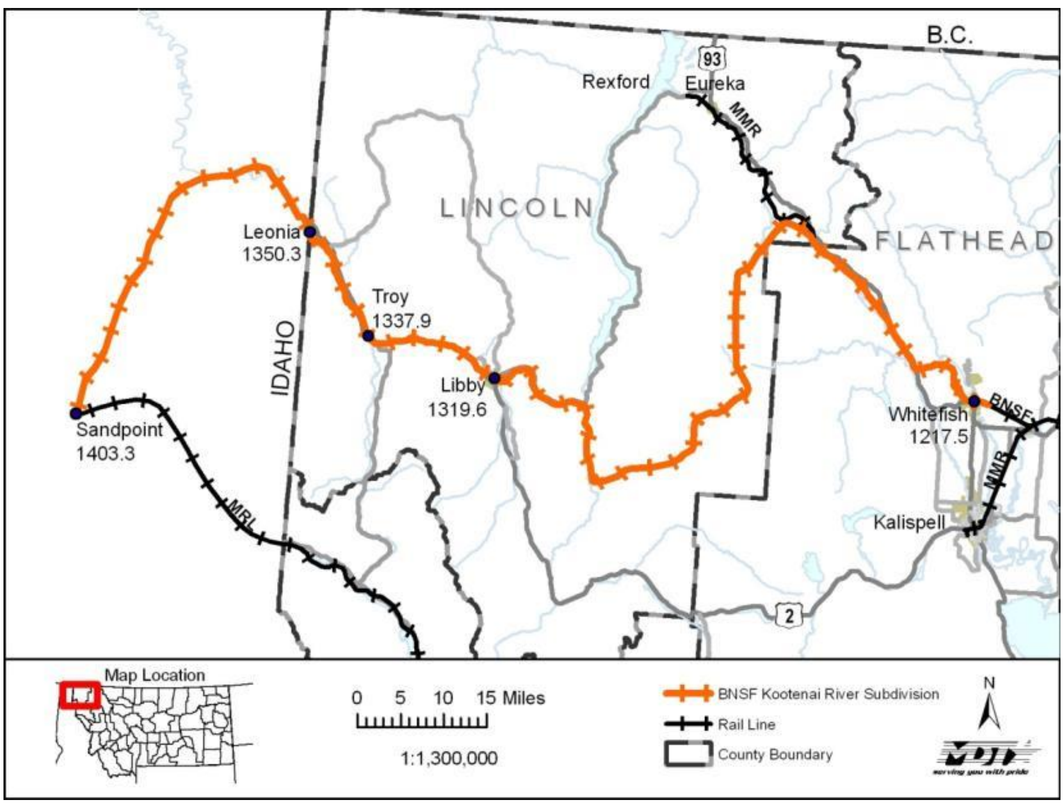


Source: Montana Department of Transportation.

Subdivision A – Kootenai River[30]

The Kootenai River Subdivision, shown in Figure 3.5, is a main line from Whitefish (MP 1217.5) to Sandpoint Junction, Idaho (which is numbered both MP 1403.3 and MP 2.9). There are 133.2 miles in Montana and 52.6 miles in Idaho with the state border at MP 1350.65. Twenty-five additional stations are located between Whitefish and Sandpoint Junction, including Leonia (MP 1350.3), Troy (MP 1337.9), and Libby (MP 1319.6). From Sandpoint Junction, the main line continues on to Spokane, Washington (MP 71.5, not shown). Connecting to the Hi-Line main line (Subdivision B) at Whitefish, the Kootenai River main line serves Amtrak passenger service as well as freight operations. Maximum speeds along the line range from 20 mph to 60 mph for freight and 20 mph to 79 mph for passenger service. The line operates under CTC and two short segments (totaling 9.3 miles) operate with two main tracks. The line has a maximum gross car weight of 143 tons.

Figure 3.5 BNSF – Kootenai River Subdivision



Source: Montana Department of Transportation.

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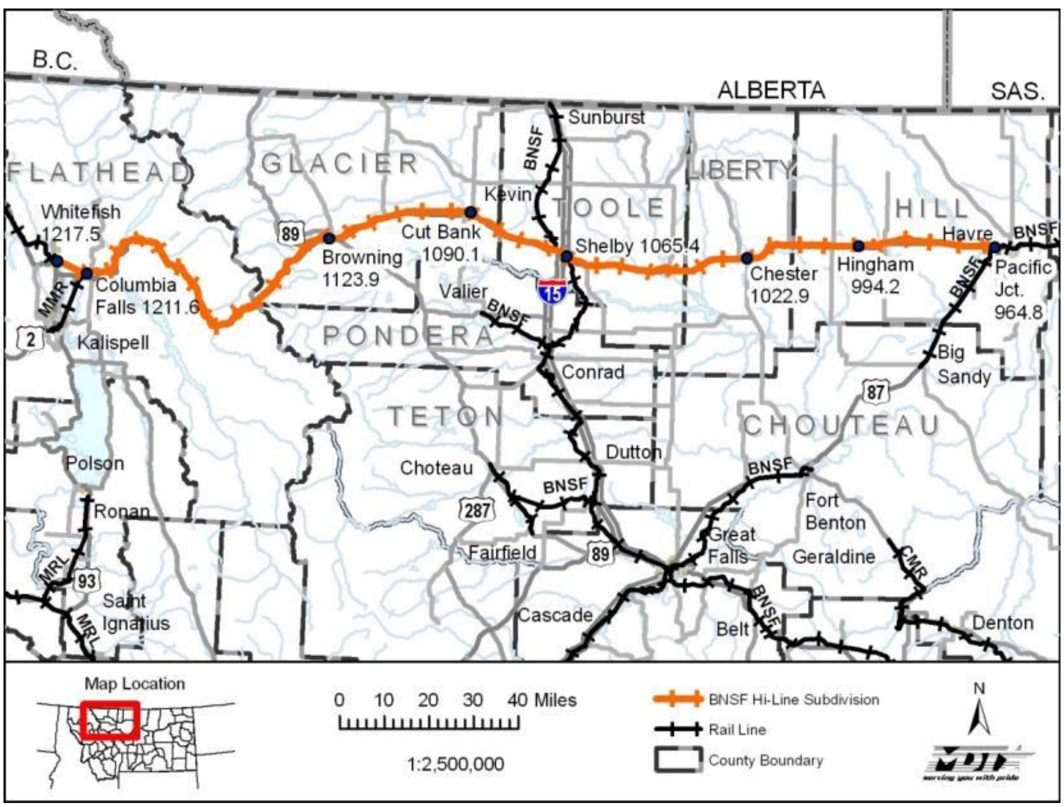
[30] BNSF Railway, *Track Chart – Kootenai River Subdivision*, Revised January 2007.

Subdivision B – Hi-Line

The Hi-Line Subdivision is a 253.5-mile main line and one of the most utilized and visible lines in the State. As shown in Figure 3.6, the east-west route from just east of Pacific Junction (MP 964) on the east to Whitefish (MP 1217.5) on the west. Supporting both Amtrak passenger service and freight operations, the line meets the Kootenai River main line (Subdivision A) at Whitefish on the west and the Milk River main line (Subdivision C) at Pacific Junction on the east. There are 37 additional stations along the line, which include both passenger and freight service. Maximum speeds along the line are 79 mph (passenger) and 60 mph (freight). However, various permanent restrictions limit service to speeds between 45 and 70 mph for passenger service and 30 to 55 mph for freight operations. The Hi-Line main line is operated by CTC with two main tracks along several sections of the line. Maximum gross car weight limit is 143 tons.

Figure 3.6 BNSF – Hi-Line Subdivision

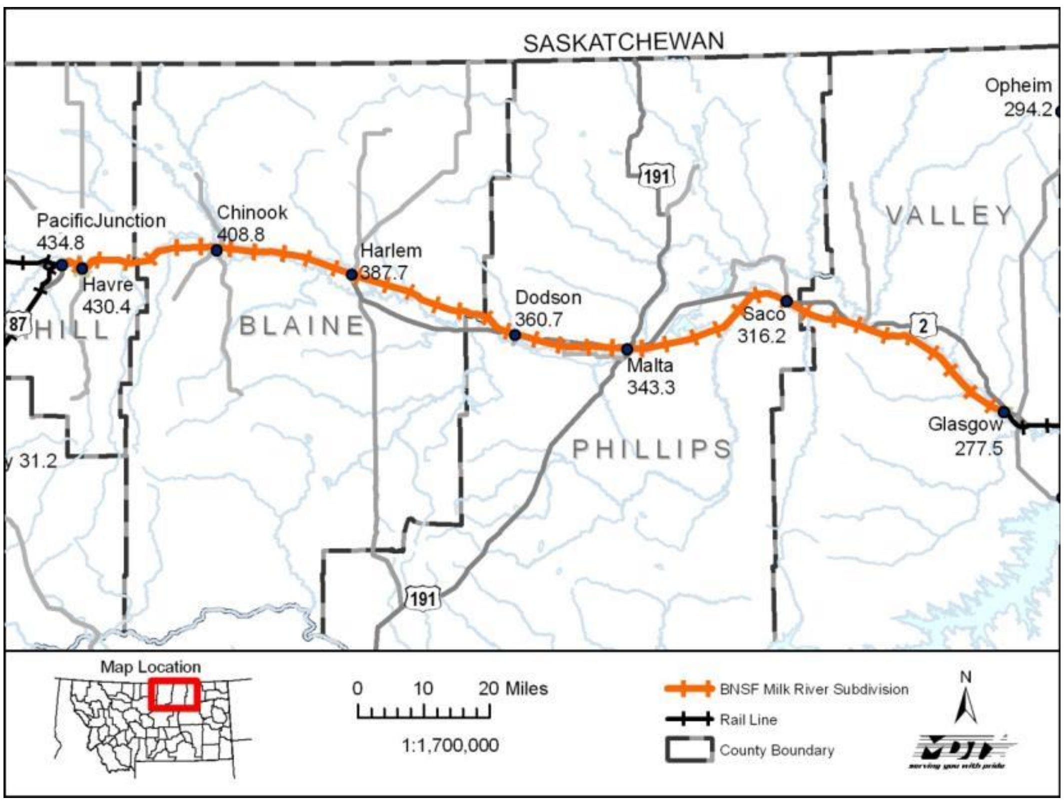


Source: Montana Department of Transportation.

Subdivision C – Milk River

The Milk River Subdivision (Figure 3.7) is a 155.8-mile main line segment from Glasgow (MP 278.2) to Pacific Junction (MP 434), near Havre. It connects to the Hi-Line main line (Subdivision B) on the west and the Glasgow main line (Subdivision D) on the east. The line has 16 additional stations, including Malta (MP 343.3), Harlem (MP 387.7), and four stations in the Havre area (MP 427.4, 429.3, 430.4, and 431.9). The line supports Amtrak passenger service as well as freight operations. Maximum speeds are 79 mph for passenger trains and 60 mph for freight trains. Maximum gross car weight is 143 tons along the entire line. The line is operated by CTC and uses two main tracks from Havre West (MP 431.9) to the Hi-Line Subdivision. The line serves three grain shuttle facilities; two in Havre (ADMS/CHS LLC), and one in Harlem (Columbia Grain Inc.).

Figure 3.7 BNSF – Milk River Subdivision

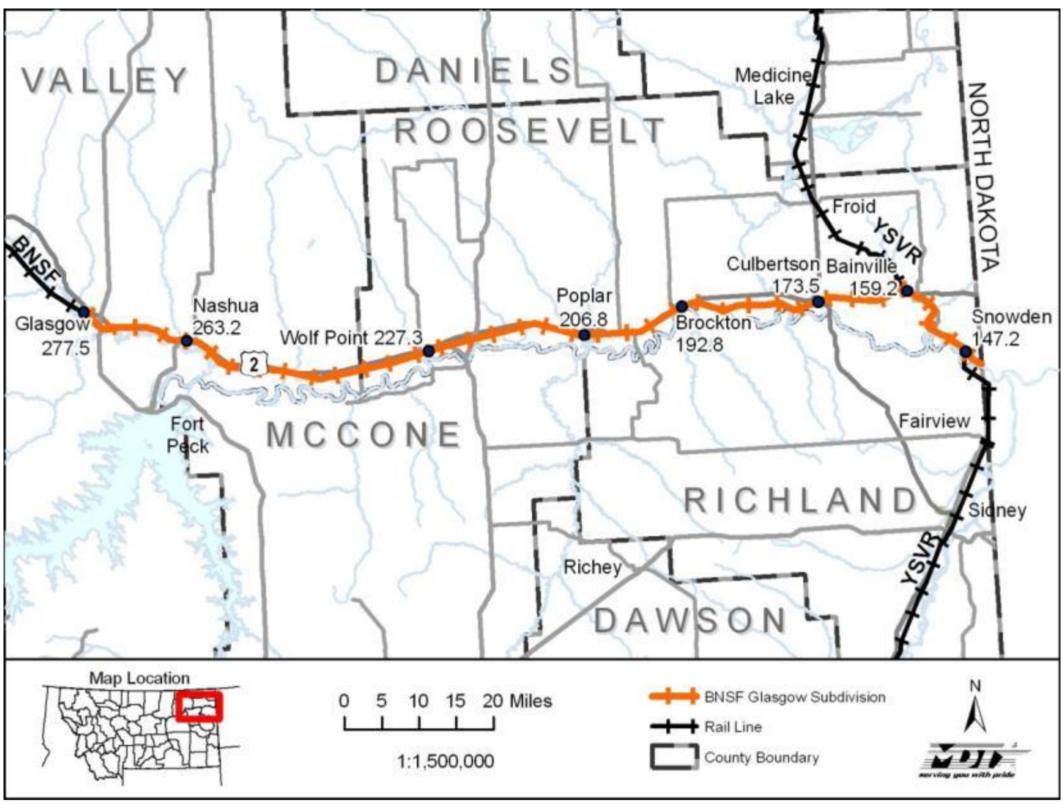


Source: Montana Department of Transportation.

Subdivision D – Glasgow

The Glasgow Subdivision, shown in Figure 3.8, is a 277.7-mile main line that extends from just west of Minot, North Dakota (MP 0.47) to just west of Glasgow (MP 278.2) where it connects to the Milk River main line (Subdivision C). There are 133.6 miles in Montana and 143.9 miles in North Dakota with the state border at MP 144.35. There are 27 stations situated along the line, including Williston, North Dakota (MP 121.1), Snowden (MP 147.2), Bainville (MP 159.2), Wolf Point (MP 227.3), and Glasgow (MP 277.5). The line supports Amtrak passenger service and freight operations with maximum speeds of 79 mph for passenger trains and 60 mph for freight trains. However speed restrictions limit operations to between 55 to 70 mph for passenger and 50 to 60 mph for freight operations on many segments of varying length. Numerous grain elevators are located along the line; among them are two 110-car shuttle facilities near Wolf Point operated by Cenex Harvest States, Inc. and Columbia Grain. The line is controlled by CTC and two main tracks are utilized between the following mile posts: 0 to 4.7, 5.9 to 14.0, 104.5 to 124.8, and 275.82 to 277.25.

Figure 3.8 BNSF – Glasgow Subdivision

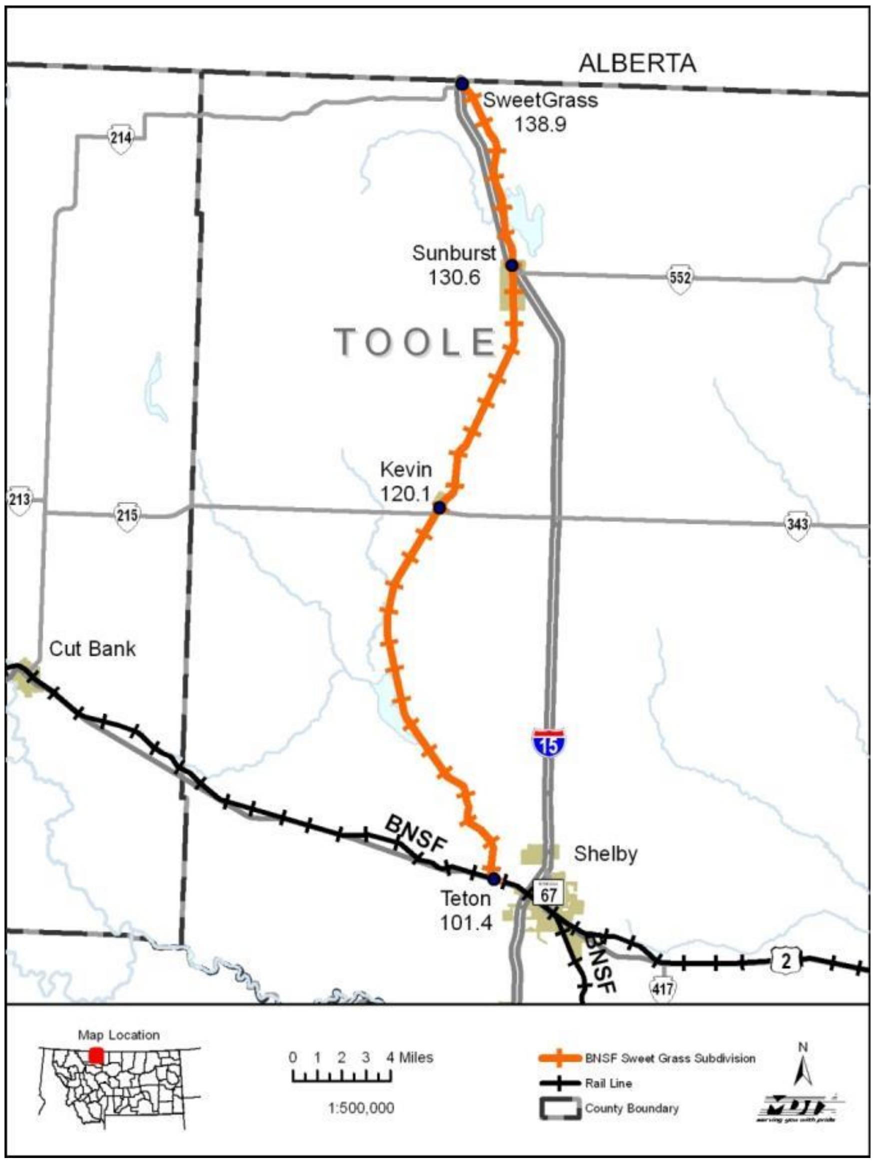


Source: Montana Department of Transportation.

Subdivision E – Sweet Grass

Shown in Figure 3.9, the Sweet Grass Subdivision is a single-tracked main line between Sweet Grass (MP 138.9) and Shelby (MP 101.4). Other stations on the line include Sunburst (MP 130.6) and Kevin (MP 120.1). The line is operated by TWC, and has a maximum speed of 40 mph with a maximum gross car weight of 143 tons.

Figure 3.9 BNSF – Sweet Grass Subdivision

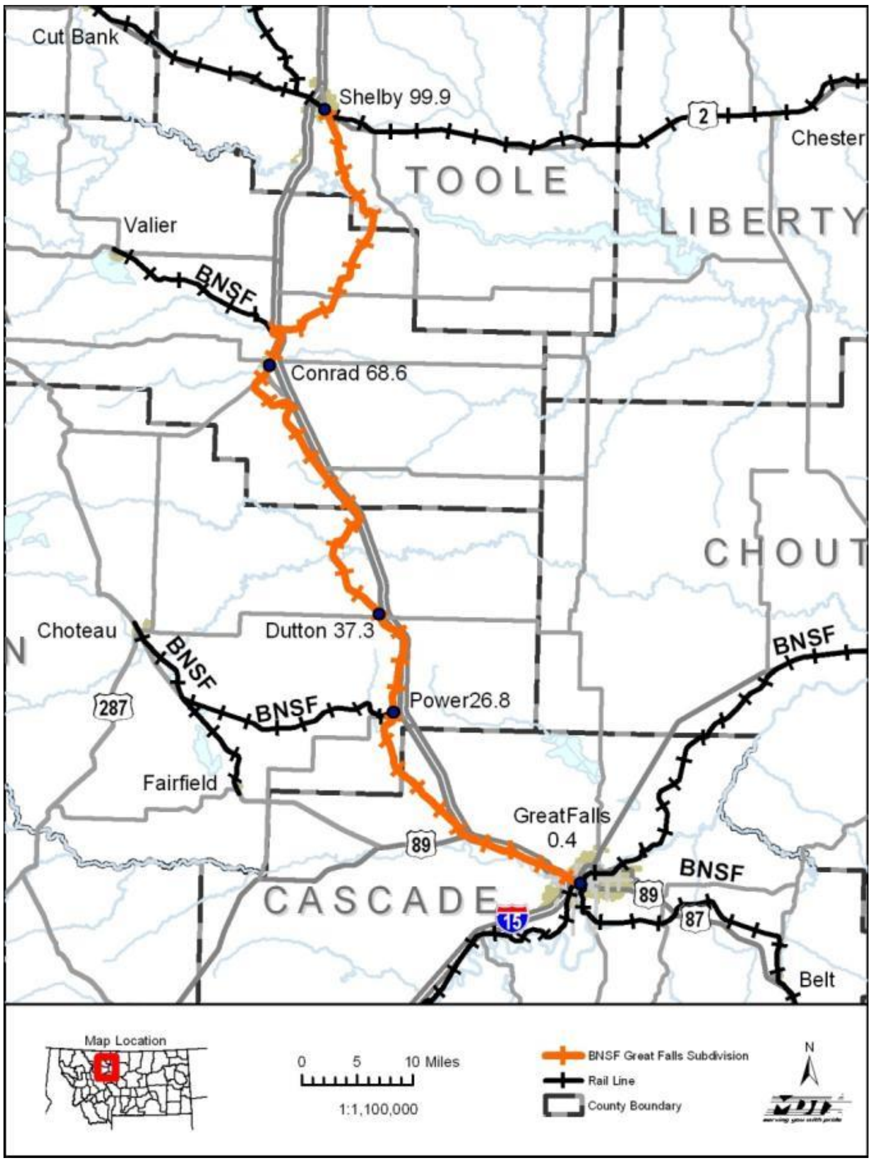


Source: Montana Department of Transportation.

Subdivision F – Great Falls

The Great Falls Subdivision, shown in Figure 3.10, is a 99.5-mile main line that runs from Shelby (MP 99.9) to Great Falls (MP 0.4). Ten additional stations are located along the line, as well as several grain elevators, including a 110-car shuttle facility in Collins operated by Mountain View Co-op. The line interchanges with the Hi-Line main line (Subdivision B) in Shelby. Maximum speed along the line is 49 mph; however, several permanent restrictions limit speeds on many segments to between 10 and 40 mph. The line is controlled by TWC.

Figure 3.10 BNSF – Great Falls Subdivision

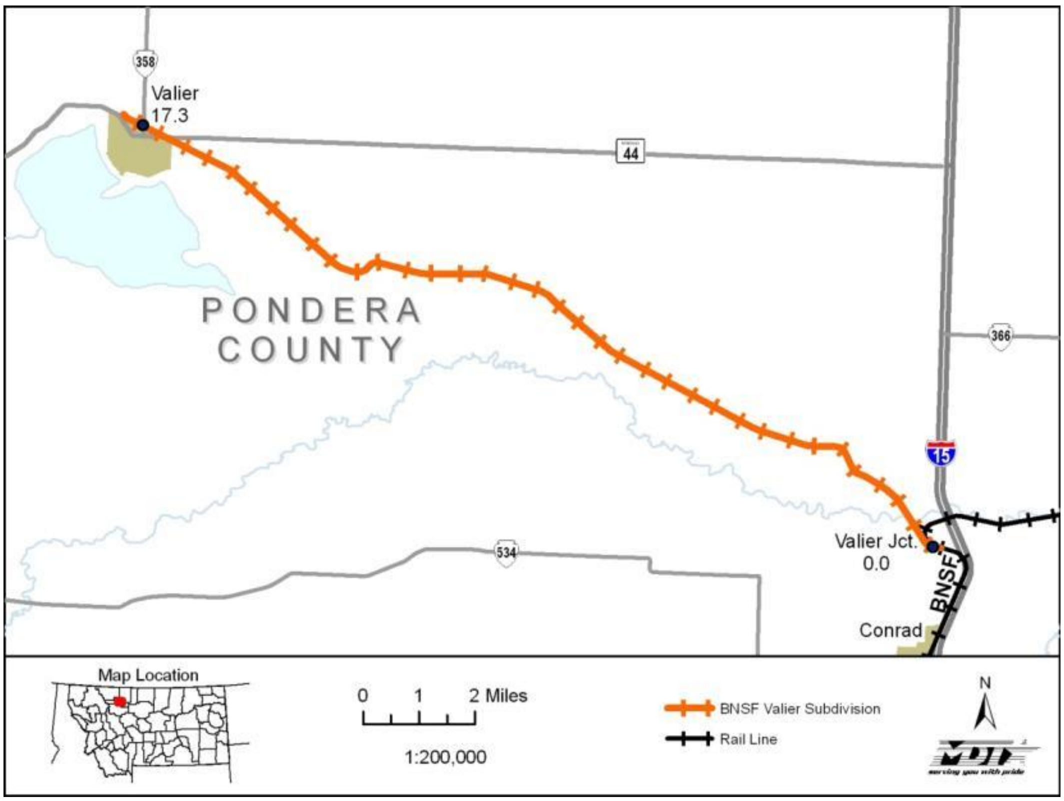


Source: Montana Department of Transportation.

Subdivision G – Valier

The Valier Subdivision is a 17.3-mile single-tracked branch line which connects Valier with the Great Falls main line (Subdivision F). Shown in Figure 3.11, the Subdivision's two stations are located at Valier (MP 17.3) and Valier Junction (MP 0.0). Maximum speed is 25 mph from MP 0.0 to MP 15.1 and 10 mph from MP 15.1 to the end of track. The line is operated by TWC and the maximum gross car weight is 143 tons.

Figure 3.11 BNSF – Valier Subdivision



Source: Montana Department of Transportation.

Subdivision H – Choteau

Choteau Subdivision, shown in Figure 3.12, is a branch line that runs from Power (MP 0.0) to Choteau (MP 29.6), where it serves a Cenex Harvest States, Inc. Co-op Grain elevator. The Choteau branch line converges with the Great Falls main line (Subdivision F) at Power. Eastham Junction (MP 21.1) and Choteau are the only stations along the line. Permanent restrictions limit the maximum freight speed to 10 mph along almost three-fourths of the Subdivision's 29-mile length. Maximum speeds of 25 mph are permitted between mileposts 21 and 27.9. The branch line is operated by TWC with a maximum gross car weight of 143 tons.

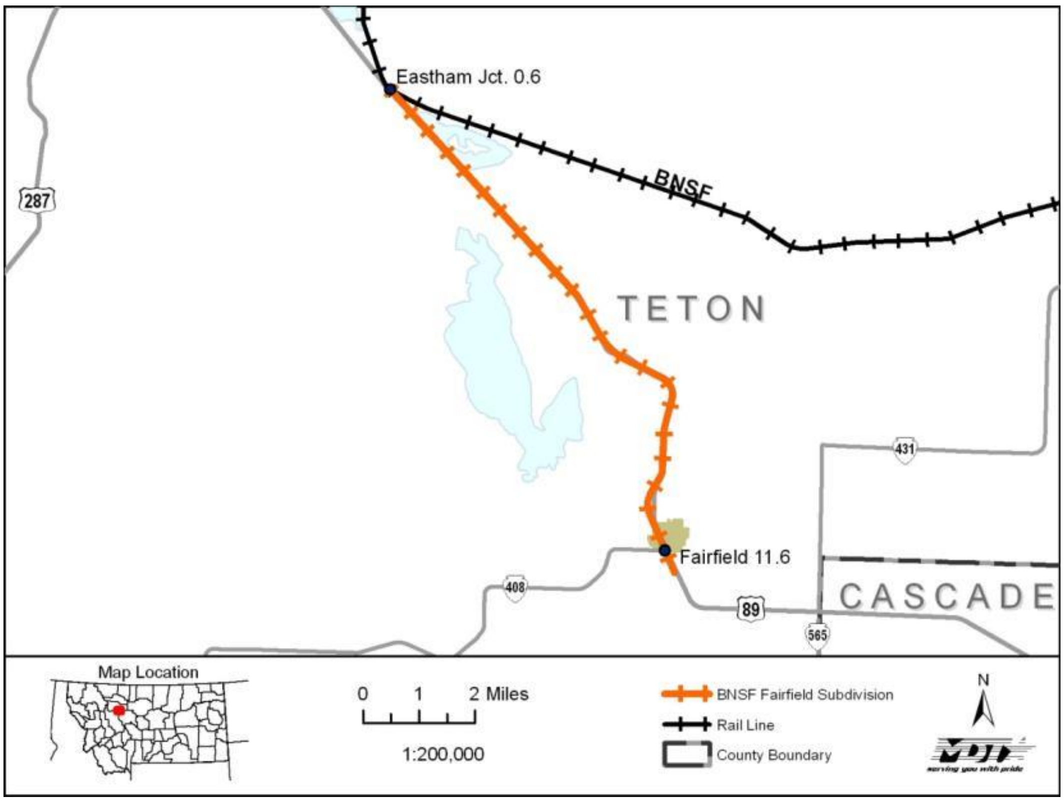
Figure 3.12 BNSF – Choteau Subdivision

Source: Montana Department of Transportation.

Subdivision I – Fairfield

The Fairfield Subdivision is a branch line that extends from Eastham Junction (MP 0.6) to Fairfield (MP 11.6) (Figure 3.13). This short segment serves a grain elevator in Fairfield and intersects the Choteau branch line (Subdivision H) at Eastham Junction. The line operates under TWC with a maximum gross car weight limit of 143 tons. Maximum speed along the line is 25 mph with a restriction to 10 mph near Fairfield and on all sidings.

Figure 3.13 BNSF – Fairfield Subdivision

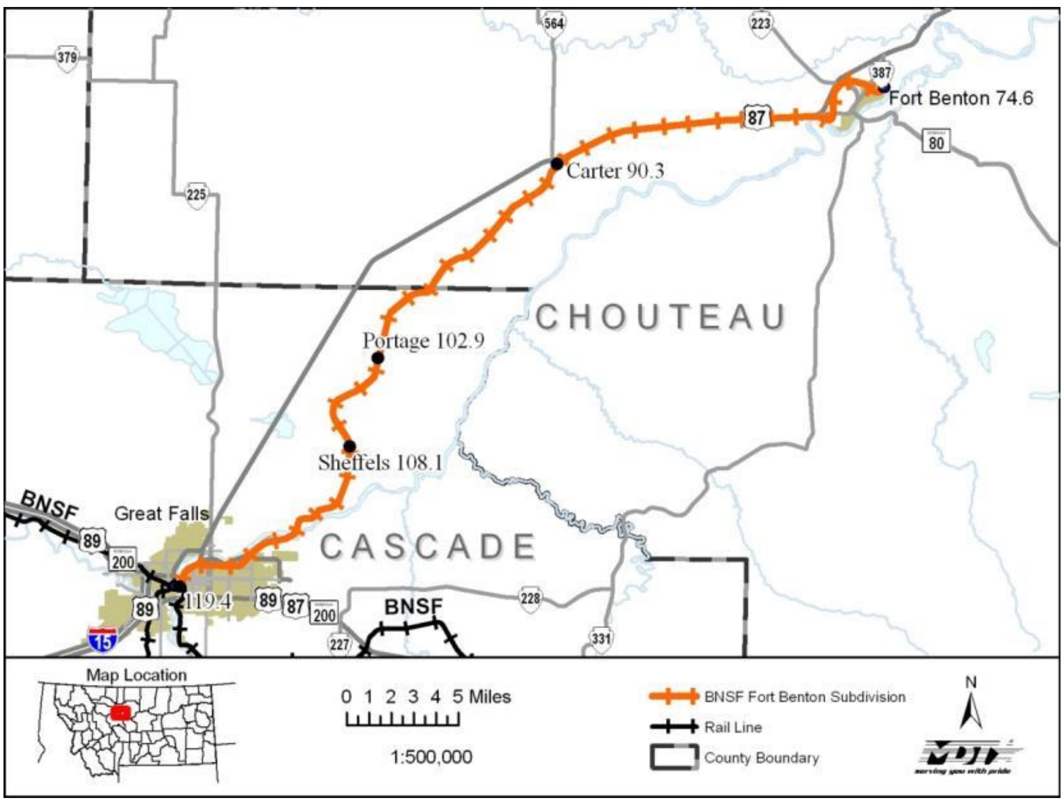


Source: Montana Department of Transportation.

Subdivision J – Fort Benton

The Fort Benton Subdivision, shown in Figure 3.14, is a 45.7-mile branch line that runs from Fort Benton (MP 73.6) to Great Falls (MP 119.3). The line converges with both the Laurel and Great Falls main lines in the City of Great Falls (Subdivisions N and F, respectively). Stations along the route include: Fort Benton (MP 74.6), Carter (MP 90.3), Portage (MP 102.9), and Sheffels (MP 108.1). Serving two grain elevator facilities, one in Carter and one in Fort Benton, the line has a maximum gross car weight limit of 143 tons. While the maximum speed is listed as 25 mph along the full length of the line, permanent speed restrictions limit speeds to 10 mph along several short segments of 1 mile or less. The Fort Benton line operates under TWC.

Figure 3.14 BNSF – Fort Benton Subdivision

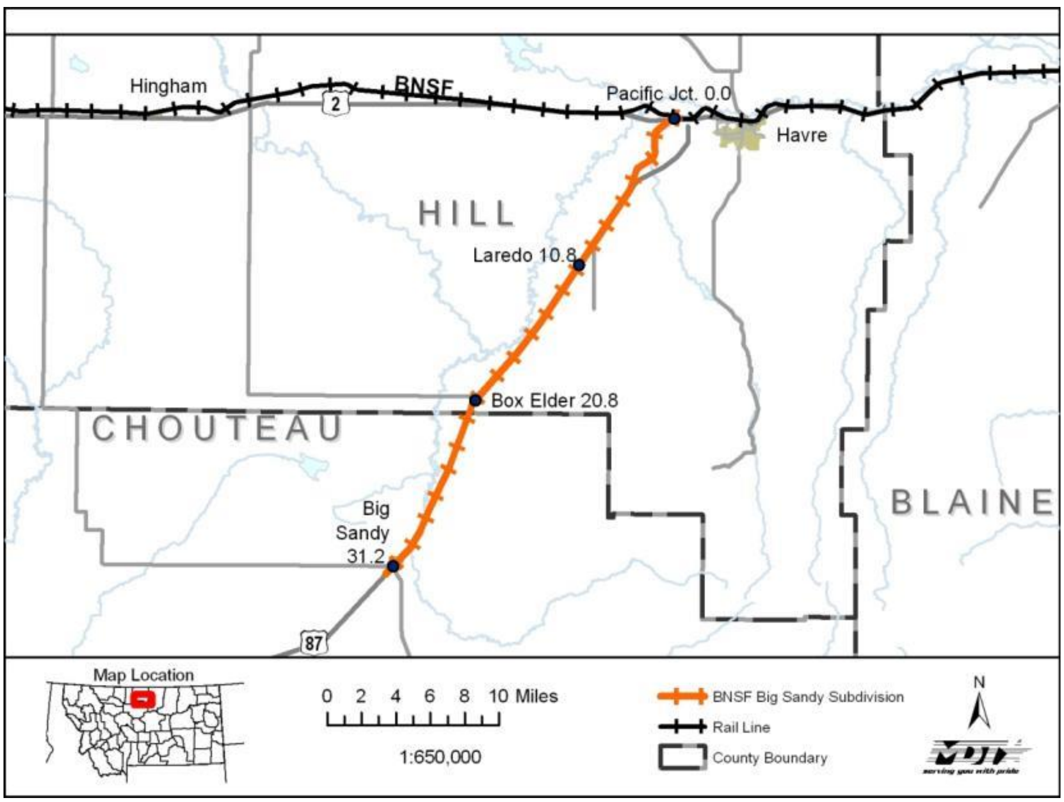


Source: Montana Department of Transportation.

Subdivision K – Big Sandy

The Big Sandy Subdivision begins at MP 0.0 in Pacific Junction and extends to MP 32.1 in Big Sandy (Figure 3.15). Stations along this branch line include Laredo (MP 10.8), Box Elder (MP 20.8), and Big Sandy (MP 31.2). This line services an ADM/CHS grain facility in Big Sandy and converges with the Hi-Line and Milk River main lines (Subdivisions B and C, respectively) at Pacific Junction (MP 0.0). The line operates under TWC with a 10 mph maximum speed. Maximum gross car weight is restricted to 143 tons along the Subdivision's 31.2-mile length.

Figure 3.15 BNSF – Big Sandy Subdivision

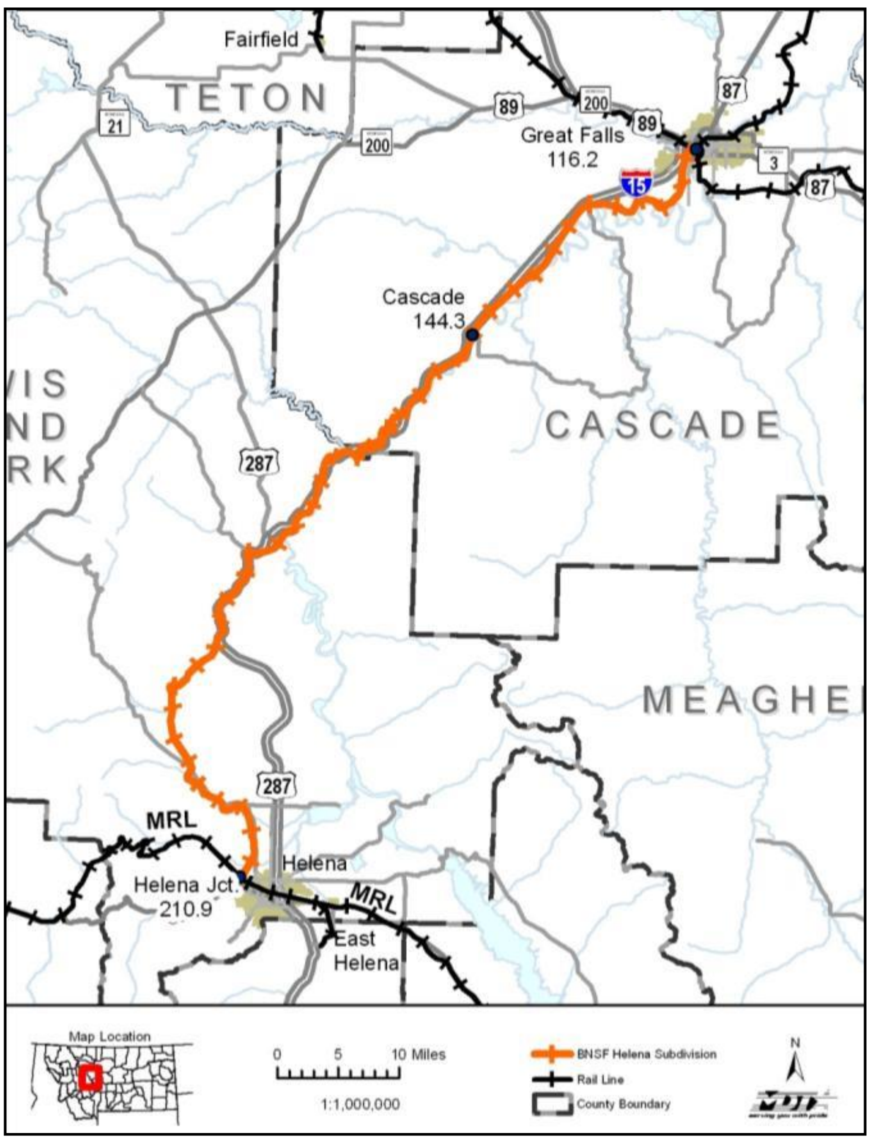


Source: Montana Department of Transportation.

Subdivision L – Helena

The Helena Subdivision, shown in Figure 3.16, is a 94.7-mile branch line between Great Falls (MP 116.2) and Helena Junction (210.9). The line converges with both the Laurel and Great Falls main lines in the City of Great Falls (Subdivisions N and F, respectively). The line currently is out of functional service for freight trains. There are known riverbank stability problems on the track near Ulm (located 14.2 miles west of Great Falls). Recently, this segment has been used for car storage. The line is controlled by TWC with a maximum car weight of 143 tons and maximum speed of 35 mph.

Figure 3.16 BNSF – Helena Subdivision

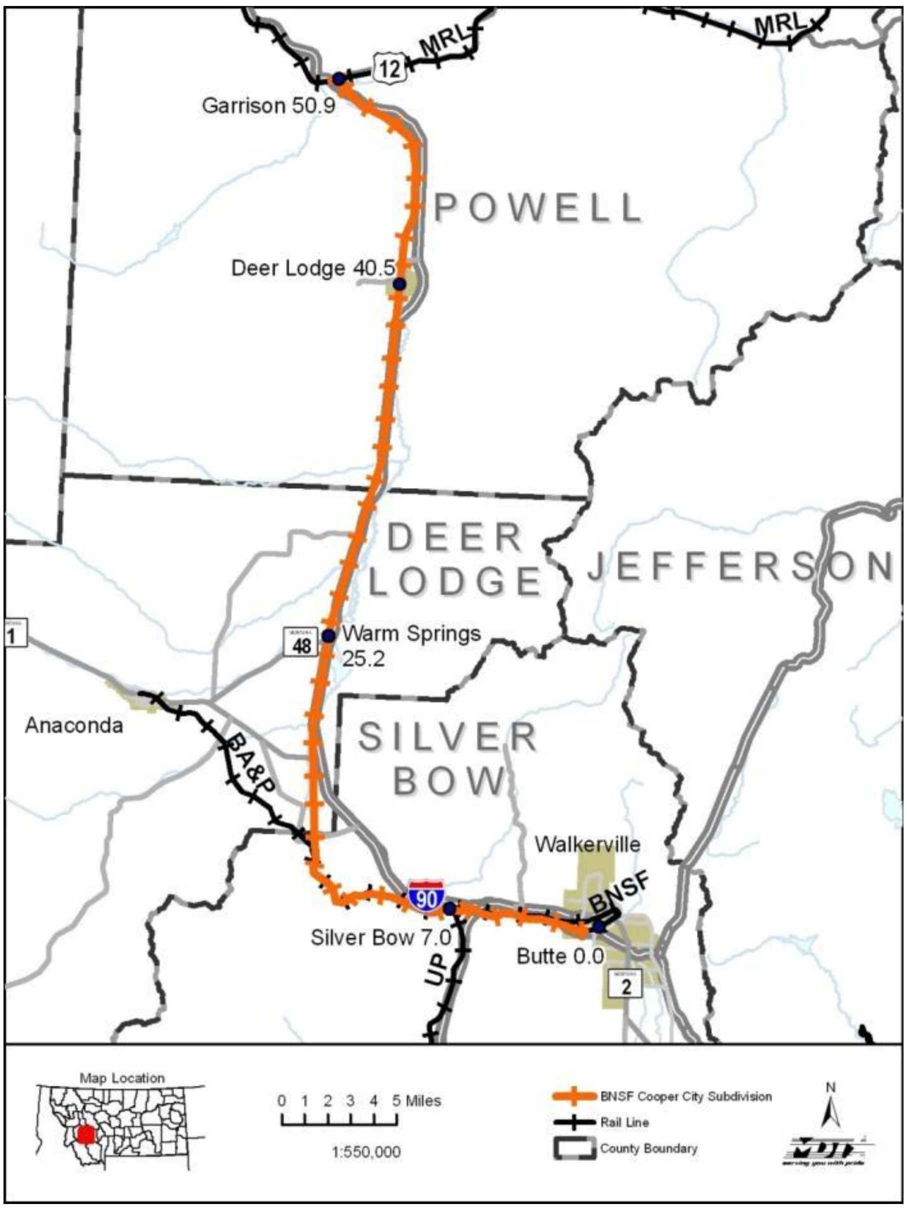


Source: Montana Department of Transportation.

Subdivision M – Copper City

The Copper City Main Line Subdivision connects Butte (MP 0.0) with Garrison (MP 51.1). As shown in Figure 3.17, other stations along the line include Silver Bow (MP 7.0), Warm Springs (MP 25.2), and Deer Lodge (MP 40.5). The line is controlled by TWC. Maximum speed on this single-track is 25 mph, and operation on the line is Occupancy Permission System, i.e., "dark territory." The line does not directly connect to other BNSF segments, but serves operations bridging between MRL at Garrison and UP at Silver Bow.

Figure 3.17 BNSF – Copper City Subdivision

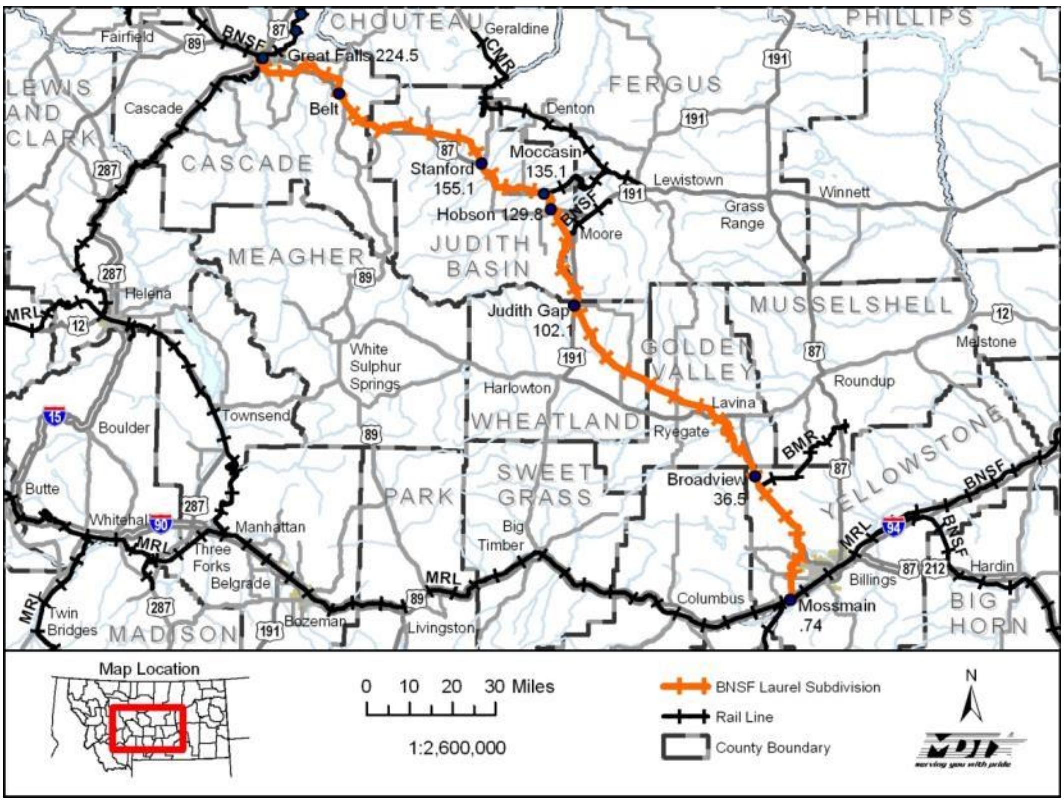


Source: Montana Department of Transportation.

Subdivision N – Laurel

The Laurel Subdivision, shown in Figure 3.18, is a 224-mile main line between Great Falls (MP 224.5) and Mossmain (MP 0.47). It connects to the Great Falls main line (Subdivision F) to the west and the Casper mainline (Subdivision P) to the east. There are 15 additional stations along the line, including Moccasin (MP 135.1) and Broadview (MP 36.5). There are several grain elevators on the line, and a 110-car shuttle facility at Moccasin owned by United/Harvest. The type of operation is TWC, and the maximum gross car weight is 143 tons. Speeds are limited to 49 mph along the line with permanent restrictions limiting speeds to between 25 and 40 mph on several short segments of varying length.

Figure 3.18 BNSF – Laurel Subdivision

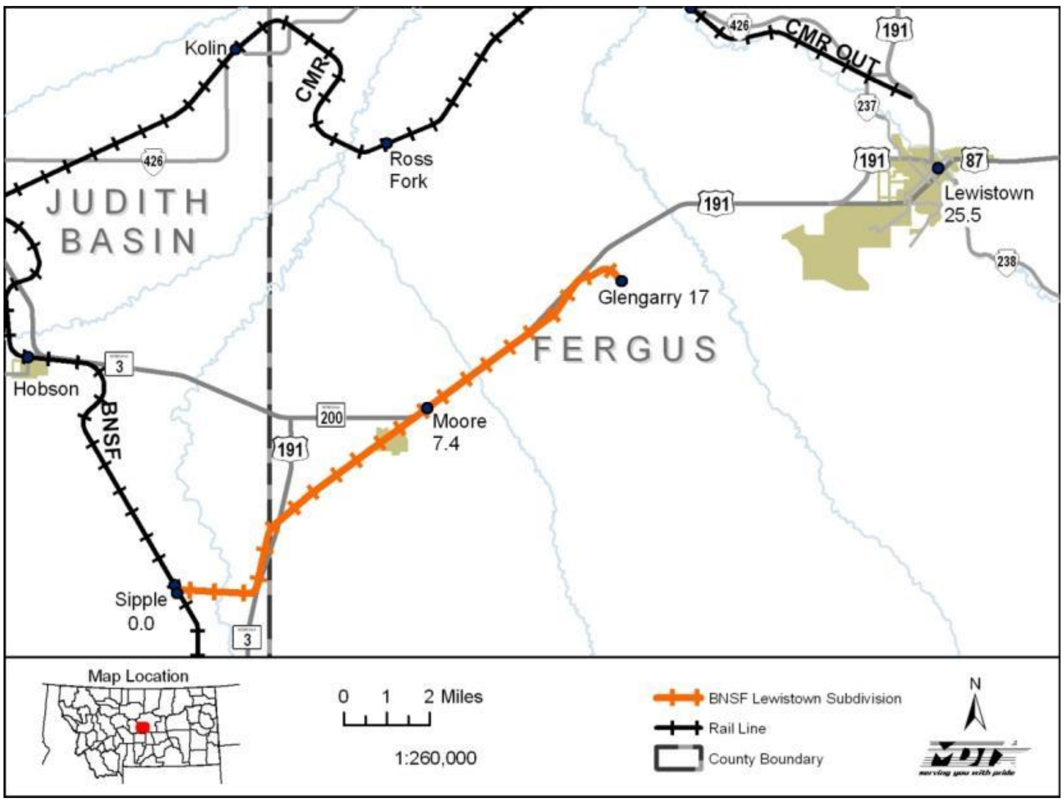


Source: Montana Department of Transportation.

Subdivision O – Lewistown

The Lewistown Subdivision is a single-tracked branch line running from Sipple (MP 0.0) to Lewistown (MP 28.4). Additional stations on the line, shown in Figure 3.19, include Moore (MP 7.4) and Glengarry (MP 17.0). The track from MP 13.88 to MP 27.35 was abandoned and rail banked June 14, 2007. The maximum gross car weight is 143 tons from Sipple to Glengarry and 134 tons from Glengarry to Lewistown. Track warrant control is in effect along the length of the line and the maximum speed is 25 mph.

Figure 3.19 BNSF – Lewistown Subdivision

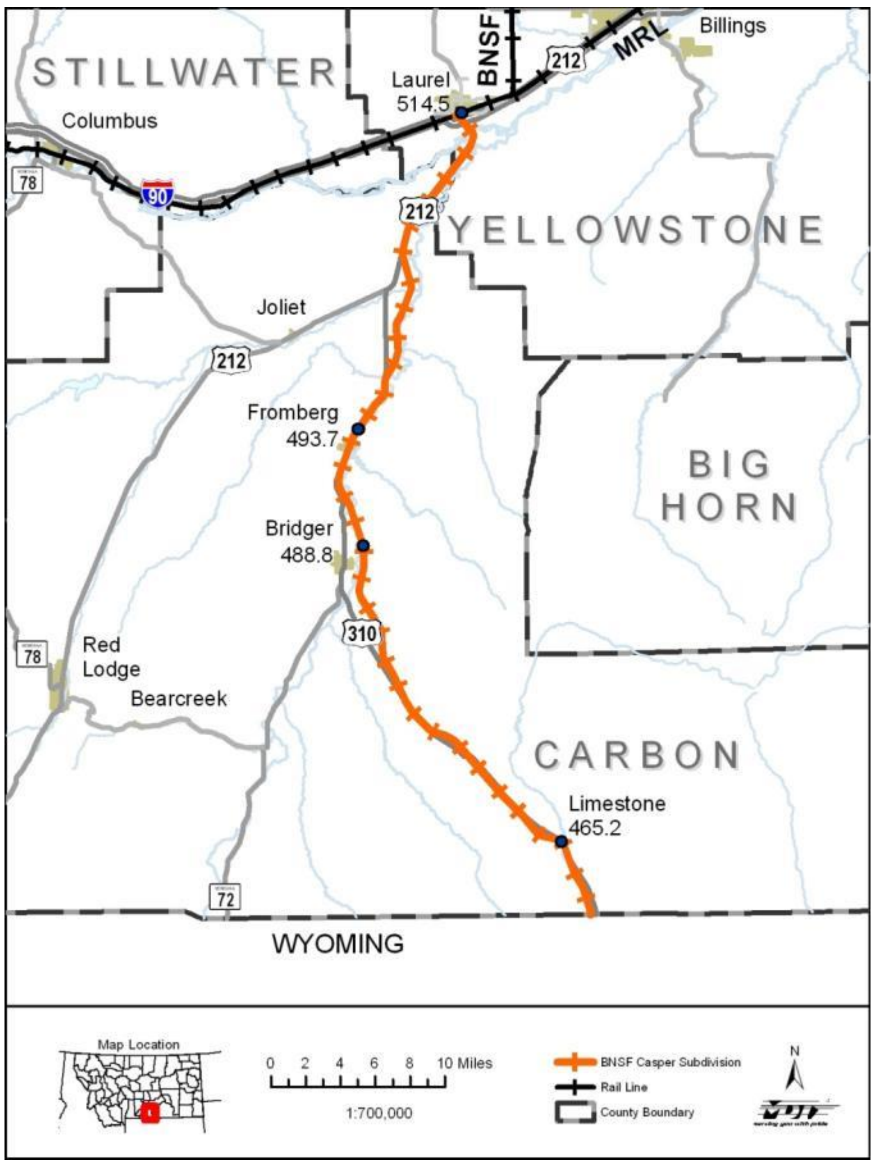


Source: Montana Department of Transportation.

Subdivision P – Casper

The Casper Subdivision connects Bridger Junction, Wyoming to Laurel (MP 514.5). Five stations and approximately 53.4 miles of the 381.3-mile subdivision are located in Montana, including Warren (MP 465.2), Wade (476.1), East Bridger (486.8), Fromberg (493.7), and Edgar (499.6). The maximum operating speed on the line is 40 mph, with permanent restrictions reducing the speed to between 20 and 30 mph on a several segments. "Dark Territory" operations are in effect along the Montana segments.

Figure 3.20 Casper Subdivision

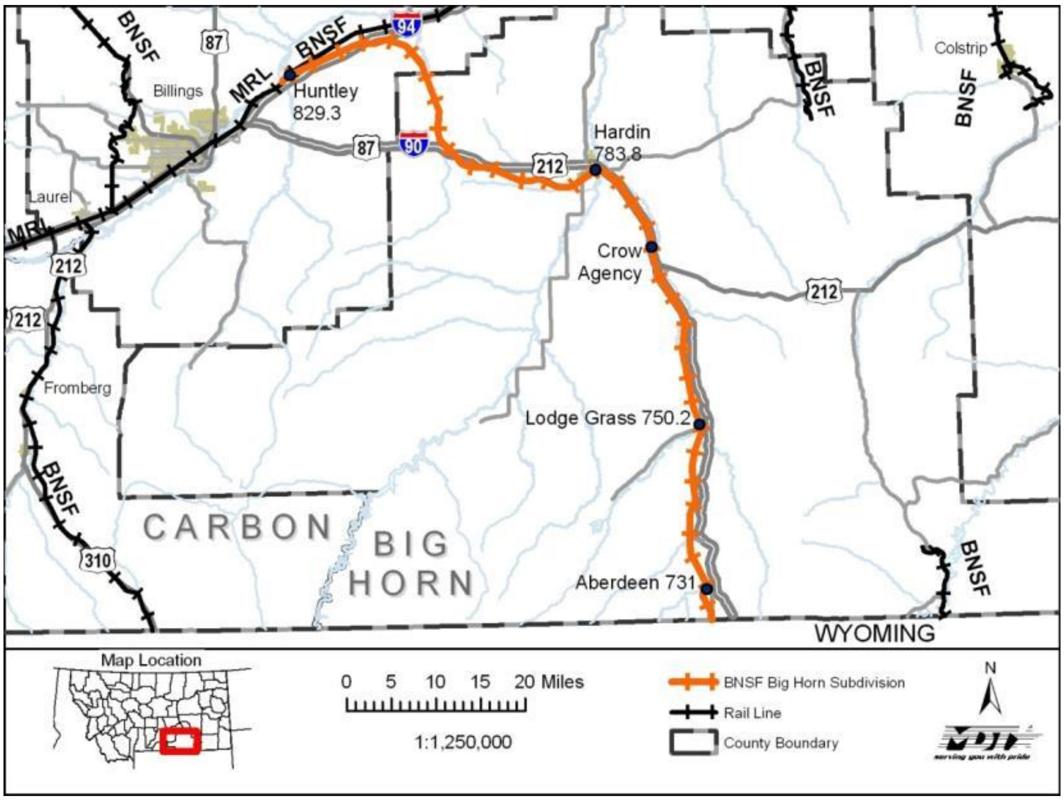


Source: Montana Department of Transportation.

Subdivision Q – Big Horn[31]

The Big Horn Subdivision connects Huntley (MP 829.3) with Sheridan, Wyoming. The Montana portion of the Big Horn line is 101.9 miles and shown in Figure 3.21. It is a major coal-hauling main line in the State, carrying loaded coal trains in both directions. The line is single-tracked with a maximum speed of 60 mph and maximum car weight of 144 tons. The line operates under CTC.

Figure 3.21 Big Horn Subdivision



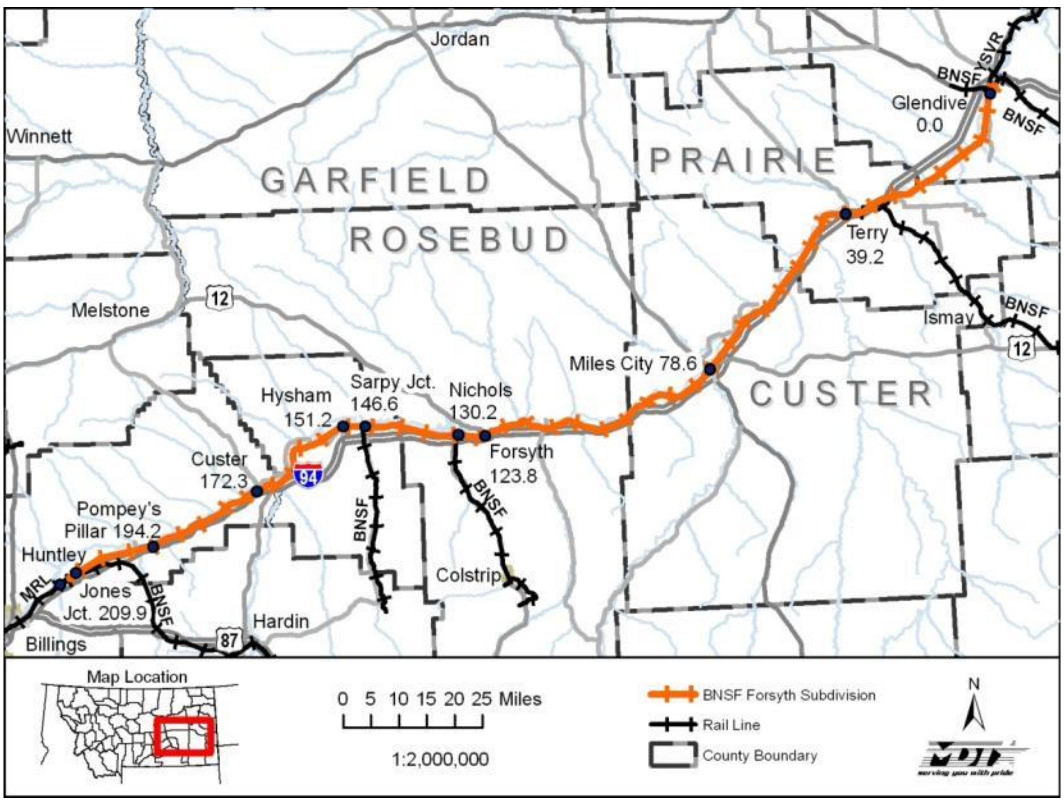
Source: Montana Department of Transportation.

[31] BNSF Railway, Powder River Division Timetable No. 9, Updated July 23, 2008.

Subdivision R – Forsyth

The Forsyth Subdivision is a main line that spans almost 210 miles from Glendive (MP 0.0) to Jones Junction (209.9) on the east side of Billings (Figure 3.22). There are 19 additional stations on the line, including: Terry (39.2), Miles City (MP 78.6), Forsyth (MP 123.8), Nichols (MP 130.2), Sarpy Junction (MP 146.6), Custer (MP 172.3), and Pompey's Pillar (MP 194.2). Maximum freight speed along the line is 60 mph, with numerous permanent restrictions ranging from 25 to 50 mph. The maximum gross car weight is 143 tons. TWC and ABS are in effect from Glendive (MP 0.0) to MP 123.2 and from MP 152.1 to MP 209.8. All other segments operate with CTC.

Figure 3.22 BNSF – Forsyth Subdivision



Source: Montana Department of Transportation.

Subdivision S – Sarpy Line

The Sarpy Line Subdivision, shown in Figure 3.23, is a single-tracked branch line between Sarpy Junction (MP 0.0) and Kuehn (MP 37.4) with no additional stations in between. The branch line serves as a connection to the Forsyth main line (Subdivision R) for Big Horn County. The maximum speed along the line is 40 mph except for sidings and switches in Kuehn which are limited to 10 mph. The line is operated by TWC and has a maximum gross car weight of 143 tons.

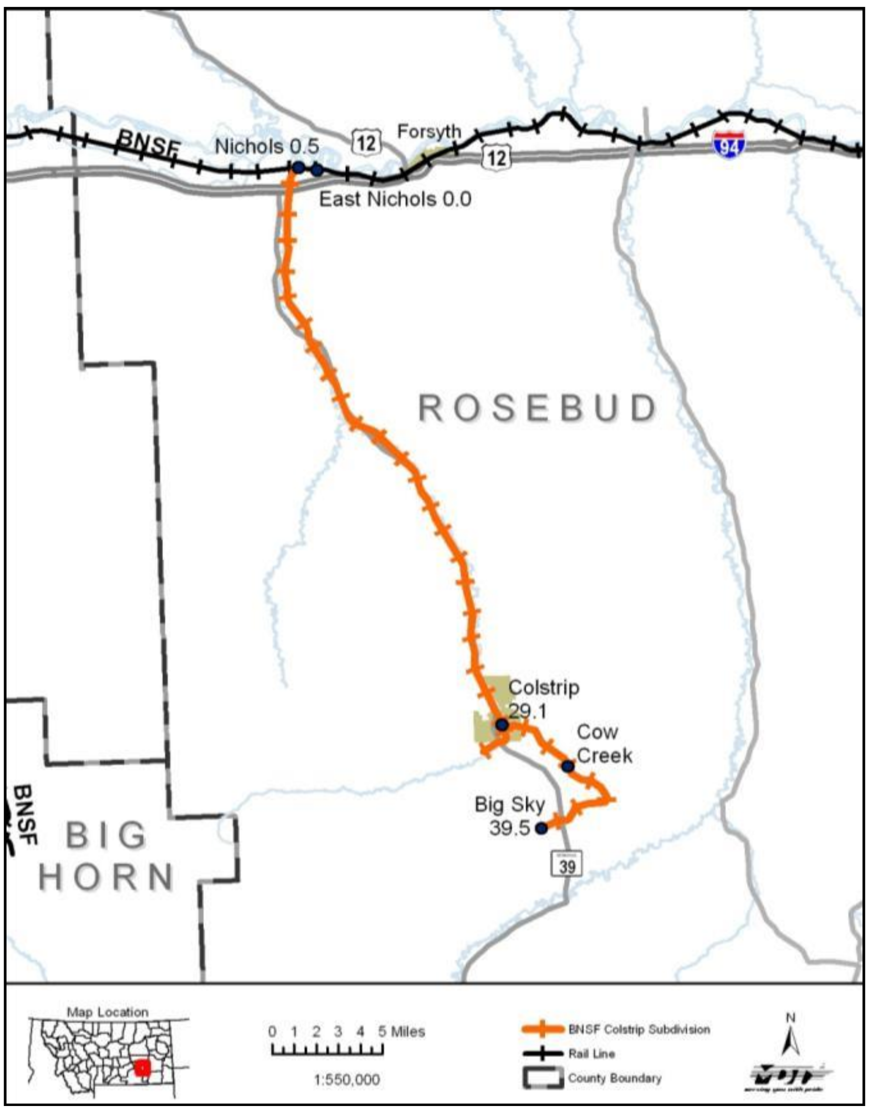
Figure 3.23 BNSF – Sarpy Line Subdivision

Source: Montana Department of Transportation.

Subdivision T – Colstrip

The Colstrip Subdivision, shown in Figure 3.24, is a branch line which runs from East Nichols Wye (MP 0.0) to a rail loading facility known as Big Sky (MP 39.5, not to be confused with the community of the same name in Gallatin County). BNSF-owned track ends at Cow Creek (MP 33.1) and Peabody Coal Company track continues to Big Sky. Other stations along the line include Nichols (MP 0.5) and Colstrip (MP 29.1). The branch line primarily serves coal mines in Rosebud County. The maximum speed along the line is 40 mph with a restriction to 25 mph through Colstrip and Big Sky. TWC is used along the line and the maximum gross weight of cars along the line is 143 tons. The Colstrip Line is switched with the Forsyth Main Line (Subdivision R) at East Nichols.

Figure 3.24 BNSF – Colstrip Subdivision

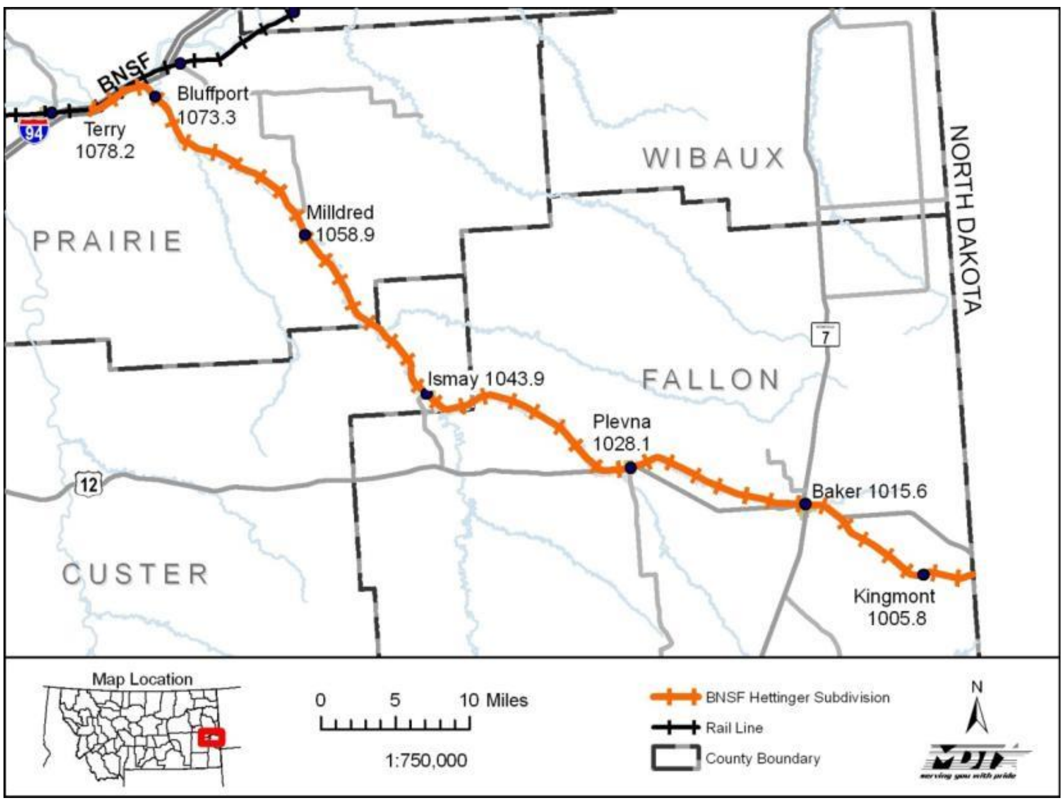


Source: Montana Department of Transportation.

Subdivision U – Hettinger

The Hettinger Subdivision is a main line between Hettinger, North Dakota (MP 926) and just past Terry, Montana (MP 1078.9). The line has 11 stations, six of which are located in Montana: Kingmont (1005.8), Baker (MP 1015.6), Plevna (MP 1028.1), Ismay (MP 1043.9), Mildred (1058.9), Bluffport (MP 1073.3), and Terry (MP 1078.2) (Figure 3.25). The border is at MP 1002.29. Maximum speed along the line is 40 mph with permanent restrictions to 20 mph near Terry. The maximum gross car weight limit is 143 tons, and the operation type is TWC. The line converges with the Forsyth main line (Subdivision R) at Terry.

Figure 3.25 BNSF – Hettinger Subdivision

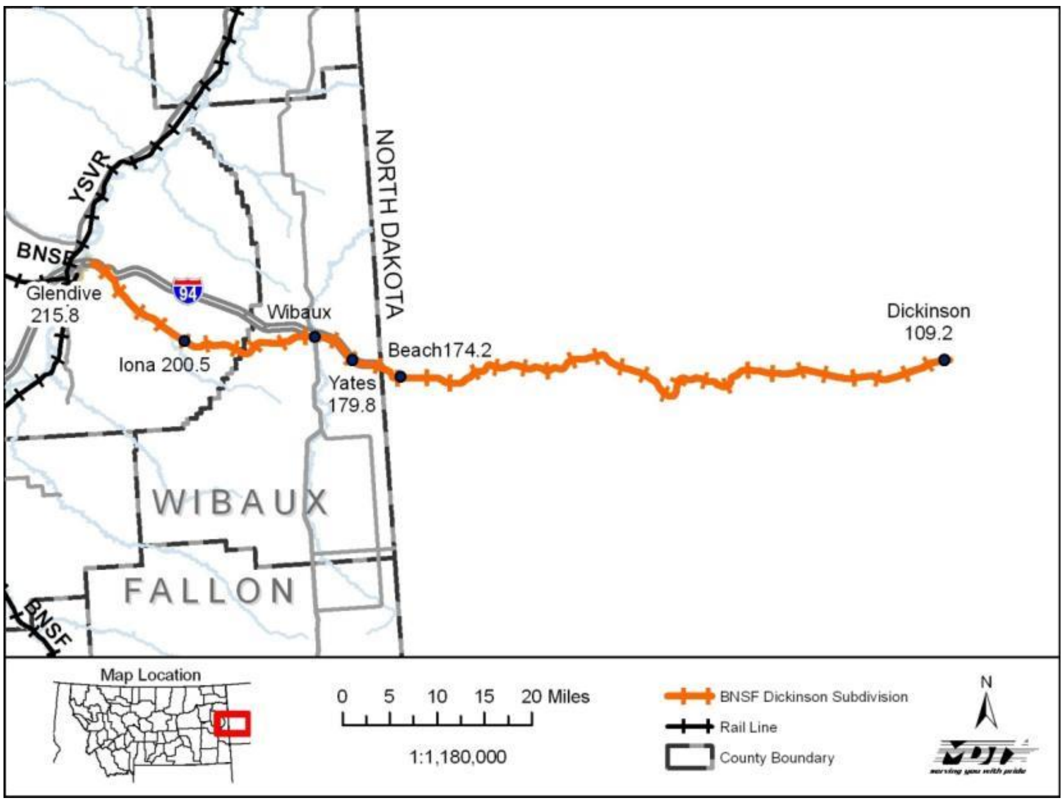


Source: Montana Department of Transportation.

Subdivision V – Dickinson

The Dickinson Subdivision is a main line that runs from Mandan Yard in Mandan, North Dakota (MP 0.0) to Glendive (215.8). The Montana segment of the Dickinson main line is 39.1 miles and shown in Figure 3.26. The border is at MP 176.7. There are 21 additional stations along the route, including: Dickinson (MP 109.2), Beach, (MP 174.2), and Iona (MP 200.5). Speed restrictions fluctuate throughout the line and vary between 20 mph and 50 mph. Maximum gross car weight is 143 tons and TWC and ABS operations are in effect along the length of the line. The Dickinson main line interchanges with the Forsyth main line (Subdivision R) at Glendive.

Figure 3.26 BNSF – Dickinson Subdivision



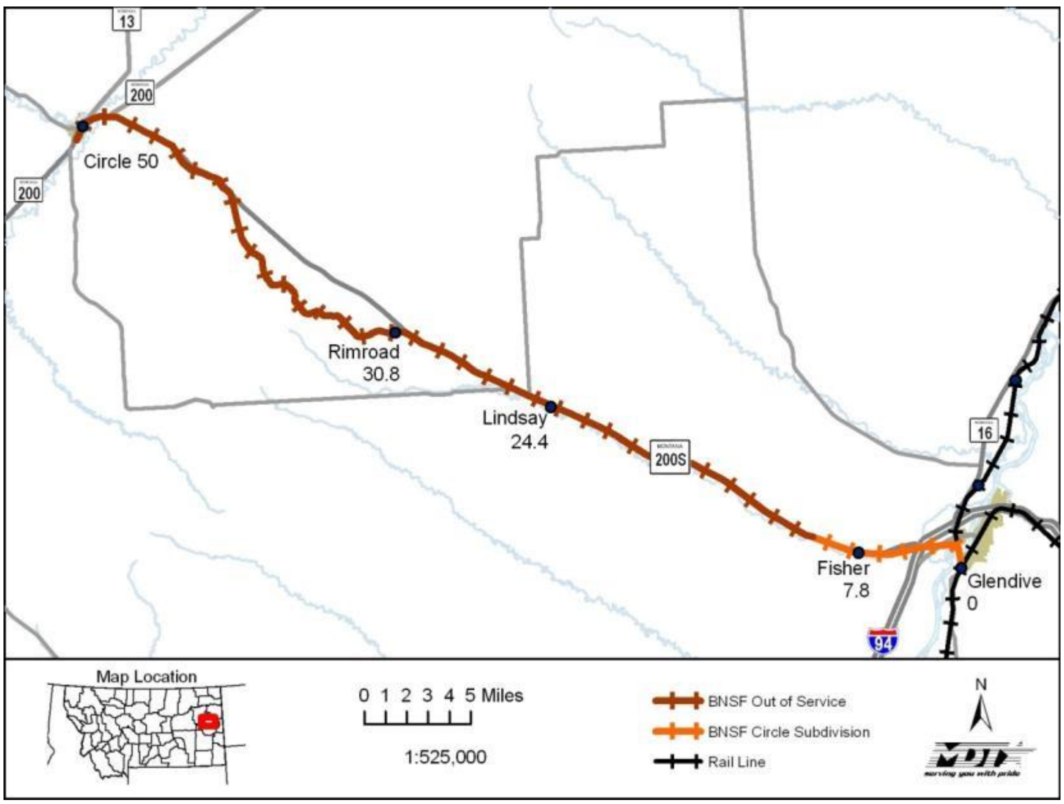
Source: Montana Department of Transportation.

Subdivision W – Circle

The Circle Subdivision, shown in Figure 3.27, is a 50.5-mile branch line between Glendive (MP 0.0) and Circle (MP 50.5). Stations include Fisher (MP 7.8), Lindsay (MP 24.4) and Rimroad (MP 30.8), and Circle (MP 50). The line operates under TWC with a maximum track speed of 10 mph and maximum gross car weight of 134 tons.

This line has witnessed decreased usage as a result of 110-car grain shuttle loading facility constructed in recent years in nearby Macon. Abandonment has been pursued by the railroad but currently is on hold indefinitely.

Figure 3.27 Circle Subdivision

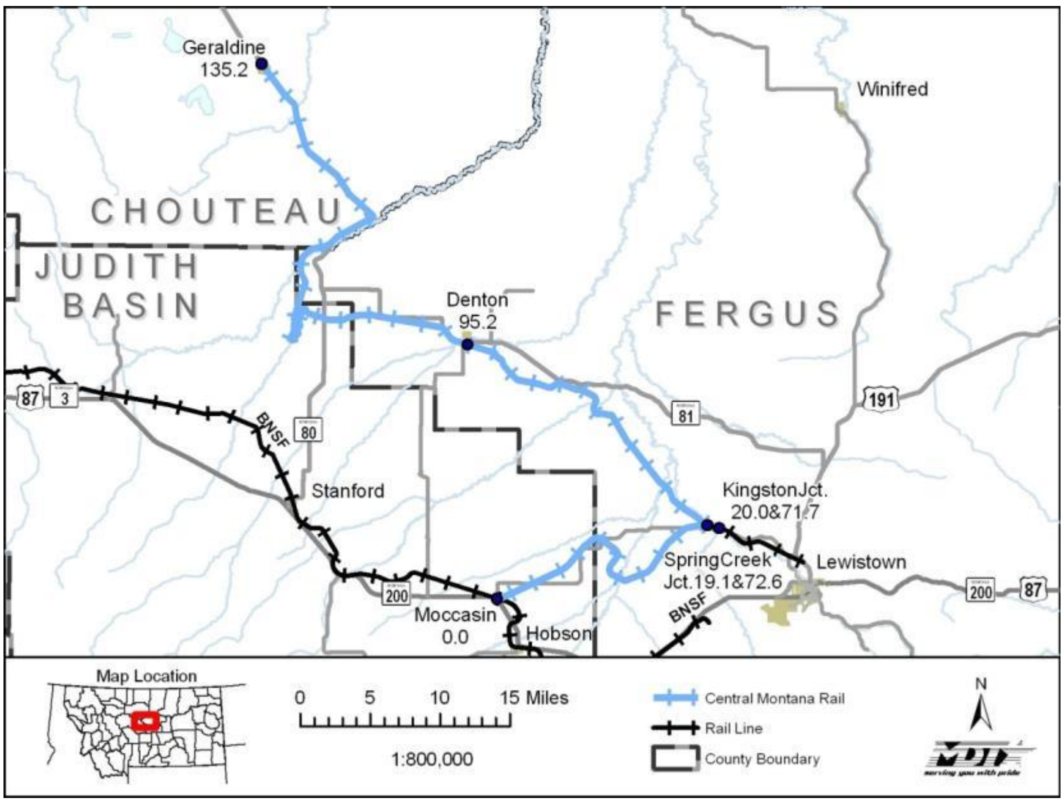


Source: Montana Department of Transportation.

Central Montana Rail (CMR)

Central Montana Rail, Inc. (CMR), shown in Figure 3.28, is a Class III local railroad which operates 88 route miles between Moccasin Junction (MP 0.0) and Geraldine (MP 135.2). It also includes 9.2 miles of switching tracks for an overall total of 96.2 miles.[32] There are 11 total stations along the line, including Kingston Junction (MP 20.0 and MP 71.7), and Denton (MP 95.2).[33] The maximum authorized speed is 25 mph, with restrictions in select areas to 10 mph. The line connects with the BNSF Laurel main line (Subdivision O) at Moccasin.

Figure 3.28 Central Montana Rail



Source: Montana Department of Transportation.

32Central Montana Rail, Inc., Montana Rail Road Statistics, December 2007.

33Central Montana Rail, Inc., Timetable No. 9, February 1, 2005.

Operating statistics for the years 2005 through 2007 are detailed in Table 3.5. While wheat accounted for approximately 92 percent of CMRs total revenue freight in each reporting year, CMR also hauled barley, fertilizer, and scrap. In 2007, CMR transported a total of 82,100 tons, attributing to an intrastate operating revenue of $617,827. A seasonal passenger/tourism train also operates on the line.

Table 3.5 Central Montana Rail Operating Statistics
2005-2007

	Carloads			Tons		
Commodity	**2005**	**2006**	**2007**	**2005**	**2006**	**2007**
Wheat	807	1,348	757	80,700	134,800	75,700
Barley	43	58	37	4,300	5,800	3,700
Fertilizer	28	42	10	2,800	4,200	1,000
Scrap	9	9	17	900	900	1,700
Total	**887**	**1,457**	**821**	**88,700**	**145,700**	**82,100**

Source: 2005-2007 Annual Reports to the Montana Public Service Commission.

Montana Rail Link (MRL)[34]

Montana Rail Link (MRL) has been in operation since October 1987 after assuming control of Montana's southern route from the Burlington Northern Railroad. Today, MRL is a Class II regional railroad operating more than 900 miles of track in its system throughout Montana, Idaho, and Washington. Of the 875 miles of track located in Montana, MRL leases approximately 70 percent of its road, including 557 miles of main line leased from BNSF.[35] MRL owns 254 miles of branch line within the State. Headquartered in Missoula, MRL has approximately 1,000 employees and a fleet of more than 2,100 freight cars and 176 locomotives.[36]

As shown in Table 3.6, MRL experienced notable increases in both carloads and tonnage between 2005 and 2007. Over the three-year period, total carloads increased by 10.9 percent, while total tonnage increased by 13.5 percent. The increase in coal movements between 2005 and 2007 accounted for a majority of this growth. In addition to coal, the primary commodities transported by MRL in Montana include farm products, petroleum and coal products, and lumber and wood products.

[34] Line-level information compiled from MRL Timetable No. 14, dated August 26, 2007; and the MRL System Condensed Profile and Track Chart, both provided by MRL Staff.

[35] Montana Rail Link, Annual Report to the Montana Public Service Commission, 2007.

[36] Montana Rail Link Corporate web site: http://www.montanarail.com/.

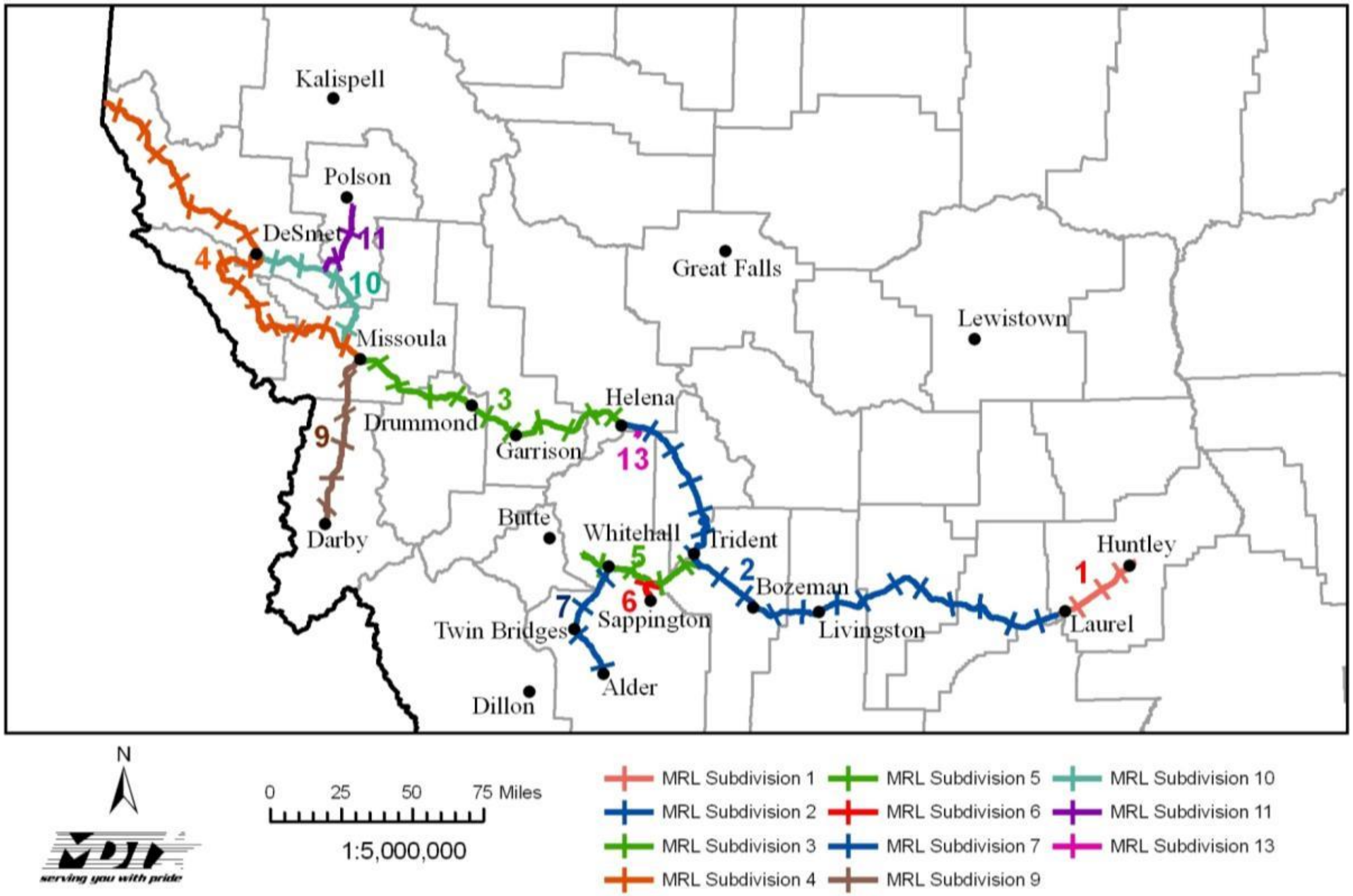
Table 3.6 Montana Rail Link Operating Statistics
2005-2007

Commodity	Carloads 2005	Carloads 2006	Carloads 2007	Gross Tons 2005	Gross Tons 2006	Gross Tons 2007
Coal	41,009	46,842	72,890	5,781,955	6,609,616	10,243,354
Farm Products	65,400	89,348	67,646	8,949,496	12,338,137	9,465,651
Petroleum and Coal Products	43,784	42,756	43,664	5,428,071	5,296,765	5,424,994
Lumber and Wood Products	42,542	46,906	36,007	5,137,807	5,687,045	4,318,853
Food and Kindred Products	18,969	18,447	22,016	2,407,015	2,328,178	2,829,528
Stone, Clay, Glass, and Concrete	22,360	22,879	21,292	2,842,262	2,931,239	2,736,557
Chemicals and Allied Products	12,658	12,657	16,047	1,636,651	1,631,539	2,057,997
All Other Commodities	53,339	54,256	53,311	6,154,995	6,294,416	6,422,805
Total	**300,061**	**334,091**	**332,873**	**38,338,252**	**43,116,935**	**43,499,739**

Source: 2005-2007 Annual Reports to the Montana Public Service Commission.

Within Montana, the MRL system is divided into 11 subdivisions, shown in Figure 3.29. Note that MRL subdivisions 8 and 12 no longer exist, and therefore are not included in the railroad's sequential numbering system. The location and operating characteristics of each subdivision is described in the following sections. Note that maximum rail car weight limits are not available for the MRL subdivisions.

Figure 3.29 MRL Statewide System Overview



Source: Montana Department of Transportation.

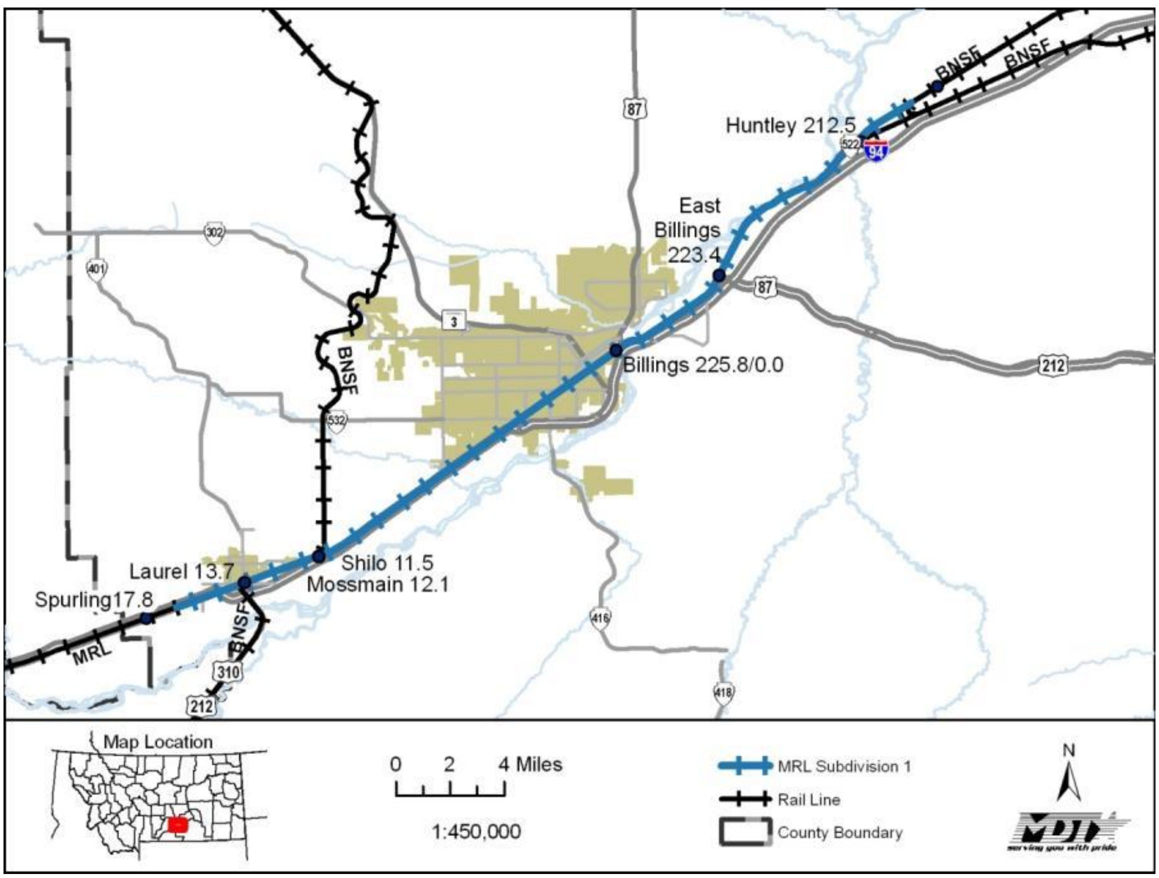
Note: Subdivisions 8 and 12 no longer exist.

Subdivision 1 – Huntley to Billings, Billings to Spurling

MRL's Subdivision 1 is a 33.7-mile main line that connects with BNSF Subdivisions Q (Big Horn) and R (Forsyth) and extends to Spurling (MP 17.8) west of Laurel (MP 13.7). In addition to the two subdivision termini stations shown in Figure 3.30, the line has seven stations along the route, including: Huntley (MP 212.5), East Billings (MP 223.4), Billings (MP 225.8 and MP 0), Shilo (MP 11.5), Mossmain (MP 12.1), and Laurel (MP 13.7).

The line is double-tracked and operated by TWC from East Billings to Shilo, and has either two main tracks or a single main track with CTC on the remaining miles of the route. Speed limits range from 10 mph to 45 mph on the main tracks and 10 mph to 35 mph on turnouts, sidings, and other tracks.

Figure 3.30 MRL Subdivision 1

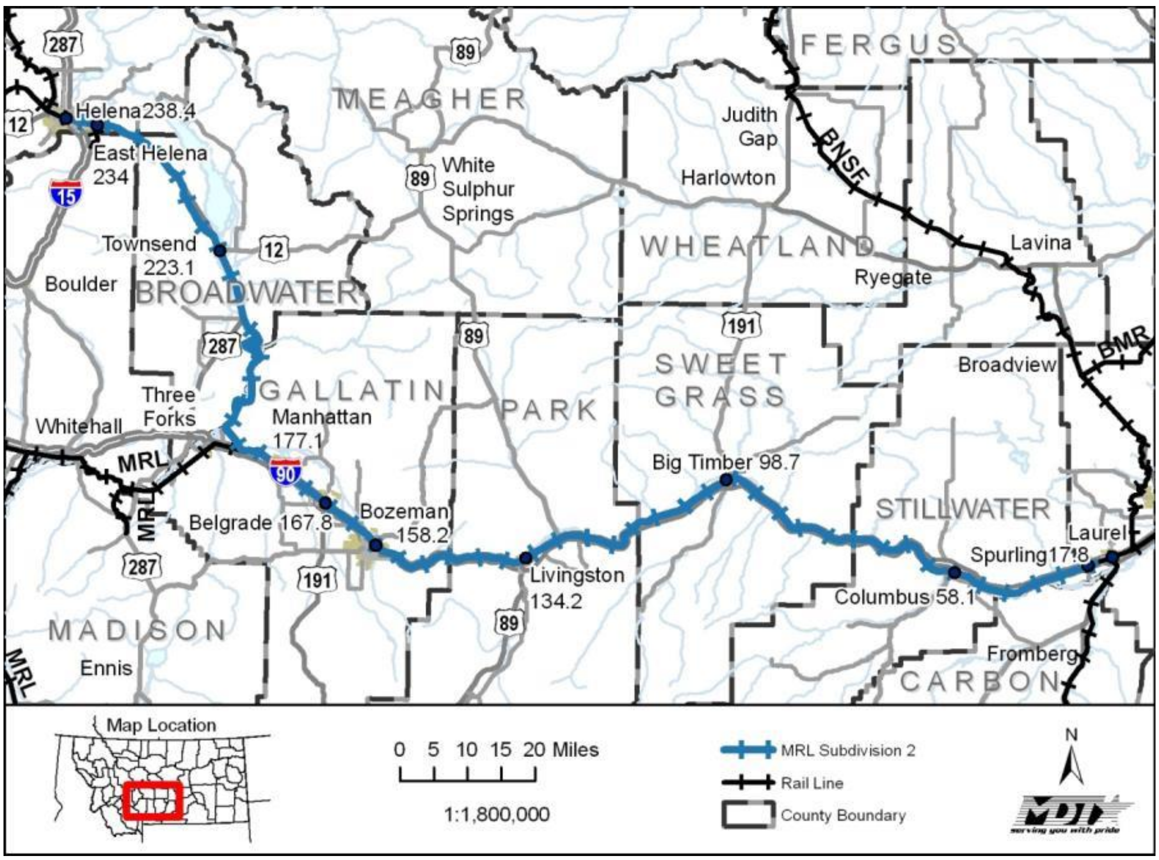


Source: Montana Department of Transportation.

Subdivision 2 – Spurling to Helena

Shown in Figure 3.31, MRL's Subdivision 2 is a 220.7-mile main line connecting Spurling (MP 17.75) with Helena (MP 238.4). There are 25 total stations located along the line, including Livingston (MP 134.2), Bozeman (MP 158.2), and East Helena (MP 234). The line has a single main track throughout and is operated by CTC. Speed limits range from 1 mph to 45 mph on the main track and 10 mph to 35 mph on turnouts, sidings, and other track. Subdivision 2 has three areas of FRA Excepted Track,[37] effectively limiting operations to maximum 10 mph. The excepted track segments are located in Livingston, Bozeman, and Helena.

Figure 3.31 Subdivision 2



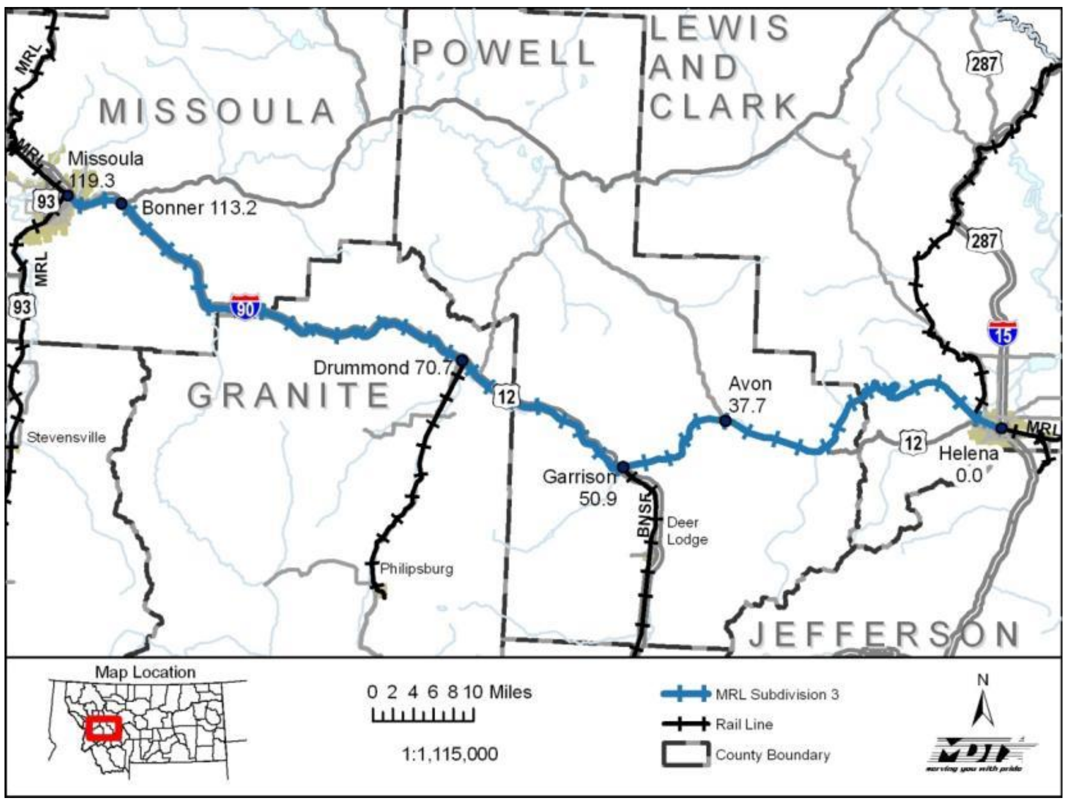
Source: Montana Department of Transportation.

[37] A track owner may designate a segment of track as FRA excepted track, which limits train speeds to 10 mph, prohibits passenger trains from operating on the track, and limits trains to no more than five hazardous material-carrying cars.

Subdivision 3 – Helena to Missoula

MRL Subdivision 3, shown in Figure 3.32, is a 119.3-mile main line connecting Helena (MP 0.0) and Missoula (MP 119.3). There are 14 additional stations along the route, including Garrison (MP 50.9), Drummond (MP 70.7), and Bonner (MP 113.2). The route is primarily single main tracked, with the exception of segments near Missoula and Helena, which use two main tracks. CTC is utilized along the entire subdivision. Speed limits on the main track are between 20 mph and 45 mph. Turnouts, sidings, and other tracks have maximum speeds between 5 mph and 35 mph.

Figure 3.32 MRL Subdivision 3

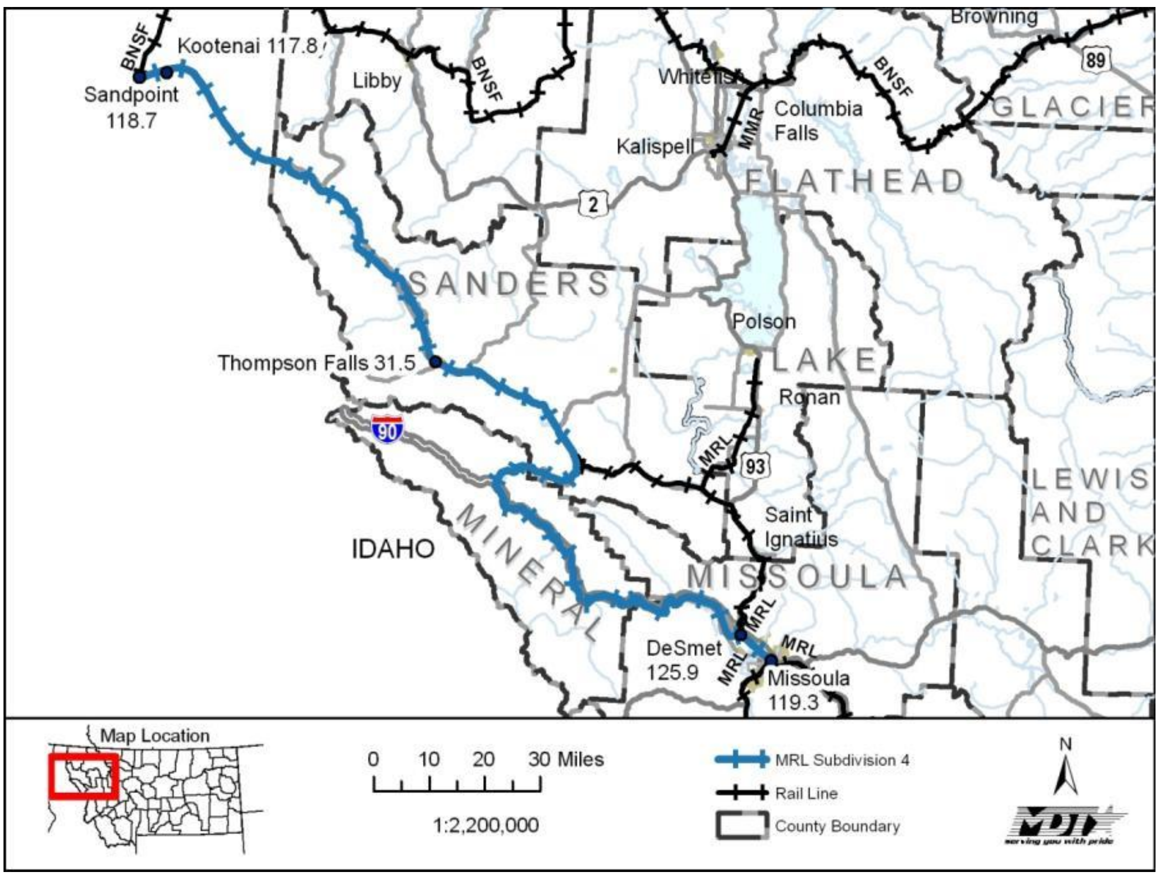


Source: Montana Department of Transportation.

Subdivision 4 – Missoula to Paradise, Paradise to Sandpoint Junction

MRL's Subdivision 4 (Figure 3.33) is a 218.6-mile main line between Missoula (MP 119.3) and Sandpoint Junction, Idaho (MP 118.7). The border is at MP 85.25 with 185.2 miles in Montana. The subdivision renumbers mileposts heading west at Paradise (MP 219.2 and MP 0.0). The subdivision connects with BNSF Subdivision A (Kootenai River) at Sandpoint Junction. There are 18 additional stations along the route, including DeSmet (MP 125.9), Thompson Falls (MP 31.5), and Kootenai (MP 117.8). The line is primarily single-tracked except for a 3-mile portion near Missoula at DeSmet, which includes two main tracks. The entire line is operated with CTC. Speed limits on the line range from 20 mph to 45 mph on the main track, and 10 mph to 30 mph on turnouts, sidings, and other tracks.

Figure 3.33 Subdivision 4

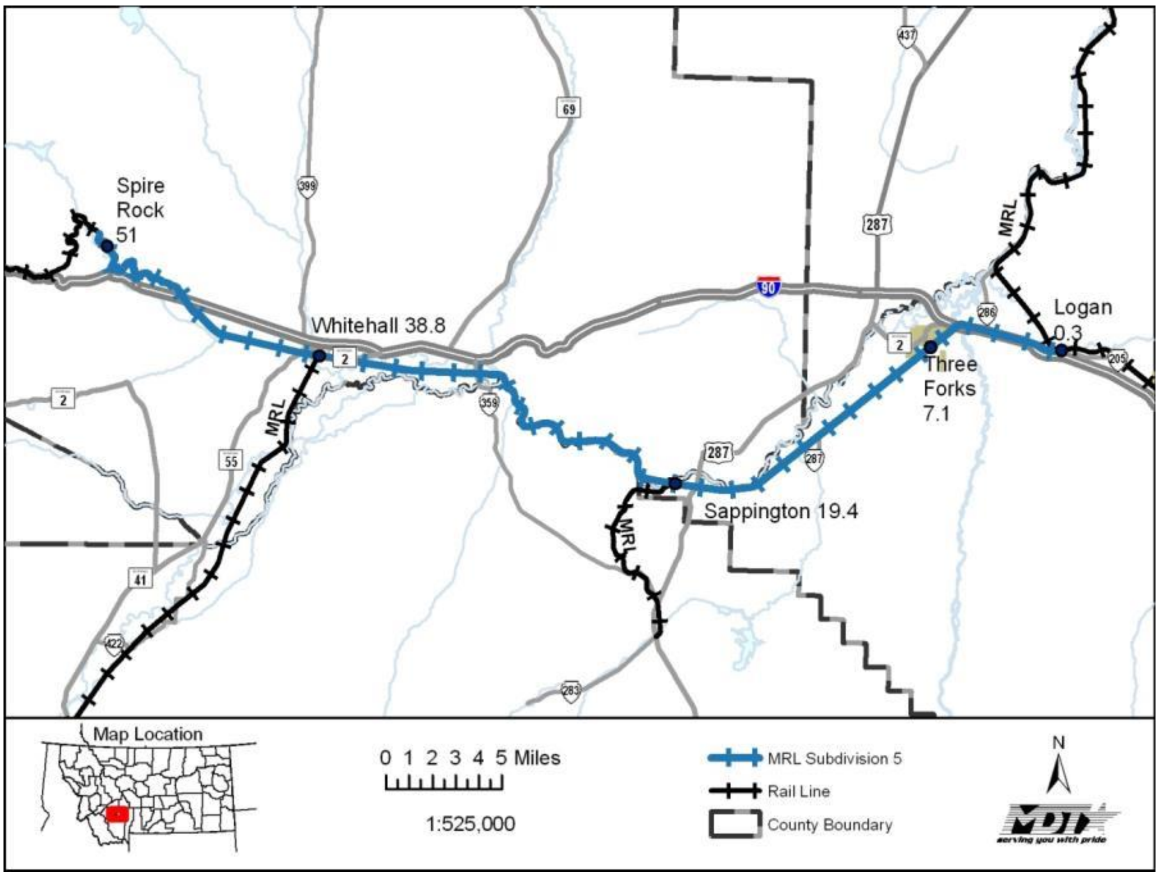


Source: Montana Department of Transportation.

Subdivision 5 – Logan to Spire Rock

MRL's Subdivision 5 is a 50.7-mile branch line connecting Logan (MP 0.3) with Spire Rock (MP 51). Subdivision 5 interchanges with an out-of-service BNSF line at Spire Rock and includes seven total stations, including Sappington (MP 19.4) and Whitehall (38.8). The line is single-tracked throughout and operated with TWC, except for CTC at Logan. Maximum speeds on the line are between 10 mph and 40 mph. Figure 3.34 illustrates Subdivision 5.

Figure 3.34 Subdivision 5



Source: Montana Department of Transportation.

Subdivision 6 – Sappington to Harrison

MRL's Subdivision 6 is a 9.7-mile branch line between Sappington (MP 0.0) and Harrison (MP 9.7), the sole stations on the line. This line currently is used primarily for storage. Maximum speed on this single-tracked line is 10 mph. Method of operation for the line is Block Register Territory (BRT). Figure 3.35 exhibits Subdivision 6.

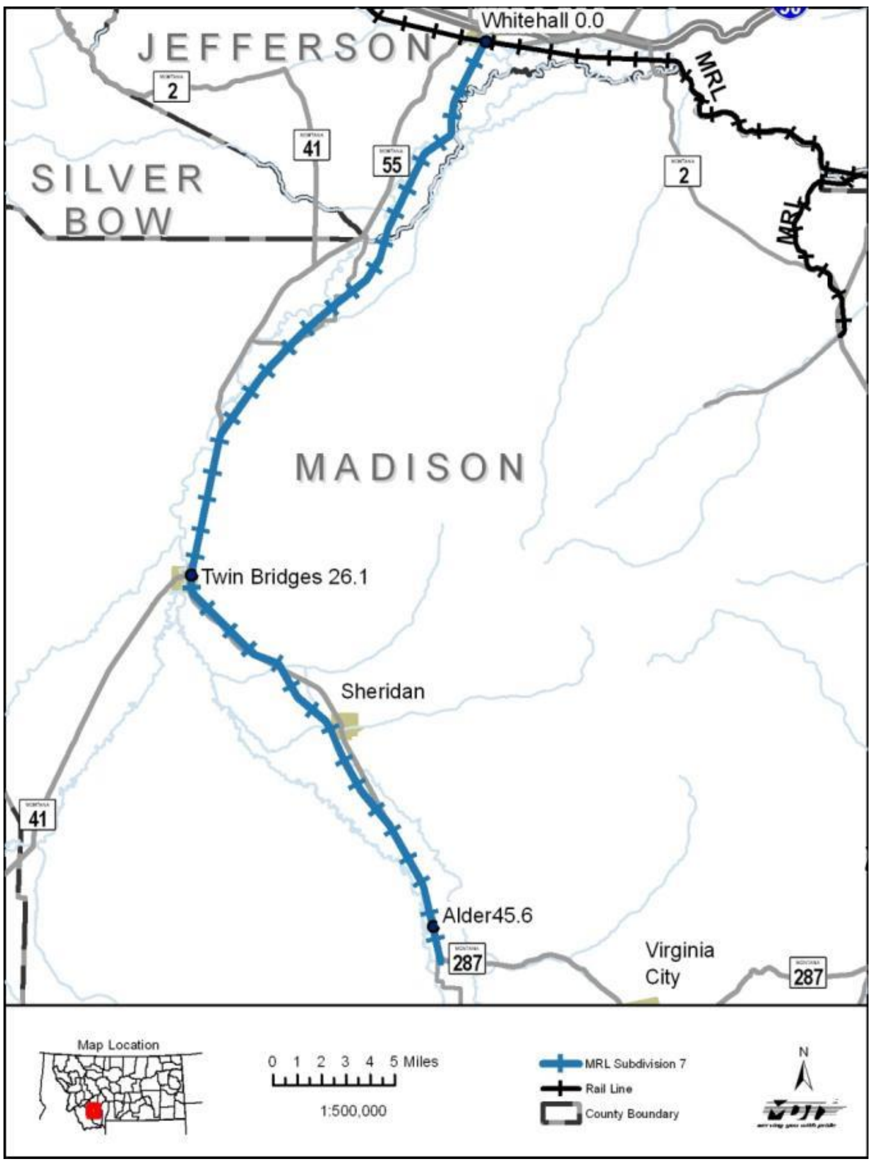
Figure 3.35 MRL Subdivision 6

Source: Montana Department of Transportation.

Subdivision 7 – Whitehall to Alder

MRL's Subdivision 7, shown in Figure 3.36, is a 45.6-mile main line between Whitehall (MP 0.0) and Alder (MP 45.6). The line is out of service from Twin Bridges (MP 26.1) to the end of the line at Alder – this section is FRA excepted track and used primarily for storage. Maximum speed on this single-tracked line is 25 mph, with a 2-mile section near Whitehall at 10 mph. BRT is the method of operation for this line.

Figure 3.36 Subdivision 7

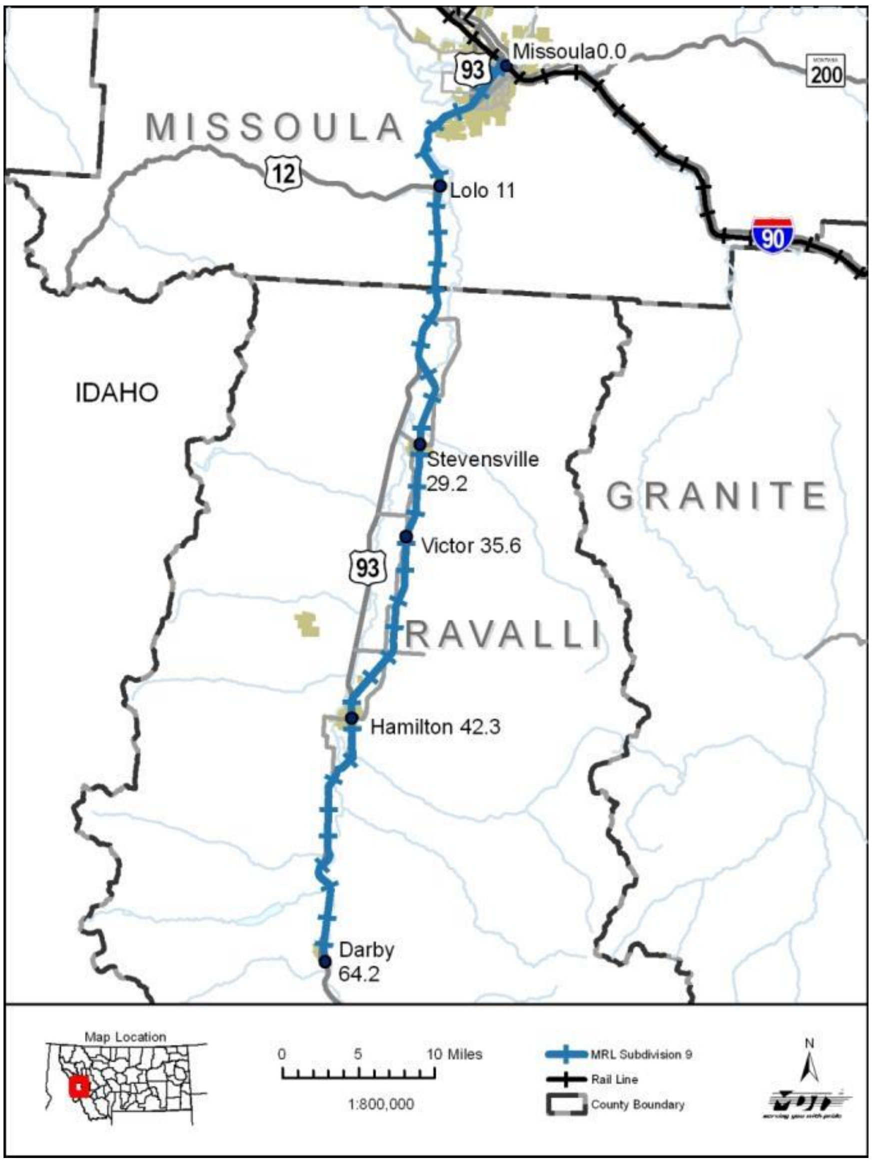


Source: Montana Department of Transportation.

Subdivision 9 – Missoula to Darby

MRL's Subdivision 9 is a 64.7-mile branch line from Missoula (MP 0.02) to Darby (MP 64.7) (Figure 3.37). There are four additional stations along this line at Lolo (MP 11.0), Stevensville (MP 29.2), Victor (MP 35.6), and Hamilton (MP 48.0). The entire line is single-track. Most of the line has a maximum speed of 25 mph; however, speeds are limited to 10 mph near Hamilton and Darby. TWC is the operation type utilized on Subdivision 9.

Figure 3.37 Subdivision 9

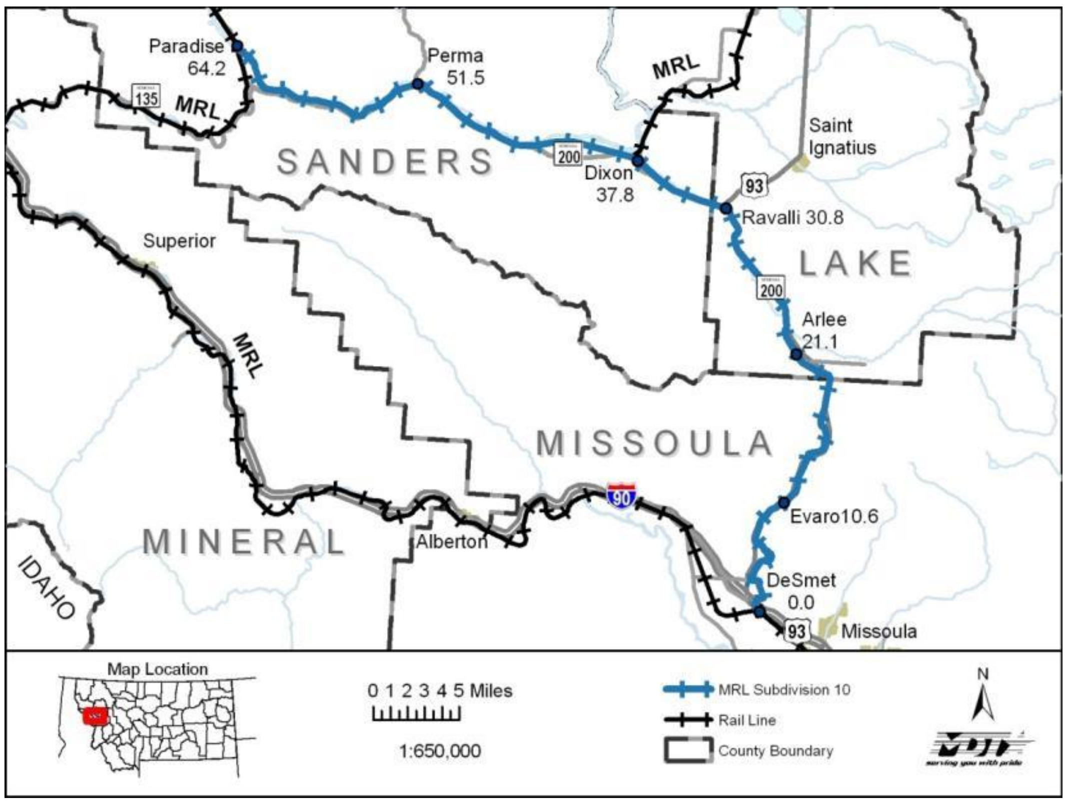


Source: Montana Department of Transportation.

Subdivision 10 – DeSmet to Paradise

MRL's Subdivision 10, Figure 3.38, is a 64.1-mile main line between DeSmet (MP 0.0) and Paradise (MP 64.1). There are five additional stations on the line: Evaro (MP 10.6), Arlee (MP 21.1), Ravalli (MP 30.8), Dixon (MP 37.8), and Perma (MP 51.5). With the exception of DeSmet and Paradise which are operated by CTC, the entire line is single-tracked operated by TWC. Maximum speeds on this line range from 25 mph to 45 mph.

Figure 3.38 Subdivision 10

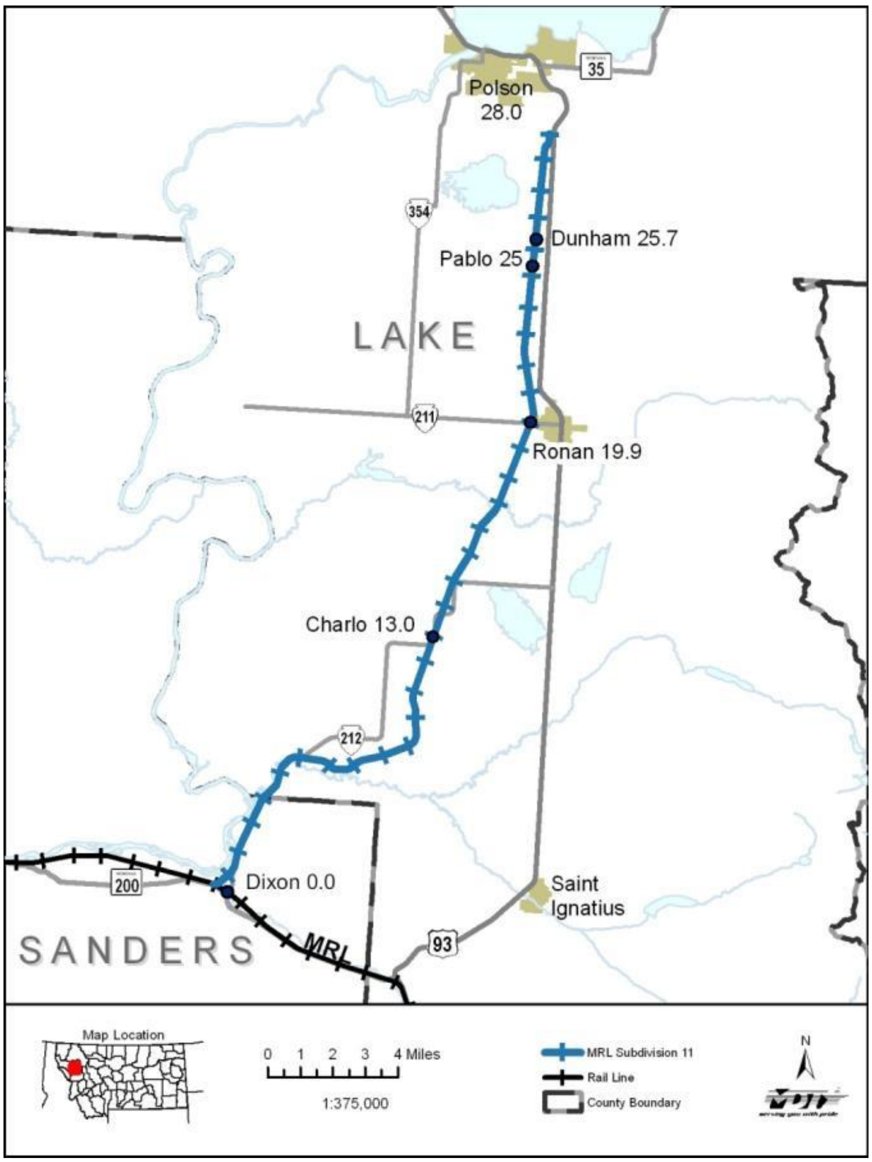


Source: Montana Department of Transportation.

Subdivision 11 – Dixon to Polson

MRL's Subdivision 11 is a 29.0-mile branch line between Dixon (MP 0.0) and Polson (MP 29.0). There are four additional stations on the route: Charlo (MP 13.0), Ronan (MP 19.9), Pablo (MP 25.0), and Dunham (MP 25.7). Maximum speed on the main track is 25 mph, with speeds restricted to 10 mph on turnouts, sidings, and other track. TWC is the method of operation for this line. Figure 3.39 exhibits Subdivision 11.

Figure 3.39 Subdivision 11

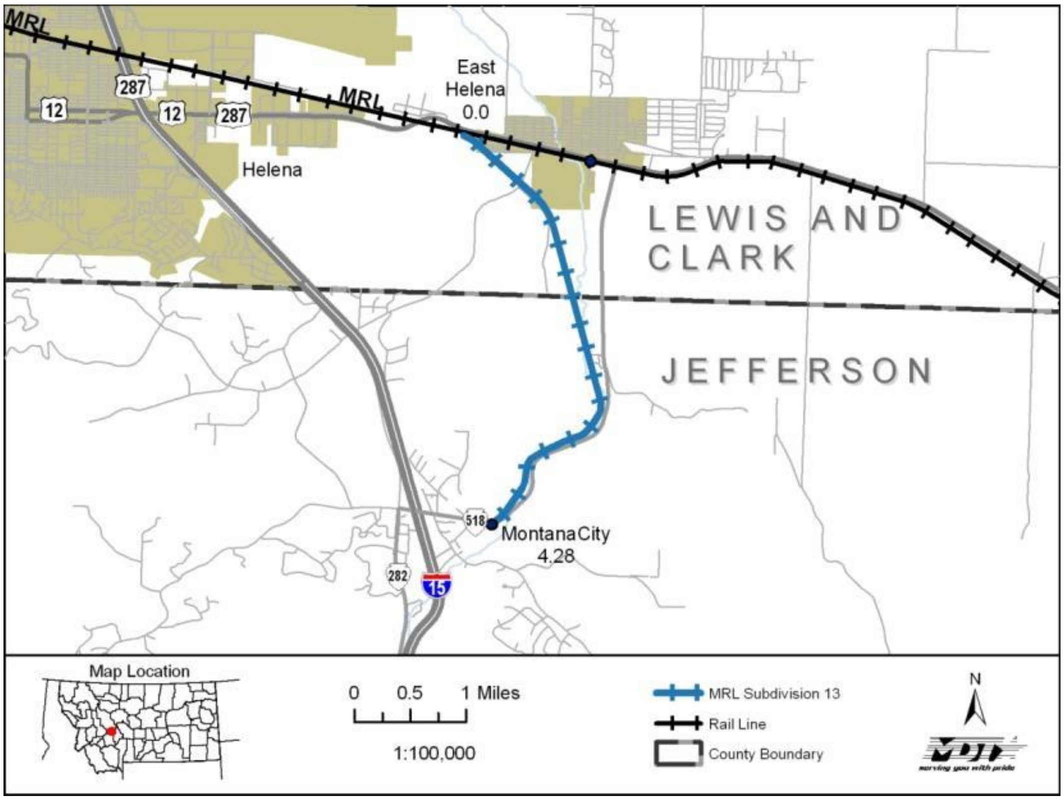


Source: Montana Department of Transportation.

Subdivision 13 – East Helena to Montana City

MRL's Subdivision 13 is a 4.9-mile branch line from East Helena (MP 0.0) to Montana City (MP 4.9). The line is single-tracked and has a 25 mph maximum speed, with a 10 mph maximum at the public crossing near East Helena at MP 0.78. BRT is the method of operation. Figure 3.40 shows Subdivision 13.

Figure 3.40 MRL Subdivision 13



Source: Montana Department of Transportation.

Subdivision BNSF – Sandpoint Junction to Spokane/Yardley (Operating Rights)

MRL also has operating rights on 63.1 miles of BNSF Railway tracks running from Sandpoint Junction, Idaho (MP 2.0) to Spokane/Yardley, Washington (MP 68.1). This links MRL's Montana and Idaho network to the BNSF mainline to Seattle.

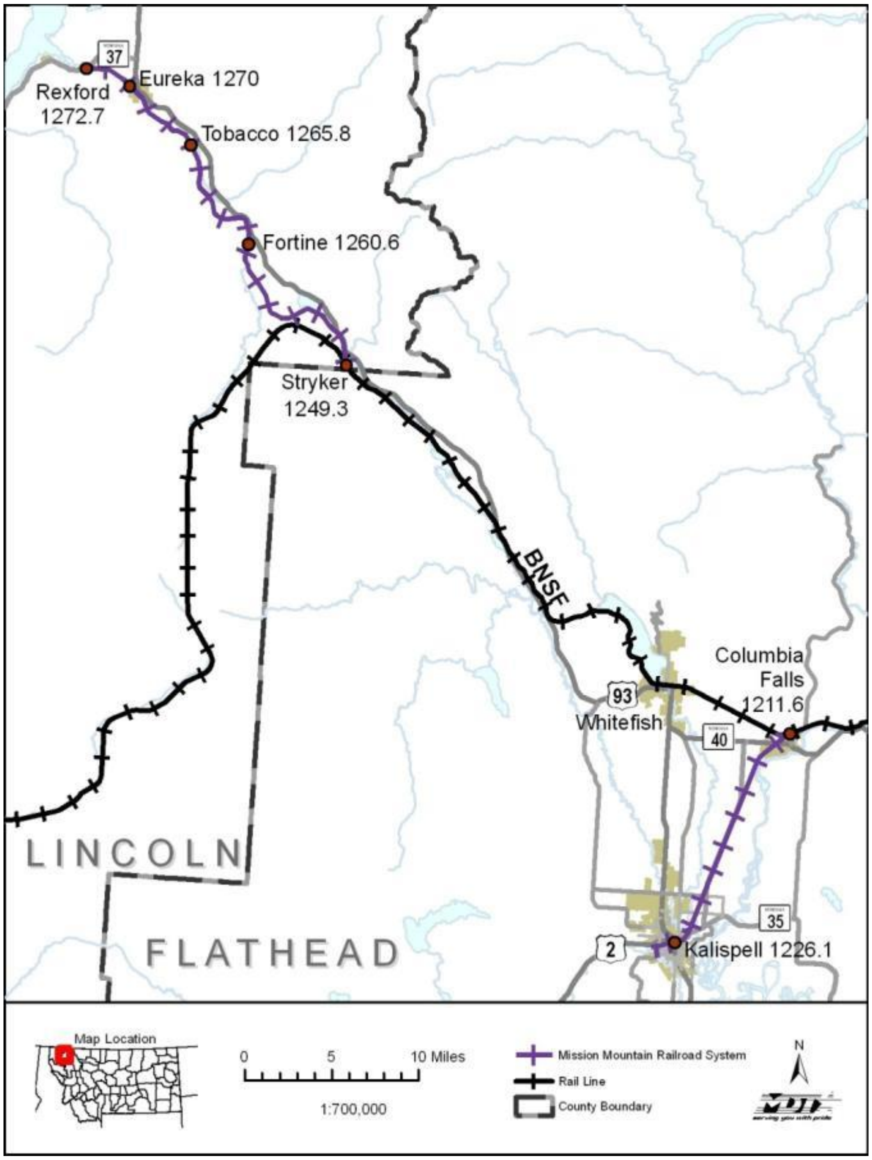
Mission Mountain Railroad (MMR)

Mission Mountain Railroad (MMR) is a subsidiary of Watco Industries, which owns 3,000 miles, leases 500 miles of track nationally, and operates 17 short-line railroads in 15 U.S. states. The company's regional headquarters is located in Twin Falls, Idaho.

The MMR short-line in Montana consists of two segments totaling 40.1 track miles (as of 2007), both of which interchange with BNSF (Figure 3.41). The northerly segment, owned by MMR, consists of a 24.2-mile line and 3.41 miles of switching track, interchanging at Stryker (MP 1,249.3) and ending at Rexford (MP 1272.8), just northwest of Eureka (MP 1,270). The southerly segment, leased from BNSF, is 15.9 miles with an additional 4.33 miles of switching track. It interchanges at Columbia Falls (MP 1,211.6) and ends in Kalispell (MP 1,226.1). Maximum freight speeds vary between 10 and 25 mph and the track capacity is 143 tons throughout. The method of operation is Occupancy Permission System i.e., "dark territory."[38]

[38] BNSF Railway, Track Chart– – Kalispell Subdivision, Updated June 2006.

Figure 3.41 Mission Mountain Railroad System



Source: Montana Department of Transportation.

In 2007, MMR hauled 164,620 freight car-miles and 9,790 gross ton-miles. As shown in Table 3.7 summarizing MMR's operating statistics between 2005 and 2007, the primary transported commodities include barley, lumber, and various wood products. Note that the railroad did not report commodity tonnages for 2007.

Table 3.7 Mission Mountain Rail Operating Statistics
2005-2007

	Carloads			Tons		
Commodity	**2005**	**2006**	**2007**	**2005**	**2006**	**2007**
Barley	0	2	21	0	261	N/A
Particle Board	5	0	52	N/A	0	N/A
Lumber	189	40	36	N/A	5,220	N/A
Treated Lumber	0	0	4	0	0	N/A
Oriented Strand Board	0	0	1	0	0	N/A
Veneer Wood/Plywood	590	1	1	N/A	131	N/A
Total	**784**	**43**	**115**	**7,478**	**5,612**	**N/A**

Source: 2005-2007 Annual Reports to the Montana Public Service Commission.

[a] Tons of Revenue Freight.

Yellowstone Valley Railroad (YVR)

Yellowstone Valley Railroad (YVR) is a short-line operated by Watco Industries. YVR operates between Scobey and Glendive in Northeast Montana, and serves several grain elevators along its route. As of 2007, YVR operated 178.56 total miles of track (172.7 miles of Class II leased rail, and 5.86 miles of yard switching track).[39] It interchanges with BNSF at Glendive, Snowden, and Bainville. As shown in Figure 3.42, the operation consists of two line segments leased from BNSF plus BNSF trackage rights over the segment between them. The northerly segment runs from just past Scobey (MP 100.3) to the BNSF interchange at Bainville (MP 0.0). It has a maximum track speed of 25 mph. The southerly segment is between just past Snowden (MP 78.7) to Glendive (MP 0.1). There are 8.73 miles in North Dakota with the line crossing the Montana border at MP 64.67 and MP 73.4. It interchanges with BNSF at both ends, and operates at a maximum track speed of 45 mph. Excepting the 12-mile segment of BNSF trackage rights between Snowden and Bainville, YVR operates on an Occupancy Permission System, i.e., "dark territory" (a system that does not require any

[39] Yellowstone Valley Railroad, Annual Report to the Montana Public Service Commission, 2007.

signals to ensure that on any given section of main track there is at no time more than one train). The line has a 143-ton capacity throughout.

Figure 3.42 Yellowstone Valley Railroad System

Source: Montana Department of Transportation.

In 2007, total intrastate operating revenues were $353,025. Table 3.8 shows 2006 and 2007 operating statistics. Fertilizer, petroleum, and wheat were the three primary commodities hauled by YVR in 2007. The railroad did not report commodity tonnage in 2007.

Table 3.8 Yellowstone Valley Railroad Operating Statistics
2006-2007

	Carloads		Tons	
Commodity	**2006**	**2007**	**2006**	**2007**
Wheat	88	107	20,425	N/A
Lentils	4	35	397	N/A
Superphosphate Fertilizer	0	426	0	N/A
Peas	1	21	91	N/A
Petroleum	224	204	15,807	N/A
Beans	10	0	942	N/A
Limestone	278	0	28,132	N/A
Calcium Chloride	4	0	376	N/A
Railroad Ties	0	3	0	N/A
Total	**609**	**796**	**61,170**	**N/A**

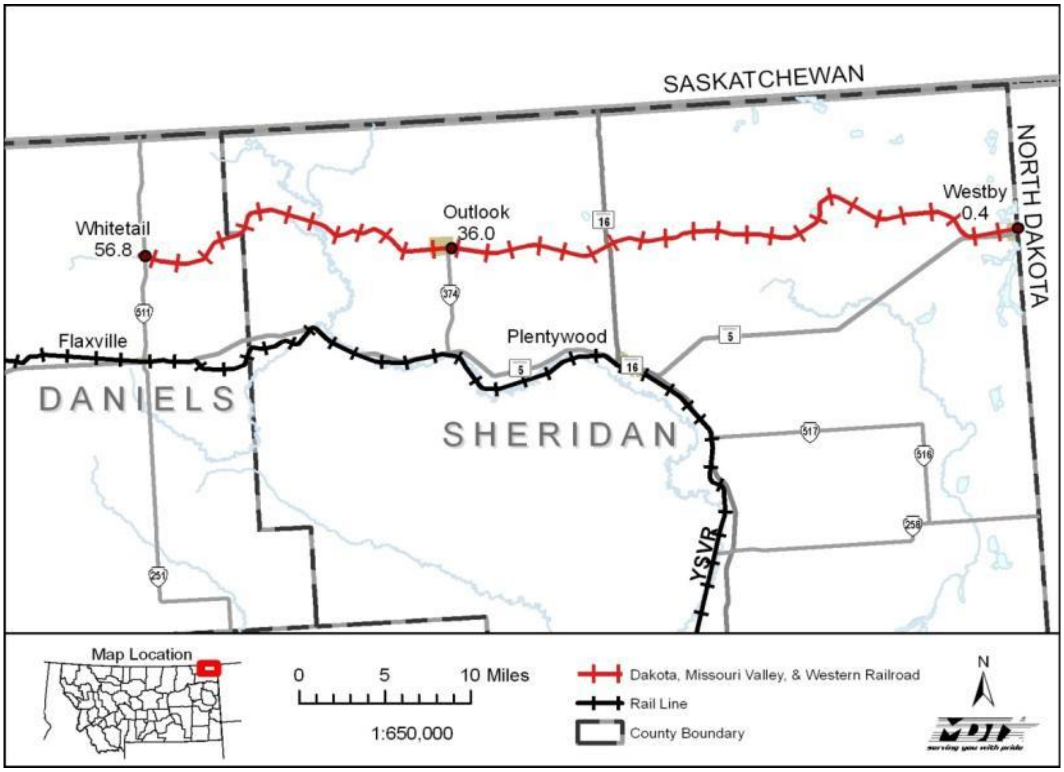
Source: 2006 and 2007 Annual Reports to the Montana Public Service Commission.

Dakota, Missouri Valley, and Western Railroad (DMVW)

Dakota, Missouri Valley, and Western Railroad (DMVW) is a regional railroad, formerly part of the Soo Line Railroad (SOO) with 364 total track miles in Montana and North Dakota. In Montana, DMVW is comprised of 56.9 miles of road and 2.9 miles of passing crossovers and turnouts for a total of 59.8 operating miles.[40] The Montana segment runs between Westby (MP 0.4) and Whitetail (MP 56.8). There is a station at Outlook (MP 36.0). The DMVW system is shown in Figure 3.43. The DMVW line is unsignaled with Block Register Train Control. The maximum operating speed and track weight capacity on the line is unavailable.

[40] Dakota, Missouri Valley, and Western Railroad, Annual Report to the Montana Public Service Commission, 2007.

Figure 3.43 Dakota, Missouri Valley, and Western Railroad System



Source: Montana Department of Transportation.

DMVW was the recipient of LRFA funding in 2000 for cross-tie, surfacing, and other track components, with a 30 percent match by Canadian Pacific. As shown in Table 3.9 summarizing the railroad's 2005 to 2007 operating statistics, wheat is the primary commodity hauled on this line, accounting for almost 96 percent of total revenue freight in 2007.

Table 3.9 Dakota, Missouri Valley, and Western Railroad Operating Statistics *2005-2007*

	Carloads			Tons		
Commodity	**2005**	**2006**	**2007**	**2005**	**2006**	**2007**
Durum Wheat	1,779	1,457	1,807	177,900	145,700	185,217
Wheat	779	871	775	77,900	87,100	79,437
Peas	47	90	85	4,700	9,000	8,712
Ballast	8	9	5	800	900	512
Fertilizer	0	0	4	0	0	410
Rail and Ties	2	0	3	200	0	307
Empty	0	0	12	0	0	360
Total	**2,615**	**2,427**	**2,691**	**261,500**	**242,700**	**274,955**

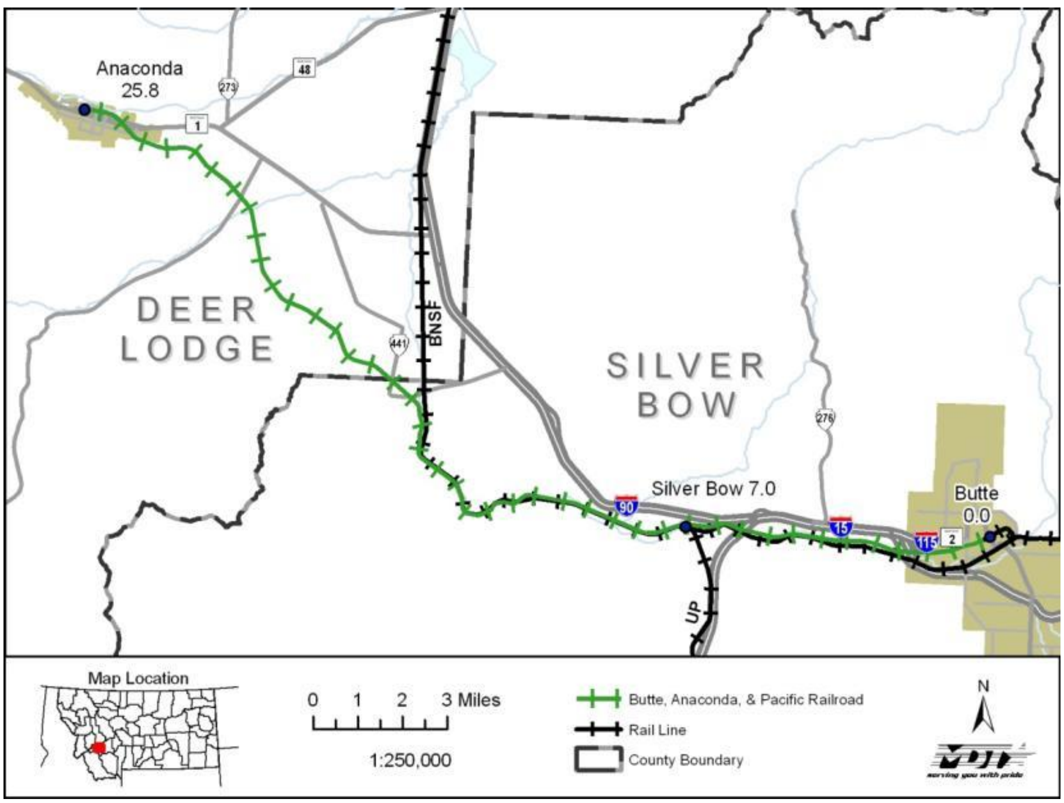
Source: 2005-2007 Annual Reports to the Montana Public Service Commission.

Butte, Anaconda, and Pacific Railway (BA&P)

Butte, Anaconda & Pacific Railway, formerly referred to as the Rarus Railway, connects Butte (MP 0.0) and Anaconda (MP 25.8), intersecting the UP Line at Silver Bow. The short-line railroad currently is owned by Patriot Rail Corp., a short-line and regional freight railroad holding company based in Boca Raton, Florida. The company owns and operates 212 total rail miles nationwide.[41]

As of 2007, BA&P operated 25.3 miles of road, 8.6 miles of other main track, 30.1 miles of passing crossovers and turnouts, and 0.5 miles of yard switching tracks for a total of 64.6 total rail miles in the State. The system is shown in Figure 3.44. The line interchanges with BNSF and UP at Silver Bow (MP 7.0). Maximum track speed is 30 mph. BA&P is unsignaled and utilizes track warrant control.

Figure 3.44 Butte, Anaconda, and Pacific Rail System



Source: Montana Department of Transportation.

41 Patriot Rail Corp., http://www.patriotrail.com/.

A summary of 2005-2007 operating statistics are shown in Table 3.10. Copper concentrate and mine tailings are the principal commodities hauled.

Table 3.10 Butte, Anaconda, and Pacific Railway Operating Statistics
2005-2007

	Carloads			Tons		
Commodity	**2005**	**2006**	**2007**	**2005**	**2006**	**2007**
Originating						
Copper Concentrate	1,611	1,639	1,514	146,207	149,229	138,179
Molybdenum Concentrate	60	6	0	4,187	405	0
Steel Scrap	0	10	7	0	828	665
Transformer	0	1	0	0	100	0
Terminating						
Grinding Media	84	93	95	8,009	8,990	11,458
Chemicals	68	62	41	6,054	5,431	3,718
Transformer	0	1	0	0	160	0
Switch Only						
Beer	93	68	31	N/A	N/A	N/A
Local						
Mine Tailings	12,638	9,575	8,750	909,936	689,400	630,000
Total	**14,554**	**11,455**	**10,438**	**1,074,393**	**854,543**	**784,020**

Source: 2005-2007 Annual Reports to the Montana Public Service Commission.

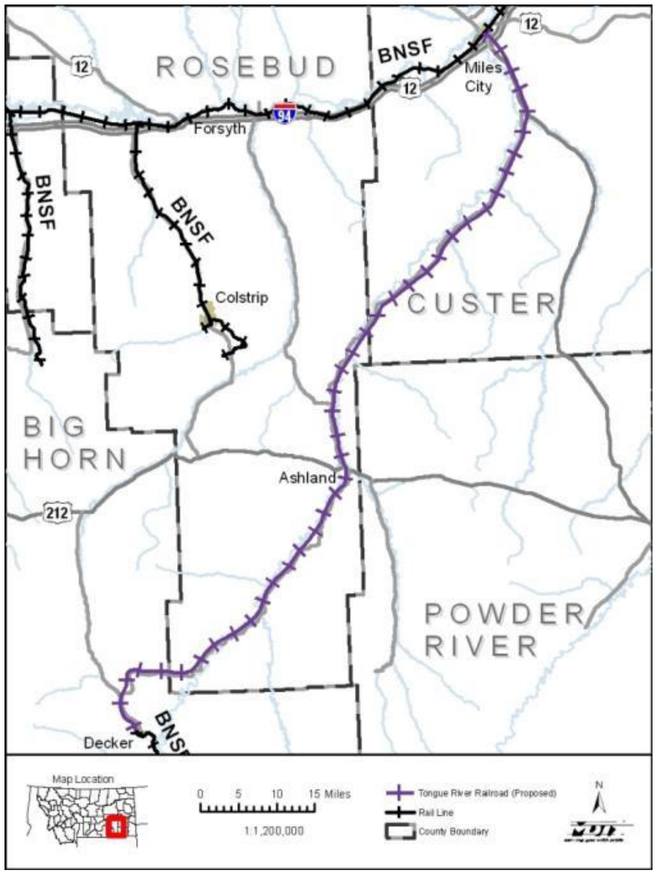
Tongue River Railroad

Portions of the Tongue River Railroad have been proposed for construction since 1983, and have been subjects of various proceedings at the U.S. Surface Transportation Board (STB) and its predecessor, the Interstate Commerce Commission.

The first segment was 89 miles from Miles City to Ashland, intended to serve proposed coal mines near Ashland, connecting to the BNSF Forsyth Subdivision in Miles City. This first segment was approved in 1985. In 1991, Tongue River Railroad sought STB approval for construction and operation of an extension of the rail line from Ashland 41 miles south to Decker, and permission was granted in 1996. In 1997, the Tongue River Railroad sought another alignment at the far south end as an alternative to the alignment approved in 1996. The environmental review for this request was suspended in 2000 at the request of the railroad, but begun again in 2003 and was granted in 2007. While legal challenges remain, the process of coal resource development, a necessary precedent to financing the railroad, has begun.

In May 2008, the Montana Board of Land Commissioners authorized the initiation of appraisal and leasing review for Otter Creek coal tracts owned by the State. No definitive timeframe has been set for construction and operation of the railroad. The proposed Tongue River line is shown in Figure 3.45.

Figure 3.45 Tongue River Railroad (Proposed)

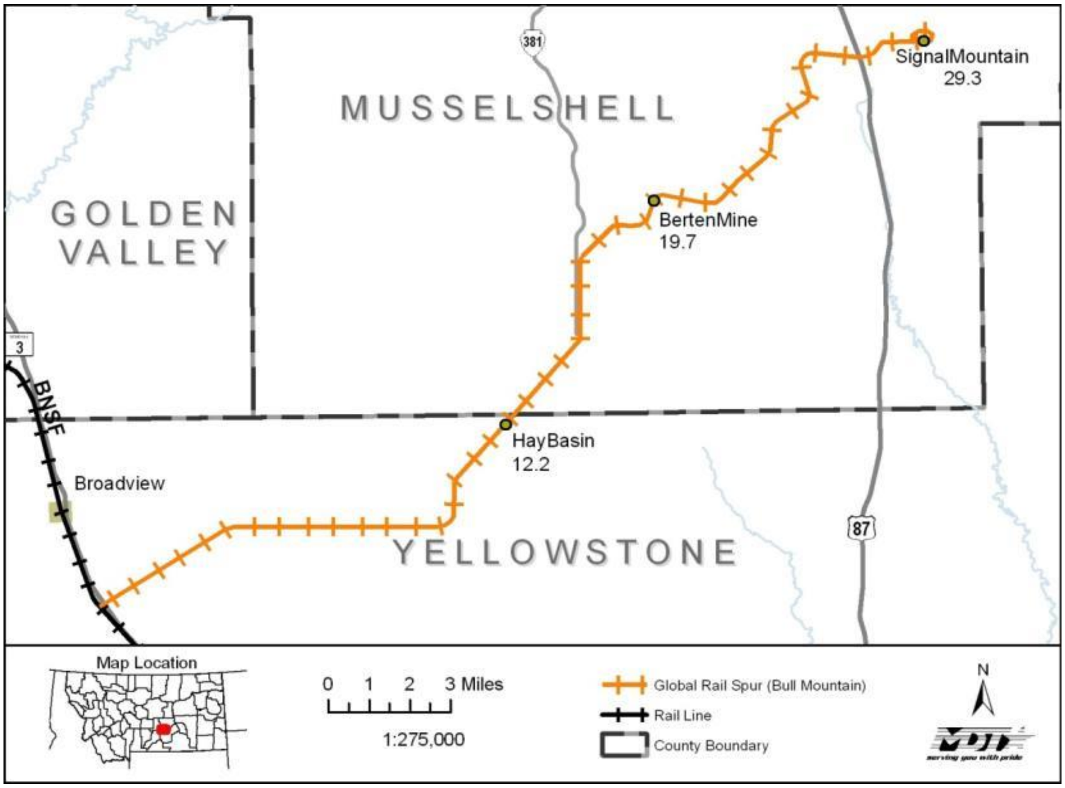


Source: Montana Department of Transportation.

Global Rail (Formerly Referred to as Bull Mountain Rail)

Global Rail Group, a division of Signal Peak Energy (formerly Bull Mountain Rail) finished construction in 2009 of a 36 miles single-track rail spur, which includes a 6-mile loop at its eastern terminus to accommodate two 150-car unit trains. Global Rail Group plans to operate the railroad itself rather than using a short-line operator. The line connects to the BNSF Laurel Subdivision Mainline at about Broadview (MP 38.5). Other towns/points of reference along the line include Hay Basin (MP 12.2), Berten Mine (MP 19.7), and Signal Mountain (MP 29.3). The track will serve the operations at the Signal Peak Coal Mine. The line's initial haulage capacity is 10 million gross tons annually, and will increase to 15 million tons as necessary. The Global Rail Spur is shown in Figure 3.46.

Figure 3.46 Global Rail Spur



3.3 Rail Lines at Risk for Abandonment

Railroad abandonment effectively eliminates a line segment from a rail network. Changing economic conditions, such as the relocation of a major shipper or a reduction in commodity value or variety, may entice a rail carrier to pursue abandonment if revenues do not support a line segment's operating and maintenance costs. For example, carriers may choose to abandon a line segment if cargo density (measured as carloads per mile on a given track segment) falls below a minimum threshold for specified period of time.

All abandonments must be approved by the Surface Transportation Board (STB), the economic regulatory agency affiliated with the U.S. DOT responsible for resolving railroad rate and service issues and rail restructuring transactions (mergers, line sales, line construction, and line abandonments). Federally regulated abandonment procedures require that carriers wishing to abandon a rail line segment submit a notice of intent to the STB who, in turn, determines whether the line segment serves a present or future public need.[42] Over the past

[42] 49 CFR Part 1152, Abandonment and Discontinuance of Rail Lines and Rail Transportation under 49 U.S.C. 10903, pages 200-253.

several years, the Congress and the STB have streamlined abandonment procedures, shortening the time that stakeholders have to react to an abandonment request. For example, a revision to the Federal abandonment requirements in 1997 allows a rail line that has not carried any traffic during the last two years to receive an exemption which shortens the abandonment proceedings from a minimum period of 110 days to 60 days.[43] Given the short timeframe during which an agency can protest abandonment, it is important for states to monitor rail activity, identify at-risk rail lines, anticipate potential abandonments, and develop appropriate action plans to protect public interest.

Previous updates of the Montana State Rail Plan (1993 and 2000) and the Montana Branch Line Study (2004) identified several at-risk rail lines across the State, in keeping with the Department's obligation under Section 60-11-111(3) MCA to "identify railroad rights-of-way in this State that may be abandoned and research the feasibility of acquisition by the State of Montana of those rights-of-way that may be abandoned." This section summarizes the findings from the previous studies and updates the current status of rail abandonment activity in Montana.

At-Risk and Out-of-Service Lines in Montana

The 2000 Montana State Rail Plan Update identified four out-of-service (i.e., not formally abandoned but not currently in use) rail lines in Montana:

- BNSF – Spire Rock-Butte (21.0 miles);
- MRL – Drummond-Philipsburg (26.0 miles);
- MRL – Twin Bridges-Alder (19.5 miles); and
- MRL – Sappington-Whitehall (19.1 miles).

In 2004, R.L. Banks and Associates completed a two-phase Branch Line Study that assessed current rail abandonment issues in Montana. Phase I of the study focused on two specific at-risk lines for which BNSF Railway had announced plans to petition the STB for authority to abandon: the Plentywood-Scobey line (43.63 route miles) and the Glendive-Circle line (43.41 route miles). Both lines mainly served outbound wheat shipments, but were in a general state of disrepair with train speeds limited to 10 miles per hour and lightweight track that could not accommodate the 286,000-pound rail cars that are the current industry standard. This made it increasingly difficult to interline with the mainline tracks that connected the wheat producers with their markets.[44]

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[43] 49 CFR Part 1152, Subpart F Abandonment Exempt Abandonments and Discontinuances of Service and Trackage Rights, pages 250-252.

[44] Montana Department of Transportation, Montana Department of Agriculture, and Montana Department of Commerce, *Montana Branch Line Study Phase I: Plentywood-Scobey and Glendive-Circle*, R.L. Banks and Associates, June 23, 2004.

The study evaluated the impacts those abandonments would have on the shippers, communities, and highways that would be affected and developed options for state and local governments to preserve rail service on the two lines. The study concluded that if the State wished to retain service on the lines, it would have to secure BNSF's cooperation and offer financial assistance to offset operation and maintenance costs. The study also suggested that Montana consider assisting small railroads in the State that offer a public benefit, following similar programs in other states.

Phase II of the Branch Line Study identified several more at-risk lines. Although these lines were not yet the subject of formal abandonment procedures, they were identified as having low-traffic density as measured by carloads per mile, which is one way to measure the viability of a rail line. Beginning with 23 at-risk lines (plus one other that includes the Plentywood-Scobey line), the study identified the top 10 lines most at risk for abandonment:

1. BNSF – Great Falls-Helena (95.4 route miles);
2. BNSF – Moore-Lewiston (18.1 route miles);
3. MRL – Missoula-Darby (65.4 route miles);
4. BNSF – Valier Branch (17.3 route miles);
5. CMR – Moccasin Junction-Geraldine (84.2 route miles);
6. BNSF – Havre-Big Sandy (31.2 route miles);
7. BNSF – Eastham Junction-Choteau (7.9 route miles);
8. DMVW – Westby-Whitetail (57.0 route miles);
9. BNSF – Bainville-Plentywood (54.4 route miles); and
10. BNSF – Great Falls-Fort Benton (44.8 route miles).

The Phase II report stated that in order to preserve service on these lines, the State should consider providing incentives for shippers to use the lines, direct subsidies, and reduction or elimination of state property taxes on the rail right-of-way.

2010 Montana State Rail Plan Update Information

Information on some of the at-risk lines mentioned in the 2004 Branch Line Studies:

- BNSF/Glendive-Circle Line – The abandonment of this line, first mentioned in the 2004 Phase I report, remains on hold.
- BNSF/Moore-Lewistown Line – This line was abandoned by decision of the Surface Transportation Board on December 14, 2005, effective January 13, 2006. The STB decided on January 11, 2006 to reopen the proceeding, and since the line from milepost 13.88 to 28.35 has been rail banked by agreement between BNSF and the City of Lewistown in December 2006. The line from

milepost 9.5 to 13.68 has been modified to be discontinued, not abandoned.[45] The Lewistown trail also has been awarded the 2008 Trail of the Year award by the Montana Fish, Wildlife, and Parks.[46]

- BNSF/Great Falls – The abandonment on this 1.67-mile segment is in process,[47] subject to regulatory review by state environmental and historical agencies.
- MRL/Drummond-Philipsburg Line – This segment connecting to the MRL Subdivision 3 (Helena to Missoula) remains out of service with no plans for reopening, but not abandoned.
- MRL/Twin Bridges-Alder – This segment on the Whitehall MRL Subdivision 7 is described in the MRL section above, and is out of service and primarily used for storage. It has not been abandoned.
- MRL/Whitehall-Spire Rock – This segment of the Logan MRL Subdivision 5 is not used for revenue service, but had been used in the past 10 years for ballast shipments (nonrevenue) for use by BNSF and MRL. It has not been abandoned.
- Yellowstone Valley Railroad – In 2005, subsequent to the completion of the branch line studies in 2004 which listed this line as prime candidate for abandonment, the Yellowstone Valley Railroad (owned by Watco Companies) acquired the line from Plentywood to Scobey that had been a candidate for abandonment for six years. There have been no changes in its status as an operating railroad in the past three years. The OOS portion from Plentywood to Redstone is primarily used for car storage, as is Fairview station on OOS Wye.

Alternatives to Abandonment

MDT, by conducting the 2004 Branch Line Studies, is meeting its responsibilities under state law to research lines that might possibly be abandoned. However, the 2004 Branch Line studies raised some issues that could be the subject of future research by MDT or discussion by the Montana Legislature:

- Role of the State in Line Acquisition – Section 60-11-111 MCA seems to envision a limited role for MDT in the line acquisition process. MDT is authorized to acquire rail lines to be abandoned, subject to future steps to hold the lines in trust for future transportation purposes by another state agency or transfer the line to another local authority. This legislation, nor the legislation creating the Montana Rail Freight Loan (MRFL) program (described in

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[45] All decisions are part of the STB Docket AB-6 (Sub-No. 434X).

[46] News release at http://www.fwp.mt.gov/news/article_6854.aspx.

[47] Abandonment filed in STB Docket AB-6 (Sub-No. 445X), dated October 6, 2006.

Section 6.0 of this report), does not anticipate public funding to offset likely annual operating subsidies that these saved-from-abandonment lines may need if operated by a local authority and short-line operator (such subsidies were described in the 2004 Phase II report). If the lines turned over to other operators are to remain in operation, they may require public assistance. The State could consider the circumstances, if any, under which the State might provide operating assistance to keep rail lines from being abandoned.

- Support for Low Traffic Lines Still in Service – Current state law provides authority for taking action in the face of abandonment, and provides a loan program for railroad development (the MRFL program). Financial assistance that depends on repayment may be unrealistic for low-volume lines having difficulty providing sufficient operating revenues. Perhaps the Rail Service Competition Council could consider the costs and benefits of possible public funding assistance that could target low-volume lines. This financial assistance could take various forms:
  - Funds to railroads for grade crossing maintenance, including roadbed maintenance;
  - Funds to railroads to help them make property tax payments to local governments, or payments directly to the local governments;
  - Funding incentives directly to shippers for tons diverted from truck to rail on low-volume lines; and
  - State property or income tax incentives for new rail shippers on low-volume lines and/or incentives to retain existing rail shippers.

These different kinds of financial assistance would not necessarily place the State in a role as a railroad owner or operator, but could be considered as means of retaining the State's existing rail system and encouraging its use by rail shippers. Consideration of the kinds of financial assistance that would best support the rail system may be an effective precursor to any possible legislative consideration of any new public funding for rail line acquisition, operating support of transferred at-risk lines, and support for low-volume lines.

4.0 Passenger Rail

For most of the last century, east-west passenger rail service was available on routes through both northern and southern Montana. The Empire Builder continues to serve in the north, but no passenger rail service has been available in southern Montana since the late 1970s.

This section of the 2010 Montana State Rail Plan examines the history and current function of passenger rail in the State, discusses the reinstatement of passenger rail service among the southern Montana cities once served by the North Coast Hiawatha, and summarizes current Federal funding for passenger rail development.

4.1 Montana Passenger Rail History

North Coast Hiawatha

At the beginning of the 20th century, the Northern Pacific Railroad operated passenger rail service between St. Paul, Minnesota and the Puget Sound region of Washington State; and inaugurated one of the first named passenger trains, the North Coast Limited.[48] The Northern Pacific line traversed Bismarck, North Dakota to the east and first entered Montana at Glendive; and passed through Billings, Livingston, Bozeman, Butte, and Missoula within the State; and continued to Sandpoint, Idaho and Spokane and Seattle, Washington.[49]

When most passenger rail operations were turned over to the National Rail Passenger Corporation (Amtrak) in 1971, Amtrak retained this service, but reduced it to three trains per week on the route and renamed it the North Coast Hiawatha.[50] Service on the North Coast Hiawatha was discontinued in 1979, due to national route rationalization required by the United States Congress ("Congress") in 1978.

Since that time, Montana residents have been discussing how to get service reinstated. The Fiscal Year (FY 2001) Federal transportation appropriation bill required a study of reinstating service through southern Montana, but the study

[48] In 1911, existing service on the North Coast Limited was extended southeast to Chicago.

[49] History of the North Coast Limited is found in Kuebler, William R., Jr., *The Vista-Dome North Coast Limited: The Story of the Northern Pacific Railway's Famous Domeliner*, Oso Publishing, 2004.

[50] This name referenced the Olympian Hiawatha, operated by the Chicago, Milwaukee St. Paul, and Pacific Railroad just to the north of the Northern Pacific line in Montana, serving Three Forks, Butte, and Missoula. The Chicago, Milwaukee, St. Paul, and Pacific Railroad went bankrupt in 1980.

was abandoned in FY 2002 amidst Amtrak's financial difficulties, which nearly resulted in its bankruptcy. In October 2008, Congress once again directed a study of the reinstatement of the entire North Coast Hiawatha route from Chicago to Seattle through southern Montana. The results of this study were presented to Congress in October 2009; they are discussed later in this section.

Empire Builder

In 1929, the Great Northern Railroad began the Empire Builder passenger train service named in honor of Great Northern founder James J. Hill, whose nickname was "The Empire Builder." This service operated from Chicago to Montana over the Chicago, Burlington, and Quincy railways. The Empire Builder operated through Montana with daily service. In Spokane, the train was split into two trains to serve Portland, Oregon and Seattle, operating over the Spokane, Portland, and Seattle Railway. After World War II, Great Northern operated streamlined new cars on the route and, in 1955, added new full coach dome cars for viewing the scenery.[51]

In 1970, the Great Northern, Chicago, Burlington, and Quincy and the Northern Pacific railroads merged to form the Burlington Northern Railroad. When Amtrak took over daily operations of most passenger routes across the country in 1971, it retained the Empire Builder, but eliminated the Spokane-Portland leg of the service. In 1977, frequencies were reduced to four times a week due to equipment shortages. In 1979, frequencies were further limited to three times a week, when long-distance trains were reduced for financial reasons (at that time, the North Coast Hiawatha was eliminated). In 1981, the Portland-Spokane service was reinstated and, in 1982, frequencies were increased to daily. In 1995, service was reduced to four times a week again, but restored to daily in 1999.

4.2 Current Passenger Rail Service

Empire Builder Patronage

The Empire Builder was always a popular train during its pre-Amtrak days, and remains one of Amtrak's most popular long-distance trains. In 1983, after it resumed daily service, total ridership in Montana (measured by boardings and alightings at Amtrak stations in the State) was 110,783. By 1999, ridership increased over 30 percent to 163,412. Recent Amtrak ridership information shows that total ridership has ranged from 142,783 in 2005 to 164,551 in 2008, and 148,019 in 2009. Figure 4.1 shows the ridership at each Amtrak station in Montana.

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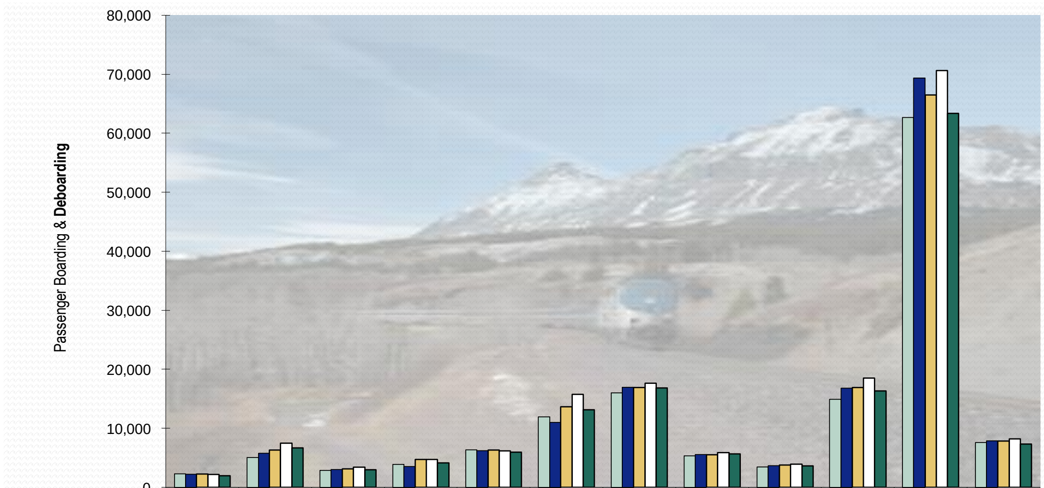
[51] Historical information on the Empire Builder can be found on the following web sites (http://www.american-rails.com, the Great Northern Railroad Historical Society http://www.gnrhs.org) and Yenne, Bill, "Great Northern Empire Builder," MBI, 2005.

Figure 4.1 Montana Station Ridership on the Empire Builder
2005 to 2009 Calendar Years



Year Total		Browning	Belton	Cut Bank	Essex	Glasgow	Glacier Park	Havre	Libby	Malta	Shelby	Whitefish	Wolf Point
142,783	2005	2,287	5,100	2,919	3,947	6,387	11,943	16,064	5,385	3,474	14,962	62,719	7,596
152,319	2006	2,284	5,793	3,014	3,549	6,255	11,027	16,981	5,569	3,698	16,849	69,386	7,914
153,760	2007	2,237	6,317	3,091	4,712	6,334	13,663	16,941	5,483	3,775	16,894	66,507	7,806
164,551	2008	2,202	7,473	3,435	4,689	6,162	15,748	17,674	5,895	3,943	18,494	70,646	8,190
148,019	2009	1,989	6,643	2,991	4,167	5,934	13,149	16,859	5,628	3,623	16,351	63,345	7,340

Source: Amtrak.

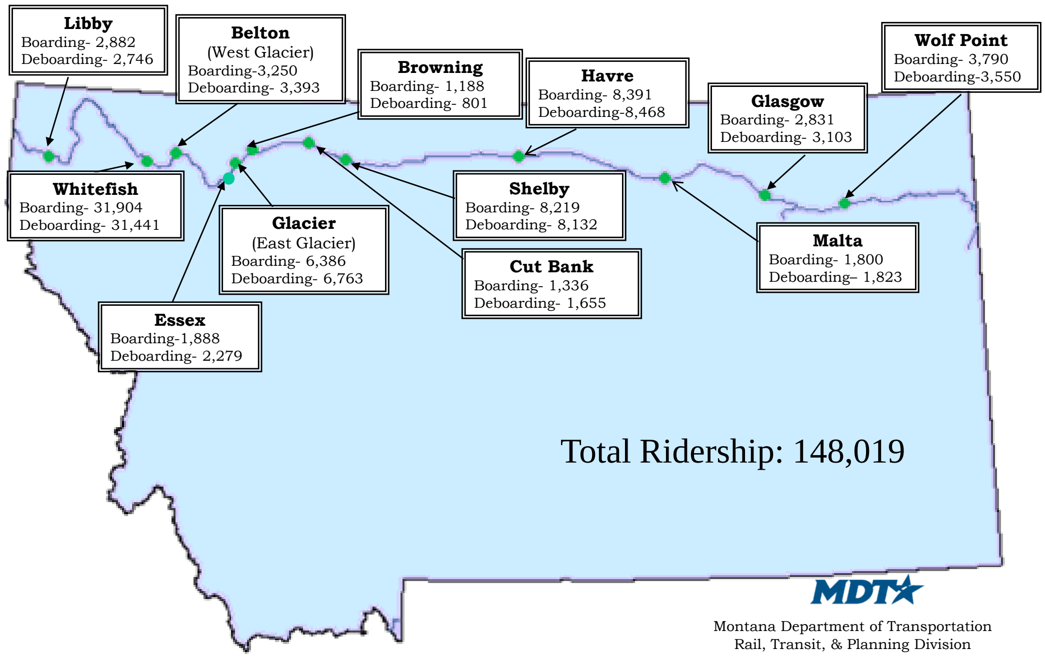
The busiest stations are associated with Glacier National Park (Whitefish, East Glacier Park) and Shelby (connecting to Great Falls and Helena via Interstate 15) and Havre. Figure 4.2 illustrates 2009 ridership (on and off the train) by station along a map of the route through Montana.

An analysis of the strength of the Empire Builder noted the significance of long-distance riders to the success of the line:

> "Interestingly, Empire Builder passengers traveling more than 1,000 miles make up only 23 percent of the train's ridership – but they generate 63 percent of the revenue. The 47 percent who travel less than 500 miles provide only 20 percent of the revenue. And sleeping car passengers, who pay premium fares, provide 43 percent of the Builder's revenues, despite making up only 16 percent of its passenger list."[52]

[52] These figures come from an article by Fritz Plous, *Amtrak's Empire Builder: A "Multi-Tasking, Mobility Machine" that Baffles the "Experts,"* in the Midwest Rail Report, Vol. 12, No. 3, Midwest High-Speed Rail Association, August 2004.

Figure 4.2 Montana Amtrak Ridership Calendar Year *2009*



Source: Amtrak.

Empire Builder Operating Statistics

In FY 2009, the Empire Builder had the highest ridership of all of Amtrak's long-distance trains, 515,444, as well as the highest revenue, $59.7 million. Nationally, this train was the second best performing long-distance train, as measured by the operating loss per passenger mile.[53] Overall, the FY 2009 operating revenues for all long-distance trains average about 54 percent of the total operating costs for all routes. The Empire Builder's performance exceeded this average, as its FY 2009 revenues of $59.7 million covered 65 percent of the route's total operating costs.

During the most recent years for which data is available, the Empire Builder also had good on-time performance (OTP) on its BNSF-owned rail lines. The Empire Builder had an average OTP of 75.7 percent in FY 2009, after having the second highest OTP of 68.8 percent and 73.4 percent in FY 2008 and FY 2007, respectively.

[53] Operating loss per passenger mile is calculated as the difference between operating expense and operating revenue divided by the number of passenger miles. Operating expenses include direct expenses directly attributable to train operations (crews, fuel, equipment maintenance, ticketing, route stations) and indirect expenses shared by all Amtrak routes (shared stations, training and supervision, police and safety, insurance, marketing, yard operations). Revenues include ticket revenue and sleeper car revenues.

In comparison, average long-distance train OTP was 75.2 percent in FY 2009, 54.2 percent in FY 2008, and 41.6 percent in FY 2007.[54]

Economic Benefits of the Empire Builder

During Amtrak's financial difficulties from 2001 to 2003, Montana officials sought to demonstrate the value of the Empire Builder service to the State to stave off possible reduction or loss of service, as was being contemplated by Congress. A 2003 study conducted for the Montana Department of Transportation (MDT), Montana Department of Commerce, and the Montana Department of Agriculture found the following benefits to the State from the Empire Builder service:[55]

- The Empire Builder is perceived as an essential transportation service. Many rural Montana residents depend on it for medical appointments, sending children to college and traveling to larger cities along the route for shopping.
- Direct spending in the State by nonresident Amtrak passengers and by Amtrak is estimated at $5.3 million to $5.7 million annually.
- This direct spending creates $0.51 million in personal income for Montana residents, and results in an addition of $135,000 annually to state and local tax revenues.
- Rail travel using the Empire Builder in Montana avoids the higher personal and societal costs borne through travel by other modes, creating another $7.6 million in annual benefits (auto costs avoided, lower accidents, reduced highway maintenance).

The study also addressed the relative isolation of Montana's communities along the Empire Builder route. Unlike cities in southern Montana, which are connected by Interstates 90, 94 and 15, the cities along the Empire Builder route are only connected by a two-lane highway (U.S. Highway 2). Three Montana cities along the Empire Builder route are among the 105 locations nationwide supported by the Federal Essential Air Service program, which provides financial support for commercial air service to smaller airports. However, these services are usually more expensive than the train service (for example, a one-way airline ticket from Havre to Spokane, Washington, was quoted at $460, while a comparable one-way train ticket was $89 with approximately the same travel time).[56] The cities along the Empire Builder route with Essential Air Service have much higher Amtrak ridership than annual airline boardings, as shown in Table 4.1.

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[54] Amtrak, *September 2009 Monthly Performance Report*, page E-7.

[55] *Analysis of the Economic Benefits of the Amtrak Empire Builder to Montana*, R.L. Banks and Associates, July 2003, pages 1-2.

[56] Three legs of the one-way flight: Havre to Billings, Billings to Denver, and Denver to Spokane, prices and travel times listed on http://www.travelocity.com. Amtrak fares listed on http://www.amtrak.com.

Table 4.1 Aviation and Rail Passengers in Montana Cities with Essential Air Service and Amtrak Service
2009

City Airport/Station	Amtrak Boardings/Alightings	Airline Boardings/Deplanings
Glasgow	5,934	1,148
Havre	16,859	729
Wolf Point	7,340	900

Sources: Amtrak ridership figures, MDT 2009 Airport Boardings Report, http://www.mdt.mt.gov/publications/docs/datastats/boardings-2009.pdf.

4.3 Possible Expansion of Passenger Rail Service in Montana

Passenger rail advocates, Montana legislators, and MDT officials have been discussing the possibilities of resuming passenger rail service to southern Montana, which includes many of the State's largest population centers and was once served by the North Coast Hiawatha. As part of this effort, MDT asked Amtrak to develop more detailed information on the prospective costs of reinstating service along segments of the southern route in Montana.

As part of the overall discussion, it is important to consider the circumstances under which Amtrak is likely to consider resumption of former passenger rail services or initiation of new services. Generally, Amtrak is authorized and willing to provide intrastate passenger rail service if a state government is able to provide capital costs for infrastructure and equipment, and to pay the difference between operating expenses and revenues on an annual basis. Many states support these kinds of services, and some state-supported routes are among Amtrak's more financially successful services.

Amtrak's legacy routes from its 1971 creation, generally referred to as long-distance trains, are supported by Federal appropriations for Amtrak operating expenses. Despite efforts during Amtrak's history to seek state contributions to cover the financial shortfalls of these legacy routes, states have not been required to financially sustain these trains. Periodically, Congress has sought to reduce Federal subsidies by setting goals of operating self-sufficiency or by directing Amtrak to revise or eliminate routes, resulting in cuts to long-distance train services. In 2008, Amtrak was granted authority to improve the financial performance of its long-distance trains,[57] and to begin new services or expand existing

[57]Section 210 of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) adds requirements that Amtrak adopt "Performance Improvement Plans" to improve the financial performance of long-distance trains, beginning with the lower third-worst performing trains.

services.[58] However, Amtrak is unlikely to add new long-distance services, which would increase its overall operating losses, regardless of whether those new services might have stronger financial performance than other long-distance trains.

Amtrak Study for Montana

Amtrak's 2010 study for Montana analyzes two route segments: the corridor between Billings and Missoula (considered in greater depth, and referred to in this text as the Tier 1 analysis); and a longer corridor that includes the Billings-Missoula segment extending from Williston, North Dakota to Sandpoint, Idaho (referred to as the Tier 2 analysis).[59]

Subsequent to MDT's request for the Montana study, Amtrak was directed by Congress to study the resumption of the Chicago to Seattle North Coast Hiawatha service. That analysis is also considered in this report.

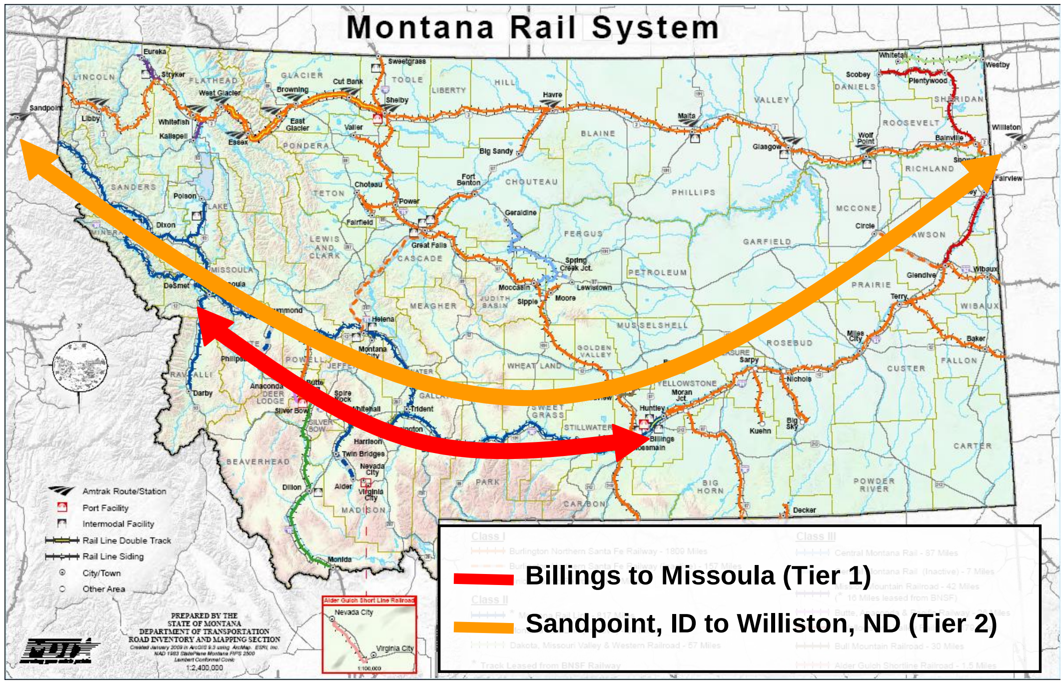
The two-tiered study of new passenger rail service in Montana provided by Amtrak addresses:

1. Capital and operating costs, ridership, and revenue for intercity passenger rail service from Billings to Missoula along routes operated by the Montana Rail Link (MRL), via Bozeman, Livingston, and Helena (Tier 1) (see Figure 4.3).
2. Route assessment and implementation of intercity passenger rail service from Williston, North Dakota to Sandpoint, Idaho over routes operated by the Yellowstone Valley Railroad, BNSF, and MRL (Tier 2).

[58] Section 208 of PRIIA requires Amtrak to adopt a methodology for making such route decisions, a methodology devised by a third-party contractor to the Federal Railroad Administration (FRA).

[59] Amtrak Montana Report, 2010: Feasibility and Route Assessment.

Figure 4.3 Amtrak Analysis
Two Tiers



Billings to Missoula (Tier 1)

Amtrak's Tier 1 analysis for developing passenger rail service between Billings and Missoula follows a somewhat similar analysis that was done for the 2000 State Rail Plan Update. The analysis includes a schedule scenario (based on previous North Coast Hiawatha service), identifies estimated capital and operating costs, and presents a discussion on possible revenues.

Infrastructure Capital Needs

Amtrak studied the underlying condition of the existing rail lines on the Montana Rail Link (MRL) railroad from Billings to Missoula. The majority of this route is composed of continuous welded rail maintained to high standards. Other details of the route are as follows:

- **Billings to Spurling** (18 miles). More than one-half of this double-tracked route is controlled by Automatic Block Signaling (ABS) or Track Warrant Control (TWC), while the remainder is controlled by Centralized Traffic Control (CTC).[60] The MRL's largest rail yard, the Laurel Yard, is located in

[60] These different kinds of signal systems are described in Section 3.2. The FRA rules require block signal systems for passenger rail service between 59 and 79 mph, and more sophisticated systems for higher speed services. Installing signal systems can be an expensive capital cost of implementing passenger rail service on nonsignaled railroads.

this subdivision. It is controlled by yard rules and lacks a signaled main line through the yard. Therefore, passenger trains would be delayed by switching operations and slow operating speeds.

- **Spurling to Helena** (221 miles) – This single-track railroad (with 8,600-foot sidings approximately every 9.5 miles) is completely controlled by CTC. The route poses a number of operating challenges as a result of the terrain: 258 curves, some of them up to 10 degrees, 9 miles along the Missouri River, a 1.9 percent grade up and down the Bozeman Pass, and a 1 percent grade between Townsend and Winston. The curves and grades affect the maximum operating speed for any passenger train.
- **Helena to Missoula** (119 miles) – This single-track railroad, with 9,900-foot sidings approximately every 9.5 miles, is also completely controlled by CTC. This route has an even steeper mountain grade of 2.2 percent to the Continental Divide with slow speeds up and down the grade, 152 curves, and 4 major tunnels, all which affect operating speeds.

Because the overall condition of the track is good and the route is controlled by CTC (reducing signal improvement costs), infrastructure costs are estimated to be $28.25 million (including a 30 percent contingency), about $80,000 per train route mile.

Other Capital or Up-Front Costs

- **Rolling Stock –** Amtrak estimated use of a four car consist, with a new locomotive and a nonpowered control car (a cab car with coach seating and an engineers' compartment) for push-pull operations, one coach, and a diner/ lounge car. Given the lack of available rail cars in Amtrak's inventory, the 2010 Amtrak Report assumes that all the rolling stock would need to be purchased; namely, four sets for the two daily routes each way, and one spare set for maintenance purposes and to allow cycling on the four trainsets. The total capital cost for these locomotives and cars is estimated at $95 million.
- **Positive Train Control –** The Rail Safety Act of 2008 requires positive train control (PTC) technology on main line tracks (carrying more than 5 million gross tons) over which poison-by-inhalation or toxic-by-inhalation hazardous materials are carried, or which carry passenger trains. Positive train control refers to technology that is capable of preventing train-to-train collisions, over-speed derailments, and casualties or injuries to roadway workers (e.g., maintenance-of-way workers, bridge workers, and signal maintainers), operating within their limits of authority, as a result of unauthorized incursion by a train. The FRA has yet to adopt final regulations for implementation of PTC, but the technology is likely to be required on all rail lines with passenger rail traffic, regardless of freight volumes. The Tier 1 analysis estimates the cost of PTC implementation at $33 million.

- **Mobilization Costs –** Amtrak would need to hire employees to operate the new service, including new locomotive engineers that need extensive certification and training in operations. Amtrak estimates these hiring and training costs to be $2.8 million.

These total capital and up-front costs are summarized in Table 4.2; station costs are not addressed in the Tier 1 analysis and will be discussed separately in the next sections.

Table 4.2 Capital and Up-Front Costs for Tier 1 Route

Cost Element	Cost ($)
Infrastructure improvements	28,250,000
Rolling Stock	95,000,000
Positive Train Control	33,000,000
Mobilization	2,800,000
Total	**159,050,000**

Source: Amtrak Montana Report, 2010: Feasibility and Route Assessment.

Tier 1 Route Stations

The study team examined the condition of possible stations for passenger service along the Tier 1 route. Below are station descriptions for locations in Billings, Livingston, Bozeman, Helena, and Missoula.

Billings

Figure 4.4 includes a variety of photos of the station building in Billings, Montana, which is located on Montana Avenue, between North 24th Street and North 23rd Street. The station building is located near downtown in a commercial area; and is currently renovated for commercial use, office space, restaurants, or bars. The building itself is in very good condition and has on- and off-street parking. It is used for city functions and fundraisers, and could accommodate a return of passenger rail functions.

Figure 4.4 Station Photos
Billings, Montana

Livingston

Figure 4.5 shows photos of the station in Livingston, Montana, located on West Park Street, between North 3rd Street and North 2nd Street. The station, located in the downtown commercial area of Livingston, has been extensively remodeled and used as a museum, office space, and a conference/meeting space. The building is in excellent condition and has on street parking on the east and west sides of the building. The City holds local functions in the building, and a museum operates there in the summer. This building could be modified for passenger rail operations.

Figure 4.5 Station Photos
Livingston, Montana

Bozeman

Figure 4.6 shows photos of the station in Bozeman, Montana, located on Front Street, near the intersection of Front Street with East Tamarack Street and North Ida Avenue. The building is owned by Montana Rail Link Railroad and located in a mixed use, light industrial and residential area in Bozeman northeast of downtown near Interstate 90. The building is currently vacant and in very poor condition, and would most likely need to be demolished and rebuilt to support new passenger rail service.

Figure 4.6 Station Photos
Bozeman, Montana

Helena

Figure 4.7 shows photos of the station in Helena, Montana, located in the central area of Helena, at the confluence of Railroad Avenue, Helena Avenue, and North Sanders Street. The building currently is used as administrative offices for Montana Rail Link for office space and for crew changes. The building is located alongside park space and commercial uses, and is in good condition. It has off-street parking on the east side of the building, and on-street parking to the south. The building is located alongside yard and switching operations, and may require track modifications for passenger service.

Figure 4.7 Station Photos
Helena, Montana

Missoula

Figure 4.8 shows photos of the station in Missoula, Montana, located at the northern end of North Higgins, at a connection of West Railroad Street and West Adler. The building, located directly north of the downtown area, is surrounded by commercial and residential uses. The building is used as commercial space and offices, and is in very good condition. It has a large off-street parking lot to the west. The building is located alongside yard and switching operations for MRL. It is also listed on the National Register of Historic Places, and thus would require extra care and cost to renovate for passenger rail use.

Figure 4.8 Station Photos
Missoula, Montana

Station Improvement Estimates

The Federal North Coast Hiawatha study included cost estimates for stations along this route (Table 4.3)

Table 4.3 Tier 1 Station Improvement Cost Estimates

Stations	Condition	NCH Cost Estimate
Billings	Excellent	$925,000
Livingston	Excellent	$1,326,000
Bozeman	Very Poor	$1,600,000
Helena	Good	$1,100,000
Missoula	Good	$1,326,000
Total, Tier 1		**$6,200,000**

Source: Exhibit 4, Amtrak NCH Study, October 2009.

These estimates of capital cost are preliminary. Further study may show any of these costs to be higher or lower than can be estimated at this level of analysis.

Ridership, Revenues, and Operating Costs

Amtrak used its standard methodology to generate a train operating schedule for the Tier 1 route, yielding a travel time of 8 hours and 15 minutes westbound, and 8 hours and 3 minutes eastbound (Table 4.4).

Table 4.4 Amtrak Schedule Assumption for a Billings-Missoula Route

Read Down				Mile	City	Mile			Read Up	
7:00 AM	2:00 PM		Dp	0	Billings	358	Ar		3:03 PM	10:03 PM
9:17 AM	4:17 PM			116	Livingston	242			12:48 PM	7:48 PM
10:10 AM	5:01 PM			141	Bozeman	217			12:04 PM	7:04 PM
12:10 PM	7:10 PM			239	Helena	119			10:07 AM	5:07 PM
3:15 PM	10:15 PM		Ar	358	Missoula	0	Dp		7:00 AM	2:00 PM

Source: Amtrak Montana Report, 2010: Feasibility and Route Assessment.

Amtrak then estimated ridership based on this schedule and the following factors:

- Population and demographics of geographic area to be served;
- Proposed level of daily service (frequencies);
- Competing modes of transportation; and
- Potential connectivity of proposed service.

The Tier 1 analysis estimates annual ridership of 15,300 and annual revenues of $381,000, which is relatively small. The figures reflect the availability of faster travel time over the highway system, the twice-daily schedule of this train, and the challenges of reaching widely dispersed locations from the depots.

Amtrak estimates annual operating expenses of $12.6 million for the Tier 1 route, including direct and indirect costs. This yields an operating cost of $24.13 per train mile (lower than typical Amtrak long-distance route operating costs of $60.00 per train mile). This difference may be due to the particular scenario of an operation completed within a single day, which would minimize crew scheduling complications of longer distance train service, and also would require less staffing for conductor and food services.

The small revenues mean that Montana would be expected to make up the difference in operating costs of approximately $12.2 million per year, or 97 percent of operating costs. Over 20 years, this operating subsidy would total $244 million. As noted earlier, farebox revenues from long-distance trains cover, on average, more than one-half of their operating costs.

Financial Implications

New Federal intercity passenger rail programs are discussed in Section 4.4, and include programs that provide up to 80 percent Federal share of capital costs for new passenger rail service. These grant programs are discretionary and highly competitive among all nationwide applicants. Grant award decisions are made in part on the total public impact of proposed new service, which is driven by estimated public use of the new service. If MDT were to be awarded Federal funds to pay for 80 percent of capital costs of Tier 1 service, the State would need to provide a match of $31.8 million. Federal passenger rail programs, like most Federal transportation programs, do not provide ongoing operating funding. That means that an additional $12.2 million would have to be provided in the MDT annual budget for operating subsidies.[61]

Table 4.5 Summary Information for Tier 1 Route

Element	Amount
One Time Capital Costs	$159,050,000
Estimated Annual Ridership	15,300
Estimated Annual Passenger Revenue	$400,000
Estimated Annual Operating Costs	$12,600,000
Estimated Annual Operating Subsidy	$12,200,000

Source: Amtrak Montana Report, 2010: Feasibility and Route Assessment.

Williston, North Dakota to Sandpoint, Idaho (Tier 2)

Infrastructure Assessment

Amtrak assessed capital improvements that would be necessary between Williston, North Dakota, and Sandpoint, Idaho to meet both the requirements of passenger service and the operating needs of the host railroads (Tier 2). This assessment was accomplished by a limited sample of route inspections and through information from the host railroads.

The Tier 2 analysis informs the potential to bring Amtrak service to southern Montana by examining potential connections with existing stops on the Empire Builder route in Williston, North Dakota, and Sandpoint, Idaho. This is not a route scenario in the usual sense of the term, since breaking off from the Empire Builder and rejoining that service would be problematic. Splitting and reconnecting a train means that an ordinary delay on either route in either direction sets back multiple service schedules, which can negatively impact the entire route. Branching services are relatively common in Amtrak routes – for example, Amtrak's Empire Builder has service branches in Spokane to both Seattle and Portland. However, in discussions with MDT, Amtrak officials noted their desire to avoid looping connections.

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61 New Federal high-speed and intercity passenger rail (HSIPR) funding programs also expect capital funding applicants to provide proof of available operating funds for the first 20 years of project operations.

This route traverses the Tier 1 route between Billings and Missoula. The other segments from the east are Williston, North Dakota to Snowden on the BNSF, Snowden to Glendive on the Yellowstone Valley Railroad, and Glendive to Jones Junction just east of Billings. The Tier 1 analysis covers the middle part between Billings and Missoula. The segment from Missoula to Sandpoint, Idaho is operated by Montana Rail Link. The following summarizes conditions on segments of Tier 2 not included in Tier 1:

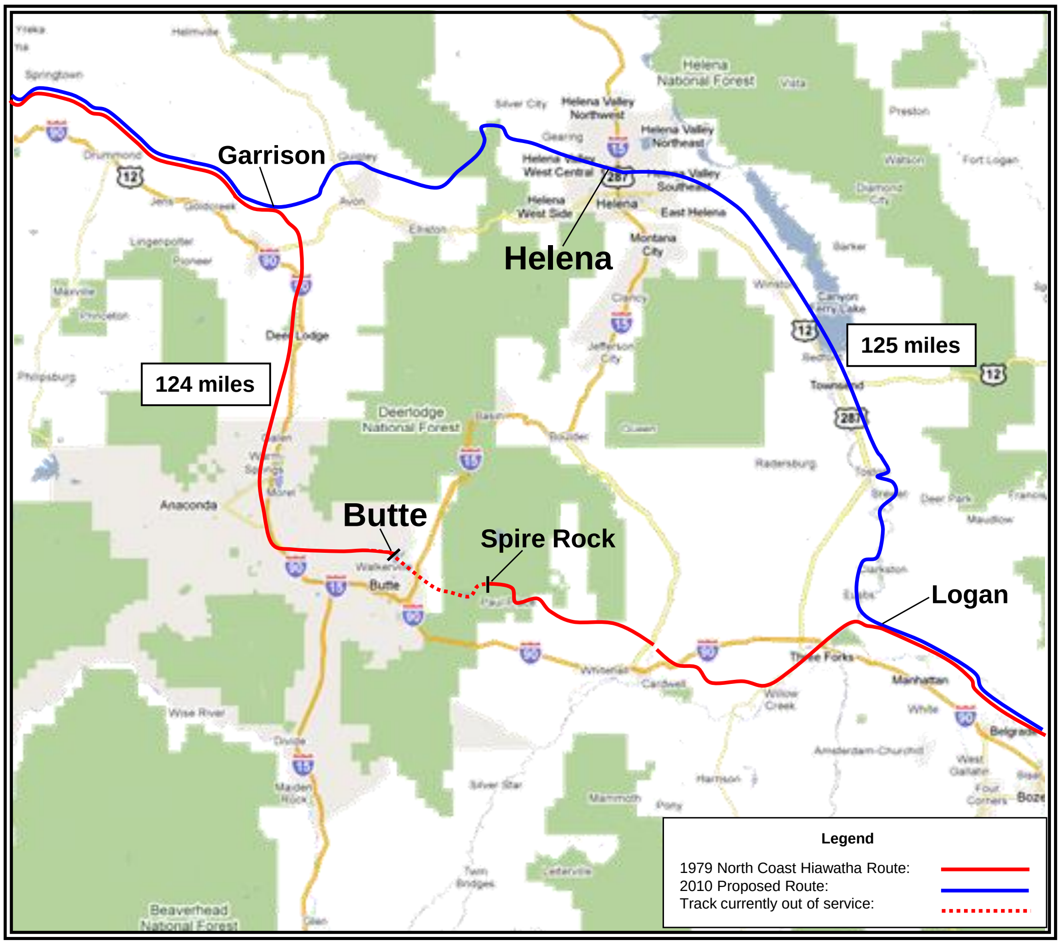
- **Williston to Snowden** (26.1 miles, BNSF) – This segment is also used by the Empire Builder, and is CTC controlled, continuous welded rail. The route is single track, with one 15,000-foot siding.
- **Snowden to Glendive** (72.6 miles, YSVR) – The entire route is single-track, unsignaled (62 miles has TWC) and without designated sidings. A total of 22 miles of jointed rail between Snowden and Sidney would need to be replaced, and track condition in that segment merits extensive track maintenance before passenger service could be initiated. Track from Sidney to Glendive is continuous welded rail in much better condition. The entire route would need block signals, which would also affect gated grade crossing circuitry (i.e., rural roads crossing the track would need upgraded controls so passenger trains could safely pass by).
- **Glendive to Jones Junction** (212.7 miles, BNSF) – With the exception of 31 miles with CTC, the majority of this route is TWC/ABS. The line is single-track, continuous welded rail, with 14 sidings averaging 7,400 feet in length every 14.4 miles. The segment will require signal improvements prior to passenger rail service, and may require additional sidings and capacity given the freight traffic.
- **Missoula to Sandpoint** (206.6 miles, MRL) – With the exclusion of 3 miles of multiple track line west of Missoula, this line is single track with continuous welded rail. The segment from Paradise to Sandpoint has 11 sidings averaging 11,177 feet, every 10.8 miles. The route has 310 curves, with some measuring up to 10 degrees in sharpness. With moderate coal train traffic, this line may require additional sidings to accommodate passenger rail traffic.

The Tier 2 analysis did not include capital cost estimates similar to those in Tier 1. The MRL segments of the line (Missoula to Sandpoint) are in excellent condition and would likely require only modest capital investments. However, the eastern segments from Glendive to Snowden will require more extensive infrastructure improvements: track and signal upgrades and maintenance, expanded sidings, and grade crossing protection upgrades. Capital cost estimates for these segments would be highly speculative without more detailed engineering analysis, and therefore this section does not include those capital cost estimates.

Possibilities for Butte Routing

As citizens and officials in Montana have discussed reinstituted passenger rail service, some recall the former passenger service along the Olympic Hiawatha on the Milwaukee Road that came through Butte to Missoula (Logan-Butte-Deer Lodge-Garrison), rather than the MRL route from Billings to Missoula (Logan-Helena-Garrison) through Helena. The alternative routes are shown in Figure 4.9.

Figure 4.9 Potential Southern Montana Passenger Rail Route via Helena and Butte



Reestablishing service through Butte would require substantial reconstruction of the rail lines, since part of the route is completely out of service,[62] and the other operating segments have lighter weight rails, steep grades and speed limitations of 25 to 40 mph. Upgrading the track from Class 2 to Class 4 standards (to allow for 60 mph service) would require substantial costs, as would installing train control systems required for passenger rail service (these segments are nonsignalized). Capital costs for this 121-mile segment could easily exceed the entire Tier 1 analysis infrastructure costs.

To develop a detailed operating cost estimate for the entire Tier 2 route, a more complete analysis of possible passenger schedules would be required. Analysis of this route was conducted as a track feasibility study. Thus, no cost estimates, station inspections, or operations plan were developed for this route. The Tier 2 analysis also did not include estimates of ridership.

Reinstatement of North Coast Hiawatha Service

In 2008, Congress directed Amtrak to examine the possibility of reinstating passenger rail service on the North Coast Hiawatha route:[63]

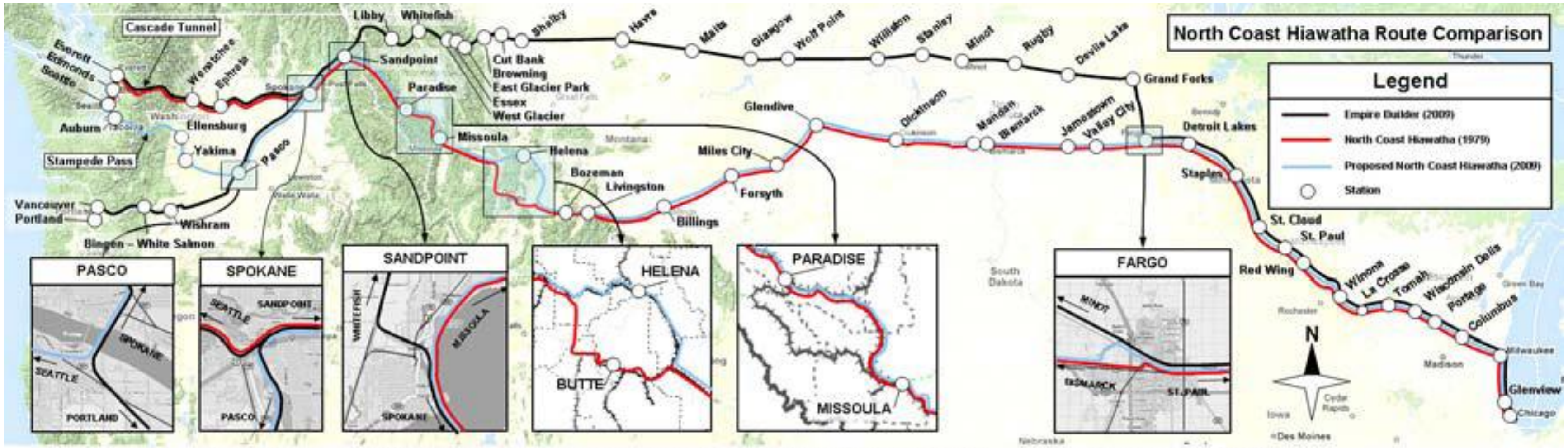
> "The North Coast Hiawatha Route between Chicago and Seattle through southern Montana, which was operated by Amtrak until 1979, to determine whether to reinstate passenger rail service along the route or along segments of the route, provided that such service will not negatively impact existing Amtrak routes."

Amtrak published the resulting study findings in October 2009. The report examined the route generally followed by the former North Coast Hiawatha (NCH) route with a few exceptions, shown on Figure 4.10.

[62] The Spire Rock to Butte segment has been out of service for more than 20 years, has significant problems with track and subgrade, has steep gradients of 2.2 percent, bridges that would need replacement and tunnels needing rehabilitation.

[63] PRIIA Section 224 North Coast Hiawatha Passenger Rail Study ("NCH Study"), found on http://www.amtrak.com/servlet/ContentServer/Page/1241245669222/1237608345018, under PRIIA submissions and reports, October 16, 2009.

Figure 4.10 North Coast Hiawatha Study Route



At Pasco, the route of the 2009 proposed North Coast Hiawatha diverges from the current Empire Builder south of the Columbia River.

At Spokane, the route of the 2009 proposed North Coast Hiawatha diverges from the 1979 route. The 1979 route utilized Stevens Pass and Cascade tunnel while the 2009 proposed route would use Stampede Pass.

At Sandpoint, the routes of both the 2009 and 1979 North Coast Hiawatha converge with the route of the current Empire Builder.

Between Bozeman and Missoula the route of the 2009 North Coast Hiawatha diverges from the 1979 route. It is not possible to use this route because the rail link is now severed.

The MRL operates two different routes between Missoula and Paradise. Both the 1979 and 2009 proposed North Coast Hiawatha utilize the northern route over the MRL 10th Subdivision.

In Fargo, ND the routes of both the 1979 and 2009 proposed North Coast Hiawatha diverge from the present day route of the Empire Builder. Both the 1979 and 2009 proposed use the former Great Northern Railroad Station. The 2009 proposed North Coast Hiawatha would then operate over the "coal connector" track because the previous connecting track utilized by the 1979 train is no longer in place.

The NCH Study provided the following infrastructure capital cost estimates for the entire route, as estimated by the various host railroads (Table 4.6).

Table 4.6 North Coast Hiawatha Capital Costs by Segment

Route Segment	Route Miles	Estimated Capital Cost	Cost per Route Mile
Chicago to St. Paul	417	$44,000,000	$106,000
St. Paul to Fargo	241	$24,000,000	$100,000
Fargo to Jones Junction (Montana)	615	$307,300,000	$500,000
Jones Junction to Helena	254	$23,100,000	$91,000
Helena to Sandpoint	309	$6,100,000	$20,000
Sandpoint to Spokane	68	$24,000,000	$353,000
Spokane to Pasco	145	$96,000,000	$662,000
Pasco to Seattle	241	$95,300,000	$395,000
Total, North Coast Hiawatha	**2,290**	**$619,800,000**	**$271,000**

Source: Amtrak NCH study, Cambridge Systematics, Inc.

The higher costs for the BNSF route from Fargo to Jones Junction are due to high costs of siding extensions required for passenger trains, as well as the frequency by which freight trains overtake each other in both directions along this section, which has heavy traffic in coal shipping. The total costs of capital, equipment, and other start-up costs are listed in Table 4.7.

Table 4.7 Capital and Up-Front Costs for North Coast Hiawatha

Cost Element	Cost ($)
Infrastructure improvements	619,800,000
Stations	17,600,000
Rolling Stock	330,000,000
Positive Train Control	60,000,000
Mobilization	15,800,000
Total	**1,043,200,000**

Source: Amtrak NCH Study, October 2009.

Amtrak estimated that the reinstated NCH service would attract 359,800 total riders, compared to the FY 2009 Empire Builder ridership of 515,444. The total revenue estimate for the NCH was estimated at $43 million, which included an $8 million revenue impact from Empire Builder passengers diverted to the new route, an amount that represents a 13 percent revenue diversion from the Empire Builder in FY 2009.

Amtrak estimated that the NCH annual operating cost would be $74.1 million, resulting in a $31.1 million operating loss. The NCH revenues would cover 58 percent of operating costs, which suggests that the NCH would perform better financially than most Amtrak long-distance trains. Table 4.8 lists FY 2009 farebox recovery percentages for the NCH and other long-distance trains.

Table 4.8 Farebox Recovery Ratios for NCH and Long-Distance Trains
FY 2009 Operating Results (Sorted by Percentage)

Long-Distance Route	Percentage
Auto Train	90.1%
Empire Builder	**65.3%**
Palmetto	59.2%
City of New Orleans	58.5%
North Coast Hiawatha (proposed)	**58.0%**
Silver Meteor	52.8%
Southwest Chief	51.9%
Capitol Limited	51.9%
Coast Starlight	51.4%
California Zephyr	50.3%
Texas Eagle	49.8%
Crescent	47.7%
Lake Shore Limited	44.6%
Silver Star	44.1%
Cardinal	34.7%
Sunset Limited	26.6%

Source: Cambridge Systematics calculations, source data from Amtrak Monthly Performance Report, page C-1, September 2009.

Note: Percentage is derived by dividing total revenues by total operating costs.

Amtrak concludes its NCH Study by noting that even though the NCH service might operate at a higher farebox recovery ratio than other long-distance trains, the capital costs for reinstating the service are substantial. The report provides a cautionary summary:

> "While PRIIA recognizes the importance of Amtrak's existing long-distance routes, it does not provide capital or operating funding for expansion of long-distance service beyond current levels. Therefore, additional Federal and/or state funding would be required for any service expansion."[64]

[64] *Amtrak NCH Study*, page 41, October 2009.

Amtrak has legislative authorization to expand long-distance services, as described at the beginning of Section 4.3. Yet without specific authorization for capital expenses of expanding long-distance services, or without expectation for legislative appropriations for capital costs or increased operating costs not covered by revenues, Amtrak must look to the Federal government and the states along the proposed NCH route to provide capital and operating funding for the NCH route.

Comparing the Tier 1 Analysis and NCH Study Results

Since either approach would require Federal and state funding for capital and operating costs, a comparison of the costs and implementation challenges of the Tier 1 analysis and NCH Study approaches could help inform future steps for passenger rail in Montana. It might be possible to isolate the proportions of NCH costs attributable to Montana to compare capital and operating costs to Tier 1 results. Such estimates must be viewed cautiously, however, since actual costs will reflect on-the-ground and operational conditions that are difficult to generalize. For instance, Amtrak's studies for Montana identify a significant bottleneck at Laurel; elsewhere there may be a problematic bridge or road crossing. These costs, and others, cannot be reliably estimated on a per-mile basis.

Montana citizens and elected officials can consider some of the following aspects of the NCH and Tier 1 service in Table 4.9 in making future decisions about passenger rail implementation.

Table 4.9 Comparison of Tier 1 and NCH Passenger Rail Proposed Services

	Positive	Negative
NCH	• Potentially lower annual operating cost requirement for Montana • Higher patronage more attractive for public capital and operating funding	• Higher total capital cost for entire route • Matching capital grants and pledging operating subsidies more difficult for multiple states • New long-distance service may be less attractive than high speed rail projects for Federal funding • Reduces Empire Builder revenues
Tier 1	• Potentially lower overall capital cost • Montana not dependent on actions of other states • State-supported service easier for Amtrak to initiate • State-based regional railroad may be better negotiating partner for new passenger rail service	• Potentially higher annual operating cost requirement for Montana • Much smaller ridership estimates • Less attractive for Federal capital and operating funding under current programs

4.4 Passenger Rail Funding Options

Federal Funding Programs

When MDT launched development of this plan, the only Federal program for passenger rail development was the FY 2008 FRA Capital Assistance to States – Intercity Passenger Rail Service Program for 50 percent Federal/50 percent state funding of passenger rail improvements. Since then new passenger rail programs have been authorized (October 2008), and new appropriations were made in the following year. Additional appropriations for passenger rail are expected in FY 2011 and beyond. Table 4.10 describes the various new Federal funding programs for passenger rail.

While some of these programs, such as the ARRA economic stimulus funds, were "one shot" funding programs that currently have no assurance of continuing Federal financial support, the number and variety of recent Federal investments in passenger rail represents a striking shift from previous years.

In the American Recovery and Reinvestment Act of 2009 (ARRA) grant applications guidance issued in June 2009, the FRA stated that it was seeking applications for four funding tracks:

- **Track 1, Projects –** These funds would be directed to projects that are environmentally cleared and construction ready, and for detailed engineering and environmental planning for individual projects.
- **Track 2, Service Development Programs –** These funds would be committed to a series of projects over time pursuant to a Service Development Program, an agreement between states and the Federal government that would establish a list of projects, financial plans, and implementation steps to carry out the projects.
- **Track 3, Planning –** These 50/50 matched funds would be used to prepare corridor-level Service Development Programs, or for general state rail planning. These grant awards will come from previous appropriations and from future appropriations under PRIIA.
- **Track 4, Passenger Rail Improvements –** These funds would be used for another series of projects for passenger rail improvements, similar to the FY 2008 funded grants, with a 50/50 Federal/state cost share.

In the guidance document, the FRA further stated that it anticipated multiple project application/award cycles. Since the Administration has requested $1 billion per year for high-speed rail and intercity passenger rail improvement grants, and since the Congress has appropriated $2.5 billion for passenger rail grants in its FY 2010 appropriations cycle for the U.S. Department of Transportation (U.S. DOT), Montana can reasonably anticipate future grant cycles for passenger rail improvement and planning funding.

Table 4.10 Federal Funding Programs for Passenger Rail Improvements

Program	Dollar Amounts	Criteria	Status	Timing
ARRA Discretionary Multimodal (Transportation Investments Generating Economic Recovery or TIGER grants)	$1.5 Billion Total; $20-$300 Million Grants	Geographic equity; urban/rural balance, benefit/cost analysis	Appropriated, Awarded	Criteria – May 2009 Applications – September 2009 Awards – February 2010
TIGER II	$600 million in FY 2010 appropriations; $140 million for rural areas	Geographic equity; urban/rural balance, benefit/cost analysis	Appropriated	Funding announced – May 2010 Applications – August 2010
ARRA High Speed Rail (HSR)	$8 Billion for: Projects with NEPA clearance and engineering; corridor programs for plans, Environmental studies to inform corridor programs; no planning for corridors and state rail plans	Prerequisites: fits corridor plans and safety regulations; agreements with stakeholders; financial plans; project management plans, ARRA reports. Criteria: see IPR below	Appropriated; Awarded	Strategic Plan – April 16 Guidance – June 18 Applications – August/October 2009 Awards – January 2010
Intercity Passenger Rail Improvements (IPR)	$90 Million to augment ARRA, fund corridor and state rail planning	Criteria for awards: meet prerequisites; public benefits timely achieved; timeliness or project delivery; management approach	Appropriated	Same schedule as ARRA programs above
PRIAA	$1.9 Billion Intercity: $1.5 Billion HSR; $0.3 Billion Congestion	Links to state rail plans, performance metrics to be set by FRA	Authorized, $2.5 appropriated in FY 2010 for projects/corridors, $50 million for planning	FY 2010 funding: Planning applications – May 2010 Project funding – Fall 2010 Future grant cycles depending on appropriations
RRIF Loans	Up to $35 Billion total for rail infrastructure capacity	Creditworthiness, safety, economic impacts, green benefits, rail system impacts	Authorized	Applications accepted, applicants pay fees
Surface Transportation Authorization	To be determined (TBD)	TBD	TBD	SAFETEA-LU Expired in 2009; Extended to 2010, future extensions expected

PRIIA requires that projects for which grant applications are sought must be part of a comprehensive state rail plan (ARRA funds do not have this requirement). PRIIA sets out some expectations for state rail plans, but requires the U.S. DOT to issue guidelines on what the plans must include. This State Rail Plan was launched before PRIIA was passed. However, given the breadth of this State Rail Plan relative to the plan elements listed in PRIIA, MDT would only need to complete a small number of tasks to bring its rail plan into compliance with Federal expectations, including:

- Stakeholder outreach to identify specific freight and passenger rail improvement projects to resolve bottlenecks, improve rail service, and offer new passenger rail service;
- Setting performance metrics and evaluating rail projects against those metrics (including public and private benefit determinations); and
- Building a funding and implementation plan for those projects.

State Funding Implications

The Tier 1 report and the North Coast Hiawatha Study provide information about the scale of funding commitments that would be necessary to return passenger rail service to southern Montana. Unlike most Federal transportation programs, which have a sliding scale for financial match based on a legislated formula, recent Federal rail programs are often competitive grants that anticipate states will contribute a share of total costs. Some states, mostly larger ones, have invested hundreds of millions of dollars in passenger rail improvements, and are prepared to further match new Federal funds. Moreover, in recent years the FRA has not provided any funding to offset the operating costs of added passenger rail services.

Montana may want to consider what can be achieved with state funding. If Montana wants Federal planning and project funding to expand passenger rail, it is likely that the State will at least need to find matching funds. The State will also need to consider ongoing expenses associated with new passenger rail service.

4.5 CONCLUSIONS

Montana's existing passenger rail service, the Empire Builder, provides a valuable and successful service to Montana. A significant share of that train's total boardings and deboardings are in the State. In terms of both ridership and public cost, the Empire Builder is one of the top performing long-distance passenger trains in the nation. As a long-distance, legacy route, the Empire Builder's continuing public cost is paid for by the Federal government.

Resumption of service through a southern Montana route would bring passenger rail to many of the State's largest and fastest growing population centers. Returning intercity passenger rail service to the route would, however, involve substantial cost both to establish the service and to cover its annual operating expense. Montana is not assured of Federal help in meeting these costs.

Montana asked Amtrak to examine passenger rail resumption within the State to help inform public interest. The resulting study is further enhanced by an analysis for the Federal government of resumption of the Chicago-to-Seattle North Coast Hiawatha route. These studies give a rough idea of some of the challenges, and they represent the best available information at this level of analysis. Broadly, the studies suggest that long-distance services would perform better in terms of ridership and fare revenues than would services oriented to Montana alone.

If warranted, further planning should include more detailed specification of desired routes and services, capital planning, agreements with rail owner/operators, coordination between Montana and other states, establishment and maintenance agreements for each passenger depot, and clarification among all parties of initial and continuing costs.

5.0 Grain Car Consolidation Facility Impact Analysis

5.1 Introduction

From the time large grain consolidation facilities made their appearance in the State, Montana rail planning documents noted that the emergence of these facilities represented a significant technological shift in transportation. "Shuttle elevators" are very large grain elevators designed for movement of trainloads of grain directly from elevator to port. They generally have sufficient track and equipment capacity to fill 110-car trainloads within 15 hours; and have greater grain storage capacity. They are significantly larger and more efficient than prior grain elevator systems. The increasing prominence of shuttle elevators in Montana is part of a national trend toward consolidation of grain loading facilities.

This section begins with a description of Montana's wheat industry as it relates to transportation. Truck-to-rail gain transfer facilities are then described, and the section concludes with a discussion of overall impacts of shuttle facilities.

5.2 Grain Production and Shipping Trends

As shown in Table 5.1, wheat far exceeds all other international export categories from Pacific Northwest ports in terms of value, with $410.4 million in 2006 (31.6 percent of total exports). The 2006 export volumes were more than 24 percent higher than the previous year. For the purposes of this study, the term "wheat" refers to all classes produced in Montana, of which there are five major classifications: Hard Red Winter, Hard Red Spring, Hard White, Durum, and Soft White.

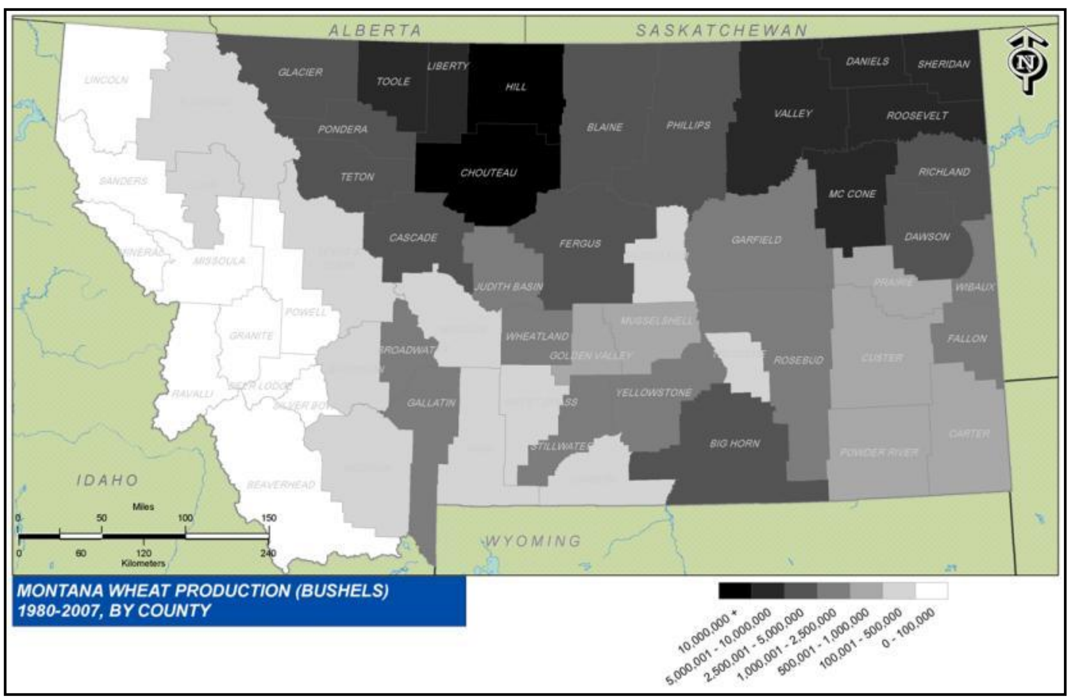
Figure 5.1 shows where wheat is produced in the State, showing total wheat production by county over the 27-year period from 1980 to 2007. This aggregate view normalizes annual totals which may vary according to weather patterns (most Montana wheat production is non-irrigated). The production patterns in the northern half of the State coincide roughly with the high-capacity BNSF Hi-line route. The location of grain consolidation facilities will generally follow this production geography.

Table 5.1 Montana International Exports by Product
2006

Exports	Dollar Value	Percent of Export Value	Percent Change 2005-2006
Total Montana Exports	**$1.297 billion**	**–**	**24.5%**
Wheat	*$410.400 million*	*31.64%*	*24.1%*
Inorganic Chemicals	$192.500 million	14.84%	96.7%
Industrial Machinery	$185.900 million	14.33%	15.2%
Ores, Slag, and Ash	$73.300 million	5.65%	-35.6%
Paper and Paperboard	$39.600 million	3.05%	12.7%
Wood and Wood Products	$32.600 million	2.51%	-0.6%
Live Animals	$2.900 million	.22%	95.4%

Source: Montana CEIC/Montana Agricultural Statistics Services and WISER Origin of Movement 2006. Available at: www.exportmontana.com.

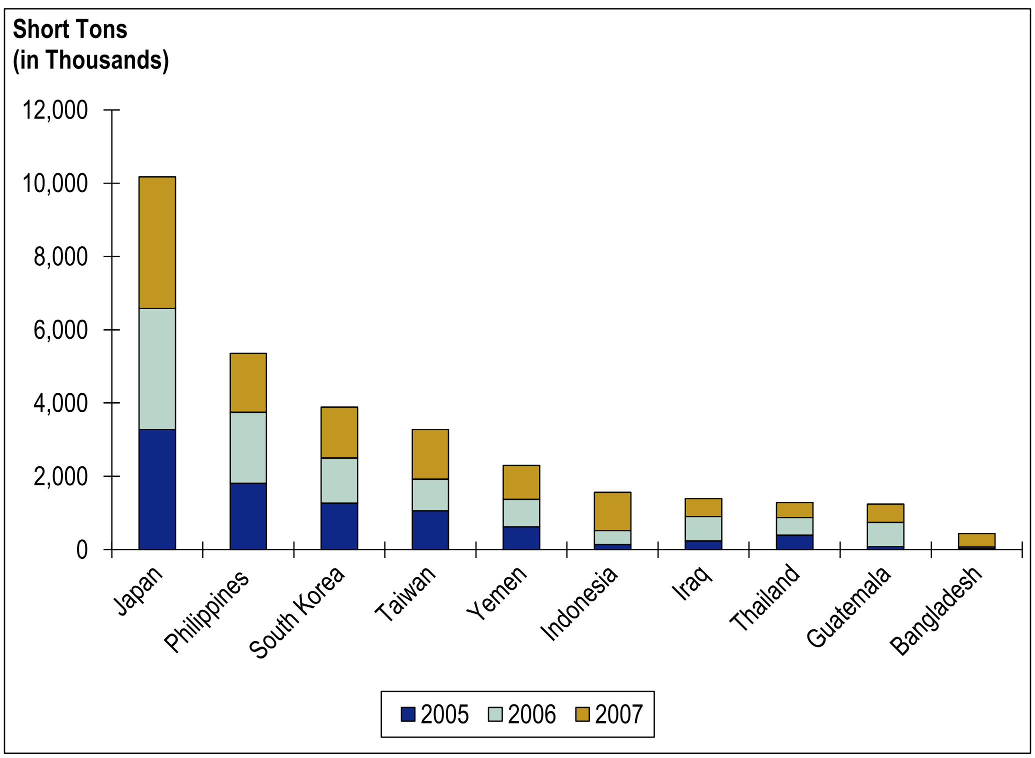
Figure 5.1 Wheat Production by County
1980 to 2007



Montana Grain Flows

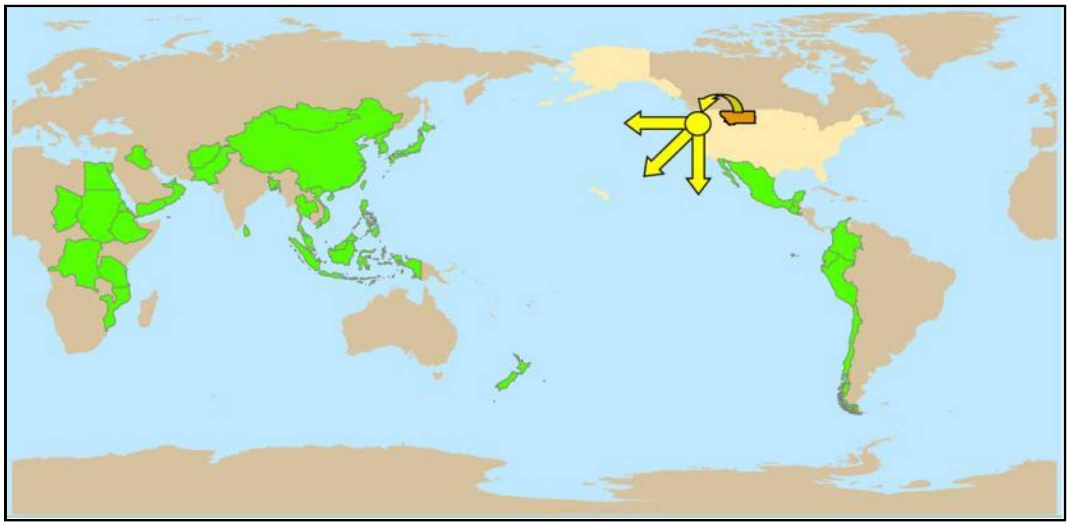
The vast majority of Montana wheat is shipped by rail to Pacific Northwest (PNW) Port terminals in the Portland area. At the terminal, typically Montana wheat is mixed with wheat from other parts of the country to achieve specified protein levels for the purchaser of the grain. Where the wheat is finally shipped from the port varies depending on a number of factors, such as the changing food consumption patterns of Asian populations with increasing disposable income (more pastries than noodles) and whether the grain is bound for mills and value added manufacture or just for milling. Recently, the Pacific Rim countries have been prominent buyers of Montana wheat. Figure 5.2 shows the top 10 destination countries for wheat shipped from Portland seaports in 2005-2007. Japan is the largest, importing more than 10 million short tons. The Philippines, South Korea, and Taiwan are the next leading wheat importers.

Figure 5.2 Wheat Exports from Pacific Northwest Ports
2005 to 2007



The map in Figure 5.3 shows global wheat exports from PNW ports in the 2005 to 2007 period. The map shows that wheat from this region flows to Asia, Africa, Central, and South America.

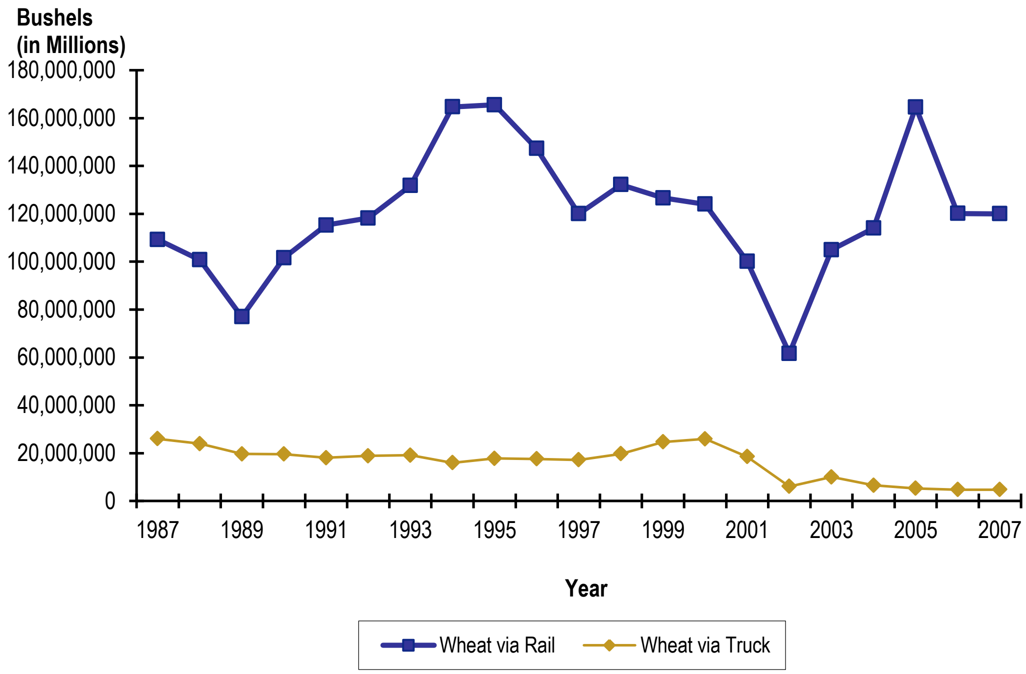
Figure 5.3 PNW Wheat Distribution
2005 to 2007



Source: U.S. Department of Commerce, Bureau of the Census.

Transportation mode options for wheat shippers depend on a variety of factors, including production, weather, market prices, rail car supply, and rail transport rates. Since wheat production is dependent on precipitation, wheat production and shipments fluctuate. Figure 5.4 depicts grain shipments by rail and truck from 1987 to 2007. Rail shipments of wheat varied: in the 1989 to 1995 period, wheat shipments by rail doubled; then declined by a similar amount between 1995 and 2002; then again doubled between 2002 and 2006. These volumes correspond generally to statewide crop production. This variability poses operational challenges to carriers that allocate rail cars to producers and shippers. Grain growers and railroads communicate carefully about crop production estimates and transport needs.

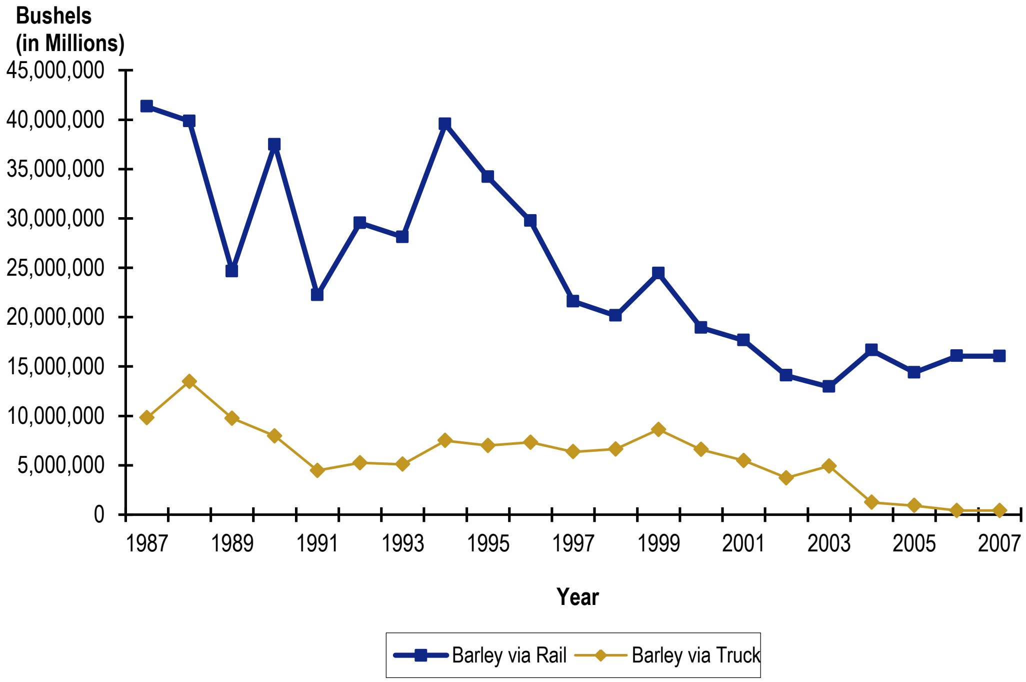
Figure 5.4 Montana Wheat Shipments by Mode
1987 to 2007



Source: Montana Wheat and Barley Committee. Available at: http://wbc.agr.mt.gov/Buyers_Processors/industry_book.html.

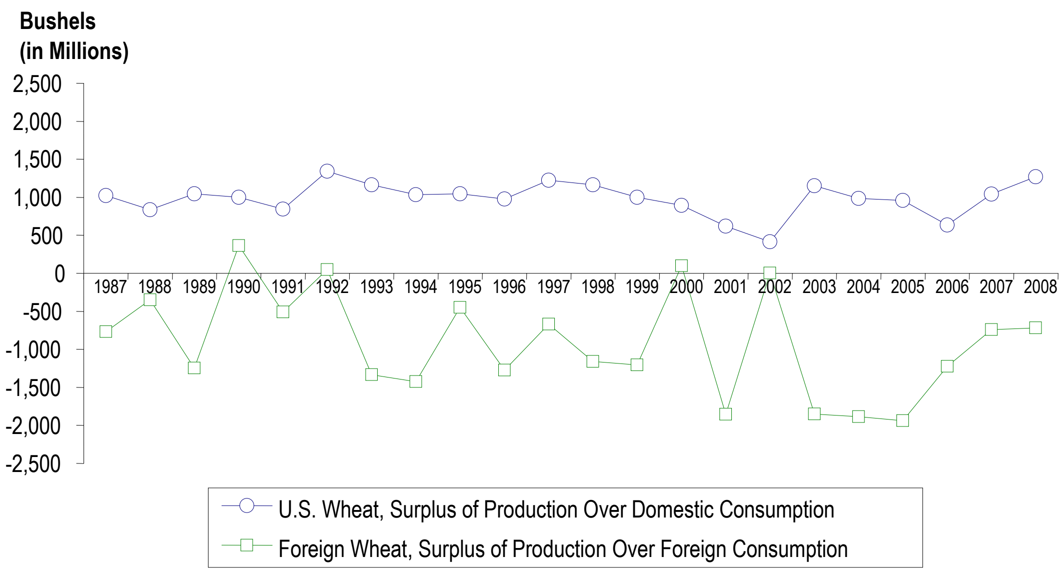
By volume, Montana's barley crop is much smaller than wheat. Barley shipments by both rail and truck (Figure 5.5) declined over the 1987 to 2007 period. The 20-year trend in barley shipping by rail declined, and shipments by truck tapered off to nearly nothing after 2004, as cattle feed markets for barley substituted other grain stocks.

Figure 5.5 Montana Barley Shipments by Mod
1987 to 2007



The U.S. has historically been a major global supplier of wheat. Figure 5.6 identifies wheat supply and demand for the United States and the world. This has a couple of key implications: 1) for the past 20 years, U.S. supply has consistently exceeded domestic demand, creating a basis for U.S. wheat exports, and 2) the world supply is less consistent at meeting demand, with several recognizable downturns over this 20-year period. Given these trends, it is expected that foreign markets will continue to demand American wheat.

Figure 5.6 Wheat Excess Supply Over Demand, U.S. and Foreign
1987 to 2007



Source: Montana Wheat and Barley Committee/MASS. Available at: http://wbc.agr.mt.gov/Buyers_Processors/Production_reports/usallwheat_supplydemand_bu.pdf.

5.3 110-Car Grain Shuttle Facility Role in Distribution

Grain shuttle facilities – large grain elevators designed to load 100- to 110-car trainloads quickly – are playing an increasingly important role in the distribution of Montana grain. Their emergence and increasing prominence represents a technological shift that affects Montana farmers, grain elevator operations, short-line and larger railroad operators, and the State's roadway system. Other factors also affecting the movement of grain from producers to consumers include: farm to elevator truck movements, fluctuations in grain prices, rail car availability, elevator capacity, port congestion, and ship availability.

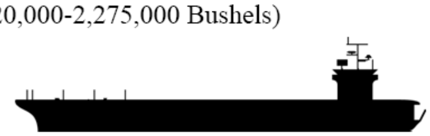
These large shuttle loading facilities provide efficiencies in rail system movement because they can load 110 rail cars, i.e., a unit train, and ship them directly to the next terminal, typically a seaport. Trains are able to gain maximum efficiency with single-point loading, long-distance trips, less car handling, and better utilization of rolling stock.

Historically, Montana producers relied upon smaller, local elevators, which provided train service in 52-car units, 26-car, or fewer. The new shuttle loading facilities can load a 110-car train with 370,000 bushels of grain, more than double and quadruple the previous industry standards. The Montana Wheat and Barley Committee estimates that a state-of-the-art shuttle facility costs about $4 million with the following minimum specifications:

- Seven thousand feet of track to accommodate 110 empty and 110 loaded cars;
- Two 20,000-bushel shipping legs;
- Two 20,000-bushel receiving legs;
- One hundred 10-foot platform scales;
- Two receiving pits; and
- At least 1 million-bushel storage capacity.

Figure 5.7 compares storage capacity across each typical transportation mode. Knowing the carrying capacity of a 62,000-ton freight ship, typical in Pacific Northwest ports, shows the volume of trains and trucks necessary to fill one of these ships. A freighter load is equivalent to 12 52 car unit trains, 624 jumbo hopper rail cars, and about 6,900 farm truck loads. With fewer and more centralized grain loading facilities, the distance from farm to elevator has increased. If that increment is 20 miles, the additional burden on the roadways needed to fill a single freight ship amounts to 138,000 miles.

Figure 5.7 Relative Storage Capacities of Transportation Modes

9 Tons (or 300 Bushels)	=	1 Farm Truck 
3 Farm Trucks	=	1 Semi Truck with "Pup" 
3 Semi Trucks	=	1 Jumbo Hopper Car 
30 Railcars	=	1 Barge 
11-16 Barges	=	1 25,000-62,000 Ton Ocean Freighter (920,000-2,275,000 Bushels) 
1 62,0000 Ton Freighter	=	41 Barges 12 Unit Trains (52-car) 624 Hopper Cars 1000 Semi Trucks 6900 Farm Trucks

Source: Montana Wheat and Barley Committee.

Currently, there are 15 existing and planned 110-car shuttle loading facilities in Montana. Table 5.2 provides a detailed list of facilities along with the current owner/operator, capacity, and year the facility became operational.

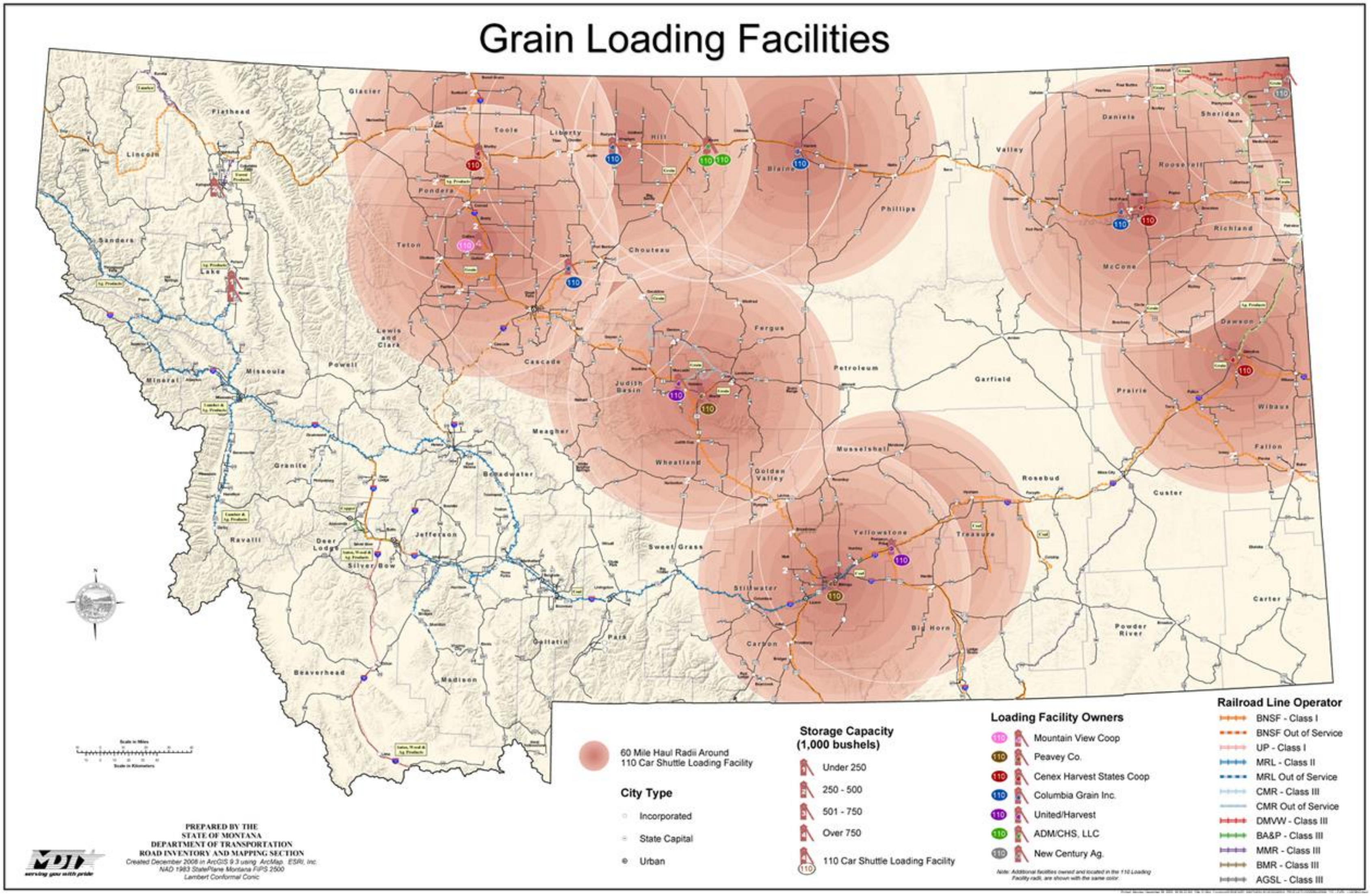
Table 5.2 Current Grain Shuttle Facility Locations

BNSF Facility Number	Name	Location	Year Operational	Loading/ Unloading	Storage Capacity (Bushels)	Track Capacity (Cars)
508	Peavey Co	Billings	April 2000	L	1,700,000	110
558	Columbia Grain Inc.	Harlem	November 2001	L	620,000	115
561	ADM/CHS, LLC	Havre	December 2002	L	1,700,000	110
562	ADM/CHS, LLC	Havre	December 2000	L	240,000	110
581	CHS Inc.	Macon	April 2000	L	970,000	110
603	Columbia Grain Inc.	Rudyard	November 2000	L	2,000,000	110
608	CHS Inc.	Shelby	December 2003	L	3,200,000	162
2353	Mountain View Coop	Collins	December 2001	L	873,000	110
2358	CHS Inc.	Glendive	June 2001	L	850,000	110
2364	United Harvest, LLC	Pompeys Pillar	December 2003	L	700,000	112
2387	Columbia Grain	Kasa Point (Wolf Point)	June 2006	L U	800,000	110
2456	United Harvest, LLC	Grove (Moccasin)	January 2000	L	625,000	110
518	Columbia Grain, Inc.	Carter	May 2008	L	710,000	110
588	Peavey Co.	Moore	March 2009	L	1,000,000	110
	New Century Ag.	Westby	Spring 2009	L		110

Source: www.bnsf.com/markets/agricultural/elevator/shuttle/shuttle.html#MT. Verified with elevator operators.

Previous industry surveys and market research completed by MDT indicate that a 60-mile radius is the typical distance within which the facilities attract business from producers (a majority of producers responding to surveys report hauling grain distances of 60 miles or less). Figure 5.8 plots 60-mile radii on each of the existing shuttle facilities. The map shows current locations of the facilities in Montana, including three recent facilities in Carter, Moore, and Westby.

Figure 5.8 Montana Grain Loading Facilities



5.4 IMPLICATIONS OF GRAIN SHUTTLE FACILITIES

The increasing prevalence of larger grain elevators represents a substantial shift in transportation demand for the regional economy of eastern Montana. Producers must typically travel further to reach shuttle facilities, and they tend to use larger trucks to do so. As a result, roads and highways are expected to have accelerated maintenance needs; and roadways also must plan to accommodate access and turning movements by larger trucks. Grain shuttle facilities affect independent grain elevator operators. Short-line railroad operators in the region also may be affected. Potentially negative effects to producers, independent elevators, and short-lines are somewhat balanced by positive impacts for rail and elevator operators, benefits that may move downstream to producers in the form of better prices and services, better market access and greater regional competitiveness.

Haul Distance

The Montana Wheat Barley Committee studied grain shipping trends and summarized the findings in the *Montana Rail Grain Transportation Survey 2007*.[65] That survey indicates that grain elevator markets are developing into larger, more concentrated shuttle operations. As a result, the study argues, transportation costs are shifting from railroads to farm producers in the form of higher transportation costs to producers, and higher costs to governments to maintain roadway networks. The study includes these further findings:

- Compared to 10 and 20 years ago, producers report they are hauling their grain further distances from farm to rail, primarily over state and county highway systems.
- In 2007, about 21 percent of producers reported hauling less than 20 miles to rail service, compared to about 73 percent in 1997. Respondents in some counties indicated average hauling distances of 80 to 120 miles.
- Ninety-two percent of Montana producers have the capability to store all or most of the grain they produce. This shift was begun by some government incentive programs, remains because of a less seasonal market for wheat, and also remains as a means of hedging against rail car shortages or elevator pluggings. During elevator pluggings, many producers wait for rail car shortages to abate; those that hauled to more distant elevators reported unloading delays.
- The study concludes that the increasing dominance of shuttle loading facilities have increased costs to producers. Railroads appear to be reaping the financial benefits of these and other efficiency improvements.

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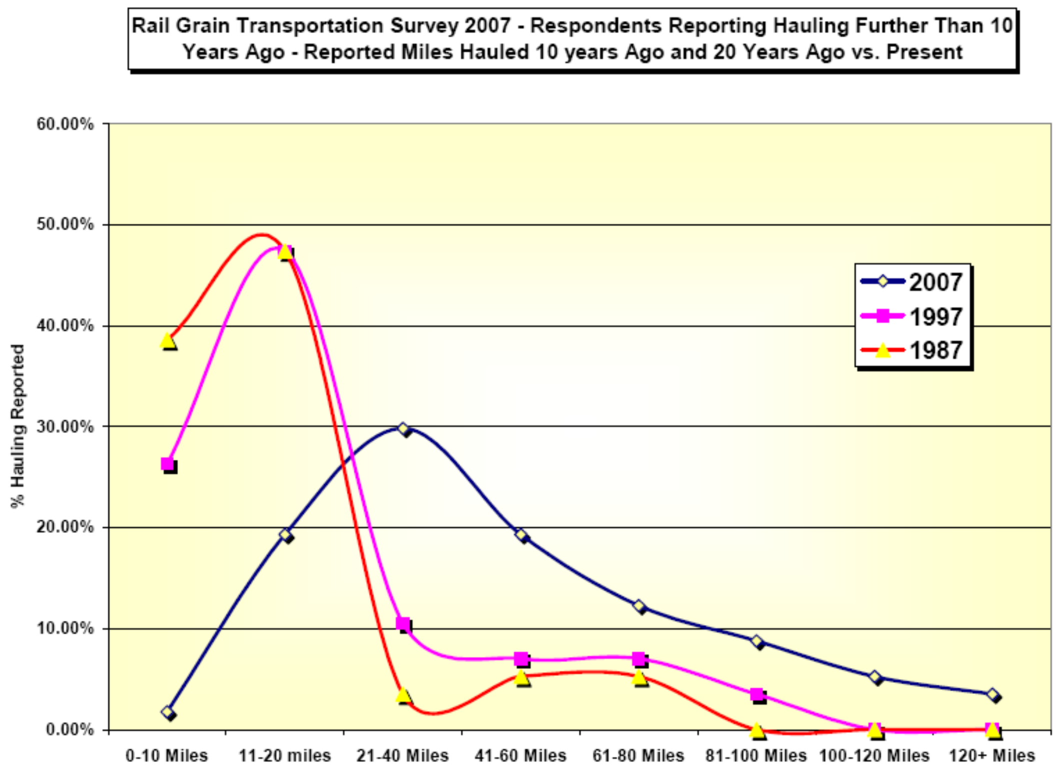
[65] *Montana Rail Grain Transportation Survey and Report 2007*, Prepared for the Montana Wheat and Barley Committee in Cooperation with the Montana Department of Transportation, Whiteside and Associates, November 2008.

The 2007 survey also illustrates how length of haul to rail service has increased in the advent of shuttle loading facilities. Figure 5.9 shows these trends.

Figure 5.9 Rail Grain Transportation Survey Respondents Reporting Lengths of Haul
1987 to 2007

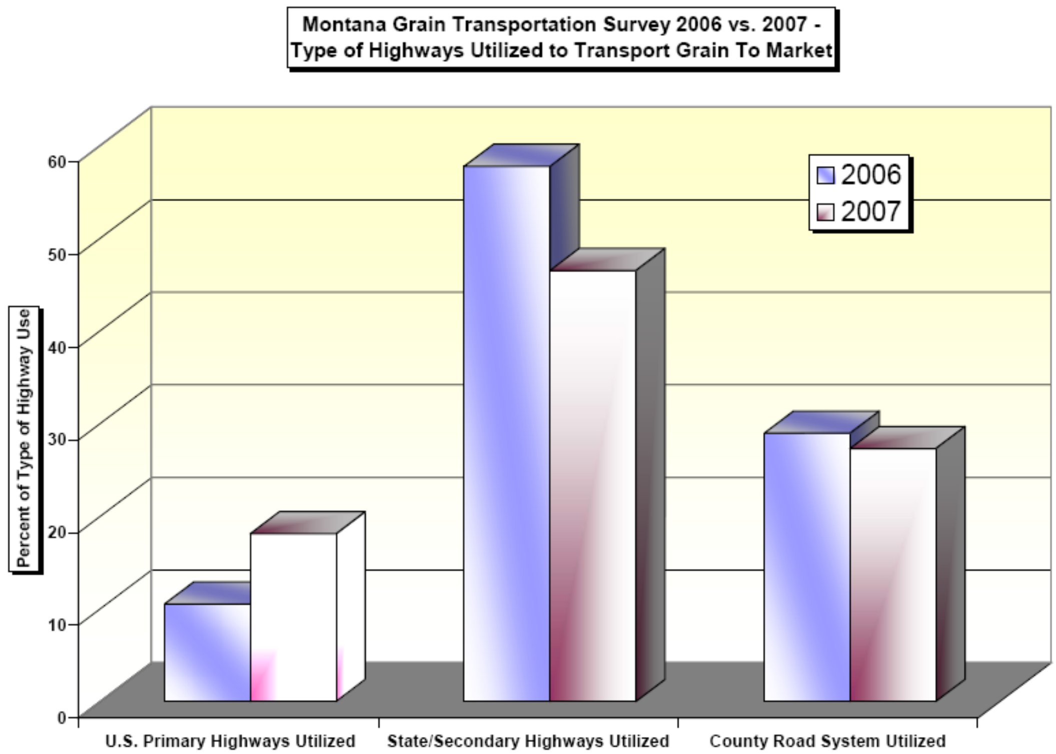


Source: 2007 Rail Grain Transportation Survey, page 25.

Seventy percent of respondents reported they now haul grain longer distances than they did 10 years ago (before the advent of the shuttle loading facilities). According to these survey results, average lengths of haul were 41.60 miles in 2007, up 84 percent from the 1997 average haul of 22.84 miles.

The 2007 Rail Grain Transportation Survey also reports that the majority of these grain hauling moves are occurring on state secondary roads and country roads. Figure 5.10 shows results from the 2007 survey, which indicate some trends toward more use of primary state highways, but still a clear majority of movements on lower classification roads.

Figure 5.10 Type of Roadways Used to Transport Grain to Elevators
2006 to 2007 Survey Results



Source: 2007 Rail Grain Transportation Survey, page 29.

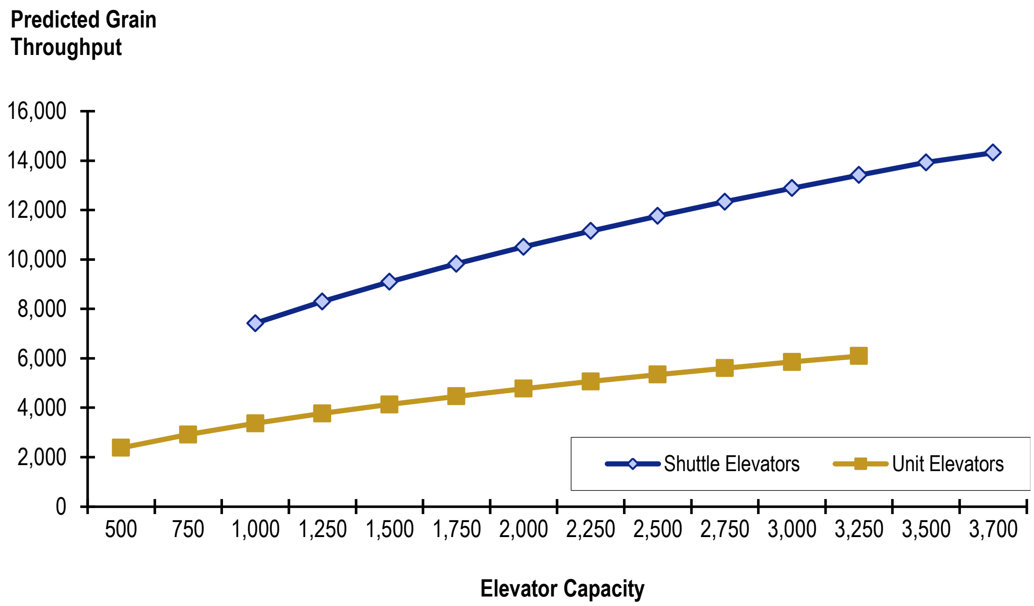
Trip Generation

The Upper Great Plains Transportation Institute estimated trip generation rates of large grain elevators in a 2006 North Dakota case study that established methods for traffic impact estimation.[66] The study compared data from shuttle facilities (i.e., those with rail car capacities of 110 or more cars) and smaller "unit" facilities (with 50 to 100 rail car capacities).

[66] Upper Great Plains Transportation Institute, *Trip Generation Rates for Large Elevators: A North Dakota Case Study*, Journal of the Transportation Research Board, No. 1966, Washington, D.C., 2006, pp. 88-95, or at trb.metapress.com/content/fm867m41682qn420/fulltext.pdf.

In general, the study notes that both grain throughput and truck traffic generated by these facilities varies with grain storage capacity, with more storage capacity predicting more transportation impacts. Notably, the study finds that shuttle facilities have nearly double (1.97 times) the grain throughput with comparable storage (Figure 5.11). This is explained by the larger facilities being able to move grain more efficiently onto large unit trains that cycle between the elevator and destination (typically port) facilities.

Figure 5.11 Estimated Average Throughput of Large Grain Elevators
By Grain Storage Capacity (1,000 Bushels)



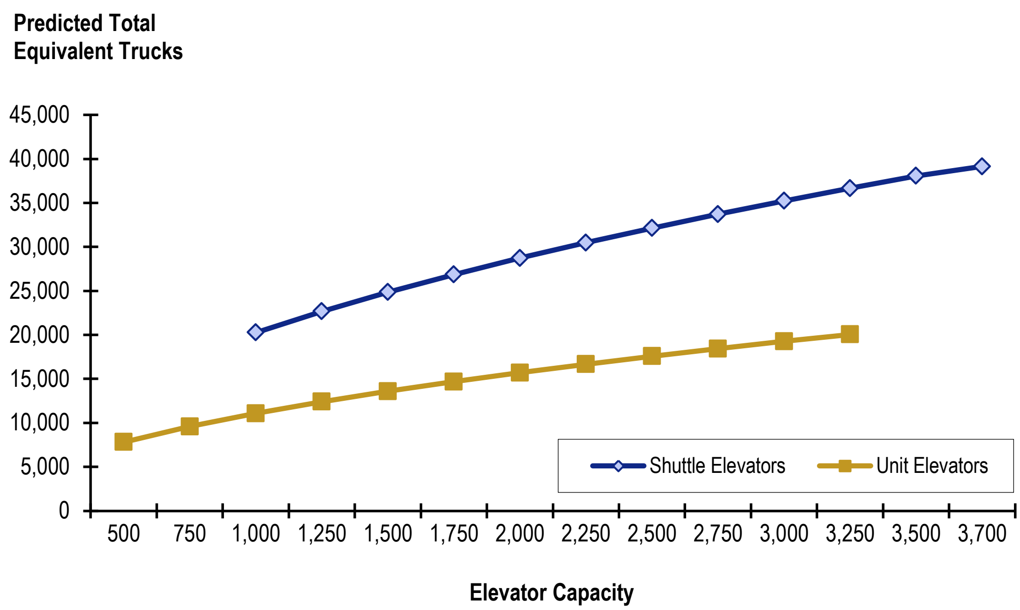
Source: *Trip Generation Rates for Large Elevators: A North Dakota Case Study* (2006).

The impacts on roads are more than double (about 2.20 times) the traffic load impact, as measured by "equivalent single-axle loads," or ESALs (Figure 5.12). (ESAL calculations are used to establish a pavement damage relationship for axles carrying different loads; one ESAL is an 18,000-pound single-axle with dual tires.) The larger impact is explained by the higher throughput plus more frequent use of larger, heavier trucks to deliver grain to the elevator. The research notes that the implications for highway system planning include predictable need for large truck access and for pavement design.[67]

[67] To attempt to gauge whether empirical evidence from Montana was available to support the suspected trends, samples of both Automatic Traffic Recorder (ATR) and Weigh-in-Motion (WIM) data were collected from select locations near elevator facilities along U.S. Highway 2 in the northern portion of the state. Ideally, truck traffic volume increases could be correlated with both shuttle facility operational dates and

Footnote continued

Figure 5.12 Predicted ESALs for Shuttle and Unit-Sized Grain Elevators
By Grain Storage Capacity (1,000 Bushels)



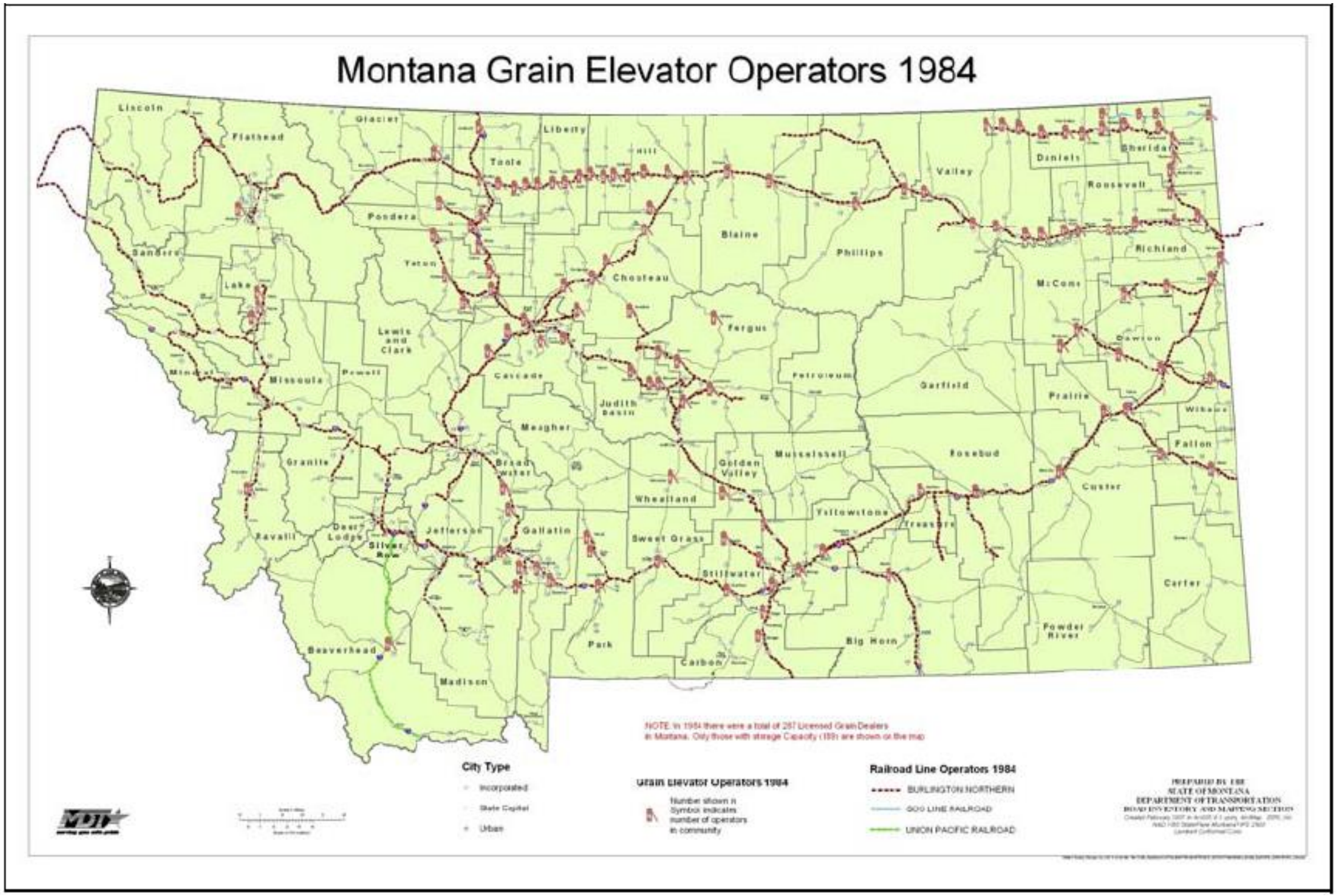
Source: *Trip Generation Rates for Large Elevators: A North Dakota Case Study* (2006).

Shuttle Loading Facility Effects on Grain Elevator Numbers

The 2007 Survey reports that Montana had 189 grain elevators in 1984, and 121 elevators by 2006. Figures 5.13 and 5.14 show the distribution of grain elevators in the State in 1984 and 2006, respectively.

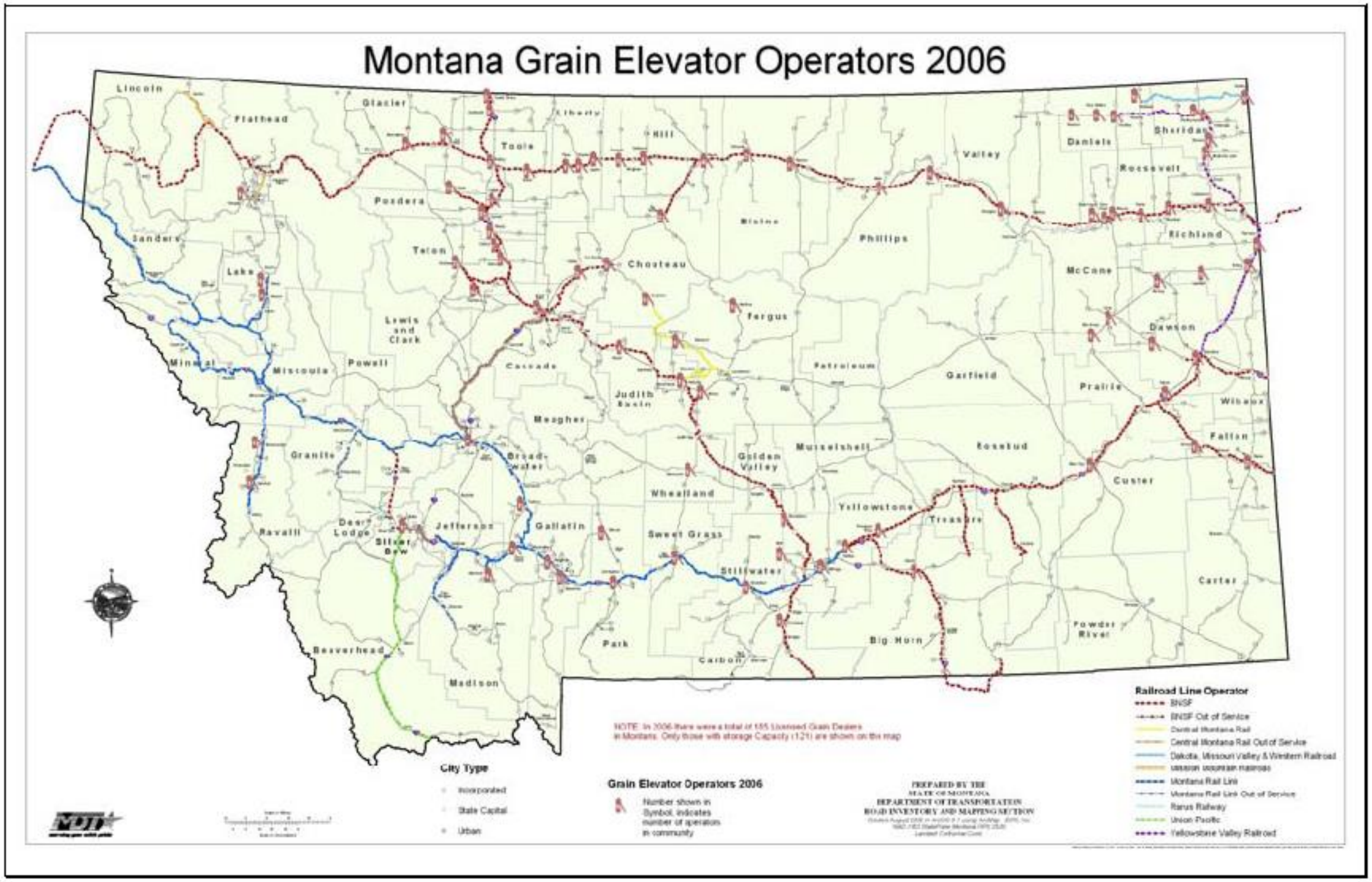
even seasonal grain harvests. While ATR reveal spikes in truck traffic along select rural highway segments, it is difficult to substantiate that it is due to grain truck traffic increases. For a slightly finer grain of detail, but with fewer sites available, WIM data was observed to identify bidirectional average monthly vehicle weights as classified by the 13 category FHWA system. This data proved to be inconclusive as well. One location, near Carter, revealed highly unbalanced eastbound and westbound traffic weights, favoring westbound traffic, though it is unclear whether westbound truck traffic was destined for grain facilities or freight terminals in Great Falls. A more detailed study of state and county roads near shuttle loading facilities, involving truck counts over time, would permit the Montana Department of Transportation to more clearly identify the implications of these longer grain hauls on state and county roads.

Figure 5.13 Montana Grain Elevator Operators
1984



Source: 2007 Rail Grain Transportation Survey, page 8.

Figure 5.14 Montana Grain Elevator Operators
2006



Source: 2007 Rail Grain Transportation Survey, page 9.

The Montana State Attorney General published a report on rail rates and service that also discusses grain shipment issues in detail.[68] The Railroad Rate Report found that Montana grain shippers pay rail rates that are high in relation to railroad costs (as measured by the revenue to variable cost ratio, R/VC[69]), and higher than other states that ship wheat to Pacific Northwest ports. 2007 R/VC ratios for shipments from shuttle facilities (a weighted average R/VC of 275 percent for shipments to Portland terminals and 262 percent for shipments to Vancouver terminals) are slightly higher than ratios for nonshuttle facilities (a weighted average R/VC of 250 percent for shipments to Portland terminals, and 248 percent for shipments to Vancouver terminals).[70] The nonshuttle R/VC measurements reflect higher railroad costs associated with nonshuttle transport and, therefore, do not represent actual rates being charged to nonshuttle shippers.

Both the 2007 Rail Grain Transportation Survey and the 2009 Railroad Rate Report attribute the rise of the shuttle loading facilities to preferential rate treatment by the railroads in order to reduce rail operating costs. In preparing this grain shuttle facility analysis, a number of Montana grain producers and grain producer groups were interviewed. These Montana grain industry experts also pointed out that grain shuttle facility ownership was becoming more consolidated and less often owned and operated by local producer-owned cooperatives. Table 5.2 lists the operators of these shuttle facilities, all of which also operate grain export terminal facilities in the Pacific Northwest ports. This means that these grain shuttle facilities enable grain export companies to integrate grain collection closer to the producer, controlling both ends of the rail moves from shuttle loading facilities to export grain elevators. Thus, the shuttle loading facilities help the railroads and grain exporters to gain economies of scale.

The 2007 Rail Grain Transportation Survey also reported that measures of rail transport service were marginally improving. Sixty-five percent of respondents reported that they experienced elevator plugging at some point during the 2007 harvest, down from 78 percent experiencing elevator plugging during 2006. Fifty percent of respondents reported that they experienced multiple pluggings during the 2007 harvest, down from 54 percent in the 2006 harvest. Sixty-seven percent of grain producers responding in the 2007 survey express the judgment that the elevator pluggings are a result of a shortage of rail cars. The report also discusses how the plugging phenomenon also could reflect shortcomings in how

[68] *Railroad Rates and Services Provided to Montana Shippers: A Report Prepared for the State of Montana*, State Attorney General's Office, prepared by John Cutler, Andrew Goldstein, G.W. Fauth III, Thomas Crowley, and Terry Whiteside, February 2009.

[69] Section 7.0 of this Rail Plan Update discusses this measure in more detail in the discussion of rail competition issues at the state and national level.

[70] R/VC calculations taken from Figure 8, page 11 and Figure 10, page 12 of the 2009 Railroad Rate Report.

elevator operators request rail cars. The report notes that railroads are expanding their communication and market intelligence gathering activities so that they can anticipate harvest-related rail car needs. The report concludes that resolution of the problems will require improved coordination between elevator operators and railroads.

5.5 CONCLUSIONS

The expansion of grain shuttle loading facilities seems to be a market function of railroads seeking to reduce operating costs and expand utilization of rail cars and of grain exporting companies to extend their reach closer to grain producers. For some grain producers in closer proximity to these shuttle loading facilities, this change offers lower rail transportation costs and higher rail car availability. These benefits are not experienced by all grain producers, however. Some producers must haul their products longer distances and have fewer competitive elevator options. Farm trucks are thus traveling longer distances on secondary state and county roads, with effects on pavement quality and maintenance costs. Market forces that reduce the number of nonshuttle elevators also may reduce the ability of grain producers to have transportation options for their alternative crops grown for crop rotation or to respond to consumer trends.

6.0 Public Rail Funding Programs

In the 1970s, rail planning became a requirement of states wishing to participate in Local Rail Service Assistance, a Federal rail financing program. In 1989, the Federal Railroad Administration (FRA) updated the program and renamed it the Local Railroad Financing Assistance (LRFA) program. Federal contributions of funds to the program stopped in 1995, and states continued to make grants and loans for rail-related projects under Federal oversight. Under these programs, between 1979 and 2008, Montana made a total of $11,112,682 in grants and loans for rail improvements.

In 2005, the Montana Essential Freight Rail Act established in state law guidelines for a rail loan program, the Montana Rail Freight Loan Program. The Act effectively restricted the use of LRFA funds to lending. Although the program enables bonding and includes statutory authority of up to $2 million annually, no state funds have been budgeted for the program to date.

The Federal Rail Safety Improvement Act of 2008 (§701) essentially revised USC 49 §22106 to end FRA's programmatic oversight. Remaining LRFA funds were turned over to the states, with the stipulation that the funds must continue to be used to grant or lend money to the owners of rail property, or rail carriers providing rail transportation, related to a project being assisted. At this time, MDT manages a fund of approximately $1.26 million, which is available for qualifying projects.

Various other Federal programs provide financial support for rail improvements. Federal support to states go to safety improvements for road-rail crossings through the Highway Safety Improvement Program (HSIP), which became a core Federal-aid funding program with the passage in 2005 of the Federal transportation reauthorization bill, SAFETEA-LU. Also, various Federal programs provide direct financing for rail improvements; among these, it appears that the Rail Rehabilitation and Improvement Financing program is the best potential match for Montana rail carriers and shippers.

6.1 Montana Rail Freight Loan Program

The Montana Rail Freight Loan Program (MRFL) is a revolving loan fund administered by the Montana Department of Transportation to encourage projects for construction, reconstruction, or rehabilitation of railroads and related facilities in the State. This program implements Montana Code Annotated §60-11-113 to 115. As of early 2009, the fund had a balance of about $1.26 million. Excepting interest on the account, no additions have been made to the fund since the $1,092,526 repayment of a LRFA loan by the Port of Montana in 2005.

Eligible applicants for loans under the program include railroads, cities, counties, companies, and regional rail authorities. Port authorities may also qualify, provided they have been included in the state transportation planning process. Projects must be integrally related to the railroad transportation system in the State and demonstrate that they will preserve and enhance cost-effective rail service to Montana communities and businesses. Loans are targeted to rehabilitation and improvement of railroads and their attendant facilities, including sidings, yards, buildings, and intermodal facilities. Rehabilitation and improvement assistance projects require a 30 percent loan-to-value match. Facility construction assistance projects require a 50 percent match. Inquiries may be made at any time to the MDT multimodal planning bureau chief.

Table 6.1 shows the projects that have been funded through the MRFL.

Table 6.1 Historic Montana Rail Freight Loan Awards

Recipient	Year	Location of Project	Federal Funds	Type
Burlington Northern (BN)	1985	Moore-Sipple	$238,095	Grant
	1979-1982	Conrad-Valier	$1,440,967	Loan (5.5% interest)
	1980-1982	Choteau-Fairfield-Power	$2,258,600	Loan (no interest)
Rarus Railway (RARW)	1988	Rarus Siding	$23,039	Grant
Port of Montana	1983-1984	Silver Bow Grain Terminal	$1,741,999	Loan (no interest)
Montana Rail Link (MRL)	1991	Polson-Dixon	$500,000	Grant (repaid loan funds)
Central Montana Rail (CMR)	1984, 1985	Spring Creek-Geraldine	$4,427,165	Grant (repaid loan funds)
	1986	Spring Creek-Moccasin		
	1988	Spring Creek Wye		
DMVW Railroad (Under Contract)	1999	Whitetail Line	$482,817	Grant (repaid loan funds)
Total Grants/Loans			**$11,112,682**	

Source: Montana Department of Transportation.

Note: Repaid Loan Funds are revolving funds from the Federal LRFA program.

6.2 2008 Federal Railroad Legislation

In October 2008, Congress enacted legislation, the Rail Safety Improvement Act of 2008 and the Passenger Rail Investment and Improvement Act of 2008. Section 4.0 of this Plan discusses the passenger rail-related provisions and funding programs in some detail. The Rail Safety Improvement Act reestablishes the legal authority for FRA safety programs, and outlines new requirements for safety regulations covering positive train control, hours of service, rail employee certification, tunnel and bridge safety record keeping, and highway rail grade crossing safety. The safety provisions do not authorize the scale of Federal investments included in PRIIA, but there are two grant programs authorized which may provide opportunities for Montana.

First, $50 million is authorized annually for a grant program to assist in the mandatory implementation of positive train control technologies. State governments are eligible grant recipients, and could cooperate with railroads in Montana to seek funding to advance the implementation of these new technologies on routes in Montana that support passenger rail service or hazardous materials transportation (poison by inhalation chemicals).

The legislation also creates a new grant program for highway rail grade crossing protection. $1.5 million is authorized annually for a new grant program to a maximum of three states per year for two purposes:

1. Grants to three states a year for targeted enforcement and education programs to decrease grade crossing accidents; and
2. Grants of up to $250,000 to states for crossing protection improvements.

Preference will be given grant applications for protection of crossings involving fatalities or multiple serious injuries.

The legislation did not create any other funding programs for freight railroad capacity expansion, as that issue continues to be affected by consideration of some of the competitive issues addressed in Section 7.0 of this report.

6.3 Highway Safety Improvement Program – Railway-Highway Crossings – SAFETEA-LU Section 1401

Section 1401 of the 2005 SAFETEA-LU (Public Law 109-59), established the Highway Safety Improvement Program (HSIP) as a core Federal-aid funding program. The purpose of the program is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads. As part of the HSIP, SAFETEA-LU established an annual set aside of $220 million for improvements at public railway-highway crossings. Half of these funds are apportioned to the states by formula and the other half is apportioned to the states in the ratio that total public railway-highway crossings in each state bear to the total of such crossings in all states. Each state receives a minimum of one-half of 1 percent of the $220 million crossings fund.

The Montana Department of Transportation manages this program through the Traffic and Safety Bureau – Rail Highway Safety Program and projects are identified by staff through a priority index process and are included in the Montana State Transportation Improvement Plan (STIP) for implementation. Inquiries should be directed to that bureau.

6.4 Rail Rehabilitation and Improvement Financing – SAFETEA-LU Section 9003

The Rail Rehabilitation and Improvement Financing (RRIF) program implements SAFETEA-LU Section 9003 to provide loans and credit assistance to both public and private sponsors of rail and intermodal projects. Eligible projects include acquisition, development, improvement, or rehabilitation of intermodal or rail equipment and facilities. Direct loans can fund up to 100 percent of a railroad project with repayment terms of up to 25 years and interest rates equal to the cost of borrowing to the government. SAFETEA-LU authorizes $35 billion for this credit program, of which $7 billion is directed to short-line and regional railroads. SAFETEA-LU also eliminated conditions that hampered its effectiveness, including collateral requirements and lender of last resort provisions of the program. The funding may be used to:

- Acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, components of track, bridges, yards, buildings, and shops;
- Refinance outstanding debt incurred for the purposes listed above; and
- Develop or establish new intermodal or railroad facilities.

Some states provide assistance to RRIF applicants, ranging from technical assistance in application preparation to financial assistance in sharing the cost of application fees (application review fees, credit risk premium payments).

Inquiries about the RRIF program should be directed to the Federal Railroad Administration.

6.5 Other Federal Financing Programs

Other programs targeting freight rail and intermodal improvements are administered by the Federal Railroad Administration but do not appear to be effectively targeted for rail or scaled for use in Montana. Among these programs:

Transportation Innovation and Finance (TIFIA) of the U.S. Department of Transportation makes credit assistance available via secured (direct) loans, loan guarantees, and standby lines of credit for surface transportation projects of national or regional significance. The TIFIA credit program's fundamental goal is to leverage Federal funds by attracting substantial private and other non-Federal investment in improvements critical to the nation's surface transportation system. Some freight rail projects may be eligible for the TIFIA program. Further information is available from the TIFIA program office in the Federal Highway Administration (FHWA). U.S. DOT has noted that states find TIFIA programs less useful if they do not have many large urban areas, significant congestion problems, or significant need to accelerate projects.

Federal Appropriation and Authorization Earmarks. Members of Congress have included language in annual appropriations bills and in program authorization legislation to direct particular funding to specific projects, a process sometimes referred to as earmarking. Although previous appropriation bills for the U.S. DOT contained earmarks, the Transportation and Related Agencies Appropriation Act for FFY 2002 (Public Law 107-87, December 18, 2001) was the first DOT appropriation to include funding for Section 330 projects. One hundred forty-four million dollars was appropriated, and the Conference Report accompanying the appropriation identified 55 multimodal projects. FRA administered six projects valued at $11.75 million. In FY 2003 $671 million was appropriated and the accompanying Conference Report identified 353 Section 330 Projects. As of October 2008, FRA was managing eight projects valued at $24 million.

New procedures for including project-specific directions in the next surface transportation authorization, known as High-Priority Projects (HPP), include:

- HPP projects must meet all eligibility requirements of Federal highway and transit laws;
- HPP requests must include information on the location, type, total cost, benefits of the project and the percentage of total project cost the HPP request would finance, and information on the requests would be posted on the web sites of individual members;
- HPP projects must have written demonstrations of support from the state department of transportation or affected local governments, and the state or local governments must further provide for public comment on the HPP requests; and
- Members of Congress must certify that neither the member or spouse have any financial interests in the projects.

Freight Financing Guidance. The U.S. DOT publication, *Financing Freight Improvements* (January 2007) provides a more detailed overview of Federal and state programs for railroad and other transportation financing.

7.0 Montana Rail Issues

7.1 Montana Rail Competition

Most studies of national rail competition focus on the effects of the Staggers Rail Act of 1980 as the cause of industry consolidation and diminished services, but Montana felt the effects of consolidation a decade earlier.

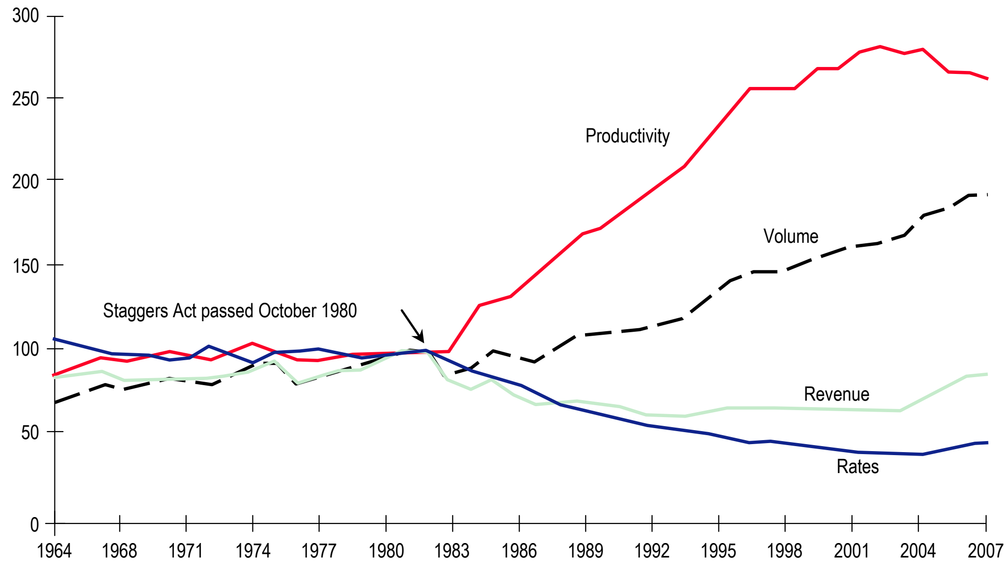
The 1970 merger creating the Burlington Northern Railroad reduced the number of Class I railroads in Montana from six to four. In 1977, the bankruptcy of the Chicago, Milwaukee, St. Paul, and Pacific Railroad (the Milwaukee Road) further diminished competition and the number of active rail lines. The State of Montana, at the time, lacked the financial resources to acquire or rail-bank any of the Milwaukee Road line, an east-west route that is no longer intact.

When the Staggers Act was passed, Montana already was dominated by one carrier, and the creation of the Montana Rail Link in 1987 to operate the southern BNSF railroad west of Huntley, Montana did little to improve Interstate competition for Montana rail shippers.

The post-Staggers environment may have brought Montana some of the same benefits enjoyed by shippers in other areas of the country. National data suggests general improvement in railroad performance and service, including increased productivity, growth of freight volumes, and lower rates (Figure 7.1).

Montana shippers have limited competitive options when they experience problems with rail rates, car availability, or services. Several studies lend support for these concerns, particularly affecting heavy, low-value cargo like grain, coal, and wood products that account for the bulk of freight generated in the State. Montana shippers and elected officials have worked to identify avenues of relief from limited rail competition.

Figure 7.1 U.S. Freight Rail Performance Post-Staggers Rail Act
1981=100



Source: AAR, *Why the Rail Re-Regulation Debate Is Important*, May 2008, page 2, 2007 data is preliminary.

State Rail Competition Efforts

The Montana Legislature enacted Senate Bill 315 in 2003, directing the Governor's Office of Economic Development to conduct a study to assess conditions affecting rail competition in Montana, and analyze possibilities to improve rail freight competition. The 2004 report, *Rail Freight Competition Study as Provided by Montana Senate Bill 315*, offers a thorough discussion of competition issues facing the State. The study found that limited rail competition is only one of a series of factors that foster the dual problems of high rates and limited service. Other factors include:

- Montana's relatively small transportation market;
- Geographic position, and distance from the more robust markets on the West Coast and in the Midwest;
- Staggers Rail Act emphasis on financial health of the railroads, and interpretation of that law by the Interstate Commerce Commission (ICC) and its successor entity, the Surface Transportation Board (STB); and
- Limited transportation options in Montana other than rail (distance to waterway transportation via barge, and long trucking distances).[71]

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[71] Rail Freight Competition Study as provided by Montana Senate Bill 315, R.L. Banks & Associates, October 29, 2004, page ES-2.

The report's recommendations focus on cooperative advocacy measures to expand competition and alter the rules under which the STB conducts its business. The report found that rates for Montana wheat being shipped to Pacific Northwest ports were 50 percent higher than rates in states with competitive alternatives, costing Montana $60 million a year, and devaluing Montana wheat land by $1 billion.[72] The report found that coal, the largest volume commodity moving by rail out of Montana, was moving at rates nearly equal to or competitive with coal producers in other states.

Based on the report's recommendations, in 2005, the Montana Legislature created the Rail Service Competition Council and charged it to:[73]

- Promote rail service competition in the State that results in reliable and adequate service at reasonable rates.
- Develop a comprehensive and coordinated plan to increase rail service competition in the State.
- Reevaluate the State's railroad taxation practices to ensure reasonable competition while minimizing any transfer of tax burden. The reevaluation of the State's railroad taxation practices should include, but is not limited to, a reevaluation of property taxes, taxes that minimize highway damage, special fuel taxes, and corporate tax rates.
- Develop various means to assist Montanans impacted by high rates and poor rail service.
- Analyze the feasibility of developing legal structures to facilitate growth of producer transportation investment cooperatives and rural transportation infrastructure authorities.
- Provide advice and recommendations to the department of transportation.
- Coordinate efforts and develop cooperative partnerships with other states and Federal agencies to promote rail service competition.
- Act as the State's liaison in working with Class I railroads to promote rail service competition.
- Promote the expansion of existing rail lines and the construction of new rail lines in the State.

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[72] 2004 Rail Competition Study, page ES-4.

[73] MCA §2-15-2511 (House Bill 769, Montana Legislature).

Membership of the council was also defined in statute to include:

- Four state agency representatives (directors of the Departments of Agriculture, Revenue, and Transportation, and Chief Business Officer of Office of Economic Development).
- Seven members appointed by the Governor, each with a special qualification (expertise in Class I rail, Class II rail, trucking industry, mineral industry, coal industry, timber industry, and a farm commodity producer with knowledge of farm commodity transport).
- Two members from the legislative Economic Affairs Interim Committee chosen by the presiding officer of the committee (representing majority and minority parties, one from each house).

The Council formed subcommittees, met regularly, and reported to the Montana Legislature.[74] The Council paid particular attention to increasing intermodal movements in Montana for smaller shippers, and increasing competitive options for grain, coal, and wood products shippers.

Based on the initial findings of the Council in 2007, the Montana Legislature appropriated funding to the State Attorney General's Office to further examine rail competition issues for Montana shippers, particularly grain shippers. That report was published by the State Attorney General in February 2009 (referred to here as the Railroad Rate Report).[75]

The 2009 Railroad Rate Report finds that:

- **Montana grain shippers are charged exceptionally high rates –** Rate reasonableness is often gauged by a ratio of the railroad's revenues for a movement (based on rail rates) divided by the variable cost of the movement, referred to as R/VC. Using 2006 STB data, the report determines that R/VC ratio for average rates for Montana wheat shipments, shuttle and nonshuttle, was 253 percent, well in excess of the generally applied 180 percent R/VC measure for rate reasonableness. Montana wheat shipments have higher R/VC ratios than other wheat producing states.
- **Montana shippers pay excessive fuel surcharges –** The report estimates that fuel surcharges being passed on to Montana shippers exceed the actual costs of fuel, and that total revenues for fuel (fuel costs included in the base rate, and fuel surcharges) exceed actual fuel costs by 52 percent.

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[74] The 2009 Legislature did not provide funds for Council activities, but the body may continue to function as a volunteer organization.

[75] Railroad Rates and Services Provided to Montana Shippers: A Report Prepared for the State of Montana, State Attorney General's Office, prepared by John Cutler, Andrew Goldstein, G.W. Fauth III, Thomas Crowley, and Terry Whiteside, February 2009. The report also is discussed in Section 5.0 of this report relating to grain shuttle facilities.

- **Montana shippers receive inadequate services –** Despite high rates, the report finds that service levels are not satisfactory, based on fewer grain elevators remaining in business, resulting in longer hauls from producers. The report also finds that car availability and timing of shipments have not improved for grain shippers.

BNSF took issue with the 2009 Railroad Rate Report through a February 2009 press release, disagreeing with the 2006 data used for the R/VC analysis, representing that nonshuttle movements of wheat remain the majority of grain shipments, and that grain shipment service levels have improved since 2005.

Prior to the issuance of the 2009 report, BNSF reached an agreement with the Montana Grain Growers Association and the Montana Farm Bureau, granting producers the ability to seek arbitration of rate disputes through these organizations to the BNSF. Producers may pay the costs of freight movements, but are not direct customers of the railroads and, therefore, are unable to bring cost disputes before the STB. This agreement sets up a process for arbitrating certain rate disputes.

The 2009 Railroad Rate Report takes issue with the arbitration agreement on a number of fronts, finding that the arbitration does not extend to grain elevators or direct shippers of grain that the arbitration methodology is inferior to that offered Canadian grain shippers, or that sought in Federal rail competition legislation (discussed below).

The remainder of this section will discuss some of these competition issues.

Federal Competition Relief Issues

A 2006 report by the Federal Government Accountability Office[76] discussed the overall levels of rail competition. The report has been cited by both shippers and railroads as demonstrating support for their views about rail competition. The report offers a good explanation of some of the rate relief measures that shippers with limited competition ("captive shippers") are seeking, beyond any general reassessment of rate reasonableness by the STB.

All these measures affect the extent to which railroads can practice differential pricing, a pricing strategy by which railroads may charge shippers different rates for similar shipments. Railroads engage in this practice because they have such large fixed capital costs, meaning that their average costs will always exceed marginal costs – in other words, the cost to maintain the rail network divided among all traffic will be higher than the incremental cost of transporting an individual load over that network.

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[76] Freight Railroads: Industry Health Has Improved, but Concerns about Competition and Capacity Should Be Addressed, Government Accountability Office Report GAO-07-94, October 2006, pages 44-51.

Differential pricing also reflects modal competition. In certain markets, shippers may have competitive options with another railroad, or with another mode like barges or trucks. In those markets, railroads may set rail rates closer to marginal cost rates in order to attract shippers' business. Because the railroad needs to recover the fixed costs of their network, the railroad may set rates higher for other shippers with fewer options. Differential pricing also means that a large company shipping identical commodities in identical rail cars over nearly equivalent distances in different parts of the country over the same railroad may pay entirely different rates.

The balancing act for railroads, shippers, and policy-makers is in the difference between rates that are "reasonable" and rates that are "fair." Rate fairness would give shippers similar rates for similar shipments, while rate reasonableness could allow railroads to set rates by considering fixed network costs and competitive options available to shippers, subject to some upper limit on how much the rate exceeds marginal costs. Public policy that seeks rail rate fairness may affect a railroad's revenue adequacy, the extent to which the aggregate revenues from shipment rates provide a railroad with sufficient resources to make investments to keep its network functioning at an adequate level. The reasonable market behavior of a single shipper or classes of shippers to seek remedies to rising logistics costs could prove to be self-defeating if lower rail revenues lead to less spending on track or equipment, which could cause locomotive velocity to decrease, add more slow orders on track, all of which would reduce customer service levels.

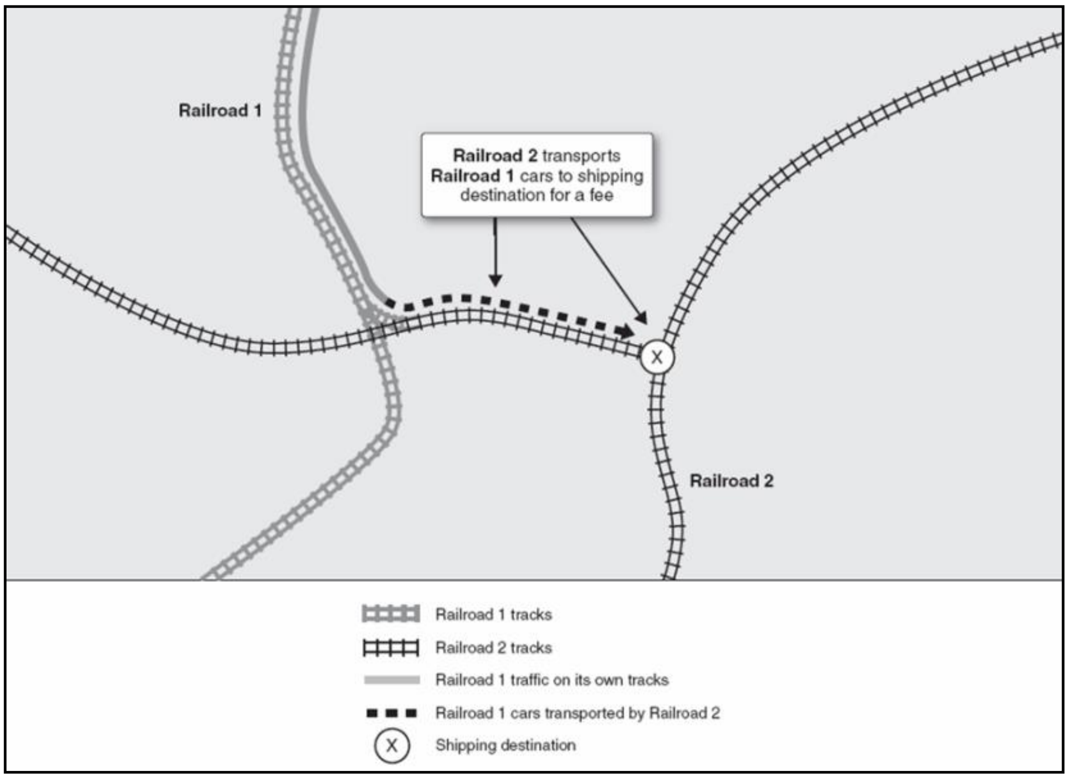
In the short term, shippers are less sanguine about rising rail rates. A 2007 study by the American Association of Railroads, *National Rail Freight Infrastructure Capacity and Investment Study*,[77] reported that logistics costs as a percent of total gross domestic product rose to 9.9 percent in 2006, after steady rates of decline since the 1970s. As shippers are faced with the pressures of rising logistics costs across all modes, they are less likely to continue to accept the idiosyncratic pricing practices of railroads or pay increased surcharges for fuel costs or for infrastructure congestion. For this reason, coalitions of agricultural, coal, and chemical shippers are joining together to seek improvements in pricing practices that would expand the competitive options available for captive shippers.

Here are some of the pricing/service quality/rate-setting practices that might affect rates or service for captive shippers identified by the GAO report.

[77] *National Rail Freight Infrastructure Capacity and Investment Study*, September 2007, prepared for Association of American Railroads (AAR) by Cambridge Systematics, Inc.

Reciprocal Switching. A shipper may be located on a single railroad, but that railroad interchanges with another railroad nearby. Reciprocal switching would allow the STB to require railroads to accept a customer's shipments from another railroad for a fee. Railroads currently have made these kinds of arrangements for certain shipments, but do not support being required to do so. The STB would be required to decide the proximity among railroads eligible for mandatory reciprocal switching, as well as the rates for the movement. Figure 7.2 illustrates this movement.

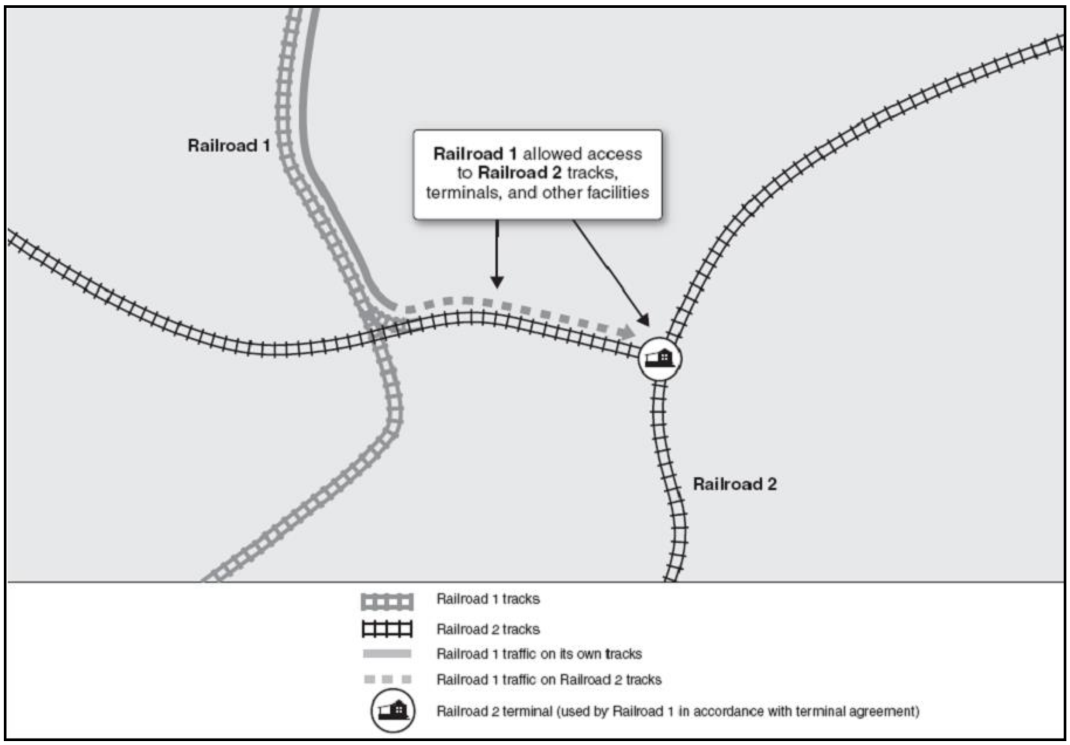
Figure 7.2 Example of Reciprocal Switching



Source: U.S. Government Accountability Office (GAO), GAO-07-94, October 2006.

Terminal Agreements. This would allow the STB to require one railroad to grant access to its tracks or terminal facilities for another railroad to operate over, for a fee, as illustrated in Figure 7.3. It is similar to reciprocal switching, but allows the same railroad to control the movement of cars from its line to the second rail line and through its terminals or yards. The STB currently must find evidence of anticompetitive conduct by another railroad before granting terminal access. This might increase competition among railroads for currently captive shippers.

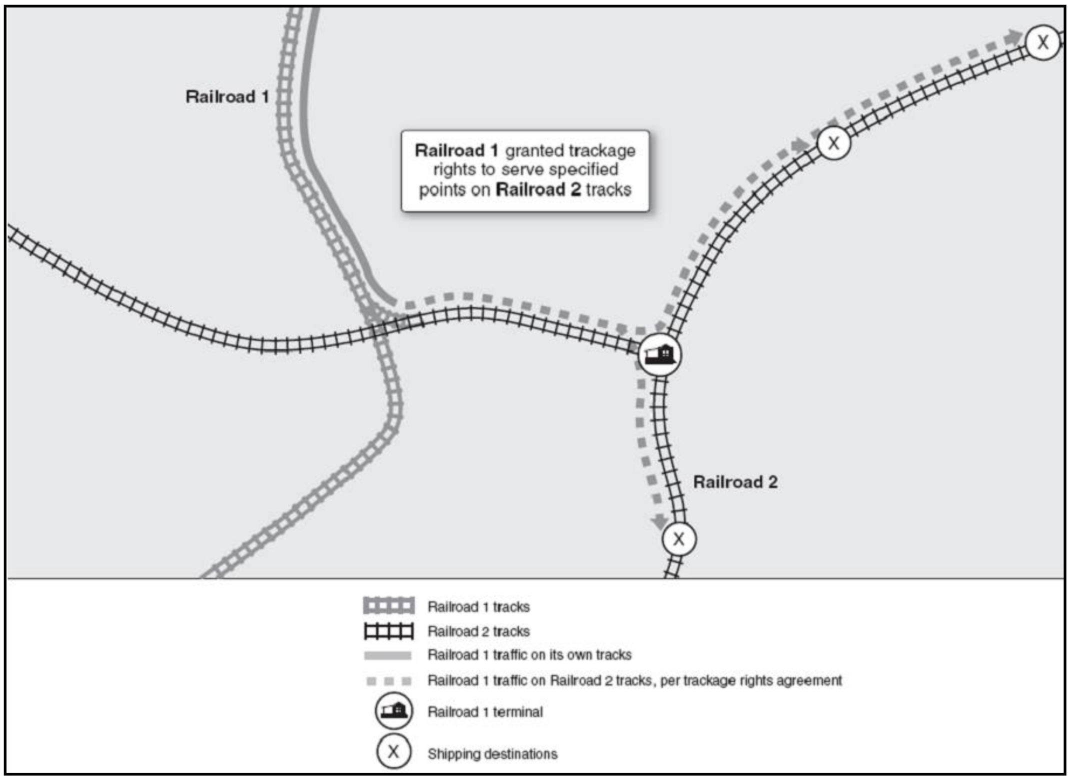
Figure 7.3 Example of Terminal Agreement



Source: U.S. Government Accountability Office (GAO), GAO-07-94, October 2006.

Trackage Rights. This would allow the STB to require one railroad to grant access to its tracks to another railroad beyond terminal facilities for a fee, as illustrated in Figure 7.4. This relief has been mandated in certain merger applications for shippers losing competitive access. Fees would need to be set sufficient for the host railroad to gain sufficient revenue to maintain the line, otherwise conditions might degrade, as would service levels.

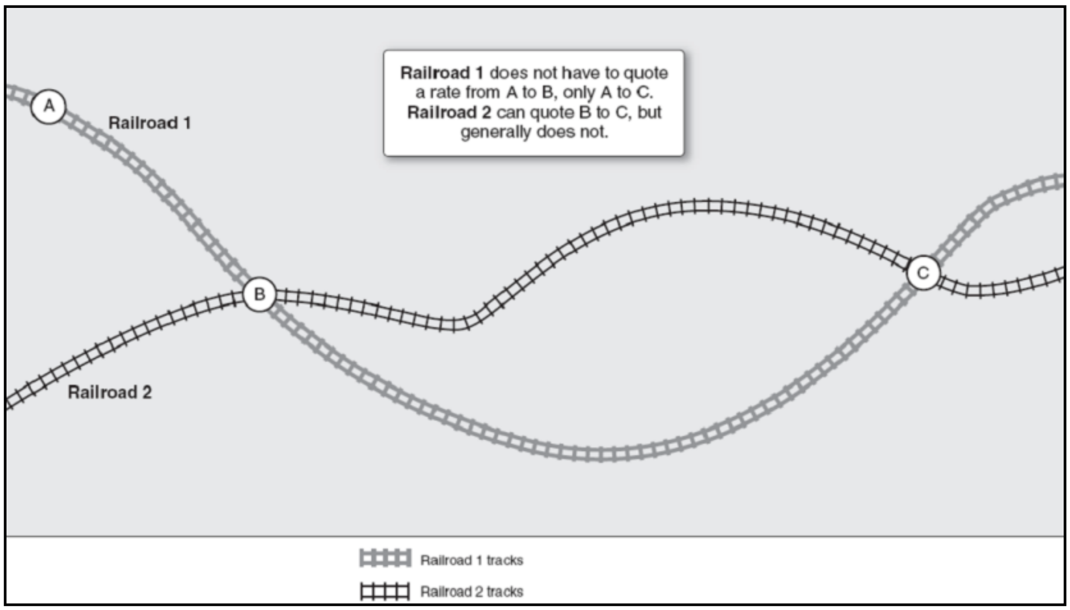
Figure 7.4 Example of Trackage Rights



Source: U.S. Government Accountability Office (GAO), GAO-07-94, October 2006.

Bottleneck Rates. Some shippers may have more than one railroad that serves an origin or destination, but have some portion of the route that is served by only one railroad. The STB ruled in 1996 that railroads were not required to quote rates separately for the bottleneck segment if they also offered service from origin to destination, as illustrated in Figure 7.5. Allowing the STB to require railroads to quote bottleneck rates may not address the question of rate reasonableness, but it could increase competitive options for shippers.

Figure 7.5 Example of Bottleneck Rates

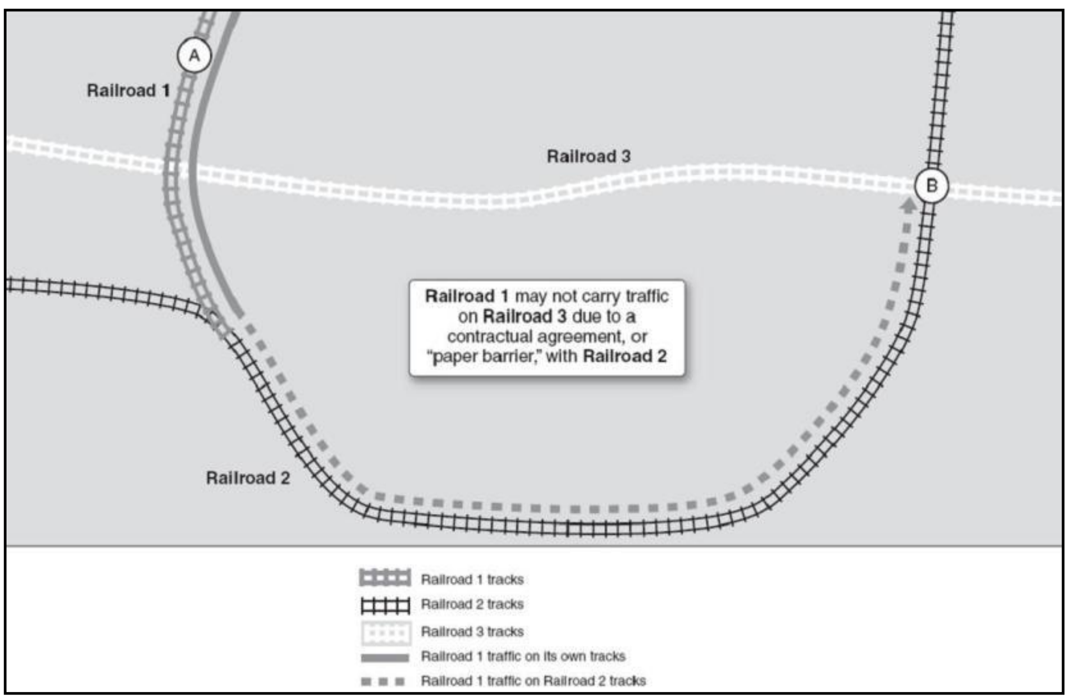


Source: U.S. Government Accountability Office (GAO), GAO-07-94, October 2006.

Interchange Agreements (Paper Barriers). Since deregulation in 1980, railroads have had more flexibility to abandon or sell rail lines, which has resulted in many more short-line and regional railroads being created to offer rail services over these lines, either by purchasing or leasing the former railroad's property. In some cases, the up-front cost of the purchase or lease has been reduced by a contractual agreement between the short-line and Class I railroad that requires almost all traffic generated on the short-line railroad to interchange only with the selling Class I, as illustrated in Figure 7.6.

Interchange agreements can inhibit smaller railroads that connect with or cross two or more Class I rail systems from providing competitive service to rail customers. The extent to which the agreements limit competition is unknown because they are private and confidential contracts. Preventing these kinds of arrangements or offering relief from those executed in the past may offer shippers competitive alternatives. Changing these arrangements also could increase the up-front cost of these sale/lease transactions or reduce provisions for certain levels of bridge traffic. This may affect the number of lines that are abandoned rather than transferred and could affect the financial standing of current short-line owners.

Figure 7.6 Example of Paper Barriers



Source: U.S. Government Accountability Office (GAO), GAO-07-94, October 2006.

The potential changes in the regulation of railroad rate-setting practices described above would more likely benefit shippers of larger quantities of homogenous products. As Class I railroads have increased productivity and rationalized (shrunk) their networks, the remaining system operates most efficiently for larger blocks of carloads over longer distances, rather than smaller numbers of carloads in mixed freight. As a result, smaller shippers can have more difficulty getting competitive rates for access to the Class I network. Thus, some of these measures granting access from one railroad to another would first benefit shippers whose quantities and frequencies of carloads would attract service, or whose origin or destination points are characterized by competitive options.

Since these measures may not necessarily benefit smaller shippers, some shippers are seeking a more fundamental shift than these incremental approaches, they are asking for a renewed commitment to the railroads' "common carrier" obligations, under which any shipper could get service for a reasonable rate.

Congressional Responses to Competition Issues

The U.S. Congress has recently considered two legislative measures to address the concerns about competitive issues described above. The first aims to change the standards and practices under which the STB regulates railroads. The second removes certain antitrust exemptions from railroad rate-setting and merger transactions regulated by the STB.

STB Regulation

This legislation[78] states that its purpose is to set STB directives calling for effective competition among rail carriers, reliable rail transportation service for rail customers, and reasonable processes for challenging rate and service issues. The bill would:

- Address bottleneck rate issues by requiring a rail carrier, upon shipper request, to establish rates for transportation and provide requested service between any two points on the carrier's system. This rate would be established regardless of whether the points are the origin or destination of the shipment or whether there were any other contractual agreements by the shipper with any railroad for portions of the movement.

[78] Introduced in the 110th Congress as The Railroad Competition and Service Improvement Act of 2007, S.953/H.R. 2125.

- Address paper barriers by prohibiting agreements (prospectively and retroactively) among Class I railroads and short-line railroads that would:
  - Restrict the ability of the short-line to interchange traffic with other rail carriers;
  - Restrict competition of rail carriers in the region affected by the activity in a manner that would violate U.S. antitrust laws; or
  - Require higher per car interchange rates for short-lines to interchange traffic with other rail carriers. Prescribes procedures for Board review of any activity alleged to have resulted in a restriction of competition.
- Makes mandatory (currently, discretionary) entry by rail carriers into reciprocal switching agreements where the Board finds it is practicable and in the public interest, or where such agreements are necessary to provide competitive rail service.
- Requires the Board to designate any state or substantial part of a state as an area of inadequate rail competition after making certain findings related to rate reasonableness. Once such a designation is made, then the STB is required to institute reciprocal switching, terminal rights, trackage rights, or other rate remedies.
- Requires the Board to post rail service complaints on its web site.
- Sets forth time limits for the Board to act on complaints filed alleging unlawfulness of a new or revised rail rate, rule, or practice.
- Establishes the Office of Rail Customer Advocacy within the Department of Transportation.
- Grants rail customers access to a Board process for determining rail rate reasonableness in railroad market dominance cases. Changes the reasonableness standard to consider only fixed and marginal costs, not the current practice of comparing rates to hypothetical railroad constructed to offer similar services.
- Requires submission to arbitration of certain rail rate, service, and other disputes.
- Authorizes the Board to investigate rail carrier violations on its own initiative (under current law, the Board is authorized to investigate only on complaint). Requires the Board (currently, discretionary) to initiate an investigation upon receiving a complaint alleging rail carrier violations.

Only the Senate version of this legislation received a committee hearing during the 110th Congress, and neither bill had been adopted by either the House or Senate. Both bills were referred to committees with primary oversight for railroads. In general, the bills are supported by a range of coalitions for improved rail service, and opposed by the railroads.

Antitrust Exemptions

The other legislation[79] is aimed at limiting antitrust exemptions currently applicable to railroads, particularly those affecting rate-setting practices, or mergers, acquisitions and combinations. The bill would accomplish the following:

- Offers injunctive relief to private parties seeking relief from practices violating antitrust provisions. Currently, only the STB decides on railroad matters.
- Makes proposed or consummated mergers subject to antitrust review by courts, whereas current law exempts mergers approved by the STB from antitrust review.
- Courts would no longer be required to defer to the jurisdiction of the STB in any civil antitrust action.
- Adds Federal Trade Commission enforcement of railroad antitrust issues.
- Allows treble damages for antitrust violations regardless of published rates or rate complaints, whereas current law and court precedent limits damages to published rates.
- Removes antitrust exemptions in rate-setting agreements, mergers, and consolidations.

The legislation is specifically aimed at removing the paper barriers and removing the bottleneck rate issues. A September 27, 2004 letter from U.S. Assistant Attorney General William Moschella to Representative James Sensenbrenner, then chairman of the House Judiciary Committee, stated that but for the current railroad antitrust exemptions, bottleneck rates, and paper barriers might be examined under antitrust laws (decided on the merits of any given case). This law would open rate-setting and mergers to antitrust challenges from a number of parties. Both the Senate and House versions of this legislation were reported from their respective committees and placed on the Senate or House calendar, but not passed by either house as during the 110th Congress; the Senate bill in the 111th Congress has been reported from committee and placed on the Senate calendar. This legislation is being considered in the committees with jurisdiction over antitrust issues, not in the committees of primary railroad jurisdiction.[80] Similar rail shipper groups that support the STB regulatory legislation support the antitrust bills, and are joined by a number of State Attorneys General, including Montana's Attorney General. Railroads oppose the legislation.

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[79] Introduced in the 110th Congress as The Railroad Antitrust Enforcement Act of 2007, S. 772/H.R. 1650, and in the 111th Congress as the Railroad Antitrust Enforcement Act of 2009, S. 146/H.R. 233.

[80] In the 111th Congress, the antitrust legislation (H.R. 233) has been jointly referred to the House Committee on the Judiciary and to the House Committee on Transportation and Infrastructure (the committee with primary railroad jurisdiction).

STB Competition Study

While these legislative proposals were debated, the U.S. Surface Transportation Board contracted for a study on rail competition in response to some of the issues raised in the 2006 GAO report. In November 2008, the study, by Christensen & Associates (i.e., the Christensen Study), was published.[81]

The report summarizes the overall state of national rail competition with the following observations:

- Class I railroads' rates (real revenue per ton-mile) rose substantially above marginal cost in 2006.
- Economies of density and fixed costs require railroad pricing above marginal cost to achieve revenue sufficiency.
- For most years in the 1987 to 2006 period of the study, the Class I railroad industry's earnings do not appear to be above normal profits.
- The increase in railroad rates experienced in recent years is the result of declining productivity growth and increased costs rather than the increased exercise of market power.
- Railroads use differential pricing, including the use of location-specific markups, to recover their total costs.
- Different commodity groups face different markups of railroad rates over marginal costs. In particular, the study found relatively small markups for coal, metallic ores, nonmetallic minerals, and transportation equipment, and relatively large markups for grains.
- Within commodity groups, shippers with no or very limited transportation options tend to pay higher rates than shippers with the same shipment characteristics who enjoy more or better transportation alternatives.
- The ratio of revenue to URCS variable cost (R/VC) is weakly correlated with market structure factors that affect shipper "captivity," and, thus, is not a reliable indicator of market dominance.
- Capacity "tightness" is primarily due to congestion at terminals or other specific network locations. Terminal congestion in the 2003-2005 period was linked to service performance declines during that time period.
- There is little room to provide significant rate relief to certain groups of shippers without requiring increases in rates for other shippers or threatening railroad financial viability.

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[81] A Study of Competition in the U.S. Freight Railroad Industry and Analysis of Proposals That Might Enhance Competition, L.R. Christensen Associates, November 2008.

- Incremental policies such as reciprocal switching and terminal agreements have a greater likelihood of resolving shipper concerns via competitive response, and have a lower risk of leading to adverse changes in industry structure, costs, and operations compared to other policy options the study examined.
- Some shippers will not benefit from efforts to enhance railroad competition, implying the necessity of continued regulatory oversight.[82]

Each of these points is discussed in much more detail in the three volumes of the report.

The 2008 Christensen Study also examines the likely economic effects of the various legislative remedies being sought that are described above. The study concludes that competition alternatives that involve longer lengths of haul (which differentiates bottleneck rates from reciprocal switching and trackage rights from terminal agreements) may not necessarily lead to lower rail rates by competing carriers. The study also concludes that examining interchange agreements and other paper barriers on a fact-based, case-by-case basis, as the STB has done recently, may result in a process similar to antitrust review, and results superior to a rule of general applicability (including an outright removal of the antitrust exemption).[83] The study affirms that STB reform measures such as better rail service performance data collection and expedited rate reviews also would advance the interests of increased competition without adverse economic effects.

The 2008 Christensen Study has two findings of particular applicability to Montana's rail competition discussed in the 2004 Competition report and under consideration by the Rail Service Competition Council. First, the study discusses at length the inadequacy of the revenue/variable cost measurement as an indicator of market dominance.[84] The study identifies questions about the reliability of data for the measure, and analyzes whether the measure correlates with other market structure competition characteristics such as presence of rail competition (at terminals or destinations) or intermodal competition (such as water transportation).

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[82] 2008 Christensen Study, pages 23-3 and 23-4.

[83] *Disclosure of Rail Interchange Commitments*, STB Ex Parte No. 575 (Sub-No. 1), October 2007, May 2008.

[84] 2008 Christensen Study, Chapters 11 and 18.

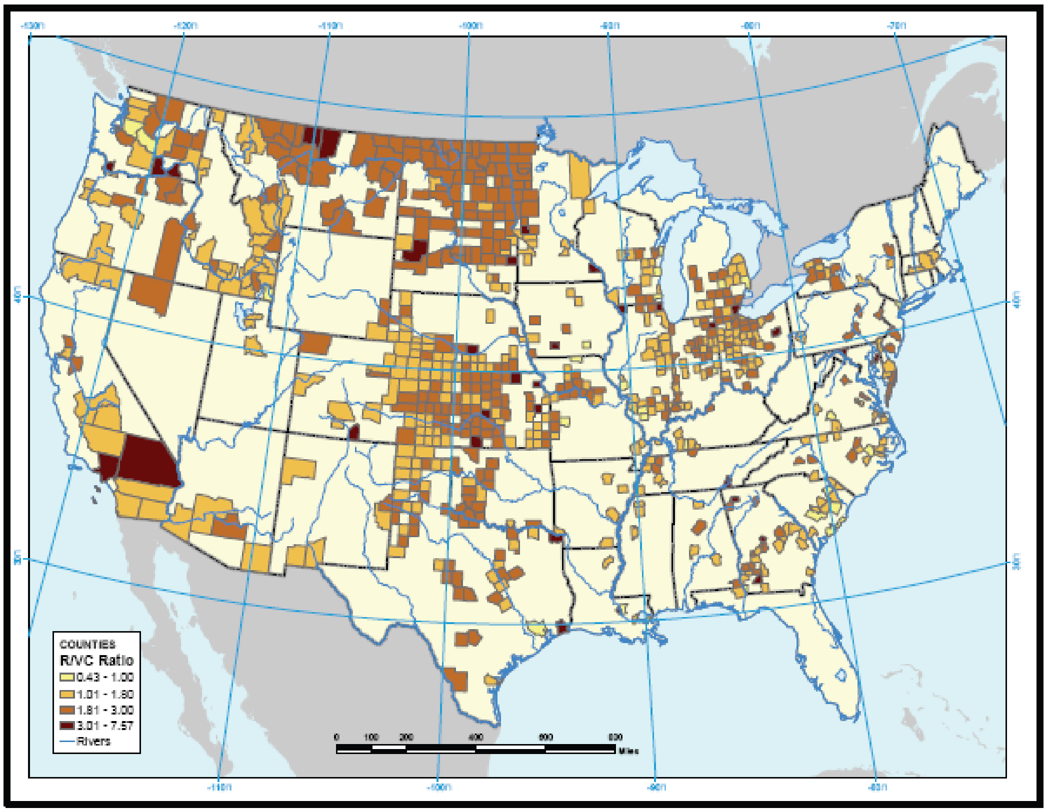
The report includes two related national maps: Figure 7.7 from the report, which shows the revenue/variable cost ratios for wheat shipments by county; and Figure 7.8, which shows the correlation of market structure variables (modal alternatives, shipping distances, rail competition) to rail rates in wheat pricing models generated in the report. Comparing the two maps, the report notes that areas with fewer modal alternatives like Western Kansas (also southwestern Nebraska and the Texas Panhandle) have less pronounced R/VC ratios than their correlation with market structure measures shown in Figure 7.7. The report also notes that areas like the Pacific Northwest which have more alternatives and less distance to water transport have higher R/VC ratios than they have market structure correlation.

Second, the 2008 Christensen Study concludes that some regions of the country are subject to higher rates due to limitations of shipment geography, and may not be influenced by rail-specific regulations. This is particularly the case for wheat transportation in Montana and North Dakota. Figure 7.7 shows a strong correlation between market structure elements and wheat price model outputs, indicating that the Montana and North Dakota rail shippers are likely to continue to pay relatively higher rail rates in the absence of competitive alternatives.

For this reason, the study concludes, such cases require additional regulatory monitoring to ensure that exercise of local market power does not become unreasonable. The Montana Attorney General has also focused on improvements to STB rate case procedures for smaller and medium shipments and for expedited rate review. Simplified rate case consideration at the STB is now possible for Montana shippers under two new methods described in the 2009 Railroad Rate Report,[85] which may offer shippers less costly approaches than contested rate-setting cases at the administrative level. The barrier to contested rate relief may be less about the remedies available than about the willingness of grain shippers to pursue cases and risk possible retaliatory disruptions in rail service.

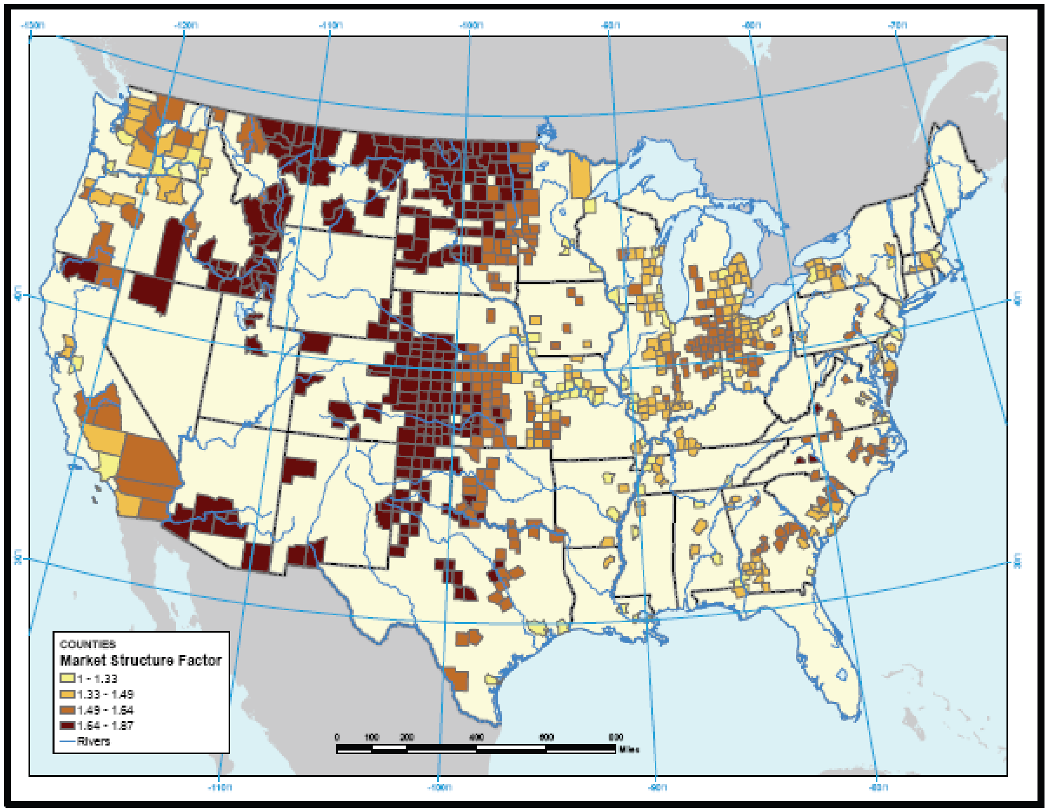
[85] Montana Attorney General, February 2009.

Figure 7.7 R/VC Averages by Origin County for Wheat Shipments
2001-2006 Carload Waybill Sample



Source: Figure ES.3, 2008 Christensen Study, page ES-13.

Figure 7.8 County-Level Effects of Market Structure Variables in Wheat Pricing Models on Real Revenue per Ton-Mile



Source: Figure ES.4, 2008 Christensen Study, page ES-14.

Private Responses to Montana Rail Competition Issues

In January 2009, a rail rate arbitration agreement was entered into between BNSF Railways, the Montana Grain Growers Association, and the Montana Farm Bureau Federation to enable joint resolution of rate and service disputes.[86] The Federal Surface Transportation Board has been the traditional arbitrator of freight rate disputes, but it limits cases to customers of the railroads. This agreement gives farmers legal standing in rail rate disputes and sets up a formal system to mediate and arbitrate rail freight rates.

[86] News releases of Montana Grain Growers Association, January 29, 2009; Montana Attorney General, February 26, 2009; and BNSF Railway, February 26, 2009.

According to documents posted by the Montana Grain Growers Association,[87] the agreement includes these particulars. Producer organizations determine the merit of a producer's claim, represent producers in the mediation/arbitration process, and execute mediation of claims within 30 days. If mediation fails, the matter is presented to a panel of arbitrators, whose decision is binding. The arbitration panel takes into account competitive alternatives to the transportation, capital requirements of the rail system used for the move in question, revenue available to sustain the network, rate levels on comparable traffic, applicable market factors comparing similar origins and markets for the same commodity, and the overall cost of providing the service. If justified, relief in the form of a rate prescription is available for the one-year period following issuance of an award by the panel, and for the period 14 months prior to the commencement of arbitration.

Argus Rail Business on May 27, 2010 recognized the arbitration agreement with a "Win-Win" award. By that publication's report, the first formal mediation of grain rates between BNSF and grain growers took place in December 2009 and resulted in a significant rate reduction for a number of customers. The case was filed, prepared, and completed in two weeks.

7.2 Intermodal Service

At one point, Montana had three facilities on the BNSF system that offered intermodal services: Billings, Shelby/Port of northern Montana, and Butte/ Silver Bow. In 2002, the intermodal terminals were closed at Shelby and Butte, leaving Billings as the only intermodal terminal. A BNSF facility map (intermodal facilities in red) is shown on the Figure 7.9.

[87] Agreement to Administer Alternative Dispute Resolution: Summary and Exhibit 1; Montana Grain Growers Association; available at http://www.mgga.org/FarmPolicy/Rail/ADR_detailed_summary.pdf.

Figure 7.9 BNSF Intermodal Network
Inset: Montana Facilities

Source: Burlington Northern Santa Fe corporate web site.

During 2007 and 2008, MDT sponsored research into intermodal market potential for Montana products.[88] The first approach was to identify potential customers for intermodal services and use a survey instrument to gain information about location for and use of new intermodal terminals in Montana. Survey respondents stated they were using terminals at Billings, Calgary, Spokane, and Seattle. Fifty-nine percent of those surveyed stated that if intermodal service was available, they would use it for export shipments, and 52 percent stated that they would use intermodal import service if available. Most surveyed were interested in 20-foot containers, and 52 percent stated that they would use intermodal service even if it was less than daily service.

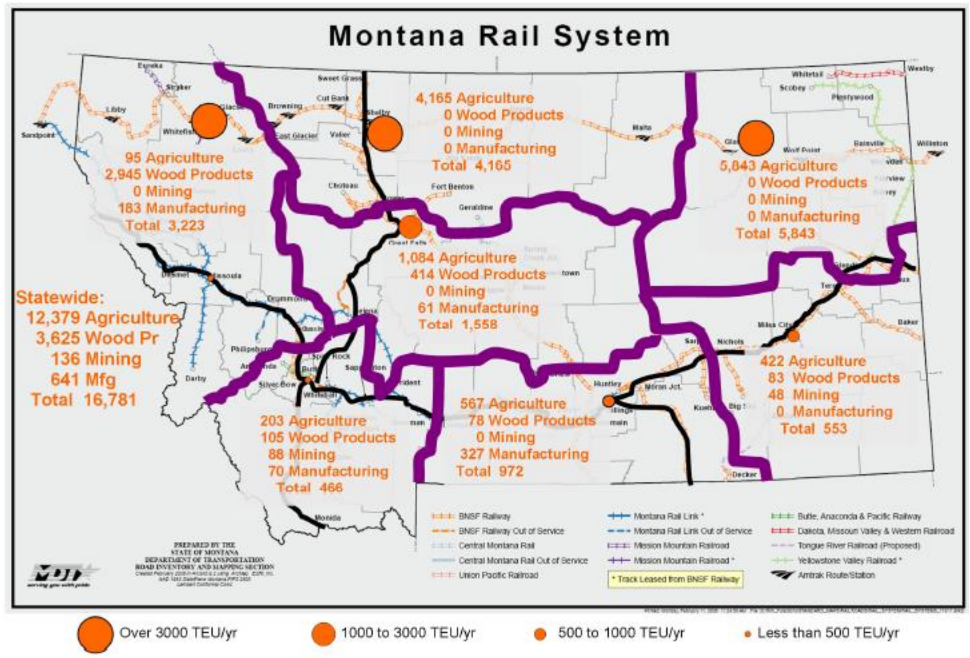
The surveys and direct interviews with representatives of industry associations and other modes offered valuable information. This primary data was supplemented by secondary data on economic activity for various industries to estimate potential generation of intermodal shipments. Figure 7.10 shows the total intermodal shipments by industry and by geographic subregion of the State.

Of these total shipments, the majority would be destined for Pacific Northwest ports, as shown in Figure 7.11.

Figure 7.12 shows the volumes and distribution for domestic intermodal movements (west and east).

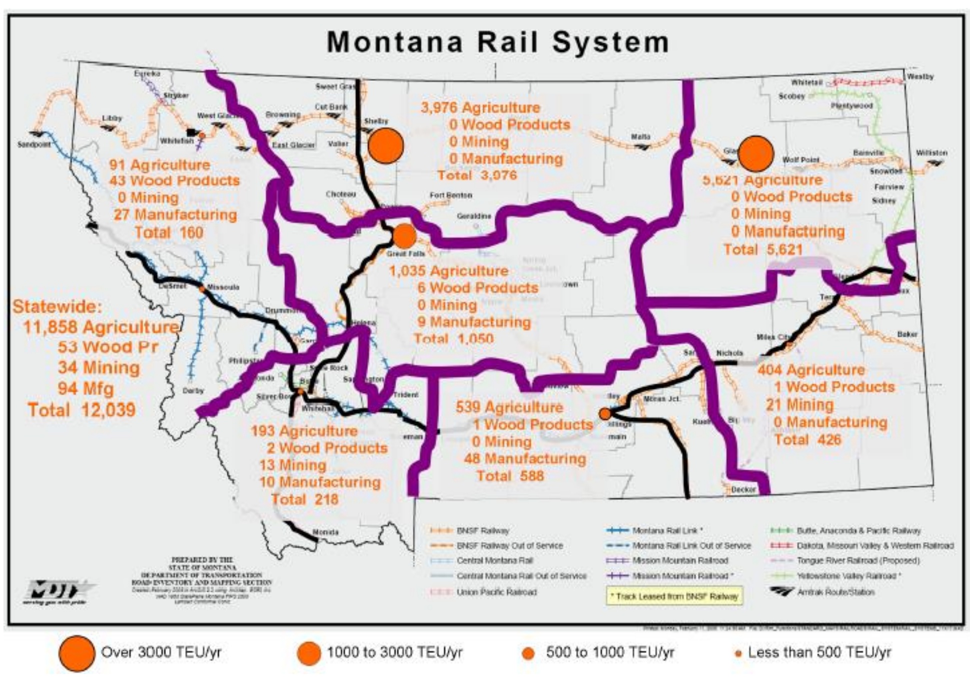
[88] Container/Trailer on Flatcar in Intermodal Service on Montana's Railway Mainlines, Prime Focus LLC and Western Transportation Institute, October 2008.

Figure 7.10 Total Montana Intermodal Shipments by Industry and Subregion



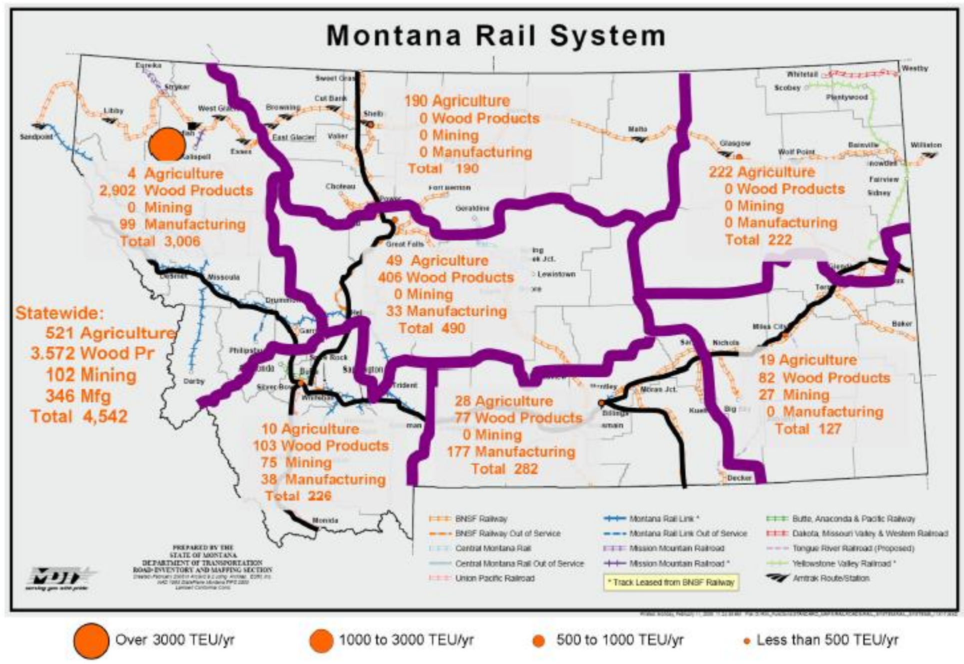
Source: Container/Trailer on Flatcar in Intermodal Service on Montana's Railway Mainlines, Prime Focus, LLC and Western Transportation Institute, October 2008, page 85.

Figure 7.11 Intermodal Shipments Destined for Pacific Northwest Ports



Source: Prime Focus/Western Transportation Institute Intermodal Study, page 87.

Figure 7.12 Volumes and Distribution for Domestic Intermodal Shipments



Source: Prime Focus/Western Transportation Institute Intermodal Study, page 88.

The study estimated intermodal shipment volumes that could be expected at the three terminal sites that were in service a decade ago: Shelby, Butte, and Billings. Container volumes in the vicinity of those terminals were estimated at 4,000, 1,000, and 500 20-foot equivalent units (TEU) per year, respectively, well below industry standards for launching new service. BNSF has indicated interest in restoring regular service if volumes could be approximately 250 container lifts per week, or 13,000 TEUs a year. That amounts to three-quarters of the total statewide demand, but a single intermodal terminal would be unlikely to attract that much volume given the drayage distances from around the State.

Global market conditions can change and cause the underlying business models of current rail intermodal service to also change. Privately financed intermodal terminals operated by third parties (such as those in Minnesota) or public-private partnerships (like those in North Dakota) may offer models for beginning intermodal services in Montana.

7.3 Coal Transport

Coal accounts for a significant percentage of the total tons of rail shipments originating in Montana. Montana, the nation's fifth largest coal producing state, accounts for about 4 percent of national production. Wyoming is the nation's single largest coal producer with about 42 percent national production. Major coal producing counties in Montana are shown in Table 7.1.

Table 7.1 Montana Mines by County
Mine Type, Production 2007 (Thousand Short Tons)

	Underground		Surface		Total	
County	Number of Mines	Production	Number of Mines	Production	Number of Mines	Production
Big Horn	–	–	3	30,401	3	30,401
Musselshell	1	47	–	–	1	47
Richland	–	–	1	358	1	358
Rosebud	–	–	1	12,583	1	12,583

Source: Energy Information Administration, Annual Energy Outlook 2008.

Most of Montana's coal production is shipped via rail, as shown in Table 7.2. Over 73 percent of Montana's coal production is shipped via rail (much of it eastward), compared to 71 percent rail share nationwide. Over 23 percent of Montana's coal production is used for electricity generation in the State, mostly transported by tramway from Colstrip mines in Rosebud County to electric generating facilities nearby. A majority of Montana's coal is exported and 45 percent of Montana's electricity generated by coal and hydroelectric plants also is exported. By industrial use, these data show that nearly 97 percent of Montana's coal is used in electricity generation, compared to 92 percent nationally.

In 1975, the Montana Legislature created a grant program under which the Coal Board awards funding from the state coal severance tax to local governments, state agencies, and tribal governments to meet the local impacts of coal production or coal-using energy complexes. The Montana Department of Commerce designates counties in areas impacted by coal production or coal energy usage, as shown in Figure 7.13, and the majority of grants go to recipients in these counties (although a small number of grants go to counties surrounding the lignite mine in Richland County). This program also funds highway construction and maintenance on roads affected by coal. Almost $77 million has been distributed in coal impact grants to governmental entities through this grant program.

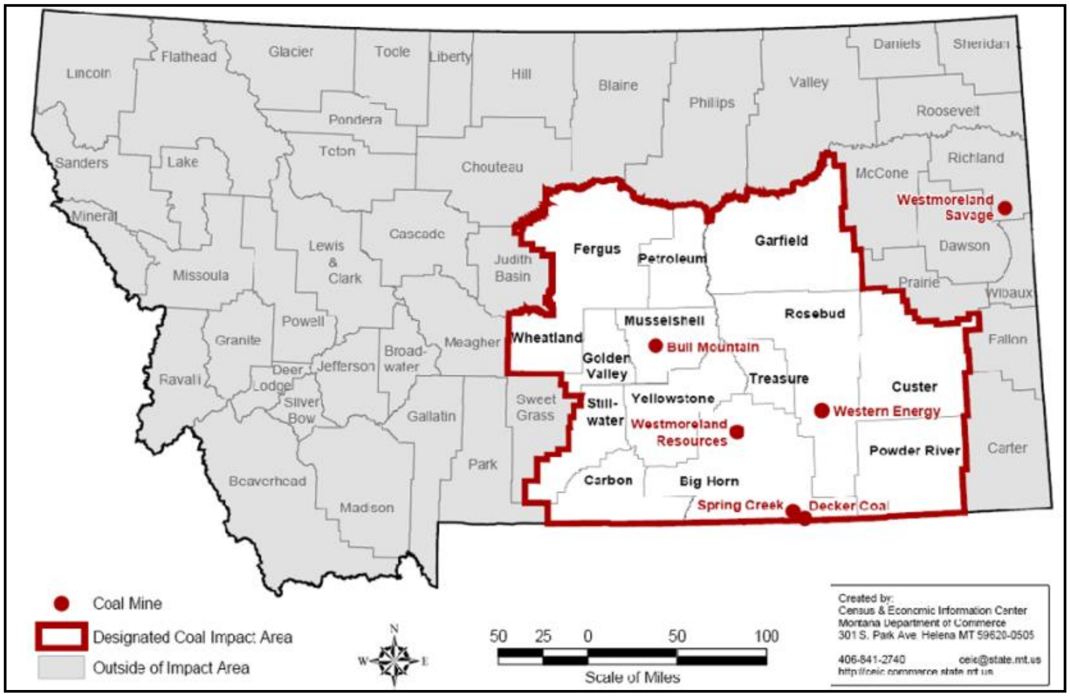
Table 7.2 Coal Distribution by Mode, Montana and United States
Production 2007 (Thousand Short Tons)

Origin by Method of Transportation	Electricity Generation	Coke Plants	Industrial Plants	Residential and Commercial	Total	Percent of Total
Montana Total	**39,419**	**0**	**1,020**	**323**	**40,762**	**100.0%**
Railroad	28,951[a]	0	693	283	29,927	73.4%
Tramway, Conveyor, and Slurry Pipeline	9,548	0	0	0	9,548	23.4%
Truck	921	0	327	39	1,287	3.2%
Unknown	0	0	0	0	0	0.0%
Percent of Total	96.7%	0.0%	2.5%	0.8%	100.0%	100.0%
U.S. Total	**1,032,147**	**21,976**	**59,557**	**3,228**	**1,122,605**	**100.0%**
Great Lakes	7,261	1,097	588	0	8,946	0.80%
Railroad	757,927	10,417	30,340	779	799,463	71.2%
River	90,313	8,775	3,815	410	103,314	9.2%
Tidewater Piers	2,220	0	0	0	2,220	0.20%
Tramway, Conveyor, and Slurry Pipeline	75,704	0	2,238	41	77,983	6.95%
Truck	96,277	1,688	22,575	1,998	122,538	10.92%
Unknown	2,445	0	0	0	8,142	0.73%
Percent of Total	91.9%	2.0%	5.3%	0.3%	100.0%	100.0%

Source: Energy Information Administration, April 2008, Domestic Distribution of U.S. Coal by Destination State, Consumer, Origin, and Method of Transportation, 2006. http://www.eia.doe.gov/cneaf/coal/.

[a] Includes 4,815,000 tons used for electricity generation that EIA tabulations note are ultimately shipped through the Great Lakes via Michigan.

Figure 7.13 Montana Coal Mines and Designated Coal Impact Area



Source: 2004 Coal Council Brochure. http://comdev.mt.gov/Includes/COAL/CoalMines.pdf.

7.4 Support for Private Rail Infrastructure Investment

Unlike most other modes of freight transport, railroads are largely responsible for the substantial capital investments necessary to maintain and expand their operations. A common concern among railroad companies is that the excise taxes and fees paid by motor carriers at the Federal and state levels do not fully account for their proportionate share of the costs of constructing and maintaining the nation's highway system. Moreover, the incremental costs of expanding a motor carrier's business over publicly owned and maintained roads is substantially less than a railroad faces to expand its business, since it is not only responsible for labor and rolling stock, but also for the cost to expand and maintain all aspects of its rail network.

Two recent studies have closely examined the need for and potential benefits of making substantial investments in the U.S. Freight Rail System. One of the studies, the *Freight Rail Bottom Line Report* by AASHTO[89] surmised that "… freight rail is critical to the freight transportation system, the competitiveness of many industries, and the economies of most states." The report evaluates four levels of freight rail investment, ranging from "Base Case" to "Aggressive Investment." It also asserts several potential public benefits of the freight rail system, among them:

- **Transportation System Capacity and Highway Cost Savings –** The freight-rail system carries 16 percent of the nation's freight by tonnage, accounting for 28 percent of total ton-miles, 40 percent of intercity ton-miles, and 6 percent of freight value. If all freight-rail were shifted to trucks tomorrow, it would add 92 billion truck vehicle-miles of travel (VMT) to the highway system and cost Federal, state, and local transportation agencies an additional $64 billion for highway improvements over the next 20 years. This $64 billion is a conservative figure that does not include the costs of improvements to bridges, interchanges, local roads, new roads, or system enhancements. If these were included, the estimate could double.
- **Economic Development and Productivity –** Freight rail provides shippers with cost-effective transportation, especially for heavy and bulky commodities, and can be a critical factor in retaining and attracting industries that are central to state and regional economies. If all freight-rail were shifted to trucks tomorrow, it would cost current rail shippers an additional $69 billion this year alone – or $1.4 trillion over the next 20 years – causing significant changes in business and consumer costs.
- **International Trade Competitiveness –** Freight rail, in partnership with the trucking industry, provides intermodal transportation connecting U.S. seaports with inland producers and consumers. Freight rail also carries 16 percent of the nation's cross-border NAFTA trade. Intermodal freight-rail service is crucial to the global competitiveness of U.S. industries.
- **Environmental Health and Safety –** Freight rail is fuel-efficient and generates less air pollution per ton-mile than trucking. Rail also is a preferred mode for hazardous materials shipments because of its positive safety record.
- **Emergency Response –** Freight rail is vital to military mobilization and provides critically needed transportation system redundancy in national emergencies.

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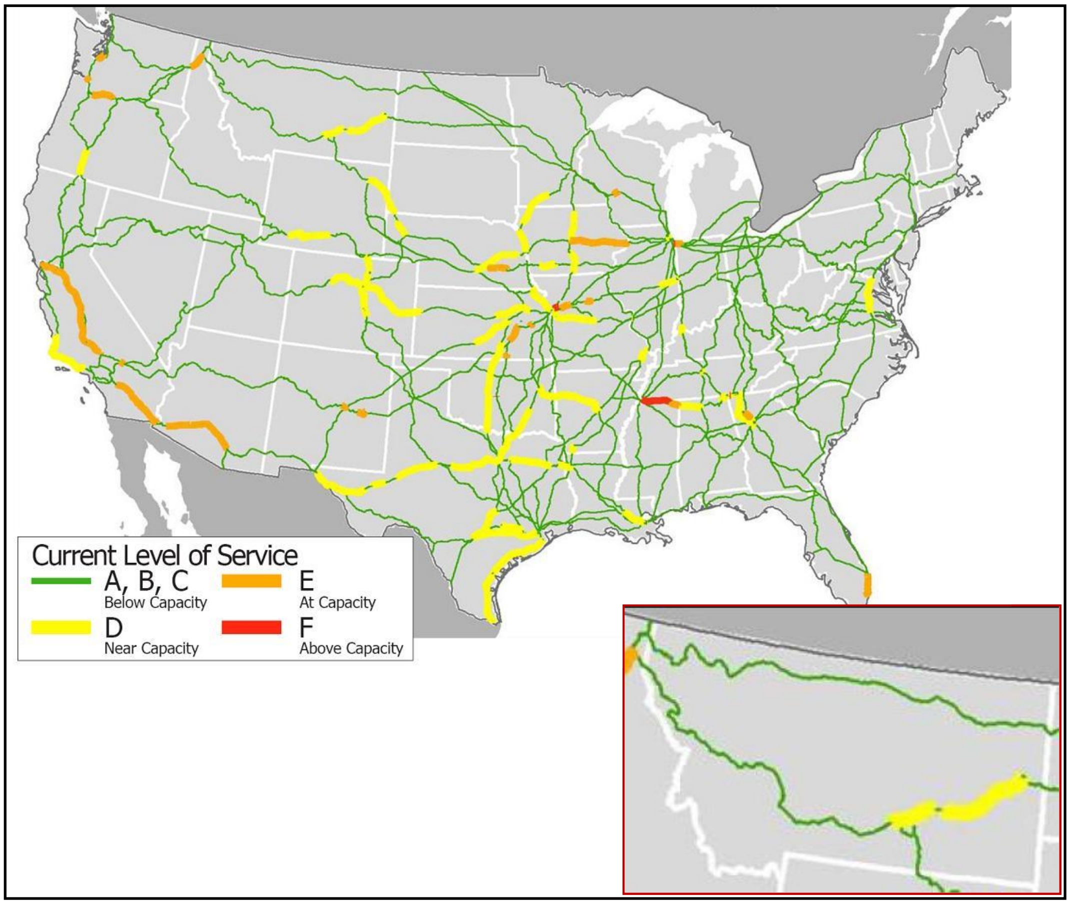
[89] *Transportation – Invest In America: Freight Rail Bottom Line Report*. American Association of State Highway and Transportation Officials (AASHTO) http://freight.transportation.org/doc/FreightRailReport.pdf.

A second significant recent study entitled *National Rail Freight Infrastructure Capacity and Investment Study* was released by AAR in September 2007.[90] (The study was requested by the National Surface Transportation Policy and Revenue Study Commission.) This work was the first to provide a comprehensive evaluation of long-term capacity needs along major freight rail corridors. The study assigned projected rail freight volume growth (of approximately 88 percent, according to the U.S. DOT) to more than 50,000 miles of rail segments, and assessed capacity throughout the United States. The research team concluded that by 2035, an infrastructure investment of $148 billion will be necessary in the intervening years, with $135 billion of the total for Class I railroads, and $13 billion needed for short-line and regional freight railroads. The following figures summarize the freight rail corridors analyzed in the study as well as the corresponding levels of service. Level of service was calculated by a ratio of volume to capacity, similar to the approach used for roadways. Figure 7.14 displays the current rail level of service (LOS), which is only reaching levels of "At Capacity" (shown as LOS E in the following figures) or "Above Capacity" (LOS F) in a limited number of locations throughout the country; with the only area of regional congestion being the BNSF Kootenai River Main Line in the Northern Idaho Panhandle. (Note that the study does not consider Montana's UP link from Butte south to Idaho. It does include the BNSF line over which Montana Rail Link operates via a lease arrangement, but excludes some MRL branch lines.)

[90] Association of American Railroads, September 2007.

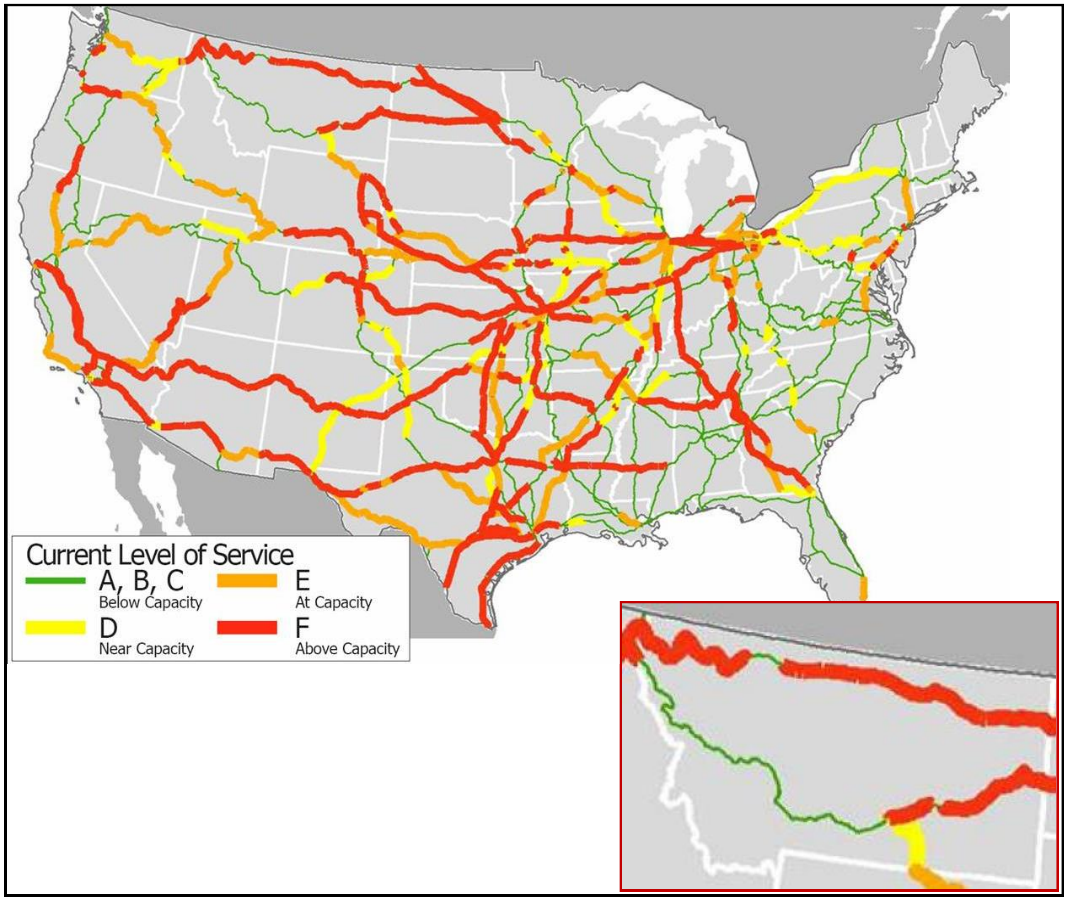
Figure 7.14 Current Rail Level of Service
Inset: Montana



Source: *National Rail Freight Infrastructure Capacity and Investment Study*, September 2007, prepared for Association of American Railroads (AAR) by Cambridge Systematics, Inc.

Figure 7.15 depicts 2035 rail LOS *without* recommended infrastructure improvements, portrays a drastically different scenario. In this instance, all of Montana's primary Interstate connections to the East (Midwest) as well as to the West are at LOS F, E, or D. The figure inset highlights that the majority of the BNSF Hi-Line and Milk River main lines through the northern extent of the State in addition to the Forsyth main line serving Eastern Montana all could potentially be above capacity. It also is important to note that Montana eastbound rail shipments would likely be constrained by the LOS on the Chicago area rail lines, which currently serve as a major hub for westbound rail traffic.

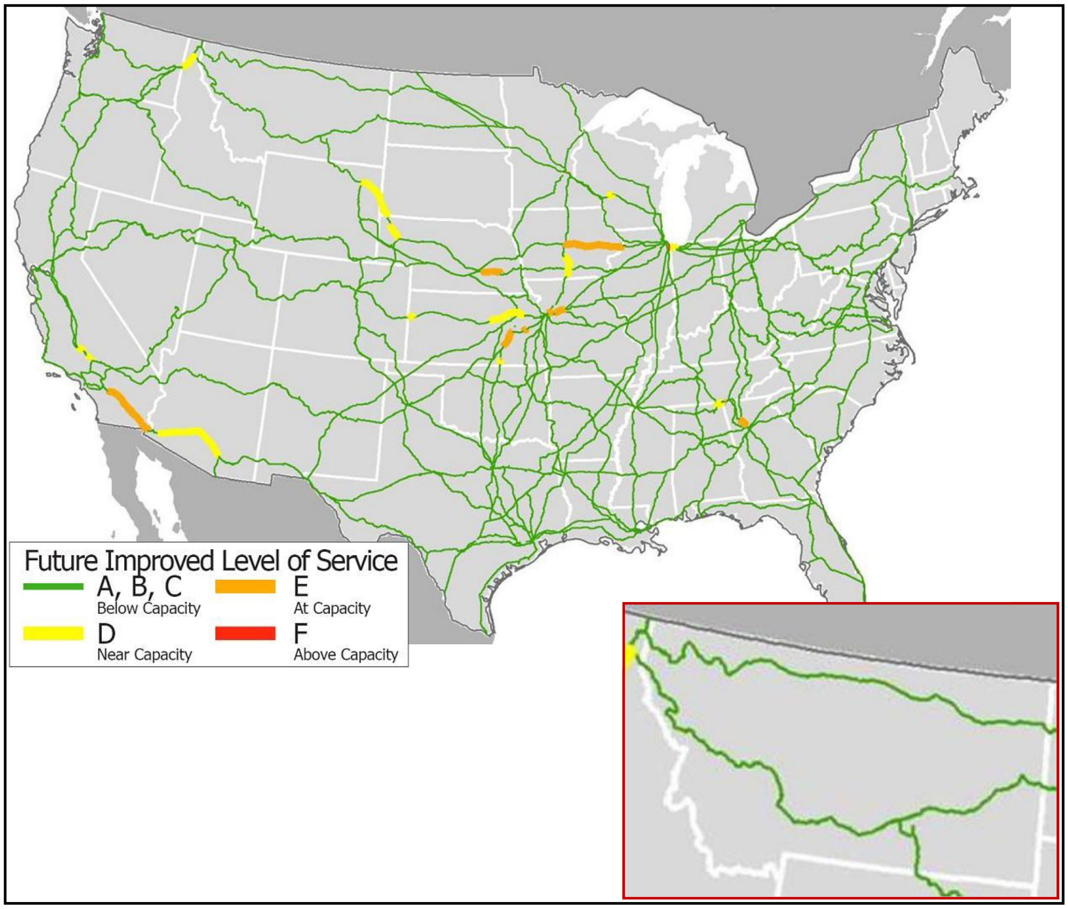
Figure 7.15 2035 Rail Level of Service *without* Improvements
Inset: Montana



These congested lines in Montana are a result of the increase in overall national freight traffic expected by the year 2035, and are not a short-term projection of rail system congestion. The current economic downturn, and decrease in both rail and highway shipping may affect the pace of overall freight volume growth. In the long term, overall freight expansion will resume and strain the national rail network. With expected growth, Montana rail lines will experience significant congestion unless railroad capital spending expands system capacity. This AAR report suggests that meeting such capital investment needs will require some form of matching public financial assistance.

Figure 7.16 presents the AAR study's best case scenario of rail LOS *with* $148 billion in capital improvements. The map shows only a few areas of concern nationally, with the lowest level of service being "E," or "at capacity." The recommended investments result in all Montana rail lines included in the study having a LOS below capacity (A, B, or C)

Figure 7.16 2035 Rail Level of Service *with* Improvements



7.5 Railway-Highway Crossings

According to the FRA Rail Crossing Inventory Database, there are 5,495 total rail crossings throughout Montana: 5,119 are at-grade; 151 are "railroad under"; and 225 are "railroad over" crossings. In terms of ownership, 3,094 are private crossings, 2,374 are public, and 27 are pedestrian crossings. The database also provides information regarding train movements, which shows that 57.5 percent of the crossings are on rail lines that have rail traffic of less than one train per day.

In 2007, Montana ranked 34th among all states with 18 reported rail crossing incidents out of the 2,760 total highway-rail grade crossing incidents in the United States in 2007. Texas had the largest number of incidents, 296, followed by Indiana, California, and Illinois, with 164, 162, and 158, respectively.[91]

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[91] Operation Lifesaver/FRA Statistics, 2007 Highway-Rail Incidents, Casualties, and Trespass Casualties by State, 2007. Source: Federal Railroad Administration.

7.6 The Possible Effects of Energy and Environmental Policy on Rail Modal Share

Public agencies are increasingly urged to consider transportation-specific policies to help address public objectives such as energy independence and greenhouse gas emissions. The challenge of such policy goals is that shippers consider complex logistical issues that play out in transporting goods to markets. Modal share decisions depend on basic considerations about what commodities are being shipped, how far, and the capacity of available rail, highway, or waterway networks, which in turn, determine the value the shipper assigns to logistical factors such as time sensitivity, reliability, efficiency, and price.

Increased shipment of freight by rail could have energy and environmental benefits, and as such, Federal and state policy-makers are considering strategies that encourage more rail use.

- The U.S. Environmental Protection Agency (EPA) reports that freight movements that combine truck and rail trips through intermodal service can reduce energy use and greenhouse gas (GHG) emissions by 65 percent, relative to truck only trips.[92]
- Using data from the American Association of State Highway and Transportation Officials (AASHTO), the Association of American Railroads (AAR) reports that for each 1 percent of long-haul freight (over 500-mile haul) that moves by truck that is transferred to rail, fuel savings would be about 110 million gallons per year.[93]
- The AAR reports that railroads are on average three or more times more fuel efficient than trucks.
- In 1980, railroads consumed 589 BTUs per revenue ton-mile of freight, and in 2006 that figure had decreased 44 percent to 328 BTUs per revenue ton-mile.[94]
- The Bureau of Transportation Statistics reports that in 2005, railroad locomotives accounted for 50.3 million short tons of carbon dioxide emissions, compared to 384 million short tons for trucks.[95]

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[92] *A Glance at Clean Freight Strategies: Intermodal Shipping*, Smartway Transport Partnership, U.S. Environmental Protection Agency, published electronically at http://www.epa.gov/smartway/transport/documents/tech/intermodal-shipping.pdf.

[93] *Freight Railroads and Greenhouse Gas Emissions*, June 2008, Association of American Railroads.

[94] Table 4-25, 2007 National Transportation Statistics, Bureau of Transportation Statistics, Research and Innovative Technology Administration.

[95] Table ES.2, 2007 Transportation Statistics Annual Report, Bureau of Transportation Statistics, Research and Innovative Technology Administration.

Rail Service and Energy Policy

The development of a national energy policy could affect rail service in three major ways:

1. Energy policy could offer incentives toward more energy efficiency in goods movement, which could encourage additional rail traffic;
2. Energy policy could affect the supplies and prices of fuels used by railroads and trucks, which could affect freight rates and modal share; and
3. Energy policy could influence the importance placed on domestic energy production, which might affect rail volumes of coal.

Energy Efficiency. Since railroads and motor carriers were deregulated in 1980, both the rail and trucking industries have changed dramatically, as has the logistics and freight business. Table 7.3 explains that these changes have led to significant and similar increases in total ton-miles of freight for both trucks and railroads, a much larger increase in truck vehicle miles traveled than rail miles (train miles and car miles). The differences in volume and traffic result in much different impacts on fuel consumption, as combination truck fuel consumption is eight times as much as rail, and has grown by 87 percent, while rail fuel use has increased by only 5 percent. This demonstrates that rail is a more fuel efficient means of carrying freight. A national energy policy that encourages increased fuel efficiency in the transport sector might do well to offer incentives to encourage more shipments of freight via rail.

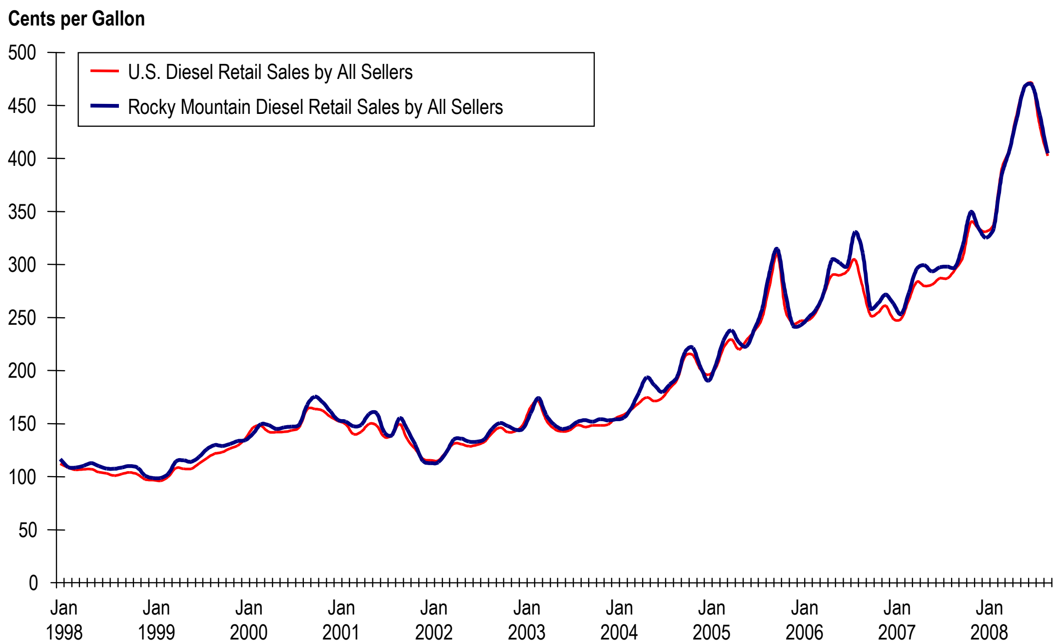
Table 7.3 Fuel Efficiency Measures, Rail and Truck
1980 to 2005

	1980	2005	Percent Difference
Vehicle Miles (Millions)			
Single Truck (two-axle, six wheel+)	39,813	78,496	97%
Combination Trucks	68,678	144,028	110%
Total Trucks	108,491	222,524	105%
Rail (Class I Train Miles)	428	548	28%
Rail (Class I Car Miles)	29,277	37,712	29%
Ton-Miles of Freight (Millions)			
Truck	629,675	1,291,515	105%
Class I Freight Rail	932,000	1,733,777	86%
Gallons of Diesel Fuel (Millions)			
Single Truck (two-axle/six wheel+)	6,923	9,042	31%
Combination Trucks	13,037	24,411	87%
Total Trucks	19,960	33,453	68%
Class 1 Freight Rail	3,904	4,098	5%

Source: Tables 1-31, 1-46b, 4-5, 2007 National Transportation Statistics, Bureau of Transportation Statistics, Research and Innovative Technology Administration.

Energy Prices. The trucking and rail industries have different systems of fuel purchasing and distribution, as well as different mechanisms for passing these costs on to shippers. Both railroads and trucking firms have been faced with volatile (and generally increasing) diesel costs. Figure 7.17 shows monthly diesel fuel cost averages for the United States and the Rocky Mountain region for the decade ending mid-2008. The volatility of diesel prices is evident in this chart. Regional prices closely follow national prices and have been slightly higher in most periods.

Figure 7.17 Number 2 Diesel Costs, Rocky Mountains and U.S.
1998 to 2008



Source: U.S. Department of Energy, Energy Information Administration (EIA).

Western railroads like BNSF and UP purchase fuel in sufficient volume to enable them to hedge fuel costs using financial instruments, similar to the commercial aviation industry. Larger railroads can smooth some of their fuel cost spikes and gain competitive advantage over trucking firms that purchase diesel on a retail basis. Future energy policy could consider supplies and prices of fuel for the railroad industry.

Coal Production. Notwithstanding the environmental implications of the current national network of coal-fired electric generating plants or future plants, it may be in Montana's economic interests to continue to pursue coal production in current mines and in future sites such as the Otter Creek coal beds mentioned in Section 3.0 of this report (discussion of the proposed Tongue River Railroad). Coal production could preserve or expand direct and indirect jobs in extraction/

transportation of the coal, and increase state revenues through the severance tax or royalties from extraction on state-owned lands. Continued coal shipments will provide revenues that contribute to railroads maintaining their Montana infrastructure.

Rail Service and Environmental Policy

Governor Brian Schweitzer, in a letter dated December 13, 2005, directed the Montana Department of Environmental Quality (MDEQ) to establish the Climate Change Advisory Committee (CCAC). The CCAC evaluated state-level greenhouse gas (GHG) reduction opportunities in various sectors of Montana's economy to implement the Governor's charge to identify ways to "save money, conserve energy, and bolster the Montana economy." The CCAC's report was published November 2007.[96]

According to the report, transportation by all modes is Montana's single largest contributor to GHG emission, accounting for about 20 percent of emissions annually. Two of the report's transportation-related recommendations have particular applicability to railroads: 1) reducing idling time of locomotives by 50 percent by 2020; and 2) increasing intermodal rail shipments to reduce truck GHG emissions.

The report recommends that locomotive idling be reduced by 50 percent. The State could authorize local governments to enact ordinances to limit locomotive idling. This primarily concerns switching operations at six major rail yards in the State.[97] (The report estimates that total fuel use in these yards could be reduced by 50 percent, which is the basis for GHG emission reductions. The report does not necessarily reference any studies that estimate the percentage of locomotive fuel use in switching operations applicable to the time spent idling.)

New locomotive air quality standards issued by the U.S. EPA in 2008 will require increased use of idling engine cut off technology to automatically power down the engine or adopt other mechanisms that reduce the amount of engine capacity in use.[98] However, the EPA reports that idling reduction standards are a matter for state and local government regulation.

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[96] Montana Climate Change Action Plan: Final Report of the Governor's Climate Change Advisory Committee, Montana Department of Environmental Quality, November 2007, published at http://deq.mt.gov/ClimateChange/Plan.asp.

[97] According to the report, Lewis and Clark County have an idling ordinance that applies to motor carriers and railroads, limiting idling to no more than 2 hours per 12-hour period.

[98] Final Rule: Control of Emissions of Air Pollution from Locomotives and Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder, 40 CFR Sections 9, 85, et.al., June 2008, Environmental Protection Agency.

The U.S. EPA adopted a comprehensive regulation on locomotive and marine diesel engine air quality in 2008. These regulations call for new lower emission locomotives in 2009 (Tier 3), ultralow sulfur diesel fuel in 2012 (a separate regulation), and Tier 4 engines in 2015. Tier 4 locomotives will reduce diesel particulate matter by 90 percent compared to 2007 Tier 2 locomotives and reduced nitrogen oxide by 80 percent. These reductions in locomotive emissions will take place over time after 2015, as the locomotive fleet will take time to reach engine replacement requirements or new locomotive purchase. However, this means that rail-related GHG emissions are likely to be reduced through the application of this national regulation.

The report also recommends increasing rail intermodal shipments to reduce truck traffic and resulting emissions. It states:

> "Transportation of freight by railroad generally results in less fuel use and GHG emissions than transportation by truck. The best candidates for diversion from truck to rail are commodities that can move by intermodal rail transportation, which involves shipping containers or truck trailers placed on rail flatcars. This option would encourage the expansion of intermodal rail service for Montana shippers. In addition, the State would strive to increase the competitiveness of rail rates for all Montana shippers."

The CCAC report referenced MDT's intermodal research project that was in progress at the time. It was expected that the results of MDT's intermodal research would identify actions to help reestablish intermodal rail service for Montana. The research was completed and is discussed in Section 7.2 of this document.[99]

The CCAC report also makes a series of recommendations concerning the fuel mix for electric generation in the State (requiring more renewable energy sources and less use of coal), increased fuel efficiency, and carbon reduction strategies such as carbon sequestration. State and national attention to reduce reliance on coal could, if implemented, lower demand for Montana's coal and affect shipments by rail from the State.

[99] The findings suggest that targets in the CCAC report (six 100-car intermodal trains per week from Shelby to Seattle/Tacoma at 400 TEUs per train) do not match the market potential identified in the 2008 Prime Focus/Western Transportation Institute report (4,000 TEUs per year from Shelby).

7.7 CONCLUSIONS

The 2004 R.L. Banks Rail Competition Study found that limited rail competition is only one of a series of factors that foster the dual problems of high rates and limited service for general freight, agricultural, and intermodal rail shippers in Montana. Other factors include:

- Montana's relatively small transportation market;
- Geographic position, and distance from the more robust markets on the West Coast and in the Midwest;
- Staggers Rail Act emphasis on financial health of the railroads, and interpretation of that law by the ICC and the STB; and
- Limited transportation options in Montana other than rail (distance to barge option and long trucking distances).

These factors have been borne out in other national studies of rail competition. Since three of these four factors lie beyond the influence of public policy, much of the efforts of Montana shippers and elected officials to expand service or reduce rail rates have focused on legal remedies through new laws or changing interpretation of laws by Federal regulators. Changes in Federal law may be in the offing in the U.S. Congress, which may lead to different approaches for Montana shippers to challenge rates or seek competitive service options.

A number of major issues also could affect railroad transportation in Montana:

- New Federal surface transportation program authorization could expand funding and flexibility for states to fund freight rail improvements or allow incentives for railroads to expand capacity to meet goods movement trends;
- New Federal climate change or environmental laws could lead to modal shifts of freight from truck to rail, and could impact long-term prospects for some rail commodities such as coal; and
- New Federal energy policy could affect the rail locomotive fleet, or changes in fuel prices could lead to long-term changes in goods movement away from a global sourcing economy and accompanying lengths of movements by rail and truck.