Rail Freight Competition Study

As Provided By

Montana Senate Bill (SB) 315

A Report Prepared For

State of Montana
Governor's Office of Economic Development
and
Montana Department of Transportation
Montana Department of Agriculture, and
Montana Department of Commerce

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Executive Summary and Conclusions

Purpose of Study

This study responds to Montana Legislature Senate Bill No. 315, which provides for a feasibility study to assess conditions affecting rail freight competition in Montana and to analyze possibilities to improve rail freight competition.

Historical Background

The merger of four railroads in 1970 to form the Burlington Northern Railroad (BN) reduced the number of large railroads serving Montana from six to four, the four remaining being BN, Union Pacific Railroad (UP), Soo Line Railroad, and Chicago, Milwaukee, St. Paul and Pacific Railroad (Milwaukee Road, or MILW). Bankruptcy of the Milwaukee Road (declared in 1977) ultimately resulted in sale of certain Milwaukee Road properties to BN and UP (in 1980) and to the Soo Line (in 1985). Today Montana is served by two large (Class I) railroads, Burlington Northern Santa Fe (BNSF) and UP, and one regional railroad, Dakota, Missouri Valley & Western (DMVW), which connects with Canadian Pacific Railway. Of the total miles of railroad operated in Montana by BNSF, UP and DMVW, BNSF (including Montana Rail Link, which, as detailed in the study report, is partially controlled by BNSF) dominates with over 90 percent.

Thus a merger and a bankruptcy greatly reduced rail competition in the Treasure State.

Factors Affecting Rail Freight Competition

Rail freight competition is influenced by deregulation (Staggers Rail Act of 1980), presence of competition (other railroad, truck, barge), extent of competitive sources for products and availability of substitute products, demand for rail service (for example, amount of export wheat produced), and railroad productivity. The Staggers Rail Act allows railroads to operate as businesses, for example, setting their own rates. For transport of relatively low value, high bulk commodities, Montana has no option but to use rail. Montana, distant from population centers and with relatively low volumes to be transported (in comparison with other states), is not a high-demand state. All large railroads have embraced productivity improvements, which include minimizing rail operating costs while maximizing transportation output; the 110-car shuttle train facilities on main lines are a prime example of this.

Underlying SB 315 appears to be the premise that additional rail competition would resolve Montana's rail issues. An important finding of this study is that limited rail competition is but one of several factors which tend to weaken rail service in Montana. The combination of factors which result in relatively high rates and poor service includes:

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

Additionally and in more recent years, the considerable growth in goods movement and shrinking remaining railroad capacity conspire to motivate railroads to pursue markets more lucrative than Montana (for example, longer distance and higher volume traffic).

Regulation of Railroads

The Interstate Commerce Act of 1887 initiated federal economic regulation of railroads and created the Interstate Commerce Commission to administer the program. Within 90 years, the regulatory regime was such that railroads could not effect market-responsive adjustments, and, with growing competition from the motor transportation industry (the latter using public-funded highways), a major portion of the railroad industry faced bankruptcy.

The Railroad Revitalization and Regulatory Reform Act of 1976 partially initiated reforms intended to restore financial stability to the railroads, and was succeeded by the Staggers Rail Act of 1980, which more effectively deregulated the railroads. Staggers allows railroads to set their own rates, price responsive to competitive conditions (as opposed to cost of service), and, in general, make marketplace decisions. Staggers provides for expedited abandonment procedures, accelerated merger timetables and confidential contracts between railroads and their customers.

Bluntly stated, Staggers allows railroads to set price according to what the market will bear and to pay less attention to the "common carrier obligation".

Staggers brought a major turnaround in the financial health of the railroad industry. On the other hand, captive shippers (and captive states) pay higher rates and receive substandard railroad service. Naturally, this prompts Montana to ask the question, "Why should Montana pay more for less?"

Staggers does provide relief procedures, where rail rates are deemed unreasonable. But adjudication of rate disputes by the Surface Transportation Board (STB), which succeeded the Interstate Commerce Commission, has been characterized as complex, slow, overly burdensome and very costly. Furthermore, railroads win about two-thirds of the rate cases brought before the STB. The adverse decision in McCarty Farms symbolizes Montana's sad experience with regard to the last two sentences.

Montana's Use of Railroads

Looking at traffic originating or terminating in the state (as opposed to bridge traffic, which crosses the state but is of little benefit to Montana's economy), Montana moves over 40 million tons annually by rail. This traffic is predominantly coal (28 million tons), followed by petroleum products (4 million tons), farm products (mostly grain) (3 million tons), lumber and wood products (2 million tons), glass and stone products (1/2 million tons), chemicals (1/4 million tons), food products (1/4 million tons) and other categories. Note that most of these are bulk, relatively-low-value commodities for which there is no economical means of long-distance transport except by rail, barge or pipeline.

Montana Ports and Intermodal Facilities

The Port of Montana at Butte and the Port of Northern Montana at Shelby were formed to create transportation infrastructure to market Montana products. The Port of Montana is served by two Class I railroads, BNSF and UP. The Port of Northern Montana is served only by BNSF, but is 36 miles from the Canadian border and Canadian Pacific Railway.

Closure of the BNSF intermodal facility (containers and trailers moved on railcars) at Shelby in May 2004 leaves the BNSF intermodal facility at Billings as the principal remaining intermodal facility in Montana. The Port of Montana has a small intermodal volume, handling about 600 to 800 containers a year. Intermodal is discussed in this study because it is the fastest-growing railroad product line, it this year exceeds coal as the railroads' top revenue producer and it is seen by some as an area of potential expansion for movement of goods from and to Montana. Interest by BNSF and UP in Montana's intermodal market is evidently waning, indicated by closure of the BNSF Shelby facility this year and closure of UP intermodal service at Butte in 1992.

Montana's Potential Market for Rail Transport

The market potential of rail transport in Montana perhaps would be higher if there were greater competition but practical limits are imposed by the marketplace freedom granted railroads by Staggers and by Montana's relatively low demand for transportation services. Another constraint on Montana's rail transport market potential is the current capacity issue. Very much aware of the financial "bottom line", today's Class I railroads have cut costs diligently, find themselves near or at capacity on many individual lines, and are unable to accommodate the fast-growing traffic volume. The current Union

Pacific problem, arising from a shortage of locomotive engineers and trainmen, exemplifies this constraint.

Interviews of business development officials and railroad customers confirm that BNSF is not eagerly taking on every potential new transportation order and, in the case of goods that can move by truck, sets prices at or just below current trucking prices.

Montana's need and demand for rail transportation, although of crucial importance to the state, is relatively "small potatoes" to the large railroads. Montana's distance from considerably larger transportation markets, on the West Coast and in the Midwest, further reduces the railroads' inclination to provide satisfactory service to the state. The customer that a railroad can lose to a competitor gets more attention (and a lower price) than a captive customer. Montana is a captive state.

It is emphasized that Montana's high rail rates and substandard rail service are not attributable solely to lack of railroad competition but also to the characteristics of Montana's transportation market, including population of the state, volume and value of products to be shipped by rail, distances between Montana and major transportation markets and the railroads' business priorities. Even if two-railroad competition were imposed throughout Montana, the other factors would mitigate against full resolution of Montana's rail transportation problem.

Impacts Resulting from Montana's Railroad Issues

Analysis conducted in this study confirms that conducted by others: shippers in Montana, North Dakota and other captive jurisdictions tend to pay more for rail transportation than do shippers with an option. The Staggers Rail Act allows this differential pricing. Waybill sample analysis indicates that the largest impact on Montana is the price paid to move export wheat to Pacific Northwest ports. Applicable rates are 50 percent higher than rates in states with competitive transportation alternatives, and this costs Montana $60 million a year and devalues Montana wheatland by $1 billion.

Waybill sample analysis shows that coal transported out of Montana carries no similar price burden for that movement; coal transportation is paid for by the recipient and remains very competitive. With regard to relatively small volume commodities, limitations of the waybill sample come into play. Of the Montana products moved by rail, only wheat showed up with revenues greatly exceeding variable costs, and to a lesser extent, somewhat high rail transportation costs were attributed to non-metallic minerals (e.g., gravel and crushed stone), wood products and food products (processed farm products).

The waybill sample data make clear the dominant position of BNSF. Also, virtually no other state has a rail system in which one railroad monopolizes the route miles to the extent of over 90 percent.

Evaluation of available U.S. Department of Commerce data show that 95 million tons were originated in Montana by all modes (meaning truck and rail, for practical purposes) in 1997 (latest year for which data are available). Association of American Railroads data show 41 million tons originated by rail in Montana in the same year. This provides a rough idea of the two markets in 1997: truck 54 million tons, rail 41 million tons.

The analysis shows that intermodal (rail-truck and truck-rail) movements, normally utilized for high-value finished products as opposed to bulk commodities, are relatively under-used in Montana, compared with other states.

Interviews of business development officials and railroad customers reveal that in fact high rail rates are an issue with shipment of Montana commodities in addition to wheat, and are a factor in business decisions not to locate or expand in Montana. Eighteen specific businesses were identified as making decisions to locate in some other state because of high rail rates to and from points in Montana. It is clear that this is only the "tip of the iceberg" inasmuch as many business do not share their location searches with economic development officials in Montana and the survey made as part of this study was necessarily brief in consideration of time and other resources available.

Benchmarks: Comparable Issues in Other States

SB 315 asks that benchmarks be provided through a comparison of rail freight rates and competition in the region. The waybill sample analysis confirms that North Dakota shares with Montana the burden of high revenue-to-variable cost ratios in wheat shipments, indicating relatively high rail rates in that state also.

Another benchmark is indicated by the considerable activity in North Dakota on the same rail issues which trouble Montana. North Dakota has held Congressional hearings, prepared numerous papers and is currently taking steps aimed at filing a rate case with the Surface Transportation Board.

The waybill sample indicates high revenue-to-variable cost ratios for wheat shipments in some other states, but to a lesser extent compared with Montana and North Dakota.

Impacts of Shuttle Trains

The advent of shuttle train service in Montana (and in many other states) over the past half dozen years exemplifies the quest of large railroads to improve productivity and decrease costs. Typically, a shuttle train includes about 110 railcars and dedicated locomotives which remain together in a "consist" which loads grain in 15 hours, and unloads grain in the same time at export facility destinations (e.g., Pacific Northwest ports). Shuttle trains are also employed in movement of coal, cycling back and forth between mine and coal-burning electrical power plants or export facilities.

Eleven grain storage facilities in Montana which can load shuttle trains account for 46 percent of Montana's wheat shipments. Of the eleven shuttle train loading facilities,

six are owned or partially controlled by Cenex Harvest States and three by Columbia Grain. The construction of these facilities in Montana was greeted with some consternation as it became clear that country elevators, jobs and small rural communities, not to mention railroad branch lines reaching them, were placed in jeopardy. Closure of branch lines would result in additional impacts: loss of railroad property tax revenue, increased highway damage (resulting from truck transportation of grain to the shuttle facilities on main line track) and loss of railroad service to future economic development prospects.

Despite these important costs, shuttle trains bring a substantial benefit to Montana; they assure continued export of Montana wheat to a growing international market. Inasmuch as efficient shuttle train loading facilities exist throughout the grain-producing states -- dozens have been constructed in other states including Kansas, Minnesota, Missouri, Nebraska, New Mexico, North Dakota and South Dakota -- they are here to stay.

Potential Benefits of Rail Freight Competition on Economic Development in Montana

One cannot simply say that all the impacts mentioned in the previous section would turn into benefits were Montana to enjoy rail freight competition. As stated earlier, there are factors in addition to lack of rail freight competition that also place Montana at a disadvantage, for example, compared with other states, there is not an especially high demand for transportation in Montana, because --coal excepted -- Montana's volumes of commodities to be shipped are relatively low.

Were there full transportation competition in Montana -- including barge and truck as well as rail -- to the extent that such competition exists, say, in Illinois, Iowa, Kansas and Missouri, then the Montana economy would be improved by $60 million a year in wheat transportation costs alone and the value of Montana wheatland would increase by about one billion dollars. Were the transportation market in Montana as competitive and robust as that in California, Illinois, New York, Pennsylvania and Texas, for example, Montanans would not be concerned about industries not locating in the Treasure State because of railroad prices and services.

It is unrealistic to believe that the mandating of competitive access by changes in the law (e.g., S. 919) would cause Montana's rail issues to disappear. Montana remains a relatively small market, which does not attract the railroads as do markets on the West Coast and in the Midwest.

In summary, Montana's railroad problems are only partly a result of absence of rail competition.

Benefits of State-Owned Infrastructure

SB 315 requests an analysis of the costs and benefits of state-owned infrastructure (meaning rail infrastructure) compared with privately-owned infrastructure, in order to promote greater rail freight competition.

State-owned infrastructure could result from new construction or from acquisition of existing rail infrastructure.

The relatively low return on investment inherent in railroading, combined with the law (Staggers) allowing railroads to charge what the market will bear, results in captive shippers paying more. In Montana where the dominant railroad, BNSF, reduces service in addition to charging higher prices -- because it is allowed to do so but also because Montana is a relatively small market -- it is not feasible or realistic to consider construction of a redundant railroad network throughout the state to provide the competition which is lacking. In the first place, who would pay for it? In the second place, the competitive network presumably would share the existing traffic with BNSF, so each, BNSF and Montana, would receive only one-half of the existing traffic. And the existing Montana rail traffic does not appear to support the current rail network, given that BNSF is in no hurry to restore its Great Falls-Helena line, and appears to be most interested in abandoning branch lines in Montana. Furthermore, loss of the Milwaukee Road infrastructure in Montana is yet another indication that additional rail lines may not be viable.

Perhaps more likely, but still at best with marginal prospects, would be investment by Montana on grain branch lines BNSF appears interested in abandoning. Rather than duplicate BNSF main line infrastructure, an unrealistic option, the state could acquire lines that BNSF does not want and deliver loaded trains to the BNSF main line. But even here there are high barriers, beginning with a relatively low amount of traffic on Montana branch lines and the presence of shuttle train loading facilities on the main lines -- described in this study and in the June 23, 2004, Montana Branch Line Study Phase I -- which mitigate against the viability of this arrangement. It is almost certain that operation and maintenance of those branch lines would require public subsidies.

Potential Actions to Improve Rail Freight Competition in Montana

At the outset of this study, R.L. Banks & Associates, Inc., (RLBA) stated that "there should be no illusions. If Montana is determined to improve its economy through enhancing railroad transportation competitive options, then it should look upon this study as but the first step in a long and expensive process."

The federal government's pre-emption of most matters concerning interstate railroads and the relatively limited manner by which it has chosen to safeguard shippers' rights limit a state's options in dealing with railroad issues.

This study categorizes possible action by Montana in three areas:

Surface Transportation Board
Federal legislation
Montana actions

There are several areas over which the Surface Transportation Board (STB) exercises regulatory jurisdiction over the railroads:

Mergers and acquisitions
Rail line abandonments
Construction of new rail lines
Adjudication of railroad rates
Competitive access by one railroad over another's lines

The mergers and acquisitions area will not come into play unless a railroad files an application with the STB, and rail line abandonments are no remedy for Montana's rail problems. Construction of new lines may be (over short distances) a practicable means of improving rail competition in Montana. Montana is experienced in railroad rate cases, having endured the McCarty Farms struggle for 18 years. Railroad rate cases are expensive, drawn out, and recent history indicates that railroads win over shippers in about two out of three cases. Competitive access, using the terminal access provision of the Interstate Commerce Act, is deemed even a longer shot. Great discretion is left to the STB in deciding and, again, recent history gives no great reason for shipper optimism in gaining terminal access. What recent history has shown is a number of cases in which competitive access is gained by the "build out", or construction of a new rail line, connecting an otherwise captive customer with a second large railroad. (The build out requires a relatively large volume of traffic to be economic.)

Federal legislation is the remedy sought by S. 919[1], the Railroad Competition Act, introduced in the 108th Congress by Montana's senators in April 2003. S. 919 seeks to promote competition among rail carriers, maintain reasonable rates, maintain consistent and efficient rail service, ensure that small shippers are not discriminated against and establish arbitration procedures. In short, S. 919 holds promise of addressing and possibly resolving Montana's railroad issues. Large railroads strongly oppose S. 919 and most observers see little chance of its passage in the near future.

Montana has not been idle in seeking railroad competition. It has built grain loading facilities at the end of the UP line near Butte, instituted the Ports of Montana and Northern Montana to encourage improved transportation and put federal dollars to work improving the connection to CP in northeast Montana. Montana has actively articulated its rail issues to BNSF, and has worked with that railroad. Montana should continue these activities and consider the following list in developing a strategy to protect its interests:

[1] A corresponding bill, H.R. 2924, was introduced in the U.S. House of Representatives.

Work with BNSF
Work with other Class I railroads to promote competition
Reevaluate state railroad taxation policies
Work with other states
Assist impacted Montanans
Evaluate state role in line ownership and operation

Advocacy Activity

There are a number of advocacy organizations which have objectives coincident with those of Montana. These are listed and described briefly in this study. Montana may wish to consider greater coordination and interface with some of these organizations, for example, the Western Governors' Association.

Conclusions

Montana suffers from lack of rail competition. What can be done? There is no "silver bullet". S. 919 and similar legislation would help cure some of the problem, but Congress has shown little inclination to tamper with Staggers and the large railroads enjoy one of the strongest Washington, DC, lobbies. Therefore, any effort to reintroduce competition in Montana through a demolition of Burlington Northern Santa Fe into its pre-merger constituents would not appear to be a realistic, however desirable, policy.

As stated above, limited rail competition is one of several factors which, combined, result in high rates and poor service in Montana. Other factors are Montana's relatively small transportation market, geographic position and distance, Staggers Rail Act emphasis on deregulation and interpretation of the law by the ICC and STB, and the limited overall transportation options available in Montana.

Bringing a rate case before the STB has already been tried by Montana, and the experience of recent rate cases does not provide much reason for optimism that Montana's issues would be resolved under current law and STB policy.

Montana should continue its current and past efforts along several avenues to bring more rail competition to the state and should also explore additional approaches as well as impact-mitigating measures where practicable.

Rail Freight Competition Study (Montana Senate Bill (SB) 315)

Part One: Competition Issues

Section A: Introduction and Background

Purpose of Study

The State of Montana desires a feasibility study, in response to SB 315, on rail freight competition. A copy of SB 315 is at Appendix A.

The study is to address the impacts on Montana from rail freight competition or lack thereof, quantifying the impacts where practicable, and provide an analysis of the potential to improve the situation, including the benefits (quantified where practicable) which would accrue to Montana in the event improvements suggested by the study are implemented.

A number of people were contacted during the course of this study. Names of most of these persons are included in Appendix B. A body of literature, including hearing testimony, exists on the subject of this study. The papers which provided the most relevant information are included in the bibliography at Appendix C. The bibliography has been annotated to indicate what in each paper is most pertinent to Montana's rail competition and service issues, and Appendix C constitutes a summary of relevant studies and documentation on the subject.

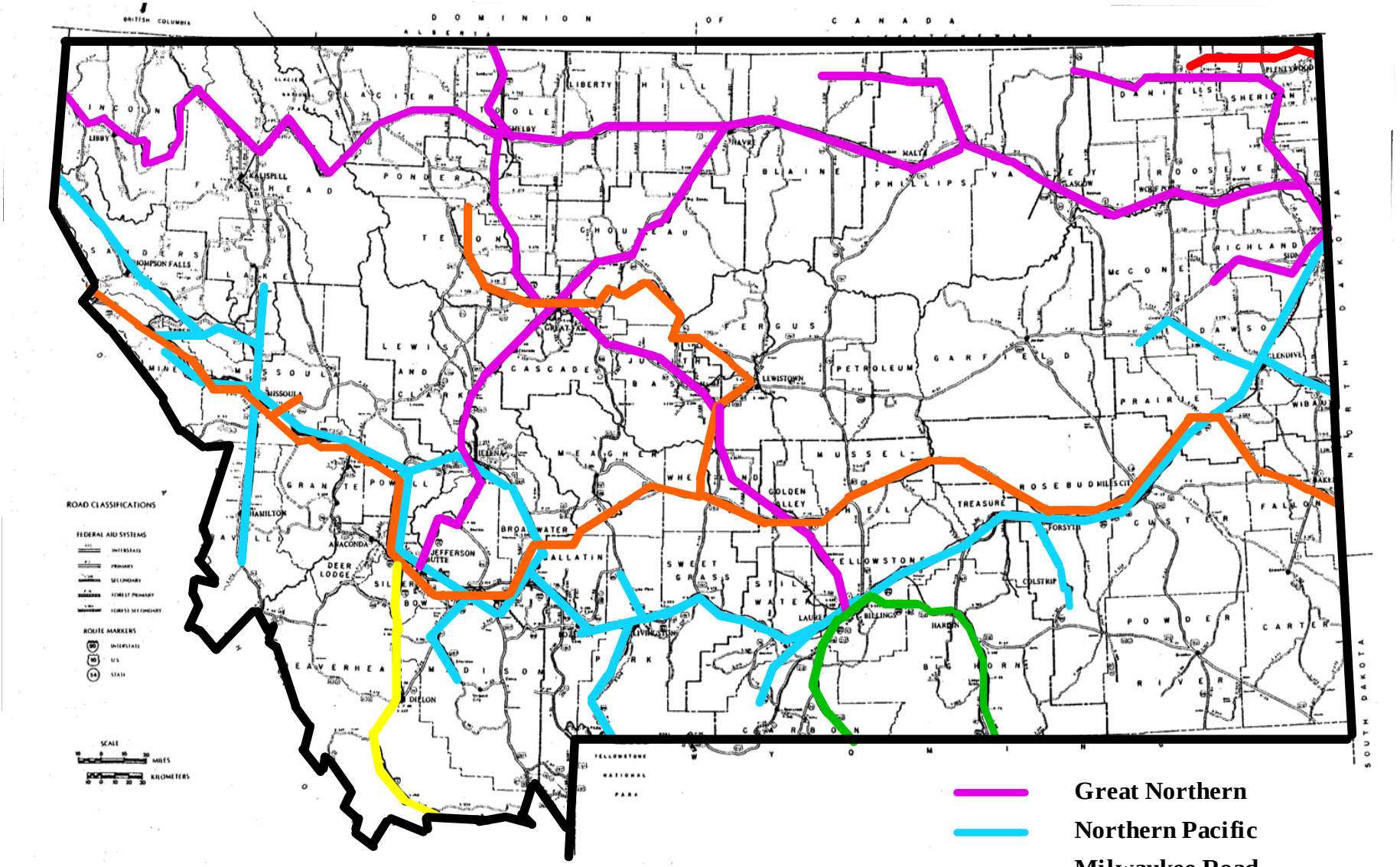
Historical Background

The starting thesis of this study is that absence of railroad competition in Montana results in high rates which benefit only the monopoly railroad. How did Montana come to be what today is essentially a one-railroad state?

Mergers and Consolidations

Like some other states, Montana has suffered from a lack of rail competition resulting from, in large measure, railroad mergers and consolidations. See Map 1. Prior to 1970 – the year in which Great Northern Railway (GN), Northern Pacific Railway (NP), Chicago, Burlington & Quincy Railroad Company (CBQ) and Spokane, Portland & Seattle Railway System (SPS) merged to form Burlington Northern Railroad (BN) –

Map 1
Montana Rail System Prior to 1970



Source: Montana Department of Transportation and RLBA

Montana enjoyed the mainlines of six Class I rail carriers[1], including, in addition to three of the aforementioned railroads, Union Pacific Railroad (UP), Chicago, Milwaukee, St. Paul and Pacific Railroad ("Milwaukee Road" or MILW) and Soo Line Railroad. With the exception of UP's mainline connecting Butte and Idaho Falls, these former Class I railroads (the "Hill lines") were the principal rail traffic arteries connecting Pacific Northwest cities with major Twin Cities and Chicago gateways. While the majority of those mainlines still exist, most are now owned and operated by Burlington Northern Santa Fe (BNSF), itself the product of the 1995 merger of The Atchison, Topeka & Santa Fe Railway and Burlington Northern Railroad (Burlington Northern, or BN). Montana Rail Link, Inc. (MRL) operates, under lease, the BNSF mainline across southern Montana between Huntley, Montana, and Sandpoint, Idaho. The MILW mainline has been abandoned between Forsyth and Lombard (near Three Forks).

The Merger Which Resulted in Burlington Northern Railroad

From a competitive access standpoint, the dawn of the 1970s did not augur well for Montana. Beginning in 1970, the merger which resulted in BN brought four formerly independent Class I railroads into a single entity, which reduced from six to four the number of Class I railroads serving the State. More particularly, Montana's two principal east-west mainline corridors, the former GN "Hi-Line" across northern Montana and the former Northern Pacific across southern Montana, were both properties of merger applicants, subsequently consolidated. MILW was the only other east-west operator offering a competitive alternative to BN, and it was in a financially precarious condition.

James J. Hill, the "Empire Builder" for which Amtrak's Hi-Line passenger train is named, made several unsuccessful attempts over the years to merge his NP and GN, as well as the CBQ, also controlled by NP and GN. After the Interstate Commerce Commission (ICC) again denied a merger petition in 1966, the Northern Lines ("Northern Lines" is the term commonly applied to BN predecessor railroads when referred to jointly) promised to address concerns of those opposing the merger, which included competition and labor protection.[2] Concessions offered to labor and competing railroads, helped win over the ICC. Perceptions had changed to emphasize that railroads were fighting not only to prosper but to survive. That shift in attitude caused ICC regulators to reconsider the BN merger in a broader context, concluding that "there would be 'no lessening of competition' at 92 percent of the freight stations, and shippers would enjoy faster and more dependable single-line service while further benefiting from the carriers' lower transportation costs."[3]

Opposition to the merger, continued, however. Two United States Senators – including Montana's Mike Mansfield – pressured the ICC by threatening to cut its budget. Following several court challenges, the Supreme Court reviewed the record of the

[1] Class I railroads are the largest railroads. The Surface Transportation Board designation defines a Class I railroad as one with operating revenues of $272 million or more, and this threshold is adjusted annually for inflation.
[2] Frank N. Wilner. *Railroad Mergers: History, Analysis, Insight*, 1997, pages 171-174.
[3] Wilner, page 175.

proceeding and confirmed that the merger was indeed properly granted. Burlington Northern was officially created March 2, 1970.

Milwaukee Road Deteriorates

Another blow to Montana's competitive rail environment was the eventual recognition that MILW's operation was rapidly crumbling. The fact that MILW was in poor financial condition was not a new phenomenon. Given the fact that MILW was the last transcontinental rail carrier built, it could neither select the best route profile, nor take advantage of extensive land-grant opportunities bestowed upon Northern Pacific.[4] Those factors finally caught up with MILW. The *1979 State of Montana Rail Plan* sums it up:

> The origins of the dire financial situation faced by the Milwaukee stem from the annual losses incurred on a more or less regular basis during the 1970's which finally resulted in bankruptcy being declared on December 19, 1977.[5]

The depth of the problem shaped the way in which decisions were made relative to the state of railroad competition and actions taken to promote it. MILW resorted to some questionable management practices to maintain the illusion that it would and could continue to provide reliable, efficient and safe rail services. Deferred track maintenance led to slower transit times, which caused equipment and crew shortages. Costs continued to rise. It became increasingly clear that MILW's precarious financial position would have a tremendous impact on the public.

Effort to Preserve the Milwaukee Road and Competition

Major efforts undertaken to preserve large portions of the MILW were unsuccessful. Montana initially supported the "New Milwaukee Lines" (NewMil), a non-profit corporation composed of shipper and employees' interests.[6] The ICC rejected the NewMil plan on December 31, 1979 because it lacked adequate financing. The bankrupt MILW Trustee undertook negotiations with other railroads interested in purchasing portions of Milwaukee trackage. In January 1980, tentative agreement was reached with the Trustee that Montana would acquire the Milwaukee properties between Miles City and Marengo, Washington, (in southeast Washington state) for $55 million, and Montana withdrew its support of NewMil. In March 1980, the Trustee withdrew his sales offer to Montana and announced an agreement selling selected segments to BN and the Reorganization Court approved the agreement. Montana opposed this as not being in the public interest, primarily because of loss of competitive rail services. In May, Montana filed its application to acquire and operate the Milwaukee Road lines between Miles City and Marengo, Washington, in order to retain competitive

[4] State of Montana Rail Plan, August 1979, Montana Department of Highways (Montana Rail Plan 1979), page 54.
[5] Montana Rail Plan 1979, page 51.
[6] 1980 Supplement, State of Montana Rail Plan (Montana Rail Plan Supplement 1980). The discussion in this paragraph is taken from pages 5-13.

rail service and serve the public interest. The competition issue was "considered to be particularly important"[7] by Montana and the ICC accepted Montana's application for consideration concurrently with the BN application. Unfortunately, Montana did not have the fiscal resources to acquire the MILW lines and in August 1980 the ICC approved sale of certain Milwaukee Road properties to BN and Union Pacific. The ICC noted that there were deficiencies in Montana's application, including lack of funding, lack of an operator and the unwillingness of other railroads to grant necessary trackage rights to Montana.

Railbanking Efforts

It is considered extremely difficult to re-establish a railroad right of way once it has been abandoned and acquired by new owners (or reverts to its pre-railroad owners). Railbanking involves government purchase of railroad right of way, the purpose of which is to preserve a transportation corridor for future use.

The *1980 Supplement, State of Montana Rail Plan,* indicates Montana's shift from efforts to preserve rail competition to consideration of railbanking, with regard to the MILW mainline and states the following:

> In discontinuing its efforts to retain competitive rail service in Montana, a commitment was made to investigate the concept of railbanking portions of the Milwaukee's mainline to (1) ensure that competitive rail service could be reinstated, if needed in the future, to provide west-bound competitive rail service to the coal industry and (2) reduce the potential disruption and negative impacts occurring from heavy coal train movements along the Burlington Northern's southern transcontinental route.[8]

Montana's consideration of railbanking uncovered several obstacles in pursuing such a course. At the time, Montana did not have statutory authority or funding to permit railbanking. (Legislative action did in fact come later, as Montana Code Annotated 60-11-120, which states that money appropriated by the legislature may be used to provide loans and grants for the preservation and continued operation of railroad branch lines.) Railbanking was considered a gamble. The acquisition cost of the Milwaukee lines would be great. The ultimate beneficiaries were believed to be the coal companies. Determining ownership of the MILW right of way was another key issue to be resolved, and also, railbanking was deemed to be unpopular with abutting landowners.[9]

After casting off everything west of Miles City, Montana, MILW limped along in the 1980s until its remaining lines were purchased by the Canadian Pacific-owned Soo Line in February 1985.[10]

[7] Montana Rail Plan Supplement 1980, page 10.
[8] Montana Rail Plan Supplement 1980, page 13.
[9] *Op. Cit.*, pages 14-15.
[10] Wilner, *op. cit.*, page 212.

Regulatory Changes

In addition to the specific railroad-related circumstances that began to reduce the number of carriers and the competitive thrust of their Montana operations, there were railroad regulatory changes, beginning in the 1970s and continuing into the 1980s, that would exacerbate railroad problems facing the State of Montana.

The Railroad Revitalization and Regulatory Reform Act (4R Act) of 1976, in addition to creating Conrail, encouraged railroad consolidations, revamped abandonment procedures and limited the amount of ICC merger proceeding deliberations, all of which were efforts to salvage the failing United States rail system.[11] A draft of the 1978 Update to the Montana State Rail Plan observes the following with regard to the historical context of the 4R Act:

> The Railroad Revitalization and Regulatory Reform Act of 1976 has as its goal to provide the means to rehabilitate and maintain the physical facilities, improve the operations and structure, and restore the financial stability of the railroad system of the United States, and to promote the "revitalization" of such railway system, so that this mode of transportation will remain viable in the private sector of the economy and will be able to provide energy-efficient, ecologically compatible transportation services with greater efficiency, effectiveness and economy.[12]

The Staggers Rail Act of 1980 was considerably more potent, compared with the 4R Act. Staggers gave railroads the flexibility to set and publish rates and to negotiate confidential contracts with shippers with regard to services and rates. Furthermore, the ICC was directed to process abandonment requests more rapidly. These provisions were intended to improve the efficiency of railroads and facilitate their decision-making.

Montana Rail Link – Illusion of Competition

In 1987, the Montana Rail Link (MRL) assumed control of the western portion of BN's (formerly NP) mainline across southern Montana. MRL is a bridge carrier shuttling freight between its connection with BNSF at Huntley, Montana, and its connection with BNSF at Spokane, Washington. Although MRL is a new railroad in Montana, it is important to understand that (1) BNSF owns the mainline over which MRL operates, (2) MRL must obtain permission from BNSF to perform interchange with any other railroad, (3) MRL origins are treated as BNSF origins in the latter's tariff books, and (4) BNSF has agreed to provide to MRL a certain level of bridge traffic, on which the smaller carrier's financial performance depends. Thus MRL does not provide Montana a genuine competitive option.

[11] Wilner, *op. cit*., page 190.
[12] Montana State Rail Plan Phase 1, 1978 Draft, page 1.

Montana Rail Transportation Policy

The 1978 draft of the Montana State Rail Plan, Phase I, Revised Planning Work Statement, suggests consideration of a change in the state's policy toward railroads:

> [A]lthough the State of Montana has historically followed a laissez-faire policy with regard to financial assistance for the state's railroads, the overall importance of future rail transport services demands participation by the state. In response to this need the state has embarked upon a state rail planning program.[13]

The 1979 Montana Rail Plan addressed at length the Milwaukee Road bankruptcy and effects on Montana:

> What happens if the Burlington Northern becomes the dominant carrier in Montana? Is this necessarily bad? No, but it does have the effect of reducing the leverage that the state government and shippers have in rate and service matters. Shippers consequently must rely on intermodal [*sic*] competition to keep service and price within reason. It is important to recognize that competitive rail service only exists today within or between a relatively few areas in Montana. Some of the major Milwaukee shippers are also Burlington Northern shippers. In these cases, the choice of railroad (and the somewhat lower Milwaukee tariffs for some movements) will be lost, although rail access remains. In other cases, the Burlington Northern or Union Pacific may simply be the replacement carrier.[14]

Grain Subterminal Thinking

Concerned over the prospect of lessened rail competition, the 1979 Rail Plan suggested a concept alternative in which grain would be moved in trucks to a central repository from which the grain could be shipped in unit train quantities to achieve better railroad rate and service terms:

> One promising "substitute service" type concept, applicable particularly to the grain lines in central Montana, would be to construct a grain subterminal in the general Lewistown area allowing the use of unit grain trains. Grain shipments presently made by rail from grain public warehouses located along the Milwaukee (and other lines) would instead be trucked to the centralized facility where it would be loaded into 100-ton hoppers. Shipments would be made in 50-car units, rather than by single cars as at present. Such a subterminal could eventually permit the retirement of many light density lines in central Montana. The chief virtue of the grain subterminal concept is that it introduces major economies of scale which would be reflected in better utilization of the car fleet (probably dedicated equipment) and more reliable service (use of unit trains)

[13] 1978 draft of the Montana State Rail Plan, Phase I, Revised Planning Work Statement, page 6.
[14] 1979 Montana Rail Plan, page 65. It is believed that the word "intermodal" in the fourth sentence should be "intramodal".

> eliminating the local service and switching operations presently taking place (enroute). It is a concept which is not now in existence anywhere in Montana, although it is quite common in the Midwest. Its practicality rests on (1) being able to pass along significant economic benefits (transport cost savings) to the farmers, grain elevator operators and railroads, (2) a willingness on the part of grain warehouses to combine together their shipping requirements into unit train quantities bound for a single destination, while retaining their independence and competitiveness in all other areas, and (3) the availability of capital funds to construct a strategically located grain subterminal and make necessary improvements to the highway system to sustain the "collector" trucking required in support of the terminal. This concept is the only long-term, technologically advanced solution possible today.[15]

Three years later, a *Grain Subterminal Study* was prepared for the Montana Departments of Agriculture, Highways and Commerce.[16] An outgrowth of the original Montana Rail Plan, this study refers to BN's decision to introduce volume rates on 26- and 52-car units, effective December 1980, at which time Montana elevators did not have the capability of loading unit trains. Thus BN's pricing strategy was expected over time to force greater centralization of grain collecting and marketing, increasing the profitability of grain traffic. The study states that the grower may benefit, over the short term, from higher prices for his product but that, ultimately, with concentrated subterminals, the options of the grower will erode. The study predicts overbuilding of grain subterminals, as a result of competition among elevator companies.

The study examines the economic feasibility of the grain subterminal concept, applied to Montana, and states that feasibility depends upon whether proposed subterminals develop sufficient benefits for grain growers and elevator operators "to overcome the inherent fear and distrust of a major change in the collection and marketing of grain." The study focused on (1) continuing single car service, (2) adding subterminals but keeping public warehouses as local collection and marketing points, and (3) adding subterminals by phasing out public warehouses. The study concluded that grain subterminals are coming, that Montana no longer had the choice of retaining its previous system, and that it would not be in the state's interest to do so. Another conclusion is that the underlying motivation of subterminal construction is to capitalize on "the economies of scale achievable with subterminals and unit trains." Also the study stated that "there is no guarantee that the grower will benefit to any significant degree" from the construction of subterminals. Yet another conclusion is that "Montana today is appreciably behind the other wheat-producing states in developing modern grain collection facilities and supporting unit train service." The study referred to increasing grain exports to Pacific-rim countries and the economies of scale requiring changes in port facilities (grain "bulkers", increased vessel drafts and automation), predicted that these and unit train movements will become highly integrated, and suggested that "Montana must design and build its subterminal facilities as an integral

[15] *Op. cit*., pages 65-66.
[16] *Grain Subterminal Study,* Prepared by Roger Creighton Associates, Inc., for Montana Departments of Agriculture, Highways, and Commerce, August 1981.

component of an evolving future grain delivery system" in order to maintain a strong competitive position. The study discussed areas of concern (lack of rail competition in transport of grain; lack of competition in marketing grain; location of terminals, farm-to-elevator distances, and impacts on growers; subterminal ownership and beneficiaries of transport cost savings; and financing required highway improvements as a result of increased truck movements). Finally, the study commented on the choice between Montana action (state intervention) or a *laissez faire* approach (leave it to private enterprise). The consultant recommended the former.

The accuracy of the predictions made in this study is notable. Indeed, BNSF and grain companies ultimately constructed ten shuttle train loading facilities on BNSF main lines, just within the last five years, with the benefits accruing to but one railroad. On the other hand, it is questionable whether the competition sought in the 1979 Rail Plan could have been attained in any event.

Geography

Geographically and generally speaking, Montana's position on the national rail network is a bridge between major origination and destination points. Investment in and maintenance of rail infrastructure depends on the availability of traffic and revenue to support it. Montana's geographical distances and relative (to other states) low density of population and railroad traffic origins and destinations make the state, in one sense, dependent upon bridge traffic (traffic neither originating nor terminating in Montana) to assist in supporting the railroad infrastructure that crosses the state. There is an economic argument, applying to Montana as well as to many other states, that improved highways, increased competition from trucking and a changing economy have all conspired to make the extent of rail infrastructure built 100 years ago too expensive to maintain today. Thus bankruptcies and abandonments have perhaps been inevitable.

The Importance of Railroads to Montana

The 1978 draft of the Montana State Rail Plan, Phase I, Revised Planning Work Statement, sums up the principal use of rail transportation in Montana:

> Montana's economy is primarily resource based. Rail freight transportation is considered to be a major segment of the infrastructure supporting the state's economy. The vast majority of Montana's production and extractive industries are weight intensive, more 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 services.[17]

[17] 1978 draft of the Montana State Rail Plan, *op. cit.*, page 5.

Railroad Infrastructure Changes

The extent and nature of rail service provided depends largely on the requirements of shippers. Consolidation in the agriculture industry -- production, handling, storage and transport -- in many states and in Montana in particular, has contributed to the state's dependence on BNSF-owned and operated rail lines. Large rail loading facilities have been constructed on Montana's major rail lines in an effort to reduce costs, and railroads are motivated to abandon light-density branch lines which generate relatively few carloads and small revenues. This is part of a rationalization of railroad infrastructure which has occurred nationwide and to a considerable degree, especially since Staggers.

While some branch line operations cease to be profitable, opportunities may yet exist to preserve them and/or to develop additional freight business. Some branch lines, such as those exclusively serving one customer, for example a mine, may have little reason to exist once the mine has been closed. On the other hand, mines sometimes re-open in a changing economy, for example as a result of ore price fluctuations. As stated above, it is difficult to re-establish a railroad right of way once it has been abandoned.

Summary

In summary, Montana's "captive state" status – being dependent in general on one railroad – results from four factors in combination: railroad mergers and consolidations, railroad bankruptcies, the state's geographic position and extent and the continuing quest to improve railroad efficiency, made possible by deregulation (Staggers).

Factors Affecting Rail Freight Competition

Rail competition, rail rates and rail service are affected by a number of factors, including:

- Deregulation (Staggers Rail Act of 1980)
- Availability of competitive transportation means (barge, truck, another railroad)
- Extent of competitive sources for products and availability of substitute products
- Demand for rail service (for example, the amount of export wheat produced, year by year)
- Railroad productivity (improvements which reduce a railroad's costs to transport a given quantity)

All of these factors have experienced changes in past years. In a major way, Staggers improved the ability of railroads to operate their businesses. Because railroads were given considerable marketplace latitude, the availability of competition at any particular location became very important to railroad customers. In the case of low-value high-bulk commodities such as grain and coal, rail and barge are the only economic methods of transport over significant distances. It is axiomatic that demand for rail service affects

competition. Montana, half-way between major railroad markets, has suffered from this geographic disability; from the railroad point of view, Montana is not a high demand state. In a deregulated market, railroads have been able to lower their costs while transporting greater amounts (e.g., 110-car shuttle trains), while having fewer constraints on their ability to abandon non-productive rail lines.

Section B: Pertinent Railroad Regulation

Federal Law and Regulation of Railroads

Interstate Commerce Act of 1887

Federal economic regulation of railroads began with the Interstate Commerce Act of 1887, under which the Interstate Commerce Commission (ICC) was assigned responsibility to administer the regulatory program. The scope of regulation was gradually expanded by subsequent legislation to cover, in addition to car supply and rates, line construction, mergers and line abandonments.

The pre-1980 rail regulatory regime generally precluded market-responsive adjustments and, combined with the growth of air and motor transportation as alternatives to rail passenger and freight service, brought the railroad industry to the brink of bankruptcy. A number of railroads went bankrupt.

Railroad Revitalization and Regulatory Reform Act (4R Act)

In particular during the five decades before 1976, the U.S. railroad industry was pervasively regulated to the extent that it was unable to manage its operations efficiently and, passenger operations aside, was unable to compete effectively with growing motor carrier and waterway modes. The financial status of the railroad industry was poor and getting worse. Rail rates were regulated and published as public tariffs.

In 1976, Congress sought to eliminate harmful regulation by enacting the Railroad Revitalization and Regulatory Reform Act, also called the 4R Act. The 4R Act intended to restore the financial stability of the railway system of the United States through ratemaking and regulatory reform; however, it was not deemed sufficient to the task and four years later more comprehensive reform was enacted.

Staggers Rail Act of 1980

The Staggers Rail Act of 1980 made it federal policy to rely on competition and the demand for rail services, as opposed to regulation, to establish rates. The Act expedited abandonment procedures, accelerated merger timetables and allowed railroads to enter into confidential contracts with their customers.

Staggers permits differential pricing, that is, pricing responsive to competitive conditions, as opposed to pricing according to cost of service. Staggers also allows the railroads to pay relatively less attention to their common carrier obligation, with the result that today, railroad service varies widely among customers.

It is generally accepted that Staggers deregulated the railroads and allowed them to make marketplace decisions.

The ICC Termination Act of 1995

Among other things, the ICC Termination Act of 1995 replaced the five-member ICC with a three-member Surface Transportation Board (STB) and reduced that agency's regulatory responsibilities.

Results of Railroad Deregulation

Purpose of Staggers

The Staggers Rail Act of 1980 begins with a set of findings by Congress, including that "historically, railroads were the essential factor in the national transportation system", that "the enactment of the Interstate Commerce Act (1887) was essential to prevent an abuse of monopoly power by railroads", that "earnings of the railroad industry are the lowest of any transportation mode and are insufficient to generate funds for necessary capital improvements" and that "modernization of economic regulation for the railroad industry with a greater reliance on the marketplace is essential".

These findings are followed immediately by a statement that the "purpose of this Act is to provide for the restoration, maintenance, and improvement of the physical facilities and financial stability of the rail system of the United States."

Added to the facts that wide-ranging railroad bankruptcy or threats of same was bringing into question the future of U.S. railroading and that the financial troubles of the railroads were the prime motivator of this legislative action, these opening words constitute a statement of public policy to free railroads from the burdens of overregulation and to allow them to compete in the marketplace.

Changes Effected by Staggers

It is generally acknowledged that Staggers brought about a major turnaround in the financial condition of the railroad industry. Released from burdensome restrictions and free to set rates, the financial performance of the railroad industry has substantially improved in the Staggers environment, even though as a group, the carriers have yet to earn their cost of capital. Measuring Staggers against its stated purpose, the Act has been a success. Railroads have become more productive and more competitive and today enjoy considerably improved financial health. Also, railroad customers have gained in lower rail rates and improved service, in general. An estimated 60 percent of all U.S. rail traffic moves under contract as opposed to common carrier tariffs, or posted rates,[18] and contract rates are lower than posted rates.

[18] U.S. Congress, Subcommittee on Railroads, Hearing on the Status of Railroad Economic Regulation, "Background", March 31, 2004, www.house.gov/transportion/.

Mixed Benefits of Staggers

On the other hand, *not all railroad customers have benefited equally*. As stated in a November 2000 U.S. Department of Agriculture report authored by Marvin Prater and Keith Klindworth, "Differential pricing allows railroads to extract higher prices from those shippers who cannot effectively use other modes of transportation."[19] This means that so-called "captive shippers" – those without competitive transportation options – pay higher rates than do railroad customers having competitive options.

Montana, North Dakota, and a number of "captive" railroad customers within other states are not satisfied because of absence of railroad competition and competitive rates. Many railroad customers, and trade groups representing them, have expressed dissatisfaction with rates and rate relief procedures, describing the latter as burdensome, time-consuming and expensive. Dissatisfaction is especially acute among industries which are captive to one railroad and have no alternative to rail (for example, long distance shipments of bulk commodities, such as coal, grain or chemicals). Inasmuch as Staggers allows pricing based upon market value of service, or, more bluntly, based upon "what the traffic will bear", an equity issue is raised: "Why should Montana (or any other captive shipper) pay more for transportation than other states?" Indeed, a further question is raised, since with its greater marketplace freedom a railroad is inclined to provide service to the shipper with a competitive option before it takes care of the captive shipper, "Why should Montana pay more, for poorer service?"

In testimony presented to the U.S. House of Representatives Transportation and Infrastructure Committee, Subcommittee on Railroads, Steve Strege, Executive Vice President, North Dakota Grain Dealers Association, quotes then BNSF Ag Products Vice President Steve Bobb as saying, in a statement made at a U.S. Senate field hearing in Bismarck, North Dakota, in March 2002, "What we do as a rail transportation provider is look at the difference between value of grain at the origin and value of grain at the destination, and try to determine the level of charges for transportation with margin for the elevators to operate and make money".

Adjudication of Rate Disputes

What relief is available, for those who believe they pay too much? Those who drafted Staggers were mindful of the possibility of market dominance and abusive rate-setting, where competitive options are lacking, and they included provisions to provide relief where rates are deemed unreasonable.

With regard to rate reasonableness, Staggers limits regulatory jurisdiction to situations in which a rail carrier is deemed "market dominant" (49 U.S.C. 10701(d)). This is defined to mean situations where there is an "absence of effective competition from other rail carriers or modes of transportation" (49 U.S.C. 10707(a)). Unless the Surface

[19] Marvin Prater and Keith Klindworth, "Long-Term Trends in Railroad Service and Capacity for U.S. Agriculture", U.S. Department of Agriculture, Agricultural Marketing Service, November 2000, page 9.

Transportation Board (STB), the successor to the ICC, finds that market dominance exists, a rate challenge may not proceed.[20]

The STB does not have jurisdiction over rail rates that produce revenues less than 180 percent of variable cost; below this figure a railroad is presumed not to be market dominant (49 U.S.C. 10701(d)). (Variable costs are those parts of total cost that grow with output. They are defined as the sum of all costs that vary with output, for example, locomotive fuel and train crew wages.) Since railroads have high fixed costs that do not vary with service provided, for example, investment in track infrastructure; a rate of less than 180 percent of variable costs may not cover the full cost of providing transportation.

If the revenue-to-variable-cost percentage is over 180 and the STB is permitted to respond to a rate-reasonableness filing, it does so within the Staggers Act policy that all rail carriers should earn adequate revenues (49 U.S.C. 10701(d)(2)).

As stated in a paper prepared by the House of Representatives Subcommittee on Railroads for the March 31, 2004, hearing on The Status of Railroad Economic Regulation:

> Administrative interpretations and rules of the ICC and STB have included the use of highly complex so-called "constrained market pricing" and "stand-alone cost" models for evaluating whether a specific rail rate is unreasonably high. The ICCTA [the ICC Termination Act] of 1995 required the STB to complete a rulemaking by the end of 1997 to establish simplified rate-reasonableness standards for evaluating non-coal cases where a full stand-alone-cost presentation is too costly [49 U.S.C. 10701(d)(3)].[21]

Effective "simplified rate-reasonableness standards" have yet to be established, and this is acknowledged by Roger Nober, the current STB chairman.

McCarty Farms

McCarty Farms began in 1980 when a class action on behalf of Montana farmers was filed in U.S. district court, alleging that Burlington Northern Railroad (BN) was charging unreasonable rates for transporting single cars of wheat. The following year an Administrative Law Judge found that BN was market dominant, was charging unreasonable rates (exceeding 200 percent of the variable cost of service) and that 200 percent was to be the maximum reasonable rate.

In a separate proceeding, the State of Montana filed with the Interstate Commerce Commission (ICC) a challenge of the reasonableness of BN's multiple-car rates for wheat and barley. The ICC consolidated the two cases, but held them in abeyance.

[20] U.S. Congress, Subcommittee of Railroads, *op. cit.*, March 31, 2004. Much of this discussion of Adjudication of Rate Disputes is drawn from this reference.
[21] *Ibid*.

Following a complaint in district court, the ICC reopened the proceedings in 1984 and ruled that additional evidence concerning market dominance would be accepted. In 1987 the ICC ruled that BN was market dominant over wheat and barley shipments moving from Montana to the Pacific Northwest, and turned to the rate reasonableness analysis, deciding in 1988 that the revenue-to-variable cost standard was an appropriate means of testing rates and finding that the BN rates were unreasonable. The following year, the ICC issued an unpublished decision correcting several costing problems in the revenue-to-variable-cost test, recomputing the ratios by which reparations were to be calculated, and directing BN to submit a quantification of the reparations and a proposal to modify its rate structure. In 1991 the ICC affirmed its earlier decisions (BN market dominant, BN's rates unreasonable), calculated that BN owed over $9 million plus interest in reparations, and imposed on BN a future rate prescription procedure.

BN filed a petition to clarify, asking the ICC to modify its calculations. The ICC voluntarily vacated its rate prescription order and then McCarty Farms, the State of Montana and BN sought review of the ICC decision by the U.S. Court of Appeals. In an opinion issued in 1993, the latter questioned the basis for the revenue-to-variable-cost test and remanded the proceedings to the ICC for the purpose of reconsidering whether it was appropriate to use the revenue-to-variable-cost test instead of the Constrained Market Pricing (CMP) test. The ICC directed McCarty Farms and the State of Montana to advise the Commission whether they wanted to proceed with the CMP test, await development of a suitable methodology, or pursue some other course of action. In April 1993 McCarty Farms notified the ICC of its election of the CMP test and the next month BN agreed with use of CMP test.

Following the ICC Termination Act of 1995, the Surface Transportation Board (STB) ruled in August 1997 that McCarty Farms had failed to show under the CMP test that the rates were unreasonably high and discontinued the proceedings. McCarty Farms and the State of Montana filed their petition for review with the U.S. Court of Appeals. The STB agreed that there were certain errors in its 1997 decision and issued a supplemental decision in May 1998, however, still concluding that BN's rates were reasonable.

Responding to McCarty Farms' challenges, the U.S. Court of Appeals agreed that it did not have jurisdiction over the category of claims regarding single-car wheat shipment for the two-year period ending September 12, 1980. The parties agreed with the Court's earlier ruling that it had jurisdiction over claims relating to multiple-car shipments of wheat and barley. Despite McCarty Farms' challenge that the Court of Appeals did not have jurisdiction over a third category of claims, single-car shipments of barley, and of wheat, after September 12, 1980, the Court held that it had jurisdiction. With respect to the claims over which it asserted jurisdiction, the U.S. Court of Appeals in October 1998 affirmed the decision of the STB.

The Surface Transportation Board issued a release dated October 26, 1998, which summarizes the McCarty Farms decision:

Surface Transportation Board (Board) Chairman Linda J. Morgan announced today that the United States Court of Appeals for the District of Columbia circuit has issued a decision affirming in all respects the Board's decision in the "McCarty Farms" rail rate case.

In 1980, McCarty Farms, Inc., and other Montana grain shipper interests (McCarty) challenged the rates charged by the predecessor of Burlington Northern and Santa Fe Railway Company (BNSF) for the transportation of wheat and barley. The case took several years as it moved through the courts. Finally, in 1991, the Interstate Commerce Commission (ICC) found some of the challenged rates too high, and ordered the railroad to pay over $9 million in damages. In 1993, the ICC's decision, which had been appealed by the railroad, was reversed in court and, on remand, all parties agreed that the ICC should use the maximum rate standards set out in its "constrained market pricing" (CMP) guidelines. Accordingly, the ICC took evidence and argument under the "stand-alone cost" (SAC) facet of the CMP guidelines.

Under SAC, the reasonableness of a railroad's rates are judged against the simulated cost of constructing and operating a hypothetical, efficient "stand-alone" railroad serving the shipper's traffic and all other traffic selected by the shipper. In early SAC cases, the Board found that the rates charged exceeded the costs of building and operating the hypothetical stand-alone railroad, and it ordered rate reductions and substantial reparations (see, e.g., "Surface Transportation Board News" releases No. 96-25, issued May 1, 1996, and No. 97-61, issued July 29, 1997, describing decisions awarding relief to West Texas Utilities Company and Arizona Power Company). In the Montana case, however, because BNSF's rates were lower than the SAC costs for the railroad that McCarty hypothesized, the Board found that they had not been shown to be unreasonably high.

In its appeal, McCarty argued that the Board's calculations under the SAC procedures were erroneous and that the Board acted improperly by issuing a supplemental decision amending some of the technical findings while the appeal was pending. The court disagreed, finding that the Board "rationally set forth the grounds on which it acted," and that "its findings [were] based on substantial evidence." The court also found that the Board's supplemental decision was "helpful to the court and not prejudicial to the parties."

The Board's decision was issued on August 20, 1997 in *McCarty Farms, Inc., et al. v. Burlington Northern, Inc.*, STB Docket No. 37809, et al. The decision is available on the Board's web site at www.stb.dot.gov. The court's decision was issued on October 20, 1998, in *McCarty Farms, Inc., et al. v. Surface Transportation Board*, No. 97-1632 (D.C. Cir.) and is available on the court's web site at www.cadc.uscourts.gov.

Section C: Montana's Use of Railroads

Although Montana has only six serving railroads, it is ranked 18th largest in railroad route-miles in the United States with 3,279 miles[22] of rail. This section of the study describes the leading commodities which originate and terminate in Montana by rail, the volume of bridge traffic (traffic which neither originates nor terminates in Montana) and potential traffic that could be captured from current truck movements given more competitive rail conditions.

Rail Transportation Characteristics in Montana

The volume of current rail movements, including the top five commodities originated and terminated within the state, is evaluated below since it forms a starting point for investigating the potential for freight rail service in Montana. According to the latest statistics available from the Association of American Railroads (AAR), there were 1,603,665 rail cars carried by Montana's railroads in 2002. Of the total railcars handled in Montana:

	National Rank
346,858 cars originated	25
55,617 cars terminated	42
1,201,190 cars bridged (passed through)	34

These statistics are illustrated in Figure 1.

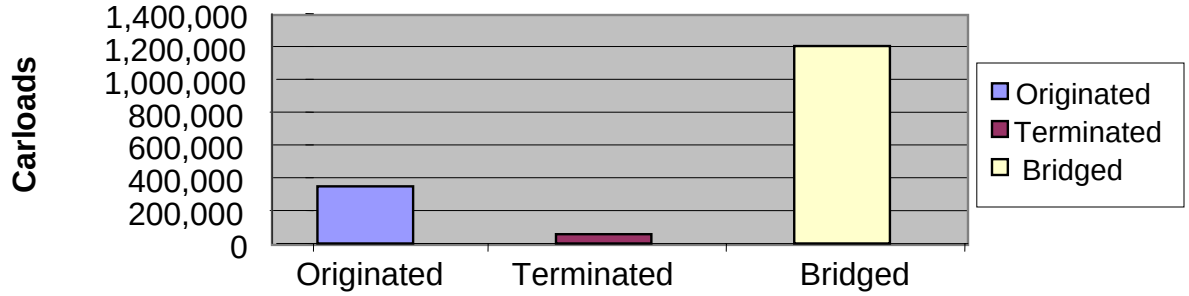
Montana is a much larger rail shipment producer and transfer agent than consumer. Viewing a five year history of total Montana carloads shows a variance of less than eight percent from year to year:

Year	Total Carloads
2002	1,603,665
2001	1,506,546
2000	1,623,703
1999	1,591,458
1998	1,620,160

[22] Number of railroad route miles in Montana, Association of American Railroads website.

Figure 1

2002 Montana Rail Carloads



Source: AAR.

Originating Carloads

Corresponding to the 346,858 *cars* originated in Montana in 2002, the top commodity group *tonnages* are shown in Table 1 and graphically in Figure 2.

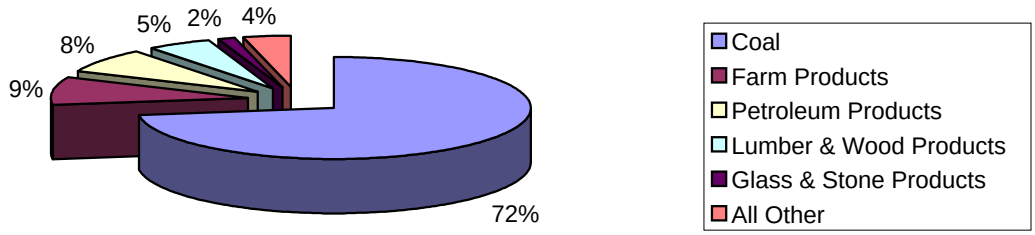
Table 1
2002 Montana Tons Originated

	Tons	Percent
Coal	27,023,292	73
Farm Products	3,291,568	9
Petroleum Products	2,922,752	8
Lumber & Wood Products	1,944,360	5
Glass & Stone Products	564,720	2
All Other	1,432,628	4
Total	37,179,320	100

Source: AAR

Nationally, Montana ranked in the top ten for carloads of coal originated (8th), lumber and wood products originated (9th) and petroleum products terminated (10th).

Figure 2
2002 Montana Tons Originated



Source: AAR.

In the most recent five years of available data concerning the top five commodities of carloads originated in Montana, coal is consistently the number one commodity. See Table 2. Farm, petroleum, and lumber and wood products have filled the two, three and four spots in all the years listed. Food products (processed foods) were in the top five in both years 1998 and 1999 but were replaced by glass and stone products in the years 2000-2002.

Table 2
Yearly Carloads Originated and Rank

	2002	2001	2000	1999	1998
Coal	27,023,292(1)	27,945,111(1)	27,387,208(1)	30,263,245(1)	32,643,652(1)
Farm Products	3,291,568(2)	2,941,766(3)	3,702,652(2)	3,781,032(2)	4,323,276(2)
Petroleum Products	2,922,752(3)	3,765,664(2)	1,868,696(4)	1,972,302(4)	2,579,024(3)
Lumber & Wood Products	1,944,360(4)	1,931,976(4)	2,131,800(3)	2,163,756(3)	2,110,604(4)
Glass & Stone Products	564,720(5)	583,760(5)	734,160(5)	Not In Top 5	Not In Top 5

Source: AAR.

Coal

Note that originated coal carloads have decreased since 1998. Coal is by far the dominant Montana export; by 2002, it represented over eight times the volume of the next closest export, farm products. In terms of coal production, Montana ranks 6th in the U.S. with 38,352,000 short tons produced.[23] This amounts to about 3.6 percent of total U.S. production, down slightly from the 1991 percentage of 3.8 percent. The top three destinations for Montana coal in year 2000 are Minnesota, Montana and Michigan.[24] Montana intrastate movements doubtless account for some of the volume hauled by truck.

[23] U.S. Department of Energy, Energy Information Administration and the Coal Industry Annual 2000 (EIA-0584) and Coal Production 1991 (EIA-0118).
[24] *Ibid*.

Farm Products

Farm products have ranked number two in Montana carloads originated in four out of the five years reviewed. Wheat, barley and other grains are included in the farm products category. In 2002, movements of Montana wheat and barley by rail and truck were in a ratio of ten bushels by rail to one by truck for wheat, and four to one for barley.[25]

The major durum spring wheat growing area is in the northeast corner of Montana. Hard red spring and winter wheat is grown in almost all of Montana, with the major growing area in the upper one-third and eastern portion of the state (east of Toole County and north of Great Falls extending to the northeast corner of Montana). Barley is grown over the entire state with the major growing area in the middle to upper one-third of the state.[26] BNSF main lines run through these major growing areas.

Other farm products exported from Montana include live animals, animal feed and vegetables.

Canada is "Montana's most important market, accounting for 45 percent of 2000 export sales."[27] Montana exports to Canada totaled $302 million in 2001 and $235 million in 2002[28]; the latter year's exports to Canada represent 61 percent of the value of Montana's exports.

Petroleum Products

Between 1998 and 2002 Montana's petroleum products consistently ranked in the top four and once achieved the number two spot in rail carloads originated.

Montana's oil production peaked in 1968 at 48.5 million barrels; average annual production has been about 16 million barrels in recent years.[29] Seventy-five to 80 percent of Montana oil production "is exported from the state, mostly to Wyoming through the eastern pipeline system."[30] Four refineries in Montana are located at Billings (2), Laurel and Great Falls. The 57 million barrels of crude oil refined in Montana annually come from Montana (6 percent), Alberta (73 percent) and Wyoming (22 percent). Fifty-five percent of liquid fuel refined products is exported, to Washington, North Dakota, Wyoming and points south.

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[25] Grain Movement: All Montana Wheat & Barley Truck & Rail, Montana Wheat & Barley Committee website (wbc.agr.state.mt.us/factsfigs/other/mwbtr).
[26] *Ibid*.
[27] U.S. Department of Commerce, International Trade Administration, August 2001, U.S. Department of Commerce website.
[28] "Total U.S. Exports (Origin of Movement) via Montana, Top 25 Countries Based on 2002 Dollar Value", U.S. Census Bureau, Foreign Trade Division (link on Montana Department of Commerce website).
[29] Paul Cartwright, "Petroleum and Petroleum Products in Montana", U.S. Department of Environmental Quality, March 2003. Much of the discussion of this subject is taken from this paper.
[30] *Ibid*.

North-south pipelines carry crude oil through Montana, moving the product from Canada to Montana and Wyoming. Refined product pipelines move almost all Montana refinery output, to Montana cities, North Dakota and Wyoming and further south.

As already discussed, petroleum products are one of the top four commodities originated by rail in Montana (almost three million tons in 2002) and are the top commodity terminated by rail (1.5 million tons in 2002).

Lumber and Wood Products

Lumber and wood products have ranked either 3rd or 4th in carloads originated during 1998-2002, with less than ten percent fluctuation in volume from year to year. The wood products market is strongly influenced by environmental, rail-related or secondary-industry-related factors that are beyond the control of the Montana lumber and wood products industry. For example, wildfires, unusually wet or rainy weather, shortages of specialized rail cars, housing market demands, interest rates, etc., can change supply and demand. Again, Montana has a large import/export relationship with its neighbor to the north with forest products being the second largest export to Canada in 2001 ($32 million worth, including paper, paperboard, plywood and wood building boards).[31]

Glass and Stone Products

Glass and stone products, though down from 2000, remain among the top five commodities originated in Montana in 2002.

Machinery

Among Montana's exports, machinery, including electrical machinery, stands out ($106 million value in 2001, $82 million in 2002) at 21 percent of the value of exports.[32]

Food Products

Food products are processed foods. In 1998 and 1999, food products were in the top five commodities originated by rail in Montana.

Terminating Carloads

In 2002, terminating traffic amounted to 4,256,464 tons. The top five commodity groups are shown in Table 3, and are illustrated graphically in Figure 3. Yearly loads terminated are shown in Table 4.

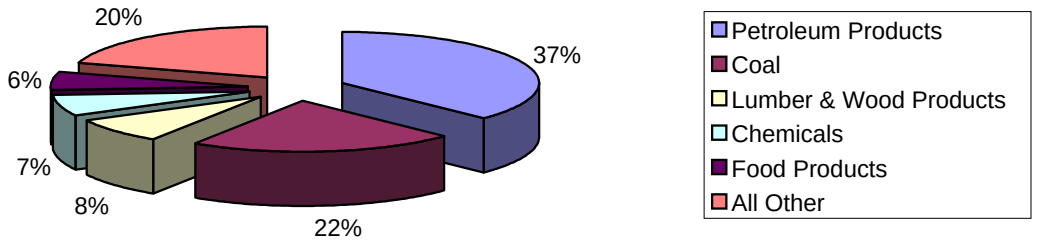
[31] Montana Department of Commerce website.
[32] Montana Origin of Movement Exports by HS Chapter – All Destinations, Montana Department of Commerce website.

Table 3
2002 Montana Tons Terminated

	Tons	Percent
Petroleum Products	1,585,888	37
Coal	936,108	22
Lumber & Wood Products	344,408	8
Chemicals	277,976	7
Food Products	251,464	6
All Other	860,620	20
Total	4,256,464	100

Source: AAR.

Figure 3
2002 Montana Tons Terminated



Source: AAR.

Table 4
Yearly Carloads Terminated and Rank

	2002	2001	2000	1999	1998
Petroleum Products	1,585,888 (1)	2,463,164(1)	942,628(2)	865,862(2)	1,189,056(1)
Coal	936,108(2)	854,184(2)	967,361(1)	905,021(1)	344,784(5)
Lumber & Wood Products	344,408(3)	419,564(3)	623,412(3)	516,668(3)	399,380(4)
Chemicals	277,976(4)	332,344(5)	291,788(5)	361,020(5)	400,152(3)
Food Products	251,464(5)	Not In Top 5	Not In Top 5	Not In Top 5	Not In Top 5

Source: AAR.

Petroleum Products

Petroleum products movement between Canada and Montana represents a major portion of the shipments in this commodity group. As stated above, pipelines bring

Canadian crude oil to Montana and Wyoming, while refined product pipelines move almost all Montana refinery output.

Coal

Coal imports are shipments to Montana power-generating facilities from nearby states, such as Wyoming and South Dakota. Coal shipments from the Powder River Basin (southeast Montana and northeast Wyoming) supply the vast majority of coal-fired generating plants west of the Mississippi River and also likely fuel Montana's coal-fired plants. Coal imports jumped in 1999 and have ranked first or second in volume transported by rail through 2002, the last year of available data.

Lumber and Wood Products

Wood products accounted for $50 million in Montana exports in 2002, 13 percent of the total value of Montana exports.[33]

This commodity again highlights the cross trade between Canada and Montana. Not only did Montana export wood products to Canada but also imported wood products from Canada ($142 million worth in 2001, most of which was softwood lumber ($90 million)).[34]

Chemicals

Import of chemicals declined over the five years evaluated. Such imports include fertilizer and highway de-icing salt. This category represents a potential diversion of traffic from truck to rail, were there a more robust and competitive rail transportation environment.

Food Products

In 2002, food products – processed foods – broke into the top five commodities terminating in Montana by rail.

Montana Ports and Intermodal Facilities

Port of Montana

Located in Butte, this large Montana rail facility is serviced by two U.S. Class I railroads, UP and BNSF.

The Port of Montana handles approximately 3,000 rail carloads annually: about 1,200 inbound automobiles, and about 900 carloads of forest products (oriented strand board,

[33] Montana Origin of Movement Exports by HS Chapter – All Destinations, *op. cit*.
[34] "The World's Largest Trading Partnership", Montana Department of Commerce website.

plywood, studs, dimensioned lumber) inbound and outbound, and between 600 and 800 intermodal containers. Forest products are trucked to the Port for rail transport, where there is a competitive choice of carriers. Inbound and outbound truck moves have grown. Another large commodity moved by rail is magnesium chloride from Utah, brought to Montana as a highway de-icer and for dust control.

The Port of Montana handles container (not trailer) intermodal traffic but the volume of traffic has been declining. There is great potential to increase intermodal traffic were rates more competitive.[35] UP formerly provided intermodal trailer service, but closed its yard in 1992 because of small volume. R.L. Banks & Associates, Inc., (RLBA) believes that the Port of Montana experience demonstrates that two-railroad competition in Montana is not the panacea, or cure-all. RLBA believes that it is Montana's relatively low volumes, compared with relatively higher transportation market volumes in other locations, which account for the evident low Class I railroad interest in moving Montana's intermodal traffic.

Railroad traffic at the Port of Montana has grown over the past year, primarily in automotive and liquid chemicals. The Port also transloads between 3,000 and 6,000 tons of fertilizer a year.

UP has helped increase traffic at the port.[36]

Port of Northern Montana

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. The port authority is charged with creating transportation and intermodal infrastructure to market Montana products and services. The Port accepts inbound railcars and provides the facilities for distribution by truck.[37]

Commodities handled by the Port of Northern Montana include lumber, drilling muds/fluids, dry bulk including grain, fertilizer, LPG and other gases, animal feed and industrial chemicals. Facilities include 12,000 square feet of railside warehouse with cross dock operations and bulk transload capabilities.

Before closure in May 2004 of the BNSF intermodal facility at Shelby, there were a number of container and trailer moves between western Montana and Canada (particularly Calgary and Edmonton). Despite closure of the BNSF intermodal facility, the Port of Northern Montana is growing, according to an official of the Port, and the current BNSF rate structure is facilitating this.[38] Shelby's strategic location vis-a-vis Canadian Pacific Railway (CP) (to the north) and UP (to the south) provides a measure

[35] June and August 2004 interviews.
[36] July 2004 interview.
[37] 2000 Montana State Rail Plan Update, page 61.
[38] August 2004 interview.

of rail mode competition.[39] On the other hand, it is the opinion of an official at the Port that Montana must be recognized as a "captive state" (captive to one railroad) and appropriate action be taken by the Surface Transportation Board so that competitive access is provided over BNSF tracks to other Class I railroads, namely, UP and CP.

In a joint venture of the Alberta Wheat Board and General Mills, an elevator was constructed at Sweet Grass to collect and move wheat via CP and UP to Pacific Northwest ports, thus providing a transportation alternative to BNSF.[40] (Columbia Grain now operates the facility.) The presence of that facility serves as a competitive option with regard to moving north central Montana grain to Pacific Northwest ports for export.

BNSF Intermodal Facility, Shelby

Definition of the term "intermodal" is appropriate, as the term is subject to varying usage. Literally, the word means between or among the modes, or transportation involving more than one mode. Intermodal traffic connotes the transfer of cargo from one transportation mode to another (truck-rail, rail-truck, truck-rail-truck, truck-aircraft, etc.) in making the total trip. In passenger transport, intermodal similarly describes a trip which includes use of more than one mode (automobile-aircraft, bus-rail, etc.). In railroading, the term is more specific, describing the specific transportation method involving transfer between rail and truck by either trailer-on-flat-car (TOFC) or container-on-flat-car (COFC). The immense increase in the use of containers for shipping merchandise has led to intermodal traffic surpassing coal as the Class I railroads' leading revenue producer. Intermodal is the fastest growing rail business segment. With regard to railroads, the term "transload facility" often is used to distinguish between an intermodal facility dealing with containers (COFC) and truck trailers (TOFC) on the one hand and a facility, such as the Port of Northern Montana, which transfers freight other than in containers and trailers, from truck to rail or vice versa.

There was an intermodal facility at Shelby until May 2004, when BNSF terminated operations.

In the mid-1980s, research was undertaken regarding transportation facilities at Shelby, Billings and Missoula. It was believed that such facilities would be helpful in marketing Montana wood products in the Midwest, and talc, to the East and South. This study also considered less-than-truckload (LTL) and intermodal shipments. Burlington Northern set up a rate structure that encouraged such shipments, and intermodal movements began.[41] The intermodal facility (TOFC and COFC) was owned by BNSF and operated by a trucking firm, Dick Irvin, Inc. The intermodal facility served a 500-mile radius which brought lumber from Flathead Valley, Alberta and British Columbia, and which brought other commodities, and prospered after a Canadian Pacific strike

[39] August 2004 interview.
[40] August 2004 interview.
[41] The information in this paragraph results from information obtained in a telephone interview conducted by RLBA of an official of Dick Irvin, Inc., an interstate trucking firm in Shelby, Montana, on June 4, 2004, and of a Port of Northern Montana official on August 4, 2004.

brought in a great deal of Canadian business – 85 to 95 percent of the total in 1996. This was the year the facility reached an operational peak, but after the ICC approved (1995) the merger of Burlington Northern and The Atchison, Topeka & Santa Fe, the railroad (now BNSF) apparently lost interest and made decisions which forced reductions in business at the facility. In the spring of 1998, BNSF announced its plan to close its Shelby intermodal facility. Then Governor Racicot intervened; there was a meeting with BNSF, and the carrier committed to keeping the facility open, on a primarily eastbound traffic basis. Gradually over the following years service deteriorated – lane closures, rate increases and reduced schedules-- until it was basically a part-time LTL ramp.

BNSF's argument for closing the facility is that "intermodal volumes at Shelby have declined and current and future projections do not support the operation."[42] Now Billings has BNSF's only intermodal facility in Montana.

The recent closure of the BNSF intermodal facility at Shelby is illustrative of Montana's declining rail service. BNSF apparently "de-marketed" the service at that location because there were more productive uses of BNSF resources, or -- in an opinion of one local government official in Montana -- because of BNSF system capacity constraints.

BNSF Intermodal Facility, Billings

With closure of the intermodal facility at Shelby, the BNSF intermodal facility at Billings is the principal remaining intermodal facility in Montana. The BNSF website shows the Billings facility as an intermodal hub on the BNSF intermodal network.

The Potential Market for Rail Transportation

The foregoing analysis, based upon data made available by AAR and found on the Montana Department of Commerce and other websites, and based upon information obtained in phone interviews, describes rail transportation in Montana and provides some information on commodities exported and imported by Montana, commodities which may be susceptible to rail transport, in an improved or more competitive rail environment. The following analysis looks at the role of rail in the context of other available transportation modes.

An understanding of where rail could capture traffic from competing modes of transportation must be based upon an evaluation of current values and volumes shipped by each mode, the capabilities of each mode and the transportation marketplace. The 2002 Commodity Flow Survey, produced by the U.S. Department of Commerce Economics and Statistics Administration Bureau of Transportation Statistics[43] provides helpful data.

[42] Jan Falstad, "Derailed: Burlington Northern Santa Fe Railroad closes transfer center in Shelby", *Billings Gazette*, June 6, 2004, billingsgazette.com.
[43] Available on U.S. Department of Commerce website.

Across the entire United States, Table 5 shows that the value of shipments is by far the greatest with regard to the truck mode.

Table 5
Select Transportation Mode Characteristics, Nationwide

Mode	Value of Shipments		Tons		Ton-miles		Average miles per shipment
	2002 (million dollars)	Percent of total	2002 (thousands)	Percent of total	2002 (millions)	Percent of total	
Truck	$6,200,469	73.1	7,622,257	65.9	1,311,085	40.9	199
Rail	320,469	3.8	1,816,528	15.7	1,199,407	37.4	911
Air	279,489	3.3	3,891	0.0	5,560	0.2	1,819
Pipeline	161,601	1.9	721,588	6.2	N/A	N/A	N/A
Water	90,895	1.1	713,884	6.2	323,085	10.1	577

Source: 2002 Commodity Flow Survey.

Notes: (1) Truck figures include for-hire, private carriers and the combination of both.
(2) Air numbers includes truck and air combinations.
(3) Pipeline estimates are not applicable (N/A) due to high sampling variability.

The dollar value of commodities shipped by truck is over nineteen times that of rail, its closest competitor. Moving across Table 5 to the ton-miles columns, truck and rail figures are similar in magnitude. This results from the fact that truck shipment distances are shorter than those of rail; the average haul length by trucks is about one-fifth that of rail.

The 2002 Commodity Flow Survey also shows, again with regard to the entire U.S., the growth rate from 1997 to 2002 in each specific mode:

Value	Percent Increase	Tons	Percent Increase	Ton-miles	Percent Increase
Pipeline	7.3	Water	4.8	Truck	5.1
Truck	4.5	Rail	3.2	Water	4.3
Air	4.1	Pipeline	3.1	Rail	3.2
Water	3.7	Truck	-0.2	Air	-2.3
Rail	0.1	Air	-2.8	Pipeline	N/A

Rail data suggests that tons and associated mileages are increasing.

Capture of truck traffic by rail constitutes the greatest opportunity for Montana and across the nation, since there is such a great volume of it. The phenomenal growth of intermodal over the past 15 years, nationwide, is indication of the immense and expanding truck market from which railroads can pursue the most remunerative opportunities. The prospective almost doubling of surface transportation volumes[44] over

[44] Estimated in a U.S. Department of Transportation Study and presented at Transportation Research Board annual meeting in January 2002.

the coming two decades, coupled with the certainty that there will be no commensurate doubling of highway capacity, suggests the importance of surveying all surface transportation systems and determining what priority actions should be taken to mitigate future congestion problems.

Rail service and price issues and, in many locations, infrastructure capacity, are the most important factors bearing on whether rail can capture market share from motor carriers. It is misleading to think of the issue in terms of competition between railroads and trucks. Indeed, there is and will be plenty of business available to both modes and, indeed, for years already, trucking companies and railroads have been working together to do what each does best: railroads handling long haul, trucks handling short haul and movements to and from points not reached by the rail network.

There ought to be a tremendous opportunity for both Montana and the rest of the United States, and a number of observers are suggesting that there are benefits to the public in improving railroads' capacity to do more – both in carrying passengers and hauling freight. Some Class I railroads are actively promoting federal, state and local investment in improving private railroad infrastructure, where there are public benefits.

Unfortunately, the fact is that intermodal in Montana is not keeping up with the nationwide trend. UP in 1992 closed intermodal service at Butte because of low volume. Now (May 2004) BNSF has closed its intermodal facility in Shelby. One major intermodal facility remains in Montana, the BNSF facility at Billings. (There are also intermodal services (perhaps more strictly termed transload) at the Port of Montana and at the Port of Northern Montana.) Most Montana products are low value, bulk commodities (e.g., coal, wheat, lumber, petroleum) which by economic necessity must be transported by rail, barge or pipeline. Given the cost of constructing new rail or pipeline facilities and distances to the nearest waterway, Montanans are left with the existing rail network. By UP's closing of intermodal service in Butte and BNSF's similar action in Shelby, the railroads have in effect stated that there is a relatively insufficient amount of intermodal traffic in Montana and they perceive a better return on their money in other transportation markets.

Opinions of Business Development Officials and Shippers

A number of business development officials and rail shippers were interviewed. One business development official spoke of a Montana industry interested in competitive shipment rates to move 1,000 tons of an agricultural product annually. BNSF's response was that it would not be interested in levels less than 250 carloads (25,000 tons) per year. Trucking in Montana is also problematic. For example, truckers need a back-haul to continue operating in that very competitive market and the dearth of backhaul opportunities is such that several Montanans interviewed have commented on the problem. An industrial shipper in Montana stated that rail rates are an issue and that the trucking alternative only goes so far because availability of trucks is limited. Another business development official, in western Montana, speaking with regard to that segment of Montana industry related to manufacture and "high tech" products, said "there isn't enough product to move by rail". Yet another business development official in western Montana was not particularly aware of rail and said "most people here ship by truck". A fourth business development official, also in western Montana, stated that a number of clients are looking for competitive rail access and that the answer to the current lack of competition is new legislation by Congress. Another industrial shipper who ships an average distance of 1,000 miles, from western Montana, said that rail rates to move commodities to Canada or out-of-state are as high as truck rates: "BNSF tries to match truck rates." For example, BNSF will move the product to Los Angeles by rail taking seven to twelve days at the same price for trucking, which takes two or three days. The BNSF attitude, this shipper stated, is "You're a captive customer." This shipper plans to send more by truck. In illustrating an aspect of the trucking problem in Montana, a trucking executive said that freight trucked out of Montana is the lowest valued in the nation (therefore truck rates would tend to be disproportionately high); for inbound freight it's much better.

Conclusions

In a more competitive rail environment, and in one less capacity-constrained, there could exist a potential to increase movement of goods by rail in Montana.

The commodities which currently move by rail from, to and within Montana – coal, farm products, petroleum products, lumber and wood products, chemicals and food products – are all candidates for increased rail volumes. Commodities now moved in Montana by truck over relatively long distances are likewise candidates for rail movement, depending upon origin and destination. The presently shrinking intermodal rail market in Montana could be, under different circumstances, a growing intermodal market.

Unfortunately, a combination of Montana's geographic location (far from the larger population concentrations and rail transport markets on the Pacific Coast and in the Midwest), the relatively low population of Montana (one business development official said, "We're too small a market!"), the bulk nature of most commodities produced in Montana, lack of capacity in the current railroad infrastructure, mediocre financial

performance and heavy current and prospective demand for (mostly long-haul) rail transport, and therefore the lucrative rail transport markets that attract the railroads' interest, there is little cause for optimism regarding greater use of railroads to transport Montana's freight traffic.

Section D: Impacts Resulting from Montana's Railroad Issues

Impact on Montana of Limited Transportation Competition: Wheat

Montana's wheat producers have limited options with respect to the means of transporting grain to market. Principal domestic markets, both for feed and grain for human consumption, are too distant for Montana to compete effectively with producers in the Central Plains states, leaving export markets served via Pacific Northwest ports as the state's primary wheat destinations. These ports, some 600 to 1,300 miles distant from points of production, cannot be served economically by truck, nor are there navigable waterways with sufficient proximity to Montana producers to provide competitive alternatives. Railroads provide the sole efficient mode for transporting most of the state's wheat from elevator to terminal, and one railroad, BNSF, provides service to most of the state. The question addressed in this section is, "What are the impacts on the state of limited competition in the transport of wheat?"

The analyses described below reveal that there is a substantial, quantifiable difference between actual transportation rates charged and the cost of transportation that would be incurred in the presence of competition. However, additional, unquantified impacts also exist, which are the products of the exercise of market power over the quality of service provided, the provision of rail equipment, and the inherently intangible effects of long-term exercise of monopoly power on producer morale and willingness to innovate.

Overview: Differential Pricing and "What Is A Competitive Rate?"

The primary impact resulting from a lack of transportation alternatives is that the monopoly transportation provider is not constrained in its price setting by the presence of similarly efficient competitors. While the monopolist's pricing is ultimately constrained by the requirement not to put its customers out of business (which is the effective constraint provided by such concepts as "geographic" or "product" competition)[45] the amount that it is able to price above cost (the level that a competitor would price down to) is a "monopoly rent," a profit which exceeds that which would be received in an efficient marketplace. However, classic marginal cost pricing, prerequisite to marketplace efficiency, is inapplicable to railroads because their cost structure is such that average costs will always exceed marginal, or variable costs.[46] Therefore, a

[45] "Geographic" competition entails competition from producers at other locations, which of course is endemic in agricultural markets, while "product" competition occurs where the price of a product is constrained by the availability of a substitute, such as natural gas for coal.

[46] "Marginal" cost is the cost of producing the next unit of output. In classic economic theory, competitive firms will price down to this level, which is the minimum at which the producer will break even. It is also assumed that marginal cost is rising at the breakeven point, to where it equals average total cost or "fully allocated cost" - the sum of fixed costs and marginal costs divided by output. However, for railroads, marginal costs usually continue to decline far past the level of output demanded, so that it never rises to equal average cost.

"competitive rate" for railroad transportation becomes a rather fluid subject – on average, railroads must earn about 145 percent of their variable costs, but can profitably price as low as 100 percent of variable cost in highly competitive markets as long as the relevant share of overhead costs can be made up elsewhere.[47]

The theoretical justification of differential, or discriminatory pricing by railroads is that the economic benefits to society outweigh the additional burdens sustained by those shippers that, by dint of their lack of transport alternatives, can be assessed rates in excess of that which would ensue in a competitive transportation environment. This is so because, in an industry such as railroading in which average costs exceed variable costs, in the absence of price discrimination, railroad solvency only can be maintained if all shippers pay at least the average fully allocated costs of their rail service. Shippers with access to other transport providers which can provide service at rates between rail variable and rail average costs will defect to lower-priced providers, resulting in the railroad's loss of traffic which, if retained, would have been capable of making a contribution to rail overhead, albeit a lesser contribution than traffic rated at average cost or above. This lost contribution to overhead must then be recouped from remaining rail shippers, pushing up rates and, in the process, enlarging the pool of divertable traffic. This would set into motion an economic "death spiral" for railroads, in which they face a continually shrinking traffic base and are less and less able to recoup revenues sufficient to forestall the deterioration of rail infrastructure and ultimately rail service.

This argument can be accepted as fair enough; it is consistent with the peculiarities of railroad economics, specifically the existence of declining costs over an extremely broad range of output which renders untenable marginal cost pricing – the *sine qua non* of efficient and competitive markets in most other commercial sectors.

However, granting that differential pricing is critical to railroads' financial health, and, at least in theory, provides a tool with which railroad economies of scale can be exploited to expand rail markets, lower average costs and rates, and promote economic efficiency benefiting carriers, shippers and the economy in general, it remains an open question as to whether the manner in which railroads are in fact practicing their freedom to price differentially is generating the promised social benefits. There may even be reason to believe that real-world railroad price discrimination not only is failing to yield the promised benefits but that, coupled with external costs for which carriers are not held accountable, railroad price discrimination is proving to be a net harm to segments of the economy.

[47] As calculated by the STB in its annual "Revenue Shortfall Allocation Methodology" ("RSAM") study, actual 2002 revenue to variable cost ratios for the nation's Class I carriers averaged 136.34, BNSF averaged 1.3715. An assumed 1.45 revenue to variable cost ratio would be more than sufficient to ensure that BNSF was "revenue adequate" under STB guidelines.

Analyses of Rates

The extent to which Montana wheat shippers pay transportation rates not reflective of a competitive marketplace is evaluated by analysis of the 2002 STB waybill sample and published BNSF tariffs, and this evaluation is confirmed in studies by the General Accounting Office ("GAO"), The Upper Great Plains Transportation Institute, and calculations by Whiteside & Associates.

Total rail system costs, including cost of capital, exceed total variable costs by about 45 percent, as discussed above, although this percentage varies. On average, the revenue to variable cost ratio of railroad movements should be about 1.45. To the extent that rates generate revenue to variable cost ratios that exceed 1.45, it can be inferred that the pertinent traffic contributes a relatively greater amount to unallocable overhead expenses than do rates on average. As discussed above, some rates would have to exceed 1.45 to ensure that all unallocable costs were covered assuming that some economically supportable traffic would necessarily contribute less than the system average overhead contribution. Under perfect competition, revenue to variable cost ratios would equal 1.00, which would be unsustainable system-wide.[48] In assessing the cost to Montana of lacking transportation competition available to wheat shippers, this study assumes that a revenue to variable cost ratio of 1.45 is consistent with a "typically" competitive market and that a revenue to variable cost ratio of 1.80 (the jurisdictional threshold for STB review of rates) is consistent with a minimally competitive market.

The 2002 General Accounting Office Report

On June 7, 2002, the GAO submitted a report to the Committee on Transportation and Infrastructure of the U.S. House of representatives entitled "*Railroad Regulation – Changes in Freight Railroad Rates from 1997 through 2000*." The report noted substantial disparities in rate and profit levels depending upon the extent of both inter- and intramodal competition facing rail carriers. The existence of waterborne competition was cited as a likely reason that in the year 2000, the average rail rate for wheat from the Duluth economic area to the Chicago economic area was, at about 1.2 cents per ton-mile (in 1996 constant dollars), nearly 2 cents per ton-mile below the average rate from the Great Falls economic area to the Portland economic area.[49] The

[48] According to Arvid Roach, the late lawyer for the UP, the average revenue to variable cost ratio where there is head-to-head railroad competition is 1.06; that is, railroads compete to the point where there is a negligible contribution to overhead expenses. The STB's 2002 RSAM calculations indicates that BNSF's average revenue to variable cost ratio for competitive traffic (i.e., movements in which it earned less than 180 percent of variable costs) was 1.011. This traffic accounted for 80.3 percent of BNSF's freight revenue and 90.3 percent of its freight expenses.

[49] "Revenue per ton-mile" was used as a proxy for rail rates by the GAO and, for the sake of mathematical convenience, is also so used in this report. It also was adopted in 1989 by the Association of American Railroads ("AAR") as a rate surrogate when it became clear that revenue per ton mile tends to rise less steeply or fall more rapidly than true rates, and thus was useful to demonstrate the "positive effects" of deregulation. Until 1988, the AAR regularly published the caveat that "[revenue per ton-mile] *does not necessarily measure average rate levels because it is affected by composition of traffic and length of haul."*

revenue to variable cost ratio barely exceeded 1.00 from Duluth origins, while it was 3.08 from Great Falls origins. Similarly, as a consequence of barge competition, the average rate for corn from Chicago to New Orleans was about 1.1 cent per ton-mile versus 2.8 cents per ton-mile for the considerably shorter distance from the Evansville, Indiana, economic area to the Atlanta economic area. Overall average rates for corn, which in general originates much more closely to navigable waterways than does wheat, were 1.8 cents per ton-mile versus 2.4 cents per ton-mile for wheat.[50]

The availability of railroad-to-railroad competition was cited as the likely reason that for the period 1997 through 2000 rail rates for wheat terminating in the Portland economic area were about 1.4 cents per ton-mile lower for shipments originating in the Wichita, Kansas and Oklahoma City, Oklahoma economic areas than those originating from Great Falls, Montana.

Whiteside & Associates Calculations

Whiteside & Associates calculated revenue to variable cost ratios for year 2002 wheat movements from seven Montana and four Nebraska origins to the Pacific Northwest. Separate calculations were made for 110-car BNSF trains and BNSF single-car rates. From Montana origins, 110-car rates generated revenue-to-variable cost ratios of about 3.05 to just over 3.40, approximately 50 percent higher than Nebraska origin ratios of 2.10 to 2.15. Single car rates generated ratios from about 2.35 to about 2.70 for Montana origins, also about 50 percent above the corresponding Nebraska origin ratios, which ranged from about 1.60 to 1.65.[51]

Analysis of Wheat Movements: 2002 Waybill Sample

A new evaluation was performed for this study utilizing the 2002 costed waybill sample published by the Surface Transportation Board and provided to the State of Montana.[52] This data set is restricted to movements originating, terminating or passing through the state. Sample data were expanded by the "exact expansion factor" provided by the

[50] The average rate for wheat in 2000 (in current dollars) was 2.59 cents per ton-mile and for corn, 2.06 cents per ton mile. Average distance of origins to navigable waterways was 93 miles for corn versus 212 miles for wheat. Average hauls of 883 miles for corn and 761 miles for wheat were roughly similar, but the greater distance corn moves may account for part of the discrepancy in rates as between the two commodities. Bitzan, Vachal, VanWechel and Vinje; *The Differential Effects of Rail Rate Deregulation: U.S. Corn, Wheat and Soybean Markets*, Upper Great Plains Transportation Institute, North Dakota State University, 2003.

[51] Whiteside & Associates results are published on the Montana Wheat and Barley Committee website.

[52] The "costed" waybill sample is a confidential document and results of analyses that are made available to the public must be aggregated to avoid revealing highly specific movement data. The waybill includes variable costs of sampled movements as calculated by the STB's URCS methodology.

STB to generate estimates of freight revenues and variable costs. As shown in Table 6, railroad revenue exceeded variable costs for all Montana-originated rail wheat movements by over $60 million in 2002 -- $100.2 million in freight revenue to $38.4 million in variable costs. The resulting revenue to variable cost ratio of 2.61 is just slightly below North Dakota's 2.67 and significantly above the 1.69 ratio of Colorado, Kansas, Minnesota, Nebraska and South Dakota combined.[53] Despite the lower revenue to variable cost ratio, because of a lower average length of haul, Montana's average revenue per ton-mile exceeded North Dakota's by 18 percent -- 3.10 cents to 2.63 cents.

Caveat: "Masked" Revenues

Revenues from contracted movements are permitted to be "masked" by the railroads providing data to the STB. Nor are contract movements identified as such (other than for internal STB analysis). That is, as reported, the revenue may vary from actual and users of the waybill sample are cautioned as to the uses to which the data may be put. However, the total revenue reported by commodity in the waybill sample has been shown to be consistent with actual revenue (see MacDonald: "Competition and Rail Rates for the Shipment of Corn, Soybeans and Wheat", *Rand Journal of Economics*, Spring 1987, in which the author found that wheat revenue per ton as reported in the Waybill sample was $15.42 versus that reported in ICC Freight Commodity Statistics (actual) was $15.34, or only a difference of one-half of a percent. Examination of the waybill sample revealed that high revenue to variable cost ratios were consistently in evidence for all Montana wheat movements, regardless of whether they were contract (masked) revenues or tariff (actual) revenues. Further, this analysis found that lower revenue to variable cost ratios were consistently in evidence on wheat movements other than for those with Montana or North Dakota origins, and for corn movements.

Nevertheless, with respect to wheat, "masking" *may* be responsible for overstating revenues by as much as twelve percent overall and 30 percent for shuttle train movements. An analysis of year 2002 shuttle train movements indicates that an average of 108.3 cars and 12,090 tons moved per trainload, with 111.7 tons per carload. Total shuttle tonnage of 1.27 million was just below 39 percent of total rail wheat movements. The average "masked" rate was $3,247 per carload, which, given an average variable cost of $980 per carload, generates a revenue to variable cost ratio of 3.31. The masked rate, which happens to be almost identical to the published tariff rate for 110-car shuttle movements, is unreasonably high, as it could not create incentives for elevator operators to invest in required facilities and to lower rates to grain

[53] The North Dakota sample is not comprehensive as it is limited to bridge movements through Montana, but this is likely sufficient to capture virtually all North Dakota export movements to the Pacific Northwest. The sample of movements originating in the other five states is significantly restricted, reflecting only about 800 thousand tons originating from those states in 2002. Nevertheless, the resulting data is consistent with both the GAO and Whiteside analyses.

Table 6
State by State Comparison, 2002 Wheat Shipments

Origin State	Number Shipments	Expanded Carloads	Average Distance	Revenue/Carload	Revenue/Ton	Revenue/ Variable Cost	Revenue/Ton-Mile	Tons/Shipment	Expanded Tons	Freight Revenue Expanded	Total Variable Cost
MT	2,114	30,111	1,057	$ 3,328	$ 31.94	2.61	$ 0.0310	1,484	3,137,525	$ 100,217,160	$ 38,405,746
ND	363	8,886	1,378	$ 3,919	$ 36.30	2.67	$ 0.0263	2,640	959,388	$ 34,824,618	$ 13,043,732
MT+ND	2,477	38,997	1,130	$ 3,463	$ 32.96	2.62	$ 0.0296	1,654	4,096,912	$ 135,041,778	$ 51,449,478
CO	56	1,271	1,639	$ 3,062	$ 30.31	1.40	$ 0.0185	2,288	128,338	$ 3,890,553	$ 2,770,655
KS	68	779	2,019	$ 3,847	$ 38.54	1.35	$ 0.0191	1,145	77,710	$ 2,994,968	$ 2,210,658
MN	22	1,114	1,662	$ 3,341	$ 29.92	2.08	$ 0.0180	5,653	124,376	$ 3,721,834	$ 1,786,568
NE	54	2,723	1,557	$ 3,166	$ 29.53	1.91	$ 0.0190	5,404	291,877	$ 8,619,342	$ 4,514,301
SD	27	1,500	1,677	$ 2,768	$ 25.83	1.63	$ 0.0154	5,969	160,758	$ 4,152,226	$ 2,547,960
5 states	227	7,386	1,660	$ 3,165	$ 29.86	1.69	$ 0.0180	3,451	783,059	$ 23,378,923	$ 13,830,142
7 states	2,704	46,383	1,214	$ 3,416	$ 32.46	2.43	$ 0.0270	1,805	4,879,972	$ 158,420,701	$ 65,279,620

Source: Surface Transportation Board (STB) Carload Waybill Sample for Montana, year 2002.

producers sufficient for them to truck wheat the additional distances often required to reach a shuttle facility. It is more likely that actual contract rates to shuttle facility operators produce revenue to variable cost ratios in the order of 2.40, as is typical of non-shuttle operations, yielding an average rate per carload of about $2,350. It is important to note that a per-carload rate of $2,350, or about $1,000 below the "masked" rate, is deemed to be required to compensate elevator operators and producers for the additional costs that converting to a shuttle demands; no benefit to Montana would transpire until shuttle rates fell even below this reduced figure. (At $2,350 per carload, railroads would earn a contribution to overhead of about $1,370, equivalent to the contribution earned on non-shuttle wheat movements originating in Montana.) Therefore, this economic impact analysis does not correct for the assumed masking factor – the adverse effects to Montana of high grain logistics costs are approximately the same whether the farmer is asked, ultimately, to shoulder the cost of the tariff rate or a reduced rate plus the costs of (1) underwriting elevator expansion and (2) demands associated with increased trucking, including semi-trailer acquisitions, operating costs and higher taxes required to address roadway maintenance needs.

Analysis of Corn Movements: 2002 Waybill Sample

Montana's 2002 waybill sample includes data reflecting nearly 6.4 million tons of corn originating in Minnesota and South Dakota, with lesser amounts originating in Missouri, Nebraska and North Dakota. As shown in Table 7, the data confirms the lower revenue to variable cost ratios characteristic of corn shipments – on average, 1.35 in the sample. Revenue per ton-mile was 1.31 cents on an average haul of 1,866 miles as compared with Montana wheat revenue per ton-mile of 3.10 cents on an average haul of 1,057 miles. Montana wheat revenue per ton of $31.94 was 30.6 percent greater than the average revenue per ton for corn ($24.46) despite a 43.4 percent shorter average haul. Each ton of corn contributed $6.37 to overhead costs, each ton of Montana wheat contributed $19.70, over three times as much. Each ton-mile of corn contributed 0.34 cents to overhead, a bare 18 percent of the 1.86 cents per ton-mile contributed by Montana wheat.

Review of Current BNSF Wheat Tariffs

In July 2002 BNSF announced that it was ceasing to practice differential pricing with respect to Montana and North Dakota wheat. The announcement followed complaints that the railroad was quoting preferential rates to eastern North Dakota wheat shippers in an attempt to redirect shipments from the Minneapolis market to the Portland export market.[54] To determine whether BNSF has carried through in this promise, BNSF current tariffs for the transportation of wheat to the Pacific Northwest were analyzed. The tariffs reviewed, all from BNSF Rate Book 4022, are listed in Table 8.

[54] "In a letter to Governor Martz, BNSF President Matt Rose said, 'effective July 31, the Burlington Northern and Santa Fe Railway Company (BNSF) will discontinue the North Dakota-Montana differential pricing structure.'" Montana Department of Agriculture website, News Release, July 16, 2002.

Table 7
State by State Comparison, 2002 Corn Shipments

Origin State	Number Shipments	Expanded Carloads	Average Distance	Revenue/Carload	Revenue/Ton	Revenue/ Variable Cost	Revenue/Ton-Mile	Tons/Shipment	Expanded Tons	Freight Revenue Expanded	Total Variable Cost
ND	374	2,226	1,593	$ 2,742	$ 26.02	1.29	$ 0.0163	627	234,521	$ 6,102,583	$ 4,714,518
MO	80	80	2,015	$ 626	$ 32.10	0.54	$ 0.0159	20	1562	$ 50,136	$ 92,931
MN	1,250	39,495	1,908	$ 2,529	$ 23.89	1.34	$ 0.0125	3,346	4,181,985	$ 99,894,985	$ 74,453,979
NE	6	646	2,068	$ 2,476	$ 22.72	1.29	$ 0.0110	11,729	70,372	$ 1,599,180	$ 1,237,851
SD	1,288	17,653	1,799	$ 2,730	$ 25.59	1.39	$ 0.0142	1,462	1,883,109	$ 48,194,612	$ 34,737,802
5 states	2,998	60,099	1,866	$ 2,593	$ 24.46	1.35	$ 0.0131	2,125	6,371,548	$ 155,841,496	$ 115,237,081

Source: Surface Transportation Board (STB) Carload Waybill Sample for Montana, year 2002.

Table 8
BNSF Tariffs, Wheat to Pacific Northwest

BNSF	Description
43160	WHEAT - CO-KS-OK-TX TO PNW
43521	WHEAT - MB-MN-MT-ND-SD-WI-WY TO OR-WA
43538	WHEAT - MN-MT-ND-SD TO PNW
43540	WHEAT - AZ-CA-NM-TX TO PENDLETON, OR
43541	WHEAT - MB-MN-MT-ND-SD-WI TO UP STNS OR
43549	WHEAT - MN-MT-ND-SD TO UP STATIONS OR
43550	WHEAT - MT TO HERMISTON/PENDLETON, OR
43551	WHEAT - MT-ND TO HERMISTON/PENDLETON, OR
43571	WHEAT - MB-MN-MT-ND-SD-WI TO OR-WA
43581	WHEAT - CO-IL-KS-MO-NE-WY TO PNW
43585	WHEAT - AZ-CA-NM-TX TO OR-WA
43586	WHEAT - CO-KS-MO-NE-WY TO PNW
43590	WHEAT - ID-WA TO PNW
43591	WHEAT - CA-ID-OR-WA TO OR-WA
43594	WHEAT - WA TO OR-WA

Source: Burlington Northern Santa Fe (BNSF) Rate Book 4022.

Table 9 encapsulates tariff rates for wheat to the Pacific Northwest from 475 BNSF origination points in Colorado, Kansas, Minnesota, North Dakota, South Dakota, Nebraska, Wyoming and Montana. Length of haul ranges from 714 to 2,038 miles. BNSF state-by-state rates were identical for all 58 origins in Minnesota, 43 in South Dakota, 18 in Colorado, 17 in Kansas and 4 in Wyoming. Three different rates applied to the 174 origin points in North Dakota, and four rates for 82 points in Nebraska. No less than 53 different rate structures applied to the 59 origins located in Montana.

Different rate structures are available at different locations; some elevators have available separate rates for 1-25 cars, 26-51, 52-109 and 110-120 cars; different rates may also be applicable to 263,000- and 286,000-pound cars. The tariff rates exhibit a strong consistency with respect to length of haul and rate levels. A regression analysis indicates that Montana rates are not discriminatory, that no particular state or portion of a state (other than that described immediately below with respect to Montana Rail Link (MRL) lines in Montana) possesses a significant rate advantage and rates from more distant origins were consistently higher than rates from less-distant origins.[55] Thus, it appears that BNSF has indeed eliminated the differential rates to the Pacific Northwest as reflected in the tariffs. However, it is a different question, and an unanswered one, as to how much traffic, particularly that originating in states other than North Dakota and Montana, actually move under these tariff rates.

The next two tables demonstrate that BNSF tariff rates for movements from Montana to the Pacific Northwest can be affected by competitive factors. As seen in Table 10, feed grain rates for one to 25-car shipments are 12 to 18 cents per bushel lower than export rates, although railroad costs should not differ significantly between the two types of wheat.

Table 11 compares tariff rates for elevators equivalently distant from Portland but which are located on MRL as opposed to BNSF lines. Rates for one to 25 cars for the MRL-located facilities average 21 cents per bushel below comparable facilities on BNSF lines.

Estimated Impact to Montana of Non-Competitive Wheat Rates

Based on the analysis of the 2002 waybill sample, with estimates confirmed by close correlation with results from the GAO and Whiteside & Associates, the cost to Montana in the year 2002 of non-competitive rail rates was $44.5 million, representing the difference between actual grain freight revenues and grain freight revenues constrained

[55] Tariffs for 1-25 car shipment were grouped by states and mileage block and fitted to a curve with an R-square of .85. The regression analysis revealed that Montana rates, which averaged $3,762 per carload, were 1.5 percent below the predicted average rate of $3,821. However, rates for Montana movements which were over 1,100 miles (that is, excluding MRL-origin points) averaged $196 per carload over the predicted rates.

Table 9
BNSF Current Tariffs to Pacific Northwest

Origin State	Mile Range	No. locations	Avg. Miles	Tariff Rate Per Car			Per Car Mile	
				1-25 Cars	26-51	52-109/110	1-25 Cars	52-109/110
CO	1581-1719	18	1,656	$ 4,525	$ 4,175	$ 3,975	$ 2.73	$ 2.40
KS	1884-2001	17	1,944	$ 4,666	$ 4,316	$ 4,116	$ 2.40	$ 2.12
MN	1516-1837	58	1,616	$ 4,575	$ 4,362	$ 4,148	$ 2.83	$ 2.57
ND	1201-1300	10	1,259	$ 4,453	$ 4,234	$ 4,025	$ 3.54	$ 3.20
ND	1301-1400	24	1,356	$ 4,470	$ 4,230	$ 4,034	$ 3.30	$ 2.98
ND	1401-1639	140	1,513	$ 4,575	$ 4,362	$ 4,148	$ 3.02	$ 2.74
NE	1475-1722	14	1,615	$ 4,525	$ 4,175	$ 3,975	$ 2.80	$ 2.46
NE	1735-1800	12	1,768	$ 4,652	$ 4,302	$ 4,102	$ 2.63	$ 2.32
NE	1801-1900	45	1,852	$ 4,718	$ 4,368	$ 4,168	$ 2.55	$ 2.25
NE	1901-2000	11	1,920	$ 4,827	$ 4,477	$ 4,277	$ 2.51	$ 2.23
SD	1453-1841	43	1,665	$ 4,575	$ 4,362	$ 4,148	$ 2.75	$ 2.49
WY	1269-1474	4	1,411	$ 4,525	$ 4,175	$ 3,975	$ 3.21	$ 2.82
MT	701-800	3	762	$ 3,312	$ 3,099	$ 2,884	$ 4.35	$ 3.79
MT	801-900	19	844	$ 3,454	$ 3,241	$ 3,027	$ 4.09	$ 3.58
MT	901-1000	10	939	$ 3,525	$ 3,317	$ 3,102	$ 3.75	$ 3.30
MT	1001-1100	9	1,052	$ 3,776	$ 3,574	$ 3,360	$ 3.59	$ 3.19
MT	1101-1200	9	1,166	$ 4,257	$ 4,044	$ 3,830	$ 3.65	$ 3.28
MT	1201-1300	9	1,237	$ 4,249	$ 3,968	$ 3,822	$ 3.44	$ 3.09

Source: Burlington Northern Santa Fe (BNSF) posted tariff rates.

Table 10
Difference in BNSF Tariff Rates: Montana to Pacific Northwest, Feed Grain versus Exportable Grain
Rate Per Car, 1-25 Carloads

Montana Origin	BNSF Item 43521 Export Wheat	BNSF Item 43571, Non-Export Feed	Difference Per Bushel
HARRISON	$ 2,706	$ 2,298	$ 0.121
MANHATTAN	$ 2,743	$ 2,335	$ 0.121
BELGRADE	$ 2,752	$ 2,344	$ 0.121
BIG TIMBER	$ 2,824	$ 2,416	$ 0.121
LEWISTOWN	$ 3,402	$ 2,994	$ 0.121
LOUISVILLE	$ 2,717	$ 2,263	$ 0.135
CUT BANK	$ 3,292	$ 2,833	$ 0.136
FT BENTON	$ 3,432	$ 2,973	$ 0.136
MERIWETHER	$ 3,250	$ 2,790	$ 0.137
RONAN	$ 2,569	$ 2,058	$ 0.152
HELENA	$ 2,763	$ 2,252	$ 0.152
SHELBY	$ 3,393	$ 2,882	$ 0.152
BILLINGS	$ 3,440	$ 2,929	$ 0.152
MOCCASIN	$ 3,484	$ 2,973	$ 0.152
HAVRE	$ 3,608	$ 3,097	$ 0.152
HARLEM	$ 3,697	$ 3,186	$ 0.152
MILES CITY	$ 3,933	$ 3,319	$ 0.182
GLASGOW	$ 4,108	$ 3,494	$ 0.182
GLENDIVE	$ 4,140	$ 3,526	$ 0.182
WOLF POINT	$ 4,200	$ 3,586	$ 0.182
SIDNEY	$ 4,269	$ 3,656	$ 0.182
PLENTYWOOD	$ 4,326	$ 3,712	$ 0.182

Source: Burlington Northern Santa Fe (BNSF) posted tariffs.

Table 11
BNSF Tariffs: Comparison of Wheat Rates to Pacific Northwest
MRL versus Similarly Distant BNSF Origins

BNSF Origin	Miles to Portland	Rate	MRL Origin	Miles to Portland	Rate	Pct. Difference	Diff. Per Bushel*
MERIWETHER	740	$ 3,250	HAMILTON	714	$ 2,587	-20.4%	$ 0.197
CUT BANK	760	$ 3,292	HELENA	785	$ 2,763	-16.1%	$ 0.157
SHELBY	785	$ 3,393	LOUISVILLE	796	$ 2,717	-19.9%	$ 0.201
LEDGER	805	$ 3,393	TOWNSEND	818	$ 2,695	-20.6%	$ 0.207
CHESTER	829	$ 3,483	TOSTON	829	$ 2,706	-22.3%	$ 0.231
JOPLIN	839	$ 3,502	STANLEY	840	$ 2,717	-22.4%	$ 0.233
GREAT FALLS	882	$ 3,393	BOZEMAN	882	$ 2,762	-18.6%	$ 0.187
HAVRE	890	$ 3,608	HARRISON	887	$ 2,706	-25.0%	$ 0.268
AVERAGE	816	$ 3,414		819	$ 2,707	-20.7%	$ 0.210

Source: BNSF Ratebook 4022, Item 43521, 1-25 Cars; distances from BNSF website.

to a system average of 145 percent of variable costs. Compared to a "minimally competitive market," in which rates exceeded variable costs by 80 percent, Montana shippers paid an additional $31.1 million. These estimates reflect 3.14 million tons of wheat being transported by rail an average of 1,057 miles at an average per-carload rate of $3,328. (2.18 million tons were shipped to the Pacific Northwest, the vast preponderance by rail.) The competitive per-carload rate equals $1,849 and the minimally-competitive per-carload rate is $2,296. On a per-bushel basis, the overpayments equal 42.7 cents and 29.8 cents, respectively.

Year 2002 Montana wheat production of 110 million bushels was only 72 percent of the average of 152.5 million bushels for the ten years 1994 through 2003. Assuming that rail tonnage in 2002 was similarly below average and all else being equal, the impact of non-competitive rates would increase 38.8 percent to $61.8 million annually above rates paid in an "average" competitive market and $43.2 million as compared with rates in a "minimally competitive" market.[56] A highly competitive market, in which railroad revenue to variable cost equaled 1.06 would result in a reduction of rail charges by 59 percent, or $82.5 million annually.

The average number of acres planted over the ten years 1994 through 2003 was 5.71 million (marginally below 2002's 5.79 million acres), with a market value of approximately $2.14 billion.[57] The pre-tax per-acre impact of non-competitive rates is $10.82 annually ($61.8 million divided by 5.71 million) and $8.66 per acre after-tax, assuming an effective rate of 20 percent. The after-tax impact equals 47 percent of the average annual rent for non-irrigated cropland ($18.50 in both 2002 and 2003.)[58] Assuming that a 47 percent increase in the rental value of cropland were to be reflected in its market value, the value of this farmland would increase by $1 billion (5.71 million x $375 x 0.47).

Rail Transportation of Montana Products

Products Originating in Montana

Railroads transport Montana's products within the state and to 42 states and Canadian provinces. Nearly 40 million tons were carried in 2002, with a total freight bill of over $650 million. Coal constituted 69 percent of the tonnage and accounted for 50 percent

[56] The calculated impact of $61.8 million compares with estimated overcharges "because of lack of effective competition" of "more than $70 million" (Jim Christianson of the Montana Wheat and Barley Committee and Richard Owen of the Montana Grain Growers Association, reported in the Billings Gazette, September 7, 2001). Jon Mielke, at the time Executive Secretary of North Dakota's Public Service Commission, estimated the comparable overcharges (above "reasonable" rates) affecting North Dakota's farmers and elevator operators at between $50 and $100 million. (NDGDA online, "*New Coalition Opposes Unfair Railroad Practices*," http://www.ndgda.org, November 8, 2001.

[57] Based on an average value per unirrigated acre of $375. Montana Agricultural Statistics Service; *2003 Montana Agricultural Statistics*, p.14.

[58] Ibid.

of the freight bill, with farm products, petroleum and coal products, wood products, and hazardous materials being the next most significant commodities shipped.

An analysis of 2002 waybill data reveals that other than for farm products, and wheat in particular, rail-borne commodities originating in Montana do not bear disproportionately high shipping costs. As discussed in the next section, however, this does not in itself mean that the market is functioning effectively. Service may often be substandard, quashing prospects for higher volumes. On the other hand, there may be effective product or geographic competition which constrains railroad behavior despite the absence of direct rail or viable non-rail transportation competition.

There is a dearth of high-value products that move out of Montana via rail; a very small proportion of rail shipments consist of finished wood or metal products, non-bulk food products, etc. The quality of rail service, as opposed to rail rates, underlies the dominance of truck in these categories of freight.

Table 12 displays the dispersion of Montana rail-carried products. Sets of columns provide data on commodity volumes (tons, carloads, number of shipments), shipment characteristics (average carloads per shipment, average length of haul), composite revenue and cost, revenue per ton-mile, ton and carload, cost per carload, and contribution (revenue minus cost) per carload. Nearly 53 percent of the tonnage, predominantly coal, moves to Minnesota and Wisconsin. Unit trains are far more frequently employed in the Wisconsin shipments, accounting for lower apparent revenue to variable cost ratios and lower freight charges per ton despite average hauls 20 percent longer than those to Minnesota. Indiana, another major coal-receiving state, relies almost entirely on single-car movements of coal, resulting in even higher per-ton costs and revenue to variable cost ratios. However, it should be recognized that the freight revenue data for coal may be the least reliable for any commodity as most coal moves under contract rates, and therefore freight revenues are most affected by “masking” by the railroads.

Significant quantities move intrastate by rail; over 3.8 million tons, primarily gasoline, pulpwood and chips, is transported from Montana origins to Montana destinations, with an average haul of only 187 miles. These movements, with an average revenue to cost ratio of 1.54 and revenue per ton of $8.16, represent welcome respite to state and local highways. Encouraging more of these movements is in the state’s interests.

A great diversity of products move to California by rail; these include barley, wheat, cottonseeds, gravel, animal meal, wheat flour, sugar, cordwood, flooring, plywood, particle board, paperboard, ammonia, brick, aluminum slab and others. This diversity is not exhibited with respect to any other state of termination; at this stage it is not possible to determine whether this reflects inadequate demand or inadequate rail service at other destinations.

Table 12
Montana Originating Rail Shipments by State or Province of Termination (2002)

Termination State/Provinc	Principal Commodities	Tons	Carloads	No. of Shipments	Carloads per shipment	Avg. length of haul	Revenue	Variable Cost	Revenue: Variable cost	Revenue per ton-mile	Revenue per ton	Revenue per carload	Variable cost per carload	Contribution per carload
MN	Coal	11,049,080	95,676	4,228	22.6	851	$ 134,109,586	$ 80,486,613	1.67	$ 0.0143	$ 12.14	$ 1,402	$ 841	$ 560
WI	Coal	9,775,858	84,068	1,656	50.8	1,021	82,800,918	69,481,443	1.19	0.0083	8.47	985	826	158
MT	Petroleum products, pulpwood	3,815,976	42,560	15,280	2.8	187	31,155,072	20,224,553	1.54	0.0436	8.16	732	475	257
WA	Wheat, coal, wood products	3,592,971	33,902	6,825	5.0	985	81,158,468	36,499,572	2.22	0.0229	22.59	2,394	1,077	1,317
IL	Coal, lumber	3,406,738	32,152	7,383	4.4	1,251	75,029,768	42,892,950	1.75	0.0176	22.02	2,334	1,334	1,000
IN	Coal	1,467,240	12,680	12,680	1.0	1,282	42,431,280	24,767,737	1.71	0.0226	28.92	3,346	1,953	1,393
OR	Wheat, particleboard, paperboard	1,187,857	12,738	5,241	2.4	969	39,377,094	16,646,819	2.37	0.0342	33.15	3,091	1,307	1,784
CA	Wood products, paperboard, grain	868,400	10,372	7,496	1.4	1,612	36,384,020	25,907,155	1.40	0.0260	41.90	3,508	2,498	1,010
ND	Coal	821,126	8,634	1,946	4.4	704	16,979,762	8,972,897	1.89	0.0294	20.68	1,967	1,039	927
TX	Lumber, hazmat	785,512	8,910	5,784	1.5	1,908	29,724,584	22,357,330	1.33	0.0198	37.84	3,336	2,509	827
AZ	Hazmat, lumber	393,134	4,100	2,064	2.0	1,624	14,484,991	8,946,216	1.62	0.0227	36.84	3,533	2,182	1,351
AB	Cement	322,400	3,240	3,240	1.0	930	5,196,080	6,357,748	0.82	0.0173	16.12	1,604	1,962	(359)
CO	Wood products, stone, hazmat	304,932	3,416	2,928	1.2	967	6,856,980	6,031,271	1.14	0.0232	22.49	2,007	1,766	242
IA	Hazmat	260,268	2,750	1,116	2.5	1,118	7,330,492	4,293,107	1.71	0.0252	28.17	2,666	1,561	1,105
ID	Asphalt, hazmat	247,728	2,888	1,748	1.7	621	8,102,216	3,200,092	2.53	0.0527	32.71	2,805	1,108	1,697
MO	Lumber	169,016	1,904	1,660	1.1	1,567	7,135,276	4,533,338	1.57	0.0269	42.22	3,748	2,381	1,367
NE	Hazmat, molasses	104,204	1,160	904	1.3	825	2,003,948	1,674,556	1.20	0.0233	19.23	1,728	1,444	284
NM	Hazmat	96,412	1,160	1,024	1.1	1,454	4,061,596	2,279,715	1.78	0.0290	42.13	3,501	1,965	1,536
MB	Coal	78,084	810	126	6.4	1,110	1,538,278	1,018,365	1.51	0.0177	19.70	1,899	1,257	642
NV	Hazmat	73,748	872	716	1.2	1,570	2,942,400	2,042,495	1.44	0.0254	39.90	3,374	2,342	1,032
FL	Hazmat	62,120	680	680	1.0	2,685	3,099,600	2,573,591	1.20	0.0186	49.90	4,558	3,785	774
UT	Hazmat, wheat	62,060	716	556	1.3	1,010	2,333,144	1,198,030	1.95	0.0372	37.59	3,259	1,673	1,585
TN	Lumber	60,972	836	812	1.0	2,040	2,859,488	2,642,870	1.08	0.0230	46.90	3,420	3,161	259
BC	Hazmat, coal	60,950	630	402	1.6	1,216	1,160,256	1,075,275	1.08	0.0157	19.04	1,842	1,707	135
KS	Lumber, hazmat	57,560	720	720	1.0	1,543	2,134,680	1,484,075	1.44	0.0240	37.09	2,965	2,061	904
AL	Lumber, iron/steel scrap	43,680	480	480	1.0	2,308	1,864,360	1,661,908	1.12	0.0185	42.68	3,884	3,462	422
SK	Iron or steel scrap	39,040	440	400	1.1	895	820,520	846,921	0.97	0.0235	21.02	1,865	1,925	(60)
OK	Residual fuel oils, lumber	38,836	544	328	1.7	1,545	1,672,892	1,141,136	1.47	0.0279	43.08	3,075	2,098	977
SD	Hazmat	34,076	396	276	1.4	1,028	1,154,264	668,647	1.73	0.0330	33.87	2,915	1,689	1,226
ON	Hazmat	29,280	320	320	1.0	1,845	1,844,240	988,101	1.87	0.0341	62.99	5,763	3,088	2,675
AR	Lumber	26,600	360	360	1.0	2,055	1,375,440	1,265,866	1.09	0.0252	51.71	3,821	3,516	304
LA	Wheat	24,028	252	56	4.5	1,972	1,127,000	858,621	1.31	0.0238	46.90	4,472	3,407	1,065
KY	Lumber	22,680	280	280	1.0	1,895	1,015,760	883,396	1.15	0.0236	44.79	3,628	3,155	473
OH	Soapstone/talc	20,360	240	240	1.0	2,019	1,340,520	756,897	1.77	0.0326	65.84	5,586	3,154	2,432
MI	Hazmat, soapstone/talc	16,400	480	480	1.0	1,418	921,040	581,616	1.58	0.0396	56.16	1,919	1,212	707
ME	Soapstone/talc	15,160	160	160	1.0	2,603	1,026,640	641,981	1.60	0.0260	67.72	6,417	4,012	2,404
NJ	Soapstone/talc	5,400	80	80	1.0	2,660	394,240	318,495	1.24	0.0274	73.01	4,928	3,981	947
NY	Soapstone/talc	3,840	40	40	1.0	2,359	338,240	122,993	2.75	0.0373	88.08	8,456	3,075	5,381
GA	Soapstone/talc	3,600	40	40	1.0	2,398	404,440	125,697	3.22	0.0468	112.34	10,111	3,142	6,969
MS	Soapstone/talc	3,600	40	40	1.0	2,060	197,720	140,230	1.41	0.0267	54.92	4,943	3,506	1,437
VA	Soapstone/talc	3,120	40	40	1.0	2,173	218,680	147,756	1.48	0.0323	70.09	5,467	3,694	1,773
NC	Soapstone/talc	2,880	40	40	1.0	2,717	252,160	161,399	1.56	0.0322	87.56	6,304	4,035	2,269
PA	Trailers, empty	160	40	40	1.0	2,123	10,520	35,732	0.29	0.0310	65.75	263	893	(630)
Total		39,457,086	371,846	90,915	4.1	960	$656,368,653	$408,935,205	1.61	$0.0173	$16.64	$1,765	$1,100	$665

Source: STB Waybill Sample for Montana, year 2002.

Table 13 details Montana-originated commodities by two-digit standard transportation commodity code (STCC). In addition to the columns displayed in Table 12, STB 1999 western U.S. data (the most recent year analyzed) for average length of haul and average revenue per ton-mile is provided for most commodity groups. This provides a basis by which discrimination affecting Montana products can be assessed on a "first cut" basis. For commodities which have reasonably consistent average lengths-of-haul for both U.S. west and Montana origins, only three are seen to have generated significantly higher revenues per ton-mile for Montana origins than for the West generally. STCC 01, Farm Products, (principally wheat) is 2.96 cents per ton-mile from Montana origins versus 2.06 cents for the West as a whole – a 44 percent premium which understates the differential inasmuch as the average length of haul for Montana products is 1,018 miles versus 920 for the West as a whole (lengthier hauls reduce revenue per ton-mile, all else being equal). A lesser disparity is seen for STCC 14, Non-Metallic Minerals, such as gravel and crushed stone, with a 22 percent higher revenue per ton-mile assessed against Montana products, also despite longer hauls from Montana. The average revenue to variable cost ratio of 1.68 is somewhat above what would be expected in a highly competitive market. Finally, STCC 20, Food Products, including processed wheat, molasses, sugar products and vegetable oil, cost 13 percent more per ton-mile from Montana origins than western origins generally, again with a slightly greater average length of haul.

It is in the state's interest to keep as much Non-Metallic Minerals on rail as possible; heavy-loaded gravel trucks are renowned for the damage that they can do to highways. The relatively small volumes moving from Montana origins on rail (201,008 tons in 2002) may be subject to increase. Interestingly, STCC 32, Stone, Clay Glass and Concrete, which exhibit much greater lengths of haul but are similar in many other transportation characteristics, moved at the much lower revenue to variable cost ratio of 1.18.

Food products may provide one of the more promising value-added opportunities for the state; wheat which is made expensive to export because of high rail rates may be converted into processed flour which is then truck-competitive for further movement.

STCC 29, Wood Products, also provides some possible opportunities to the state. Lumber, plywood, particleboard and raw forest products constitute the third largest source of railroad revenues from Montana products with two million tons moving at a cost of over $74 million. While it appears that truck competition has kept rail rates moderate with a revenue to variable cost ratio of only 1.25, service quality may be a factor in limiting more growth in these product lines.

Products Terminating in Montana

Considerably less rail tonnage terminates in Montana than originates in the state; the 2002 waybill sample indicates that only 2.64 million tons generating $75.1 million in freight revenue terminated versus 39.46 tons and $656.4 million originated. Subtracting

Table 13
Montana Originating Rail Shipments by Commodity (2002)

STCC	Commodity	Tons	Carloads	No. of Shipments	Carloads per shipment	Avg. length of haul	STB Length of Haul US West (1999)	Revenue	Variable Cost	Revenue: Variable cost	Revenue per ton-mile	STB Rev/TM US West (1999)	Revenue per ton	Revenue per carload	Variable cost per carload	Contribution per carload
11	Coal	27,135,136	233,126	15,379	15.2	982	922	$ 329,129,611	$ 210,307,268	1.56	$ 0.0124	$ 0.01100	$ 12.13	$ 1,411	$ 902	$ 510
1	Farm products	3,769,226	36,724	3,304	11.1	1,018	920	113,558,838	46,796,563	2.43	0.0296	0.0206	30.13	3,092	1,274	1,818
29	Petroleum and coal products	2,946,136	32,472	9,704	3.3	222	788	24,780,148	15,580,801	1.59	0.0380	0.0308	8.41	763	480	283
24	Wood products	2,065,960	25,840	25,840	1.0	1,340	1,167	74,125,840	59,108,928	1.25	0.0268	0.0250	35.88	2,869	2,287	581
49	Hazmat	1,589,012	18,156	13,472	1.3	1,210	n/a	55,881,876	31,853,501	1.75	0.0291	n/a	35.17	3,078	1,754	1,323
32	Stone,clay glass & concrete	575,880	6,200	6,200	1.0	1,073	628	14,564,800	12,323,894	1.18	0.0236	0.0301	25.29	2,349	1,988	361
20	Food products	521,212	5,756	5,596	1.0	1,122	1,057	16,402,768	10,730,046	1.53	0.0281	0.0249	31.47	2,850	1,864	986
26	Pulp & paper products	404,760	6,600	6,600	1.0	1,122	1,030	16,805,760	13,194,216	1.27	0.0370	0.0345	41.52	2,546	1,999	547
14	Non metallic minerals	201,008	2,128	376	5.7	424	366	2,675,996	1,588,239	1.68	0.0314	0.0257	13.31	1,258	746	511
40	Waste and scrap materials	99,864	1,220	1,036	1.2	1,194	598	2,648,260	2,475,194	1.07	0.0222	0.0294	26.52	2,171	2,029	142
28	Chemicals	80,720	840	840	1.0	1,006	938	2,220,800	1,325,999	1.67	0.0273	0.0326	27.51	2,644	1,579	1,065
33	Primary metal products	42,600	480	480	1.0	1,673	1,031	1,613,920	1,436,166	1.12	0.0226	0.0248	37.89	3,362	2,992	370
37	Transportation equipment	33,772	1,064	848	1.3	755	1,119	862,596	1,020,087	0.85	0.0338	0.0654	25.54	811	959	(148)
46	Misc. mixed shipments	11,720	520	520	1.0	1,177	1,846	448,240	392,337	1.14	0.0325	n/a	38.25	862	754	108
34	Sheet metal	4,400	160	160	1.0	364	n/a	98,560	112,324	0.88	0.0616	n/a	22.40	616	702	(86)
42	Empty trailers	4,160	800	800	1.0	1,358	n/a	421,600	578,863	0.73	0.0746	n/a	101.35	527	724	(197)
47	LCL	840	40	40	1.0	2,100	n/a	70,200	51,542	1.36	0.0398	n/a	83.57	1,755	1,289	466
39	Misc. mfr. Products	200	40	40	1.0	2,577	n/a	58,840	59,237	0.99	0.1142	n/a	294.20	1,471	1,481	(10)
	Total[1]	39,486,606	372,166	91,235	4.1	0	n/a	$ 656,368,653	$ 408,935,205	1.61			$ 16.62	$ 1,764	$ 1,099	$ 665

Source: STB Waybill Sample for Montana, year 2002.

[1] Totals do not agree with Table 1 as certain traffic, e.g. railroad cars, is excluded from Table 1.

coal, 1.82 million tons terminated and 12.32 million tons, or 576 percent more originated, generating $68.8 million and $327.3 million in freight revenue respectively, or 376 percent from originating traffic. Table 14 displays states of origination and principal commodities, lines in italics break out specific major commodities originating from specific states.

Average revenue to variable cost ratio of all terminating commodities was 1.63 and, as shown in Table 15, the highest ratio (2.93) was applicable to bituminous coal. As these coal movements are most probably moving under contract, masking of rates makes any conclusions respecting these generally short-haul coal movements unreliable.

The second-largest commodity group by tonnage and the greatest revenue-generator terminating in Montana is hazardous materials, followed by food products (third and second, respectively) and wood and forest products (fourth in both tonnage and revenue). Outbound shipments of all these commodity groups dwarfs inbound. It is not until the fifth and sixth most significant imports by tonnage – bauxite ores (mainly from Washington) and chemicals (from several states) – that terminations exceed originations. Just under 1,300 carloads of each of these commodities, the equivalent of about 5,000 truckloads, were imported in 2002, a fairly insignificant volume.

The imbalance of outbound over inbound commodity quantities may be a factor in driving up the costs of Montana exports, as ready backhauls are not available for most originating shipments. The limited volumes of imports also suggests that most products moving into the state are handled by truck, increasing costs of both factor inputs (such as bauxite ores) and retail products.

Impact on Montana of Lack of Transportation Competition: Other Than Wheat

The lack of viable competitive alternatives in the transportation of Montana's wheat generates easily identifiable and measurable symptoms – prices for transport services include a substantial supranormal profit, the carrier enjoys a return well above what it could earn in an efficient market, and the producers' margins are correspondingly shaved. The farmers' reduced earning stream translates into a lessening of the market value of agricultural properties, and also acts as a signal to plant fewer acres and perhaps divert land to alternative uses not as rail dependent, such as grazing, and ultimately contributes to depopulation.

Other than for wheat, however, the symptoms are a bit less clear and the height of the fever is not so easily measured. A review of railroad revenue to variable cost ratios, which are the handiest, if somewhat imperfect, indicators of the relative balance between transportation rates and transporter costs, do not in themselves show that there is much amiss in non-agricultural sectors. This raises the possibility that, given railroads' historical anemic to at best middling financial performance, Montana shippers other than wheat shippers are no more captive and no more unprotected from potential

Table 14
Terminating Montana Rail Shipments by State or Province of Origination (2002)

State/Province of Origin	Principal Commodities	Tons	Carloads	No. of Shipments	Carloads per shipment	Avg. length of haul	Revenue	Revenue: Variable cost	Revenue per ton-mile	Revenue per ton	Revenue per carload	Variable cost per carload	Contribution per carload
WY	**Coal, gypsum, hazmat**	**935,504**	**8,599**	**1,523**	**5.6**	**288**	**$ 8,319,152**	**2.36**	**$ 0.0309**	**$ 8.89**	**$967**	**$ 410**	**$ 558**
	Bituminous Coal	*824,264*	*7,151*	*111*	*64.4*	*271*	*6,271,372*	*2.93*	*0.0281*	*7.61*	*877*	*299*	*578*
AB	**Hazmat, misc organic chem**	**246,000**	**2,920**	**2,920**	**1.0**	**919**	**8,010,120**	**1.71**	**0.0354**	**32.56**	**2,743**	**1,609**	**1,135**
WA	**Bauxite ores, lumber, hazmat**	**217,148**	**2,988**	**2,048**	**1.5**	**730**	**5,415,008**	**1.61**	**0.0341**	**24.94**	**1,812**	**1,123**	**689**
	Bauxite ores	*110,348*	*1,112*	*196*	*5.7*	*690*	*2,066,288*	*1.72*	*0.0271*	*18.73*	*1,858*	*1,082*	*776*
	Lumber-rough/flooring, plywood	*52,600*	*600*	*600*	*1.0*	*697*	*1,110,040*	*1.36*	*0.0303*	*21.10*	*1,850*	*1,363*	*487*
ND	**Grain, prepared feed**	**201,360**	**2,368**	**1,908**	**1.2**	**755**	**4,512,780**	**1.42**	**0.0297**	**22.41**	**1,906**	**1,339**	**567**
MN	**Hazmat, corn, TOFC**	**151,328**	**3,664**	**3,288**	**1.1**	**1,018**	**6,456,476**	**1.58**	**0.0419**	**42.67**	**1,762**	**1,114**	**649**
	Corn, corn prod.	*50,604*	*552*	*368*	*1.5*	*1,056*	*1,236,640*	*1.26*	*0.0232*	*24.44*	*2,240*	*1,781*	*459*
	Hazmat	*43,052*	*1,672*	*1,604*	*1.0*	*968*	*2,685,084*	*2.05*	*0.0644*	*62.37*	*1,606*	*784*	*821*
	TOFC, frt nec	*11,440*	*720*	*720*	*1.0*	*957*	*1,028,600*	*2.00*	*0.0940*	*89.91*	*1,429*	*714*	*714*
IL	**Trans equip, TOFC, hazmat**	**135,640**	**6,240**	**6,240**	**1.0**	**1,372**	**13,514,920**	**1.80**	**0.0726**	**99.64**	**2,166**	**1,201**	**965**
	Autos, trucks	*46,760*	*1,840*	*1,840*	*1.0*	*1,442*	*7,008,440*	*2.06*	*0.1039*	*149.88*	*3,809*	*1,851*	*1,958*
	Hazmat	*40,280*	*1,920*	*1,920*	*1.0*	*1,341*	*2,946,800*	*1.68*	*0.0545*	*73.16*	*1,535*	*914*	*621*
	TOFC, LCL	*31,000*	*2,080*	*2,080*	*1.0*	*1,332*	*2,737,680*	*1.63*	*0.0663*	*88.31*	*1,316*	*810*	*506*
BC	**Wood, cement**	**95,160**	**1,040**	**1,040**	**1.0**	**968**	**2,606,520**	**1.34**	**0.0283**	**27.39**	**2,506**	**1,876**	**630**
OR	**Wallboard, lumber, bauxite**	**90,992**	**1,216**	**972**	**1.3**	**816**	**2,572,804**	**1.43**	**0.0347**	**28.28**	**2,116**	**1,481**	**635**
SD	**Soybean meal, corn**	**77,556**	**816**	**660**	**1.2**	**1,075**	**1,888,952**	**1.14**	**0.0226**	**24.36**	**2,315**	**2,037**	**277**
TX	**Beer, ale, hazmat**	**76,640**	**1,000**	**1,000**	**1.0**	**1,907**	**3,505,920**	**1.32**	**0.0240**	**45.75**	**3,506**	**2,654**	**852**
ID	**Barley, lumber, superphosphate**	**71,856**	**728**	**324**	**2.2**	**357**	**1,083,988**	**1.86**	**0.0422**	**15.09**	**1,489**	**799**	**690**
CO	**Paper waste, beer**	**61,640**	**1,330**	**1,054**	**1.3**	**909**	**2,077,648**	**1.04**	**0.0371**	**33.71**	**1,562**	**1,500**	**62**
	Paper waste/scrap	*31,480*	*560*	*560*	*1.0*	*1,009*	*955,520*	0.94	0.0301	30.35	1,706	1,824	(118)
	Beer, ale	*18,484*	*562*	*362*	*1.6*	*792*	*653,628*	0.96	0.0446	35.36	1,163	1,211	(48)
IA	**Feed, soybean meal**	**35,000**	**400**	**360**	**1.1**	**1,345**	**1,374,440**	**1.67**	**0.0292**	**39.27**	**3,436**	**2,060**	**1,376**
MB	**Hazmat**	**34,880**	**440**	**440**	**1.0**	**1,050**	**1,295,440**	**1.79**	**0.0354**	**37.14**	**2,944**	**1,645**	**1,299**
CA	**Used vehicles, petroleum coke**	**32,284**	**616**	**504**	**1.2**	**1,478**	**2,522,712**	**2.08**	**0.0529**	**78.14**	**4,095**	**1,968**	**2,127**
	Used vehicles	*6,520*	*320*	*320*	*1.0*	*1,302*	*1,299,880*	*2.69*	*0.1532*	*199.37*	*4,062*	*1,511*	*2,551*
UT	**Barium,calcium compounds**	**23,560**	**240**	**240**	**1.0**	**716**	**640,000**	**2.19**	**0.0379**	**27.16**	**2,667**	**1,215**	**1,452**
FL	**Superphosphate**	**20,976**	**212**	**104**	**2.0**	**2,741**	**1,058,048**	**1.20**	**0.0184**	**50.44**	**4,991**	**4,147**	**843**
AR	**Steel mill products**	**19,560**	**240**	**240**	**1.0**	**1,825**	**744,400**	**1.02**	**0.0209**	**38.06**	**3,102**	**3,033**	**69**
SK	**Barley**	**18,040**	**200**	**200**	**1.0**	**701**	**452,680**	**1.67**	**0.0358**	**25.09**	**2,263**	**1,355**	**908**
KS	**Hazmat**	**12,720**	**168**	**24**	**7.0**	**1,172**	**510,612**	**2.37**	**0.0343**	**40.14**	**3,039**	**1,285**	**1,755**
OH	**Hazmat**	**12,400**	**200**	**200**	**1.0**	**2,087**	**1,275,960**	**2.43**	**0.0493**	**102.90**	**6,380**	**2,626**	**3,754**
AL	**Coke, cottonseeds**	**10,648**	**140**	**92**	**1.5**	**2,192**	**571,492**	**1.24**	**0.0245**	**53.67**	**4,082**	**3,281**	**801**
WI	**Automobiles, industrial sand**	**10,560**	**200**	**200**	**1.0**	**1,343**	**674,560**	**1.78**	**0.0476**	**63.88**	**3,373**	**1,899**	**1,474**
NE	**Bearings**	**10,360**	**200**	**200**	**1.0**	**701**	**238,880**	**0.93**	**0.0329**	**23.06**	**1,194**	**1,290**	**(96)**
MI	**Used vehicles**	**7,720**	**160**	**160**	**1.0**	**1,688**	**713,400**	**2.08**	**0.0548**	**92.41**	**4,459**	**2,142**	**2,317**
IN	**Automobiles**	**4,800**	**240**	**240**	**1.0**	**1,578**	**829,400**	**1.81**	**0.1095**	**172.79**	**3,456**	**1,905**	**1,551**
NS	**Construction panels, flooring**	**4,760**	**80**	**80**	**1.0**	**3,096**	**763,480**	**2.08**	**0.0518**	**160.39**	**9,544**	**4,599**	**4,945**
MO	**Trucks, hazmat**	**4,720**	**80**	**80**	**1.0**	**1,372**	**369,040**	**2.55**	**0.0570**	**78.19**	**4,613**	**1,812**	**2,801**
LA	**Petroleum lubricants**	**4,360**	**80**	**80**	**1.0**	**2,410**	**232,160**	**1.15**	**0.0221**	**53.25**	**2,902**	**2,526**	**376**
MS	**Agricult. chem, furniture**	**4,240**	**120**	**120**	**1.0**	**2,048**	**306,280**	**0.89**	**0.0353**	**72.24**	**2,552**	**2,855**	**(302)**
OK	**Petroleum refining products**	**3,360**	**40**	**40**	**1.0**	**1,738**	**144,320**	**1.58**	**0.0247**	**42.95**	**3,608**	**2,279**	**1,329**
TN	**Vegetable oil cake**	**2,960**	**40**	**40**	**1.0**	**1,850**	**137,200**	**1.51**	**0.0250**	**46.35**	**3,430**	**2,265**	**1,165**
WV	**Sand, industrial**	**2,880**	**40**	**40**	**1.0**	**2,334**	**146,440**	**0.63**	**0.0218**	**50.85**	**3,661**	**5,783**	**(2,122)**
AZ	**Used vehicles**	**2,640**	**120**	**120**	**1.0**	**1,635**	**439,080**	**1.95**	**0.1017**	**166.32**	**3,659**	**1,880**	**1,779**
ON	**Automobiles**	**840**	**40**	**40**	**1.0**	**1,930**	**165,920**	**1.94**	**0.1023**	**197.52**	**4,148**	**2,134**	**2,014**
Total		**2,640,572**	**37,005**	**26,621**	**1.4**	**773**	**$75,101,232**	**1.63**	**$ 0.0368**	**$ 28.44**	**$ 2,029**	**$ 1,245**	**$ 785**

Source: STB Waybill Sample for Montana, year 2002.

Table 15
Railroad Commodities Terminating in Montana (2002)

STCC	Commodity	Tons	Carloads	Shipments	Average Haul	Carloads per shipment	Freight Revenue	Variable Cost	Revenue to Var. cost	Revenue per Ton-Mile	Revenue per ton	Revenue per Carload	Cost per Carload	Contribution per Carload
11	Bituminous Coal	824,264	7,151	111	271	64.4	$ 6,271,372	$ 2,141,593	2.93	$ 0.0281	$ 7.61	$ 877	$ 299	$ 578
49	Hazmat	371,612	7,200	6,988	1,102	1.0	16,649,656	8,754,452	1.90	0.0406	44.80	2,312	1,216	1,097
20	Food Products	247,864	3,214	2,838	1,068	1.1	6,657,140	5,454,226	1.22	0.0251	26.86	2,071	1,697	374
24	Wood, Forest Prod.	222,808	2,616	2,544	858	1.0	5,840,684	4,628,025	1.26	0.0306	26.21	2,233	1,769	464
1	Farm Products	216,580	2,272	1,128	730	2.0	4,438,836	3,077,197	1.44	0.0281	20.50	1,954	1,354	599
28	Chemicals	127,536	1,292	1,184	1,277	1.1	4,424,088	2,659,849	1.66	0.0272	34.69	3,424	2,059	1,366
10	Bauxite ores	127,100	1,284	204	683	6.3	2,377,088	1,371,443	1.73	0.0274	18.70	1,851	1,068	783
40	Paper waste	99,240	1,800	1,800	1,035	1.0	3,163,000	3,388,477	0.93	0.0308	31.87	1,757	1,882	(125)
32	Stone, clay, glass	85,800	880	880	784	1.0	1,823,440	1,233,707	1.48	0.0271	21.25	2,072	1,402	670
37	Transportation equip.	75,840	3,008	2,972	1,329	1.0	9,987,980	5,143,223	1.94	0.0991	131.70	3,320	1,710	1,611
14	Nonmetallic Minerals	58,560	600	600	553	1.0	1,058,960	846,776	1.25	0.0327	18.08	1,765	1,411	354
29	Petroleum/coal products	54,292	716	556	1,376	1.3	2,472,564	1,464,751	1.69	0.0331	45.54	3,453	2,046	1,408
46&47	TOFC, mixed shpts, LCL	42,000	2,844	2,764	1,182	1.0	3,583,764	2,136,775	1.68	0.0722	85.33	1,260	751	509
33	Primary metal products	41,276	528	452	1,574	1.2	1,592,780	1,311,837	1.21	0.0245	38.59	3,017	2,485	532
411	Used Vehicles	21,160	920	920	1,256	1.0	3,405,760	1,449,198	2.35	0.1282	160.95	3,702	1,575	2,127
26	Paper products	12,960	160	160	1,164	1.0	712,240	390,781	1.82	0.0472	54.96	4,452	2,442	2,009
35	Machinery	10,040	200	200	847	1.0	384,880	276,644	1.39	0.0453	38.33	1,924	1,383	541
422	Trailers, Empty	1,000	240	240	936	1.0	155,200	107,938	1.44	0.1658	155.20	647	450	197
25	Furniture	640	80	80	2,128	1.0	101,800	227,883	0.45	0.0748	159.06	1,273	2,849	(1,576)
Total		2,640,572	37,005	26,621	773	1.4	$ 75,101,232	$ 46,064,775	1.63	$ 0.0368	$ 28.44	$ 2,029	$ 1,245	$ 785

Source: STB Waybill Sample for Montana, year 2002.

abuses of rail market power than those in any other region of the country. In this section, the arguments will be made that (a) Montana shippers, in fact, have among the fewest competitive transportation alternatives in the nation, (b) there is a strong possibility, although evidence is not conclusive, that BNSF's near-monopoly in rail service sharply inhibits the development of value-added industries and deters businesses from locating in the state and (c) non-price exercises of monopoly power may be equally as capable of "chilling" the regional economy as elevated rate-setting.

Railroad Concentration and Montana's Lack of Competitive Options

As shown in Table 16, nearly 40 million tons of rail freight was originated in Montana in 2002, 98.6 percent of which was on the lines of BNSF or its associated carrier, MRL.[59] All but 3.9 percent of the rail tonnage destined for Montana from out-of-state terminated on BNSF. BNSF and MRL handled the Montana origination or termination of 98.4 percent of total state rail tons, on movements which accounted for 94.9 percent of the rail freight revenue in that year.

This dominance in the local rail market is reflected in the proportion of miles of rail line in the state that is operated by BNSF and MRL. Table 17 displays the "one-firm concentration ratio" for U.S. railroads for all 45 states in which a Class I railroad operates. (In the continental U.S., only three New England states with a total of 330 miles of rail line lack Class I service: New Hampshire, Rhode Island and Vermont.)[60] The second column in Table 17 identifies the railroad with the greatest number of miles operated in each state, the third column gives the number of miles for that carrier, and the fourth column displays the total number of miles of road for all Class I and regional railroads. Local railroad mileage is not given as these operators, while able to provide access to larger railroads which may provide market competition, can rarely offer competitive rail service on their own. The final column shows the percentage of Class I and regional miles represented by the single largest carrier by state.

[59] Among the administrative niceties which underscore the fact that MRL is not a competitor of BNSF is that all sampled 2002 waybills for wheat movements originating at elevators nominally on MRL lines indicate BNSF as the originating railroad; BNSF publishes single-carrier tariffs from these locations and, per waybill data, MRL terminates no traffic in Montana which originates on BNSF lines. For official STB waybill purposes, nearly 90 percent of MRL traffic is gasoline, fuel oil and petroleum coke.

[60] There were seven Class I railroads in 2002, defined at that time as a railroad with annual revenues of $272 million or greater. The AAR identifies two other classifications of railroads, "regional railroads' – linehaul carriers with at least 350 miles of road and/or earning between $40 million and the Class I threshold, and all smaller or "local railroads." Including trackage rights, which results in double-counts of mileages, in 2002 the seven Class I railroads operated 99,943 of the U.S. total 141,391 miles of road (14,278 miles average), 31 regional railroads operated 15,048 miles (485 mile average) and 514 local carriers operated 26,400 miles (51 mile average).

Table 16
Rail Carrier Traffic Shares: Montana 2002

Montana Originations

Originating Carrier	Tons	Percent of Total		Revenue	Percent of Total
BNSF	35,799,785	90.7%		$ 602,885,911	91.9%
MRL	3,113,216	7.9%		24,682,512	3.8%
UP	323,528	0.8%		16,614,468	2.5%
CPRS	252,477	0.6%		12,185,762	1.9%
MT Total	39,489,006			$ 656,368,653	

Montana Terminations (Interstate only)

Terminating Carrier	Tons	Percent of Total		Revenue	Percent of Total
BNSF	2,540,884	96.1%		$ 67,124,588	88.8%
UP	92,808	3.5%		8,112,524	10.7%
MRL	11,400	0.4%		333,120	0.4%
MT Total	2,645,092			$ 75,570,232	

Total Montana Traffic

Montana Carrier	Tons	Percent of Total		Revenue	Percent of Total
BNSF	38,340,669	91.0%		$ 670,010,499	91.5%
MRL	3,124,616	7.4%		25,015,632	3.4%
UP	416,336	1.0%		24,726,992	3.4%
CPRS	252,477	0.6%		12,185,762	1.7%
MT Total	42,134,098			$ 731,938,885	

Source: STB Waybill Sample for Montana, year 2002.

Table 17

Largest Railroad Share of Mileage by State[1]

(45 States served by Class I Railroads, 2002)

State	Largest Railroad	Largest RR: Miles of Road	Class I and Regional RR Miles Total	Largest RR as Pct. of Class I & Regional
Montana	BNSF/MRL	2,948	3,131	94.2%
Delaware	NS	203	246	82.5
Idaho	UP	876	1,101	79.6
Kentucky	CSX	1,837	2,385	77.0
Florida	CSX	1,748	2,283	76.6
Utah	UP	1,334	1,770	75.4
New Mexico	BNSF	1,611	2,172	74.2
Virginia	NS	2,144	3,194	67.1
Washington	BNSF	1,849	2,760	67.0
West Virginia	CSX	1,529	2,371	64.5
Connecticut	P&W	312	486	64.2
South Carolina	CSX	1,302	2,097	62.1
California	UP	3,579	5,798	61.7
Pennsylvania	NS	2,508	4,094	61.3
Nevada	UP	1,200	2,009	59.7
Maine	MM&AR	542	914	59.3
Maryland	CSX	565	959	58.9
Colorado	UP	1,799	3,162	56.9
New Jersey	NS	933	1,649	56.6
Nebraska	BNSF	1,700	3,022	56.3
North Carolina	NS	1,441	2,580	55.9
North Dakota	BNSF	2,059	3,785	54.4
South Dakota	BNSF	930	1,729	53.8
Arizona	UP	664	1,259	52.7
Georgia	NS	1,839	3,516	52.3
Wyoming	BNSF	966	1,852	52.2
Texas	UP	6,367	12,344	51.6
Arkansas	UP	1,342	2,604	51.5
Ohio	CSX	2,283	4,525	50.5
Indiana	CSX	1,909	3,867	49.4
Oregon	UP	1,097	2,245	48.9
Tennessee	CSX	1,024	2,111	48.5
Massachusetts	CSX	436	947	46.0
Oklahoma	BNSF	1,198	2,614	45.8
Alabama	NS	1,393	3,149	44.2
Minnesota	BNSF	1,710	3,943	43.4
Mississippi	GTW	843	2,008	42.0
Iowa	UP	1,628	3,943	41.3
Louisiana	UP	1,143	2,784	41.1
Wisconsin	GTW	1,655	4,064	40.7
Kansas	UP	2,355	6,013	39.2
Missouri	BNSF	1,778	4,647	38.3
New York	CSX	1,322	3,599	36.7
Michigan	GTW	1,012	3,151	32.1
Illinois	UP	2,272	8,552	26.6
Forty-five State Total		71,185	137,434	51.8%

Source: AAR, *Railroads and States, 2002*

[1] Total miles of road operated (including trackage rights) by Class I and Regional railroads.

Combined with MRL (which operates on BNSF-owned track), BNSF operates 94.2 percent of the route miles in Montana, a figure close to the share of revenue (94.9 percent) on traffic which the carriers originated or terminated in the state.[61]

The BNSF/MRL share is the highest in the nation – only 296 of the total 3,296 route miles[62] in Montana are operated by other carriers. No other state with meaningful rail operations has a carrier with a share exceeding 80 percent and no state with equivalent total rail mileage has fewer than a thousand miles operated by non-dominant carriers.

Montana's Railroad Monopoly and Constraints on Economic Development

Tables 16 and 17 provide persuasive evidence of the lack of rail-to-rail competition in Montana. What they do not show is the absence of intermodal competition as well. According to the 1997 Commodity Flow Survey,[63] shipments originating in Montana during 1997 – all modes -- are estimated to have totaled 95,778,000 tons valued at $12.996 billion, and moving an average of 326 miles per shipment. (AAR data show that 41,224,000 tons originated by rail in Montana in 1997.) Of the Commodity Flow Survey totals, 52,789,000 tons, or 55.1 percent, valued at $2.793 billion (21.5 percent), produced 62,939 million ton-miles, or 92.4 percent of the transportation effort pertaining to all state originated freight. There was no evidence of any water competition.

The average haul length of rail shipments was 1,136 miles, compared with 168 miles for for-hire truck and 66 miles for private truck. The relative length of haul characteristics was relatively consistent for all commodities in which both rail and truck both had significant shares. Railroads moved nonmetallic minerals an average of 1,312 miles, trucks, 377 miles. Fuel oils moved 1,090 miles by rail on average, 73 miles on trucks. Coal and petroleum moved 1,049 miles and 125 miles, rail and truck, respectively, wood products 1,672 miles and 213 miles, logs 535 and 87, primary metals 1,667 miles and 107 miles. Evident from these data is the fact that by and large, rail and truck operate in wholly separate freight markets for products originating in Montana.

There is one commodity definition for which truck-rail competitiveness is normally assumed: mixed freight, which railroads normally bill as intermodal TOFC (trailer-on-flat-car) or COFC (container-on-flat-car) movements. Intermodal movements tend to include higher-value commodities than the typical bulk products that predominate in rail freight. Intermodal movements include finished, value-added, processed products. A

[61] Montana 2002 miles operated were 2,138 by BNSF and 125 by UP (Class I's), 810 by MRL and 58 by DMVW (regionals); a total of 165 miles were operated by three short lines, Central Montana Rail, Montana Western and Rarus Railway Corp. Since AAR published these data, BNSF acquired the Montana Western and its 52 miles.

[62] This differs slightly from the figure provided earlier in that this figure includes 17 miles of trackage rights. Both figures are from the Association of American Railroads website.

[63] The Economics and Statistics Administration of the U.S. Department of Commerce, the Bureau of the Census (of the same Department), and the Bureau of Transportation Statistics of the U.S. Department of Transportation collaborate on the Commodity Flow Survey, which is published as part of the Economic Census, performed every five years since 1967. The 2002 survey is nearing completion, but the 1997 survey provides the most recent available state-by-state data.

growing proportion of agricultural shipments are specialized, “branded” farm produce shipped in containers. Most products that are shipped intermodally may be moved competitively by truck, although a typical 1,500 mile haul might cost about $70 per ton when transported by truck (assuming a backhaul) and $50 per ton by rail intermodal. The commodity flow survey showed a total of 299,000 tons moving by truck and traveling on average a very limited 192 miles per shipment. The survey generated no rail intermodal movements at all, suggesting the relatively small volume of intermodal traffic in Montana.

The U.S. railroad industry moved 8.70 million containers and trailers in 1997, and 9.35 million in 2002. The 2002 waybill sample generated the following for Montana intermodal freight originations: Five hundred and sixty trailers, averaging 22.4 tons of freight and totaling 12,560 tons, generated freight revenues of $518,000 with variable costs of $444,000 yielding a revenue to variable cost ratio of 1.17. For every intermodal move originating in Montana, there were 16,713 originating in other states.

Table 18 compares the per capita tonnage of rail shipments originating in Montana and the U.S. by two-digit STCC. Montana originates 686 percent as much rail tonnage per capita as does the U.S. generally, and 354 percent when coal is excluded. Montana is obviously a very rail-dependent state. The first grouping of four commodities arrays the highest-tonnage products shipped from Montana, for each of which Montana ships from 8.6 to over 20 times the tons per capita as does the nation as a whole. With regard to the less-common Montana commodities the per capita ratios reverse, and the highest value products -- chemicals, metal products, mixed shipments, transportation equipment – are the ones in which Montana has virtually almost no presence. (Virtually all the Montana-originated transportation equipment is railroad cars that BNSF is shipping to itself; for the U.S. this STCC group consists mostly of new automobiles and trucks.)

Where Montana shows a deficit in per capita output *vis-à-vis* the U.S. in general is in manufactured and processed goods. Pre-independence, the American colonies were prevented from engaging in value-added industries by British colonial policies. Nowadays, investors are discouraged from locating plants in Montana because lack of rail competition and inadequate intermodal service create too many uncertainties in their logistics cost calculations. However favorable critical locational factors – labor cost and quality, land costs, proximity and costs of raw materials – may be, the lack of reliable, competitive premium outbound rail services cripples economic development opportunities. This is a well-recognized phenomenon, one which led CSX and NS to assure competitive access to all eastern seaboard ports in their bid to acquire Conrail, and one which obliged UP to grant BNSF trackage rights to all localities which would otherwise lose competitive rail service before it was awarded the right to absorb Southern Pacific. Today, as one of many examples, the Ports of Indiana economic development strategy is based on obtaining second railroad access to newly-acquired port properties on Lake Michigan. The critical lesson is that economic development, retention of population and encouragement of immigration can rarely be supported in the absence of competitive transportation services. Even when a resident monopoly

Table 18

Rail Tons Originated per Capita, Montana and U.S. (2002)

Commodity	Rail Tons Originating in Montana	Originated tons per capita: Montana	Originated tons per capita: U.S.	Montana per capita: US per capita
Coal	27,135,136	29.81	2.73	1091%
Farm Products	3,769,226	4.14	0.48	864%
Petroleum/coal Products	2,946,136	3.24	0.14	2314%
Lumber or wood Products	2,065,960	2.27	0.17	1372%
Clay, glass, stone	575,880	0.63	0.17	369%
Food Products	521,212	0.57	0.36	161%
Pulp, paper	404,760	0.44	0.13	343%
Nonmetallic minerals	201,008	0.22	0.44	51%
Waste/scrap	99,864	0.11	0.14	80%
Chemicals	80,720	0.09	0.55	16%
Metal products	47,000	0.05	0.19	27%
Transportation equipment	33,772	0.04	0.12	30%
Misc. shipments	12,560	0.014	0.34	4%
Metallic Ores	0	-	0.11	0%
Total		41.62	6.07	686%
Total minus coal		11.82	3.33	354%

Sources: STB Waybill Sample for Montana, year 2002; Bureau of the Census; AAR.

railroad offers high quality services at reasonable rates, prospective investors remain leery of the potential for abuse of market power and are hesitant to locate in the absence of other guarantees that market power can be restrained.

Table 19 reiterates the importance of rail competition in value-added industries, but specifically with respect to agricultural goods. The table shows that virtually all major agricultural product producing states also are significant generators of processed foodstuffs. With the exceptions of Montana and South Dakota, the top twelve states in terms of rail originations of farm products also ship via rail proportionately high tonnages of STCC 20 food products. The obvious reason for this is the lower logistics cost inherent in obtaining raw materials nearby. It is almost always less expensive to process materials near their sources, thereby reducing the cost of shipping raw materials – including that portion of tonnage which will become wastage – than to ship unnecessary tonnage to plants nearer to ultimate markets.

Non-Price Effects of Monopoly Power

Discriminatory practices by monopolist railroads can be manifested not only in substantial discrepancies in rail rates as between shippers, but in quality of service, rail responsiveness to shippers' physical transportation needs (e.g., provision of adequate equipment, reliability and timeliness of service), railroads abiding by promises pertaining to their inducements for shipper investment in railroad-related facilities and equipment, etc. In times of car shortages, for example, captive shippers often find it more difficult to obtain equipment than shippers with competitive alternatives – precisely because the shippers with choices may desert the railroad whereas the captive shipper has no alternative.

In a congressionally-ordered study of rail service quality in the period 1990 through 1996, the U.S. General Accounting Office (GAO), an independent research arm of the U.S. Congress, reported that railways insisted that service levels were "adequate" in the face of profound shipper dissatisfaction. The report states:

> In recent years, shippers have increasingly criticised Class I railroads for providing poor service. Rail service disruptions in the western United States in the summer and fall of 1997 brought national attention to these concerns. Among the problems cited by shippers were an insufficient supply of railcars when and where needed, inconsistent pickup and delivery of cars, and longer than necessary transit time to a destination. In general, railroad officials believe the railroads provide adequate service.[64]

[64] U.S. General Accounting Office, Railroad Regulation: Changes in Railroad Rates and Service Quality Since 1990, April 1999, p. 66.

Table 19

Major Agricultural States: Rail Originations of Farm Products and Food Products (2002)

Originating State	Farm Products			Food Products			Cwt. of Food Prod. per Ton of Farm Products
	Tons (Mill.)	Pct. of U.S.	Rank	Tons (Mill.)	Pct. of U.S.	Rank	
Iowa	20.82	14.2%	1	14.32	14.2%	2	13.8
Minnesota	15.70	10.7%	2	5.29	5.3%	5	6.7
Illinois	14.24	9.7%	3	16.23	16.1%	1	22.8
Nebraska	14.13	9.7%	4	6.24	6.2%	4	8.8
Indiana	11.59	7.9%	5	4.75	4.7%	6	8.2
Kansas	11.59	7.9%	6	3.53	3.5%	10	6.1
North Dakota	11.12	7.6%	7	4.55	4.5%	8	8.2
Ohio	8.48	5.8%	8	2.59	2.6%		6.1
South Dakota	6.18	4.2%	9	0.55	0.5%		1.8
Texas	4.37	3.0%	10	4.63	4.6%	7	21.2
Missouri	3.40	2.3%	11	4.50	4.5%	9	26.5
Subtotal	121.62	83.2%		67.18	66.8%		11.0
Montana	3.29	2.3%	12	0.52	0.5%		3.2
Idaho	2.86	2.0%		1.73	1.7%		12.1
Wisconsin	2.37	1.6%		2.14	2.1%		18.1
U.S. Total	146.12			100.57			13.8

Sources: AAR, *Railroads and States, 2002;* 2002 Montana Waybill Sample; Bureau of the Census, *1997 Commodity Flow Survey*; RLBA estimates.

Normally, it is the customers' viewpoint that is determinative of whether service is "adequate." Normally, if a customer finds that a service provided to it is inadequate, it will find another service provider. It is the utter frustration of being unable to engage competitive rail service that spurs demands for competitive access, to provide another carrier with the opportunity to break a local rail monopoly.

It should be kept in mind that service deficiencies, underinvestment in infrastructure, laggard innovation or innovation which produces unbalanced benefits, are characteristic of monopolistic railroads and, curiously, also of failing railroads under competitive stress. The opportunity should never be missed to mitigate non-price affronts of railroads through first, cooperative endeavor and second, where possible, an economic, competitive response.[65]

Other negative externalities allegedly produced by railroad service and pricing practices include geographical dislocations (railroad market power may be associated with higher rates which act to depress land values and catalyze transitions in productive industries. In these cases, market restructuring, rather than being a response to efficiency-enhancing (if painful) pressures of the marketplace, is in fact a symptom of market distortions, and leads inevitably to economic inefficiencies. The ability of railroads to influence geographical distribution of industry and income independent of the inherent economic strengths or weaknesses of a region is a significant and potentially dangerous matter. In Montana, a cursory examination of demographic trends generates evidence of the influence of railroad presence or absence on the population and prosperity of individual counties and municipalities. The relevance of this issue to the effects of price discrimination is subtle but significant: when railroad rates rise to a level, or service deteriorates to a point, where the consequences are impoverishment and/or depopulation, it becomes a legitimate question as to whether the differentials in price and service as practiced not only utterly fail to generate the cross-subsidy to more price sensitive shippers which is the *raison d'être* for allowing price discrimination, but the railroad may be generating a positive harm – especially if it can be demonstrated that service could be maintained at a remunerative level, if not by the incumbent carrier, than by a substitute. At issue is whether a railroad, acting in its own self-interest, may terminate services which could be delivered at a profit by an alternative provider.

Allowing railroads to price up to the point where only geographic or product competition constrains rates means no more and no less than that the railways are entitled to act as equity partners with their shippers, extracting all possible rents above that needed to keep the businesses afloat. Railways argue that given their self-interest in not pricing in a manner lethal to the golden goose, there is no need to constrain pricing that may

[65] Counterpunching through commercial rather than legal tactics have often proved successful in constraining railroad price and service behavior. Examples include utility buildouts, the development of a bulk port facility to import soybeans in North Carolina, building or threatening to build coal slurry pipelines (and even a competing railroad in the Canadian Prairie Provinces), constructing processing plants – which convert grain, or lumber, or slab to truck-friendly products - in close proximity to primary production areas, private or state acquisition of railroad cars, etc.

merely be “what the market will bear”. The resource misallocation that results from this attitude is obvious: who wishes to invest in any otherwise economically sound venture when all profit is susceptible to capture by a service supplier? What of the farmer who actually faces source competition? What incentives does he have to become more efficient than is minimally necessary to face world competition when the value of any breakthrough is subject to immediate capture by the railway? The long-term interest of the railways is implicated in the misuse of source and product competition. Revenue-maximizing pricing by a monopolist – as is the case where railways are constrained only by source and product competition faced by their shippers – differs depending on whether a long or a short term perspective is taken. Pressure exerted by financial interests on railways inevitably focuses on short term results; pricing to maximize railway profits in the short run, to satisfy the need for strong quarterly results, can have a devastating long-term effect by discouraging development of rail-dependent industry in the monopolists’ service territory.

Other Evidence Regarding Rates and Service

It must be stated, however, that the waybill sample is indicative, and not determinative, with regard to rail rates. The sampling is such that relatively low volume commodities may not show up or stand out in the analysis. (For example, examination of the available year 2002 waybill data disclosed only 560 rail intermodal movements, despite the fact that there must have been more, associated with BNSF intermodal facilities at Billings and Shelby, and with container movements at the Port of Montana.) Information gathered in interviews -- of business development officials and shippers in particular -- reveals that rail rates are indeed an issue with regard to shipment of Montana goods. Interviews brought out BNSF awareness of its monopoly railroad position and the fact that trucking was the only alternative, and consequent BNSF quoting of transportation prices equivalent to those charged by truckers.

Businesses Deciding Against Locating in Montana

Among impacts in Montana from rail freight competition or lack of competition, SB 315 requests a list of businesses that decided for or against locating in the state as a result of the existence of or lack of rail freight competition.

The means used to develop a list of businesses was to interview those knowledgeable on such matters, starting with various business development officials Montana, namely, the heads of the business or economic development authorities in Billings, Bozeman, Butte, Great Falls, Havre, Helena, and Missoula. In many cases, the heads of the economic development organizations suggested others to interview, and other persons interviewed included shippers, truckers and a railroad official.

Six persons interviewed identified 18 specific businesses which they said had made decisions not to locate, or not to expand, in Montana because of railroad issues, in particular high rail rates. In some cases, the persons interviewed preferred that the

businesses not be identified by name. Following are the 18 business ventures identified:

Bridgestone Tire
Cargill (beef-packing) (went instead to Lethbridge, Alberta)
Miller Brewing
White Mountain Milling (durum)
Stone (wood products)
Kawasaki (snowmobiles)
a fertilizer products industry that located in Edmonton, Alberta
a major processor of grains
three wood products firms
three agricultural processing plants
agricultural product packaging for retail
two assembly-of-parts, shipment-of-finished-product businesses
development of a gravel pit for export of gravel

The major processor of grains reportedly stated that it would not locate in Montana because of high rail rates. The three wood products industry firms, in western Montana, reportedly had plans to make significant capital investments, for example, to produce cut stock for furniture, to be shipped out of Montana ready-to-assemble. According to the person interviewed, the rail freight shipment cost "took the incentive out of it". The three businesses reportedly considering opening new agricultural product processing plants in Montana decided against it because freight rates are too high. "There might have been other reasons also," said this interviewee. The "agricultural product packaging for retail" involved preparation and packaging of an agricultural product for retail; in this case the volume to be shipped was too small to be of interest to the railroad. The two businesses planning "assembly-of-parts, shipment-of-finished-product" decided against the venture because shipping was cost prohibitive. The gravel pit development was stopped because the railroad refused to deal with shipments smaller than a unit train; in other words, the volume was too small to interest the railroad.

One business development official pointed out that Montana may not be aware of many of the decisions made by businesses, with regard to locating within the State of Montana, "because we don't hear about them; they do their own research." Thus the listing above of 18 specific instances in which businesses have decided against locating in Montana probably understates the impact.

<u>More on Rail Rates and Service</u>

As reported in Section C, business development officials and shippers also spoke more generally with regard to railroad issues in Montana:

- BNSF is not interested in small volume shipments (stated another way by one official, "there isn't enough product to move by rail").

- Rail rates are as high as truck rates, or almost as high.

Benchmarks: Comparable Issues in Other States

A requirement of this study is to show benchmarks, in order to compare rail rates and competition in the region. This is done earlier in this section of the study, for example in Table 6, which compares revenue-to-variable cost ratios of seven wheat-producing states, showing that Montana and North Dakota have revenue-to-variable cost ratios considerably greater than do Colorado, Kansas, Minnesota, Nebraska and South Dakota, where transportation competition is more prevalent.

There is more to be said with regard to the issues which North Dakota (and perhaps to a lesser degree, some other states) holds in common with Montana.

North Dakota has been particularly active with regard to rate and service issues involving transport of grain. A scanning of Appendix C (Bibliography) will reveal that a number of papers on the subject of this study have originated in North Dakota. U.S. Congressional hearings have been held in North Dakota (March 27, 2002, Bismarck, Senator Byron L. Dorgan presiding), and North Dakota participated in U.S. Congressional hearings in Washington, DC, before the Senate Commerce Committee in July 2002, and before the House of Representatives Subcommittee on Railroads in March 2004.

In spring of 2004, North Dakota performed a study related to its consideration of going forward with a rate case against the state's Class I railroads. North Dakota farmers are said to pay between $50 million and $100 million annually in excess freight rates.[66] Most North Dakota captive shippers are in the northwest part of the state where BNSF is said to charge an estimated 300 to 400 percent over its variable costs.[67] North Dakota's deliberations continue, with decisions expected in December 2004 and January 2005.

It has been said that 20 percent of rail traffic is captive. Unfortunately, Montana has a lot of company.

Impacts of Shuttle Trains

This portion of the study responds to an addition to the scope of work made in the January 29 meeting of the Rail Study Advisory Group at Great Falls: The role of 110-car grain loading facilities will be examined, to include, where quantifiable, the impacts to Montana (benefits and costs) of shuttle trains and the facilities which load them.

[66] John Gallagher, "Bracing for a Rate Case", *Traffic World*, January 13, 2003, page 11.
[67] *Ibid*.

Development of Shuttle Trains

Shuttle trains (also called unit trains) are freight trains in which the entire consist is dedicated to a single shipment, typically of over 11,000 tons, distributed among 100 or more railcars. Special high-capacity systems capable of transferring at least 800 tons of grain per hour load the trains as single strings, completing the task in under 15 hours. Shuttle train contracts provide for shipper use of the train either over a specified period of time (often six to nine months) with increasing discounts based upon the number of shipments made. Union Pacific Railroad (UP) contracts the use of five, ten or 20 trains within a period not to exceed a year; BNSF's most advantageous rates require loading of 24 trains in the contract period. A contracted train set may continuously cycle or "shuttle" between origin and destination with no intermediate handling requirements other than for the occasional removal and substitution of cars for maintenance purposes. Shuttle train contracts also almost invariably provide guarantees of service levels, and a series of penalties and incentives principally focused on schedule adherence by both the shipper and the carrier.[68]

Shuttle trains have been employed in coal movements, both mine-to-export port and mine-to-generating plant for over a quarter century. The volume of coal shipped between many origin-destination pairs is sufficient to support multiple dedicated trains on individual routes. Agricultural shuttle trains have been introduced more recently, with the majority serving corn shippers, reflecting the production tonnage predominance of that grain in the U.S.[69] Among the principal factors for the delayed introduction of shuttle trains for farm products is that the there are no "naturally occurring" origin and destination pairs which can exploit efficient shuttle volumes. Wheat shuttle trains exclusively serve export facilities, as no domestic facility (e.g. flour mills) generates sufficient demand to justify shuttle operations; the three largest domestic wheat receiving facilities in terms of inbound capacity can only accommodate about 75 cars each. Prerequisite to the introduction of shuttle train service for wheat exportation was the construction or upgrading of both elevators and export terminals that met railroads' specifications for track length and structural standards, loading and unloading capabilities, and have adequate storage capacity to accommodate minimum economically viable throughput.

Shuttle trains represent an evolutionary step in the process of improving railroad industry productivity. One of the most important strands in rail efficiency enhancing

[68] BNSF's shuttle train incentive structure (i.e., not including equipment-based penalties that may be applicable to either the railroad or the shipper) generates a maximum rate spread vis a vis 52-car movements of $500 per carload. The incentives include: $150 per carload lower rate, $200 per carload loading and unloading incentives, and up to $150 per carload volume discount (24 shipments). Additionally, a shuttle train carload averages close to 3,700 bushels, whereas unit train carloads average only about 3,400 bushels. A Montana wheat shipper that can take advantage of maximum shuttle train discounts will pay about 20.5 cents per bushel less than a shipper by unit train; 13.5 cents would be attributable to the shuttle incentives and 7.0 cents to the rail car capacity effects.

[69] UP offered its first 100-car rate for grain movements in 1997; that same year, BNSF introduced a $150 discount to its 52-car rates for 104-car trains moving under contract. Weijun Huang, *Shuttle Train Adoption Strategy*, M.S. Thesis, North Dakota State University, 2003.

efforts has been the growth of shipment size, which, for wheat from Northern Plains originations increased sevenfold from an average of about 1.6 cars per shipment in 1981 to about 11.5 cars in 2000. Shipments originating in the Central Plains exhibited an even greater, whole order of magnitude growth spurt, from 1.4 cars to 14 cars over the same period.[70] BNSF offered only single-car rates to wheat shippers until December 1980, when it introduced multi-car rates applicable to a minimum 26 cars accumulated at a maximum of four origins and terminating at a maximum of four destinations. (UP and Soo Line had offered multiple car rates previously; BN resisted pressure to introduce any new pricing mechanism that lowered per-unit charges, and did so only in response to competition. Once the new rate category was created, however, it could not easily be restricted to apply only to regions where BN did not retain a monopoly. Initially, BN had to be concerned about political, operational and administrative complications that would come into play were multicar rates available in, say Kansas, but not Montana. Subsequently, and more pertinently, BN had no incentive to geographically restrict multicar tariffs as long as the rate reductions were exceeded by cost reductions, which clearly was the case.) Later, "unit train" rates were published, which generally applied to blocks of 52 cars, which at the time constituted BN's maximum train consist for crossing the Rockies. Unit train rates are now available to maximum trainload capacity of 120 cars, with a rate breakpoint at 109 cars.

The BNSF shuttle train tariffs apply to shipments of 110 to 120 cars; the difference in shuttle and unit train rates for equal-sized shipments is attributable to the more stringent specifications which shippers must meet to qualify for various shuttle train discounts. Until 1999, BNSF permitted co-loading of trains (that is, assembling a 100-plus car train in two separate locations, possibly including an off-system origin), thus allowing unit train shippers to cooperate in obtaining further rate discounts. The discontinuance of co-loading privileges, at least for those elevators in proximity to shuttle origins, may be attributable to BNSF's attempts to restrain intramodal competition by forcing shuttle users to consolidate elevators on BNSF routes only. More charitably, the impetus may only have been BNSF's intent to make one more, small step forward in the quest to heighten rail productivity, albeit at the inconvenience of its customers. Most probably, canceling co-loading privileges for elevators surrounding shuttle train sites was conceived as a no-cost, added inducement to shippers to convert to the shuttle system by handicapping their competitors. Under any circumstance, suspension of co-loading privileges has rendered it extremely difficult for a short line to successfully operate a grain branch line which BNSF wishes to discard. Without the ability to co-load, the probability that a short line can salvage elevator operations anywhere near a shuttle facility is considerably weakened.[71]

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[70] Bitzan, Vachal, Van Wechel and Vinje; *The Differential Effects of Rail Rate Deregulation – U.S. Corn, Wheat and Soybean Markets*, Prepared for USDA, June, 2003.

[71] And, as is the usual case, if the branch line is not capable of supporting 286,000-pound gross weight (C-114) hoppers, the obstacles to short line operations may be insuperable. C-114 cars, with tare (unloaded) weights nearly identical to C-113 cars (263,000-pound gross) in 2002 transported an average of 20,200 pounds more Montana wheat per car than did C-113's. Partly because of the C-114's improved gross-to-tare ratio, partly simply because of its increased capacity (more of a railroad's costs are variable on a per *car*-mile basis than a per-*ton* basis), C-114's lower rail operating costs about five to seven percent. The inability of most short lines to handle the increasingly popular C-114s, which may account

To take advantage of BNSF's lower shuttle train rates, a shipper must operate a facility which meets BNSF's construction guidelines and have appropriate storage capacity. BNSF maintains very specific requirements for shuttle-capable loading facilities. Such facilities must be able to accept 110-cars in one string -- or having a minimum of 7,300 continuous feet of loop track -- and can load the cars in 15 hours without fouling the mainline.[72] The rail must be 112 pound[73] or greater and 136 pound on the main line turnouts. Maximum grades and curvatures are specified. All crossings must be closed, preferably permanently but at a minimum while the shuttle is on site. Additionally, a dedicated track of at least 225 feet must be provided for BNSF engine storage while shuttle is on-site. Other physical requirements pertain to visual clearance at crossings, construction of inspection roads and walkways, construction of mainline turnouts in both directions, and interior turnout specifications. The cost of constructing the loop track and appurtenant facilities alone is generally $1 to $1.5 million. The cost of a facility with elevators totaling one to 1.2 million bushel capacity (the ten BNSF shuttle loading sites in Montana average 1.12 million bushel capacity), high speed loaders and BNSF-approved track averages in the vicinity of $4.5 to $6 million. Upgrading a unit-train capable facility may be accomplished for about half this amount, although this will also often entail compromises in terms of facility location and overall efficiency of elevator operations.

Shuttle Train Loading Facilities in Montana

In 2002, eleven shuttle-capable facilities accounted for 46.4 percent of Montana's rail wheat shipments, with the remaining 53.6 percent divided between 107 other rail-served elevators. The shuttle facilities shipped an average of 4.63 million bushels of wheat, or 840 percent of the 550,000 bushel average produced by the non-shuttle capable elevators.[74] A common benchmark for shuttle facility viability is a minimum annual

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for half the hopper fleet within the next five to ten years, is excluding the small railroads from handling an increasing percentage of rail traffic, and, in particular, C-114-based shuttle trains. Estimated costs of rehabilitating short line tracks to adequate standards vary widely, but all estimates are prohibitively high. The "286" crisis may be the most significant problem facing short lines today.

[72] The penalty (technically, the loss of an "incentive") for failing to load or unload in less than 15 hours is $100 per car, or slightly over five cents per bushel if failures are sustained at both ends of a movement.

[73] Rail size is commonly stated in terms of weight per yard, in this case, 112 pounds per yard of rail.

[74] No single source provides a comprehensive listing of all Montana elevators; CP serves one facility which originates shuttle trains which conform to the less rigorous volume standards of UP, the terminating carrier. UP shuttles may be as small as 70 carloads, whereas BNSF maintains a 110-carload minimum. RLBA has assumed 118 rail-served facilities and 10 truck-only elevators located in 87 communities based on data from BNSF and MDT. As of March 10, 2004, BNSF's Grain Elevator Directory listed 111 served elevators (including those on lines leased to MRL) located in 70 Montana communities, ten of which are shuttle-capable facilities.

In addition to the localities served by BNSF or MRL, there are seven communities served by other railroads, including CP, UP, DMVW and CMR, and ten communities with elevators accessible only by motor carrier. (MDT, *Montana Grain Production and Transport*, June, 2004.) CP serves one facility which originates shuttle trains which conform to the less rigorous volume standards of UP, the terminating carrier. UP shuttles may be as small as 70 carloads, whereas BNSF maintains a 110-carload minimum.

throughput of six million bushels, or about 15 trainloads per year. This figure is of course variable based on profit per bushel, and throughput will depend mightily on the attractiveness of prices offered producers. Additionally, an operator which also owns terminal facilities may be more focused on the profitability of the port facilities, and attempt to push additional volume to them even if it undercuts the book income statement of the originating facility.

As displayed in Table 20, of the 109.6 million bushels of wheat shipped from Montana by rail in 2002, 50.9 million bushels originated at nine BNSF-served[75] and one CP-served shuttle facilities.[76] In the North Central region, 30.0 million bushels, equal to 65 percent of Montana Department of Agriculture estimates of the region's production of 46.7 million bushels, originated at six shuttle facilities. In the Northeast, two shuttle elevators shipped 15.7 million bushels, 39 percent of the 40.2 million bushels produced.

Table 20
Shuttle Facilities by Region and Owner
(2002)

	Wheat Production (Mil. Bu.)	Shuttle Facilities	Shuttle Facility Volume (Mil. Bu)	Shuttle Share of Production	Volume Per Shuttle Facility Mil. Bu)
Montana	109.9	11	50.9	46%	4.6
Regions:					
North Central	46.7	6	30.3	65	5.1
North East	40.2	2	15.7	39	7.9
Subtotal	86.9	8	46.0	53	5.8
Central and So. Central	15.5	3	4.9	32	1.6
Other Regions	7.6	0	0	0	-
Facility Owners:					
CHS & Affiliates		6	28.4	26	4.7
Columbia		3	19.3	18	6.4
Others		2	3.2	3	1.6

Source: Montana Dept. of Transportation (Tom Steyaert), Montana Department of Agriculture, BNSF, STB waybill sample

In the remainder of the state, where wheat production is significantly less concentrated, three shuttle facilities accounted for 5.2 million bushels, equal to 23 percent of the 23.0 million bushels produced.

Six of the eleven facilities are owned or affiliated with CHS (it is reported that United Harvest is 50 percent owned by CHS), and three are owned by Columbia Grain. Their respective shares of shuttle facilities originations were 56 percent and 38 percent.

Tom Steyaert of MDT has produced a listing of 153 elevators including truck-only operations located in 100 Montana communities. The listing, which he claims to be "around 95 percent accurate" is culled from four sources and was current as of May, 2004.

[75] One of the ten BNSF-served shuttle facilities had no STB sampled loadings in 2002.

[76] Of the 50.9 million bushels, 4.9 million moved in non-shuttle rail configurations. Shuttle *train* (as opposed to shuttle *facility*) shipments were therefore 46.0 million bushels, or 42.0 percent of total rail wheat shipments.

Opposition to the implementation of wheat shuttle train service in Montana is focused on specific alleged impacts:

1. As shuttle facilities must generate large volumes to be economically viable, they must establish very large draw areas. Business is captured from neighboring elevators by offering higher prices to producers; the higher prices are made possible by reduced rail rates and rate incentives. This process may produce results similar to those of predatory pricing by a larger rival: once business is diverted from competitors for a sufficient span of time, the competitors may be forced out of business.[77] At this point, the railroad may raise its rates to the elevator operator, the elevator operator may lower its offers to producers. Depending upon the relative market power of the railroad and the grain marketing company, some sharing of the economic benefits of shuttle service will be made. However, the producers will be as powerless as ever, and not only may be excluded from sharing productivity improvements, but will find themselves subject to increased monopoly power of the elevator operators on top of the monopoly power of the railroad.

2. The extended draw area of the shuttle facility will result in increased average farm to elevator trucking distance. This results in additional operating costs to the producer, increased highway maintenance cost to the county or state, and increased external costs as well, such as more pollution, vehicular accidents, and roadway congestion.

3. Local elevators will be forced to close because of declining business; this impacts jobs, taxes, and community cohesiveness. The cancellation of co-loading privileges for 54-car shippers accelerates this process by depriving these shippers of an important tool with which to compete with shuttle train users. Jobs lost will not be fully compensated for by increased jobs at the shuttle facilities, which are significantly more efficient than older, local elevators, and require fewer hours of labor per unit of throughput.

4. Local elevators located on branch lines may be specifically targeted by shuttle operations. Reduced traffic to these elevators facilitates the railroad's effort to abandon the serving line, which often may be an important intention of the railroad in encouraging conversions to shuttle operations at specific locations on its main lines. By abandoning branch lines, railroads reduce expenses and thereby increase net income, while simultaneously reducing property tax obligations. A consequence of abandonment is that the local elevator will be

[77] In cases where there is common ownership of the local elevator (perhaps on a branch line) and the shuttle facility operator (usually on a main line), the owner's intent may be to rationalize *his* system – keeping all the business by drawing it to the shuttle facility while closing the less efficient elevator. In planning a shuttle facility, a precipitating force may be that the serving railroad and the elevator operator have a common interest in closing down branch line operations. However, in certain cases, it may be politically wise to wait a respectful time before closing a obsolescent facility.

virtually doomed, as will be any other rail-dependent businesses located on the branch line. (A few elevators may survive, as at Circle, by converting to truck-served feed operations, or as at Scobey, by providing multi-truck feeder service to the shuttle facility.)

Many of the impacts described above are quite real; in the June 23, 2004, "Montana Branch Line Study Phase I Plentywood-Scobey and Glendive-Circle" most of these elements were quantified with respect to a single shuttle elevator. That is, the Plentywood-Scobey and Glendive-Glendive rail line abandonment analysis could easily be repositioned as an analysis of the static impacts associated with the Macon shuttle facility.

Truck-Related Impacts

The following rudimentary estimate of the additional truck-related costs incurred by the conversion to a shuttle-based system is premised on a near-total conversion of Montana elevators to shuttle operations; it is assumed that 80 percent of wheat rail shipments will be destined to the Pacific Northwest (PNW) and that 80 percent of elevator throughput is duly converted to shuttles. Assuming 150 million bushels are produced (Montana's average production for the ten years 1994 to 2003 was 152.6 million bushels) and shipped by rail, with 80 percent, or 120 million bushels moving via shuttle, 12 well-positioned shuttle facilities averaging ten million bushels each could serve the entire state.

At the ten-year average Montana yield per acre of 29.0 bushels, about 350,000 harvested acres, would be required to yield ten million bushels. Under the assumption that wheat-producing farmland constitutes 10 to 12 percent of regional land use, each shuttle facility's draw area would have to be in the vicinity of 5,000 square miles, an area equivalent to that of a circle with a radius of approximately 40 miles. Were wheat production to be distributed evenly over the draw area, the average straight-line trucking distance between farm and elevator would be just over 70 percent of the circle's radius, or 28 miles.[78] Adding a 20 percent circuity factor, and the one way average trip would be 34 miles and roundtrip distance 68 miles.

The average elevator from which the shuttle facility would divert traffic may be expected to have an annual throughput of about 2.5 million bushels. Support for this estimate is found in Table 21, which provides a breakdown of 2002 wheat throughput by predominant shipment size of elevators. The waybill sample recorded rail traffic originating at only 44 of the 118 rail served elevators in Montana, so average throughput as shown in the table is somewhat above the average throughput discussed earlier, in which the divisors (denominators) were premised on 118 active facilities. Elevators that shipped predominantly in multicar lots averaged 2.19 million bushels shipped in 2002, unit-train elevators average 2.58 million bushels, and all rail-shipping, non-shuttle elevators averaged 1.75 million bushels. Scaled up from 2002's 110 million bushel harvest to the assumed 150 million bushels, the average non-shuttle elevator would

[78] Only one-quarter of the area of a circle is within a distance from the center of half the radius.

have shipped 2.39 million bushels by rail. As for the shuttle shipping elevators, average throughput at these facilities was probably depressed both because of the poor harvest and also because of questionable economics surrounding the location and construction of some of them. (There is tremendous pressure to open a shuttle facility first, before your neighbor has a chance to destroy you. This phenomenon surely has led to some unwise investment decisions in the industry.) Excluding the shuttle facilities that generated less than two million bushels, the average throughput of the remaining elevators was 6.7 million bushels, and, when "grossed up" to reflect better harvests, this would be the equivalent of an average throughput of 9.1 million bushels. Thus, shuttle facility throughput of ten million bushels is more in line with expected productivity of surviving facilities than is the actual 2002 average volume.

Table 21
Montana Elevators – Wheat Rail Volume And Dominant Shipment Size -- 2002

	Dominant Shipment Size of Elevator					
Bushels Shipped (Million)	Shuttle Facilities	52-Car Unit Train	26-Car Multi-Car	<26 Car	Subtotal Non-Shuttle	Total
10-13	2	1			1	3
7-10	1					1
5-7	1					1
4-5	2	1			1	3
3-4	1	1	3		4	5
2-3		4	2		6	6
1-2	3	4	2	2	8	10
0.5-1		3	1	3	7	7
<.5				7	7	7
Total Facilities	10	14	8	12	34	44
Avg. throughput	5.09	2.58	2.19	0.54	1.75	2.50

Sources: STB 2002 Waybill sample, Montana Department of Transportation (Tom Steyaert)

Given an average elevator with a throughput of 2.5 million bushels, or one quarter that assumed for shuttle facilities, the typical draw area would also be one quarter that of the shuttle facility, or 1,250 square miles. A 1,250 square mile draw area would be equivalent to a circle with a ten-mile radius; average direct distance from farm to elevator would be seven miles and, with circuity added, 8.4 miles on the road. Roundtrip distances would average 17 miles.

The average roundtrip to the shuttle facility would be 68 miles, or 41 miles greater than the 17-mile average roundtrip to the now-obsolete elevator.

At 1,000 bushels per truckload, the new shuttle facility network would require 120,000 roundtrips and 8.16 million truck miles as compared to the same number of trips and 2.04 million truck miles needed to access the pre-shuttle elevator system. At $1.10 per mile, these extra 6.12 million truck miles would cost producers $6.73 million per year, or

5.6 cents per bushel. Including the (unchanged) costs of trucking the 30 million bushels that would not be shipped via shuttle, truck miles would increase 160 percent, from 2.55 million to 6.63 million, and costs would escalate by $4.49 million, from $2.80 million to $7.29 million.[79] Each extra truck mile would also cause 26 cents of highway damage, or $1.59 million per year. Total additional trucking costs (excluding pollution, congestion and accidents) would therefore be $8.32 million per year, or 6.9 cents per bushel.

Shuttle Economics

Given the nearly seven cents per bushel in extra costs incurred, most of which is directly borne by producers, are shuttle train savings worth it? Railroads claim that compared with unit train standards, shuttle trains can move "a third more grain with a third less cars" The resulting improvements in equipment utilization not only lowers railroad costs, but also leads to greater equipment availability and thus the railroad's ability to meet shipper requirements. A number of factors contribute to the ability of shuttle trains to increase rail system efficiency, capacity and to improve shipper logistics. These factors include:

1. Reducing railroad "handling" requirements – eliminating most car switching functions, simplifying dispatching, and minimizing paperwork; together substantially lowering the number of individual tasks that must be completed in order to assemble a loaded freight train.

2. Improving operational efficiency -- lessening movement circuity by bypassing intermediate terminals and rapid loading and unloading of railcars lessens energy consumption and increases productivity of equipment and personnel. BNSF claims that shuttle train railcars generate 240 percent the production as do hoppers in the general grain fleet. (Some contend that much of this utilization gain is attributable to the difference in BNSF's attitude towards smaller versus larger customers.) BNSF also uses its newer and larger grain hoppers – which save about five to seven percent in operating costs irrespective of the form of service in which they are employed -- almost exclusively in shuttle service.

3. Reducing infrastructure requirements – by inducing the consolidation of elevators and encouraging location of shuttle facilities on main lines, shuttle trains render many local elevators superfluous, particularly those that are on branch lines. By reorienting the grain gathering business in this fashion, a railroad can serve

[79] These results may be compared with the analyses prepared for the Montana Departments of Agriculture, Highways and Commerce in August, 1981. In response to BN's introduction of multicar rates in December, 1980, Roger Creighton Associates, Inc. (RCAI) authored a *Grain Subterminal Study* which argued that modernization and rationalization of the grain gathering and transportation networks was inevitable and fast approaching. RCAI recommended the transformation of the Montana elevator system to where ten major facilities, or "subterminals" would handle about 80 percent of the state's production. Based on 1979 production data, RCAI estimated that of 109.98 million bushels handled by public warehouses, 88.69 million would potentially have been diverted to grain subterminals able to exploit BN's 26-car rates. RCAI estimated that, without other assistance, farm truck costs would increase from $2.364 million to $12.257 million, for a total increment of 418 percent of $9.893 million

fewer customers, simplifying operations, but still retain its preexisting volume. More significantly, the railroad can, without business risk, abandon branch lines serving facilities deemed outmoded by industry consolidation, thereby dispensing with substantial capital and operating costs.

4. Perhaps the most crucial contribution that shuttle trains make to rail networks is also the most difficult to measure. What differentiates the move to shuttle trains from earlier introductions of rates applicable to increasingly large shipments is that the shuttle trains are envisioned as components of an entire new logistics network superimposed on the preexisting system. Modern railroad network operations are exceedingly complex; railroads' frequently poor service is not simply a matter of carriers' indifference. Seemingly minor missteps in one location can result in severe disruptions hundred of miles away; the UP "meltdown" following its acquisition of SP was a series of metastasizing failures that took months to rectify despite Herculean efforts by system employees. Network operational complexity, and thus costs and potential for disruption, increases geometrically with the arithmetic increase in the number of nodes. Adding (or subtracting) one location adds or subtracts thousands of possible routing combinations. Shuttle trains operate over their own "virtual network" which has well-defined service standards. Instead of thousands of origins and destinations, there are one to two hundred. By diverting traffic from non-shuttle-capable facilities, the railroad slightly reduces the scale of the underlying network and more substantially reduces its traffic. Since shuttle train shipment sizes are so great, the number of shipments taken off of the underlying network is much greater (at least double) than the number of shipments transferred to the shuttle network. Shuttle operations are also scheduled to a far finer degree than conventional rail operations. Requirements for shipper ordering of equipment and reciprocal guarantees of equipment availability reduces railroad costs by enhancing planning capabilities. Employee positioning is more effective; there is less risk of the railroad being caught shorthanded, trains timing out, or having redundant employees on duty. The net result of simplifying operations is to improve reliability and efficiency, and to increase rail profits.

These benefits evidently are substantial enough, from the perspective of the railroad, to result in investment in a shuttle train program. Enough of these benefits must then get passed on to the shippers (grain companies) in order to induce them to invest in shuttle-capable facilities. Also, in order for the shuttle train shipper to meet his volume requirements, some portion of the cost savings must be used to persuade farmers to shift their elevator allegiances.

Table 22 provides an approximation of the cost savings that railroads can obtain by handling successively larger shipment sizes. The table displays railroad variable costs as calculated by the STB applying its Uniform Railway Costing System (URCS) to Montana 2002 waybill sample traffic. The costs pertain to 40 sample movements from north central and northeast Montana to Oregon and Washington, and average about 1,100 miles for each shipment size grouping; length of haul ranges from 1,030 miles to

1,234 miles. (All sampled moves that fit the criteria of relevant origins and destinations, length of haul and shipment type are reflected in the table.) "Shipment type" is arrayed to reflect the four shipment volume categories encompassed in BNSF's grain freight tariffs. Shipments of one to about 24 cars move under what is conventionally called "single car" rates. "Multi-car" rates apply to shipments of about 25 to 50 cars, with 26 cars being the historically established standard for this category. "Unit train" rates may apply from 50 to 109 car shipments (or in some cases, to 120 cars), with 52 cars the conventional shipment size, which into the 1980's was a limiting factor for BN because of braking limitations involved in crossing the Rockies. Note that CP and UP retain shuttle train programs for both 70 and 100 car trains, and the majority of CP-UP shuttle movements originating in Montana are from 70 to 75 cars in length. A BNSF "shuttle train" is defined as being 110 to 120 cars in length.[80]

Table 22
BNSF -- Variable Costs by Size of Shipment
Wheat from Montana to Oregon/Washington (2002)

	Shipment Type			
	Shuttle	"Unit train"	Multi-car	"Single Car"
Avg. Carloads	109.2	51.8	25.0	3.5
Variable Cost/Carload	$ 1,073	$ 1,213	$ 1,539	$ 1,802
Index	1.00	1.13	1.43	1.68
Variable Cost/Car mile	$ 0.970	$ 1.117	$ 1.410	$ 1.689
Index	1.00	1.15	1.45	1.74
Bushels/Carload	3,717	3,380	3,286	3,421
Index	1.00	0.91	0.88	0.92
Variable Cost/Bushel	$ 0.289	$ 0.359	$ 0.468	$ 0.527
Index	1.00	1.24	1.62	1.82
Variable Cost/Bu vs.	-	$ 0.070	$ 0.180	$ 0.238
Sample Data:				
Sample Size	18	15	5	2
Range of Carloads	104-112	51-52	23-26	1-6
Avg Length of Haul(Miles)	1,106	1,086	1,093	1,072
Min. Haul	1,037	1,030	1,030	1,035
Max. Haul	1,234	1,193	1,210	1,109

Source: 2002 STB Waybill Sample

Shuttle train variable cost per bushel was 28.9 cents, or 7.0 cents below unit train costs, 17.9 cents below multi-car costs, and 23.8 cents per bushel below single-car costs. Per bushel costs for highly efficient unit train movements were fully 24 percent higher than shuttle costs. These amount to significant savings, which are probably understated because no allowance is built into URCS for system rationalization benefits. That is, to the extent that shuttle trains are introduced as part of a program to increase network capacity through simplified train operations, or as a means to retain traffic while eliminating redundant infrastructure – such as branch lines – URCS is incapable of attributing these efficiency enhancements to specific types of movements. (If a shuttle

[80] Note, however, that shipment sizes are frequently a few cars below the purported minimum for a rate category; among the reasons for tendering such "short" shipments is the rejection by the shipper of substandard equipment or the failure of the railroad to supply the full complement of requested railcars.

train facilitates the abandonment of a branch line and thereby saves costs, all URCS movement costs will in some measure be adjusted, not just for the movements which were the proximate cause of the savings.)

Additionally, a "grossing up" of the variable cost savings per bushel reflecting revenue to variable cost ratios is warranted. The reason for this is that most enterprises, being resource constrained, try to maximize dollars of revenue per dollar of expenditure. Say that BNSF can move 400,000 bushels of wheat in a shuttle train at a variable cost of 28.9 cents per bushel. BNSF's total resource expenditure is therefore 400,000 x 0.289 = $115,600. BNSF's rate, at 250 percent of variable cost, is 72.25 cents per bushel, or $289,000 for the trainload. Net contribution to overhead, or earnings above variable cost, equals $173,400. If BNSF expended the same investment -- $115,600 – on unit train moves, it could handle only 322,000 bushels at 35.9 cents per bushel. Marking up the rate to 250 percent of variable cost produces a per bushel rate of 89.75 cents and total revenues of 322,000 x .359 = $289,000. Same cost, same revenue, same profit. But note the difference in the revenue per bushel: 89.75 cents versus 72.25 cents.[81] The shuttle train operation is therefore worth 17.5 cents per bushel to BNSF – not the bare cost difference of 7 cents per bushel.[82] By viewing the value of the shuttle operations as a function of both resource constraints and monopoly power – the latter affecting the percentage markup – the extent of the benefits to the railroad, and the amounts that it may have available to pass on is better illuminated.

The railroad which lowers its own cost structure by instituting shuttle service simultaneously imposes new costs on its customers. Insuperable resistance would meet any cavalier creation of a shuttle system if the railroad failed to make the transition to the new system economically attractive to most of its affected customers. Without a sharing of the savings, elevator operators would not invest in expensive new or upgraded facilities, and facility owners must pass at least enough on to producers if they are to defect to the larger, and on average more distant, elevators.

Given the obvious growth of shuttle programs, it can be assumed that the savings passed on to elevator operators and producers is sufficient to compensate them for the risks they undertake and additional direct costs they incur.[83] The next issue to be raised

[81] Further validating that BNSF's pricing does indeed reflect resource constraints is its actual rate structure. A fairly typical $3,050 per carload rate applicable to unit train shippers would be equal to 89.7 cents per bushel at 3,400 bushels per carload. Shuttle train shippers would pay, depending on qualifying for volume incentives, between $350 and $500 per carload less, or from $2,550 to $2,700 per 3,700 bushel carload. The rate per bushel would be from 68.9 cents to 73.0 cents, or a savings of 16.7 cents to 20.8 cents per bushel.

[82] As noted above, a Montana wheat shuttle train shipper may save up to 20.5 cents per bushel over the rate paid by a unit train shipper. This makes it highly unlikely that the savings that shuttle operations provides for BNSF equals only the URCS-estimated seven cents per bushel.

[83] Many farmers and elevator operators would not be quick to accept this assumption. They claim, and in many instances plausibly so, that decisions to convert to shuttle operations can be driven as much by pressure by the railroad, fear of being forced out of business by a neighboring facility that comes to an agreement to convert first, thereby preempting the local market, and by railroad tactics such as prohibiting co-loading, thus driving *up* non-converting elevator costs, rather than driving *down* costs of facilities that do become shuttle-capable.

is, given that users of the shuttle system accrue some benefit, does this benefit exceed the costs of externalities, or those costs that are borne by society in general. These are the costs of highway damage, pollution, lost jobs, effects of line closures, etc. Other than highway damage costs, other externalities have been estimated only with respect to the Macon facility ("Montana Branch Line Study Phase I Plentywood-Scobey and Glendive-Circle", June 23, 2004) as such estimates would be premature and speculative without specific impact events to assess. However, even if these costs could be reliably calculated for the “statewide conversion scenario,” the resulting economic impact analysis would be inappropriate to form a basis for any but the most limited policy responses.

Impacts so measured are static. A comparison is made of scenario “today” with no shuttles versus scenario “tomorrow” with shuttles. Policymakers should be equally, if not more, concerned with comparing the scenarios “tomorrow without shuttles” with “tomorrow with shuttles.” This is because failure of the state’s agricultural economy to adapt to and accept this very disruptive, far-reaching and essential productivity-enhancing development would undercut the state’s ability to continue to compete in global markets.

Perhaps no other human endeavor has generated a record of continual innovation and product improvement to match the cultivation, processing and distribution of wheat. It is probable that 10,000 years ago Neolithic lake dwellers or farmers in the fertile crescent practiced selective propagation and hybridization of this grass, a full millennium before ancient Mexicans domesticated the precursors of corn and two millennia prior to the Chinese taming of rice. In 1950, average yield per acre of wheat in the U.S. was 14.9 bushels, in 2000, it was 42.0 bushels. Shuttle trains offer another important step up in productivity, albeit in the logistical component as opposed to in the horticultural aspects of the grain industry. Savings of 20 cents per bushel (however distributed between market participants) represents the equivalent of a five to seven percent productivity increase. U.S. farmers cannot afford to forego this improvement, for despite the admirable results over decades of increased U.S. productivity, as seen in Table 23, the gap with other nations is closing. Over the period 1960 to 2004, average U.S. wheat yield per acre declined 34 percent relative to that of the world in general. Relative to with Canada, the major competitor in the HRS wheat export business, domestic yields have declined eight percent in the last quarter-century.

Table 23
U.S. Wheat Yield Per Acre As A Percent of Other Nations

	Year						Change in U.S. Relative Position	
	1960	1970	1980	1990	2000	2004	1980-2004	1960-2004
World	152%	141%	122%	105%	106%	101%	-17%	-34%
Canada	124	117	130	117	117	119	-8	-4
Australia	128	171	234	163	166	143	-39	12
Argentina	160	157	145	139	111	116	-20	-28
EU	90	80	57	52	53	50	-12	-44

Source: Foreign Agricultural Service, U.S. Department of Agriculture

The diminishing advantages that U.S. producers have in terms of yield is reflected in export wheat market shares. Table 24 shows that U.S. 2004 export market share of 26 percent is ten to 20 percent below what it was in the years 1960, 1970 or 1980. Between 1960 and 2004, U.S. wheat exports grew 49.0 percent. But major exporters Canada, Australia and Argentina's exports grew by 138.8 percent over the same period. And global exports, excluding the U.S., increased by 195.9 percent, from 26.1 million metric tons to 77.1 million metric tons.

Table 24
Comparative Wheat Exports, 1960 – 2004
(Thousands of Metric Tons)

	Market Year Exports					
	1960	1970	1980	1990	2000	2004
U.S.	17,799	20,167	41,200	29,106	28,904	26,535
Competitors:						
Canada	9,614	11,846	16,262	21,731	17,316	15,500
Australia	6,456	9,145	9,577	11,760	15,930	17,000
Argentina	1,094	969	3,845	5,592	11,272	8,500
Subtotal	17,164	21,960	29,684	39,083	44,518	41,000
World	43,857	56,479	90,126	103,843	103,170	103,630
US exports as a percent of exports of:						
Canada	185%	170%	253%	134%	167%	171%
Three competitors	104	92	139	74	65	65
World	41	36	46	28	28	26

Source: Foreign Agricultural Service, U.S. Department of Agriculture

Currently, both Canada and Australia are working fast apace at consolidating elevator facilities and modernizing logistics capabilities. Canada replaced the legislated "Crow Rates" in 1984 with subsidized rail rates under the Western Grain Transportation Act. The subsidy was terminated in 1995, and grain shippers now absorb the full cost of transporting grain. These two policy initiatives intensified the consolidation of the elevator system and the rationalization of the rail system – finally having to pay their own way, Canadian grain shippers become serious about cutting logistics costs. Recent elevator consolidations have involved the closure of not only old local elevators, but many newer, large plants. New facilities are capable of handling from 3.5 million bushels to over 10 million bushels annually.

In eastern Australia, GrainCorp, a large marketer, operates over 450 subterminal sites that average 1.8 million bushels of storage capacity each. A typical new Australian elevator is located in Coolamon, which has a draw area extending 100 miles. It has a 2.75 million bushel storage capacity and moved 1.7 million bushels of wheat last year. It can load trains at a rate of 880 tons per hour and trucks at 660 tons per hour.

Yet another reason to increase export logistics efficiency is that while U.S. grain production continues to grow, as seen in Table 25, hard red spring (HRS) wheat production is growing faster. The demand for Montana's chief agricultural product continues to be strong, and Montana should take advantage of every opportunity to ensure that that demand gets satisfied.

Table 25
U.S. Hard Red Spring Wheat Production
(Ten year blocks, 1954-2003)

Crop years	HRS: Bushels (Millions, Avg)	Pct. Change Over Previous Period	HRS as Pct. of U.S. Wheat Prod	Pct. Change Over Previous Period
1954-1963	173.8		15.2%	
1964-1973	238.1	36.9%	16.3	7.1%
1974-1983	377.1	58.4	16.9	3.7
1984-1993	457.0	21.2	20.2	19.7
1993-2003	487.5	6.7	21.9	8.7
Cumulative		180.4%		44.4%

Source: USDA

Conclusions

Shuttle trains bring a benefit to Montana, but there are important costs as well, costs that are not present to the same degree in other states which enjoy greater transportation competition. The Montana shuttle facilities, encouraged and constructed by BNSF and grain storage facilities on the BNSF main rail lines, assure efficient loading and transportation of Montana wheat, and assure continued sale of Montana wheat in a growing demand international market. There is no turning back the clock; these efficient and productive facilities exist throughout the grain-producing states, and dozens have been constructed in other states: Kansas, Minnesota, Missouri, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas and Washington.[84]

On the other hand, these productivity gains include costs to Montana -- some of them the inevitable costs of modernization -- such as loss of local elevators, loss of jobs, loss of railroad branch lines, and increased highway costs (damage, accidents, congestion).

Summary

The foregoing waybill analysis shows that wheat is the commodity which stands out, above all other Montana originating rail-transported commodities, as having a high revenue to variable cost ratio. Based only upon waybill sample analysis, other Montana products do not seem to be burdened with disproportionately high rail transportation

[84] BNSF website: www.bnsf.com/business/agcom/elevator/shuttle/shuttle.html.

costs. However, a limitation of the waybill sample analysis is that it cannot be relied upon in cases of relatively low volumes, and interviews with shippers and others confirm the premise of SB 315 that other Montana products also suffer high rail transportation costs. Coal, the commodity with by far the highest annual originating tonnage in the state (farm products are a distant number 2), has no such problem inasmuch as those railroad customers which order the coal shipments pay for them, and this market is very competitive. The annual economic impact to Montana of high wheat transportation rates is approximately $60 million.

There is another economic impact of the high wheat transportation costs: a depressed valuation of farmland, to the extent of about $1 billion.

Because of high rail rates and poor service, resulting in part from the general absence of two-railroad competition in the state but also resulting from Montana's relatively low population and distance from markets, industries are reluctant to locate in Montana. Quantification of the associated economic impact would be speculative at best, in part because factors other than rail competition affect industry decisions. This is not to belittle the importance of this issue; Montana bears a burden not borne by most other states. Montana competitiveness suffers because of lack of rail competition.

Concomitant with a general absence of rail competition in Montana, there exist a number of economic impacts:

- Increased transportation cost, with regard to wheat in particular but some other commodities as well,
- Decreased wheat production land values,
- Poorer rail service, and
- Absence of rail transportation opportunities which are present where a competitive market exists and where there is greater demand for transportation.

Section E: Potential Benefits of Improved Rail Service on Economic Development

Today's Negative Impacts

Often, benefits are the mirror image of negative impacts. The negative impacts in Montana, resulting from lack of rail competition and mentioned in Section D, are listed here for easy reference:

- High rates for transport of wheat
- Lower market value of agricultural properties
- Diversion of land to other uses
- Reduced rail service to rural locations
- Depopulation of rural communities
- Loss of Montana jobs
- Limited transportation options
- High rates for transport of other Montana products
- Reduced business development opportunities
- Inhibition of industrial location in Montana
- Railcar supply problems
- Untimely rail service
- Lack of railroad interest in small volumes
- Increased use of highways therefore increased highway costs

Factors Other than Competition

It must be emphasized that these impacts are not solely attributable to lack of rail competition; other factors are more or less influential. This study focuses on rail competition because SB 315 is similarly focused; however, this study cites those other factors which along with lack of rail competition contribute to Montana's rail transportation challenges.

Were there transportation competition (including barge and truck as well as rail) in Montana to the extent that it exists in states such as Illinois, Iowa, Kansas and Missouri, then the Montana economy would be improved by $60 million per year in wheat transportation rates alone, and the valuation of wheat farmland would improve by about $1 billion. Were the transportation market in Montana as competitive and robust as that in, say California, Illinois, New York, Pennsylvania and Texas, then Montanans would not be concerned about industries not locating in the Treasure State because of railroad issues.

Were there a robust and competitive transportation market in Montana, then the negative impacts listed above would not obtain.

It is unrealistic to think, however, that changes in the law mandating competitive access (and, for example, other provisions in S.919), would cause Montana's rail issues to disappear. Montana would still have a relatively small transportation market, related to Montana's relatively small population, and secondarily to Montana's geographic position, hundreds of miles from commerce centers on the West Coast and in the Midwest.

In summary, Montana's railroad problems are only partly caused by absence of rail competition and therefore can only partly be resolved by more competition.

Benefits of State-Owned Infrastructure

This portion of the study responds to the SB 315 requirement that the study address an analysis of the costs and benefits of state-owned infrastructure compared with privately-owned infrastructure associated with additional rail lines intended to promote greater rail freight competition.

Assessment of the Potential of New Infrastructure to Provide Rail-to-Rail Competition

Injection of rail-to-rail competition by constructing new infrastructure will not be feasible on a commercial basis other than in an extraordinary circumstance. Public investment in new rail lines would exhibit a poor cost/benefit ratio, and should similarly be discounted as an option.

As discussed in Section D of this report, in 2002, of a total 42.1 million tons of freight shipped by or to Montana establishments, 98.4 percent, or 41.5 million were loaded or unloaded by BNSF or its creation, MRL. Of the $731.9 million in freight revenue that this traffic generated, the two carriers received $695.0 million, or 95.0 percent. This performance was achieved despite the direct presence in the state of another major carrier – Union Pacific Railroad (UP) – and a regional affiliate of a third – Canadian Pacific (Dakota, Missouri Valley & Western). These railroads operate 183 miles of road in Montana, or 5.8 percent of the 3,131 route miles operated by the four carriers combined.

In some other industries, such dominance could suggest that BNSF's customers have voted with their feet and BNSF's market share is bred of great values and fierce loyalty. Wal-Mart, for example, did not grow to ten times the size of its closest competitor by liberally applying exorbitant markups to its products. McDonalds's did not become the dominant fast food retailer by making patrons wait twenty minutes and then overcharging them for cold hamburgers. Unfortunately, BNSF's monopoly does not represent a triumph of capitalism; rather, it has been derived in part by historical circumstance and in part by the notable inability of marketplace economics to assure efficient outcomes in several network industries, including railroads. Many network industries, including providers of local telephone service, gas, electric and water

distribution, etc. all exhibit cost structures which can be antithetical to the proposition that competition ensures lowest possible costs. Industries, such as those just mentioned, which exhibit economies of scale and marginal costs below average costs for extreme ranges of output were once known as "natural monopolies" because the most efficient market structure was one in which there was a single service provider. The costs of constructing redundant utility networks always exceeded, by far, any savings that competition could conceivably provide. Further, market economics failed to provide an answer as to what was an efficient price. In the presence of competition, price will always gravitate to marginal cost. But for those industries, railroads among them, where marginal cost is always below the revenue needed to remain solvent, competitive pricing, at least across the spectrum of products offered, is untenable. Regulation of network industries was instituted not only because of the propensity of monopolists to gouge customers – charge too much -- but also because in the presence of competition, networks would charge too little – competition would become destructive.

This discussion is intended to bring the question of investing in additional rail lines around to a fundamental problem: with deregulation, given BNSF's dominance in Montana, BNSF has been freed to charge Montanans monopoly rents; grain rates are about two and half times variable costs and nearly twice average total costs. In those regions where BNSF faces intramodal competition, the mirror-image problem has emerged. BNSF's average rates in the presence of competition were calculated by the STB to average only 100.6 percent of variable costs. If BNSF priced this way system wide, it would earn only about 70 cents for every dollar it expended; it would be bankrupt within a year.

It may be fair to ask, "well, other shippers are being charged variable costs, why would it be inequitable for Montana to be similarly benefited, rather than remaining in the minority of perpetually abused shippers?" The difficulty is twofold: First, how does one induce a railroad to willingly enter a competitive territory? Assuming that the competition was effective and rates fell to marginal cost levels, the new carrier would lose that 30 cents for each dollar it put into providing service. Any market entry would be commercially suicidal unless it were either supported by substantial, guaranteed state financial support or was a carefully assessed, surgical move that takes advantage of a specific vulnerability of BNSF.[85] The second horn of the new-entry dilemma pertains to the problem of having two gas companies connect your home: say that a second carrier does enter, and both railroads drop rates to variable cost levels. But now you have two rail lines where previously one sufficed to provide adequate capacity. The costs of this redundant capacity could be enormous; both railroads may charge 100 percent of variable cost, but variable cost could be nearly twice what it was previously. Hoped-for savings would dissipate in the explosion of misallocated resources.

[85] One possibility does come to mind – as regionalization of trade (e.g., NAFTA) continues to shift freight movements from the historically preponderant east-west axis and more towards a north-south orientation, pre-feasibility work has started on a high-volume transportation corridor from Alberta through western Montana. Conceivably, a rail element could be incorporated in the project if it could constitute a viable link from Montana elevators to Canadian railroads.

It may be countered that the "additional lines" contemplated would not require the construction of a whole new, fully redundant network. All that is required is a linking of Montana shippers to nearby, competitive railroads. Unfortunately, the rail geography of Montana is such that direct intramodal rail competition of any substance cannot be provided with minor "buildouts." That is, unlike the circumstances a number of large, individual railroad customers have been able to take advantage of elsewhere in the country, there is no non-incumbent railroad which operates lines in sufficient proximity to the State's captive shippers to make it economically feasible to construct physical connections. Successful build-outs have been limited to those situations in which a high volume rail customer, such as an electric generating plant, is located within thirty miles of the lines of a viable second railroad, and intervening land can be assembled and a line constructed at reasonable cost.

To introduce rail-to-rail competition in Montana, a competitor would have to virtually duplicate BNSF's in-state network over whatever portion of the state such competition is to be brought. Build-outs are feasible only where there is a highly concentrated traffic generator that can be accessed with minimal additional infrastructure. Except for coal production in the Southeast quadrant (individual mines in the state can generate three times the tonnage produced by the entire agricultural sector), Montana represents the diametrical opposite situation. One of the banes of agricultural transportation by rail, and a driving force behind the construction of elevators with ever-large draw areas is the low density of production of farm products.[86] One of the implications of the broad distribution of Montana's freight generators is that there would be roughly linear relationship between the amount of investment in new infrastructure and the volume that could be accessed. Replicating 100 percent of BNSF's trackage would provide access to 100 percent of its shippers; build half the mileage, and half the volume would be available. That is to say, scaling a new rail construction initiative will not be of much use in improving financial feasibility. An investor could spend $10 million to lose $3 million a year, or spend $100 million to lose $30 million a year.

None of these disadvantages would be eliminated by transferring financial losses from private sector investors to taxpayers. There are only two readily discernable advantages to public ownership: 1) The State's lower cost of capital should reduce the costs of financing construction and 2) State control over operations could ensure that BNSF and the new entrant don't act as shared monopolists rather than competitive duopolists. However, although the State's cost of capital may be low, the costs of bond repayment will still ultimately fall on taxpayers, which, as a group, does not enjoy discounted interest rates. Nor is it a certainty that the state, as owner, could contract construction at as low a cost as a more flexible private entity might.

To the extent that rail rates would be lowered, they probably will not fall as dramatically as may be desired. Assuming that the State does not engage in predatory practices, a joint rate equal to 100 percent of the publicly-owned railroad's variable cost plus UP's

[86] A single shuttle train will transport 410,000 bushels, or the production of about 22 square miles of harvested cropland.

division of revenue would almost assuredly exceed by a good margin 150 percent of BNSF's current variable costs. Because of the nature of Montana's rail commodity mix, traffic density on the new railroad would be so low, even with a healthy market share, that any possible economies from, say, lower labor rates would not compensate for the higher per-unit costs of overhead. (BNSF line density profits from extensive overhead traffic, this business would not be available to a hypothetical new entrant. Nor would a new carrier easily wrest from BNSF the substantial volume of traffic committed under contract.) Similarly, per-unit of output infrastructure maintenance costs could be well above that of BNSF, as would the capital and operating costs associated with rolling stock, which could not sustain as high utilization rates (or be so profitably rented). Correspondingly, BNSF would have no incentive to reduce rates below that of its competition, unless it were for the purposes of quickly driving the State out of the railroad business.

Operating costs of elevator operators that attempt to take advantage of competition are likely to increase. In order for elevators to access a second railroad, they would first have to invest in accessorial infrastructure – switches, track, land, etc. to avoid interfering with BNSF's properties or violate BNSF operating guidelines. There is good reason why only about four percent of elevators in the U.S. are directly served by more than one railroad. Alternatively, elevators that rely on reciprocal switching by BNSF to connect with the new railroad can, for obvious reasons, expect to find service grudging at best and possibly seriously degraded. Additionally, elevators seeking to juggle orders between railroads would reduce the volume committed to either carrier and thereby sacrifice associated discounts. They may also find that equipment supply has become even more erratic than beforehand. In sum, it is not likely to be prudent, for either private or public sector participants, to invest in new Montana rail infrastructure.[87] It is a separate question as to whether there are benefits to salvage rail lines that otherwise would be abandoned by BNSF.

Potential of Short Line Operations on Former BNSF Branch Lines

More positive, but still at-best borderline prospects would face investment in short line operations on grain branch lines that BNSF otherwise may seek to abandon. Keeping these lines in service may not provide Montana with additional rail-to-rail competition, especially since none of these lines connect with other railroads, but they do provide producers with alternatives in selling their grain, and continued operations can stem local economic decay, serve to reduce highway traffic and, if the lines can be operated profitably, they may perhaps contribute to the tax base. Here, private investment can be feasible, but only under very specific circumstances:

[87] The economic potential of such investments is generally so poor that public investment is much better directed to alternative projects. That being said, we have not assessed, and our comments should not be construed as directed towards the Tongue River proposals. These coal projects, which are economic-development driven and do not threaten BNSF, would have very different operating economics than those intended to create direct intramodal competition.

1. Prior to acquisition, the prospective operator must negotiate binding agreements with BNSF respecting dispatching and interchange protocol, tariff guarantees, switching charges or rate divisions and equipment supply. The terms of each of these elements must be such that the new operator can assure the elevator(s) on the branch that service quality and costs will allow the elevators to remain competitive with neighboring facilities located on BNSF's mainline.

2. If the short line customers' business is anticipated to compete with that of shuttle-capable facilities (i.e., if products are intended for export and the short lines located in a region with high enough production density to support shuttle facilities) then it is essential that BNSF agrees to grant co-loading privileges and that there exists viable co-loading partners on the main line.

3. Non-specialized branch line elevators must not depend on purchasing grain from within shuttle facility draw areas. They should be located sufficiently distant not only from shuttle-capable facilities, but prospective locations for shuttle facilities as well.

4. The volume and distance of grain shipped by branch line elevators which serve as feeders to main-line facilities, and the rail distance to the BNSF interchange must, in combination, provide the branch line railroad with a cost advantage over trucks providing equivalent service.

5. Branch line physical condition must be acceptable. If elevators feed shuttle facilities or they intend to participate in co-loading, they must be able to handle the movement of 286,000 lb. gross vehicle-weight-on-rail cars. If such purposes are not intended, track condition must still be in a condition to allow for relatively inexpensive upgrading to 286,000 lb. capabilities in anticipation of the eventual preponderance of such cars in the national fleet.

6. Anticipated branch line volumes should be greater than approximately 30 carloads per mile of line. Higher cars-per-mile may be required to sustain viability of branch operation depending upon demand elasticities and the resulting flexibility that the rail operator has in setting rates.[88] This requirement reflects the importance of maintenance of way as a component of operating costs. Normalized maintenance-of-way costs for short lines, that is, the level of expenditures that are required on average (in the long run, not any given year) are in the range of $7,000 per mile, which can accrete to a large percentage of total operating costs. These costs are largely fixed, they will be incurred whether the railroad operates one car per year or several thousand. (Maintenance costs do escalate much more noticeably with traffic volumes above those typical of branch lines.) Thus, the more miles of line operated, the greater are the costs that must be spread over a given volume of traffic.

[88] Premium rates would be difficult to extract from a branch line elevator battling to survive.

Even when the line is owned (or leased from BNSF) by private concerns, continued branch line operations will almost certainly require substantial public subsidies. In the vast majority of cases, the track will have been allowed to deteriorate for several years and the costs of rehabilitation will prove prohibitive without government grants.[89] In addition, although this falls into the category of elective support, the state may assist in financing rail equipment. Poor equipment supply to short line customers is a chronic problem, and retention of control over a small fleet may be the only way that the short line can assure reasonable service to its shippers.

Public investment in short line operations does not substantially affect the economics of short line operations, but certain distinctions may be made:

1. Although the state may choose to self-operate a state-owned short line, and, some public bodies do in fact perform this function, the preferable course of action is for the public owner to contract operations to a private concern. Experienced private operators can normally perform operating functions at lower cost and higher quality than can a public entity. (The various forms of contract operations and best practices in conducting the process of obtaining an operator is a substantial topic in itself.)

2. The state should be responsible for rehabilitating the line as early in the process as possible.

3. Under public ownership, operations can be sustained for as long as the government is willing to cover shortfalls in revenues. In contrast, private owners do not hesitate to abandon lines when they become irreversibly loss-producing. Of course, the government may offer to subsidize a failing owner, but it does not have the often-important opportunity (that is available when the line is publicly-owned) of selecting the operator. Government subsidies should be conditioned on the owner complying with service standards mandated by agreement.

The preceding discussion should not engender much enthusiasm about the prospects of financially viable short line operations on Montana grain lines. That is because, despite the level of success that the short line movement has had in the United States over the past 24 years (over 300 short lines were formed out of discarded pieces of larger railroads, and most have survived), the movement towards shuttle train operations and 286,000-pound cars has created far greater obstacles than had existed earlier or are now present in different market segments. Shuttle facilities may easily swallow any short line that falls in their draw area, and Class I connections have no incentive to accommodate short line operations when they will capture the traffic under any circumstance. (The grain will still move by rail; in other commodity sectors, abandonment of a line usually means that the railroad has already lost, or will lose, the business that the branch had previously served.) Equally fundamentally, short line originations of grain undermine the Class I strategy inherent in shuttle systems of simplifying and increasing the reliability of grain transportation. The prospects of

[89] Loans alone may not suffice to keep afloat a short line that earns little above operating costs.

creating a client railroad to a Class I, such as BNSF did with MRL, is far diminished. The advantages MRL provided to BNSF are concentrated in MRL's lower labor cost structure; it serves some of BNSF's lower density lines more efficiently that BNSF could itself, and then turns the traffic over to the large carrier. In the case of abandonable branch lines, no such advantages are available. Even though the branches could be operated by short lines at lower costs than BNSF could operate them itself, BNSF perceives no benefit in keeping the lines in service. With rail service stripped away, farmers are simply compelled to truck their product to mainline facilities; the function of the short lines is provided to BNSF for free, by the customers themselves.

Part Two: What Can Be Done

Section F: Potential Actions to Improve Rail Freight Competition in Montana

The federal government's pre-emption of most matters respecting interstate railroads, and the relatively subdued manner in which it has chosen to safeguard shippers' rights, limits the number and effectiveness of options which may be exercised by the state in addressing transportation shortcomings. The state is not wholly without leverage, however, and it may wield a combination of inducements and mild coercions to improve the lot of its shippers.

Several directions which Montana may wish to consider to relieve the burdens on its shippers and to improve rail-oriented economic development are described below. Options are divided into three categories reflecting the parties or institutions with the ability to adjudicate or otherwise carry out the proposed initiatives – the STB, Congress, or Montana (preferably with its neighbors).

Surface Transportation Board

The Interstate Commerce Commission (ICC), founded in 1887, terminated on December 31, 1995, and, the following day, the Surface Transportation Board (STB) came into existence. The STB performs many of the responsibilities formerly performed by the ICC, and, although officially based within the U.S. Department of Transportation, may make decisions independent from oversight by the DOT.

The federal government, basing its authority on the Commerce clause of the Constitution, retains plenary jurisdiction over railroads (exercised through the STB), preempting State exercise of zoning regulations or eminent domain, and further circumscribing local taxation of railroads and railroad property. Among the critical areas of responsibility over which the STB holds jurisdiction (and which suggest possible initiatives by Montana) are the following:

(1) The right of railroads to merge or acquire controlling authority over other railroads.

Montana may have a future role in opposing a proposed trans-continental merger or in asking for the merger to be conditioned upon improved competitive access to shippers within the state. Under merger guidelines formulated by the STB following the proposed BNSF-CN merger, Montana may possibly be granted some relief if BNSF proposes to merge with an eastern carrier.

(2) The right of railroads to abandon lines or terminate service.

An Environmental Impact Statement (EIS) or Environmental Assessment, which will normally be prepared for most substantive rail construction proposals involving federal action, may also be required for abandonments. A state may insist on the preparation of an EIS or additional environmental investigations in order to stall or make more costly a proposed abandonment.

(3) The right to build rail lines or to cross other railroad lines.

The STB's jurisdiction extends to the construction of a new rail line or approval of a build-out to competitive carrier. Were a second carrier to petition for the right to construct trackage that would provide alternative rail service to a significant portion of Montana's captive grain carriers, and were the STB to approve such a proposal, the extent of trackage required would be enormous, as would be the costs. These costs would have to be made up in rates unlikely to be lower than those offered by BNSF at present.

However, the construction of North-South links either in conjunction with trade corridor initiatives or to bolster CP competitiveness via the DMVW could open up the possibility of more competitive rates available to grain shippers either in the western portion of the North-central grain region or the eastern end of the north-eastern region.[90]

Montana may wish to examine the feasibility of building a railroad within highway I-15, if there is room, or on some alternative routing if there is not, with or without the cooperation of BNSF, UP or CP. This would be costly and controversial, but it is possible that benefits to Montana may equal or exceed the costs. (Texas is planning major new transportation thoroughfares (Trans Texas Corridor plan) that would include rail lines, highways, pipelines and electrical lines along the same corridors, crossing the state.) in the rebuilding of it transportation system. [91])

(4) Adjudication over railroad rates. The jurisdictional thresholds for STB maximum rate authority is a showing that rates exceed 180 percent of variable cost and that there are no reasonable alternative transportation services available (i.e., that the affected shipper is "captive" to the serving railroad.)

STB authority over maximum rates is limited to non-contract movements. The jurisdictional revenue to variable cost threshold and a showing of the lack of reasonable transportation alternatives should be achievable on many Montana-originated movements but usefulness of this remedy is questionable on two counts: first, litigation using complex stand-alone cost (SAC) formula would be very costly (probably in excess

[90] A proposed highway route extending from Edmonton through Calgary, Great Falls, Billings and then south to Mexico has been proposed to take advantage of the transportation trends following the passage of NAFTA. See Swanson and Frazier, eds.; *New Economic Regionalism in the rocky Mountain West*
[91] Bill Stephens, "Texas governor unveils major transportation plan", www.trains.com, January 2002.

of $4 million per proceeding), lengthy, and with uncertain results.[92] Abbreviated review methodology, using "Revenue Shortfall Markup Allocation" would produce, for BNSF (using 2002 data) mandated rates equal to a 2.73 revenue to variable cost ratio – the amount calculated by the STB needed for BNSF to be "made whole" on average, for all of its "captive" traffic – i.e., that now generating revenue in excess of 180 percent of variable costs. This ratio is slightly above BNSF's current tariff rates for Montana grain.

The STB also administers an informal consumer assistance program, which would appear to be of limited use in addressing systemic rate and service problems.[93]

(5) The right to secure competitive access by rail over other railroads' lines.

A railroad be compelled by order of the STB to permit another railroad to use its facilities. The sole non-merger related legal authority for imposed access is the Terminal Access provision of the Interstate Commerce Act. Statutory requirements for grant of access to a second carrier include "practicability," whether it would comport with the public interest, and whether it can be achieved without substantively interfering with the resident carrier's operations. The law is now rarely successfully invoked. As interpreted by the STB, applicants wishing to invoke the provision must also show anti-competitive conduct on the part of the host carrier - e.g. standard antitrust violations such as refusal to deal, predatory pricing, foreclosure of competition, etc. (The provision also addresses grants of reciprocal switching rights, but this is inapposite as there is no obvious prospect of reciprocity.) Generally, the STB has been strongly disinclined to impinge on any railroad's property rights under any circumstance. This rarely-invoked remedy is unlikely to be approved by the STB and would not guarantee lower-rates. Following is an expanded discussion of the Terminal Access provision.

Terminal Access Provision of the Interstate Commerce Act

The Terminal Access provision of the Interstate Commerce Act, 49 U.S.C. §11102, provides the authority under which the Surface Transportation Board (STB) may grant to a rail carrier access rights to terminal facilities and related main-line trackage of another carrier. Prerequisites include a showing that access is in the public interest,

[92] A recent informal survey of recent-year rate cases, conducted by RLBA, indicates that the railroads win more than they lose; odds based on this survey are about 2:1 in favor of the railroads.

[93] According to its website, "The STB has established a Rail Consumer Assistance Program which provides the general public with access to informal assistance with any type of rail-related transportation problem and is administered by the STB's Office of Compliance and Enforcement (OCE). The program is nationwide in scope, allowing anyone with a problem involving a railroad subject to the STB's jurisdiction to reach us by toll-free telephone (1-866-254-1792), by direct E-mail (railconsumer@stb.dot.gov), by using a "Rail Consumer" button on our Web page, or by fax (202-565-9011). All complaints and inquiries received by OCE through this program are handled directly with the involved railroad, usually within two hours of receipt, thus the program benefits every complainant by placing their concerns immediately before the involved railroad, which facilitates a prompt response to the complainant and provides the opportunity for a private sector resolution. Being informal, this process is less burdensome for either party than a formal proceeding, conserves the STB's resources, and provides the parties the opportunity to resolve their issues in an environment that will produce the most satisfactory, timely, and cost-effective result."

practical, and will not substantively impair operations of the carrier providing the access. Satisfaction of these prerequisites is not necessarily determinative, as the provision is permissive and not mandatory. The law also addresses the conditions under which reciprocal switching requirements may be imposed -- in which a carrier's *traffic*, but not the carrier itself -- is provided access to a terminal area. The provision is excerpted below:

§11102. Use of terminal facilities

(a) The Board may require terminal facilities including mainline tracks for a reasonable distance outside of a terminal, owned by a rail carrier providing transportation subject to the jurisdiction of the Board under this part, to be used by another rail carrier if the Board finds that use to be practicable and in the public interest without substantially impairing the ability of the rail carrier owning the facilities or entitled to use the facilities to handle its own business….

(c)(1) The Board may require rail carriers to enter into reciprocal switching agreements, where it finds such agreements to be practicable and in the public interest, or where such agreements are necessary to provide competitive rail service….

Issues and Questions Respecting the Terminal Access Provision:

What is a "Terminal Facility?" The Interstate Commerce Act does not define either "terminal" or "terminal facility." The ICC has held, however, that the term "terminal facility" should be construed broadly for the purposes of §11102:

The Act...does say that "terminal areas" are areas within which carriers "transfer, collect or deliver" freight. 49 USC 10523. The Commission has traditionally included in the term "terminal facility" any property of a carrier which assists in the performance of the functions of a terminal. In addition, since our power to make terminal facilities of one carrier available to another is remedial in nature, the term should be considered liberally. Furthermore, section 11103 is not limited in scope to the terminal itself. Rather, it applies to track within a reasonable distance "outside of" a terminal which is necessary for access to the terminal. In classifying a track as a terminal facility, we look to the use to be made of the track." CSX Corp. - Control - Chessie and Seaboard C.L.I. 363 I.C.C. 521, 585 (1989).

Who has Standing to Petition? Shippers clearly have the right to petition the STB to invoke §11103 in order to provide access to their facilities to a carrier otherwise foreclosed; and a majority of petitions appear to be shipper-originated. Governmental entities have also been granted standing to petition. The Cities of Milwaukee, Hialeah, and Erie are among those who have petitioned, with various degrees of success. Of particular interest is how under old Section 3(5), the ICC granted the petition of the City of Milwaukee to permit the Chicago, Milwaukee, St. Paul & Pacific RR Co. to use the terminal facilities and right-of-way of the Chicago and North Western Ry Co. at a

municipal harbor terminal. *City of Milwaukee v. Chicago and North Western Ry. Co*., 283 I.C.C. 311 (1951).

What are the Statutory Criteria? §11102 empowers (*but does not mandate*) the STB to require the use by a rail carrier of another carrier's terminal facilities and related main-line trackage if the following criteria are met:

(1) use is practicable and in the public interest,
(2) the ability of the rail carrier owning the terminal facilities to handle its own business is not impaired and
(3) use of mainline trackage is constrained to a "reasonable distance."

What is "Practicable" and "In the Public Interest?" More recent cases have been restrictive. In the mid-1980's the ICC began to apply a rigorous showing of a "compelling public interest" before it would intervene. A 1996 STB decision reiterated the requirement for a very strong public interest showing in stating:

While forced terminal trackage rights are an extraordinary remedy, we do not intend to suggest that a shipper can never succeed in an effort to obtain such relief. A shipper must, however, do more than simply show that the carrier's services are not always satisfactory to it. [To obtain access for a competing carrier.] As the ICC noted in Midtec II, there is a difference between using regulatory power to correct abuses that result from insufficient intramodal competition, and using it to restructure service to and within terminal areas solely to introduce additional carrier service." Golden Cat Division v. St. Louis Southwestern Ry. Co., STB No. 41550, April 17, 1996.

In *Midtec*, the ICC suggested that anticompetitive conduct by the resident railroad was not in itself sufficient to ensure regulatory intervention:

"We stated that requests for terminal trackage rights will be considered "on an individual case basis." In so doing, we think that a focus on anticompetitive conduct (or the imminent threat of it) by the carrier possessing the essential rail line is appropriate, but not necessarily exclusive. Midtec Paper Corporation, et al v., Chicago and Northwestern Transportation Company, ICC No. 39021, decided Dec.2, 1986.

Furthermore, before ending this discussion of terminal access, it should be mentioned that it is questionable whether another Class I railroad would be interested in pursuing a case such as this. The railroad would have to weigh the prospective benefits -- revenues and profits to be gained -- against the costs of such an action, which costs would include the ill will of BNSF.

Federal Legislation

Staggers Rail Act of 1980

Several statutory solutions to captive shipper difficulties have been proposed in the quarter century since enactment of the Staggers Rail Act of 1980, *The Railroad Competition Act* (S. 919) being the most recent. Provisions most frequently advanced fall into the following categories:

(1) Expanded compelled access. Notably, Canada has enacted legislation which conveys the right, upon petition, for shippers to employ compliant competitive carriers access over up to 500 miles of a directly serving railroad's line under the rubric of "Competitive Line Rates" or "CLRs," Canadian legislation has also expanded the geographical scope of compulsory interswitching districts, within which railroads must handle each other's traffic if necessary and efficacious. There are several potential forms of open-access regulations which have been developed and which may ultimately prove economically sound.

CLRs have generally failed to achieve their intended outcome because cost savings have been limited, given the operational inefficiency inherent in dispatching individual trains, likely of sub-optimal length, through unfriendly railroad territory, and because of a "live and let live" ethic commonly found in duopolistic settings – the non-resident railroad is less likely to respond to a shippers' entreaties if it wishes to avoid the reciprocal incursion of its competitor on its own tracks.

Railroads on occasion provide access to their lines to non-competing entities, namely shippers. Rarely used in instances where carriers have market power, and also more common when traffic is routed over multiple systems, shipper-owned trains may be moved under "hook and haul" arrangements. Shippers are responsible for the provision of rolling stock and providing an assembled train to be pulled by railroad-owned and operated motive power. Although the availability of shipper-owned equipment may improve equipment availability, and BNSF already provides equipment guarantees to shippers which do contribute equipment to the grain fleet, mandatory "hook-and-haul" service poses many hurdles, both legal and operational, to be of much prospective benefit to Montana's shippers.

(2) Rate arbitration, including "final offer" or "baseball-style" arbitration[94], also as enacted in Canada and proposed in the Rail Competition Act. Among railroad objections to arbitration is its inherent imbalance – the existing rail tariff is a cap to potential arbitrated rates, and therefore a shipper has nothing to lose and a railroad nothing to gain by entering into enforced arbitration. Equally fundamentally, there is no generally accepted standard by which to determine whether or not a rate is "reasonable," thus leading to either a patchwork of random outcomes or, over time, to the use of settled formulas for resolving rate disputes. Although time-testing of

[94] In which each side makes one offer, and the arbitrator picks one or the other, thus inducing the two sides to come up with reasonable offers.

arbitration may establish a customary range of rates, they would still be at core arbitrary and could still involve the institutionalization of a costly and bureaucratic process overlaid on what should otherwise be a straightforward commercial negotiation.

(3) Imposition of penalties on railroads for failing to provide adequate equipment at reasonable rates. Also, rules requiring railroads to accept without discrimination non-railroad equipment which meets industry safety standards have been proffered.

(4) Reimposition of stricter standards respecting common carrier obligations in which railroads must provide railroad service and equipment upon reasonable demand.

(5) Reimposition of stricter anti-discrimination rules respecting rates available to shippers in similar circumstances, a corollary is the reinvigoration of the rule preventing railroads charging higher rates for shippers located in intermediate points.

(6) Restrictions on railroads' abilities to discriminate against other carriers, including measures which would prohibit mistreatment of short lines, overturn the STB's "bottleneck" carrier rule and prohibit arbitrary closing of gateways.

Antitrust Immunity

Railroads retain partial immunity from the antitrust laws of the United States. Some believe that termination of this immunity is the answer to Montana's rail issues.

Among immunities granted by statute are 49 U.S.C. §1132(a), which provides for rail carrier exemption for all actions necessary to carry out a consolidation approved by the STB, 15 U.S.C. §26, which denies injunctive relief under the antitrust laws to plaintiffs in litigation opposing railroads, and 49 U.S.C. §10501, which gives the STB exclusive jurisdiction over rail transportation matters and renders ambiguous the applicability to railroads of many other laws. Further, judicial decisions have expanded the scope of railroad freedom from antitrust restraints, such as Keogh v. Chicago and N.W. Ry. Co., 260 U.S. 156 (1922), which barred treble damage actions arising from injury incurred because of rail tariffs filed with the ICC.

Rail mergers have concentrated market power markedly; in Montana a single railroad retains a market share of over 90 percent. There has been no competition-enhancing change in rail transportation policy to correspond with this increased industry concentration, despite the avowed intent of the Staggers Act to leave rates subject to competitive forces.

It appears to have been the intent of congress to moderate the effects of these immunities, at least with respect to railroad consolidations, by allowing the enforcers of the antitrust laws to have a voice. The ICC Termination Act of 1995 instructed the STB, in making findings with respect to the competitive aspects of proposed mergers, to "accord substantial weight to any recommendation of the Attorney General [i.e.,

Department of Justice (DOJ)]" (49 USC § 11324).[95] In the Union Pacific-Southern Pacific merger case, DOJ argued that the anticompetitive effects of the proposed merger were so great as to require that the application be denied. The STB devoted one third of a page of its 290-page decision to denial of all DOJ requests – a space exactly equal to the 21 lines it used to explain its response to the Save The Rock Island Committee. The STB characterized one of DOJ's concerns as "remarkable" and concluded its discussion with the words: "We strongly disagree."[96] Such admonishments were reserved for a very select minority of interveners.

In December 1999, under pressure from several parties including competing railroads, a proposed consolidation of CN and BNSF sparked reconsideration of merger guidelines applicable to transactions in the United States. The guidelines proposed by the STB involve an extensive expansion of filing requirements and an unprecedented depth of inquiry, all with the intended effect of slowing or halting industry restructuring. Virtually all of the rules eventually promulgated are highly industry-specific. Unlike in Canada, where railroads are subject to the same competition laws as are other industries, the new STB rules have few analogs with the criteria, generally applicable to the rest of the economy, that the U.S. Department of Justice and the Federal Trade Commission apply in their examination of mergers. (See STB Ex Parte No. 582 (Sub-No. 1) Major Rail Consolidation Procedures October 3, 2000; Notice of Proposed Rulemaking.)

Expanding to rail carriers the antitrust principles applicable to the economy in general may limit opportunities for future abuses of railroad power, but the effectiveness of termination of antitrust immunity in resolving today's captive shipper problems, given the *fait accompli* conditions facing Montana shippers and the reluctance to break up existing corporations, is questionable at best.

Montana Actions

As noted in Section D, above, "It should be kept in mind that service deficiencies, underinvestment in infrastructure, laggard innovation or innovation which produces unbalanced benefits are characteristic of monopolistic railroads, and, curiously, also of failing railroads under competitive stress. In either case, malice is unlikely to be the motivating force as neither railroad nor shipper tend to benefit when these behavior patterns occur. The opportunity should never be missed to mitigate non-price affronts of railroads through first, cooperative endeavor, and second, wherever possible, an economic, competitive response. Counterpunching through commercial rather than legal tactics have often proved successful in constraining railroad price and service behavior. Examples include utility buildouts, the development of a bulk port facility to import soybeans in North Carolina, building or threatening to build coal slurry pipelines (and even a competing railroad in the Canadian Prairie Provinces), constructing processing plants – for example, which convert grain, lumber, or slag to truck-friendly

[95] However, DOJ can only challenge an STB merger decision on the grounds that a material error was made; and not on the basis of antitrust principles.
[96] STB Decision No. 44, Decided August 6, 1996, p.198.

products -- in close proximity to primary production areas, private or state acquisition of railroad cars, etc."

States have pursued a variety of legislative programs, some requiring substantial funding mechanisms, others more geared towards developing dispute resolution systems or mildly coercive encouragement to foster more equitable treatment.

Among the more pro-active potential solutions, some of which, in one form or another, have been implemented in other states include:

(1) Work with BNSF. Montana does this, and should continue doing so. Director of Agriculture Ralph Peck met BNSF officials in Fort Worth, Texas, in June 2002, to discuss pricing issues.[97] BNSF employs an agent stationed in Helena, Pat Keim, and the State of Montana utilizes this BNSF point of contact for appropriate liaison. The State also should make full use of the recently-appointed BNSF ombudsman for the states of Montana, North Dakota and South Dakota, Jonathan Long.[98] Long is based in Fargo, North Dakota. Although discussions with BNSF are not likely to be a final answer to the various rail problems, they represent one avenue available to Montana to discuss mutual issues with BNSF and to obtain that railroad's reactions.

(2) Work with Other Class I Railroads to Promote Competition

This is of major importance to Montana, Montana has done this, and the State has enjoyed a degree of cooperation from other Class I railroads. CP put its own money into recent upgrade of the DMVW Westby-Whitetail rail line, and the State of Montana has provided over $800,000 in federal Local Rail Freight Assistance grants to the same line, over the last five years. UP has been helpful in enhancing competitive rail service at the Port of Montana at Butte. The State of Montana utilized a federal Local Rail Freight Assistance loan to construct a grain terminal at Silver Bow 20 years ago; this facility is operated by Scoular Grain and UP transports export wheat out of Montana, to Pacific Northwest ports. Reportedly the presence of competition has caused BNSF to maintain low rates, and even offer incentives, to shipments from a nearby competitors using BNSF service. Where there is competition, Montana sees rates drop.

BNSF and CP both serve the border between the United States and Canada at Sweet Grass, Montana, and Coutts, Alberta. Montana officials had discussions with CP with regard to securing trackage rights over BNSF so that CP could provide rail service to Shelby, 36 miles south of Sweet Grass. The idea was that CP would be a competitive option to BNSF with regard to agricultural and other products, with 110-car loading facilities bringing in grain from 100 miles. CP reportedly looked into the possibility and said Montana could go through the Surface Transportation Board, but not with any great chance of success. Interest waned when BNSF eliminated its inverse rate structure.

[97] "Montana Grain Shippers Give CP Warm Welcome", *Rail Business*, June 10, 2002, page 5.
[98] "BNSF Improves Business Processes to Prepare for 2004 Grain Harvest", BNSF News Release, Fort Worth, Texas, May 4, 2004.

In spring 2002, Montana grain shippers conferred with Governor Martz, promoting CP as a shipping option to BNSF, and state officials said they met with CP executives several times in an effort to bring more rail competition to Montana.[99]

An article appearing two years ago in *Railway Age*, reporting a speech in Calgary by Canadian Pacific Railway CEO Rob Ritchie, also stated that "[a]n improved rail corridor could allow Canadian Pacific Railway to offer a NAFTA intermodal train originating in Edmonton and entering the U.S. in Montana."[100]

If CP rail service cannot be brought to Shelby, grain can be trucked to Sweet Grass for onward movement by CP. The Columbia Grain facility at Sweet Grass loads 100-car wheat trains on the Canadian border; this grain is conveyed by CP to Pacific Northwest ports.

The opportunity for significant change in this area perhaps is limited by (1) feasibility with regard to the geographic extent to which competitive Class I railroads can enter into Montana and (2) the ability of those railroads, especially at this time when all Class I railroads are at or near capacity, to provide additional service to Montana. Nevertheless, these are competitive options which deserve consideration and reinforcement.

Aside from the above-described efforts, it may be possible to promote greater utilization of the points at which two-large-railroad competition exists today: Butte (BNSF and UP), northeast Montana (where the DMVW, which connects to CP, comes within seven miles of BNSF), Sweet Grass (BNSF and CP). Additionally, there may be ways to promote highway access for Montana products to barge and UP terminals in Idaho (see item (5) below).

(3) Reevaluation of state railroad taxation practices. Despite the enactment in 1976 of federal law which prohibits discrimination against railroads in property taxation, many states may inadvertently be discriminating in favor of railroads by undervaluing their taxable assets, particularly those with which carriers have been able to collect monopoly rents such as grain lines and rail equipment employed in areas in which no meaningful competition is present. Monopoly-based rates, after all, increase the value of rail properties while depressing the value of taxable properties which produce the goods which are transported by railroads.

Creative use of tax policy bears further discussion. Tax policy may be targeted to better capture the costs of highway damage occasioned by the shift to shuttle facilities and the abandonment of short lines, encourage the retention of local elevators as feeder facilities and cause railroads to surrender a portion of excess profits garnered through excessive rates.

[99] "Montana Grain Shippers Give CP Warm Welcome", *Rail Business*, June 10, 2002, page 1.
[100] Alex Binkley, "Are passenger trains in Canadian Pacific's future?", *Railway Age*, May 2002, page 19.

Highway damage. Each mile that a grain-carrying truck travels on Montana roads exacts an estimated cost of 26 cents in highway maintenance expense. (For a truck averaging five miles per gallon, the 27 ¾ cents per gallon special fuels tax captures only about five and one-half cents per miles, or about one-fifth of this cost.) In the Section D discussion of shuttle facility impacts, it was pointed out that a 10-million bushel throughput shuttle facility would, on average, have a draw area four times the size of a more conventional two and one-half million bushel elevator, and add an estimated 41 miles (68 miles versus 17 miles) to the average farm-to-elevator roundtrip.[101] The additional 41 miles equates to a burden imposed on localities and states of just over $10.00, or one cent per bushel for a typical 1,000-bushel truckload. Two cost-recovery tax initiatives are:

(a) Impose a graduated tax on elevators based upon throughput. Given that the larger the throughput the larger (in general) the draw area, a 10-million bushel facility should be taxed one cent per bushel to compensate for additional road damage; a five-million bushel facility, which would generate average roundtrips of 34 miles, or 17 miles above the base, would be taxed at about four-tenths of a cent per bushel (17/41 x one cent), smaller facilities would be exempt. The tax could be applied either directly to the elevator or to the loading railroad, to mitigate complexities involved in calculating tax rates applicable to multiple-facility rail locations.

The effect of the tax would be marginally to reduce the attractiveness of converting elevators to handle shuttle trains. This would not be done for the purpose of forestalling the inevitable, but to encourage the more efficient allocation of resources by more specifically assigning responsibility for costs to the cause of those costs. It is immaterial whether the tax is assessed directly against the railroad or the elevator. If assessed against the elevator, and if the railroad with monopoly power is in fact exercising a profit-maximization strategy, then, in theory, the railroad would absorb the majority of the tax by lowering its rates accordingly, as failure to do so would reduce incentives to develop shuttle-capable facilities.

Exemptions from the per-bushel tax may be applied to the extent that a large elevator employs a pre-existing local elevator as a feeder facility. If the feeder facility is located on a branch line which maintains rail service, an additional credit may be considered. A highway-damage-avoidance credit in conjunction with BNSF affording co-loading privileges to a short line operator may be packaged (to mutual benefit) to maintain the economic viability of otherwise threatened facilities, such as Big Sandy.

(b) Apply the special fuels tax to railroads, with an exemption accorded to the proportion of revenue ton miles operated in the state which pertain to rail movements, such as coal, which do not require feeder service via highway. Railroad policies encouraging larger elevators or abandoning branches have a direct impact on the use of public

[101] The estimates in Section D assumed, for purposes of simplicity, non-competing and non-overlapping draw areas. Given the reality of overlapping draw areas (Macon, Poplar and Wolf Point come to mind) the actual draw areas may be relatively larger.

highways; railroads should accept a portion of the responsibility for their profit-oriented policies by paying a portion of the public costs.

Tax rates. The profitability of railroad assets located in Montana is substantively enhanced by railroad rates being made without need for due consideration of competitive alternatives. Montana's property tax and corporate tax systems do not appear to take this fact into account.[102] Railroad ability to recover higher state taxes from shippers will be constrained to the extent that the railroads are already charging "what the market will bear." Possible modifications of tax policy (which may be negotiated in exchange for railroad rate and service concessions) include:

(a) Assessment of income attributable to state operations. The 6 ¾ percent state corporate income tax is calculated based upon a mélange of factors which may in toto understate the excess of revenue over variable and allocated fixed costs earned by in-state operations. Virtually all of BNSF's system-wide earnings above variable cost are generated by the fraction of traffic which is charged above the STB's jurisdictional threshold of 180 percent of revenue to variable cost; net income attributable to Montana shippers must therefore assuredly be well above the fraction of gross income, or car miles, that is allocable to the state.

(b) Assessment of property taxes. Property tax assessments pertaining to railroads have been contorted over the past 28 years by federal legislation prohibiting anti-railroad tax discrimination.[103] This legislation has generated a large volume of litigation and a resolution of the Multistate Tax Commission seeking to undo the damage the federal law has caused.[104] (It is an interesting exercise to explore the many instances

[102] RLBA is not expert in tax matters, nor is it conversant with details of the ongoing reassessment of Montana Property tax appraisal system. However, a reexamination of rail-related tax methodologies does appear to be a promising subject for knowledgeable examination.

[103] Section 306 of the Railroad Revitalization and Regulatory Reform Act of 1976, 49 U.S.C. 11501 (4-R Act) protects railroads from discriminatory tax assessments. Section 306(b)(1) of the Act provides in relevant part that "a State" or "authority acting for a State" may not "[a]ssess rail transportation property at a value that has a higher ratio to the true market value of the rail transportation property than the ratio that the assessed value of other commercial and industrial property in the same assessment jurisdiction has to the true market value of the other commercial and industrial property." 49 U.S.C. 11501(b)(1). Relief may be granted "only if the ratio of assessed value to true market value of rail transportation property exceeds by at least 5 percent the ratio of assessed value to true market value of other commercial and industrial property in the same assessment jurisdiction." 49 U.S.C. 11501(c).

[104] Resolution 99-101
Railroad Revitalization and Regulatory Reform Act

WHEREAS, the Federal Courts of the United States have interpreted the Railroad Revitalization and Regulatory Reform Act of 1976 (4-R Act) to permit federal court review of a railroad's claim of overvaluation of its property; and

WHEREAS, the 4-R Act has been expanded by these courts to encompass far more than originally intended by effectively creating a privileged class of taxpayers who may avoid the traditional state or local judicial and administrative review process required of all other taxpayers and by applying the prohibitions of the 4-R Act to taxes other than property taxes; and

where railroads have professed poverty in lowering the values of assessed properties, only to produce widely inflated estimates of value when states or localities wish to purchase rail lines for passenger use.) Currently, following a formula intended to comply with the 4-R Act, Montana railroad property is taxed based upon 3.88 percent of market value, which is the calculated average percentage applicable to all Montana commercial property.[105] Clearly, under the law, the tax base can be increased by at least five percent, to 4.07 percent. However, an analysis could be undertaken to determine whether the state-average tax percentage is in fact the appropriate base under 4-R act strictures. Under the State's property tax classification system, the most comparable classes of property are those pertaining to other network industries – all of which have taxable value percentages of from six to 12 percent. Pipeline and electric distribution properties in particular (class 9) are assessed at the highest rate.[106] It is

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WHEREAS, these decisions substitute the federal courts for state and local assessment review bodies and make it difficult for local governments and school districts to determine their tax base or receive even preliminary payment of taxes until years after the taxes are due; and

WHEREAS, railroads and all taxpayers are provided protection by the United States Constitution; and

WHEREAS, such other industries as natural gas pipelines, electric utilities, and telecommunications have either actively sought or expressed an interest in obtaining federal legislation extending the privileges of the 4-R Act to themselves; and

WHEREAS, legislation has been introduced in previous sessions of Congress which would have amended the 4-R Act to limit the railroads' privileged access to federal courts by requiring the railroads to exhaust all available state or local judicial and administrative remedies prior to review by the federal courts of a claim of overassessment, repeal the "any other tax" provision, and clarify that federal courts do not have the authority to review railroad valuations determined by state and local assessors; and

WHEREAS, since 1996 the U.S. Supreme Court has issued a number of decisions reaffirming the States' 11th Amendment sovereign immunity from suits in federal court, which in turn has led some federal district and circuit courts to dismiss 4-R actions brought against state and local governments for lack of jurisdiction; now therefore

BE IT RESOLVED, that the Multistate Tax Commission will continue to seek via the legislative and judicial process, an equitable resolution to taxpayer inequities caused by the 4-R Act.

Adopted the 30th day of July 1999, by the Multistate Tax Commission.

[105] Montana Code Annotated, 15-6-145. Class twelve property -- description -- taxable percentage. (1) Class twelve property includes all property of a railroad car company as defined in 15-23-211, all railroad transportation property as described in the Railroad Revitalization and Regulatory Reform Act of 1976 as it read on January 1, 1986, and all airline transportation property as described in the Tax Equity and Fiscal Responsibility Act of 1982 as it read on January 1, 1986.

(2) For the tax year beginning January 1, 1991, and for each tax year thereafter, class twelve property is taxed at the percentage rate "R", to be determined by the department as provided in subsection (3), or 12%, whichever is less. [CURRENT RATE = 3.88%]

(3) R = A/B where:

(a) A is the total statewide taxable value of all commercial property, except class twelve property, as commercial property is described in 15-1-101(1)(d); and

(b) B is the total statewide market value of all commercial property, except class twelve property, as commercial property is described in 15-1-101(1)(d).

[106] Classes of Property

certainly arguable that it is not discriminatory to assess railroads at the same rates as other comparable business properties.

It is very important, if a new tax policy is devised, to avoid any action which could result in a “transfer” of the tax burden, by the entity being taxed, to the wheat producer. Also, it seems appropriate to direct the revenue resulting from any such tax not to the general fund, but to where it will do the most good in mitigating adverse effects of the current situation, for example, the revenue could be directed to assist non-shuttle-train movers of wheat, or to repair highway damage.

(4) Interstate compacts which may redouble the efficacy of single-state solutions because two or more states working together are more potent politically than one state working alone. North Dakota currently is considering filing a rate case with the Surface Transportation Board. Other grain-producing states, to perhaps a lesser extent, have service and price issues with the Class I railroads. The Western Governors' Association is a forum which has addressed railroad issues.

(5) Develop various means to assist Montanans impacted by high rates and poor service. This might include assistance in transporting goods by highway to existing points of competition: Butte, Sweet Grass and Whitetail-Westby, as well as barge loading facilities in Idaho. There are no doubt many possibilities; following are two:

Develop legal structures to facilitate growth of producer transportation investment cooperatives (formation of a cooperative to coordinate and enhance transportation). The "legal structures" may have state-given tax benefits which assist, for example, grain-producer cooperatives in the transportation of their product.

Create rural transportation infrastructure authorities. This option is not intended to be limited to rail transport, but includes also highway transportation opportunities, in a coordinated fashion, to improve the lot of the ag producer. (The Montana Code Annotated (MCA) authorizes two or more counties by joint resolution to create a regional rail authority (MCA 7-14-1621). Such an authority could construct or operate a railroad.)

The property classification system is as follows (Tax Year 2004 taxable value percentages are in parenthesis)

Class 7	Qualifying rural electric associations (8%)
Class 9	Real & personal property of pipelines and the non-electric generating properties of electric utilities (12%)
Class 12	Real and personal property of railroads, railroad car companies, and airlines recalculated each year (3.88% for tax year 2003,)
Class 13	Real & personal property of telecommunication utilities and the electric generating property of electric utilities (6%)

Source: Montana Department of Revenue web site

Section G: Advocacy Activity

A broad assortment of associations and lobbying groups are or have been active in rail regulatory issue formulation and advocacy.[107] At the national level, most lobbying efforts have been directed to either the STB, which regulates railroads, or the House Transportation and Infrastructure Committee and the Senate Commerce, Science and Transportation Committee, the congressional committees with jurisdiction over freight railroads.

A weakness inherent in much railroad policy advocacy work is the fact that transportation is only one of several issues or cost concerns affecting shippers; corporate shippers rarely focus on rail transport, leaving matters of logistics to a shipping department or logistics office which is one of several cost centers and is headed by an officer below the vice-presidential level. Rarely do transport issues attract the attention of boards of Directors. Railroads, on the other hand, support a highly focused and potent lobbying arm, the Association of American Railroads (AAR).[108]

A second railroad association represents carriers that often have very different interests than the large railroads represented by the AAR. The American Short Line and Regional Railroad Association's (ASLRRA) 400 members operate and maintain nearly 30 percent of U.S. rail route mileage, and account for about ten percent of the industry's revenue and employment. These smaller railroads often find themselves at the mercy of their larger brethren, and therefore often join cause with shippers.

Two shipper-advocacy associations The Alliance for Rail Competition (ARC) and Consumers United For Rail Equity (C.U.R.E.) are notable for their focus on rail freight matters, and will work in concert, as in their mutual support for the Rail Competition Act. ARC, formed in 1997 in the wake of the UP "meltdown" has developed a more agriculture-sensitive role than C.U.R.E., which was founded in 1983 soon after the passage of the Staggers Act and has been more concerned with large bulk shippers, such as in the coal and electric generation industry.

As described in their respective websites:

> *ARC is a diverse group of shippers and industry trade associations that formally organized in March 1997 in response to growing concerns over deteriorating rail service. Members of ARC include businesses representing a broad cross-*

[107] This section of the report does not claim to provide a comprehensive list of such organizations, although principal actors are listed. The hundreds of rail passenger advocacy groups are entirely omitted.
[108] AAR members include all major freight railroads in North America. According to its website, "Much of the AAR focus is on Washington, bringing critical rail-related issues to the attention of Congressional and government leaders. By working closely with lawmakers and regulators, we help ensure that North American freight railroads remain the best in the world."

section of industry segments, including agriculture, coal, consumer and industrial products, chemicals, minerals and petrochemicals.

Companies involved in ARC's efforts recognize that the current regulatory interpretation of the 1980 Staggers Act has strayed significantly from the pro-competitive intentions of that law. After significant efforts to rectify the regulatory approach to rail competition, ARC has recognized that the STB will continue to apply its anti-competitive interpretations until such time as Congress directs it to do otherwise. ARC members are not looking for more regulatory intervention. Rather, they are looking for the ability to negotiate with their rail carriers in a free market environment where customer choice—not monopoly power—determines the type and quality of service received.

And:

First formed in 1983, Consumers United for Rail Equity (C.U.R.E.) is a coalition of captive rail customers focused on congressional and administrative policies that affect the development of competition in the freight rail industry.

A captive rail customer is a company or other entity that has no other option except to ship their product via a single railroad. These shippers normally transport bulk commodities -- such as coal, grain, chemicals and other commodities -- that cannot be shipped economically by truck, or for which barge transportation is not available. In addition, many of these shippers need to move oversized loads and certain hazardous materials that cannot, by law, move on our nation's highways. The result: they MUST utilize railroads to transport their products. When their only transportation option is a single railroad, they are a captive shipper.

C.U.R.E. was originally founded to seek legislative reform of the captive shipper protections contained in the Staggers Rail Act of 1980. Today, C.U.R.E. represents captive rail shippers that are seeking pro-competitive changes in law and federal policy to help protect captive shippers against current rate and service problems and promote the development of effective competition in the freight rail industry.

UP views the combined threat of these groups, along with their many allied industry-specific associations, as serious. Referring to the Railroad Competition Act (S. 919), the UP employees' website warns:

Both bills have the backing of a strong coalition of shipper groups. Consumers United for Rail Equity (CURE), the Alliance for Rail Competition (ARC) and the American Chemical Council (ACC) have joined forces to promote "open access" on railroads. These coalitions represent major chemical companies, wheat growers, utility companies and some paper companies. In the past, we've been able to deflect re-regulation proposals in part because the shipper coalitions have

> *been split on their legislative remedies for the perceived lack of competition on railroad rates and service. With S.919 and H.R. 2924, the full weight of these shipper groups' support is significant.*

A third non-industry specific transportation association is the National Industrial and Traffic League (NITL) which is older, larger, and more multifaceted than the two previously mentioned groups. Rail is only one of several modes and areas of interest of NITL, and, as its website indicates, "*The League has long been recognized as a leader in developing and formulating freight policies over all transportation modes. Both domestically and internationally, the League is respected and is looked to as a reliable and credible resource in understanding how new initiatives will impact the freight industry".*

Several other organizations represent individual shipping industries, are state or regionally focused, and may be governmental agencies with economic development responsibilities. These organizations are normally concerned with rail transportation as but one of many issues affecting their constituencies, but, in certain industries, rail policy can be of great significance. Agriculture is one of those industries, and STB hearings in July of this year[109] drew notices of intent to appear from the following agriculture-based groups and agencies:

American Farm Bureau Federation
American Soybean Association
Colorado Wheat Administrative Committee
The Fertilizer Institute
Idaho Barley Commission

Idaho Wheat Commission
Kansas Wheat Commission
Montana Wheat & Barley Committee
National Association of Wheat Growers
National Barley Growers Association

National Corn Growers Association
National Council of Farmer Cooperatives
National Farmers Union
National Grain and Feed Association
National Grain Sorghum Producers

National Industrial Transportation League
North Dakota Grain Dealers Association
North Dakota Public Service Commission
North Dakota Wheat Commission
South Dakota Wheat Commission

[109] Appearances scheduled for public hearing on July 21, 2004 in STB Ex Parte No. 646, *Rail Rate Challenges In Small Rate Cases.*

Texas Wheat Producers Board
Washington Barley Commission
Washington Wheat Commission

The Agriculture Ocean Transportation Coalition, while obviously focused on maritime issues, is also a supporter of the Rail Competition bill.

Other industry specific organizations, virtually all of whom support curbs on railroad market power and back the Rail Competition Act include:

American Public Power Association
Edison Electric Institute
National Coal Transportation Association
National Rural Electric Cooperative Association
Western Coal Traffic League

American Plastics Council
Paper And Forestry Industry Transportation Committee
National Petroleum Refiners Association

The Montana Grain Growers Association (MGGA), a membership-supported trade organization, is associated with two national trade organizations listed above, National Association of Wheat Growers and National Barley Growers Association. MGGA maintains close ties with Montana's Department of Agriculture.

The Alliance to Keep Rural America on Track, a coalition of ag organizations in the State of North Dakota, has as a goal to persuade BNSF "to change its policies in the interest of the public good."[110]

Another organization that warrants mention is the Western Governors' Association (WGA). This organization was deeply involved in rail transportation issues affecting the Western U.S. until the late 1990s, issuing reports in August of 1998. Since that time, however, it seems to have neglected the issue, with its only current major transportation-related initiative pertaining to the movement of nuclear waste. Montana may wish to rekindle rail freight policy as a matter of concern for the Western governors.

[110] Tony Johannesen, President of the North Dakota Grain Dealers and member of Alliance to Keep Rural America on Track, quoted on the North Dakota Grain Dealers Association website.

Section H: Some Other Considerations

Following are a number of ideas which Montana may wish to consider, in bringing together the potential actions of Section F and the information regarding advocacy organization in Section G.

If not in place already, the State of Montana should develop and maintain a strategy to constrain railroad power. Following are suggestions for inclusion in the strategy.

(1) There should be an overall *strategy*. None of the possible means of redress, which are generally *tactical* in nature, should be viewed in isolation. A strategic response should consist of mutually-reinforcing initiatives that may be introduced sequentially or in subsets. Further initiatives should be reviewed in light of railroad reaction to those already put in place. The strategy requires periodic review and update.

(2) The strategy adopted by the State should have clear objectives, whether they be aimed at the effects of shuttle-train facilities and abandonments, rail rates and service, or economic development.

The purposes of mitigating effects of railroad load-centering (encouraging higher-capacity elevators) may require very different responses than strategies directed towards encouraging improved railroad service or lowering rates. The load-centering phenomenon should be viewed as a fact of life, and essential to continued competitiveness of Montana grain shippers. Therefore, strategies should be focused on means of reallocating associated costs and supporting the successful conversion of local elevators to feeder status. Excessive rates and inferior service provision should be dealt with quite differently. In the absence of remedial federal legislation, consideration should be given to applying pressure, perhaps through tax policy, that limits the profitability of the practice or offering targeted assistance in exchange for agreed-upon restrictions. Strategies to encourage economic development may incorporate some elements with other primary purposes, but should also include components which are further removed from railroad-specific tactics, such as providing incentives to develop regional distribution centers (including multi-modal network support) and perhaps a reassessment of the extent of new-business tax benefits.

(3) A number of initiatives can be effective only with the help of multiple sponsors, across industries and across many states. For example, no proposed shipper-friendly federal legislation has succeeded in passage several decades. The coalition backing H.R. 2924 and S. 919, *The Railroad Competition Act of 2003*, is unprecedented in the number of shipper organizations backing it; chances of its eventual success will reflect the number of congressional delegations that can be recruited as active backers.

(4) More limited coalitions, perhaps requiring interstate compacts enlisting neighboring states, may be necessary to support some specific tactical measures.

(5) Legislation restraining railroad pricing freedom will fail in its objectives if due regard is not given to underlying railroad economics and the rationale for permitting the broad scope of discriminatory pricing by the rail industry. The argument made by railroads, that discriminatory pricing is necessary for carriers to achieve earnings adequate to reinvest in infrastructure and to maximize scope of service, is essentially sound and proven. If railroads were to price on a competitive basis throughout their systems, they would fail to cover their total costs, and shippers would face deteriorating service. Therefore, the greater the constraints imposed upon railroad pricing, the greater may be the need to subsidize railroad infrastructure costs. There are several signs that the 80 year old aversion of the railroad industry to government participation in its affairs (stemming from the deteriorating effects of the U.S. Railroad Administration in World War I) is beginning to melt. Among others, David Goode, CEO of Class I railroad Norfolk Southern, has indicated a willingness to accept federal infrastructure improvement funding.

(6) There should be coordination of efforts among states and organizations with mutual interests, in order to build a political coalition. The letter signed by five governors (North Dakota, Montana, South Dakota, Nebraska and Wyoming) to BNSF in 2002, urging that railroad "to find an equitable solution to its preferential shipping rates policy", articulating the belief that BNSF uses its market dominance "to charge excessive rates to captive shippers", and mentioning specifically the impact on grain markets occasioned by BNSF's "offering a discounted inverse rate for shippers that move grain greater distances" resulted in cancellation of the inverse rates.

Appendix A

Senate Bill 315

Appendix A
Senate Bill 315

2003 Montana Legislature

SENATE BILL NO. 315
INTRODUCED BY SCHMIDT, BLACK, CALLAHAN, DICKENSON, FRANKLIN, GALVIN-HALCRO, GOLIE, HANSEN, HARRINGTON, HEDGES, LASLOVICH, MCKENNEY, NELSON, PARKER, ROUSH, D. RYAN, TASH, TESTER, TROPILA, WITT

AN ACT PROVIDING FOR A FEASIBILITY STUDY TO ASSESS CONDITIONS AFFECTING RAIL FREIGHT COMPETITION IN MONTANA AND TO ANALYZE POSSIBILITIES TO IMPROVE RAIL FREIGHT COMPETITION; AND PROVIDING AN IMMEDIATE EFFECTIVE DATE.

WHEREAS, 63 Class I freight railroads competed in the United States in 1976 and today only 8 Class I railroads traverse this country with limited competition and the control of more than 91% of all U.S. rail freight revenue; and

WHEREAS, in 2001 one railroad posted more than 97% of revenue earned in Montana from rail freight movement in and out of the state, as reported to the Public Service Commission; and

WHEREAS, railroads have seen an overall dwindling of their customer base in part because of business decisions linked to competition from other freight transporters; and

WHEREAS, three of Montana's major industries ship bulk quantities of mining, timber, and agricultural products out of state to compete in regional, national, and world markets against products on which pricing may benefit from lower variable costs in part because of competition in freight rates; and

WHEREAS, the Legislature considers greater understanding of the economic benefits of rail freight competition and the barriers to rail freight competition to be a key step forward in finding ways to promote economic development of Montana.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MONTANA:

Section 1. Feasibility study on rail freight competition. (1) The office of economic development, established in 2-15-218, shall, subject to subsection (3), present a report to the 59th legislature, as provided in 5-11-210, concerning the status of rail freight competition and its impacts on economic development in Montana. The feasibility study must address:

(a) impacts in Montana from rail freight competition or lack of competition, including if possible a list of businesses that decided for or against locating in the state as a result of the existence of or lack of rail freight competition;

(b) benchmarks as provided through a comparison of rail freight rates and competition in the region;

(c) an analysis of the benefits of rail freight competition on economic development in Montana;

(d) an analysis of the potential for public or private investment in improved rail freight competition;

(e) proposals for various methods to improve rail freight competition in areas where competition is nonexistent or minimal and an analysis of each method's feasibility; and

(f) analysis of the costs and the benefits of state-owned infrastructure compared with privately owned infrastructure associated with additional rail lines intended to promote greater rail freight competition.

(2) The office of economic development may convene a task force of economists, members of the transportation industry, members of natural resource industries that use various forms of freight transportation to ship products to market, and experts in related fields to provide guidelines for the feasibility study.

(3) The office of economic development shall secure funding from federal and private sources to cover the costs of the feasibility study. If funding is insufficient, the requirements for the study are void.

Section 2. Effective date. [This act] is effective on passage and approval.

- END -

Appendix B

Contacts

Appendix B

Contacts

A large number of persons was contacted in pursuance of this study, and many of those contacted were interviewed either in person or by telephone. For example, County Commissioners, State Legislators, grain industry officials, business development officials, and others were contacted, as well as officials in the Montana Departments of Transportation, Agriculture and Commerce.

The following persons were interviewed in person or contacted by phone, or participated in meetings of RLBA with the County Commissioners.

County Commissioners

County Commissioners were interviewed primarily in connection with the Montana Branch Line Study; however, their views are also pertinent to and reflected in the Rail Competition Study.

Choteau County	Daniels County	Dawson County
Harvey Worrall	Lalon Trang	Jim Skillestad
Kenneth Evans	William Tande	James Deckert
James O'Hara	Betty Hagfeldt	Bill Labree
Fergus County	**Hill County**	**McCone County**
Kenneth Ronish	Kathy Bessette	Kent Larson
Vernon Petersen	Doug Kaercher	Connie Eissinger
Carl Seilstad	Patrick Conway	Robert Kluth
Pondera County	**Ravalli County**	**Roosevelt County**
Joe Christiaens	Alan Thompson	Jim Shanks
Sam Harris	Greg Chilcott	Ferris Toavs
Cynthia Johnson	Betty Lund	Gary Macdonald
Sheridan County	**Teton County**	
Gerald Kohler	R.F. "Sam" Carlson	
Robert Nikolaisen	Arnie Gettel	
William Nyby	Mary Sexton	

Grain Handling and Transportation Managers

Grain officials were contacted, and provided information important to this study. Inasmuch as some of the managers requested anonymity, no names are shown.

Others

Evan Barrett, Butte Local Development Corporation
Sheldon Bartel, Gateway Development Corporation, Helena
Linda Beck, Big Sky Economic Development Authority, Billings
Larry Bonderud, Mayor of Shelby and Director, Port of Northern Montana, Shelby
Bob Boschee, Smurfit Stone Container Company, Missoula
Bill Carrier, Luzenac, Three Forks
Jim Christianson, Executive Vice President, Montana Wheat and Barley Committee
Pat Clevenger, Smurfit Stone Container Company, Missoula
Mark Cole, Dick Irvin Inc., Shelby
John Craig, formerly with Montana Department of Transportation
Mark Darlow, Port of Montana, Butte
Lochiel Edwards, Montana Grain Growers Association (MGGA)
Craig Erickson, Bear Paw Development Corporation of Northern Montana
Mark Evans, Gallatin Development Corporation, Bozeman
Anthony J. Flagg, President, Pasta Montana
Bill Fogarty, former General Manager, Port of Montana, Butte
Bob Frazier, Executive Vice President, University of Montana
Bob Kelly, Missoula Area Economic Development Corporation
Dick King, Missoula Area Economic Development Corporation
John Kramer, President, Great Falls Development Authority
Dick Monaghan, RLM Enterprises, Ramsey
Richard Owen, Montana Grain Growers Association
George Paul, Port of Montana, Butte
Desiree Salter, Gallatin Development Corporation, Bozeman
Fred Simpson, Montana Rail Link
Paul Tuss, Bear Paw Development Corporation of Northern Montana
Terry Whiteside, Consultant, Billings Montana
Debbie Youngburg, Belgrade Chamber of Commerce

BNSF

Pete Rickershauser, Vice President-Network Development

State-Level Elected and Other Officials, U.S. Government Officials

Norm Ballantyne, Montana State Representative
Jerry Black, Montana State Senate
Edith Clark, Montana State Representative
Linda Nelson, Montana State Senate
Trudi Schmidt, Montana State Senate
Jon Tester, Montana State Senate
John Witt, Montana State Representative

Dave Galt, Director, Montana Department of Transportation
Ralph Peck, Director, Montana Department of Agriculture
Mark Simonich, Director, Montana Department of Commerce

David Gibson, Chief Business Officer, Office of the Governor

Randy Hanson, Montana Department of Commerce
Al Jones, Montana Department of Commerce
Tod Kasten, Montana Department of Commerce
Jim MacDonald, U.S. Department of Agriculture
Matt McKamey, Montana Department of Agriculture
Brent Poppe, Montana Department of Agriculture
Marvin Prater, Economist, U.S. Department of Agriculture
Tom Steyaert, Montana Department of Transportation
Dick Turner, Montana Department of Transportation
Ron Zeller, Montana Department of Agriculture

Officials in Other States

Steve Cunningham, North Dakota DOT
Jon Mielke, Upper Great Plains Transportation Institute, North Dakota
Steve Strege, Executive Vice President, North Dakota Grain Dealers Association

Appendix C

Bibliography

Appendix C

Bibliography

Babcock, Michael W., and James Lee Bunch. *Structural Change in Grain Transportation: A Kansas Case Study*. Transportation Quarterly, Volume 57, Number 1, Winter 2003.

> Structural changes have occurred in the Great Plains which have had the effect of increasing the amount of grain trucking, and these changes could have negative effects on rural communities and short line railroads. This paper identifies changes in Kansas grain transportation that are diverting grain traffic to trucking, identifies the reasons for increased trucking, and measures the effect of the changes.

Babcock, Michael W., Marvin Prater and Eugene R. Russell. "Long-Term Profitability of Grain Dependent Short-Line Railroads in the Midwest". Mid-America Transportation Center, University of Nebraska-Lincoln, sponsored by the Kansas Department of Transportation, August 1997.

> In Midwestern states short line railroads are operating thousands of miles of rural rail branch lines that might otherwise have been abandoned. Abandonment's negative impacts include lower grain prices received by farmers, higher transportation costs and lower profits for rail shippers, loss of market options for shippers, lost economic development opportunities for rural communities, and higher road maintenance costs. Thus, the question of long term economic viability of short line railroads is important to rural areas. In order to properly evaluate the question of financial assistance to short lines, state governments need to know if these short line railroads offer a economically viable mode of transportation. This study develops predictive models of long-term profitability of grain-dependent short line railroads in Midwestern states. The study recommends that state governments consider financial assistance programs (grants, low interest loans, or loan guarantees) for short line railroads. Also, states should consider assistance for specific maintenance activities, such as state's assumption of responsibility for maintaining highway crossings (a cost which is particularly onerous on low density rail lines). Another recommendation is that the state consider a state railcar pool which would lease hopper cars from car leasing companies and sublease these railcars on a short term basis to short line railroads. Authors state that the benefits of government assistance to short line railroads will often exceed the costs of allowing the track to be abandoned.

Babcock, Michael W., and L.O. Sorenson, Ming H. Chow and Keith A. Klindworth. "Impact of the Staggers Rail Act on Agriculture: A Kansas Case Study". Journal of the Transportation Research Forum, 1985, pages 364-372.

Concludes that farmers have benefited from reduced rail rates; however, there has been "economic injury" for some shippers, especially those dependent upon a single railroad.

Bangsund, Dean A., F. Larry Leistritz and Joel S. Honeyman. "Assessing Economic Impacts of Railroad Abandonments in Rural Communities" *Impact Assessment*, Volume 15, March 1997.

Demonstrates methods for quantifying economic impacts of railroad abandonment on rural economies: change in transportation cost for shippers, property tax implications, increased traffic on rural roads.

Berwick, Mark, and John Bitzan, Brenda Lantz, Denver Tolliver and Kimberly Vachal. "North Dakota Strategic Freight Analysis: Agricultural Sector: Summary Report" Upper Great Plains Transportation Institute, North Dakota State University, October 2001.

Concludes that North Dakota state policymakers should consider location of shuttle train facilities and location of less-that-90-pound rail lines in making future highway investment decisions, since highway maintenance costs will increase, that state should work with the grain industry regarding shuttle facility location decisions, and that draw area for shuttle facilities is estimated to be a 60-mile radius. Other conclusions relate to subsidizing the upgrading of rail lines, intermodal facilities, and new value-added processing facilities.

Bitzan, John. "Railroad Deregulation: Impacts on Rates and Profitability". The Upper Great Plains Transportation Institute, North Dakota State University, July 1994.

Examines the deregulation of railroads and a handful of other studies indicating the effects. States that deregulatory action was taken to save the rail industry, and concludes that "the direct effects of deregulation have been to increase rates and to increase profitability" on "an industry-wide basis". Suggests usefulness of examining deregulation impacts on different commodities and different regions, with expectation that effects "were to increase rates for non-geographically competitive commodities and shipments in rail-captive regions, while decreasing rates for geographically competitive commodities in transportation competitive regions".

Bitzan, John, Kimberly Vachal, Tamara VanWechel and Dan Vinje. "The Differential Effects of Rail Rate Deregulation: U.S. Corn, Wheat, and Soybean Markets". Prepared for Transportation and Marketing Program, Agricultural Marketing Service, United States Department of Agriculture, by Upper Great Plains Transportation Institute, North Dakota State University, June 2003.

Although deregulation of railroads has been successful in a broad overall context, the benefits have not been shared by all shippers, and overall consumer

welfare may have been achieved at the expense of a particular segment of shippers. Several industry participants perceive inequities in the current system. This paper, which focuses on the relationship between the rail industry and production agriculture, assesses intra-industry rail rate changes for corn, wheat and soybeans across time and geography, specifically considering transportation competition. The study concludes that "market-based pricing has become more prevalent in later years", that the benefits of de-regulation "are not distributed uniformly across or within commodities", and that benefits "increasingly favor those grain producers located in regions with higher level of intermodal competition."

Dybing, Alan Gabriel. "Estimation of Demand for Grain Transportation in North Dakota" MS thesis, North Dakota State University, November 2002.

Estimates demand elasticities for rail and truck transportation of North Dakota grain to Minneapolis and Duluth. Demand for rail transportation is inelastic, while demand for truck transportation is elastic.

Eriksen, Ken A., Jerry D. Norton and Paul J. Bertels. "Transportation of U.S. Grains: A Modal Share Analysis, 1978-1995".

Provides information about changes of competitiveness and relative efficiencies between the modes. The amount of grain moved in the United States increased significantly between 1978 and 1995, and significant changes occurred in types moved, and amount shipped to domestic and export markets. Truck is the predominant mode of grain transport in the U.S.

Gervais, Jean-Philippe and C. Phillip Baumel. "The Iowa Grain Flow Survey: Where and How Iowa Grain Producers Ship Corn and Soybeans". Journal of Transportation Research Forum, 37-1, 1998.

Surveys Iowa grain producers to obtain information on corn and soybean flows, and provides information on ownership and utilization of semi tractor trailer trucks, which account for over 37 percent of the delivery of these grains off Iowa farms. Probability of farmers owning at least one semi truck increases as haul distance to elevator increases. Increased transportation mobility of farmers enable them to bypass grain elevators and railroad branch lines, portending a major restructuring of the grain elevator industry and rural branch railroad systems.

Gervais, Jean-Philippe and C. Phillip Baumel. "Railroad Monopoly in Grain Transportation?" *Transportation Research Forum*, Vol. 38, No. 1, 1999. Eno Transportation Foundation, Inc., Washington, D.C.

Highly analytical look at economics of grain transportation; study finds extensive intermodal competition and specifically in Iowa, little intramodal competition.

Crops that enjoy intermodal competition are generally those with relatively stronger domestic markets.

"Grain Subterminal Study" Prepared by Roger Creighton Associates, Inc. for Montana Departments of Agriculture, Highways, and Commerce, August 1981.

An outgrowth of the original Montana Rail Plan, this study refers to Burlington Northern's decision to introduce volume rates on 26 and 52 car units effective December 1980, at which time Montana elevators did not have the capability of loading unit trains. Thus BN's pricing strategy was expected over time to force greater centralization of grain collecting and marketing, and increase profitability of grain traffic. States that the grower may, over the short term, benefit from higher prices for his product, but ultimately, with concentrated subterminals, erode the options of the grower. Predicts the overbuilding of grain subterminals, as a result of competition among elevator companies.

This study focuses on determining the economic feasibility of the grain subterminal concept, applied to Montana, and states that feasibility depends upon whether proposed subterminals develop sufficient benefits for grain growers and elevator operators "to overcome the inherent fear and distrust of a major change in the collection and marketing of grain." Study focused on (1) continuing single car service, (2) adding subterminals but keeping public warehouses as local collection and marketing points, and (3) adding subterminals by phasing out public warehouses. Study concludes that grain subterminals are coming, that Montana no longer has the choice of retaining its previous system, and that it would not be in the state's interest to do so. Another conclusion is that the underlying motivation of subterminal construction is to capitalize on "the economies of scale achievable with subterminals and unit trains." Also the study states that "there is no guarantee that the grower will benefit to any significant degree" from the construction of subterminals. (page S-27) Yet another conclusion is that "Montana today is appreciably behind the other wheat-producing states in developing modern grain collection facilities and supporting unit train service." The study refers to increasing grain exports to Pacific-rim countries and the economics of scale requiring changes in port facilities (grain "bulkers", increased vessel drafts, automation), predicts that these and unit train movements will become highly integrated, and suggests that "Montana must design and build its subterminal facilities as an integral component of an evolving future grain delivery system" in order to maintain a strong competitive position (page S-28). The study discusses areas of concern (lack of rail competition in transport of grain; lack of competition in marketing grain; location of terminals, farm-to-elevator distances, and impact on growers; subterminal ownership and who gets the benefit of transport cost savings; and financing highway improvements required owing to increased truck movements) (pages S-29 and S-30). Finally, study comments on choice between Montana action (state intervention) or a laissez faire approach (leave it to private enterprise). Consultant recommended the former.

Griffin, Gene C., Upper Great Plains Transportation Institute. Testimony before the United States Senate Committee on Commerce, Science and Transportation: *Hearing on Rail Freight Transportation in North Dakota*. Senator Byron Dorgan, Presiding. March 27, 2002, Bismarck, North Dakota.

> Describes three issues causing consternation among grain producers and shippers: (1) 110-car shuttle train program being developed by BNSF, (2) manner of implementation of the program, and (3) the inverse rate structure. With regard to the shuttle train program, Griffin questions whether its cost efficiencies are reflected in rail rates, and whether the program provides "an equal opportunity for all shippers to compete for fewer viable number of country grain stations." Griffin notes the proprietary nature of contracts with regard to the shuttle train program, and admits there "is no documentable evidence or data available to address this issue"; however, he cites allegations that certain shippers are given an advantage over others, and suggests that incentives (e.g., rebates) are not available to a majority of shippers. The most controversial issue, Griffin says, is the inverse rate, by which BNSF charges a lower rate for a longer haul. Rates to the Pacific Northwest "from western North Dakota are higher than similar rates from eastern North Dakota." Although this may be a sound business decision, it is intuitively unfair. Waybill "analyses suggest that North Dakota wheat shipments to Portland and Minneapolis are highly profitable for the BNSF. For all service levels in either analysis, the average revenue-to-variable cost ratio to either market is at or above 1.85." These ratios are higher for service levels of 26 and 52 cars. A Congressional determination is that rail rates exceeding 180 percent can be examined for market dominance. Griffin provides data indicating "that the BNSF's rates to many North Dakota shippers may exceed reasonable limits." Griffin also notes "a popular perception" that "the Surface Transportation Board (STB) has been less than effective in interpreting and applying rail regulatory laws" and that it "has a positive bias towards the rail industry."

Griffin, Gene C. "The Staggers Rail Act: Impact on Rate Structures and Services". Upper Great Plains Transportation Institute, North Dakota State University, January 1983.

> States that Staggers has two strong implications: the railroad system will remain in the private sector, and will be profitable. Predicts that services will improve for some and deteriorate for others, as "[u]nit trains, contract rates, and the potentially reduced number of loading stations" may result in reduced service for those not located at the reduced number of stations.

Griffin, Gene C. and Jon M. Mielke. "The Impact of the Staggers Rail Act on Grain Transportation in the Northern and Central Great Plains". The Upper Great Plains Transportation Institute, North Dakota State University, May 1982.

Concludes that Staggers allows railroads "a great deal of managerial latitude" and that Burlington Northern ignores "the geographic competition between the wheat produced in the upper great plains and central great plains states which compete for existing and potential export markets off the Pacific Northwest." Further concludes that Burlington Northern utilizes "its rate structures on wheat to influence the development of the country grain merchandising and handling system in Minnesota, Montana and North Dakota in a way which is not necessarily beneficial to all parties involved" in that the railroad encourages 52 car loading and gives such shippers. Authors ask the question, "[S]hould one firm within a critical industry such as railroading determine the future grain handling, transportation and merchandising system?" Authors also question the comparative equity of rates, and state that it "appears that the [Interstate Commerce Commission] has swung past equilibrium and is now reacting totally in favor of the railroads financial interests with all disregard towards shippers."

Griffin, Gene C. and Jon H. Mielke. "Rail Price Competition in the Upper Great Plains: A Post Stagger's Development?" The Upper Great Plains Transportation Institute, North Dakota State University, November 1983.

This paper examines changes in grain pricing practices of railroads in the Upper Great Plains pre- and post-Staggers Rail Act of 1980. Includes discussion of the Railroad Revitalization and Regulatory Reform Act of 1976. Authors focus on North Dakota, conclude that "oligopoly pricing theory was exhibited" and that "where an oligopoly or duopoly exists, the pricing of rail transportation for a specific commodity within a given region has, and probably always will, result in rate parity." (Report is not very helpful for Montana.)

Griffin, Gene C. and Jon M. Mielke. "The Impact of the Staggers Rail Act on Grain Transportation in the Northern and Central Great Plains." The Upper Great Plains Transportation Institute, North Dakota State University, May 1989.

This study, developed for the Office of Transportation, U.S. Department of Agriculture, has a number of interesting features. First, the authors choose October 1979 (one year preceding Staggers) up to April 1982 as the period of analysis. Inasmuch as the study is dated May 1989, the question arises, why were more recent years not included, so as to obtain a better idea of the Staggers impact on grain transportation? Second, it is assumed that the rates used are tariff or posted rates, since confidential rates are normally not available. But the authors don't say this.

Third, authors state that export wheat originating in northern Great Plains moves to Pacific Northwest ports by two modes, truck-barge (truck to barges on Snake-Columbia Rivers and rail (by one of two carriers, Burlington Northern or Soo (Soo must interline with BN or CP to get to ports)). Today that distance is considered too far for economical truck haul. Authors state that BN was faced with truck competition in movement of export wheat from Montana and extreme western

North Dakota to the Pacific Northwest, 1965-1980, and that in 1980 the truck mode carried 40 percent of the export wheat from Montana to Pacific Northwest, and 38 percent of the North Dakota wheat. Something has changed in the past two decades to make truck haul noncompetitive. In any event, the authors say that presence of truck-barge competition apparently results in a reduction of BN wheat transport rates.

Two carriers, BN and Union Pacific, carry export wheat to Pacific Northwest from the central plains states. The absolute level of BN and UP wheat rates from the central plains to the Pacific Northwest are less than BN's wheat rates from the northern plains to the same destinations, thus putting the northern plains at a competitive disadvantage, as compared with the central plains. (For example, BN wheat rates in 1982 from Nebraska to PNW ports, for 54-car loadings, varied from 151 to 159 cents per hundredweight. BN wheat rates in 1982 from North Dakota to PNW ports, 52-car loadings, varied from 174 to 190 cents per hundredweight, and distance is shorter from ND.) Authors do not explain this. Perhaps market dominance by BN in MT and western ND is the answer.

In addition to analyzing rate data, 1979-1982, authors interview 12 persons representing state government, railroad(s), international grain merchandising, domestic grain processing and merchandising, grain production and elevator management. The results of these interviews parallel the interest of the interviewee.

Finally, authors conclude that the United States is still struggling to determine the proper role of transportation – regulation as a public utility or unfettered as a part of the free market economy. Authors question the benefit of the extent to which Staggers has deregulated the railroads, pointing out that BN ignores the geographic competition between wheat produced in the upper Great Plains and that produced in the central Great Plains, and that BN has taken advantage of the opportunity to maximize profit. Authors state that BN utilizes "its rate structures on wheat to influence the development of the country grain merchandising system in Minnesota, Montana and North Dakota in a way which is not necessarily beneficial to all parties involved." 52 car loading is encouraged, and gives shippers with this capability the advantage. The authors ask, "should one firm within a critical industry such as railroading determine the future grain handling, transportation and merchandising system?" The authors question the comparative equity of rates, saying that shippers more distant from markets "pay a comparatively larger part of the overhead burden than shippers closer to terminal markets". Authors indicate their view that Interstate Commerce Commission (now Surface Transportation Board) "has swung past equilibrium and is now reacting totally in favor of the railroads financial interests with all disregard towards shippers" and that it is the ICC interpretation of the law, rather than the law itself, that is the culprit.

Griffin, Gene and Kim Vachal. “Transportation’s Role on Competitiveness Effects of Rail Services and Capacity” *USDA 2003 Agriculture Outlook Forum,* Upper Great Plains Transportation Institute North Dakota State University.

> Importance of logistics in global competitiveness examined; importance of shuttle train system to railroad long-term strategies explicated.

Grimm, Curtis M. (Dean's Professor of Supply Chain and Strategy, Robert H. Smith School of Business, University of Maryland) Testimony to U.S. House of Representatives, Committee on Transportation and Infrastructure, Subcommittee on Railroads, March 31, 2004.

> Staggers has substituted market competition for government regulation across much of the rail industry. This has resulted in substantial benefits to the railroads and to many shippers. Policymakers can extend the benefits by increasing the level of rail competition; it is particularly important "to provide rail competition to captive rail shippers wherever feasible." Deregulation has been a successful policy; however there are "two salient issues": (1) domination of the industry by four large carriers, creating a competitive imbalance, and (2) absence of effective competition faced by 20 percent of rail customers, which are captive to a single railroad. Requiring railroads to quote rates to points of competition "would be a positive step" and mandatory interswitching within a prescribed radius (as practiced in Canada) "merits consideration." "Concern about potential short-term revenue diminution is no reason to accept the status quo. Policy makers could dovetail increased competition for captive shippers with financial assistance for railroads in the form of infrastructure grants or tax policy changes." Other modes "are unfairly subsidized to the detriment of rail. Let's level both playing fields. Couple assistance to rail with competitive relief for captive shippers."

Grimm, Curtis and Clifford Winston. “Competition in the Deregulated Railroad Industry: Sources, Effects, and Policy Issues” February 2000. S. Peltzman and C. Winston, eds., *Deregulation of Network Industries*, Brookings, Washington DC.

> The Staggers Rail Act of 1980 allows railroads to negotiate confidential contract rates with shippers. To successfully challenge a rate deemed too high, a shipper must show, among other things, that the rate exceeds 180 percent of variable costs. This paper examines the captive shipper issue, and quantifies the effects of rail and intermodal competition on rates and service quality, and estimates the extent to which captive shippers pay higher rates and suffer degradations in service. Authors conclude that “[e]conomic efficiency grounds offer little justification for proposals aimed at increasing rail competition.” But they also conclude that the Surface Transportation Board “cannot be counted on to mediate effectively the ongoing dispute between shippers and railroads.”

Hewitt, Julie, Jerry Stephens, Kristen Smith, Nate Menuez. "Infrastructure and Economic Impacts of Changes in Truck Weight Regulations in Montana", Montana State University, November 1998.

> Study, apparently in pre-publication form, suggests that higher permitted truck weights would generally result in lower highway maintenance costs; factors in this counter-intuitive result include reduced absolute number of truck trips required to haul same volume of freight and lower per-axle weights. One anomaly, however, is farm grain trucks, because of their axle-loading configurations. Specifically, heavy-loading 7-axle combination vehicles as commonly used for hauling wheat are "one of the few LCV configurations that does more damage per unit weight of freight hauled than a loaded 5 axle, semi-trailer operated at 80,000 lbs."

Jamieson, Jerry L. Jr., Robert Harrison, and Stephen Fuller. "Grain Transportation in Texas: Survey Results, Future Trends, and Policy Prescriptions" *Journal of the Transportation Research Forum* published in *Transportation Quarterly*, Vol. 56, No. 3, Summer 2002.

> The authors evaluate perceptions of modal performance by location in the "food chain" – e.g., local elevators, terminal elevators, export facilities, feed mills. Shippers generally find rail service wanting – to a similar degree as other surveys find is experienced in northern plains. The study's policy prescriptions are a useful summary of steps already taken (as well as those proposed) in the State of Texas.

Klindworth, Keith. "Intramodal Competition in the U.S. Rail Industry". U.S. Department of Agriculture, Agricultural Marketing Service, July 1998.

> Reviews consolidation of railroads and effect on price and service. Notes that "many grain-shipping locations now have access to only one or two railroads." States that the "increasing concentration in the U.S. rail industry worries agricultural shippers because as the number of rail competitors in any market decreases, the prices charged by the remaining firms tend to increase." Refers to the "landmark study" by James MacDonald on the relation between railroad concentration and pricing in grain transportation markets. "When shipping origins are close to a navigable waterway … railroad pricing is close to cost." Likewise where there is truck competition. Author also notes that "those shippers without competitive alternatives not only pay the highest rates, but also receive the worst service."

James M. MacDonald. "Competition and rail rates for the shipment of corn, soybeans, and wheat", *Rand Journal of Economics*, Vol. 18, No. 1, Spring 1987, pages 151-163.

> Using Interstate Commerce Commission (ICC) Rail Waybill Sample Master File for 1983, investigates extent and importance of rate competition among railroads

for export shipment of three agricultural commodities (corn, soybeans, wheat) since passage of Staggers Rail Act of 1980, which allows railroads considerable freedom in setting rates. Finds that rates fall as railroad competition increases, and that the farther a shipper is from water transportation, the more rates rise. Competition makes a difference.

James M. MacDonald. "Concentration and Railroad Pricing", *Concentration and Price*, edited by Leonard W. Weiss, The MIT Press, Cambridge, Massachusetts, 1989, pages 205-212.

Describes author's research into effects of post-Staggers competition on railroad pricing, investigating shipment of corn, wheat and soybeans. Notes that Montana and North Dakota have the fewest railroads and are the farthest from water transport. Finds significant and powerful competition in crop-reporting districts with access to the barge mode. Finds that competition from other railroads leads to 18 percent decline in rates from monopoly to duopoly, and a further 11 percent decline with movement to a triopoly. States that railroads "have a considerable degree of market power in some areas in the wheat growing regions of the Northern Plains States" where "competing railroads are few and water competition is far away."

James M. MacDonald. "Effects of Railroad Deregulation on Grain Transportation." United States Department of Agriculture, Economic Research Service, Technical Bulletin Number 1759, June 1989.

This is essentially the same report as "Railroad Deregulation, Innovation, and Competition: Effects of the Staggers Act on Grain Transportation" (see below). Both papers result in part from analysis of waybill samples, find that railroad deregulation generally helped reduce grain transport costs, although with some grain rates rising and some falling. MacDonald states that shippers benefit from increased competition among railroads and reductions in rail costs. The latter result from abandonment of unprofitable branch lines and restructuring of rates to provide incentives to shippers to use less costly methods. Predicts that trucks "will perform more of the short-haul gathering functions as railroads concentrate on long multiple-car hauls." Says that "rapid and widespread diffusion of unit trains and multiple-car shipments … impose lower per bushel costs on railroads but generate greater capital and inventory costs for shippers … [therefore railroads] must offer lower rates to attract grain to unit trains." Shows precipitous decline in use of single-car shipment for wheat, including export wheat, since Staggers. MacDonald notes the difficulty of collecting useful data on confidential contract rates, and suggests three alternatives: publicly quoted tariff rates, origin-destination grain price spreads, and waybill data. He discounts the utility of investigating tariff rates. [Note: Since the time of MacDonald's study, it has been suggested that considerably more grain is now moving by tariff rates.] MacDonald states that examination of Kansas wheat contracts in 1985 found that the "actual freight rate may fall as much as 25 percent below the contract rate"

given contract refund provisions [which seems to suggest that rates derived from waybill samples may be overstated]. On the other hand, MacDonald states that waybill data "will reflect broad features of contract rates." MacDonald found that "wheat shippers who were 400 miles from the water paid rates 40 percent higher than shippers who were 100 miles from the water for otherwise identical shipments." His analysis also finds that "rates fall as the number of competing railroads increase." MacDonald found that rail competition "is weakest in the Northern Plains in Montana and North Dakota … and that Montana has the weakest competition … [and that the] evidence also shows that railroads could exploit the lack of competition by charging considerably higher rates than in competitive markets. Therefore, it's fairly easy to establish that the BN is market dominant in Montana grain."

James M. MacDonald. "Railroad Deregulation, Innovation, and Competition: Effects of the Staggers Act on Grain Transportation." *Journal of Law & Economics*, vol. XXXII, April 1989.

As stated above, this is essentially the same study as "Effects of Railroad Deregulation on Grain Transportation", listed above. MacDonald assesses the early effects of rail deregulation on rail transportation of grain, finds that deregulation generally introduced intramodal railroad competition (which, he states, has a "fairly strong effect on rates", and replaced single-car grain movements with multiple-car and unit train shipments. He specifies that effects of deregulation "varied across grain regions" and, in the restructuring of grain rates, some rose and some fell.

MacDonald evaluates the Staggers Rail Act of 1980 in some detail, saying that a premise was that "greater reliance on the marketplace was essential for the health of the rail industry." Staggers "proposed to free railroads from a variety of common carrier obligations to provide unprofitable services" and liberalized procedures for abandonment of rail lines. Although these principles are simple, "the methods by which the act proposes to implement the principles are quite complex", such as the concept of "market dominance" which according to Staggers was not an issue (in determinations regarding rail rates) unless rates exceed a certain multiple of variable cost. Confidential contracts favor large shippers and overturn the "long-standing regulatory focus on equalizing rates of a commodity across shippers". MacDonald predicts that small, remote-area shippers "would be less likely to have rail service and would pay relatively higher rates for it."

Because of widespread use of confidential contract rates, "collection of useful rate data has become quite difficult." Three alternatives include publicly-quoted tariffs, origin-destination grain price spreads, and waybill sample data.

James M. MacDonald. "Rail Rates and Competition", *Agriculture Outlook*, United States Department of Agriculture, Economic Research Service, August 1986, pages 27-29.

Evaluates the link between rail rates and competition, in transport of grain. States that transportation rates are determined by distance, shipment size, total annual volume to be shipped, and competition. Even though distance is the most important cost determinant, says MacDonald, he illustrates the role of competition by comparing the $1.09 rate per bushel from Minot, North Dakota, to Portland, Oregon, to the $0.80 rate per bushel from Kimball, Nebraska, to the same destination, where distances are equal. "Competition may account for the discrepancy, since Burlington Northern railroad competes with Union Pacific for traffic from Nebraska to the Pacific, but has no competition for traffic from North Dakota." MacDonald concludes that competition among railroads has an important effect on rail rates.

Ming, Dennis R. and Gene C. Griffin. "The Effects of Rail Rate Changes on Regional Grain Marketing Patterns and Prices: A Case Study." The Upper Great Plains Transportation Institute, North Dakota State University, June 1985.

Over a three year period (1982-1985), documents shifts in hard red spring wheat marketing patterns in North Dakota based on changes in relative freight rates, concluding that markets are distorted when freight rates change significantly in one region relative to another. In this case, elevators in eastern North Dakota gained a shipping advantage, through the rail contracting process, over elevators in western North Dakota, with regard to wheat shipments to Pacific Northwest (PNW) ports. Certain shippers "were effectively priced out of the PNW market for a time." Contracts "allow rapid adjustments in rates and relative rate levels." Authors state that because wheat shipment contracts are confidential, little is known about specific contract provisions, and it is not possible to analyze all factors contributing to the shift in market patterns.

"Montana Agricultural Statistics 2003 (2001-2002 County Estimates)" compiled by Montana Agricultural Statistics Service, October 2003.

Provides an array of Montana agricultural statistics, by county.

Prater, Marvin E. *The Implications for U.S. Agriculture of Long-Term Trends in Railroad Service*. Journal of the Transportation Research Forum, Vol. 40, No. 4, Fall 2001, pages 121-132.

States that for agricultural shippers, the future of availability of railroad services and capacity is not promising. This is attributed to the shrinking rural railroad network, the trend toward trainload shipping, and the decreasing significance of agricultural traffic to railroads.

Prater, Marvin and Keith Klindworth. "Long-Term Trends in Railroad Service and Capacity for U.S. Agriculture." U.S. Department of Agriculture, Agriculture Marketing Service, November 2000.

Identifies and describes long term trends in railroad services and capacity for U.S. agriculture, in terms of what trends portend for agricultural shippers absent any change of the economically deregulated environment which has characterized the railroad industry over the past 20 years. Critical importance lies in the fact that rail is the only cost-effective transportation mode available for many agricultural shippers. Points at shrinkage of the rail network in the Great Plains states, and notes that abandonment of branch lines has been encouraged by unit-train loading incentives and increased utilization of 286,000-pound railcars. Suggests that long-term implications include decreased railroad market share, higher railroad rates for agricultural shippers, increased costs to access rail service, fewer shipper options, and an uncertain future for small railroads. States that agricultural shippers are being faced with an increased burden of responsibilities and charges to ship by rail. Stresses the importance of short line railroads, and states that it is in the mutual interests of the rail industry and agriculture that railroads remain an important and vital shipping option.

Public Law 96-448, October 14, 1980, “Staggers Rail Act of 1980”

Legislation the purpose of which was “to provide for the restoration, maintenance, and improvement of the physical facilities and financial stability of the rail system of the United States.”

The Staggers Rail Act of 1980 begins with a set of findings by the Congress, including that “historically, railroads were the essential factor in the national transportation system”, that “the enactment of the Interstate Commerce Act was essential to prevent an abuse of monopoly power by railroads”, that “earnings of the railroad industry are the lowest of any transportation mode and are insufficient to generate funds for necessary capital improvements” and that “modernization of economic regulation for the railroad industry with a greater reliance on the marketplace is essential”.

These findings are followed immediately by a statement that the “purpose of this Act is to provide for the restoration, maintenance, and improvement of the physical facilities and financial stability of the rail system of the United States.”

Added to the facts that wide-ranging railroad bankruptcy was bringing into question the future of U.S. railroading, and that the financial troubles of the railroads were the prime motivator for legislative action, these opening words constitute a statement of public policy, a policy intent to free railroads from the burdens of overregulation and to allow them to compete in the marketplace.

Those who drafted Staggers were mindful of the possibility, where competitive options are lacking, of market dominance, and they included provisions to deal with regulation of railroad rates if deemed not reasonable. Thus Staggers

includes prescriptions for determining market dominance and also establishes procedures for rate regulation proceedings.

Scheib, John M. "Government and Industry Partnership to Develop Rail Infrastructure in the United States" *Transportation Quarterly*, Vol. 56, No. 3, Summer 2002.

Railroads cannot afford to expand their infrastructure to keep pace with traffic growth because their revenues remain inadequate to do this. Government policy can help railroads by providing resources to them to expand infrastructure, and in return avoid additional highway congestion and reduce pollution, fuel consumption and highway damage.

Strege, Steve. "Testimony of Steve Strege, Executive Vice President, North Dakota Grain Dealers Association, Presented to House Transportation and Infrastructure Committee, Subcommittee on Railroads, The Honorable Jack Quinn, Chairman, March 31, 2004".

Strege describes the challenges of country elevators situated on only one railroad and thus captive, and includes North Dakota and adjacent areas of Montana, South Dakota and Minnesota as being affected. He mentions that Staggers requires reasonable rates in the absence of competition, and avers that "lack of regulatory oversight on rates and service has allowed the railroads to pretty much do as they please and the captive shippers, their customers, suffer the consequences." He characterizes "extremely high grain rail rates for captive shippers" as revenue to variable cost ratios on wheat movements in the 250-350 range, with some over 400, and compares these with the "jurisdictional threshold of unreasonable rates that has been established by both statute and the STB at 180 percent of variable cost."

Strege quotes BNSF Ag Products Vice President Steve Bobb (statement made at U.S. Senate field hearing in Bismarck, North Dakota in March 2002) as saying, "What we do as a rail transportation provider is look at the difference between value of grain at the origin and value of grain at the destination, and try to determine the level of charges for transportation with margin for the elevators to operate and make money", and says this describes BNSF pricing philosophy.

Strege also finds BNSF's inverse rate structures (in 2001-2002) unreasonable, and lists other "one-sided policies and practices" which demonstrate market power. He states his organization's concern that BNSF concentrates on shuttle trains [110-car single-commodity trains which remain assembled, and shuttle back and forth between origin and destination, enhancing rail transportation productivity] to the detriment of smaller unit train shipments, resulting in car orders at times 50 days behind. Strege states this is discriminatory, denying service to an entire class of shippers, with consequent adverse economic effects.

Strege describes the December 16, 2003, meeting of North Dakota Governor John Hoeven and others with STB Chairman Roger Nober, in which the disparity of service between shuttle trains and all others was discussed. Nober offered to facilitate a meeting with BNSF, which was held on January 5, 2004. Strege indicates that the meeting was not satisfying to North Dakota's grain dealers.

Strege states that North Dakota considered state ownership of railroad cars, but considers it risky, because no railroad can be compelled to use private cars, and costly.

If country grain gathering system is converted to shuttle loaders, then the efficiency gains and greater profits will go to the railroads, with farmers left to haul their grain farther, "to a declining number of competitive locations … severely damaging" state road systems. This amounts, says Strege, to economic strangulation by a few railroad companies, wielding "enormous economic power granted to [them] by the federal government."

Strege concludes that it is the responsibility of Congress and the STB "to rein-in the abuses visited upon captive rail customers" resulting from market domination by the railroads, and urges Congress to act. He states "there is no adequate remedy" before the STB.

In his oral statement, Strege states that grain shippers without competitive transportation alternatives are being taken advantage of on rail rates and service, captive customers "are being frozen out of the market place", and BNSF "concentrates its service on the shuttle train segment" (100 and 110 car unit trains) while smaller customers "are left to wait 30-50 days, taking them out of the market at great cost to elevators and farmers." Strege avers that the Surface Transportation Board (STB) is not concerned about "the discrimination in the distribution of grain cars between shuttle trains and other train loaders". He states that his organization doesn't disagree with the concept of differential pricing, but "when rates are three or four times a railroad's variable cost, and there is no effective remedy, something must be done." He describes the current process to seek rate relief as "uncertain, expensive and arduous".

Strege, Steve (Executive Vice President, North Dakota Grain Dealers Association). Testimony Presented to Senate Commerce Committee, Subcommittee on Surface Transportation and Merchant Marine, July 31, 2002.

Testimony on rail transportation of grain, covering imbalance of market power between large railroads and grain shippers, treatment of shippers including captive shippers, adequacy of oversight, and possible remedies. Testimony avers that BNSF market dominance and game plan in the grain business go beyond what would occur in a competitive environment, and result in: unreasonable terms and charges to grain companies, exorbitant rates to captive grain shippers, devaluation of shipper investments through changes in rates and

service offerings, determination by BNSF which grain industry participants will survive, making and breaking of markets, and in general, taking advantage of farmers, agribusiness and the general public with little fear that someone will step in and stop them. Strege states that there is at present no effective remedy. Testimony also states that revenue-to-cost ratios are in the range 250 to 400 percent range, and that these ratios are documented (in testimony presented by the Upper Great Plains Transportation Institute to a hearing chaired by Senator Dorgan in Bismarck, North Dakota on March 27, 2002). Strege states that BNSF's "game plan in the grain business is promotion of a few big shippers primarily on its mainlines, with much less regard for the rest of its shipping and receiving customers who have made substantial investments to meet the railroad's previous demands." BNSF policies are shifting grain gathering costs to the public sector. Inverse rate structure (shorter haul pays a higher rate) is discussed, as is the May 10, 2002, letter to BNSF signed by five governors (urging BNSF to find an equitable solution to its preferential grain shipping rates policy). Strege reviews McCarty Farms and other examples of attempts to redress the issue, concludes that government oversight is ineffective, and suggests remedies for action by Congress.

Strege, Steven D., Executive Vice President, North Dakota Grain Dealers Association. Testimony of North Dakota Grain Dealers Association and Alliance to Keep America on Track to the United States Senate, Committee on Commerce, Science and Transportation, Hearing on Railroad Issues, Senator Byron L. Dorgan Presiding, March 27, 2002, State Capitol Building, Bismarck, North Dakota.

Focuses on BNSF inverse rates, the "concept that elevators and farmers who ship their grain a shorter distance should pay more than those who ship a longer distance." States belief that BNSF motive is to artificially promote building of shuttle train loading facilities in parts "on this state and western Minnesota, with the eventual goal of closing other grain elevators in those areas and abandoning branch lines and short lines." Strege also discusses demurrage, co-loading, rail rates, Scoots (car supply program), circumvention of market forces, and endorses a bill introduced in the U.S. Senate, the Railroad Competition Act of 2001.

Surface Transportation Board, Office of Economics, Environmental Analysis and Administration. "Rail Rates Continue Multi-Year Decline". December 2000.

This paper purports to demonstrate that rail rates have declined since the Staggers Rail Act of 1980, although rather than addressing rates, it uses as a surrogate "revenue per ton-mile". (The Association of American Railroads abandoned its rail rate index in the 1980's, which consistently showed much less dramatic reductions in *rates* as compared with revenue per ton-mile.) The analysis is based upon averages and therefore provides no help for a state like Montana which may have been on the high end of the spectrum for the entire period. The paper acknowledges that "there are clearly instances where

railroads retain a degree of pricing power", and that "not all rail customers have benefited equally" from reduced rail rates. The paper also acknowledges that prices of many commodities shipped by rail have fallen "even more than their respective rail rates" so that for these commodities "transportation costs are a larger fraction of delivered price today". For example, "inflation-adjusted prices for corn and wheat have each fallen just over 50 percent since 1984 – more than the decline in their rail rates." Finally, the paper acknowledges that "railroads have shifted certain expenses to rail customers" and that "farmers have incurred the added expense of trucking their grain further to larger elevators that pay more for grain because of reduced unit-train rates offered by railroads."

Tolliver, Denver. "The Effects of Local and Regional Railroads on Intermodal and Intermodal Competition" *The Upper Great Plains Transportation Institute,* North Dakota State University (NDSU) Fargo, North Dakota, UGPTI Publication No. 77, November 1989. .

The study finds that trucks are non-competitive with rail within the upper Great Plains regions at distances greater than 250 miles, and that BNSF can significantly reduce its costs by selling off branch lines to short line operators, thereby compelling other railroads in its territory to follow suit. The study, now 15 years old, does not address the effect of shuttle train operations on the continued viability of branch lines.

Tolliver, Denver. "Local Rural Roads: Changing Agricultural Traffic Demands and Infrastructure Investment Needs", presentation at Agriculture Transportation for the 21st Century conference, August 27, 1998.

Describes changes in the farm-to-market transportation system related to railroad system changes (abandonments, unit train rates) and broader economic changes (such as value-added processing). Discusses types of trucks used, and structural characteristics of the highways (arterials, and major and minor collectors). Provides statistics on railroad line abandonments in the Great Plains (33 percent loss of rail lines in Montana, 1965 – 1995). Provides marginal pavement cost indexes for 80,000-pound combination trucks on arterials, and major and minor connectors, showing the pavement cost differences (greatest for minor, next greatest for major connectors). Provides example potential impacts on minor arterial highways and major collector highways. Concludes that traffic diversion from rail lines to trucks will impact highway costs, that more funds will be needed for local rural highways, and that rail system changes will shift mode use and traffic patterns as rail abandonments continue and railcar gross weights increase.

Tolliver, Denver and John Bitzan. "Analysis of Revenues and Costs for Wheat Shipments Originated in North Dakota on the BNSF Railroad" Upper Great Plains Transportation Institute, North Dakota State University, March 2002.

Utilizes the Uniform Railroad Costing System to model costs, presents revenue-to-variable cost ratios computed from the 2000 waybill sample, presents revenue-cost estimates for wheat movements from North Dakota to Portland and Minneapolis based on March 2002 rates, and places cost ratios in the context of rate reasonableness. Concludes that wheat shipments to both Portland and Minneapolis are highly profitable to BNSF. The average revenue-to-variable cost ratio for both markets is at or above 1.85. For all service levels of 26 cars or more, the average revenue-to-variable cost ratios exceed 2.43. For all service levels of 52 cars or more to either market, the average revenue-to-variable cost ratios exceed 2.7. North Dakota wheat shippers are paying more than one might expect, given the revenue adequacy needs of BNSF. The average rate paid by potentially captive shippers on the BNSF system was 263 percent of variable costs in 1999.

U.S. General Accounting Office. "Railroad Regulation: Changes in Freight Railroad Rates from 1997 through 2000". Report to the Chairman, Committee on Transportation and Infrastructure, House of Representatives, June 2002.

Notes that the Staggers Rail Act of 1980 gave freight railroads increased freedom to price their services according to market conditions. For the period 1997 through 2000, rail rates have generally decreased, except for some commodities and distance categories – such as wheat moving long distances (over 1,000 miles) – where rates have stayed about the same or increased. As expected, rail rates were lower in areas with more competition from other transportation providers. The proportion of rail shipments above the Surface Transportation Board's statutory jurisdictional threshold for rate relief actions (shipments in which revenues exceed 180 percent of variable costs, variable costs being those costs that change with the quantities shipped) stayed relatively constant at about 30 percent from 1997 through 2000. The proportion of shipments for which revenues exceeded variable costs by 180 percent varied depending on commodity and markets.

U.S. General Accounting Office. "International Trade: Canada and Australia Rely Heavily on Wheat Boards to Market Grain". Report to the Chairman, Subcommittee on Domestic and Foreign Marketing and Product Promotion, Committee on Agriculture, Nutrition, and Forestry, U.S. Senate, June 1992.

Reviews Canadian and Australian grain export marketing systems. The wheat boards of Canada and Australia generally function as a single buyer of wheat in their designated region and one of few sellers to the global wheat market. The Canadian government guarantees a minimum price to its wheat farmers, and gives more assistance to its wheat industry than the Australian government does.

U.S. General Accounting Office. "Railroad Regulation: Economic and Financial Impacts of the Staggers Rail Act of 1980". Report to Congressional Requesters, May 1990.

The Staggers Rail Act has helped improve Class I railroads' financial health and rehabilitate rail facilities. The shipping industry has gained from lower freight rates and improved service. However, not all shippers have benefited, and some have complained about ICC's relief procedures and questioned whether ICC has adequately protected their interests.

Vachal, Kimberly and John Bitzan. "The Long-Term Availability of Railroads Services for U.S. Agriculture" Upper Great Plains Transportation Institute, North Dakota State University, prepared for U.S. Department of Agriculture, June 2000.

Delphi survey of grain market experts concludes there will be (1) further consolidation of the rail and elevator industries, (2) increasing prominence of heavy axle railcars in grain service, (3) increase in rail rates one to four percent annually over the next decade, (4) expanded use of shuttle/efficiency rail programs for major grains, (5) increased use of market-based car ordering systems, (6) growth of short line rail network, and (7) small market-scale, but large volume, increases in share of grain market via containers.

Vachal, Kimberly, John Bitzan and Bridget Baldwin. "Implications of a North American Grain Marketing System for Prairie Transportation & Elevators", Mountain Plains Consortium Report No. 97-84, September 1997.

Compares U.S. and Canadian grain procurement and transportation. Notes that U.S. upper great plains is moving to unit train rail shipments, rationalization of elevator and rail systems, and the emergence of the short line rail industry. States that Canadian practice has begun to position itself to recognize these efficiencies. Concludes that grain procurement and transportation in north central U.S. has experienced considerable rationalization over two decades, and that deregulation of the rail industry has been a major thrust in this streamlining. States that deregulation allows differential pricing, rewards for procurement efficiencies, and flexibility to respond in responding to market pressures. States that the government-sanctioned Canadian Wheat Board, the sole marketer of wheat produced in the Prairie Provinces, will continue to play a dominant role. A Delphi survey indicates continuation of "grain procurement system characterized by high throughput elevators, rationalized rail line operations, and expansion of short-line track miles."

Vachal, Kimberly, John Bitzan and Denver Tolliver. "Transportation as an Input to the North Dakota Agricultural Marketing Process" Upper Great Plains Transportation Institute, North Dakota State University, February 1996.

Discusses captive shippers, rates and service, grain marketing practice of North Dakota grain elevators and their role in market dominance. Describes constraints on carriers' rates, highlights importance of efficient and effective rail service for future of North Dakota agriculture.

Vachal, Kimberly, Kenneth L. Casavant, Gene Griffin and Terence C. Farrell. "Railway and Truck-Barge Grain Transport Rate Projections and Impacts from Proposed Dam Breaching on the Lower Snake River" Transportation Quarterly, Vol. 56, No. 1, Winter 2002.

> Examines modal competition between rail and truck-barge under a scenario of breaching four dams on the Snake River in Washington State. Study is notable for highlighting low revenue to variable cost ratios sustained by rail shippers in three states where intermodal competition is present.

Vachal, Kimberly, Denver Tolliver, John Bitzan, and Bridget Baldwin. *Marketing Hard Red Spring Wheat in 100-Car Trains*. Mountain Plains Consortium Report No. 98-93, August 1998.

> This study, conducted in cooperation with the North Dakota Wheat Commission, Canadian Pacific Railway, the South Dakota Wheat Commission and others, provides informational base that hard red spring wheat market participants can use in assessing the value of a 100-car marketing option for their business. Includes estimates of rail efficiency gains and returns on investment for elevator upgrades. The advent of larger trains will likely contribute to further rationalization of the grain procurement system: fewer elevators, additional rail line abandonments and longer producer deliveries.

Whiteside, Terry C. "Oral Testimony On Behalf of Montana Wheat and Barley Committee; Wheat and Barley Commissions of Colorado, Idaho, Oregon, South Dakota and Washington; and The Alliance for Rail Competition; Before the U.S. Senate Commerce Committee Subcommittee on Surface Transportation and Merchant Marine" October 23, 2003.

> States that "freight rail industry has chosen short-term profit over healthy evolution and an open American marketplace", and that the railroads "are doing exactly what the law, as interpreted by the regulatory body, allows." States belief that "the regulatory mechanism has skewed the intent of Congress when it passed the Staggers Act in 1980." States that the law needs fixing to restore the balance of competition, and obtain the fairness that comes with competition. Speaks in favor of S. 919.

Wilner, Frank N. "Coal shippers in revolt", *Railway Age*, March 1999.

> Describes concerns by railroad-dependent "captive" coal-powered electric utilities regarding transportation rates charged, for example, rail shipping charges of $19 per ton and $12 per ton for a similar haul length, the difference being two-railroad competition. Coal shippers allege that the Surface Transportation Board "arbitrarily administers the Interstate Commerce Act by ascribing greater importance to helping railroads earn adequate revenue than encouraging competition among railroads." States that Alliance for Rail Competition (ARC)

and Consumers United for Rail Equity (CURE) have “backed away” from complete open access, but rather seek ”more balance in how certain utilities are treated”. One coal shipper suggests that railroads be subject to antitrust laws just like other industries. Another person working for coal shippers states, “Railroads take advantage of their captive customers. … It’s the combination of high prices, poor service, and unresponsive rail employees that so upsets coal shippers.” Author quotes another person saying, “Few shippers any longer are willing to bring rate complaints before the STB … the cumbersome regulatory mechanism doesn’t fit today’s fast-paced business environment. STB is a suffocating, unwelcome environment.” And another coal shipper states that it is wrong “that railroads have the economic power to determine through their rate-structure which electricity plants prosper, survive, or close.” A shipper attorney says “shippers always lose when regulators must choose between railroad revenue adequacy and fostering competition.”

Wilson, William W. *U.S. Grain Handling and Transportation System: Factors Contributing to the Dynamic Changes in the 1980s and 1990s*. Department of Agriculture Economics, Agricultural Experiment Station, North Dakota State University, Fargo, North Dakota, November 1998.

Explains evolution of changes in U.S. grain handling industry following deregulation in 1980. Provides a summary of the Staggers Rail Act. Deregulation and competitive pressures have induced investment to improve efficiency, including rate discounts to induce more efficient movements for origins. Railroads have adopted car allocation systems which facilitate more efficient allocation of cars among shippers.

This study discusses effects of Staggers (rates, contracts, branch line abandonment), rail incentive mechanisms (unit train rates, shuttles, 286,000-pound railcars), car allocation systems (including that of BNSF) and implications, and the factors contributing to rationalization and efficiency of the U.S. grain handling and transportation system.

Wilson, Wesley W. and William W. Wilson. “Deregulation and Innovation in Railroad Shipping of Agricultural Commodities: 1972-1995” December 1998.

Analyzes effects of rail deregulation on rail productivity, costs and rates in the case of U.S. grain. Describes changes in grain handling system in period following deregulation in 1980, the effect of which has been to induce efficiency investments. Rate discounts, car allocation systems, and implications for the Canadian industry are discussed.

Notes that rate increases have been a concern for shippers, but adds that “most have been unfounded. In the case of grain shipping, there has been [*sic*] recent concerns expressed to the Surface Transportation Board (STB) to propose some form of reregulation. In general, grain shippers have become concerned about

problems with competitive access, service deficiencies and railroad performance, problems with product and geographic competition in rate reasonableness cases …. A major issue emerging in the United States relates to the interpretation of *common carriage* …."

"[T]remendous productivity gains" have occurred concurrently with deregulation, prior to which rail shipping was characterized primarily by "single car movements with generic service options." Numerous railroad efficiencies have been introduced.

Zink, Daniel L. and Gene C. Griffin. "Effects of Rail Contract Rates on North Dakota and Minnesota Country Grain Elevators". The Upper Great Plains Transportation Institute, North Dakota State University, January 1987.

Railroads and motor carriers compete for North Dakota grain traffic. Railroads increased their market share of grain movements from 59 percent in 1978-79 to 74 percent in 1985-86.

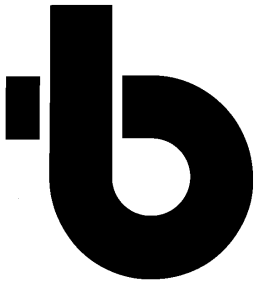
Authors state that the "most significant change in grain transportation rates in the northern plains occurred in 1980 when the Burlington Northern introduced multi-car and trainload rates to the Pacific Northwest. Prior to this only single car rates were available to area country grain shippers." Authors state that "rates to the Pacific Northwest … are identical from all stations within each state" and that the rate differences among service levels (single, 3 car, 26 car and 52 car) are of critical importance. The elevator manager must determine whether costs of upgrading the facility, including trackage construction, is appropriate.

In North Dakota and Minnesota, the focal point of the country grain marketing system has been the country grain elevator, serving as "consolidators of farmer-delivered grains for reshipment and sale to terminal markets." The authors point out that the numbers of country elevators in North Dakota has been declining (2,031 in 1915, 592 in 1980, and 577 in 1985) while average storage capacity and volume handled at each has been increasing (30,000 bushels average capacity in 1915, 345,000 in 1985). Authors mention the negative impact of increased trucking on roads, and the taking over of the elevator business by large firms (thus imposing central management controls over local elevators).

Study describes the general pricing mechanism as terminal market price less freight costs and margins. Since freight costs represent a major proportion of the overall price, contract rates can significantly affect country grain prices.

Authors surveyed country elevators in North Dakota and Minnesota, and concluded that competitive position of elevators, as well as prices farmers received for their wheat, were improved by negotiated contracts. A higher proportion of larger country elevators negotiated their own contracts, compared to smaller elevators. Trainload shippers were more prone to contracting than

single car shippers. Larger shippers favored confidential rate contracts; smaller shippers perceived them as a "discriminatory practice which damaged their competitive position." The perception among grain buyers is that "rail contracting has definitely helped both country elevators and their farmer-patrons by providing lower freight rates and therefore higher prices." "The primary reason for small shipper non-competitiveness, according to buyers, is the rate differentials between single and multi-car shippers."



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