

2000 Montana State Rail Plan Update

A report to
**Montana Department of
Transportation**

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Montana Department of Transportation

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2000 Montana State Rail Plan Update

Introduction

PURPOSE

This is an update of the Montana State Rail Plan. The previous update was published in 1993. The purpose of this 2000 State Rail Plan Update is to review the State's role in rail planning, retain eligibility for Local Rail Freight Assistance (LRFA) funding, update the description of Montana's rail system and examine the feasibility of new passenger rail service.

METHOD OF PREPARATION

This report was prepared by going directly to primary sources to the extent possible. Primary sources include railroad officials, railroad customers and Montana State officials. Where data were not available from primary sources, secondary sources were utilized. For example, waybill sample data were obtained from Montana Department of Transportation and, with regard to 1999 data, directly from the Surface Transportation Board.

SCOPE OF UPDATE

This update:

- Reviews the state rail planning process,
- Describes Montana's railroads, and relates them to Montana's total transportation system,
- Discusses rail lines at risk,
- Evaluates the feasibility of additional passenger rail service, and
- Discusses rail planning issues.

State Rail Planning

FEDERAL REQUIREMENTS

The federal requirements for a State Rail Plan are contained in 49 Code of Federal Regulations (CFR) Part 266. Section 266.17 states that the State Rail Plan shall 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." Section 266.17 also specifies the format and contents of a State Rail Plan.¹

The program of federal grants to fund Local Rail Freight Assistance (LRFA) was established by Section 5 of the Department of Transportation Act (49 U.S.C. 1654 et. seq.). Although the LRFA program has not been funded since 1995, a number of states, including Montana, have repaid LRFA funds which continue to be utilized. A state's eligibility to use LRFA funds includes the requirement for an updated state rail plan.²

MONTANA'S CURRENT RAIL PLANNING

General

Section 60-11-101 of the Montana Code Annotated provides that the Montana Department of Transportation (MDT) is the designated state agency for rail planning, developing and updating the Montana State Rail Plan, and administering federal funds under the LRFA program.

Montana published its State Rail Plan in August 1979, and since then has prepared a number of supplements, addendums and updates. The last comprehensive update was prepared in 1993. An amendment, published in December 1997, analyzed the Northern Express Transportation Authority (NETA) spur extension, and rehabilitation of a segment of the Crosby, North Dakota-Whitetail, Montana, line operated by the Dakota, Missouri Valley & Western Railroad, Inc. (DMVW).

This 2000 Montana Rail Plan Update is a comprehensive update of the State Rail Plan.

¹ 49 CFR Part 266, Local Rail Freight Assistance to States, §266.17, Federal Register Vol. 55, No. 231, November 30, 1990, page 49652.

² 49 CFR Part 266, Local Rail Freight Assistance to States, §266.7, Federal Register Vol. 55, No. 231, November 30, 1990, pages 49650-49651.

Role of Rail Planning

Rail planning is an integral component of overall transportation planning in the Montana Department of Transportation. Montana rail planning includes the following functions:

- Monitoring Montana's rail infrastructure and operations
- Acting when state interests are at stake
- Coordinating rail with other transportation modes where appropriate
- Overseeing the use of federal local rail freight assistance (LRFA) funding
- Coordinating with Amtrak to facilitate increased use of rail and preservation of existing service levels

Key Montana freight planning issues include the following rail-related issues³:

- Loss of rail branch lines
- Citizen concern over impacts on pavements from truck volumes
- Citizen desire to shift freight from road to rail

This State Rail Plan Update is not the policy plan. Rather, TranPlan 21, Montana's statewide multimodal transportation plan, is the policy plan. TranPlan 21, updated with an Annual Report containing systems characteristics, policy goals and action status, addresses all transportation modes including passenger rail and freight rail.

HISTORY OF RAIL PLANNING IN MONTANA⁴

Montana began state rail planning when the federal government began providing local rail service assistance (LRSA) funding in the 1970s, and produced its initial State Rail Plan in 1979. State Rail Plan Updates were published in 1982, 1984 and 1993. Supplements were published in 1980, 1983, and 1985-86. An Addendum was published in 1990, and an Amendment in 1997.

State Rail Planning was a function of the Montana Department of Highways in 1979. The 1982 Update was prepared by the Montana Department of Commerce after the rail planning function moved to that department in 1981. Montana law MCA 60-11-101 designated the Montana Department of Transportation, created in 1991, as the state rail planning agency. The 1993 Update was prepared by MDT.

The most important rail issue facing Montana in the 1970s and 1980s was the bankruptcy of the Milwaukee Road and consequent efforts to preserve service on that railroad's lines in Montana. Related to that, and also an important rail issue facing Montana, was the near-absence of rail competition because of Burlington Northern's

³ Montana TranPlan 21, Volume I, Overview: Policy Goals and Actions, February 1995, page 19.

⁴ Assistance was provided by John Craig and Jan Vogel, Transportation Planning Division of Montana Department of Transportation, in preparing this history.

(BN's) (now the Burlington Northern and Santa Fe Railway Company's (BNSF's)) market dominance in Montana. The State of Montana acted to preserve rail service and promote rail competition through a number of federally-funded projects.

In the early 1980's, Montana both granted and loaned LRSA funds. When the federal funds began "drying up", Montana shifted to loaning rather than granting. Funding was concentrated on branch lines, for example the Moccasin-Geraldine line now operated by Central Montana Rail, Inc. (CMR). The State of Montana owns this right of way. Montana acquired a second short line in Butte, the Butte Hill Line, which was donated to the Butte Historic Parks Railroad. At Silver Bow (a railroad location near Butte), the State of Montana utilized LRSA funds in the amount of \$1.7 million for construction of a 52-car grain terminal, for the purpose of securing rail competition via Union Pacific Railroad (UP).

Over time, \$4.4 million in LRFA funds were invested in the Moccasin-Geraldine line, reducing highway impacts which would have resulted from truck shipment, and/or avoiding the socio-economic impacts which would have resulted from closure of the Geraldine branch line.

Another \$3.7 million was loaned to BN to improve the Power-Choteau-Fairfield and Conrad-Valier branch lines. The money has been repaid and respent.

The LRSA program became LRFA (Local Rail Freight Assistance) in 1989, and there have been no federally-funded rail projects in Montana since the 1980's until rehabilitation of the Whitetail line, which began in 2000. 1995 was the last year in which Congress appropriated funds for LRFA; however, Montana continues to utilize repaid loan funds.

Table 1 arrays Montana's LRFA projects.

Table 1

Montana Local Rail Freight Assistance Projects

Recipient	Year	Location of Project	Federal Funds	Type
Burlington Northern (BN)	1985 1979-82 1980-82	Moore-Sipple Conrad-Valier Choteau-Fairfield-Power	\$ 238,095 1,440,967 2,258,600	Grant Loan (5.5% interest) Loan (no interest)
Rarus Railway (RARW)	1988	Rarus Siding	23,039	Grant
Port of Montana	1983-84	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 1986 1988	Spring Creek-Geraldine Spring Creek-Moccasin Spring Creek Wye	\$ 4,427,165	Grant (Repaid Loan Funds)
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 "recycled" federal LRFA funds.

PUBLIC SERVICE COMMISSION⁵

The Public Service Commission (PSC) responsibilities with regard to railroads relate primarily to safety. There are two motive power equipment safety inspectors, who inspect rail equipment to insure conformity with Federal Railroad Administration (FRA) regulations. Montana no longer has a track inspector. FRA performs all track inspection in the state.

The railroads are required to maintain fences to keep livestock off the tracks, and PSC may be called upon to take action when rail fencing is not adequate.

PSC also retains responsibilities with regard to living conditions of track workers.

With regard to branch line abandonments, the Montana Department of Transportation (MDT) takes the lead for the state in these Surface Transportation Board proceedings.

⁵ Based upon an Interview with Wayne Budt, Administrator, Public Service Commission, July 13, 2000.

Montana's Railroads

DESCRIPTION OF MONTANA'S RAIL NETWORK

General

Below is a listing of Montana's railroads, their route-miles within Montana, and the number of carloads transported in Montana in 1999, including traffic not originating or terminating in the state. Map 1 shows Montana's rail network.

<u>Railroad</u>	<u>Montana Route Miles</u>	<u>1999 Carloads</u>
Class I⁶		
Burlington Northern and Santa Fe Railway Company	2,135	1,570,048
Union Pacific Railroad Company	125	10,941
Regional⁷		
Montana Rail Link	812	261,011
Dakota, Missouri Valley and Western Railroad, Inc.	57	1,264
Local Railroads⁸		
Central Montana Rail, Inc.	87	1,140
Montana Western Railway Co.	59	8,672
Rarus Railway Company	<u>69</u>	<u>2,421</u>
Total	3,344	1,855,497

Source: R-1 Reports to Montana Public Service Commission

Montana's two Class I railroads are discussed first, followed by Montana's two Class II railroads. Montana's three short line railroads are then described. Finally, the prospective Tongue River project is summarized.

⁶ A Class I railroad is one which has operating revenue of \$259.4 million or more ("Railroad Facts", Association of American Railroads, 1999 edition, page 3). This classification is adjusted annually for inflation.

⁷ A Class II (regional) railroad is one which has operating revenues of \$20.8 million to \$259.4 million ("Railroad Facts", Association of American Railroads, 1999 edition, page 3).

⁸ A Class III (local) railroad is one which has operating revenue less than \$20.8 million ("Railroad Facts", Association of American Railroads, 1999 edition, page 3).

Burlington Northern and Santa Fe Railway Company (BNSF)

BNSF is by far the largest railroad in Montana, operating 2,135 route-miles within the state.⁹ The entire BNSF system covers the western two-thirds of the United States. BNSF headquarters is at Fort Worth, Texas.

Revenue freight originating and terminating within the state in 1999:

	<u>Carloads</u>	<u>Tons</u>
Originating		
Coal	262,546	30,587,570
Farm products	39,602	3,857,648
Lumber and wood	20,185	1,548,908
Petroleum, coal products	15,681	1,348,385
Stone, clay, glass prod.	5,880	561,462
Other	<u>26,639</u>	<u>2,016,846</u>
Total	370,533	39,920,819
Terminating		
Coal	6,833	778,680
Petroleum, coal products	4,819	389,317
Misc. mixed shipment	4,802	75,337
Metallic ores	4,207	427,557
Lumber and wood	3,762	286,958
Other	<u>19,206</u>	<u>1,013,848</u>
Total	43,629	2,971,697

Source: BNSF R-1 Report to Montana Public Service Commission

Inspection of the table discloses that coal is by far the dominant commodity, accounting for 65 percent of carloads carried and 73 percent of all originating and terminating traffic by weight.¹⁰

Individual Line Description

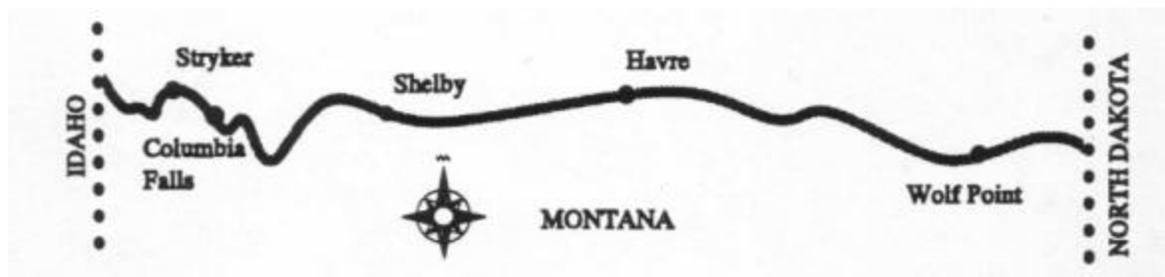
BNSF operates numerous main lines in Montana. The principal ones are the BNSF line crossing the state from east (North Dakota) to west (Idaho), passing through Wolf Point, Glasgow, Malta, Havre, Shelby, Cut Bank, Browning, East Glacier Park, Essex,

⁹ BNSF R-1 Report to Montana Public Service Commission for the year ending December 31, 1999.

¹⁰ RLBA calculation based upon BNSF R-1 Report to Montana Public Service Commission for the year ending December 31, 1999.

West Glacier, Whitefish and Libby (the route taken by Amtrak's Empire Builder through Montana); the Glendive-Billings line; and the Billings-Sheridan (Wyoming) line. These three main lines are the most heavily used BNSF lines in Montana. These and other BNSF main lines in Montana are described below, followed by descriptions of BNSF branch lines.

Wolf Point-Havre-Shelby-Libby Main Line



The Wolf Point-Havre-Shelby-Libby main line in Montana is a segment of one of BNSF's principal east-west main lines, which connects the Midwest with the West Coast. It traverses approximately 675 miles within Montana, and includes within the state two major BNSF divisions and four subdivisions. At an elevation of 5,213 feet, the former Great Northern Hi Line boasts the lowest railroad crossing of the Continental Divide in the United States, at Marias Pass. This route has for some time hosted considerable intermodal (container) traffic, and is also a key corridor for grain moving to Pacific Northwest ports.

The line is single-tracked between the North Dakota border and Havre, and between Whitefish and the Idaho border.¹¹ Between Havre and Whitefish, numerous sections of main line have been double-tracked.¹² Total miles double-tracked within Montana are 122.¹³ Virtually the entire route has centralized traffic control (CTC)¹⁴, a train movement system by which a remote dispatcher controls the throwing of switches and clearing of signals. Maximum track speed is 60 miles per hour (mph) for freight trains, and 79 mph for passenger trains. Maximum gross car weight on this line is 286,000 pounds (143 tons)--the rail car weight which has become the efficiency standard on Class I railroads. Annual freight traffic on this line varies, depending on segment, between 52 and 67 million gross tons (MGT)¹⁵; this is a major transcontinental rail freight trunk route.

¹¹ BNSF Timetables, Montana Division and Washington Division, April 1, 1998.

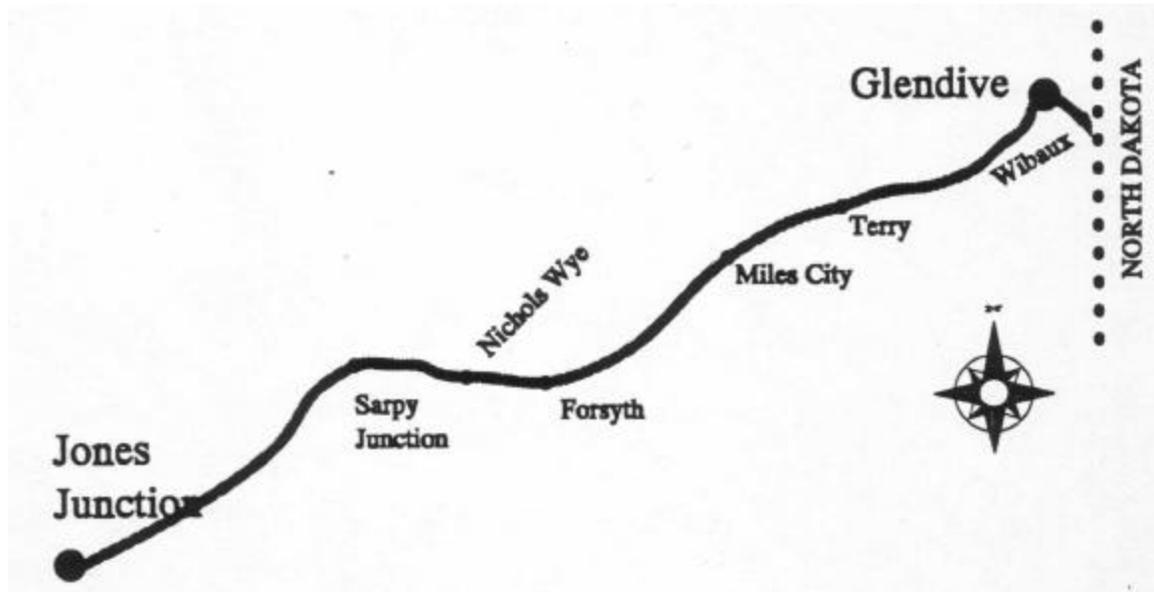
¹² *Ibid.*

¹³ Interview, Patrick C. Keim, BNSF Director of Government Affairs in Montana, July 25, 2000.

¹⁴ BNSF Timetables, Montana Division and Washington Division, April 1, 1998.

¹⁵ BNSF 1999 Traffic Density Map, Montana, February 22, 2000.

Dickinson (North Dakota)-Glendive-Billings Main Line



This is one of two BNSF coal-hauling main lines in Montana. From Glendive, the line extends eastward across North Dakota. The economic attractiveness of low sulfur coal surface-mined from the Powder River Basin has resulted in significant traffic growth on this line since the first Montana State Rail Plan was prepared over 20 years ago. Indeed, this is today the heaviest-trafficked rail route in Montana, carrying annually between 55 and 69 MGT.¹⁶ Virtually all of this traffic consists of eastward-bound unit coal trains loaded at mines in Big Horn and Rosebud Counties, and in Wyoming.

The line is single-tracked. For the most part, operation of this main line is by track warrant control (TWC) and automatic block signaling (ABS). TWC is a system of train control by which train movement is authorized by radio and limited to a specific section of track. ABS is a system of train control in which signals are controlled automatically by the trains themselves. The presence or absence of a train is determined by an electrical circuit of which the track is a part. Single track segments may be controlled by TWC, authorizing access, in addition to ABS; this is the method used for much of this main line in Montana. Other segments are controlled by CTC.

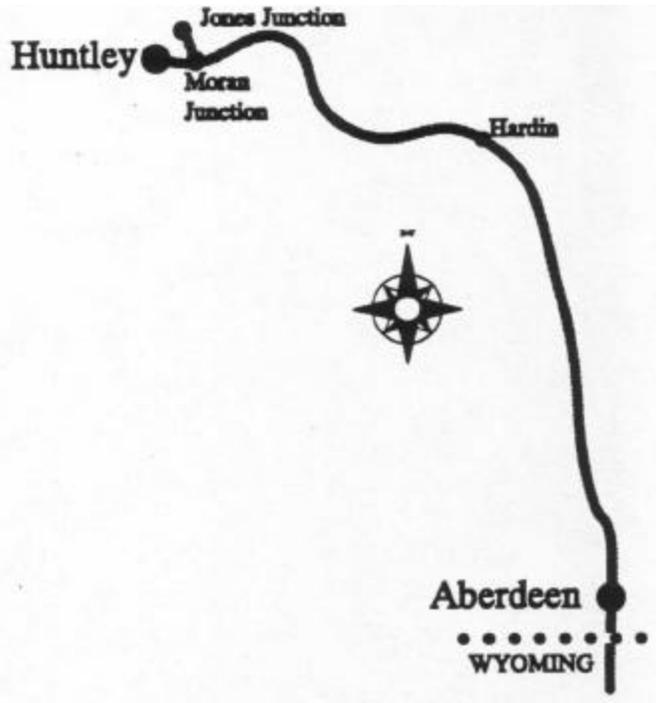
Maximum freight train speed on this line is 60 mph. Maximum gross weight of car is 144 tons.¹⁷

¹⁶ BNSF 1999 Traffic Density Map Montana, February 22, 2000.

¹⁷ BNSF Dakota Division Timetable No. 1, April 1, 1998, Forsyth Subdivision.

Huntley (Billings)-Sheridan, Wyoming, Main Line

This is the other BNSF coal-hauling main line in Montana, and carries loaded coal trains in both directions. From mines near Decker, some Montana coal shipments are carried northwest to Huntley and then eastward over the Glendive-Billings line into North Dakota and beyond. Other Montana coal shipments are carried southward through Wyoming and Nebraska to points further south and east. The Huntley-Sheridan line carries 59 MGT.¹⁸



This line is similar to the other coal main line; it is single-tracked; maximum train speed is 60 mph; and maximum car gross weight is 144 tons. Operation is by CTC.¹⁹

Laurel-Frannie, Wyoming Main Line

This north-south single track main line connects Montana by rail with points in Wyoming and Colorado, and points eastward, southward and westward. Maximum line speed for freight trains is 49 mph; maximum gross weight of car is 143 tons; and operation of the line is by TWC.²⁰ Traffic density is 13 MGT in Montana.²¹



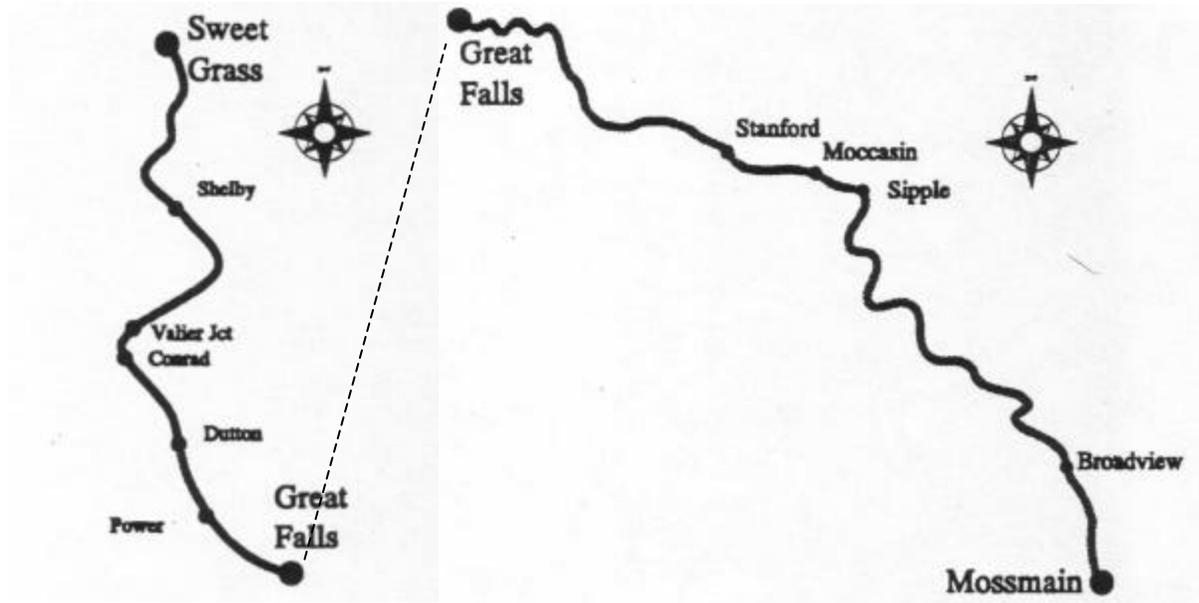
¹⁸ BNSF 1999 Traffic Density Map Montana, February 22, 2000.

¹⁹ BNSF Powder River Division Timetable No. 3, April 1, 1998, Big Horn Subdivision.

²⁰ BNSF Colorado Division Timetable No. 3, April 1, 1998, Casper Subdivision.

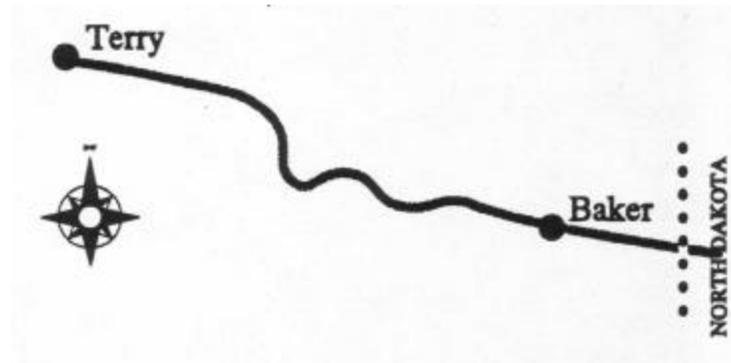
²¹ BNSF 1999 Traffic Density Map Montana, February 22, 2000.

Sweetgrass-Shelby-Great Falls-Laurel Main Line



Segments of this north-south BNSF single track main line carry between five and twelve MGT annually.²² Maximum freight train speed is 49 mph (FRA Class 4 track) between Shelby and Laurel, and 40 mph (FRA Class 3 track) between Shelby and Sweetgrass (FRA Class 3 track); maximum gross weight of car permitted is 143 tons. The line is operated by TWC.²³

Terry-Baker-Hettinger, North Dakota Main Line



This single-tracked BNSF main line carries 10 MGT²⁴ and connects Terry with North and South Dakota and points further east and southeast. Maximum freight train speed is 40 mph; maximum gross car weight is 143 tons; and the line is operated by TWC and ABS.²⁵

²² *Ibid.*

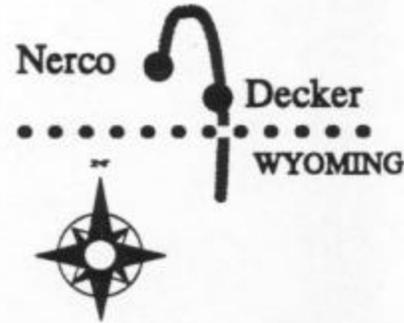
²³ BNSF Montana Division Timetable No. 2, April 1, 1998, Sweet Grass and Laurel Subdivisions.

²⁴ BNSF 1999 Traffic Density Map Montana, February 22, 2000.

²⁵ BNSF Dakota Division Timetable No. 1, April 1, 1998, Hettinger Subdivision.

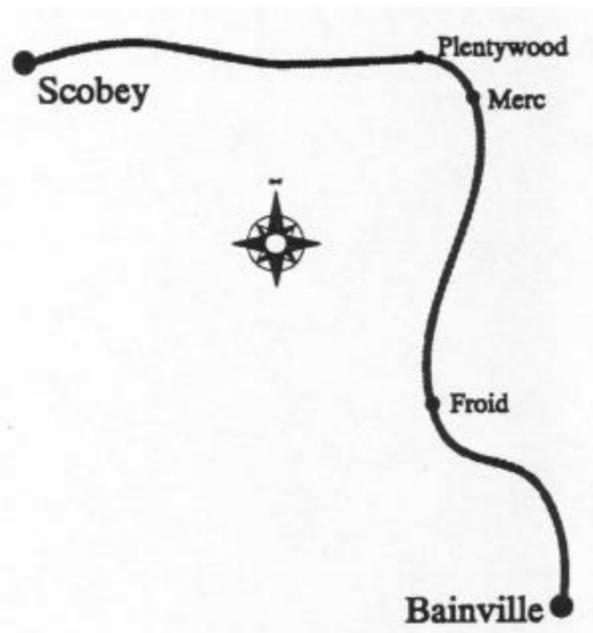
Decker-Dutch Junction (near Sheridan, Wyoming) Main Line

This single-tracked main line carries coal from mines in the vicinity of Decker. Traffic in 1999 was 32 MGT. Maximum freight train speed is 30 mph; maximum gross car weight is 144 tons; and the line is operated in part by CTC and in part by TWC.²⁶



Bainville-Scobey Branch Line

This 99-mile single-tracked branch line is operated by TWC, and has a maximum freight train speed of 25 mph. Maximum car gross weight is 143 tons between Bainville and Plentywood, and 134 tons between Plentywood and Scobey.²⁷



Traffic of 1,685 carloads, virtually all outbound grain, was reported for the year 1991 in the 1993 State Rail Plan. Current carloads on this branch line total 3,053. Traffic densities on the line between Bainville and Plentywood vary from 165 carloads per mile (Bainville-Froid) to 494 (Homestead-Medicine Lake).²⁸ These densities are relatively robust, and suggest branchline viability.

Between Plentywood and Scobey, however, there are only 15 carloads per mile, suggesting that the future of this segment is in question.

As an approximate indicator of rail line viability, one may divide the annual number of carloads by the length of the rail segment which carries them. The Federal Railroad Administration established 20 carloads per mile as one of its criteria for federal funding assistance under the Local Rail Freight Assistance program. Although there is no widely-accepted carloads per mile figure by which low density line viability may be determined, a range of 20 to 100 is perhaps an acceptable range.

²⁶ BNSF Powder River Division Timetable No. 3, April 1, 1998, Dutch Subdivision.

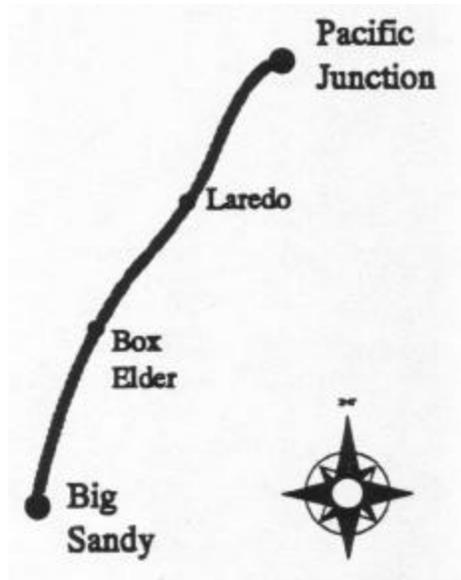
²⁷ BNSF Montana Division Timetable No. 2, April 1, 1998, Scobey Subdivision.

²⁸ These and all other traffic densities expressed in carloads per mile result from RLBA calculations, unless otherwise noted.

Havre-Big Sandy Branch Line

The single-track branch line between Pacific Junction (Havre) and Big Sandy is 31.2 miles in length. Traffic control is by TWC; maximum speed is 25 mph; and the maximum size railcar permitted is 143 tons.²⁹

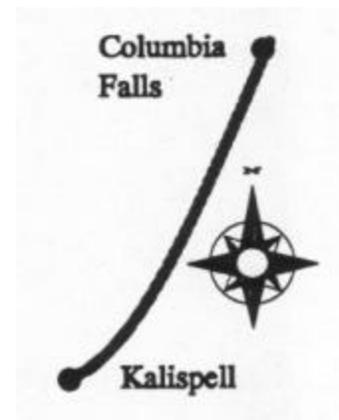
1991 carloads totalled 1,747.³⁰ This is a grain (wheat) haul line, originating about 5 million bushels annually from two elevators at Big Sandy.³¹ These elevators filled approximately 1,227 cars in 1999. About 6 carloads of fertilizer terminate on the line, also at Big Sandy. Dividing total carloads by line length, traffic density is 40 carloads per mile, which is within a range that may indicate viability. Construction of a 110-car grain loading facility at Havre, however, casts doubt over the future of this branch line. The Big Sandy elevator operators say they are optimistic.



Columbia Falls-Kalispell Branch Line

This 14.4-mile single-track branch line is operated by TWC and has a maximum track speed of 25 mph for freight trains. Equipment weight restriction is 143 tons.³²

The 1991 carloads on this line totalled 3,043, including forest products, grain, food and construction products, as reported in the 1993 State Rail Plan. In 1999 this line carried 3,209 carloads, with a resulting traffic density of 223 carloads per mile.



²⁹ BNSF Montana Division Timetable No. 2, April 1, 1998, Big Sandy Subdivision.

³⁰ 1993 Montana State Rail Plan Update, page 4-17.

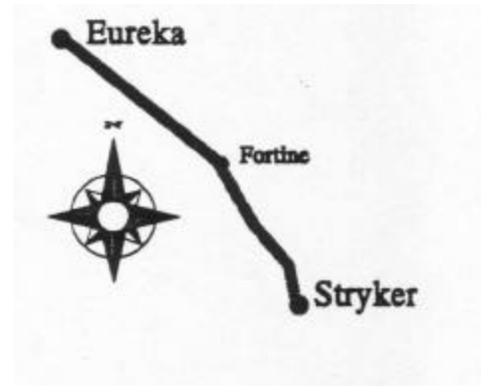
³¹ The determination of current traffic on this line is based upon RLBA research, including interviews with rail users.

³² BNSF Washington Division Timetable No. 2, April 1, 1998, Kalispell Subdivision.

Stryker-Eureka Branch Line

Maximum track speed for freight trains is 25 mph on this 24.5-mile single-track branch line. Maximum car weight is 143 tons.³³

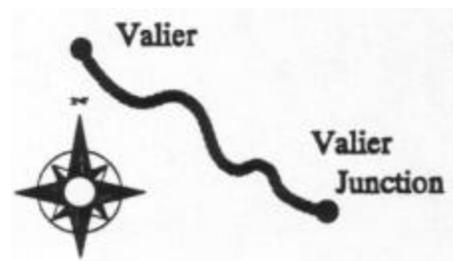
The 1993 State Rail Plan attributed 2,926 carloads—virtually all originating forest products—to this branch line in the year 1991. In 1999, total carloads amounted to 3,338. Resulting carloads per mile range from 202 to 275.



Valier Branch Line

This 17.3-mile single track branch line between Conrad and Valier is operated by TWC, has a maximum track speed of 25 mph, and has a maximum car weight restriction of 143 tons.³⁴

In 1991, there were 862 carloads, mostly originating agricultural products.³⁵ 1999 carloads totalled 538, resulting in a traffic density of 31 carloads per mile.



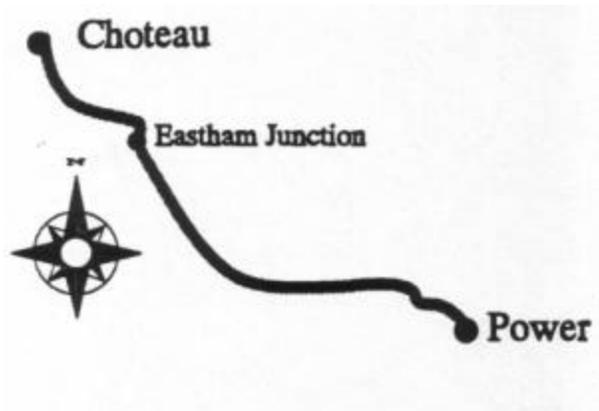
Power-Choteau Branch Line

This 29-mile single track branch line connects Power and Choteau, and is operated by TWC. Maximum track speed is 25 mph, and maximum car weight is 143 tons.³⁶

Choteau traffic in 1991 was 465 carloads, virtually all originating grain.³⁷

There were 98 carloads in 1999. Adding the Fairfield Branch Line traffic, there were 72 carloads per mile over the 21.1 miles between Power and Eastham Junction (connection to the Fairfield Branch Line),

and 12 carloads per mile between Eastham Junction and Choteau.



Fairfield Branch Line

³³ BNSF Washington Division Timetable No. 2, April 1, 1998, Eureka Subdivision.

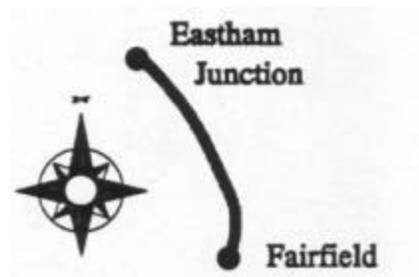
³⁴ BNSF Montana Division Timetable No. 2, April 1, 1998, Valier Subdivision.

³⁵ 1993 Montana State Rail Plan Update, page 4-13.

³⁶ BNSF Montana Division Timetable No. 2, April 1, 1998, Choteau Subdivision.

³⁷ 1993 Montana State Rail Plan Update, page 4-11.

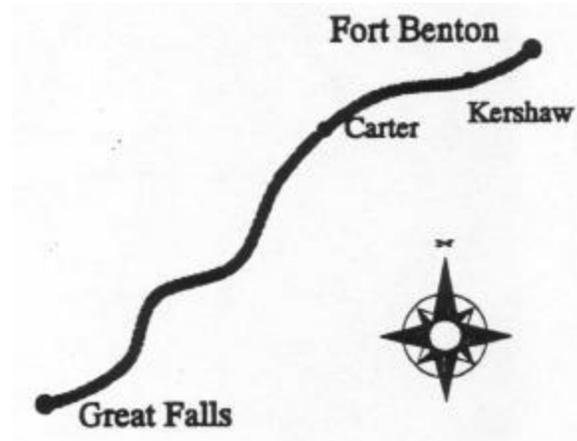
This 10.4-mile single track branch line connects Fairfield with the Power-Choteau Branch Line, is operated by TWC, has a maximum track speed of 25mph, and has a maximum car weight restriction of 143 tons.³⁸



Fairfield carloads, almost entirely originating grain, amounted to 1,124 in 1991.³⁹ Fairfield's 1999 carloads totalled 1,411, resulting in a traffic density of 136 carloads per mile.

Great Falls-Fort Benton Branch Line

This 44.6-mile single track branch line connects Great Falls and Ft Benton, is operated by TWC, has a maximum track speed of 25 mph, and has an equipment restriction of 143 tons.⁴⁰



Branch line traffic in 1991, almost entirely originating grain, totalled 3,600 carloads.⁴¹ 1999 traffic was 2,175 carloads. Traffic densities are 148 carloads per mile between Fort Benton and Kershaw, 115 carloads per miles between Kershaw and Carter, and 75 carloads per miles between Carter and Great Falls.

³⁸ BNSF Montana Division Timetable No. 2, April 1, 1998, Fairfield Subdivision.

³⁹ 1993 Montana State Rail Plan Update, page 4-12.

⁴⁰ BNSF Montana Division Timetable No. 2, April 1, 1998, Fort Benton Subdivision.

⁴¹ 1993 Montana State Rail Plan Update, page 4-10.

Great Falls-Helena Branch Line

Connecting Great Falls and Helena, this 95.4-mile single track branch line is operated by TWC, has a maximum track speed of 35 mph, and can carry a maximum car weight of 143 tons.⁴² Traffic in 1999 was one MGT. Carload information is not available; a “ball park” estimate of carloads per mile is 60.

This line is currently out of service near Ulm due to riverbank stability problems. BNSF is studying the matter. There are no customers on the line; all traffic is overhead, or bridge, traffic to and from Montana Rail Link at Helena. That traffic is being re-routed via Laurel.⁴³

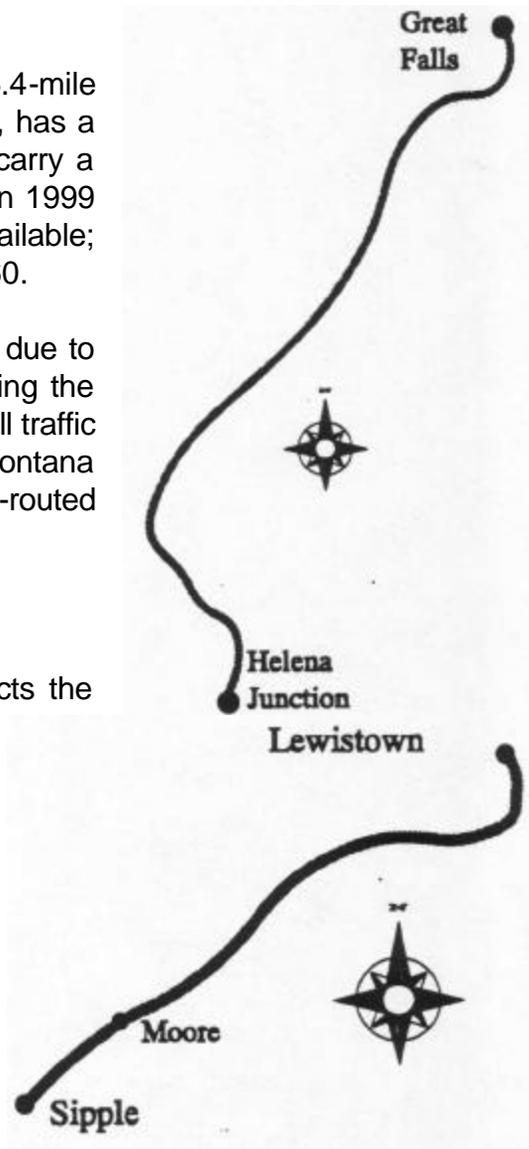
Lewistown Branch

This 25-mile single track branch line connects the

Great Falls-Laurel Main Line with Lewistown. Operation of the line is by TWC; maximum track speed is 25 mph; and maximum car weight is 143 tons between the main line and Glengarry, a railroad location 8 miles from Lewistown, and 134 tons between Glengarry and Lewistown.⁴⁴

1991 carloads, mostly grain, but also wood chips and wood products, totalled 2,025.⁴⁵ 1999 carloads totalled 1,694. Traffic

densities in 1999 were 229 carloads per mile between the main line and Moore, and 50 carloads per mile between Moore and Lewistown.



⁴² BNSF Montana Division Timetable No. 2, April 1, 1998, Helena Subdivision.

⁴³ Communication from Patrick C. Keim, BNSF Director of Government Affairs, Montana, October 12, 2000.

⁴⁴ BNSF Montana Division Timetable No. 2, April 1, 1998, Lewistown Subdivision.

⁴⁵ 1993 Montana State Rail Plan Update, page 4-9.

Glendive-Sidney-Snowden (railroad location near Bainville) Branch Line

This 78.6-mile single track branch line connects the coal-carrying main line through Glendive with the east-west main line through northern Montana and North Dakota. Maximum track speed is 40 mph, and maximum car weight is 134 tons. Operation of the line is by TWC.⁴⁶

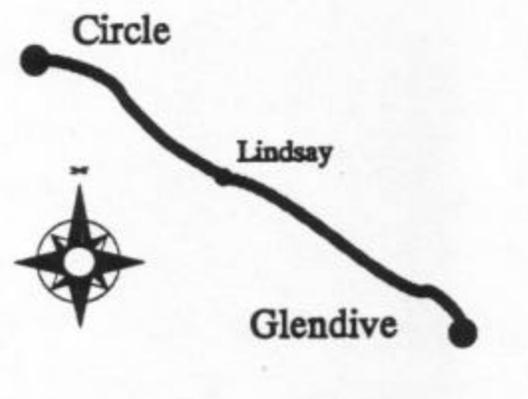
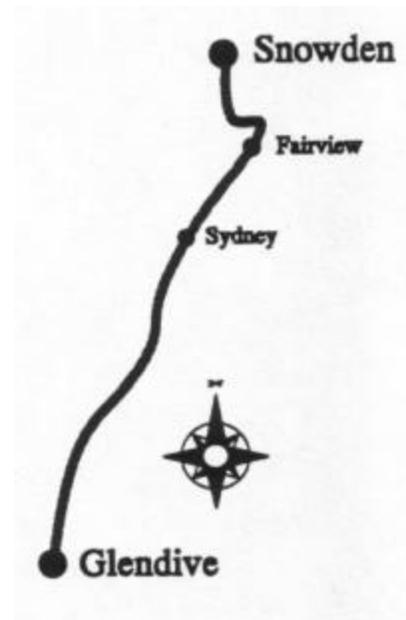
This line carries one MGT. Carloads numbers are not available; a “ball park” estimate of carloads per mile is 70.

Glendive-Circle Branch Line

This single track branch line connects Glendive with Circle, a distance of 52.1 miles. Maximum track speed is 25 mph; maximum car weight is 134 tons.

1991 traffic on this branch line was 1,135 carloads.⁴⁷ 1999 traffic was 680 carloads, resulting in a traffic density of only 13 carloads per mile. Farmers Elevator Company in Circle has been the predominant rail customer on this branch line. This company shipped two million bushels of grain by rail in 1999, accounting for almost all of the rail traffic (the local farmers union has received some fertilizer by rail). A representative of Farmers Elevator Company states that the company hasn't utilized rail service since February 2000. In April, when the new 110-car unit grain train loading facility was completed at Macon, Farmers Elevator Company began shipping grain by truck, because the freight rate is less if the grain is trucked to Wolf Point (Macon).⁴⁸

Given the change in shipping practice by Farmers Elevator Company, there may be insufficient traffic to allow continuation of rail service on this line.



⁴⁶ BNSF Dakota Division Timetable No. 1, April 1, 1998, Sidney Line Subdivision.

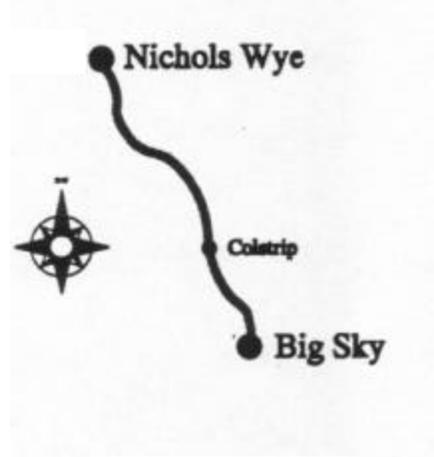
⁴⁷ 1993 Montana State Rail Plan Update, page 4-18.

⁴⁸ Phone interview with Farmers Elevator Company, October 17, 2000.

Colstrip Branch

This 39-mile single track branch line connects the Big Sky Mine with the main line near Forsyth. Maximum track speed is 40 mph; maximum car weight is 144 tons. The line is operated by TWC.⁴⁹

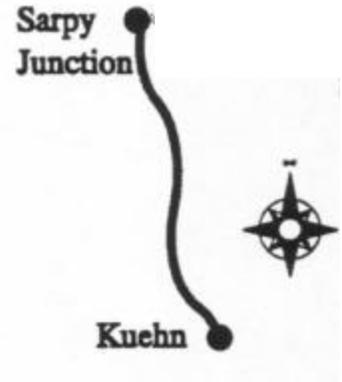
1999 traffic on this line was 5 MGT. This equates to approximately 1,000 carloads per mile. Traffic is virtually all coal.



Sarpy Branch Line

This 35.9-mile single track branch line connects three Big Horn County coal mines with the main line at a location near Hysham. Maximum track speed is 40 mph; maximum car weight is 144 tons; the line is operated by TWC.⁵⁰

This line carried 10 MGT in 1999. This amounts to approximately 2,200 carloads per mile. Traffic is virtually all coal.



Other Information

Frequency of service on main and branch lines is as follows:⁵¹

Main Lines

Wolf Point-Havre-Shelby-Libby	Daily
Dickinson (ND)-Glendive-Billings	Daily
Huntley (Billings)-Sheridan (Wyoming)	Daily
Laurel-Frannie (Wyoming)	Daily
Sweet Grass-Shelby-Great Falls-Laurel	Daily
Terry-Baker-Hettinger (ND)	Daily
Decker-Dutch Junction (WY)	As unit coal trains arrive

Branch Lines

Bainville-Scobey	Weekly or as needed
Havre-Big Sandy	As needed
Columbia Falls-Kalispell	5 days per week
Stryker-Eureka	5 days per week
Valier Branch	As needed
Power-Choteau	As needed

⁴⁹ BNSF Dakota Division Timetable No. 1, April 1, 1998, Colstrip Subdivision.

⁵⁰ BNSF Dakota Division Timetable No. 1, April 1, 1998, Sarpy Line Subdivision.

⁵¹ Interview, Patrick C. Keim, BNSF Director of Government Affairs in Montana, July 25, 2000.

Fairfield Branch	As needed
Great Falls-Fort Benton	As needed
Great Falls-Helena	As needed
Lewistown Branch	As needed
Glendive-Sidney-Snowden	Daily
Glendive-Circle	As needed
Colstrip Branch	As unit coal trains arrive
Sarpy Branch	As unit coal trains arrive

BNSF states that it has no current plans regarding abandonment of track in Montana. BNSF owns the rail right of way between Spire Rock and Butte. Although track and bridges are in place, this line has been out of service since the early 1980s, but not abandoned.⁵² The 1993 Montana State Rail Plan Update suggests that this segment may “eventually” be acquired by MRL.⁵³

BNSF recommends MDT continue assisting branch lines with Local Rail Freight Assistance (LRFA) funding. When asked whether BNSF would accept federal funding, the answer was that BNSF is cautiously moving in that direction, looking for appropriate opportunities.

BNSF has numerous grain and coal loading facilities throughout Montana. Unit coal train facilities are at Spring Creek Mine (near Decker), Decker, Sarpy Creek and Colstrip (2 facilities).

Tax revenue generated by BNSF to Montana and local governments in Montana in 1999 amounts to \$30,517,855.

BNSF railroad employment in Montana is 2,314 persons.

Following is the carload history reported by BNSF to Montana Public Service Commission:

<u>Year Ending</u>	<u>Total Revenue Freight Carloads</u>	<u>Revenue Freight Originating</u>	<u>Revenue Freight Terminating</u>
1993	410,293	385,269	56,872
1994	455,072	428,361	58,726
1995	432,699	410,627	53,083
1996	419,360	396,261	49,125
1997	1,258,087	400,626	45,867
1998	1,555,718	391,578	41,811
1999	1,570,048	370,533	43,629

⁵² RLBA interview with MRL, September 27, 2000.

⁵³ 1993 Montana State Rail Plan Update, page 4-35.

Union Pacific Railroad (UP)

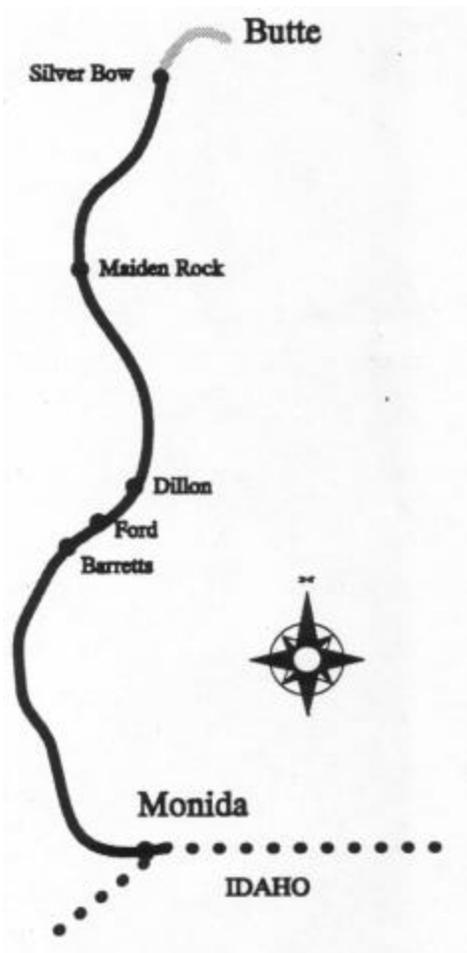
UP, like BNSF, is a major railroad, serving more or less that portion of the United States between Chicago and New Orleans on the east and the Pacific Coast on the west. UP headquarters is in Omaha, Nebraska.

UP has 125.21 route-miles of single track in Montana.⁵⁴ This is part of UP's Montana Subdivision, the rail line connecting Pocatello and Idaho Falls, Idaho, with Silver Bow, a railroad location on the Montana Western Railway near Butte. In 1999, 6,911 UP carloads originated in Montana (mostly lumber and wood (2,524 carloads); farm products (2,299); metallic ores (889); clay, concrete, glass and stone products (631); and pulp, paper and allied products (375). 1,075 carloads terminated in Montana the same year (chemicals (334 carloads); lumber and wood (314); waste or scrap (132); primary metal products (105); and clay, concrete, glass and stone products (98)).⁵⁵ UP's Montana carloads in that year totalled 10,941.⁵⁶

Maximum UP track speed in Montana is 40 mph⁵⁷ (FRA Class 3 track). Rail weight is 133 pound.⁵⁸ Train control within Montana on this subdivision is TWC.⁵⁹ Maximum gross weight restriction is 143 tons.⁶⁰

Line clearance is a 12-foot width between 2'3" above top of rail (ATR) and 18'3" ATR. The upper clearance narrows to 7'10" at 20' ATR.⁶¹

There are three daily trains between Monida and Silver Bow; one is a local, the other two are through freight. Between Dillon and Silver Bow, there are two trains per day, working as locals.⁶²



⁵⁴ UP R-1 Report to Montana Public Service Commission for the year ending December 31, 1999.

⁵⁵ UP R-1 Report.

⁵⁶ *Ibid.*

⁵⁷ Union Pacific Railroad Portland Area Timetable #1, October 25, 1998, page 6.

⁵⁸ Rail is commonly classified by its weight in pounds per yard. In this case, the rail weighs 133 pounds per yard.

⁵⁹ *Ibid.*

⁶⁰ Union Pacific Railroad Portland Area Timetable #1, October 25, 1998, page 7.

⁶¹ "Railway Line Clearances", National Railway Publication Company, New York, NY, Volume 195, 1985/1986 Annual Issue, page 286.

⁶² Interview with UP Manager Train Operations, Idaho Falls, July 25, 2000.

In Montana, UP interchanges at Silver Bow with MWRR and Rarus Railway Company (RARW).

Following is the carload history reported by UP to Montana Public Service Commission:

<u>Year Ending</u>	<u>Total Carloads</u>	<u>Originating</u>	<u>Terminating</u>
1993	18,542	5,860	6,557
1994	16,699	5,388	3,948
1995	11,701	5,113	656
1996	12,637	5,912	0
1997	no data	no data	no data
1998	9,062	5,050	695
1999	10,941	6,911	1,075

UP explains the decline in carloads, 1993-1999, as the loss of a customer, Rhone Poulenc, which stopped operations of its phosphorus plant at Silver Bow in the first half of the last decade.⁶³ There is some bridge traffic, neither originating nor terminating on the UP line in Montana. An Anheuser Busch malt plant in Idaho Falls receives grain from North and South Dakota. An increase in bridge traffic is expected; MWRR delivers grain trains to UP at Silver Bow and UP terminates the traffic at Idaho Falls and Blackfoot, Idaho, and various other locations.⁶⁴

Applying the 1999 total carloads to the entire line (to provide an approximation), traffic is 87 carloads per mile. UP indicates satisfaction with the viability of this branch line although slide problems near Clark Canyon Dam may affect the future viability of the line.

Montana Rail Link (MRL)

Formed in 1987 by assuming control of Montana's Southern Route from BN, MRL operates in three states: Montana, Idaho and Washington. Its main line is a major corridor for rail traffic between Central and Southern states and the Pacific Northwest and Canada. MRL headquarters is in Missoula.

MRL operates 812 route-miles in Montana. 557 miles are main line track; 255 miles are branch line. Of the 812 route-miles, 191 miles are owned by MRL and the remainder is leased. Fifteen miles of main line right of way are double-tracked.⁶⁵

261,011 carloads were moved on MRL in 1999 representing over 32 million gross tons. Principal commodities included lumber and wood products; petroleum and coal products; farm products; food and kindred products; stone, clay, glass and concrete

⁶³ Interview with UP Idaho Falls, September 7, 2000.

⁶⁴ *Ibid.*, October 19, 2000.

⁶⁵ MRL R-1 Report to Montana Public Service Commission for the year ending December 31, 1999.

products; chemicals and allied products; coal; miscellaneous mixed shipments; pulp, paper and allied products; and transportation equipment. 69 percent of MRL traffic is bridged⁶⁶; that is, it simply passes over the line and neither originates or terminates on MRL. A confidential agreement between BNSF and MRL guarantees a certain amount of BNSF traffic to MRL.

MRL interchanges with BNSF at Helena, Laurel and Spokane (Washington), with Montana Western Railway Company, Inc., (MWRR) at Garrison, and with UP at Sandpoint (Idaho).⁶⁷

Individual Line Description

Billings-Bozeman-Helena-Missoula-Sandpoint Main Line



The MRL main line connects Jones Junction, a railroad location northeast of Billings, and Sandpoint Junction, another railroad location, near Sandpoint, Idaho, passing through Billings, Bozeman, Helena and Missoula. The length of this main line is 590.5 miles, 557.0 of which are in Montana. Maximum freight train speed is 60 mph. An additional main line track connects Desmet (a railroad location west of Missoula) and Paradise via Dixon, adding 64.2 miles of main line track. Maximum speed on the Desmet-Dixon-Paradise track is 49 mph.⁶⁸ Both main lines are FRA Class 4 track. Rail on the main line is continuous welded rail (CWR) in three weights: 115, 132 and 136 pounds. The Desmet-Dixon-Paradise main line includes CWR in these weights along with bolted rail of various weights: 100, 112, 115, 131 and 132.⁶⁹

On most of the MRL main line, train control is by CTC. Three relatively short segments of the main line are controlled by ABS and TWC, and two short double-tracked

⁶⁶ Profiles of U.S. Railroads--1999 edition, Association of American Railroads.

⁶⁷ The Official Railway Guide, September/October 2000, page C166.

⁶⁸ MRL Timetable No. 10, April 2, 2000.

⁶⁹ MRL System Condensed Profile and Track Chart, January 1998.

segments by ABS alone. Train control on the Desmet-Dixon-Paradise main line track is by TWC.⁷⁰

1999 traffic density on the main line varies by segment from 24 to 40 MGT, excluding Desmet-Dixon-Paradise. Much of this traffic is BNSF overhead traffic, carried over MRL in accordance with an agreement between the two railroads. Traffic density on the Desmet-Dixon-Paradise main line track is one MGT.⁷¹

Maximum gross car weight on MRL main lines is 143 tons.⁷²

Logan-Spire Rock Branch Line



The Logan-Spire Rock (a railroad location 11.8 miles west of Whitehall) Branch Line is 50.7 miles in length and has a maximum speed of 40 mph (FRA Class 3). Train control is by TWC.⁷³ Maximum car weight is 143 tons. Weight of rail on this line is a combination of 100, 110, 112, 115, 131 and 132 pound; except for a few segments of CWR, this is bolted rail.

Revenue traffic on this branch line in 1999 consisted of 1,318 carloads. Traffic densities are 280, 163, 0.2 and 0 carload per mile, respectively, for the first 7 miles (Logan-Three Forks), the next 12 miles (Three Forks-Sappington), the following 19 miles (Sappington-Whitehall), and the final 13 miles of the branch line (Whitehall-Spire Rock).⁷⁴ These traffic densities suggest that the 32 miles of branch line closest to Spire Rock (i.e., Sappington-Spire Rock) are at risk. 1991 traffic on this branch line was 2,499 carloads between Logan and Whitehall.⁷⁵

⁷⁰ MRL Timetable No. 10, April 2, 2000.

⁷¹ BNSF 1999 Traffic Density Map Montana, February 22, 2000, and information obtained from MRL.

⁷² "Railway Line Clearances", K-III Directory Corporation, New York, NY, Volume 203, July 1993.

⁷³ MRL Timetable No. 10, April 2, 2000.

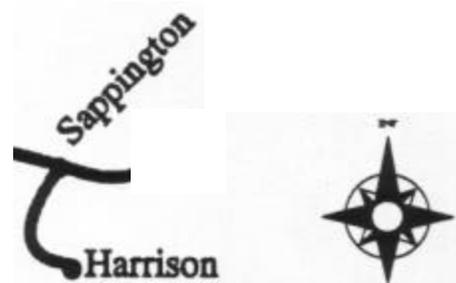
⁷⁴ RLBA calculations, based upon MRL data.

⁷⁵ 1993 Montana State Rail Plan Update, Montana Department of Transportation, June 1993, page 4-30.

Sappington-Harrison Branch Line

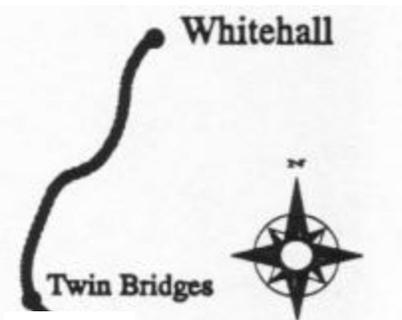
The Sappington (railroad location west of Willow Creek)-Harrison branch line is 9.8 miles in length and single tracked. Maximum speed permitted is 10 mph. This branch line is operated as Block Register Territory (BRT), a method of operation in non-signalized territory where trains, crew and equipment are authorized to occupy the main track in limits designated by the timetable.⁷⁶ Maximum car weight permitted on this line is 134 tons.⁷⁷ Rail weight on this branch line is mostly 85 pound, with some 90 and 115.

In 1999 this branch line carried 37 carloads of grain resulting in a traffic density of four carloads per mile. This very low traffic density suggests that this line is at risk. The 1993 State Rail Plan Update stated that there was only one customer on the line (grain elevator at Harrison), and remarked on its "extremely low traffic level".⁷⁸



Whitehall-Twin Bridges Branch Line

This branch line is 26.1 miles in length; maximum speed is 25 mph; and maximum car weight is 110 tons. The line is operated by BRT. The extension of this line 19.5 miles to Alder is out of service.⁷⁹ Maximum car weight is 110 tons. Rail weight is a combination of bolted and CWR 56, 85, 90, 100 pound.



Traffic on this line in 1999 amounted to 29 carloads of grain. This results in one carload per mile, a very low traffic density. The 1993 State Rail Plan Update stated that a major shipper at Alder relocated its loading facility to Three Forks (on the Logan-Spire Rock branch line) in 1987, that five carloads were carried between Whitehall and Twin Bridges in 1991, and that the line "is a likely future candidate for abandonment."⁸⁰

⁷⁶ General Code of Operating Rules: Third Edition, April 10, 1994, produced by Ribbon Rail Productions along with Daniel S. Dawdy (and associates) and the Alaska Railroad Corporation: Glossary, page 4 of 12, <http://www.akrr.com/Gencode/glossary.html>.

⁷⁷ MRL Timetable No. 10, April 2, 2000.

⁷⁸ 1993 Montana State Rail Plan Update, Montana Department of Transportation, June 1993, pages 4-34 and 4-35.

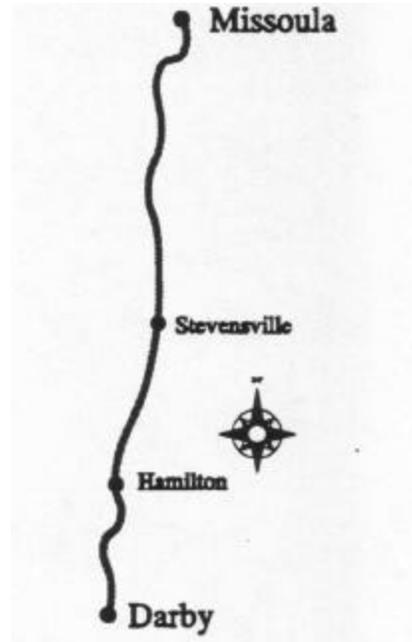
⁷⁹ *Ibid.*

⁸⁰ *Ibid.*, pages 4-30 and 4-31.

Missoula-Darby Branch Line

This 65.4-mile single track branch line connects Missoula and Darby. Maximum speed is 25 mph; maximum car weight is 134 tons. Operation of the line is by TWC. Maximum car weight is 134 tons. Weight of rail on this line is a combination of mostly 85 and 90 pound rail, with a few segments of 112, 115 and 136 pound rail.

1999 traffic on this branch line was a total of 141 carloads. Resulting traffic densities are 6, 21, 6, 1 and zero carloads per mile, respectively, for the mile segments 0-25.5 (Missoula-Bass), 25.5-29 (Bass-Stevensville), 29-36 (Stevensville-Victor), 36-47 (Victor-Hamilton) and 47-65.4 (Hamilton-Darby). Approximating the carloads per mile over the entire line, one may divide 141 carloads by 65.4 miles and obtain two carloads per mile. This at risk branch line carried 466 carloads in 1991.⁸¹



Dixon-Polson Branch Line

This branch line connects Polson with the MRL main line at Dixon, a distance of 33.4 miles. Maximum track speed is 25 mph; maximum car weight is 134 tons. Operation of the line is by TWC. Rail weight is a combination of 70, 85 and 90 pound sections.

Traffic on this branch line in 1999 totaled 575 carloads in 1999. Resulting densities are 29, 108 and 2 carloads per mile, respectively, for the segments 0-20 miles (Dixon-Ronan), 20-25 miles (Ronan-Pablo), and 25-33.4 miles (Pablo-Polson). Approximating traffic density over the entire line by dividing the line's total carloads by the line's total miles, 17 carloads per mile results. This line may be at risk: the traffic trend appears to be downward. A check of earlier traffic densities reveals that in 1989 the Dixon-Polson branch line carried a total of 993 carloads,⁸² and that in 1991 the line carried 806 carloads.⁸³



⁸¹ *Ibid.*, page 4-32.

⁸² 1990 Addendum to the Montana Rail Plan, Montana Department of Commerce, October 1990, page 5.

⁸³ 1993 Montana State Rail Plan Update, Montana Department of Transportation, page 4-34.

East Helena-Montana City Branch Line

This branch line is 4.9 miles in length and serves the Ash Grove Cement plant at Montana City. Maximum track speed is 25 mph (FRA Class 2). It operates as Block Register Territory. Maximum car weight is 143 tons. Rail weight is a combination of bolted 90 and CWR 115 pound. 2,111 carloads (2,095 cement, 16 coke) were moved over this line in 1999: 430 carloads per mile.

Drummond-Philipsburg Branch Line

The 1993 Montana State Rail Plan Update reported that this 26-mile branch line "has been out of service for ten years since a derailment damaged a section of track", that "[l]ittle rail haul potential is envisioned" and that it "is a likely future candidate for abandonment."⁸⁴

Other Information

Frequency of service on main lines, Logan-Spire Rock (at least as far as Sappington) and East Helena-Montana City is daily. Service on other branch lines is two times per week.

MRL has a total of 942 employees.

In 1999 MRL paid \$7,840,779.98 in property taxes in the State of Montana.

Following is the carload history reported by MRL to Montana Public Service Commission:

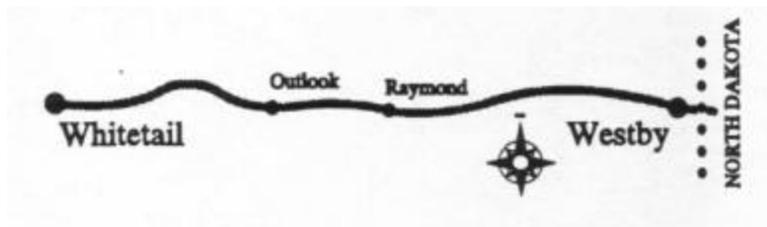
<u>Year Ending</u>	<u>Total</u>	<u>Carloads Originating</u>	<u>Terminating</u>
1993	300,998	50,918	29,629
1994	283,540	54,014	25,540
1995	318,746	57,041	21,784
1996	291,356	61,209	19,549
1997	310,408	Not reported	Not reported
1998	261,146	Not reported	Not reported
1999	261,011	74,054 (total carloads) ⁸⁵	

⁸⁴ 1993 Montana State Rail Plan Update, Montana Department of Transportation, page 4-31.

⁸⁵ UP's report for 1999 did not report originating and terminating, but only total carloads.

Dakota, Missouri Valley & Western Railroad, Inc. (DMVW)

DMVW is a regional railroad operating 364 track miles formerly owned by Soo Line Railroad Company in North Dakota and Montana.



With headquarters in Bismarck, North Dakota, DMVW operates a 95-mile leased mainline track (part of DMVW's Western Subdivision) between Whitetail, Montana, and Crosby, North Dakota. DMVW operates on joint track (BNSF/DMVW) between Crosby and Lignite Junction, North Dakota. Between Lignite Junction and Flaxton, North Dakota, DMVW operates on DMVW track to its interchange with Canadian Pacific Railway (CP) at Flaxton. All DMVW traffic interchanges with CP, which owns the 95-mile DMVW Western Subdivision mainline between Crosby and Whitetail, and the eight miles between Lignite Junction and Flaxton. CP supplies railcars and performs marketing functions for DMVW.

DMVW operates 57 route-miles in Montana. Freight carried within Montana in 1999 amounted to 1,264 carloads, virtually all grain (wheat and durum).⁸⁶ Of this carloads total, 911 originated in Westby, 283 in Whitetail, and 70 in Outlook.⁸⁷ Wheat is destined primarily for the Pacific Northwest, while durum moves to eastern mills.⁸⁸

A Local Rail Freight Assistance (LRFA) project, initiated in May 2000, is replacing crossties and other track components, and surfacing the track over approximately 21 miles between a point east of Dooley and a point west of Outlook (MP636.9-MP658.0) in Montana. The project will permit continued operation of the DMVW line. CP is paying the 30 percent local match required for the project, in addition to funding earlier track rehabilitation projects (1998 and 1999) on other parts of the 95-mile DMVW line.

Another LRFA project, to improve track at Whitetail, is being considered.

The Montana portion of the DMVW line is classified as excepted track with a maximum permissible train speed of 10 miles per hour. This maximum train speed will not be increased as a result of the LRFA project. Restrictions on the DMVW line in Montana include: (1) requirement that no six axle locomotives operate thereon, (2) maximum train length of 100 cars and (3) car weight limit of 268,000 pounds. There are no geometrical (clearance) restrictions on the line. Rail is mostly original, 60 pound at the west end, 72 pound in the middle (approximately 50 percent of the line in Montana) and 80 pound on the east end in Montana.

⁸⁶ Reported by DMVW to Montana Public Service Commission, April 2000.

⁸⁷ Communication with Dennis Ming, Vice President, DMVW, September 12, 2000.

⁸⁸ Communication with Roger Wood, General Manager, DMVW, August 28, 2000.

Frequency of service is about two trains per month over the course of a year. Peak service is about one train per week, a pattern typical of grain gathering lines on the prairies.

The DMVW line in Montana is unsignalled. Block Register Territory is the method of train control; the block register is located in the DMVW office in Crosby.

DMVW has four Montana employees.

Tax revenue generated to Montana state and local government was \$6,000 in 1999.

Following is the carload history (carloads originating and terminating within Montana) reported by DMVW to Montana Public Service Commission:

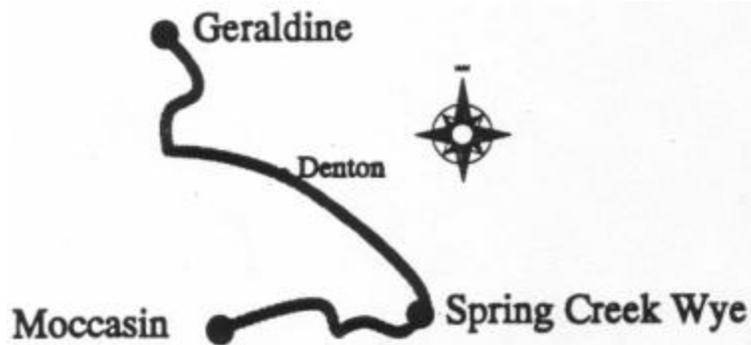
<u>Year Ending</u>	<u>Carloads</u>
1993	2,395
1994	1,617
1995	2,003
1996	1,307
1997	1,406
1998	856
1999	1,264

The 20.1 miles between Whitetail and Outlook carried 14 carloads per mile (283 carloads/20.1 miles) in 1999; the 36.1 miles between Outlook and Westby carried 10 carloads per mile (353/36.1) in the same year. The approximate traffic density over the entire line within Montana, excluding Westby traffic (since Westby is near the North Dakota border), is 6 carloads per mile. These carloads per mile figures are very low, suggesting a non-viable branch line. Using DMVW's projections, and assuming no Outlook traffic, the figure would be 32 carloads per mile (1,800/56.2) for the year 2002.

Central Montana Rail, Inc. (CMR)

Based in Denton, Montana, CMR operates over 87 route-miles, moving 1,140 carloads in 1999 (wheat, barley and fertilizer). Freight revenues earned within Montana in 1999 totalled \$454,545.61.⁸⁹ CMR also operates a passenger-carrying dinner train, Memorial Day through

September, and Christmas and New Year's. 1999 revenue from the dinner train was \$68,700.⁹⁰



Of the 1,140 carloads in 1999, all but 29 were originating grain (575 at Denton, 536 at Geraldine) and the 29 exceptions were terminating fertilizer (15 at Geraldine, 14 at Denton).⁹¹ Cars--mostly covered hoppers--are delivered by BNSF in 52-car units. Frequency of service is "as needed": when empties arrive they are moved to the customer, and when the cars are filled they are moved to the BNSF interchange point at Moccasin Junction. Three customers are located at Denton (two grain, one LP Gas), and two at Geraldine (both grain).

Following Burlington Northern's attempt to abandon a portion of the single track line in 1984, the State of Montana acquired this rail property and then leased it for 25 years to CMR, a non-profit organization, beginning March 12, 1985. In 1992 the lease was extended to 40 years.

CMR is dark (unsignalled) territory. Train control is by track warrant. Track speed is 25 miles per hour (FRA Class 2) over most of the route, and 10 mph at three places: Arrow Creek Hill (MP 106.9-111.1, between Denton and Geraldine), Indian Creek Trestle (MP 79.8, near Danvers) and Ross Fork Trestle (MP 13).⁹² In addition, there are yard limit restrictions (speeds not exceeding ability to stop within sight distances) at Denton, Geraldine, Moccasin Interchange and Kingston.

Rail weights are 100, 90 and 75 pound. Between milepost (MP) 6 and 20 (from a point near Kolin to Kingston), the rail is 100 pound. Between Moccasin Junction (MP 0.4) and MP 6 the rail is 90 pound. 90 pound rail exists between MP 82 (near Danvers) and MP 95 (Denton) with the exception of a mile, MP 86-87, which is 100 pound, at the Sage Creek Tunnel. Four additional miles (MP 107-111) near Arrow Creek are 90 pound. 75 pound rail exists between MP 72 and 82 (from a point near Spring Creek Junction/Kingston Junction to a point near Danvers), MP 95 and 107

⁸⁹ CM R-1 Report to Montana Public Service Commission for the year ending December 31, 1999.

⁹⁰ Phone interview with Carla Allen, General Manager, CM, August 31, 2000.

⁹¹ Phone interviews with Carla Allen, General Manager, CM, August 21 and September 12, 2000.

⁹² Central Montana Rail, Inc., Timetable No. 8, March 15, 1997.

(Denton and Arrow Creek), and MP 111 and 136.9, which is at Geraldine. In summary, somewhat over half of CMR rail is 75 pound, about one-quarter is 90 pound, and the remainder is 100 pound. All public grade crossings are equipped with 115 pound rail.

Although formerly there was a rail connection between CMR and BNSF at Lewistown, that connection is no longer usable because the Spring Creek wood trestle bridge, constructed in the early 1900's, is no longer serviceable. The 1984 Montana Rail Plan indicates that construction of the 5.4-mile Moore-Sipple connection, then costed by Burlington Northern (BN) at \$2.7 million, was preferable to the option of rehabilitation of the Spring Creek bridge.⁹³

Weight limit on CMR is 268,000 pounds. There is a tunnel, but it is wide enough to accommodate covered hoppers. The clearance on CMR is 12 feet wide from top of rail to 18 feet above top of rail.⁹⁴

There are no plans to sell or abandon the line.

CMR has six full-time employees. Tax revenue generated to local governments was \$23,615 in 1999.

Following is the carload history (originating and terminating within Montana) reported by CMR to Montana Public Service Commission:

<u>Year Ending</u>	<u>Carloads</u>
1993	1,404
1994	1,895
1995	2,027
1996	1,601
1997	1,541
1998	1,456
1999	1,140

Given construction of a 110-car grain loading facility at Moccasin, CMR is interested in upgrading its line to handle 286,000-pound railcars. CMR states that upgrading of CMR track must be accomplished in order to remain competitive.⁹⁵ There is concern that some current CMR business will be lost to the 110-car loading facility. On the CMR line, there are several small wooden bridges that would require strengthening in order to carry the heavier cars.

In 1999 1,140 revenue carloads traversed CMR's 43.1-mile line between Moccasin Junction and Denton; this segment carried 26 carloads per mile. Between Denton and

⁹³ Montana Rail Plan: 1984 Annual Update, pages 5-225 – 5-227.

⁹⁴ "Railway Line Clearances", K-III Directory Corporation, Volume 206, 1996/1997 Annual Issue, page 30.

⁹⁵ Phone interview with Carla Allen, General Manager, August 31, 2000.

Geraldine, 1999 traffic density was 13 carloads per mile. Looking at the entire CMR line, the approximate traffic density is 14 carloads per mile. These are relatively low figures, suggesting that this line may require funding assistance for continued operations.

Montana Western Railway (MWRR)

MWRR, created in 1986 by Burlington Northern's sale of the line, operates 58.59 route-miles, seven miles of which is considered branch line and the remainder main line. The 51.59-mile main line connects Butte and Garrison. The 7-mile branch line connects Butte with South Butte. Headquartered in Butte, MWRR moved 8,672 carloads in 1999:



	<u>Carloads</u>
Wood, wood products	3,718
Grain	1,106
Copper-moly	852
Wood chemical	596
Corrosives	424
Slag	342
Scrap	324
Other	<u>1,310</u>
Total	8,672

MWRR earned operating revenues of \$2,401,293 within Montana in 1999.⁹⁶

BNSF continues to supply cars and perform the marketing functions for this carrier. Traffic which originates and terminates on the line amounts to approximately 2,000 carloads. MWRR's largest on-line customer is Louisiana Pacific at Deer Lodge. Some 1,500 carloads of lumber products originate (studs, finger joints) and terminate (logs) here.⁹⁷

MWRR track speed is 25 mph maximum (FRA Class 2) between Garrison and Butte. Track and bridges are suitable for 286,000-pound railcars.

Rail is a combination of 100, 112, 115 and 132 pound. Some of the 115 and 132 is CWR; most of this track is bolted rail.

There is one restriction on the line: 19 feet above top of rail at the Rarus overhead bridge, MP 11.25. This restriction prevents MWRR from handling high-cube double-stack containers to and from the Port of Montana, at Butte, and it also has forced MWRR to return a certain auto rack to UP, which could not, because of this restriction,

⁹⁶ MWRR R-1 Report to Montana Public Service Commission for the year ending December 31, 1999.

⁹⁷ RLBA interview with Michael Greene, President and General Manager, MWRR, August 22, 2000.

be carried on MWRR. MWRR would like to remove this restriction and would be interested in government assistance such as LRFA funding.⁹⁸ Loads wider than 11 feet 9 inches may not be handled between Garrison and Butte without special authority.⁹⁹

Service frequency is five days per week, Monday through Friday. MWRR has 18 employees.¹⁰⁰

About 75 percent of MWRR traffic is bridge traffic between BNSF and UP.

MWRR interchanges with RARW at Butte, MRL at Garrison, and RARW and UP at Silver Bow.¹⁰¹

There is no signal system; trains and engines are authorized to move on main track by TWC.

MWRR has 16 employees.

Tax revenue generated to state and local governments in 1999 was \$69,095.98.

Following is the carload history reported by MWRR to Montana Public Service Commission:

<u>Year Ending</u>	<u>Carloads Originating and Terminating within Montana</u>
1993	14,942
1994	14,959
1995	12,804
1996	12,429
1997	11,434
1998	9,360
1999	8,672

MWRR attributes the decline in traffic, 1993-1999, to the mergers which resulted in BNSF and UP, and the merger conditions which became a part of the STB decisions which approved those mergers.¹⁰²

Dividing the year 1999 carloads by 51.59 route miles, 168 carloads per mile results. As a general indicator of branch line viability, this is considered healthy.

⁹⁸ RLBA interview with Michael Greene, President and General Manager, MWRR, October 17, 2000.

⁹⁹ MWRR Special Instructions No. 2, March 1, 1990, page 4.

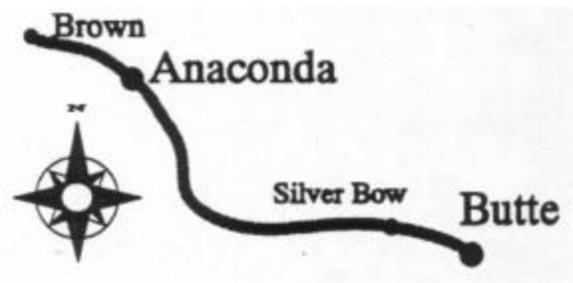
¹⁰⁰ RLBA interview with Michael Greene, President and General Manager, MWRR, August 22, 2000.

¹⁰¹ The Official Railway Guide: Freight Service Edition, July/August 2000, page C165.

¹⁰² RLBA interview with Michael Greene, President and General Manager, MWRR, September 12, 2000.

Rarus Railway Company (RARW)

RARW, headquartered at Anaconda, Montana, operates over 25.7 route-miles of single main line track between Butte and Anaconda. In addition, there is a 4.7-mile quarry line (Brown Spur) west of Anaconda. At present, Brown Spur has no traffic.



At Butte, RARW connects with MWRR; at Silver Bow, RARW connects with MWRR and UP.¹⁰³

RARW carries copper concentrate from Montana Resources, located in Butte, and slag from RDM Multi-Enterprises, located in Anaconda, to Silver Bow for interchange with UP or MWRR. Traffic terminating at Butte (grinding balls, chemicals and beer) is picked up at Silver Bow.

RARW operates five days per week, Monday through Friday. Customer needs dictate the operation; normally there are two or three round trips per week.

Maximum track speed is 30 mph: FRA Class 3 track. Rail is 100, 115 and 119 pound. 100 pound rail exists between MP 1.5 and 3.0 (near Butte); the remaining track is 115 and 119 pound rail.

Maximum car weight on RARW is 263,000 pounds although RARW has handled some cars greater than 263,000 pounds on specific moves.

Bridge 11.02 crosses over MWRR and is the same bridge which causes the MWRR height restriction. Bridge 11.02 restricts RARW to a 19 feet vertical clearance above top of rail and 11'6" width at that height. This restriction is not an issue with RARW.

There is no signal system; train movement is controlled by track warrant.

RARW may some day abandon the Brown Spur, a 4.7-mile line west from Anaconda to a quarry, over which there has been no traffic in 20 years.

RARW has no bulk or intermodal facilities. There are 13 employees. Annual tax revenues paid to local counties total about \$25,000.

Following is the carload history reported by RARW to Montana Public Service Commission:

¹⁰³ The Official Railway Guide: Freight Service Edition, July/August 2000, page C167.

<u>Year Ending</u>	<u>Carloads Originating, Terminating & Local</u>
1993	5,456
1994	5,398
1995	2,757
1996	6,302
1997	2,366
1998	2,609
1999	2,421

Of the 2,125 carloads originated in 1999, 1,795 was copper concentrate from Montana Resources, destined to Silver Bow for interchange with UP or MWRR. The remaining originating traffic, 330 carloads of slag from RDM Multi-Enterprises, also was carried to Silver Bow for interchange with UP or MWRR, or to Butte for interchange with MWRR. Interline traffic terminating on RARW, 198 carloads (grinding balls and chemicals to Montana Resources, beer to a local distributor in Butte), was picked up by RARW at Silver Bow and moved to Butte. Additionally, RARW does some reciprocal-switching: 98 carloads in 1999 (moly concentrate, chemicals, grinding balls, beer and coal: the majority of this comes from MWRR, and RARW switches it to the customer). RARW earned operating revenues of \$1,097,187 in 1999.¹⁰⁴

The 6.8 miles of track between Butte and Silver Bow carried 293 carloads per mile in 1999. Between Anaconda and Silver Bow (18.9 miles), the traffic density was 17 carloads per mile.

The fluctuation in annual carloads over the 1993-1999 period is occasioned by addition of Superfund environmental remediation work--the hauling of mine tailings--in 1993, 1994, and 1996. Additionally, RARW anticipates a considerable reduction--of 1/3 to 1/2--in year 2000 carloads, resulting from a suspension of Butte mine and milling operations by Montana Resources, RARW's largest customer.¹⁰⁵ The suspension, announced June 29, 2000, results from high power costs and low copper prices.¹⁰⁶

RARW anticipates hauling mine tailings again as part of the Silver Bow Creek Superfund remediation project, similar to the work performed earlier. The State of Montana will supervise the project, in which contaminated materials will be loaded and transported to a repository--both sites serviced by RARW. This project will require an additional three to five trains per week during summer months beginning 2001, between MP 1.1 (West Butte) and Anaconda (MP 25.7), and on the Mill Creek Spur crossing Montana Highway 1 east of Anaconda.

RARW states that it has had a relatively stable operation this past decade, except for (1) increased carloads owing to the Superfund remediation haul project, and (2) the

¹⁰⁴ RARW R-1 Report to Montana Public Service Commission for the year ending December 31, 1999.

¹⁰⁵ Interview of RARW, August 23, 2000.

¹⁰⁶ "Montana Resources Temporarily Suspends Some Operations", www.washcorp.com, June 29, 2000.

anticipated reduction in year 2000 carloads owing to reduction in shipping from Montana Resources.¹⁰⁷

Although the customer base is limited, RARW appears to be a successful operation. To complement its freight business RARW offers track construction and rehabilitation services as well as maintenance and repair of industrial switch engines.

RARW states that it has no imminent requirement for funding assistance. If 286,000-pound railcars are to use RARW, then funding assistance would be required. The RARW shop complex is badly in need of roofing and weatherization, but payback on such an investment is not sufficient to justify it.¹⁰⁸

Tongue River Railroad Company

The Tongue River Railroad Company (TRRC) is a Billings-based enterprise which seeks to construct a 127-mile railroad in southeastern Montana to access low sulfur coal reserves in the Ashland area (northern Powder River Basin) to provide a more competitive, cheaper, shorter, more direct route to the Upper Great Lakes and Midwest region marketplace.¹⁰⁹ A project that has been “in the works” for 20 years, the Tongue River Railroad was a joint venture of Westco Resources (and its subsidiary, West Rail, located in Billings) and the Pittsburgh and Midway Coal Mining Company of Boulder, Colorado, until the latter pulled out of the project. It was reported in July 2000 that two “major” coal companies may become investors.¹¹⁰

The initial 89-mile segment, between Miles City and Ashland, was approved by the Interstate Commerce Commission, now the Surface Transportation Board (STB), in May 1986, and is referred to as Tongue River I.¹¹¹ The second segment, known as Tongue River II, extends approximately 40 miles in length between Ashland and Decker, and was approved by the STB in November 1996 via the Four Mile Creek Alternative.¹¹² On April 27, 1998, TRRC filed an application with STB seeking authority to construct and operate a 17.3-mile segment of railroad in Rosebud and Big Horn Counties known as the “Western Alignment” and also referred to as Tongue River III. The Western Alignment is an alternative routing for the Four Mile Creek Alternative approved by the STB in Tongue River II. A decision by the STB on Tongue River III will be made following completion of the environmental review process.¹¹³

¹⁰⁷ Interview with RARW, August 22, 2000.

¹⁰⁸ RARW communication to R.L. Banks & Associates, August 28, 2000.

¹⁰⁹ “Tongue River Railroad: A Coal Transportation Strategy in Southeast Montana”, presentation by Don Sterhan, Director of Business Development, Tongue River Railroad Company, to the Western Coal Transportation Association Fall 1998 Conference, Transcript, September 1998, page 82.

¹¹⁰ “Coal Producers May Invest In Tongue River Railroad”, Coal Transportation Report, July 24, 2000, page 3.

¹¹¹ Interstate Commerce Commission Finance Docket No. 30186 (Sub-No. 1) service date in May 1986.

¹¹² STB Finance Docket No. 30186 (Sub-No. 2), service date in November 1996.

¹¹³ STB Finance Docket No. 30186 (Sub-No. 3), service date October 8, 1999.

Litigation appealed the 1986 permit all the way to the Supreme Court, which denied the appeal.¹¹⁴ The joint venture expects the project to cost in excess of \$350 million to construct 127 miles of line plus a six or seven mile spur in the Otter Creek area.¹¹⁵

TRRC is working with BNSF which presumably would become the railroad operator inasmuch as it controls rail access at both extremities of the proposed new railroad.

TRRC is working with land owners to acquire the right of way; about 70 miles is under contract—cooperative agreements to provide access. TRRC is working with MDT to finalize a memorandum of agreement with regard to planning, location and development of the actual build-in.¹¹⁶

PROCEDURES FOR ANALYSIS OF FREIGHT LINES

This section describes the general principles and procedures used for analysis of rail freight lines.

The role of rail planning in Montana, discussed earlier in this report, includes monitoring Montana's rail infrastructure and operations, and acting where state interests are at stake. It also includes identification of appropriate projects for federal local rail freight assistance (LRFA) funding. Thus it is important to identify rail lines at risk of abandonment, so that a determination of state interests may be made and appropriate state actions, if any, may be taken. The analysis of freight lines in this report is predicated upon a procedure which is directed to these ends.

General Principles and Procedures

The principles and procedures used in analyzing rail freight lines in this rail plan update include the following:

- Obtaining data from the railroads
- Evaluating the data
- Contacting railroad customers (where appropriate)
- Utilizing other data sources
- Using waybill sample data
- Considering public policy

Obtaining Data from the Railroads

The railroads are the first and most important source of data in the analysis inherent in a state rail plan update. This is direct, primary data. There are, however, limitations

¹¹⁴ "Tongue River Railroad: A Coal Transportation Strategy in Southeast Montana", page 83.

¹¹⁵ *Ibid.*, page 85.

¹¹⁶ "Coal Producers May Invest In Tongue River", page 3.

that must be reckoned with. Class I railroads in general are unwilling to expend the resources to provide the detailed data necessary for a thorough analysis of state rail lines. Furthermore, it is unlawful, without consent of the shipper or consignee, to disclose information that may be used to the detriment of the shipper or consignee--often termed proprietary information.¹¹⁷ On the other hand, and again in general, smaller railroads, whose fortunes are more closely tied to local customs, policies and good will, usually respond completely to requests for information relevant to state rail planning and analysis of low density lines.

Evaluating the Data

This step means interpretation of the data with regard to the role and purposes of state rail planning. Thus data and analysis thereof are prioritized in accordance with their utility in accomplishing the role and purposes of state rail planning, and are evaluated to determine their helpfulness and utility in that regard. In some cases, data furnished by the railroads may be sufficient to determine whether a given line is at risk of abandonment. In other cases, additional data must be sought. For example, it is often helpful, in the case of a low density line, to review the traffic history on that line, which may show a trend. In some cases, contacting railroad customers is warranted (see following).

Contacting Railroad Customers (Where Appropriate)

In some instances it is appropriate to contact railroad customers (i.e., shippers and receivers), for example, where railroad data are lacking with regard to evaluation of a specific rail line, or where information is sought that only the customers can provide. The railroad customer may be willing to provide carloading information, and talk about future prospects, including, for example, competition for a country elevator from 110-car unit train loading facilities being constructed in the vicinity. Railroad customers on a given rail line may be surveyed to determine their opinions and reactions regarding line viability, rail dependency, and employment and income impacts. Numerous interviews with rail customers have been a vital source of information in preparing this state rail plan update.

Utilizing Other Data Sources

In addition to the railroads and railroad customers, other data sources are available to evaluate rail freight lines. Other sources used in preparing this report include:

- The Official Railway Guide
- The Pocket List of Railroad Officials
- Railway Line Clearances
- Various information sites on the internet
- Various other professional publications related to railroading

¹¹⁷ Section 11904, Unlawful disclosure of information, Public Law 104-88 (ICC Termination Act of 1995), December 29, 1995.

- R.L. Banks & Associates, Inc., data bases

Using Waybill Sample Data

The specific use of waybill sample data, a secondary source, is described in more detail below.

Considering Public Policy

State and federal policy is an important consideration in evaluation of rail lines.

Some Specific Procedures Utilized: Waybill Sample Data

Freight lines were analyzed by primary data--data obtained directly from the railroads, and from railroad R-1 reports submitted to the State of Montana's Public Service Commission--where available. This primary data was supplemented, because not all railroads provided carload and tonnage data, by secondary data--the so-called waybill sample data.

Since privately-owned railroads consider specific information regarding shippers and detailed traffic flows as proprietary, such data are not readily available to the public. Through sampling of waybills and generalization of data to make it less specific as to railroad and location, waybill sample data are available to public use, and provide indications of freight traffic flows at a gross or general level. A waybill is a document issued with every shipment of freight, giving details regarding the commodity carried, route of movement and railroad revenue. Looking at available public use data, some overall parameters which characterize rail freight operations in a state may be determined. Because of the nature of this data--the result of sampling, and exclusion of information which would identify rail customers and specific locations--it must be used with caution.

Waybill sample data used in this state rail plan update were obtained from Montana and from the Surface Transportation Board.

Waybill sample data are used as a basis for showing carloads and tonnage originated and terminated at Montana locations only where primary data are not available.

More Detailed Evaluation of Freight Lines

Principles and procedures described generally above are used in this report to develop a level of understanding sufficient to describe and characterize Montana's railroad network and operations thereon. Additional tools are available where more

detailed evaluations are necessary, for example, to determine specifics of rail line viability, or to determine benefits and costs of assistance to a rail line.

In order to secure federal funding for Local Rail Freight Assistance (LRFA) projects, the Federal Railroad Administration (FRA) requires preparation of a benefit-cost analysis. The benefit-cost analysis explores and quantifies issues such as rail dependency, employment and income impacts, and the environmental benefits of rail transportation.

RAIL FREIGHT TRAFFIC FLOWS

Traffic Volume

Figure 1, showing rail-carried tons originated and terminated in Montana, provides a perspective on freight railroad traffic in the state.

Based upon reports made by the railroads to Montana's Public Service Commission, annual carloads originating and terminating in Montana have shown a downward trend, 1993-1999, and average about 560,000.¹¹⁸ In 1999, 509,699 carloads originated and terminated in Montana.

Bridge traffic through Montana represents 66 percent of total revenue rail freight on a carload basis, 41 percent on a weight basis.¹¹⁹

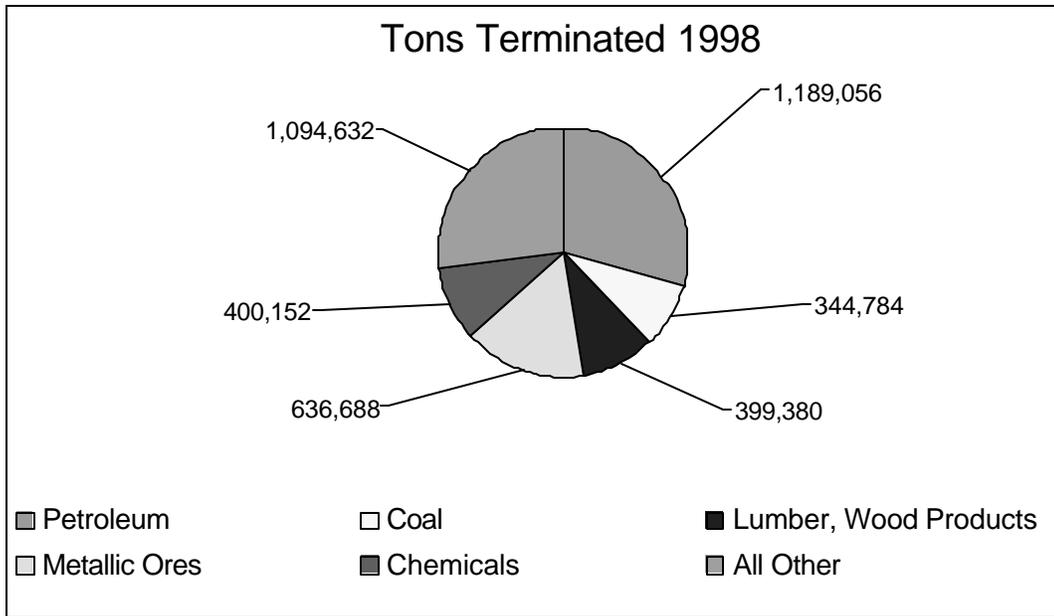
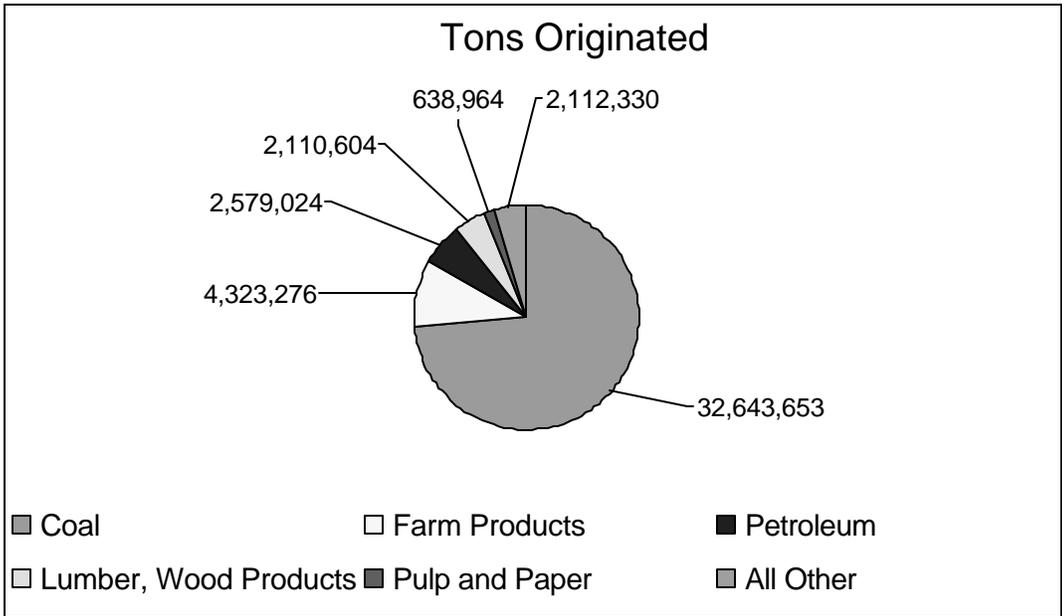
Map 2 on page 43 displays freight traffic volume on Montana's rail system in terms of millions of gross tons per mile per year carried on each rail line.

¹¹⁸ Data for 1997 and 1998 are incomplete and therefore are not included in this average.

¹¹⁹ RLBA calculations based upon 1999 railroad data submitted to Montana Public Service Commission.

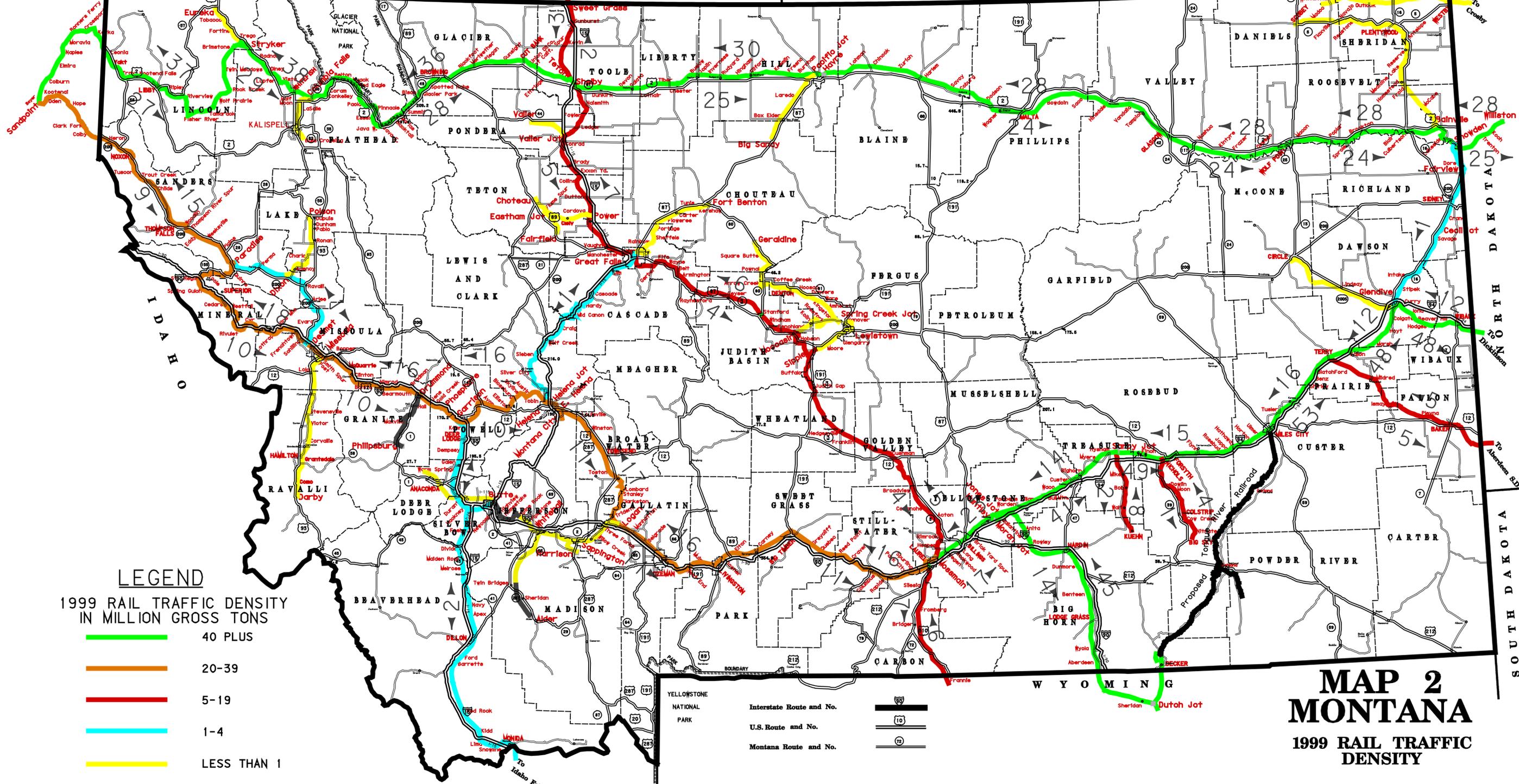
Figure 1

Freight Railroad Traffic in Montana



Source: Association of American Railroads. Based upon 1998 data, that latest data available.

BRITISH COLUMBIA ALBERTA SASKATCHEWAN



LEGEND

1999 RAIL TRAFFIC DENSITY
IN MILLION GROSS TONS

- 40 PLUS
- 20-39
- 5-19
- 1-4
- LESS THAN 1
- OUT OF SERVICE

YELLOWSTONE NATIONAL PARK

Interstate Route and No. 50

U.S. Route and No. 10

Montana Route and No. 12

MAP 2
MONTANA
1999 RAIL TRAFFIC DENSITY

OCTOBER 2000

SOUTH DAKOTA

Track Speed and Limitations

An important component in evaluation of a railroad network is the physical infrastructure and its capabilities and limitations. Map 3 displays the track classification in terms of FRA track class¹²⁰:

<u>FRA Class</u>	<u>Maximum Freight Train Speed</u>
1	10
2	25
3	40
4	60

Track structure is also characterized by the maximum car weight which it will carry, and by line restrictions, such as vertical and horizontal clearance. Map 4 (following Map 3) shows weight limits and line clearances in Montana. Line clearance symbols (numbers in circles) on Map 4 are keyed to Table 2, which displays Montana Line Clearances.

Specific Rail Freight Traffic Flows

The purpose of this section is to analyze, to the extent permitted by available data, rail traffic flows in Montana.

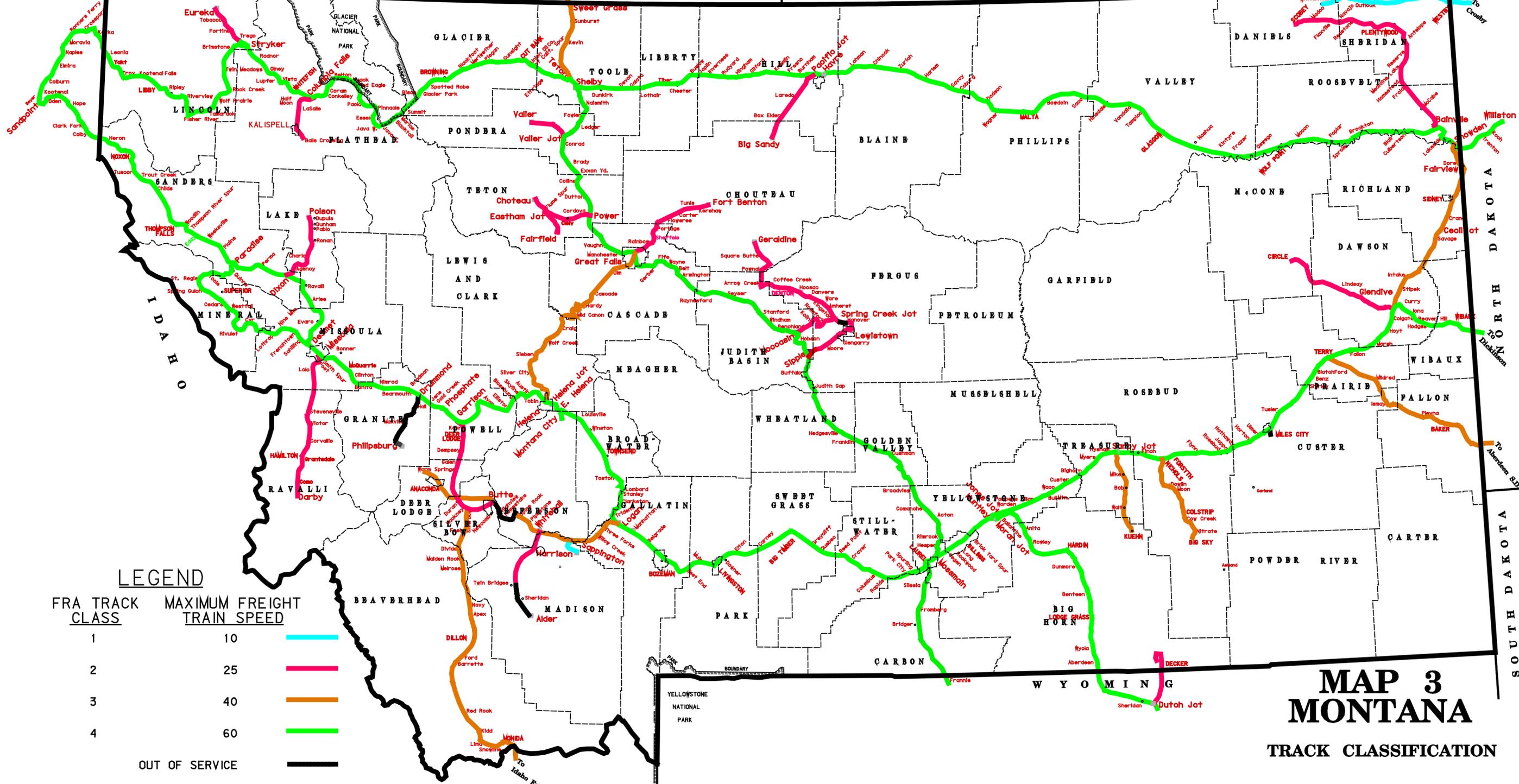
Because of the proprietary nature of the business, rail traffic flows cannot be described with precision. However, there are various data available from which rail traffic flows may be assessed, such as information provided by the railroads, information obtained through interviews with railroad customers, and waybill sample data available from the Surface Transportation Board, as described earlier in the Description of Montana's Railroads.

This section supplements data provided in the earlier line-by-line analysis and provides (where data is available) some specifics. The imprecision of the following discussion is attributable to the incompleteness and unavailability of primary proprietary data, and to absence of confidence in some results from waybill sample data analysis.

As stated above, a considerable amount of rail traffic in Montana is bridge traffic, which neither originates or terminates in the state. Considering only originating and terminating traffic, the originating traffic is much the greater of the two, and three-quarters of originating traffic is coal, shipped to out-of-state destinations.

¹²⁰ There are additional FRA classes, but 60 mph is the maximum freight train speed in Montana. FRA Class 4 track allows a maximum passenger train speed of 80 mph.

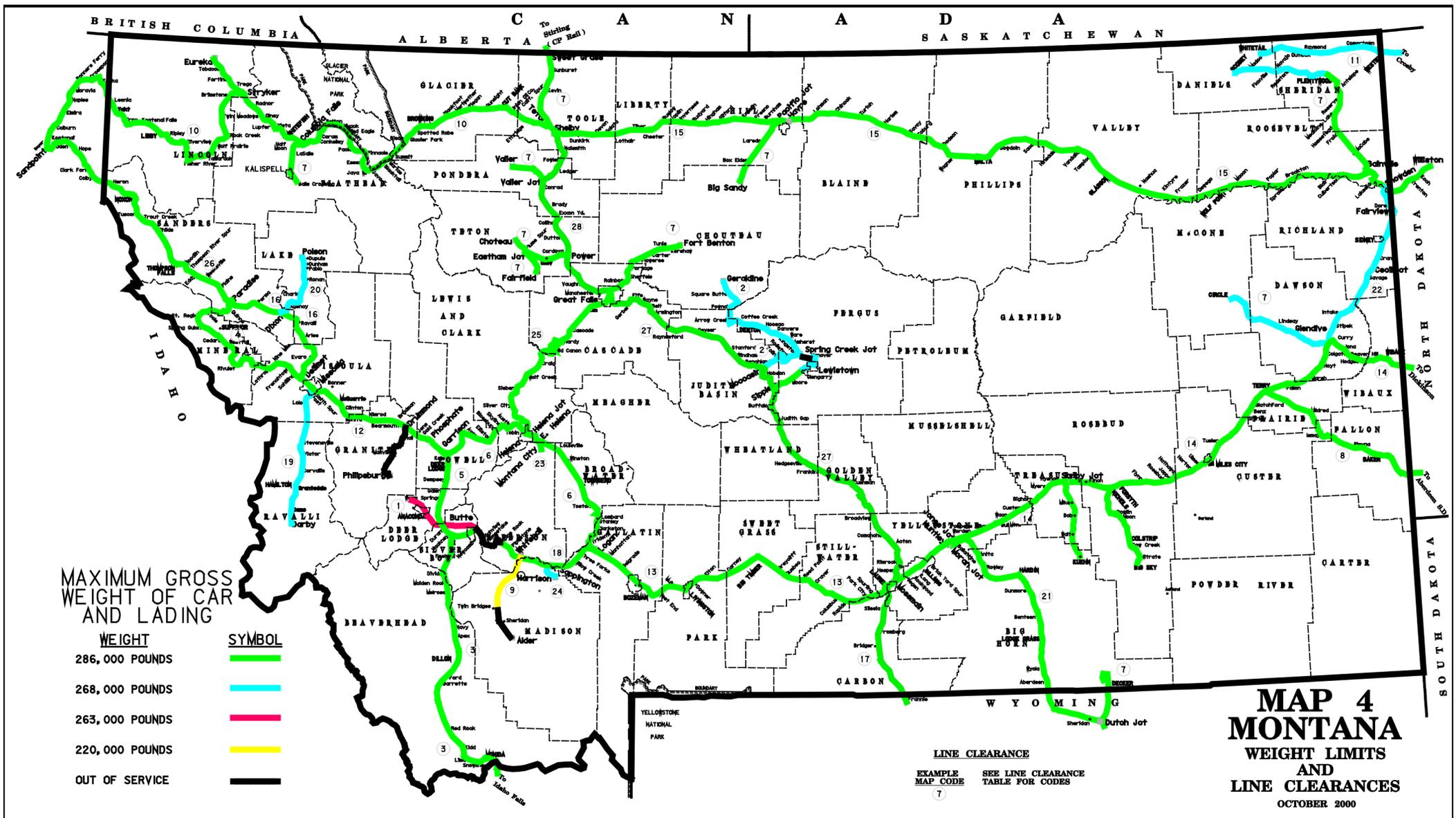
BRITISH COLUMBIA ALBERTA SASKATCHEWAN



MAP 3 MONTANA

TRACK CLASSIFICATION

OCTOBER 2000



Montana Line Clearances

Table 2

Page 1 of 3

<u>Map Code</u>	<u>Height¹²¹</u>		<u>Width</u>		<u>Railroad</u>	<u>Location</u>
	<u>Feet</u>	<u>Inches</u>	<u>Feet</u>	<u>Inches</u>		
1	19	0	11	6	RARW	Butte-Anaconda
	19	0	11	6		
	3	3	11	6		
2	18	0	12	0	CM	Entire System
	18	0	12	0		
	0	0	12	0		
3	20	0	6	5	UP	Idaho Falls–Silver Bow
	18	0	12	0		
	2	6	12	0		
4	20	0	8	8	MRL	DeSmet-St. Regis-Paradise
	16	6	12	0		
	2	0	12	0		
5	19	0	12	0	MWRR	Butte-Garrison
	19	0	12	0		
	3	6	12	0		
6	20	0	8	5	MRL	Logan-Helena-Garrison
	14	3	12	0		
	4	0	12	0		
7	20	0	12	0	BNSF	Havre-Big Sandy
	20	0	12	0		
	2	0	12	0		
7	20	0	12	0	BNSF	Shelby–Sweetgrass
	20	0	12	0		
	2	0	12	0		
7	20	0	12	0	BNSF	Dutch Creek WY-Decker
	20	0	12	0		
	2	0	12	0		
7	20	0	12	0	BNSF	Glendive–Circle
	20	0	12	0		
	2	0	12	0		
7	20	0	12	0	BNSF	Columbia Falls–Kalispell
	20	0	12	0		
	2	0	12	0		

¹²¹ Above top of rail. Table shows maximum height at width shown, maximum height of maximum width, and minimum height of maximum width.

Montana Line Clearances

Table 2

Page 2 of 3

<u>Map Code</u>	<u>Height</u>		<u>Width</u>		<u>Railroad</u>	<u>Location</u>
	<u>Feet</u>	<u>Inches</u>	<u>Feet</u>	<u>Inches</u>		
7	20	0	12	0	BNSF	Bainville–Scobey
	20	0	12	0		
	2	0	12	0		
7	20	0	12	0	BNSF	Great Falls–Fort Benton
	20	0	12	0		
	2	0	12	0		
7	20	0	12	0	BNSF	Power-Choteau-Fairfield
	20	0	12	0		
	2	0	12	0		
7	20	0	12	0	BNSF	Valier Jct.–Valier
	20	0	12	0		
	2	0	12	0		
8	20	0	12	0	BNSF	Terry–North Dakota
	20	0	12	0		
	3	3	12	0		
9	20	0	12	0	MRL	Whitehall–Twin Bridges
	20	0	12	0		
	2	0	12	0		
10	20	0	5	7	BNSF	Cut Bank–Sandpoint ID
	15	3	12	0		
	3	3	12	0		
11	22	0	12	0	DMVR	Flaxton–Whitetail
	22	0	12	0		
	2	0	12	0		
12	20	0	7	5	MRL	Garrison–DeSmet
	17	3	12	0		
	3	6	12	0		
13	20	0	12	0	MRL	Laurel–Logan
	20	0	12	0		
	2	9	12	0		
14	20	0	10	7	BNSF	Casselton ND-Glendive-Terry-Huntley-Laurel
	19	6	12	0		
	3	6	12	0		
15	20	0	9	11	BNSF	Minot ND–Snowden-Shelby-Cut Bank
	19	0	12	0		
	3	6	12	0		
16	20	0	12	0	MRL	DeSmet-Dixon-Paradise
	20	0	12	0		
	2	6	12	0		

Montana Line Clearances

Table 2

<u>Map Code</u>	<u>Height</u>		<u>Width</u>		<u>Railroad</u>	<u>Location</u>
	<u>Feet</u>	<u>Inches</u>	<u>Feet</u>	<u>Inches</u>		
17	20	0	7	8	BNSF	Laurel-Casper WY
	18	9	12	0		
	2	9	12	0		
18	20	0	12	0	MRL	Logan-Whitehall
	20	0	12	0		
	3	9	12	0		
19	20	0	12	0	MRL	Missoula-Darby
	20	0	12	0		
	3	9	12	0		
20	20	0	12	0	MRL	Dixon-Polson
	20	0	12	0		
	3	0	12	0		
21	20	0	8	8	BNSF	Huntley-Gillette WY
	18	6	12	0		
	3	3	12	0		
22	20	0	10	4	BNSF	Snowden-Glendive
	19	0	12	0		
	2	6	12	0		
23	20	0	12	0	MRL	Helena-Montana City
	20	0	12	0		
	2	9	12	0		
24	20	0	12	0	MRL	Sappington-Harrison
	20	0	12	0		
	2	9	12	0		
25	19	0	6	2	BNSF	Great Falls-Helena
	15	0	11	6		
	3	3	11	6		
26	20	0	9	7	MRL	Paradise-Sandpoint ID
	17	9	12	0		
	2	3	12	0		
27	19	9	1	11	BNSF	Great Falls-Laurel
	16	0	12	0		
	5	0	12	0		
28	20	0	10	6	BNSF	Shelby-Great Falls
	19	3	12	0		
	3	6	12	0		

Source: Exhibit 2-6 (page 2-7), 1993 Montana State Rail Plan Update, as adjusted by changes indicated in *Railway Line Clearances* Volume 203 1993/1994 Annual Issue and information from Montana's railroads.

Rail traffic originating out-of-state for termination in Montana represents about 10 percent of the total of originating and terminating carloads.

About 3 or 4 percent of Montana's rail traffic consists of intrastate shipments.

BNSF Originating and Terminating Traffic

About 80 percent of Montana's originating and terminating rail traffic is carried by BNSF. Over half of BNSF's Montana rail traffic originates at coal mines in the Powder River Basin located on rail lines that connect to the BNSF Huntley (Billings)-Sheridan, Wyoming main line and move northward along that line and then eastward over the Glendive-Billings line into North Dakota and beyond. These large coal shipments may be seen in the large tonnages appearing along these routes on Map 2. Other Montana coal shipments are carried southward through Wyoming and Nebraska to points further south and east.

BNSF's northern corridor main line (Wolf Point-Havre-Shelby-Libby) and connecting lines move a large number of commodities by rail, with almost three-quarters of the traffic moving to out-of-state terminations. The primary commodities so moving are grain (over half all volume) and forest products (about 16 percent of traffic). Metallic ores account for over half inbound traffic and 13 percent of total volume on this main line. Petroleum and coal products move inbound accounting for 5 percent of all traffic. Primarily outbound metal products generate just under 5 percent of the highly diverse business on this line.

The Stryker-Eureka branch originates about 3,000 carloads annually (3,338 in 1999). Over 90 percent of this traffic is forest products and the balance, paper products.

The Columbia Falls-Kalispell branch originates about 3,000 carloads (3,209 in 1999); over 90 percent of all carloads are outbound forest products.

The Havre-Big Sandy branch originates over 1,000 carloads of grain (1,227 in 1999) and receives a small number of carloads of fertilizer.

The Bainville-Scobey branch originated over 3,053 carloads (almost all grain) in 1999, and received small volumes of chemicals (probably agricultural) and machinery (non-electrical).

The Sweetgrass-Shelby-Great Falls-Laurel main line carries grain; non-metallic minerals; forest products; food products; metallic ores; stone, clay and glass products; and agricultural chemicals. The predominant commodity carried is grain, originating on the main line and the branch lines which connect to it. Grain-originating branch lines are Valier (538 carloads in 1999), Power-Choteau (98), Fairfield (1,411), Great Falls-Fort Benton (2,175) and Lewiston (1,694).

The Dickinson (North Dakota)-Glendive-Billings main line, the heaviest-trafficked line in Montana, is BNSF's primary coal route in the state, moving traffic originating on

three BNSF coal lines. The line also carries grain, non-metallic minerals and forest products.

The Glendive-Circle branch originated 680 carloads, almost entirely grain, in 1999.

In addition to carrying coal, the Huntley (Billings)-Sheridan, Wyoming, main line in Montana originated grain and forest products.

Traffic on the Glendive-Sidney-Snowden (railroad location near Bainville) branch line includes food products, grain, petroleum and coal products, and non-metallic minerals.

Other Railroads

Traffic flow on all other Montana railroads is described in the Description of Montana's Rail Network section of this report.

RELATION OF MONTANA'S RAIL NETWORK TO REGIONAL AND NATIONAL NETWORKS

Comparison with Other States

Latest available statistics tabulated for all states by the Association of American Railroads (AAR)¹²² indicate that Montana's rail volume compares with the other states based on its tonnage rank as follows:

Montana's	<u>Rank</u>	<u>Category</u>
	14	Originated tonnage
	23	Through tonnage as a percent of total tonnage
	30	Through tonnage
	33	Total tonnage handled
	43	Terminated tonnage

Thus, more tonnage in absolute terms is routed through 29 other states than is routed through Montana. In 22 other states the relative volume of through traffic is greater than the 44 percent experienced in Montana in 1998.

It is important to note that AAR traffic estimates for states are incomplete, as rail traffic shipped to Canada for termination by Canadian railroads is not included. Canadian railroads do not participate in the STB's carload waybill sample reporting system. The same deficiency applies to estimates in the following discussion, based on the 1999 carload waybill sample.

¹²² Based upon the STB's 1998 Carload Waybill Sample.

Another feature of the carload waybill sample to be noted in the following discussion of flow patterns is that traffic reported as originating or terminating in Illinois may move beyond that state, which is the major location for interchange of traffic between western and eastern railroads. This stems from a railroad ratemaking and accounting practice whereby a shipment may move on a western railroad under one waybill document and on an eastern railroad under another, completely separate waybill document.

The BNSF Link

In consequence of a widespread merger movement over the past 40 years, only two major rail systems now serve the western United States: BNSF and UP. Montana's rail network is an integral part of BNSF's system, providing the only linkage to the Pacific Northwest in two corridors that meet at Sandpoint, Idaho. In the southern corridor, BNSF's traffic is hauled over the main line of Montana Rail Link west of Huntley. On the other hand, Montana is linked to UP by what is essentially a branch line south from Silver Bow to UP's main line at Pocatello, Idaho. Thus, BNSF is by far the most important link connecting Montana to regional and national rail networks.

Through Freight Traffic

Given that, excluding north-south West Coast business, all BNSF traffic to and from the Pacific Northwest is routed via Montana, it is not surprising that just under half of the tonnage moving on the state's railroads is flowing through the state rather than from or to rail users located in Montana. For example, based on the 1998 and 1999 carload waybill samples, Montana rail tonnage was distributed as follows:

	<u>1998</u>	<u>1999</u>
Interstate traffic originated in Montana	51%	47%
Interstate traffic routed through Montana	44	48
Interstate traffic terminated in Montana	3	4
Montana intrastate (local) traffic	2	1

1999 was only the second year in the decade when interstate originated tonnage failed to account for at least half Montana's total rail tonnage as estimated by the carload waybill sample. A simultaneous 7.8 percent decline in interstate originations and a 7.8 percent increase in through freight tonnage accompanied the shift that occurred in that year. The decline in originations may be traced to volume at the four rail-served mines where coal production declined by almost 2 million tons in 1999, according to Department of Energy data. The increase is part of a trend where growth of through freight traffic in the decade has been strong, exceeding 40 million tons in 1999 from a base below 25 million tons in the early 1990s.

According to the 1999 carload waybill sample, grain and intermodal freight (containers and trailers) are the leading commodity groups moving by rail through Montana, accounting for about half the over 40 million tons moved. Coal, forest products and

food are other major commodities moving through the state, together generating about a third of through freight tonnage.

States and provinces bordering Montana originated over one third of the rail freight moved through the state, led by Wyoming, which generated almost 18 percent of this class of rail traffic. Over one quarter of the through freight originated on the West Coast, led by Washington, with an almost 19 percent share of the total. 37 other states and provinces originated the balance of the through freight, a volume equivalent to the tonnage generated by states and provinces bordering Montana. Minnesota and Illinois were the primary origins of this freight, each generating over 11 percent of total through tonnage.

Over half the freight moved by rail through Montana was destined for the West Coast, with 42 percent terminating in Washington. Only about three percent of the through rail freight was destined for states and provinces neighboring Montana, although Canadian terminations by Canadian railroads are not represented in the data source. 34 other states were the destinations of 44 percent of Montana's rail through freight with Minnesota and Illinois the leaders, each responsible for about 14 percent of such traffic.

Interstate Originated Traffic

Over three-quarters of the almost 40 million tons of interstate rail traffic originated in Montana in 1999 is coal. Grain, forest products, and petroleum and coal products accounted together for about 18 percent of originations. Over a dozen other commodities generated the remaining 6 percent of interstate rail freight originated in Montana.

Less than 10 percent of interstate rail traffic originated in Montana in 1999 was destined for neighboring states and about 15 percent was destined for the West Coast. Over three-quarters of Montana's interstate traffic was destined for 29 other states with Wisconsin and Minnesota (locations of Great Lakes loading facilities for coal) terminating almost half the state's total originated tonnage.

Interstate Terminated Traffic

Four commodities accounted for about two-thirds of the over 3 million tons of interstate freight delivered by rail to Montana destinations in 1999: coal (from Wyoming), metallic ores, chemical products, and petroleum and coal products. Four other commodity groups account for another one-fifth of this class of rail traffic: forest products, food, scrap and building materials.

Over half the rail traffic that terminated in Montana in 1999 originated in bordering states and provinces with Wyoming accounting for almost one-third of total terminated tonnage. The West Coast originated just under one-quarter of this type of traffic and just over one-quarter originated in 27 other states and provinces.

Intrastate Traffic

The class of rail traffic moving in Montana with the lowest volume (just over one million tons) is that which both originates and terminates within the state. Petroleum and coal products accounted for 46 percent of 1999 intrastate tonnage in Montana, including gasoline, jet fuel, diesel oil and coke. Forest products (primarily pulpwood, wood chips and logs) accounted for one-quarter of total intrastate tonnage. Eight other commodity groups in relatively small volumes generated the balance of this class of rail traffic.

It must be noted that, in analyzing intrastate flow, anomalies were found which cast doubt on the results, and perhaps suggest that the sample size may be too small for credible data.

RELATIVE IMPORTANCE OF MONTANA RAILROADS IN MOVING FREIGHT AND PASSENGERS, COMPARED WITH OTHER MODES

The purpose of this section is to compare the relative importance of Montana railroads, in moving freight and passengers, with other modes: truck, pipeline, intercity bus and air services.

On the Basis of Weight/Volume or Passengers Moved

Perhaps the simplest comparison would be based upon the weight or volume of freight, or numbers of passengers moved. It should be understood that this comparison, although seemingly straightforward, ignores a number of important issues including character of the travel/transportation market, individual/shipper choice and reasons therefor, location-dependent availability of options, etc. This comparison therefor has limited utility.

Freight

Freight railroad tons originated and terminated in Montana in 1998 totalled 48,472,542. Comparable data with regard to truck transportation in Montana is not readily available. Statistics presented in Montana's TranPlan 21 1999 Annual Report are in daily vehicle miles traveled, with respect to commercial vehicles.

Another difficulty with regard to freight traffic comparisons may be illustrated by pointing out that weight is not a particularly descriptive or helpful characteristic of some shipments, e.g., intermodal containers, whereas volume is not a defining characteristic in others. Value of shipment would provide an interesting and helpful basis for comparison, but definitive data are not available.

The pipeline comparison is equally complex. Montana has a number of pipelines, the major ones conveying Canadian crude oil through Montana into Wyoming, conveying

Canadian crude oil to refineries at Billings, and conveying crude oil from eastern Montana wells into North Dakota. Again, data regarding product flows are not readily available. Similarly there are gas pipelines associated with numerous gas fields in Montana.

Air freight tons presented in the TranPlan 21 1999 Annual Report total 21,659; this represents the air freight traffic at Montana's seven primary commercial service airports¹²³ and seven essential air service airports¹²⁴ for the year 1998.¹²⁵

Passengers

Amtrak 1999 Montana ridership, that is, boarding and deboardings at Montana stations, totalled 163,412; the comparable 1998 figure is 138,605.¹²⁶ Montana's intercity bus ridership was 140,000 in 1998, the latest available figure¹²⁷; air travel enplanements (getting on only, at both primary commercial and essential air service airports) totalled 1,150,000 in the same year.¹²⁸

Other Bases of Comparison

Are there other ways to compare these modes of transportation and their relative utility to Montana? Yes, but they will have the same difficulty achieving an "apples to apples" comparison. We know that 92 percent of Montana's agricultural products are shipped out of state by rail.¹²⁹ This statistic suggests the importance of rail transport to Montana's ranchers and farmers. We also know that over 82 percent of all manufactured goods are moved out of Montana by truck.¹³⁰ Clearly, Montana manufacturers have decided this is an economical way to distribute their goods. The point is that transportation choices are made by shippers and individuals based upon what is economical or convenient. The decisions may include a variety of reasons, such as cost, time requirements, dependability, weather and personal preference.

Montana TranPlan 21 states that "Montana is one of the most rural states in the nation, covering a large sparsely populated land area. The highway system fulfills a central role in allowing the state to function politically, economically, and socially."¹³¹ It may properly be said that highways are the primary transportation system in Montana. However, having said that, the observation is still pertinent that not all people or goods will use highways to move in Montana. The choice of passenger transportation mode is made depending on a variety of individual factors, whether to travel by automobile,

¹²³ Billings, Bozeman, Butte, Great Falls, Helena, Kalispell and Missoula.

¹²⁴ Glasgow, Glendive, Havre, Lewistown, Miles City, Sidney and Wolf Point.

¹²⁵ TranPlan 21 1999 Annual Report, Montana Department of Transportation, December 1999, page SC 42.

¹²⁶ RLBA calculation, based upon figures from TranPlan 21 1999 Annual Report, Montana Department of Transportation, December 1999, page SC 45.

¹²⁷ TranPlan 21 1999 Annual Report, Montana Department of Transportation, December 1999, page SC 1.

¹²⁸ *Ibid.*

¹²⁹ "Montana Fast Facts", Montana Department of Transportation website, www.mdt.state.mt.us, 3/20/00.

¹³⁰ *Ibid.*

¹³¹ Montana TranPlan 21, Volume I Overview: Policy Goals and Actions, Montana Department of Transportation, February 1995, page 13.

airplane, passenger train, bicycle or foot. The decision on movement of commodities is likewise made based on the economics, exigencies or vagaries of the particular situation. Although bulk commodities such as coal and grain are generally moved by rail, absent rail (and distances are reasonable) they will go by truck. Although oil and gas are most economically moved over long distances by pipeline, there are situations in which they are transported by rail. Where inland navigation is possible, bulk commodities may be efficiently transported by barge. Many time-sensitive and high-value shipments are moved by truck or air. Each transportation mode has its own merits; each transportation decision-maker considers relevant factors.

An illustration of the importance of modal choice is in the transport of fuel oil westward from Billings by pipeline. Yellowstone Pipeline (YPL) has for years carried fuel from refineries at Billings to Washington state. Because of a series of leaks, the Confederated Salish and Kootenai Tribes denied the renewal of YPL's permit in 1995, whereupon YPL began running a dedicated tank train service on MRL between Helena (later changed to Missoula) and Thompson Falls, where the cargo was transferred back to pipeline. Plans for a new pipeline have met resistance, so the "Gas Local" train service will continue.¹³²

In the 1999 Transportation Stakeholders Survey sponsored by the Montana Department of Transportation (March 2000, page 12, Table 3), Intermodal Freight Stakeholders were asked to indicate their use of various intermodal linkages. Their answers are aggregated in the following table.¹³³

<u>Intermodal Linkages</u>	<u>Percent Used</u>
Air/rail	0.2%
Air/truck	13.1
Rail/truck	23.2
Truck/truck	63.5

The Montana State Rail Plan Phase I Revised Planning Work Statement, a 1978 Montana rail planning document which responded to new federal-state rail planning legislation, states that "The vast majority of Montana's production and extraction industries are weight intensive, move in large volumes, and are transported considerable distances. As a result, rail transportation is frequently the most economical or feasible transport mode for shippers. This is true of agricultural products, coal, woodchips and ores. The spatial economy of the state is dependent on rail service."¹³⁴

Two decades have tested this statement, and it seems as applicable today as it was in 1978.

¹³² "Gas Local Goes On", *Railfan & Railroad*, June 2000, page 27.

¹³³ 1999 Transportation Stakeholders Survey, Montana Department of Transportation, March 2000, page 12, Table 3.

¹³⁴ Montana State Rail Plan Phase I: Revised Planning Work Statement, 1978, page 5.

In summary, it is pertinent to state that all of Montana's transportation modes serve important purposes as components of the overall state transportation system, and economies and efficiencies are inherent in the availability of choice. This is recognized in the TranPlan 21 1999 Annual report, which says, "Montana's economy ... benefits from having an extensive multi-modal transportation system".¹³⁵

HISTORICAL GROWTH AND CHANGES IN MONTANA'S RAIL NETWORK

This section of the State Rail Plan Update discusses the recent history of Montana's rail network, focusing on the last three decades and on changes since the 1993 State Rail Plan Update.

Railroad Regulatory Reform

The last three decades embrace a period of immense change in the United States rail industry, and these changes have had a great impact on Montana railroads. Indeed one of the major railroads operating in Montana since 1909--the Chicago, Milwaukee, St. Paul and Pacific Railroad (Milwaukee Road)--exists no more. Many railroads in existence following World War II suffered financially in the post-war years from a combination of burdensome federal regulation and competition resulting from a growing highway network, an expanding trucking industry, and—with regard to passenger rail service--increasing airline and automobile travel. The Milwaukee Road was attempting to reorganize itself out of bankruptcy in the 1970s, and the U.S. Congress in the same decade was enacting legislation intended to ease the regulatory burden on railroads and allow them to improve revenues and decrease costs. One of these pieces of federal legislation, the Railroad Revitalization and Regulatory Reform Act of 1976 (the 4R Act) encouraged states to prepare rail plans by making this a requirement to be eligible for federal rail funding assistance.

Changes Over the Last Three Decades

Perhaps the best way to summarize the changes in Montana's rail network which have taken place over the past three decades is to compare data from Montana's first state rail plan with data developed in this Year 2000 rail plan.

The following table has been prepared with data extracted from Montana's original State Rail Plan:

Year 1978 Route-Miles of Railroad in Montana

<u>Railroad</u>	<u>Route Miles</u>
Class I	
Burlington Northern (BN)	3,520

¹³⁵ TranPlan 21 1999 Annual Report, page SC-2.

Chicago, Milwaukee, St. Paul and Pacific Railroad (Milwaukee Road)	1,048
Union Pacific Railroad	133
Soo Line Railroad Company	57

Class II

Butte, Anaconda & Pacific Railway	26
White Sulphur Springs & Yellowstone Park Railway Company	<u>23</u>
Total	4,807

Source: State of Montana Rail Plan, Montana Department of Highways, August 1979.

The above table may be compared with the one below, which shows current railroad route-miles in Montana.

Year 2000 Route-Miles of Railroad in Montana

<u>Railroad</u>	<u>Route Miles</u>
Class I	
Burlington Northern and Santa Fe Railway Company	2,135
Union Pacific Railroad Company	125
Regional	
Montana Rail Link	812
Dakota, Missouri Valley and Western Railroad, Inc.	57
Local Railroads	
Central Montana Rail, Inc.	87
Montana Western Railway Co.	59
Rarus Railway Company	<u>69</u>
Total	3,344

Source: R-1 Reports to Montana Public Service Commission

A comparison of the two tables indicates the results of railroad restructuring in Montana over the past two decades, as well as a 30 percent reduction of rail route-miles in the state.

The changes, over the same period, in the amount of rail traffic originating and terminating in Montana should also be considered. The 1979 Montana Rail Plan reports a total of over 31,610,000 tons originating and terminating in the state. It should be noted that of this amount, 30 million tons was carried by BN. Twenty years later, Montana's railroads originated 44,407,850 tons and terminated 4,064,692 tons

of traffic in Montana,¹³⁶ for a total of 48,472,542 tons. (BN's successor, BNSF, remains the dominant rail carrier in Montana.)

It may be seen that, despite the considerable reduction in Montana's trackage, the volume of traffic over a twenty-year period has increased by about 50 percent. Encouraging as this increase in Montana traffic is, however, the reduction in trackage has not occurred without economic and social disruptions and dislocations. As has been catalogued in earlier rail plan updates¹³⁷, a number of Montana communities now lack rail service, and the next section of this report suggests that the future may see yet additional rail line abandonments.

Changes Since Last Rail Plan Update

Since the last state rail plan update was published in 1993 there have been no dramatic changes such as rail line abandonments. There has been a restructuring; Burlington Northern and The Atchison, Topeka and Santa Fe Railway Company merged to form BNSF. The effect of this merger on Montana was to enlarge the scope and span of single system service available to Montana's rail shippers and receivers. Likewise the merger of UP and Southern Pacific Transportation Company (SP) resulted in a large number of former SP origins and destinations being linked by one-railroad service to Montana.

The following table which shows the amount of traffic originating or terminating in Montana is based upon data found in the 1993 Montana State Rail Plan Update and data collected for the current update. Traffic shown is limited to that originating or terminating in Montana; that is, no bridge traffic (traffic which passes through Montana without originating or terminating in the state) is shown. As this comparison indicates, the past seven years have seen a reversal of the traffic increases experienced subsequent to 1979, and instead a small decline in the amount of Montana originating and terminating traffic.

<u>Railroad</u>	<u>Originating and Terminating Revenue Carloads</u>	
	<u>1991</u>	<u>1999</u>
BN/BNSF	436,249	414,162
UP	12,122	7,986
DMVW	1,152	1,264
MRL	58,639	74,054
CMR	1,644	1,140
MWRR	2,742	8,672
RARW	<u>2,407</u>	<u>2,421</u>
Totals	514,955	509,699

Source: 1993 Montana State Rail Plan Update, page 4-42 (1991 data) and

¹³⁶ Association of American Railroads: 1998 data, the latest available.

¹³⁷ The 1993 Montana State Rail Plan Update includes a listing of abandoned railroad lines in Montana, 1979-1992, on page 2-17.

Another change since the 1993 Rail Plan Update is the expenditure of LRFA funds on a project, initiated in 2000, to rehabilitate a portion of the DMVW in Montana. The \$482,817 project is discussed above in the section which describes Montana's rail network.

RAILROAD-RELATED FACILITIES

Montana has a number of rail-truck transfer facilities--a very important component of the state's intermodal transportation system.

The majority of rail-truck transfers take place at three facilities: Port of Montana at Silver Bow (near Butte), Port of Northern Montana at Shelby, and the BNSF Intermodal Facility at Billings. All three have experienced growth in intermodal traffic in recent years.¹³⁸ There are lumber reload facilities at Eureka, Havre, Moccasin Junction, Shelby and Silver Bow.¹³⁹

Grain transfers occur at hundreds of terminals throughout Montana.

Port of Montana, Silver Bow

The Port of Montana, which opened in 1988 and is located at Silver Bow, six miles west of Butte, is a municipal port authority providing intermodal transportation services for Montana's forest products, mining and agriculture. The port is served by UP and MWRP. The creation and expansion of the port have been helpful to the region, the state, and rail competition.

Rail carload statistics¹⁴⁰ show growth:

<u>Fiscal Year</u>	<u>Carloads</u>
1989	1,385
1991	2,005
1993	2,637
1996	2,493
1998	1,994
1999	3,065

Commodities handled are forest products, metals, paper, minerals and ores, fertilizers, animal feed, vehicles and food products.

¹³⁸ TranPlan 21: 1999 Annual Report, Montana Department of Transportation, page SC 15.

¹³⁹ *Ibid.*, page SC 14.

¹⁴⁰ Provided by Bill Fogarty, General Manager, Port of Montana, October 12, 2000.

Port of Northern Montana, Shelby

In 1987 Toole County and the City of Shelby jointly established an inland port authority, the Northern Express Transportation Authority, also known as the Port of Northern Montana.¹⁴¹ The port authority is charged with creating transportation and intermodal infrastructure, and market Montana products and services. BNSF, rather than the Port of Northern Montana, handles intermodal activity at Shelby. By the same token, the local grain companies handle the grain loading activity. The Port accepts other inbound rail cars and provides the medium for distribution by truck.

Proposed Track Improvements Project

The Port of Northern Montana is seeking LRFA funding for track improvements associated with a Shelby transportation company's plan to move express freight to and from Shelby in Amtrak-owned 60-foot Express boxcars. These boxcars would be moved to and from Shelby by Amtrak's daily Empire Builder, thus taking advantage of Amtrak's growing initiative to move mail and express with its passenger rail service, in order to boost revenue. Mail and express revenue is considered a critical part of meeting the mandate imposed by Congress that Amtrak require no federal operating subsidy by the end of fiscal year 2002.¹⁴²

Appendix A contains the benefit-cost analysis pertaining to the proposed project.

¹⁴¹ Communication from Port of Northern Montana, October 20, 2000.

¹⁴² "Amtrak to Consolidate Mail, Freight Operations", The Wall Street Journal, October 2, 2000, page A12.

Rail Lines At Risk

The purpose of this section is to identify Montana rail lines which are at risk.

PROCEDURES FOR IDENTIFYING LINES AT RISK

The identification of rail lines in danger of abandonment is an imperfect science at best. In the final analysis, each case must be evaluated on its own merits. Available rules of thumb have general applicability; however, they best serve to assist as an indicator, and where there are a number of rail lines to be evaluated, in prioritizing.

As stated earlier in this report, a reasonably reliable indicator of rail line viability is the number of carloads per mile on any given segment of track. The annual number of carloads may be divided by the length of the rail segment which carries them in order to obtain this indicator. Years ago, the Federal Railroad Administration established 20 carloads per mile as one of its criteria for federal funding assistance under the Local Rail Assistance Program. With certain exceptions and among other requirements, FRA said that a project is eligible for federal financial assistance only if the line of railroad carried more than 20 carloads per mile during the most recent year of operation.¹⁴³ There is no widely-accepted carloads per mile figure by which one can determine whether a low density rail line is viable; however, the range of 20 to 100 perhaps encompasses all the situations warranting careful investigation.

In summary, carloads per mile is a reasonable and widely-used indicator of rail line viability, and it is used here to provide an initial look at the prospects of Montana's light density rail lines.

When it is appropriate and desirable to investigate further the economic prospects of a rail line, other factors may be considered, depending on availability of information, for example:

- number of railroad customers, current and prospective
- economic significance and variety of commodities carried
- traffic trend during recent years
- physical condition

These and yet other factors may yield further evidence of the risk of abandonment.

Additional efforts may be made to examine the prospects of a low density rail line if revenue and cost data are available, preferably over a period of several years. Interviews with railroad customers provide further important information.

¹⁴³ 49 CFR Part 266, Local Rail Freight Assistance to States, §266.17, Federal Register Vol. 55, No. 231, November 30, 1990, page 49651.

When it becomes clear that funding assistance is needed, for example, to rehabilitate a rail line where abandonment is not desirable, then projects and their feasibility may be evaluated using the prescribed FRA benefit-cost analysis.

LISTING AND PRIORITIZING LINES AT RISK

Table 3 is a listing of all Montana rail lines which carry fewer than 100 carloads per mile. It should be noted that this listing includes some lines which have seen no service for several years, such as the out of service but not abandoned BNSF line between Spire Rock and Butte, and the MRL line in the same category between Drummond and Philipsburg.

Also, some branch lines are shown as a single line-at-risk unit, where traffic density is approximately the same over the entire line. Other branch lines are shown segment by segment, where the branch line is relatively long and where there are disparate traffic densities over the branch line.

Table 4 contains the same data as Table 3, but has been arranged in ascending order of traffic density (descending order of risk).

DISCUSSION OF LINES AT RISK

The first four segments listed in Table 4 are out of service, yet the lines have not been formally abandoned.

If in service, the Spire Rock-Butte rail line would save 105 miles (the additional distance over the in-service Butte-Garrison-Helena-Logan route) for traffic moving between Butte, Logan, and points east; this fact evidently has not been important enough to restore the line to service. If BNSF applies to the STB for abandonment, it may do so using the so-called exemption procedures (since no traffic has been carried by the line for the past two years), which may be initiated and completed in a minimum period of 60 days, as compared with the formal abandonment timetable (without exemption), which requires at least 110 days.

TABLE 3
LOW DENSITY RAIL LINES IN MONTANA
By Railroad and Line Length

<u>Number</u>	<u>Owner</u>	<u>Line End Points</u>	<u>Carloads</u>	<u>Length (miles)</u>	<u>Carloads Per Mile</u>
1	BNSF	Great Falls-Helena	5725	95.4	60
2	BNSF	Glendive-Sidney-Snowden	5500	78.6	70
3	BNSF	Glendive-Circle	680	52.1	13
4	BNSF	Plentywood-Scobey	679	44.6	15
5	BNSF	Havre-Big Sandy	1233	31.2	40
6	BNSF	Great Falls-Carter	2175	29.1	75
7	BNSF	Power-Eastham Junction	1509	21.1	72
8	BNSF	Spire Rock-Butte	0	21.0	0
9	BNSF	Moore-Lewistown	899	18.1	50
10	BNSF	Valier Branch	538	17.3	31
11	BNSF	Eastham Junction-Choteau	98	7.9	12
12	MRL	Missoula-Darby	141	65.4	2
13	MRL	Dixon-Polson	575	33.4	17
14	MRL	Whitehall-Twin Bridges	29	26.1	1
15	MRL	Drummond-Philipsburg	0	26.0	0
16	MRL	Twin Bridges-Alder	0	19.5	0
17	MRL	Sappington-Whitehall	3	19.1	0.2
18	MRL	Whitehall-Spire Rock	0	11.8	0
19	MRL	Sappington-Harrison	37	9.8	4
20	UP	Idaho border-Silver Bow	10941	125.2	87
21	DMVW	North Dakota border-Whitetail	353	57.0	6
22	CMR	Moccasin Junction-Geraldine	1140	84.2	14
23	RARW	Silver Bow-Anaconda	330	18.9	17

Source: RLBA analysis

TABLE 4
LOW DENSITY RAIL LINES IN MONTANA
By Descending Order of Risk

<u>Number</u>	<u>Owner</u>	<u>Line End Points</u>	<u>Carloads</u>	<u>Length (miles)</u>	<u>Carloads Per Mile</u>
1	BNSF	Spire Rock-Butte	0	21.0	0
2	MRL	Drummond-Philipsburg	0	26.0	0
3	MRL	Twin Bridges-Alder	0	19.5	0
4	MRL	Whitehall-Spire Rock	0	11.8	0
5	MRL	Sappington-Whitehall	3	19.1	0.2
6	MRL	Whitehall-Twin Bridges	29	26.1	1
7	MRL	Missoula-Darby	141	65.4	2
8	MRL	Sappington-Harrison	37	9.8	4
9	DMVW	North Dakota border-Whitetail	353	57.0	6
10	BNSF	Eastham Junction-Choteau	98	7.9	12
11	BNSF	Glendive-Circle	680	52.1	13
12	CMR	Moccasin Junction-Geraldine	1140	84.2	14
13	BNSF	Plentywood-Scobey	679	44.6	15
14	MRL	Dixon-Polson	575	33.4	17
15	RARW	Silver Bow-Anaconda	330	18.9	17
16	BNSF	Valier Branch	538	17.3	31
17	BNSF	Havre-Big Sandy	1233	31.2	40
18	BNSF	Moore-Lewistown	899	18.1	50
19	BNSF	Great Falls-Helena	5725	95.4	60
20	BNSF	Glendive-Sidney-Snowden	5500	78.6	70
21	BNSF	Power-Eastham Junction	1509	21.1	72
22	BNSF	Great Falls-Carter	2175	29.1	75
23	UP	Idaho border-Silver Bow	10941	125.2	87

Source: RLBA analysis

The out of service Spire Rock-Butte line is an extension of the Whitehall-Spire Rock segment (Number 4 in Table 4) of MRL's Logan-Spire Rock branch line. The Whitehall-Spire Rock segment, although not classified by MRL as out of service, also carried no traffic in 1999. Furthermore, a comparison of traffic on MRL's Logan-Spire Rock branch line as presented in the 1993 State Rail Plan Update, 2,499 carloads in 1991 between Logan and Whitehall, and current data, 1,318 carloads in 1999 between the same two points, indicates a decline in traffic. Thus rail traffic prospects between Whitehall and Butte do not look encouraging.

MRL's Drummond-Philipsburg line (Number 2, Table 4) has had no traffic for approximately 17 years.

Table 4's third-listed out of service segment is Twin Bridges-Alder. There evidently has been no traffic on this segment since 1987, when a major shipper relocated from Alder.¹⁴⁴

The MRL Sappington-Whitehall, Whitehall-Twin Bridges, and Sappington-Harrison segments (Numbers 5, 6 and 8, respectively, in Table 4), with traffic densities of 0.2, 1 and 4 carloads per mile, respectively, provide further evidence of declining rail transport between Logan and Butte and southward.

The status of the MRL Missoula-Darby branch line is similar. At 2 carloads per mile, there may not be enough traffic to sustain the line. As stated earlier, the FRA has set a standard of 20 carloads per mile as the lower limit for federal LRFA assistance. This standard was set to acknowledge the existence (although the exact figure varies depending upon the specific factors of each case) of a traffic level at which revenues do not support a line's operating and maintenance (variable and fixed) costs.

Absent new customers or additional business from existing customers, it appears that the first eight rail lines listed in Table 4 have a questionable freight traffic future.

The 9th rail line listed in Table 4, the DMVW line to Whitetail, is the current subject of a LRFA project to rehabilitate a portion of the track. Furthermore, reports from DMVW and the rail customer at Whitetail indicate an on-going effort to improve traffic over the coming five years.

The BNSF Eastham Junction-Choteau line constitutes the western 7.9 miles of BNSF's Choteau branch line. The easterly 21.1 miles of the branch line, between Power and Eastham Junction, carries a traffic density of 72 carloads per mile, as shown on line 21 in Table 4. In addition, the Power-Eastham Junction portion of BNSF's Choteau branch line serves to connect BNSF's Fairfield branch to the main line. The Fairfield branch enjoys a traffic density of 136 carloads per mile. Comparing 1991 and 1999 carloads, Choteau traffic appears to be going down while Fairfield traffic has risen. The indication is that the Eastham Junction-Choteau segment, carrying only 12

¹⁴⁴ See discussion of the MRL Whitehall-Twin Bridges branch line in the Description of Montana's Rail Network subsection.

carloads per mile, is at risk. The remaining portion of the Choteau branch line, that is, between Power and Eastham Junction, and the Fairfield branch line, both appear viable.

The Glendive-Circle branch line carried 13 carloads per mile in 1999; however, that line's predominant grain-shipping customer has ceased using the railroad, and instead has begun shipping by truck to Macon, where the new 110-car grain loading facility offers a lower freight rate. Unless this situation changes, it appears that rail service on the Glendive-Circle line will continue to decrease.

CMR's 14 carloads per mile mark it as a short line railroad at risk. The traffic trend, over the past six years, is downward, and CMR faces competition from the 110-car grain loading facility being constructed at Moccasin. Weight limit on CMR is 268,000-pounds which further reduces its competitiveness with the 110-car loading facility. CMR's interest in upgrading its railroad to 286,000 pound cars is reasonable. The state has invested much in CMR already.¹⁴⁵ It would be appropriate to investigate CMR's prospects through a market analysis, and to determine whether anything may be done to improve this railroad's future. Positive results from such an analysis would then suggest an analysis of benefits and costs of an upgrade project.

At 15 carloads per mile, the outlying segment connecting Plentywood and Scobey does not enjoy the same level of traffic as the 165 to 494 carloads per mile carried by the remaining segments of the Bainville-Scobey BNSF branch line.

The MRL Dixon-Polson line carried 17 carloads per mile in 1999. As shown earlier¹⁴⁶, however, the traffic on this line is reasonably robust over its 25 miles southern portion, but drops to a level of 2 carloads per mile for the northern eight miles. Another indicator is the declining traffic on this branch line:

<u>Year</u>	<u>Carloads</u>
1989	993
1991	806
1999	575

The entire line could be at risk, if the declining traffic trend continues. The northern 8.3 miles of the line, with a traffic density of only 2 carloads per mile, are at risk.

That portion of the Rarus line between Silver Bow and Anaconda has a traffic density of 17 carloads per mile and is at risk. The Superfund remediation project will bring temporary relief.

The remaining lines listed in Table 3 have 30 or more carloads per mile and appear to have a better future. They bear watching, however. For example, with regard to

¹⁴⁵ See subsection, History of Rail Planning in Montana, under State Rail Planning, near the beginning of this report.

¹⁴⁶ See Montana's Railroads section, Description of Montana's Rail Network subsection: description of Dixon-Polson line under MRL.

branch lines which carry predominantly grain, construction and planning of 110-car grain loading facilities at large elevators casts economic doubt on continued operation of lines serving surrounding smaller country elevators. (See the Discussion of Rail Planning Issues portion of this report.)

ALTERNATIVES TO RAIL SYSTEM CHANGES

What may be done where there are rail system changes, in particular abandonments, which threaten economic dislocations and other problems? The history of railroading in Montana includes the answers to this question, *viz.*, attempt to change the decision, acquire the right of way and install a new operator, develop multimodal transfer facilities, and encourage competition. As described elsewhere in this report, the last three decades have seen important changes in Montana railroading, and the state has been active in shaping outcomes to protect the interests of its citizens. Montana's rail planning activity should continue the policy of anticipating rail changes and making appropriate responses.

Abandonment Procedures Have Been Streamlined

Since the 1993 Montana State Rail Plan Update was published, the Congress and STB have streamlined abandonment procedures. One result of this is that states and other interested parties have less time to react, and therefore should make plans and be prepared to act, especially in cases where rail lines are known to be important or where it is deemed appropriate to keep future options open. Where no traffic has been carried on a rail line for the most recent two years, a railroad may use the so-called "exemption" procedures in applying to the STB for abandonment. These exemption procedures may be initiated and completed in a minimum period of 60 days, as compared with the formal abandonment timetable (without exemption), which requires at least 110 days.

Rail Passenger Service

EXISTING AMTRAK ROUTE

The National Railroad Passenger Corporation, or Amtrak, currently serves Montana with its Empire Builder, operating between Chicago, Illinois, and Seattle, Washington. Daily trains, westbound and eastbound, serve Wolf Point, Glasgow, Malta, Havre, Shelby, Cut Bank, Browning, East Glacier Park, Essex, West Glacier, Whitefish and Libby. The Empire Builder's passenger service includes coaches, sleeping cars, dining car and sightseer lounge. Rimrock Stages operates connecting local bus service between Amtrak's Shelby station and Great Falls, Helena and Butte.

Amtrak 1999 Montana ridership, that is, boarding and deboardings at Montana stations, totaled 163,412. Ridership figures have risen; the 1993 Montana State Rail Plan Update reported 1991 ridership as 131,226, and 1983 ridership as 110,783.¹⁴⁷ Montana's largest Amtrak station in terms of ridership is Whitefish by a wide margin: 68,756 boardings and deboardings in 1999. Whitefish is followed by Shelby, Havre, Glacier Park and Wolf Point, with 1999 ridership, respectively, of 18,502, 18,073, 17,073 and 9,717.

Excepting Washington, D.C.-New York City-Boston, Los Angeles-San Diego and perhaps a few other corridors, Amtrak service is relatively long distance and in general geared to the leisure or recreational traveler, as opposed to the business traveler. Empire Builder service fits the "leisure and recreational traveler" category and is not normally seen as an alternative travel mode, compared to automobile and airplane travel, except for those relatively few Montanans and others whose trip origins and destinations are proximate to the Empire Builder corridor and whose schedules coincide with the Empire Builder timetable.

Nevertheless, daily Empire Builder passenger rail service is very important to Montana. When Amtrak reduced Empire Builder service to four days a week in the mid-1990s, numerous Montana communities joined in a "Save Amtrak" effort that helped restore daily service.¹⁴⁸ Montanans have been active in promoting Empire Builder ridership by promoting tourism and in particular by developing "Loop Tours" in which Amtrak passengers get off the train at a Montana station, visit Montana points of interest and events, and return to another train three to seven days later.¹⁴⁹ The Empire Builder is a major factor in Montana's tourism industry.¹⁵⁰

¹⁴⁷ Amtrak is the source of all ridership figures.

¹⁴⁸ Interview with Jerry Smith, Galata, Montana, November 28, 2000, and November 30, 2000, memorandum from Larry Robertson, Shelby, Montana.

¹⁴⁹ *Ibid.*

¹⁵⁰ March 29, 2000, letter from Marvin Dye, Director of Transportation, Montana Department of Transportation, to Gilbert Carmichael, Chairman, Amtrak Reform Council.

FUTURE OF AMTRAK

It should be noted that Amtrak's future is uncertain. The Amtrak Reform and Accountability Act of 1997 prohibits Amtrak from using federal funds for operating expenses after 2002. This deadline presents serious implications for the future of intercity passenger rail service.¹⁵¹ If Amtrak does not reach operational self-sufficiency by the end of 2002, the law requires that the Amtrak Reform Council submit a plan to Congress for restructuring the intercity passenger rail system and that Amtrak prepare a plan for its own liquidation.¹⁵²

RAIL PASSENGER SERVICE DEFICIENCIES, OPPORTUNITIES TO EXPAND

End of Southern Montana Passenger Rail Service

Responding to the Amtrak Improvement Act of 1978, Amtrak discontinued east-west service across southern Montana in October 1979.¹⁵³ Prior to this discontinuance, the North Coast Hiawatha had connected Chicago and Minneapolis with Seattle via (in Montana) Glendive, Miles City, Forsyth, Billings, Livingston, Bozeman, Butte, Deer Lodge, Missoula and Paradise. The overall effect of this change was to cut rail passenger service in Montana by over half.¹⁵⁴ Considering the proportion of Montana's population along the North Coast Hiawatha route, this cut in passenger service was keenly felt by the state.

Interest in Restoring Rail Passenger Service

The Montana Rail Plan 1982 Update reported a renewed interest in restoring rail passenger service across the southern part of the state, and stated that Amtrak was then conducting a market feasibility study with regard to this route, in coordination with the state.¹⁵⁵

During the 1983 and 1985 State Legislatures efforts were made to re-establish a southern Montana rail passenger service, but the Legislature repeatedly turned these proposals down. Reasons attributed were concern that the southern route would be re-established at the expense of the northern route (Empire Builder), poor coordination with North Dakota, reduction in gasoline prices, and a lack of state funding to support Amtrak 403(b) passenger service.¹⁵⁶

1988 Department of Commerce Study

¹⁵¹ "Decisions on the Future of Amtrak and Intercity Passenger Rail Are Approaching", U.S. General Accounting Office testimony, September 26, 2000, page 1.

¹⁵² "Decisions on the Future of Amtrak and Intercity Passenger Rail Are Approaching", page 2.

¹⁵³ 1980 Supplement, State of Montana Rail Plan, Montana Department of Highways, August 1980, page 15.

¹⁵⁴ *Ibid.*, page 16.

¹⁵⁵ Montana Rail Plan 1982 Annual Update, Montana Department of Commerce, September 1982, page 1-8.

¹⁵⁶ Preliminary Draft, Proposed Passenger Rail Service, Montana Department of Commerce, November 1988, page 1.

In 1988 the Montana Department of Commerce prepared a study of the feasibility of rail passenger service, associated with a 1987 Montana Legislature initiative assigning top priority to enhancement of the state's tourism potential.¹⁵⁷ The potential answer was perceived as a quasi-public Montana company which would operate a combined rail and dedicated intercity motor coach passenger service, with routes and schedules designed to (1) support (feed) the Empire Builder, (2) link Yellowstone and Glacier National Parks, (3) secure long haul passenger access to Salt Lake City and Canada, and (4) institute passenger rail service in western and southern Montana. The study analyzed two basic passenger rail routes, Billings-Bozeman-Helena-Missoula, and Missoula-Butte-Dillon-Idaho Falls-Pocatello-Salt Lake City, and nine dedicated motor coach routes designed to connect the rail service with the two parks, Canada, Spokane and Wyoming, and, in general, to enhance ridership and use of the service. Assuming daily service and a market of combined business, personal and recreational trips, ridership generation factors were developed based upon past Montana rail passenger experience. Daily ridership was forecast for both motor coach (165 startup, 176 established) and rail (133 startup, 166 established), the combination totalling 298 for startup service and 342 for the established service level.¹⁵⁸

Extension of Desert Wind Service

In 1990, Representative Dorothy Bradley, Bozeman, and Mr. Robert T. Stevens Jr., Transportation Planner, Co-Chaired the Northern Rockies Rail Passenger Association, or Nor-Rail, and sought support in extending Amtrak "Desert Wind" service beyond its terminus in Salt Lake City to Idaho Falls, based upon research indicating that equipment was lying idle for 17 hours every day at Salt Lake City.¹⁵⁹ Service to Idaho Falls would bring travelers to within two hours of Grand Teton and Yellowstone National Parks, and would suggest the possibility of further extensions north of Idaho Falls through Montana to Calgary.

1990s Actions

The 1993 Montana State Rail Plan Update describes Amtrak service and stresses that it "is very important to the state." The 1993 Update goes on to say that "there continues to be public interest in providing service to more population centers, including Missoula, Helena, Butte, Bozeman and Billings."¹⁶⁰ Further, the Update states that "One group, Nor-Rail, has presented Amtrak with several '403(b)' service proposals, such as Helena to Spokane and service southward to Salt Lake City, both of which would connect to existing Amtrak trains."¹⁶¹

¹⁵⁷ *Ibid.*

¹⁵⁸ *Ibid.*, pages 1-12.

¹⁵⁹ Letter, State Representative Dorothy Bradley to Patricia Saindon, Transportation Division, Department of Commerce, February 1, 1990.

¹⁶⁰ 1993 Montana State Rail Plan Update, Montana Department of Transportation, June 1993, page 6-2.

¹⁶¹ *Ibid.*

In response to Congressional direction, Amtrak in July 1992 produced an evaluation of service to areas not then served. One route involving Montana was Seattle-Fargo-Chicago via Helena and Billings, and the other was Denver-Spokane-Portland/Seattle via Laurel (Billings), Helena and Missoula. The 1993 Update reported that these routes would require substantial operating subsidies.¹⁶²

1999 Transportation Surveys

The MDT 1999 Public Involvement Telephone Survey showed dissatisfaction with the absence of passenger rail service especially in southern Montana.

The 1999 Transportation Stakeholders Survey, published by the Montana Department of Transportation's Transportation Planning Division in March 2000, describes data collected by the 1999 MDT Stakeholder Survey and references the 1999 Public Involvement Telephone Survey as a baseline for comparison. Stakeholder groups included Metropolitan Planning Organizations in urban areas; commercial trucking, rail freight, air freight and intermodal interests; passenger transportation interests including local transit, intercity bus, rail and air; bicycle and pedestrian interests; environmental organizations; and state and federal agencies.¹⁶³

HighLights

Passenger rail service is an area of slight dissatisfaction, receiving ratings of 4.2 (general public) and 4.6 (stakeholders groups' average) on a scale of 1 (low) to 10. No area of dissatisfaction was rated lower (that is, greater dissatisfaction) than dissatisfaction with passenger rail. The 1997 stateholder rating of passenger rail was 3.7.

With regard to promoting use of existing passenger rail service, the general public gave this a priority rating of 3.1 on a scale of 1 low and 5 high, while stakeholder groups' average rating was 2.7. Other priorities were "Keep the public informed about transportation" (3.5), "Keep current with new/innovative technology" (3.4), "Provide year around access to rest areas" (3.4), "Improve other roads/streets" (3.4) and "Increase highway capacity due to growth" (3.4). The lowest priorities were "Rehabilitate historic transportation facilities" (2.1) and "Reduce single occupant vehicle use" (2.3).¹⁶⁴

Stakeholder Group Views

Within the various stakeholder groups, there were a number of views expressed relative to passenger rail. The area of least satisfaction among the Intermodal Freight Stakeholder Group was passenger rail service.

¹⁶² *Ibid.*

¹⁶³ 1999 Transportation Stakeholders Survey, Montana Department of Transportation, March 2000.

¹⁶⁴ *Ibid.*, page 5.

Respondents were given the opportunity to provide additional input on transportation issues by providing comments on three open-ended questions, such as, “Are there transportation-related issues that you think need to be addressed by the Montana Department of Transportation?” Following is a compilation of answers, related to passenger rail and quoted as they appear, provided by individuals from various stakeholder groups.

Commuter train from Billings to Missoula connecting Helena, Great Falls, Butte, Bozeman and the Flathead.

Not possible to promote the uses of passenger rail service—have to go to Shelby to get service.

Promoting intermodalism between bus service, taxi service and Amtrak across the Hi-Line.

Have bus and taxi service operate out of Amtrak stations as done in many locations across the country.

Coordinate bus service with Amtrak service at the station.

Give railroad incentives to offer [passenger] rail transportation (tax credits).

Look at other transportation systems (rail to Billings, Great Falls and Missoula).

Light rail for Ravalli County.

Would like to see the MDT work towards the return of Amtrak service through southern Montana. This is not a nostalgic point of view but a public transportation service point of view.

I don't believe there is a train system for Montana's use.

Restore passenger rail service to southern Montana ...

Railroads—passenger rail between Hamilton and Missoula.

A north south rail route. [this probably means passenger rail]

Rail Advocacy Group

In 2000, James Green, chairman of a rail advocacy group, contacted a number of elected officials and candidates for public office as well as the Montana Department of Transportation, to promote initiation of new rail passenger service in Montana. Mr. Green proposes a rail passenger route between Spokane, Washington, and Denver, Colorado, passing through Montana cities Missoula, Helena, Bozeman, Livingston and Laurel (near Billings). Mr. Green believes this route may attract more passengers than a Spokane-southern Montana-Minneapolis service, considering population of the cities along the route, and access to parks and ski resorts. He also suggests that Amtrak mail and express service could help pay for the new service.

On September 30, 2000, the Montana-Wyoming Association of Railroad Passengers was formed and Mr. Green was elected as President. The organization will collect

signatures on a petition which says, "I support the project of a train between Spokane and Denver, and would support it as a passenger." The organization is contacting county commissioners, city councils and others.¹⁶⁵

Amtrak Research

Amtrak has embarked on a program of Market Based Network Analysis (MBNA) as a component of its effort to achieve operating self-sufficiency by 2002. Senate Report 106-55, May 27, 1999, describes Amtrak's analysis of "different service alternatives, including route restructuring and modification", to be completed in late summer 1999, so that Amtrak "can incorporate the resulting network redesign ... into the fiscal year 2000 Strategic Business Plan ... scheduled for publication in October 1999."¹⁶⁶

The MBNA led to Amtrak's first major expansion plan, released on February 28, 2000.¹⁶⁷ As a major component of its requirement to attain operating self-sufficiency (that is, operate without federal subsidies for operating costs) by fiscal 2002, the National Railroad Passenger Corporation (Amtrak) announced in February 2000 a significant route and train expansion aimed at increasing annual ridership by 430,000 and attracting mail and express business.¹⁶⁸

Amtrak's Intercity Unit in Chicago stated that the southern tier rail route through Montana was not studied.¹⁶⁹ In answer to a question, Amtrak said that Congress' fiscal year 2001 legislation requires that Amtrak evaluate that rail route.

In August 2000, Amtrak said that it would research the feasibility of operating a service that would serve southern Montana.¹⁷⁰ The results of this analysis will be released in early 2001.

ECONOMIC FEASIBILITY OF PASSENGER RAIL ON OTHER PRIMARY STATE CORRIDORS

The Issue and Its History

We know where Montana's population centers are and we know where the railroads are. Can the two be matched up with feasible passenger rail service?

Montana urban area populations over 15,000:

Billings	100,739
Great Falls	67,693

¹⁶⁵ James Green e-mail to Ken Withers, R.L. Banks & Associates, Inc., October 3, 2000.

¹⁶⁶ Senate Report 106-55, May 27, 1999, page 121.

¹⁶⁷ News from the National Association of Railroad Passengers, March 2000, page 1.

¹⁶⁸ "Amtrak's expansion will shrink some trains", *Trains*, June 2000, pages 28-29.

¹⁶⁹ Phone conversation between RLBA and Ray Lang, Amtrak Intercity Unit.

¹⁷⁰ Letter from George D. Warrington, President and CEO, Amtrak, to Senator Conrad Burns, August 9, 2000.

Missoula	66,187		
Helena	35,676		
	Bozeman	32,423	
	Butte	32,360	
	Kalispell	25,018	

Source: Census and Economic Information Center, Montana Department of Commerce, March 12, 1999.

The 1978 Amtrak timetable shows the North Coast Hiawatha making daily stops at the following southern Montana stations:

	Westbound	Eastbound	Miles from Chicago
Glendive	6:30 pm	9:43 am	1067
Miles City	7:51 pm	8:25 am	1146
Forsyth	8:46 pm	7:30 am	1191
Billings	10:34 pm	5:37 am	1292
Livingston (Yellowstone)	12:44 am	3:27 am	1408
Bozeman	1:40 am	2:47 am	1433
Butte	4:00 am	12:23 am	1528
Deer Lodge	4:51 am	11:25 pm	1568
Missoula	6:29 am	9:49 pm	1647
Paradise	8:10 am	8:10 pm	1718

Source: The Official Railway Guide: North American passenger travel edition, Jan/Feb 1978, page 56.

Bus or limousine connections were available to Helena.

The same timetable tells us that four of Montana's six largest urban areas were connected by passenger rail just over 20 years ago. If one adds the bus or limousine connection, that would make five out of six. Furthermore, this rail corridor also includes Montana's 9th, 10th, 11th and 13th largest urban areas (Miles City (urban area population 9,889), Livingston (9,098), Laurel (8,052) and Anaconda (6,523), respectively), and Livingston would be the passenger rail station closest to Yellowstone National Park. Thus the passenger rail service which was terminated in 1979, in contrast with Amtrak's current Montana service, connects the most populous areas of the state. From a Montana point of view, restoration of passenger rail service in this corridor would serve more Montanans than current Amtrak service.

The Burlington Northern Inc. Billings Region Special Instructions No. 9 (October 29, 1978) shows that passenger train speeds in this corridor were a maximum of 75 mph at that time; therefore train times in the Amtrak 1978 timetable may be considered appropriate for a track classification regime which allows 75 mph maximum speed.

Today's Potential for Passenger Rail Service in Southern Montana

What kind of service is most likely to be economically viable with the least subsidy? Could service be operated intrastate, connecting only the population centers along the southern east-west rail corridor, or must the service be part of the Amtrak system? These questions are best answered by projecting the characteristics of a representative starter service and projecting its results in terms of riders and financial performance.

Service

Many of Montana's largest cities could be linked by a potential passenger rail system operating between Missoula and Billings and serving Helena, Bozeman, Livingston and Laurel. One train per day in each direction would represent the minimum desirable service level. In order to offer travel in both directions during attractive hours, two trainsets would be required, as well as appropriate spare equipment. Trains should offer on-board food service including sandwiches, snacks and beverages.

Facilities

Station facilities would be needed at each stop, including heated waiting rooms along with modest parking, telephone and restrooms. Stations do not have to have an attendant; however, the service would be more appealing if at least the main stations are staffed.

Servicing facilities would have to include a way to turn the train (or at least the locomotive) at each terminal; alternatively, so-called "push-pull" equipment may be utilized in which the last car of the train is a cab car, equipped with locomotive controls, allowing the engineer to operate the train in either direction. Routine servicing between trips would include fueling and sanding the locomotive, watering and cleaning the passenger cars and routine brake tests. These activities could be performed at one of the terminals on an every-other day basis, with the train getting a light cleaning and trash removal at the other terminal.

Train Schedules

Passenger train schedules were examined for the years 1978, 1969 and 1960 to determine feasible running times between stations. These years represented, respectively, the last year of Amtrak service over the route, operation just prior to Amtrak's creation in 1971, and a time at which private railroad companies had not yet relinquished the rail passenger market to airplanes and automobiles. As seen below, running times did not vary significantly among the years examined, indicating that the route was well-maintained and operated over the period.

	1960				1969				1978			
	Westbound		Eastbound		Westbound		Eastbound		Westbound		Eastbound	
	Hrs	Min	Hrs.	Min	Hrs	Min	Hrs	Min	Hrs	Min	Hrs	Min
Glendive – Miles City	1	23	1	34	1	16	1	36	1	21	1	18
Miles City - Forsyth		59		49		58		48		55		55
Forsyth - Billings	1	46	1	43	1	40	1	42	1	52	1	53
Billings - Livingston	1	58	2		1	58	1	57	2	10	2	10
Livingston - Bozeman		46		45		45		45		56		40
Bozeman - Butte	2	25	2	34	2	22	2	26	2	20	2	24
Butte - Deer Lodge		N/A		N/A		44		56		51		58
Deer Lodge - Missoula	2	14	2	22	1	22	1	26	1	38	1	36
Missoula – Paradise	1	42	1	48	1	36	1	46	1	41	1	39

Source: The Official Railway Guide, September 1960, September 1969.
Note: "N/A" means specific data was not available for specific segments and years.

In 1960 and 1969, passenger service operated between Bozeman and Garrison both via Butte and via Helena. There no longer is a through rail route connecting Missoula-Garrison-Butte-Bozeman, thus new passenger trains would operate via Helena, with the obvious advantage of serving the state capital. Representative running times were developed based upon the historic schedules and estimates. Running times, arrayed below, are very similar to those projected by Amtrak in its 1992 study. A sample schedule offering a morning departure from each terminal also is depicted.

<u>Running Time</u>				<u>Potential Schedule</u>	
Hours and Minutes					
Westbound	Eastbound			Westbound	Eastbound
				<i>Read Down</i>	<i>Read Up</i>
1'58	1'57	Billings		8:00 AM	3:36 PM
45	45	Livingston		9:58 AM	1:39 PM
2'10	2'20	Bozeman		10:43 AM	12:54 PM
2'43	2'34	Helena		12:53 PM	10:34 AM
		Missoula		3:36 PM	8:00 AM

Operator

Amtrak has the statutory right to operate intercity passenger rail service and is the only such operator in the U.S. Even state-sponsored intercity services such as those in Wisconsin, Illinois and California are operated by Amtrak. However, as that troubled entity struggles to survive, it may be possible to obtain Amtrak's concurrence to select a Montana rail passenger operator from several choices or to entertain competition for the delivery of such services.

The entire Missoula-Billings route is owned by MRL, making that company an obvious candidate to operate a non-Amtrak passenger service if it is interested.¹⁷¹ Further, if interested, MRL as track owner or operator would be in a position to insist that it be the operator as one of the terms of allowing passenger train access to the line. MRL has hosted American Spirit tour trains and other one-time and recurring passenger train movements. MRL, by virtue of its much smaller size than Amtrak and its location, may be able to operate a Montana passenger service at substantially lower cost than could Amtrak. If MRL were not interested in operating the service, bids could be sought from other potential private sector operators such as Herzog or one of the rail tour operators such as American Spirit or Rocky Mountaineer.

Equipment

The choice of passenger equipment is linked to the decisions of who would operate the service and whether it would be confined to the Missoula-Billings corridor or be extended to connect with Amtrak at one or both ends of the route. Amtrak probably would prefer to use one of its standard equipment types, particularly if the service were connected to the rest of the Amtrak system. Two-level Superliner cars are the standard equipment on long-distance trains in the West, although single level cars are used on many shorter, corridor services.

Traffic density would not appear to warrant Superliner cars; single level cars would be more appropriate and less expensive. Amtrak could use cars from its "Horizon" fleet, or another operator could acquire and recondition used single level cars from an equipment dealer, Amtrak or one of the commuter railroads. If new cars are desired, it would be cost-effective to find an opportunity to tag onto a larger order.

Alternatively, push-pull equipment, in service in numerous commuter railroads, would eliminate the requirement for (and time required in) turning the train at its endpoints.

Operating Cost

Estimated operating costs were developed for an intercity passenger service consisting of one daily trip in each direction between Billings and Missoula using two trainsets and two crews per day. As previously discussed, MRL or another contract operator probably could operate at a lesser cost, but the conservative approach dictates the use of typical intercity passenger costs. Trains are assumed to consist of a locomotive, a coach and a combination café/coach car. Staffed stations are assumed at Billings, Missoula and Helena.

Projected Annual Intercity Passenger Operating Costs

Train operations	\$1,939,000
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¹⁷¹ MRL says that it would evaluate any passenger rail service project proposed (MRL e-mail, October 17, 2000).

Equipment maintenance	895,000
Access charges	1,301,000
Station maintenance	160,000
Insurance	100,000
General and administrative & Marketing	<u>713,000</u>
Total operating costs	\$5,108,000

Source: RLBA

Passengers and Revenue

The 1997 MDT Rural Traffic Flow Map provides annual average daily traffic (AADT) figures. Outside of urban areas between Missoula and Billings on I-90 the noncommercial AADT ranges from a high of 9074 (between Bozeman and Livingston) to a low of 4539 (between Anaconda and Butte). This provides an approximate indication of the passenger travel market along the corridor. The numbers must be reduced to account for through traffic on I90. Airplane travel figures in terms of passengers originating and terminating their trips along this corridor are not available; however, it is assumed that the air travel figures would not be significant, considering the trip distances likely in this corridor.

A reasonable method of estimating the approximate number of passengers that would be attracted to a rail service is to look at the potential share of current highway travelers that might reasonably be expected to use rail. The following table develops an estimate of rail passengers based upon the AADT figures related above and an assumed diversion to rail of one percent of highway travelers. The one percent figure provides an order of magnitude approximation of what a one round trip per day service might attract; a more detailed examination of potential ridership would be in order if passenger rail service is pursued. The ridership projections are the basis for estimated passenger and food revenues, which in turn are compared against the operating costs to determine the system's projected financial performance.

Potential Ridership, Revenues and Financial Performance

Low daily AADT	4,593
High daily AADT	9,074
Average AADT along corridor	6833.5
Persons/vehicle	1.4
Persons per day	9,567
Days/year	365
Travel demand along corridor	3,491,955
Projected rail share	1%
Projected rail passengers	34,920
Corridor length (miles)	357.4
Trip length (percent of corridor)	70%
Average trip length	250
Passenger-miles	8,730,000
Fare per passenger mile	\$0.15
Annual passenger revenues	\$1,309,500
Food & beverage % of above	10%
Food & beverage revenues	\$130,950.00
Total revenues	\$1,440,450
Potential estimated operating Cost	\$5,108,000
Profit (deficit)	(\$3,667,550)
Profit (deficit) per passenger	(\$105.03)

Source: RLBA

Passenger Service Conclusions

A stand-alone service along the southern tier of Montana would have to attract far more riders and operate at a much lower cost to even approach a break-even position. It would not be realistic to expect that to happen. Doubling the number of passengers projected above would still produce an annual operating deficit of over \$2.5 million. With few if any exceptions, intercity and commuter rail passenger services worldwide incur operating deficits which must be funded by their sponsoring government entities. It also is important to remember that the assessment of operating costs and revenues in this report does not contain provisions for capital repayment or replenishment or necessary improvements to the tracks and signals. Initial and ongoing capital expenditures would be in addition to the operating deficit projected above. Implementing passenger rail service clearly would require a commitment to ongoing financial support. Many states have chosen to make such commitments and are developing successful and growing intrastate or regional passenger services. California, Washington, Illinois, New York and North Carolina are among the notable examples.

One potential way to boost ridership would be to connect the southern tier service examined here to the Amtrak system at one end or both. The western connection would take place at Sandpoint, Idaho, while the eastern connection could be at Fargo, North Dakota, or perhaps at Snowden, Montana. Unfortunately, while such connections probably would open opportunities for ridership to and from points beyond Montana, all of the potential connections share several disadvantages:

- Train miles operated increase significantly, causing a corresponding rise in operating costs, and without the prospect of generating much additional on-line ridership.
- Any connection between trains presents scheduling problems. Montana service presumably would be timed to make expedient connections at one end point; thus operating times would be scheduled based upon train times Amtrak deems preferable in Chicago and Seattle. This would make a convenient daylight schedule like that hypothesized in this chapter most unlikely.
- Service would extend over tracks owned by BNSF in addition to MRL, complicating access negotiations and, to a lesser extent, day-to-day operations.
- Service might extend into other states, raising issues of whether they should or would help support operating deficits.

In conclusion, any Montana intercity passenger service will incur substantial operating deficits, and realistically Montana cannot be assured of help from Amtrak or other federal sources in funding those losses. Logical next steps in evaluating passenger rail would include a formal examination of potential ridership and continuing dialog with Amtrak and MRL. The communication with MRL will be especially important if there is continued interest in a southern Montana service which would operate entirely on MRL.

Rail Planning Issues

The potential loss of rail branch lines, the major rail planning issue of this rail plan update, is discussed above in a separate section, Rail Lines at Risk. This subject is also discussed below with specific reference to the Grain Storage and Transport rail planning issue.

GRAIN STORAGE AND TRANSPORT

In General

The continuing consolidation of grain loading facilities, coupled with the trend toward rail movement of grain in 110-car trains, utilizing 286,000-pound gross weight hopper cars, are all issues causing some concern. All three issues--consolidation of facilities, 110-car unit trains and 286,000-pound railcars--are a boon to the Class I rail carriers, which in an effort to reduce costs have encouraged use of longer unit trains composed of railcars able to carry greater loads, with fewer switching operations, thus reducing rail labor and other costs.

On the other hand, consolidation of grain loading facilities results in more use of trucks to haul grain and results in increased cost of maintaining the roads over which the grain is transported. The farmer sells grain at the best price available; this has in general resulted in truck transport of grain longer distances to consolidated grain loading or storage facilities. The trend toward greater-gross-weight railcars puts a further burden on small railroads--short lines and regionals--which owing to the size and nature of their operation are hard-pressed to maintain track for 263,000-pound railcars, not to mention the heavier 286,000-pound cars.

The results of these market forces is seen in the abandonment, over the past quarter of a century, and in all grain-growing regions, of much of the rail infrastructure constructed a century ago, and the greater use of rural roads for transport of grain.

In Montana

The above discussion applies to Montana also. In addition, Montana has, as a result of railroad mergers and consolidations, been left with, over most of the state, only one Class I rail carrier for grain transport. Montana's grain-producing areas are distant from the UP line in the southwest corner of the state. Otherwise there is one other Class I connection, with Canadian Pacific Railway (CP) by way of the Dakota, Missouri Valley & Western Railroad, Inc. (DMVW) in the northeast corner of the state. A CP-owned line operated by DMVW connects a grain elevator at Whitetail, Montana, with BNSF at Crosby, North Dakota. Thence, via trackage rights, DMVW connects with the

CP main line at Flaxton, North Dakota. Rail transportation rates are reportedly higher in Montana¹⁷² than in other states which enjoy two-Class-I-railroad competition.

Additionally, Montana has suffered abandonments of rail branch lines and today has relatively few branch lines remaining.

Construction of 110-Car Grain Loading Facilities

Additional abandonments are deemed likely, given the construction of 110-car grain loading facilities in Montana:

<u>Location</u>	<u>Owner</u>	<u>Date Operational</u>
Macon (Wolf Point)	Cenex Harvest States	Apr 2000
Billings	Peavey/ConAgra	Dec 2000
Moccasin	United Grain Corporation	Jan 2001
Glendive	Cenex Harvest States	Jun 2001
Shelby	Cenex Harvest States	unknown
Rudyard	Columbia Grain	spring 2001
Havre	ADM/Cenex Harvest States	unknown
Pompeys Pillar	United Grain Corporation	unknown
Collins	Mountain View Co-op Group	late 2001

Cenex Harvest States announced the Macon and Glendive facilities on its website. In July 2000, Montana Rail Link entered into negotiations to establish a grain shuttle terminal--upgraded to enable loading of 110-car unit grain trains--in Billings with Peavey/ConAgra Trade Group.¹⁷³

United Harvest, in a joint venture with Cenex Harvest States and United Grain Corporation, is managing construction of 110-car loading facilities at Moccasin and Pompeys Pillar. The facilities are owned by United Grain Corporation. Moccasin construction began in spring 2000; Pompeys Pillar construction began in August 2000.

At Shelby, Cenex Harvest States and the Port of Northern Montana are planning a 110-car grain train loading facility. The Port of Northern Montana is to build the track. Cenex Harvest States owns the elevator, and is currently working to retrofit grain loading facilities. In order to receive an incentive rebate from the railroad, the 110-car train must be loaded within 15 hours. There is currently no operational date.¹⁷⁴

At Rudyard, Columbia Grain begins construction in fall 2000 on a 110-car unit train grain loading facility which should be operational in late winter or early spring 2001,

¹⁷² "Industry Trends", *Progressive Railroading*, April 2000, page 6. Leonard Schock, Director of Montana's Wheat and Barley Committee, in testifying before the Surface Transportation Board in March 2000, is reported to have said that Montana's rail rates are the nation's highest.

¹⁷³ The Washington Companies press release, "Montana Rail Link to Devise Grain Shuttle with CTG's Peavey, July 10, 2000, http://www.washcorp.com/NR-000711_mrl.htm.

¹⁷⁴ Interview with Ross Thayer, Cenex Harvest States, December 8, 2000.

depending on the weather. Approximately six to seven million bushels per year are shipped to Portland, Oregon, for export.¹⁷⁵

The Havre ADM-Harvest States partnership to build a 110-car grain loading facility has been announced to stockholders.¹⁷⁶

General Mills says that it has 22 52-car grain loading facilities in Montana and is studying the situation with regard to construction of larger facilities.¹⁷⁷ General Mills will not comment on stories that 110-car grain loading facilities are planned for Carter, Gildford and Stanford.

Mountain View Co-op Group, which includes Cenex Harvest States, plans a 110-car grain loading facility near Collins. The facility, which will be operational in late 2001, will be capable of loading a 110-car train in less than nine hours.¹⁷⁸

Impacts of 110-Car Grain Loading Facilities

So what do these 110-car grain loading facilities mean to Montana, where heretofore the largest grain loading facilities could accommodate 55-60 railcars?

Improved Transportation Efficiency

Clearly, it must be observed at the outset that the facilities are being constructed because they will be more efficient. Cost is reduced where an operation requires less time and fewer people. The Class I railroads, such as BNSF and UP, encourage the larger loading facilities with dollar incentives.¹⁷⁹ Unit trains--sometimes called shuttle trains--eliminate switching costs and improve efficiency. So reduced cost of grain transport is one impact.

Increased Highway Maintenance

Another impact will be to Montana highways, which will require greater maintenance given greater number of grain trucks servicing the 110-car facilities, and the greater distances over which these trucks will travel.

Competition Impacts/Economic Dislocations

Randy Johnson, Executive Vice President of the Montana Grain Growers Association suggests that there will be a competition impact. Cenex Harvest States is moving quickly into this area. How much room will there be for others? How many will be driven out of business? Montana is down to three major competitors: Harvest States,

¹⁷⁵ Interview with Bryan Britt, Columbia Grain, October 23, 2000.

¹⁷⁶ RLBA interview with Randy Johnson, Montana Grain Growers Association, August 23, 2000.

¹⁷⁷ Interview with Kerry Shafer, Regional Manager, General Mills, October 24, 2000.

¹⁷⁸ Interview with Bruce Clark, Mountain View Co-op Group, December 7, 2000.

¹⁷⁹ John Unrein, "Railroads going against the grain of small shippers", *The Journal of Commerce*, September 9, 1997, page 14A.

Columbia Grain and General Mills. The grain industry in Montana is competitive. The competition factor of the shuttle train--the 110-car unit grain train--is of concern to the Montana Grain Growers Association.¹⁸⁰ The 110-car unit grain train is utilized for export grain, and about 80 percent of Montana wheat is exported. On the other hand, the wheat market is specialized, and buyers want "prescription wheats"--special wheat grown in a certain area--for bread and other specialized markets.¹⁸¹

Railroad Branch Line Abandonment Potential

Yet another impact will be directed toward Montana's railroads. As already mentioned, the Class I railroads welcome unit train loading facilities with cash incentives, because they reduce railroad costs. On the other hand, certain branch lines of Class I railroads, and smaller railroads, may be adversely impacted as large grain loading facilities draw away their business. The following rail lines may be adversely affected by construction of 110-car grain loading facilities:

BNSF Glendive-Circle Branch Line
BNSF Havre-Big Sandy Branch Line
Central Montana Rail

COMPETITION, RAIL MERGERS

In an effort to establish more competition between Class I railroads in Montana, the state in 1988 established the Port of Montana, located six miles west of Butte. The location provides rail and highway transportation access for Montana's forest products, mining and agriculture. Located on UP's Montana Subdivision, the port expanded its storage facilities in 1994. The two short lines which interchange at Silver Bow do not have unlimited access to the Port of Montana; rather, they must work through UP. This has been a constraint on competition.

One concern expressed is a general, industry-wide issue affecting short line railroads: the "paper barriers" entered into as a condition of sales--the negotiated agreements between the Class I's and smaller railroads--which restrict competition. The 1998 Railroad Industry Agreement (RIA) between short line and regional railroads was intended to reduce the tension between small and regional railroads on the one hand, and Class I railroads on the other, with regard to specific issues such as car supply, rate divisions, through routes and paper barriers. It is generally believed by the small railroads that the RIA has not made a difference.

The Surface Transportation Board stated in its March 31, 2000, decision to seek public comment on Modifications to Regulations Governing Proposals for Major Rail Consolidations, Major Rail Consolidation Procedures, that short line and regional rail issues, including paper barriers, are included among the issues which will be

¹⁸⁰ RLBA interview with Randy Johnson, Montana Grain Growers Association, August 23, 2000.

¹⁸¹ *Ibid.*

considered "to promote and enhance competition and/or other public interest goals."¹⁸² However, the proposed rules issued by STB on October 3, 2000, did not specify specific merger conditions deemed important to small railroads. The American Short Line and Regional Railroad Association expressed disappointment.¹⁸³

CITIZEN DESIRE TO SHIFT FREIGHT FROM ROAD TO RAIL

"Citizen desire to shift freight from road to rail" is one of the key freight planning issues listed in TranPlan 21, Montana's statewide multimodal transportation plan.¹⁸⁴ Inasmuch as most of Montana's rail network is privately-owned, the shifting of freight from road to rail is a private decision. The State of Montana can encourage this decision in several ways, perhaps most importantly by establishment of multimodal transfer facilities, such as have been inaugurated at the Port of Montana (at Silver Bow, near Butte) and the Port of Northern Montana (at Shelby).

IMPORTANCE OF RAIL TRANSPORT OF COAL IN MONTANA

Within the category of rail traffic originating and terminating in Montana, coal is number one. Of total tons originated and terminated in Montana, coal is 68 percent. This mirrors the nationwide fact that coal is the principal commodity moved by rail. Coal is the commodity which in general must be moved by rail because—absent a navigable water route between mine and power plant or collocation of the two--there is no practical alternative.

Five Montana coal mines are served by rail. The other two require no long distance transport.¹⁸⁵ BNSF serves all five rail-served mines, and all are located in Big Horn and Rosebud Counties, in southeast Montana.

Most observers predict continued use of Powder River Basin coal, in Wyoming and southeast Montana, well into the future, at increasing rates of production.

RAILWAY-HIGHWAY CROSSINGS

Railway-highway crossings, at-grade crossings, or simply grade crossings, as they are often called, are an important component of railroad and highway safety. The Montana Department of Transportation is responsible for four grade crossing programs.

¹⁸² Surface Transportation Board Decision, STB Ex Parte No. 582 (Sub-No. 1), Service Date March 31, 2000.

¹⁸³ Press release, ASLRRRA, October 3, 2000.

¹⁸⁴ TranPlan 21, Volume I Overview, Policy Goals and Actions, Montana Department of Transportation, February 1995, page 19.

¹⁸⁵ Coal mine locations obtained from U.S. Department of Energy, National Energy Information Center, Washington, D.C., phone (202) 586-8800. Additional information regarding coal mines in Montana obtained from Ron Umscheid, Safety Bureau, Montana Department of Labor and Industry, August 24, 2000.

Funds

Under Title 23 U.S.C. Section 130 Railway-Highway Crossings, Montana's Railroad Highway Safety Program is allotted \$1.612 million annually. Half these federal funds are allocated to Protective Devices; this amount is augmented with other department funds so that a total of \$2 million is allocated to Protective Devices. Of the \$2 million, ten percent is provided from State funds. The other half of the federal Section 130 funding is assigned to Railroad Hazard Elimination.¹⁸⁶

Inventory

Montana has 1,444 public at-grade railroad crossings, of which 384 are signalized. Private crossings are not inventoried by the state, which has no jurisdiction over them.

Four Montana Programs

Four Montana programs utilize Section 130 funds: new signal installation, 80/20 circuitry upgrade, 50/50 upgrade program, and closure program.

New Signal Installation

Proposed signal locations are determined through use of a Priority Index, a numerical value applied to each crossing in the MDT database. A diagnostic review team, composed of MDT's Rail Highway Safety Manager and representatives of the railroad and the Road Authority (the public entity responsible for the road: state, county, city or other), determines whether a signal installation is warranted. Funding for a new signal installation is by state and federal funds.

80/20 Circuitry Update

This program is used to upgrade or replace antiquated signal equipment; the state and the railroad determine action to be taken. Each year MDT asks Montana railroads to submit prioritized lists. MDT uses its Priority Index and railroad input to determine upgrade candidates. A diagnostic review team determines scope of work. State and federal funds pay 80 percent of the total upgrade cost; the railroad funds the remaining 20 percent. Approximately 8 to 10 upgrades are performed annually.

¹⁸⁶ This summary of MDT's Railroad Highway Safety Program is based upon information provided by Walt Scott and John Althof of the Right of Way Bureau, July 13 and October 6, 2000.

50/50 Program

This program allows improvement of public at-grade crossings not high enough on the Priority Index to warrant inclusion in another program, provided that a nominating party (e.g., a Road Authority) provides 50 percent of the cost of signal installation (state and federal funds provide for the remaining 50 percent). No more than four projects will be funded in a calendar year. Nominations are to be made in writing to the Supervisor, Utility Section, Right of Way Bureau, MDT.

Closure Program

Using Railroad Hazard Elimination Funds, this incentive program encourages Road Authorities to close public at-grade railroad crossings, for example, those about which there is some safety concern, those proximate to other crossings, or non-essential crossings. The maximum amount which Montana will expend for a closure is \$7,500; the railroad concerned must contribute \$7,500. Where cost of closure is greater than \$15,000, the Road Authority must fund the difference.

Future Plans

MDT plans a computerized GPS system including data on all public at-grade crossings as well as images, accident data, specific location, name of railroad, and U.S. Department of Transportation (USDOT) number label.

MDT is encouraging use of LED (light-emitting diode) lights at railroad crossings, and envisions eventual replacement of all incandescent lights with LEDs. LED lights provide exceptional light intensity and uniform light output, and have longer life compared to incandescent lights. MRL has agreed to use them, and BNSF has agreed to use them for a period of time.

RAPIDLY GROWING SERVICE INDUSTRIES

Montana's TranPlan 21 1999 Annual Report highlights a major economic change taking place in the state—rapidly growing service industries, including retail trade and personal business and services.¹⁸⁷ Many of these service industries are related to the trend next reported in the 1999 Annual Report: the growth of tourism in Montana, including national park visits and skier visits.¹⁸⁸ The 1999 Annual Report states: "Nonresident visitation to Montana has nearly doubled in the past 10 years. Montana's National Parks and ski resorts are among the most popular travel and tourism destinations. ... Travel and tourism is expected to continue to grow over the long term.

¹⁸⁷ TranPlan 21 1999 Annual Report, Transportation Planning Division, Montana Department of Transportation, December 1999, pages SC 6 and SC 7.

¹⁸⁸ *Ibid.*, pages SC 8 and SC 9.

... The growth of Montana tourism and recreation raises new issues for statewide and regional transportation planning.”

The 1999 Annual Report states that tourism growth trends raise issues for statewide and regional planning, in particular traffic volumes on key routes, and congestion and safety.¹⁸⁹ These growth trends also raise issues related to rail:

The initiative of Mr. James Green, discussed earlier in this report, to connect Denver with Spokane via numerous points in Montana by new passenger rail service, is predicated in part by recreational including skiing opportunities. The 1988 Department of Commerce report on passenger rail feasibility, also discussed above, was inspired by a Legislature initiative to enhance tourism. Even if the comparison of probable revenues and costs of these initiatives does not appear favorable today, the tourism trend suggests keeping an eye on this potential.

Another issue described above in this report is the potential for further abandonments of rail lines in Montana. Each abandonment should be scrutinized by the state to determine whether there is a public interest in maintaining the line in operation, for passenger or freight transportation, in preserving the line for potential future rail transport use, or in preserving the corridor as a non-rail transportation corridor.

FUNDING SOURCES

This section is to discuss the federal and state funding sources and programs which can assist in the rehabilitation of rail lines to enhance their economic viability.

Local Rail Freight Assistance Program

This federal program, discussed under the State Rail Planning section at the beginning of this report, has been utilized extensively to improve and preserve Montana's rail system. The program has not been funded since 1995, and is not likely to be funded in the future.

Transportation Equity Act for the 21st Century

The 1998 Transportation Equity Act for the 21st Century (TEA-21) authorized a program similar to LRFA called the Light Density Rail Line Pilot Projects; however, funds for this program have never been appropriated.

TEA-21 and its predecessor, the Intermodal Surface Transportation Efficiency Act of 1991, or ISTEA have allowed states and metropolitan planning organizations to employ federal funding from various sources in numerous rail projects. Thus federal

¹⁸⁹ *Ibid*, page SC 9.

funding has come from the Rail-Highway Crossing Program (the so-called Section 130 program) and high speed rail development, among other programs.

In addition, TEA-21 authorizes two new credit assistance (direct loans, loan guarantee) programs.

Regulations for implementation of the Railroad Rehabilitation and Improvement Financing Program (RRIF) were published in the Federal Register on July 6, 2000, and the rule became effective September 5, 2000. RRIF provides direct loans and loan guarantees to state and local governments, government sponsored authorities and corporations, railroads, and joint ventures that include at least one railroad. Eligible projects, both passenger and freight, include (1) acquisition, improvements or rehabilitation of intermodal or rail equipment facilities (including tracks, components of tracks, bridges, yards, buildings, and shops), (2) refinancing outstanding debt incurred for these purposes, or (3) development or establishment of new intermodal or railroad facilities.

The Transportation Infrastructure Finance and Innovation Act (TIFIA) provides credit assistance on flexible terms directly to public-private sponsors of major surface transportation projects to assist them in gaining access to capital markets. TIFIA authorizes the Secretary of Transportation to collect fees from borrowers and fund up to \$10.6 billion of direct loans, loan guarantees, and lines of credit to support up to 33 percent of project costs. Eligible projects include highway and capital transit projects, intercity bus and rail projects (including Amtrak and Maglev systems), and publicly-owned intermodal freight transfer facilities on or adjacent to the National Highway System. Projects must cost at least \$100 million or 50 percent of a state's annual apportionments and be supported by user charges or other dedicated revenue streams. The Secretary of Transportation selects projects based upon factors including national significance, credit-worthiness and private participation.

Conclusions And Recommendations

Perhaps the most important benefit of state rail plan updates is the periodic assessment of what is happening with regard to a state's rail transportation.

RAIL LINES AT RISK OF ABANDONMENT

One result of this state rail plan update is the indication that a number of rail lines in Montana are not carrying sufficient traffic to pay for their maintenance, and are therefore at risk. (See Rail Lines at Risk section, and Table 4 in particular.)

Montana should review these lines at risk in order to determine whether action should be taken to preserve them, or to perform an analysis of the market to determine their future viability. Montana has already made a determination with regard to the DMVW Whitetail line, and is actively working to preserve it.

110-CAR GRAIN LOADING FACILITIES

Another conclusion is that grain dealers and railroads are moving quickly to construct 110-car grain loading facilities in order to reduce costs of handling and transportation. The implications for Montana are apparent: there will be increased highway maintenance costs; small elevators will be forced out of business; and some rail branch lines may face the prospect of abandonment.

Montana should analyse the highway maintenance costs, recognize the economic dislocations, and, with regard to rail lines, take the same action recommended under the Rail Lines at Risk subsection: determine the consequences to the state as a basis for deciding what actions may be required. A further recommendation is to investigate relevant policy and actions in the Province of Saskatchewan, which faces similar problems.

PASSENGER RAIL

This report concludes there is a strong desire for additional passenger rail in southern Montana, and that satisfaction appears possible only if the state is willing to fund additional transportation service. Passenger rail service, like public transit service, is generally not possible without significant public financial support.

Montana should determine Amtrak's interest in initiating and operating this service. Amtrak's long-distance passenger market would result in more passenger trips on the line. On the other hand, as discussed under the Rail Passenger Service section,

Amtrak's service goals would be different from Montana's and in many respects would not coincide with Montana's objectives.

The rail passenger service option should be kept open and under consideration, even if deemed currently not attainable. As stated in the Rail Planning Issues section of this report, Montana's rapidly growing service industries--retail trade, personal business, tourism--suggest strongly that increased passenger rail may at some time become achievable.

With regard to the Empire Builder passenger rail service, it is recommended that Montana strongly resist any efforts, should they arise, to reduce the current Amtrak service.

The requirement that Amtrak attain self-sufficiency in operating costs by the end of 2002 or be liquidated hangs over the future of passenger rail service. It is recommended that Montana consider its interests and develop appropriate action plans if it appears Amtrak will not meet this goal.

COMPETITION, RAIL RESTRUCTURING AND MERGERS

Under this category the conclusion is that Montana has--over the last three decades--borne the brunt of reduced rail transport competition resulting from restructuring, and that the state has taken numerous actions which have resulted at least in preserving a degree of competition.

Montana should continue its activism in this regard in order to protect the interests of Montana citizens, and continue to look for opportunities to influence public policy at the federal level, whether on Capitol Hill or before the Surface Transportation Board. One avenue in this regard is Montana's continued participation in the American Association of State Highway and Transportation Officials' Standing Committee on Rail Transportation.

Appendix A

Port of Northern Montana

Proposed Local Rail Freight Assistance Projects

Two potential assistance projects were considered for funding, both industrial spurs located in Shelby at the South Industrial Park owned by the Port of Northern Montana. Toole County jointly with the City of Shelby created this inland port authority, also known as the Northern Express Transportation Authority (NETA), in 1987.

Shelby is located on Interstate Highway 15 about 90 miles north of Great Falls and 35 miles south of the Canadian border crossing between Sweetgrass and Coumts, Alberta. A main line of BNSF, the Sweetgrass Subdivision, also is located in this corridor and runs along the western edge of the South Industrial Park. The junction of this main line with BNSF's major route across northern Montana (known as the Hi-Line) is located just west and north of the Industrial Park. The Hi-Line is the route of Amtrak's daily Empire Builder passenger trains traveling between Chicago and Portland-Seattle.

NETA has requested financial assistance for two track projects in the South Industrial Park. The first is to rehabilitate one of the industrial spurs in the Park and the second is to install a switch in the middle of that spur and construct a new spur that would provide an alternative route to the Sweet Grass Subdivision.

The spur to be rehabilitated serves a warehouse complex operated by a subsidiary of a major trucking company. A portion of the spur at the head end is shared with traffic moving to a major grain elevator.

A business plan to use the warehouse complex to load and unload Amtrak express cars that would move on Empire Builder trains has generated a requirement to rehabilitate the track to meet Amtrak standards. The need for a new track connection for the warehouse complex is driven by a planned expansion of operations at the grain elevator that will result in the loading of 110-car unit grain trains. It is believed that access to and from the warehouse complex will be blocked during loading operations at the grain elevator, threatening the ability to meet express service standards.

The business plan is described in a research paper prepared by Smith Consulting LLC entitled "A Montana Perspective of National Railroad Passenger Corporation's Report to Congress of Express Freight Opportunities on the Empire Builder Route of August 20, 2000." Additional details were provided by NETA and Smith Consulting in response to requests for clarification.

The following discussion presents the benefits and costs of the proposed projects using criteria established by the Federal Railroad Administration. As discussed below, uncertainties about the schedules of switching express cars and movement of

occasional unit grain trains on the same track has made it inappropriate to assume that express car volume would be reduced if a new track were not constructed. Consequently, project benefits for the rehabilitation project are assumed to be the same as for the project that consists of both the rehabilitation and the new track construction as a single entity for purposes of estimating benefits and costs.

NETA SPUR REHABILITATION

A Shelby transportation company has prepared a business plan that would move express freight to and from Shelby in Amtrak owned 60-foot express boxcars with the following operational components:

- Express would arrive and depart on Amtrak's daily Empire Builder
- Boxcars would be switched to the warehouse in the South Industrial Park
- The company would transload express freight to trucks owned by its parent
- The parent company would dray express to customers in Montana and Alberta.

Several potential express customers have identified uses of the service that will generate cost savings over current practices of shipping by truck. The following modest operating plan for handling that traffic, which demonstrates the expected benefits of the proposed service, would be the basis for establishing the Amtrak service:

- Five days a week, the parent company would deliver six truckloads of palletized food products to Amtrak's Heavy Express facility in Oakland, California, where the pallets will be loaded in two Amtrak express boxcars.
- Two boxcar loads of food products would move on Amtrak from Oakland to Portland on the Coast Starlight, and to Shelby on the Empire Builder, five days a week.
- These goods would be transloaded to six trucks in Shelby and delivered to customers in Calgary and Edmonton.
- Specialty lumber and bagged mineral products would be picked up by truck from producers in Montana and delivered to the Shelby warehouse at the rate of six truckloads per day for five days each week.
- These goods would be transloaded in Shelby from truck to the two express boxcars that originated in Oakland.
- Two boxcar loads of Montana products would move from Shelby to Chicago on the Empire Builder.
- Amtrak would transload the Montana goods to trucks for delivery to customers by the parent company.

This basic operating plan is designed to capitalize on the need for Amtrak to reposition empty express boxcars from the West Coast to Chicago. Consequently, it allows Amtrak to earn revenue from equipment that would otherwise be relocated empty.

To evaluate the request from NETA for financial assistance to rehabilitate the track tangible benefits and costs are quantified, and the ratio of benefits to costs is computed. This approach follows the standard benefit-cost methodology guidelines found in Benefit-Cost Methodology for The Local Rail Freight Assistance Program, as published by the Federal Railroad Administration (FRA) in July, 1990.

Establishing the Project Alternative

The problem addressed by the project is that heavily loaded Amtrak express cars can not be safely moved on this NETA spur. More generally, the problem is that continued Amtrak service is essential to Montana and ways must be found to generate additional revenue for Empire Builder service. Possible solutions include:

- Rehabilitating the spur (an eligible project because Amtrak is the primary railroad beneficiary) or
- Doing nothing and not using the Amtrak service

Determining the Project Costs

Thomas, Dean & Hoskins, Inc. (TD&H), an engineering consulting firm of Great Falls, has estimated project costs to be just under \$93,900. This amount would rebuild a 565-foot section of track using 115-pound rail, replace a switch at the junction with the grain elevator spur and provide a street crossing to reduce damage from movement of empty grain trucks.

Determining the Null Alternative

The null alternative (that is, the alternative if the project is not undertaken) is that heavy express service does not become available in Montana. If express service does not become available, then Amtrak's Empire Builder would not benefit from the additional revenue Montana express business could contribute. Shippers also using express service would continue to move goods by truck and not benefit from reduced transportation costs available by rail.

Using a Standard Planning Horizon

Evaluation of the rehabilitation project will be based on ten years of benefits, as is the practice for evaluating projects proposed for use of federal local freight assistance funds. Project costs will be incurred in the first year of the project.

Using an Appropriate Discount Rate

Project costs will be compared with the net present value of ten years of project benefits using a discount rate of 4.33 percent. This rate is based on the federal

government's cost of borrowing, less that element of the cost of borrowing that is estimated to represent expectations as to inflation.

Calculating Transportation Efficiency Benefits

Transportation efficiency benefits are those that are a direct effect of the project alternative being considered and consist of gains achieved and cost avoided. The proposed rehabilitation project will generate two benefits of this type: revenue gains for Amtrak and reduced transportation costs for shippers using the express service.

Based on discussions between NETA and Amtrak, the proposed shipments of two express cars per day between Oakland and Shelby and, after reloading, from Shelby to Chicago would generate revenue of over \$1,900,000 annually for Amtrak. After reducing these payments to reflect Amtrak operating and opportunity costs, it is estimated that the net gain to Amtrak generated by the Shelby traffic would be about \$737,000 annually.

Shipper transportation cost savings represent the difference between premium truck service and Amtrak express, handling and pick-up and delivery costs. These are estimated to total about \$240,000 annually.

Smaller net financial benefits also would accrue to the warehouse operator, trucking company, BNSF and the Port Authority for providing other services required to handle express freight.

Annual benefits from the proposed rehabilitation of the NETA spur track to handle Amtrak express traffic is estimated at about \$975,000 per year.

Secondary Impacts

Secondary project impacts are those that are an indirect consequence of the project alternative being evaluated and tend to primarily concern highway travel and employment.

There would be secondary highway impacts stemming from a reduction of over one million miles driven annually by about 3,100 loaded trucks on interstate highways in Montana. Truck volumes on non-interstate highways would remain the same; however, movement of about 20 loaded truck trips a week would shift from U.S. 93 north of I-90 to U.S. 2 west of I-15. Maintenance needs on Montana interstate highways would be reduced but the amount attributable to this traffic would be small. The reduction in truck travel also would positively affect highway safety but negatively affect fuel purchases in Montana.

Employment impacts likely would be small as the transload operation would require only a few additional employees. About a dozen truck drivers would be involved in moving express business to and from Shelby. However, since a comparable number of drivers are currently handling the traffic by truck in Montana, there is not likely to be a net increase in such employment.

Calculating Salvage Value

The FRA methodology, based on a project life of ten years, allows the salvage value of project materials to be recovered at the end of the planning horizon. It is estimated that the materials used in the proposed rehabilitation project would have a salvage value of about \$17,000 after ten years of use.

Calculating the Benefit-Cost Ratio

Based on a discount rate of 4.33 percent, the net present value of a ten-year stream of benefits amounting to about \$975,000 annually is about \$7,800,000. With a first year project cost of about \$94,000, the benefits exceed the costs by a factor of over 86.

NEW CONNECTION TO THE NETA SPUR

The Port Authority is concerned that an unrelated development by another tenant of the South Industrial Park has the potential to have an adverse effect on the ability to move express cars in and out of the facility in a timely manner. Cenex-Harvest States operates a 890,000 bushel elevator at the facility that currently handles up to 54 rail cars at a time. The NETA spur to the warehouse where express cars will be handled and the spur to the grain elevator share a track leading to BNSF's Sweet Grass Subdivision main line.

A loop track will be installed within the South Industrial Park to allow 110-car unit grain trains (over 6,700 feet in length) to be loaded continuously at the elevator while the equipment remains in a train configuration. Once the grain train begins loading access to the warehouse could be blocked for up to eight hours. Because the timing of the grain loading is unpredictable and the expected switching schedule Monday through Friday at the warehouse is unknown, the precise impacts on express service could not be determined. It is not appropriate in that case to assume an arbitrary reduction in express car volume given the very low level of operation. Although the number of these events is expected not to exceed 24 days a year, the unpredictability of access, however, represents a genuine threat to maintaining switching standards required for express service.

The Port Authority proposes to eliminate the risk of deteriorated service by constructing a 2,762-foot section of track to provide a second connection from the warehouse spur to the Sweet Grass Subdivision. TD&H estimates the cost of this new construction to be about \$431,000 with a salvage value after ten years of use of about \$60,000. Other project impacts are assumed to remain unchanged from the rehabilitation case for purposes of this analysis.

For purposes of evaluation, a benefit-cost ratio for the two-phased rehabilitation and construction project will be determined. Based on a discount rate of 4.33 percent, the net present value of a ten-year stream of benefits amounting to about \$975,000 annually is over \$7,800,000. With a first year project cost of about \$525,000, the benefits exceed the costs by a factor of 15.5.