

North Dakota Strategic Freight Analysis
The Role of Intermodal Container Transportation in North Dakota

Executive Summary

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Message to the Reader

This report is organized into three different sections: the executive summary, the main report, and appendices. The first three pages of the executive summary provide the reader with valuable information on the study and findings. These pages provide an intermodal definition, significant findings, and keys to developing an intermodal facility in North Dakota.

SUMMARY

Intermodal Definition

Intermodal freight transportation is defined as the seamless and continuous door-to-door transportation of freight on two or more transportation modes. (Muller, 1995).

Significant Findings

- Nationwide, from 1990 to 1999, trailer and intermodal container loadings in the U.S. increased from 6.2 million to 9.18 million respectively (AAR, 2001). Loadings were down somewhat in 2001 to 8.94 million, but again have rebounded in 2002. Loadings are up 9 percent over 2001 loadings for the first 35 weeks of 2002 (AAR, 2002)
- In addition to the freight rate, important factors in the choice of transportation modes include transit time, reliability, capability, accessibility, customer shipping preference, and security.
- Intermodal truck-rail transportation offers two distinct advantages: (1) it allows combining the better service characteristics of truck with the lower rates of rail, and (2) it increases the ease of shipping products internationally.
- North Dakota commodities ideal for container movements may include skid steer loaders, mini excavators, value-added wood products and furniture, industrial and agricultural machinery, and agricultural products such as soybeans, confection sunflowers, and organic and identity preserved grains.
- Viable intermodal container transportation may provide an avenue for North Dakota manufacturers and value-added agricultural producers to compete in international and domestic markets.
- Benefits of intermodal transportation include:
 - lower overall logistics costs
 - increased economic productivity and efficiency
 - reduced congestion and burden on over-stressed highway infrastructure
 - higher returns from public and private infrastructure investments
 - reduced energy consumption

- increased safety
 - opportunities for new business growth and diversification
- An intermodal loading facility in North Dakota may result in an overall reduction in truck traffic and highway system maintenance.

- The largest barrier to many companies using intermodal shipping is the location of an intermodal loading facility within a reasonable distance.
- Although the intermodal facility at Dilworth, MN is close to North Dakota, alleged problems with customer service, capacity, truck access, and limited space for warehousing cloud its future viability.
- An intermodal facility serving North Dakota may be viewed as an economic development tool that will help promote the success of existing businesses and draw new businesses to the state.
- For an intermodal facility to be located in North Dakota it must meet one of two criteria: (1) it must have a traffic volume that is large enough to generate efficient shipment sizes to final destinations without being consolidated with other traffic, or (2) it must have ancillary services available to the railroad that would give it a reason to stop and receive extra cars.
- Location factors contributing to the success of an intermodal facility include potential container volume, multiple railroad alternatives, location on an intermodal line, location on the National Highway System, and the availability of accessorial rail services.
- The largest amount of potential intermodal container traffic is in the southeast portion of North Dakota, near Fargo. This is due in part to potential container traffic in northwestern Minnesota.
- In order to be successful, an intermodal facility may have to be located on a Class 1 railroad intermodal line.
- Minot is the only location in North Dakota where two Class I railroads interchange freight cars and where two competing railroad intermodal lines intersect.
- The success of the Port of Montana has important implications for North Dakota. A successful intermodal facility may need to diversify in order to achieve success.
- To be successful, an intermodal facility will need to handle between 13,000 and 21,000 containers per year.
- A base intermodal facility capable of handling 50,000 lifts per year is estimated to cost in excess of \$2 million and have an annual estimated operational cost of approximately \$500,000.
- Adequate capital funding and operating revenues are the two main obstacles to constructing and operating a successful intermodal facility.
- One of the largest barriers to funding an intermodal container facility is that federal and state

highway funding rules limit the ability to accomplish multimodal projects.

- A possible funding scenario may be to follow the Montana example of a combination of general fund and utilization of Port Authority.
- North Dakota may need to establish enabling legislation allowing the formation of a Port Authority.

Keys to Developing an Intermodal Facility in North Dakota

Many parties have expressed a strong interest in developing a highway/rail intermodal container transportation facility. The development of a successful facility will require someone or an entity to take a strong leadership role. It will also require a cooperative effort among federal, state, and local government, economic development groups, railroads and other transportation companies, manufacturers and specialty agricultural producers. This effort may include such actions as:

1. Pursuing state enabling legislation allowing for creation of a port authority for communities and regions
 - Bonding authority
 - Power to tax
2. State legislation allowing joint state/local funding cooperation for non-highway components
 - Start-up grant from state or federal sources
 - Low-interest loans
3. Local community support of creation of diversified shipping/business model
4. Commitments and Cooperative Effort
 - Commitment of rail carriers for rates and service
 - Commitment of a jurisdiction (city, state, county and rail)
 - Cooperation among states and provinces
 - Commitments from shippers and third party transportation providers
5. Specific site analysis
 - Business plan
 - Engineering plan
6. Creation of an outreach program educating shippers about intermodal transportation using an internship program and other educational methods

Final Commentary

Final determination as to whether or not a facility is built in North Dakota is up to the leadership of both public and private sectors. The information in this report provides a basis for discussing the pros and cons of constructing an intermodal terminal. Cooperation among state and local government leaders along with business leaders can bring about a plan for increasing the transportation options for the shippers of the state.

A multi-faceted terminal serving many different interests and filling niche transportation demands may provide opportunities for existing businesses to diversify and grow, and for potential new businesses in the state and surrounding region. The trend of increased production of identity preserved agricultural products and a growing viable manufacturing sector requires additional logistical and transportation options be considered.

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I. PURPOSE AND PROCESS OF THE STUDY

This report examines the potential role of a newer form of transportation-intermodal truck-rail container transportation, in the state's expanding manufacturing and value-added agricultural base.

The objectives of the study are to: (1) examine the current transportation system for value-added processors, manufacturers and specialty agriculture producers, (2) provide information and analysis necessary for decision makers to evaluate the viability of an intermodal container facility serving North Dakota, and (3) provide information related to the transportation needs of manufacturers and value-added agricultural producers to allow informed decision making by public policy makers.

Specifically, the report explores general advantages of intermodal container transportation, examines factors that make intermodal container transportation successful, examines functions performed by successful intermodal facilities, evaluates characteristics of various locations that are desirable for an intermodal facility, estimates potential traffic volumes and other characteristics of various North Dakota locations where such a facility might be located, and explores various funding options for an intermodal facility.

Characteristics of Container/Trailer Intermodal Transportation (Highway/Rail)

The definition of intermodal freight transportation is the seamless and continuous door-to-door transportation of freight on two or more transportation modes, for example, truck-rail or truck-ocean (Muller, 1995). Although many types of intermodal transportation exist, this study examines intermodal container transportation-where containers or trailers are loaded on to rail cars for transportation to domestic markets or to ocean vessels for international markets.

Intermodal transportation is an important part of value-added manufacturing. Lower total logistics costs are realized by using each mode for the portion of the trip for which it is best suited. For example, rail is used on the long-distance haul and truck on the short-distance haul to and from the intermodal facility, providing advantages of truck's door-to-door service and increased security, and the economies provided by rail. Moreover, intermodal truck-rail service also mimics improved reliability of truck over rail, as rail carriers have placed an emphasis on reliability for intermodal services. Using rail for the long-haul portion of the trip also may result in improved environmental conditions including improved air quality because of reduced energy consumption. Finally, using fewer trucks for the long-haul portion of the trip also lessens congestion in major metropolitan areas and reduces damage to the roadway.

Benefits of intermodal transportation include:

- lower overall logistics costs
- increased economic productivity and efficiency
- reduced congestion and burden on over-stressed highway infrastructure
- higher returns from public and private infrastructure investments
- reduced energy consumption
- increased safety

Intermodal transportation is used in domestic and international shipments. The domestic movement usually is truck-rail, while internationally it can be a truck-rail-ocean or rail-ocean, or truck-ocean. Containers have increased in popularity in international trade. However trailers will remain important in the short-haul and low-volume loads.

II. EXISTING TRANSPORTATION CONDITIONS IN NORTH DAKOTA

The state's transportation system largely has been built to accommodate North Dakota's bulk agricultural production. While bulk agriculture is still and will continue to be a large part of the state's economy, recent rapid growth in the manufacturing industry suggests that manufacturing will play an increasingly important role in the state's economy.¹

For the state's growing manufacturing and value-added agricultural industries, where fast delivery times and low inventory costs are important elements in doing business, new forms of transportation outside the traditional bulk-handling system are needed. One form of transportation that has not been fully utilized by North Dakota shippers is intermodal container carriage on rail cars. Viable intermodal container transportation may provide the avenue for North Dakota manufacturers and value-added agricultural producers to compete in international and domestic markets.

Within the state, many parties have expressed interest in having close proximity to intermodal container transportation. Producers of specialty crops, along with manufacturers from different parts of the state have expressed an interest in locating an intermodal facility within close proximity to their plants or production. The closest facilities are in Dilworth, Minn.; Winnepeg, Mant.; Minneapolis, Minn.; Regina, Sask.; Chicago, Ill.; Billings, Mont., Butte, Mont., and Shelby, Mont..

Although Dilworth, Minn. is in close proximity to many North Dakota shippers, several problems exist with the current facility. In conducting a survey of North Dakota firms, we found that 9 percent of respondents who reported using an intermodal container facility reported they were denied

¹Appendix 1 of this report provides a description of the North Dakota Economy, with a specific focus on the manufacturing sector.

intermodal container service at least once during the last year. In fact, the BNSF Railroad projects the facility to reach capacity limitations by 2008. The Dilworth facility offers limited space for other complementary activities such as warehousing.

Case Studies of Intermodal Container Transportation

To gain insight into the types of benefits that intermodal container transportation provides to North Dakota shippers, we performed several short case studies. We performed case studies to: (1) show rate and transit time implications associated with shipping specific North Dakota products to specific markets using an intermodal container option, and (2) show changes in transportation competitiveness of North Dakota shippers resulting from an intermodal container option.

In estimating transportation charges and transit times for shipping North Dakota products by truck and/or intermodal container to foreign markets we found: (1) sugar and dry pasta are transported to Kobe, Japan, at substantially lower costs using an intermodal container rather than using truck and transloading into containers at coastal ports (18 to 25 percent savings), and (2) these same products experience transit times that approximately one-third higher using the intermodal option. For mini excavators shipped by intermodal container to Antwerp, Belgium, we found an estimated 34 percent savings in transportation charges in comparison to truck transloading into containers at a coastal port, and transit times that are approximately equal to the truck-transloading option.

In comparing estimated transportation charges and transit times for select North Dakota products to those of major domestic competitors, we found: (1) Transportation charges for shipping dry pasta to Kobe, Japan, are much higher for North Dakota shippers than for shippers in Salinas,

California, or Excelsior Springs, Missouri, (2) Transportation charges for shipping excavators to Antwerp, Belgium, are much higher for North Dakota shippers than for shippers in Dubuque, Iowa or Peoria, Illinois, and (3) the intermodal container option greatly reduces transportation disadvantage for North Dakota shippers of these products. The findings of all the case studies suggest that intermodal container shipping provides an important option for many North Dakota shippers.

Shippers' Views of Intermodal Service

The largest barrier to many companies using intermodal shipping is the location of intermodal loading facilities. An intermodal loading facility located within a reasonable distance is essential to justify using intermodal as a viable transport mode. As distance to an intermodal facility increases, rate savings decrease, due to increased drayage costs. Moreover, this increased distance also causes transit times and the resulting logistical costs to increase. This explains why many small, rural companies simply continue to use trucks to transport their products.

Railroad's View of Intermodal Service

Much of the success of intermodal operations can be attributed to the development of intermodal hubs, or terminal locations, where trains are gathered and cars are exchanged or switched to form new trains. "These "hub-and-spoke" operations take advantage of reducing the number of point-to-point operations when the volume is not large enough to make them cost efficient" (Muller, 1999).

However, while a generalized version of the 'hub-and-spoke' system has been used to make railroads successful in intermodal operations, some rural areas have been excluded from this system.

Many rural areas in the western part of the U.S. have such low intermodal traffic volumes and are at such long distances from large volume intermodal facilities that they have not been fully included in the intermodal “hub and spoke” system. In many cases, their intermodal service has been eliminated. This service has been reduced from approximately 1,500 operations in 1970 to less than 370 in 1998 (Muller, 1999). This reduction in facilities has limited transportation options for many shippers in smaller cities or rural areas.

This trend has important implications for future intermodal service to North Dakota. Because an intermodal facility serving North Dakota would not be fully included in the railroad’s “hub-and-spoke” network, it must meet one of two special criteria: (1) it must have a traffic volume that is large enough to generate sufficient shipment sizes to final destinations without being consolidated with other traffic, or (2) it must have ancillary services available to the railroad that would give it a reason to stop providing an opportunity to switch rail cars.

Montana: Two Different Terminal Options

Two intermodal terminals in Montana provide insight into factors that might make an intermodal container terminal successful or unsuccessful in North Dakota. One facility, the Port of Montana, has greatly diversified in order to become a successful intermodal facility.

The Port of Montana, located in Butte, originally was built to provide container/trailer transloading services. After operations began, it was clear that expansion into other shipping services was necessary to have a successful facility. The facility has diversified by providing intermodal container/trailer service, fertilizer bulk handling, liquid materials, auto storage for distribution, lumber

storage for distribution, silica sand storage for distribution, and other functions on an individual basis.

One of the facility's main businesses is regional distribution for GM automobiles. The cars are brought to the facility, off loaded, and stored in the secure storage area until they are ordered for distribution.

The success of the Port of Montana has important implications for a potential intermodal facility in North Dakota. Just as the base container traffic for an intermodal facility in Butte is limited, this also is likely to be the case for North Dakota. The case suggests that a potential facility in North Dakota may need to diversify to achieve success in a similar way to the Port of Montana.

Another intermodal facility in Montana is the intermodal facility at Billings, which is operated by BNSF. The facility's focus is on less-than-truckload (LTL) traffic. The LTL carriers of Roadway, Yellow, UPS, FEDEX, and the USPS dominate the transloading for the Billings facility. Outside of this traffic, the facility has had limited success in obtaining intermodal container traffic.

A potential reason why the facility has not obtained a large amount of container traffic is that it is not on a railroad intermodal route. Billings is located on a coal route, and therefore container traffic must yield to coal trains, greatly slowing transit times. Another problem faced by the Billings facility is that traffic must be switched between Montana Rail Link and the BNSF near the facility. This switch delays shipments in and out of the facility.

These problems also have important implications for a potential North Dakota facility, suggesting that any new facility should be on an intermodal line and not rely on multiple railroad coordination near the facility for short and reliable transit times.

III. SUMMARY OF FINDINGS

A survey was administered to gain insight into the modes of transportation used by manufacturers and specialty agricultural producers in the North Dakota region, reasons they use such modes, experiences of shippers with intermodal service, and transportation volumes. The survey was sent to all manufacturing companies in North Dakota and in the counties of surrounding states, as well as to a number of specialty agricultural companies in the region. Specifically, shippers were surveyed in North Dakota, Minnesota, Montana, and South Dakota. Although the survey was preceded by a letter explaining its importance, and followed by postcard reminders and telephone calls, the response rate was limited. Moreover, many responses were partial or incomplete.

Of the 2,039 manufacturing locations in surveyed areas, 261 responded, representing a 12.8 percent response rate. While the response rate was low, the locations responding employed 27,402 of the 58,318 manufacturing workers employed in the region (47 percent). This suggests that the responses we received should be representative of a large portion of the region's manufacturing.

The survey revealed several important findings; (1) modal shares for outbound products were 53 percent by truck, 45 percent by rail, and 2 percent by container, (2) modal shares for inbound raw materials were 98 percent by truck and the rest by rail, (3) in responding to a question asking why firms use the transportation modes they use, more than half reported timely and reliable service as one reason, 46 percent reported direct access as a reason, and 40 percent reported low rates - this may suggest that an intermodal option that combines timely service with lower rates in comparison to truck transport may be desirable for shippers in the region, (4) a large amount of the freight volume from the surveyed regions is located in the southeast portion of North Dakota and northwest Minnesota, and (5)

of the firms that use intermodal container transportation as an option, 9 percent reported having been denied service within the last year.

Potential Traffic of an Intermodal Container Facility

Perhaps the most important factor in determining viability of an intermodal container facility is the potential traffic that would use such a facility. The amount of potential traffic for a facility provides three important pieces of information: (1) it provides a measure of the benefit of such a facility - a larger amount of potential traffic means larger total savings in logistics costs for regional manufacturers and specialty agricultural producers, and (2) it provides an indicator of whether a new facility would generate enough business to become a profitable and viable venture, and (3) it may provide an indicator of the quality of service and level of rates that might be charged for such a facility, as railroads are able to produce higher quality intermodal services at lower costs with larger shipment volumes. One difficulty in estimating potential traffic is that the amount of traffic depends on rates and service levels, and these are unknown for a new facility. Essentially, our methodology estimates tons of various products transported from the region, multiplied by the Illinois percentages of these same products that move in intermodal truck-rail configurations providing an estimate of potential intermodal freight.

Table 1 shows the estimated potential outbound and inbound containers from each of the previously defined regions.² As the table shows, the largest amount of potential intermodal container

²These estimated potential containers are expected to occur only in the region where the facility is located, and in other regions in close proximity. For example, if a facility were located in Fargo, container traffic from western North Dakota would be much smaller than indicated by the estimate of potential container traffic from western ND regions.

traffic is in the southeast portion of North Dakota. Moreover, other regions in close proximity to southeast North Dakota, including western Minnesota and northeastern North Dakota, also include large amounts of potential intermodal container traffic.

Table 1. Estimated Potential Container Traffic with a New Intermodal Facility.

Region	Estimated Potential Inbound Containers If Using 20' Container	Estimated Potential Outbound Containers If Using 20' Container	Estimated Potential Inbound Containers If Using 40' Container	Estimated Potential Outbound Containers If Using 40' Container
MN	1,683	7,184	1,530	6,530
MT	140	1,121	127	1,019
ND1	15	439	14	399
ND2	128	1,230	116	1,118
ND3	118	801	108	728
ND4	447	4,080	406	3,709
ND5	116	809	105	735
ND6	289	1,905	262	1,732
ND7	321	1,576	292	1,433
ND8	940	6,025	855	5,477
SD1	40	569	36	517
SD2	643	3,384	585	3,076

* Caution must be used in interpreting these estimated potential container volumes, as they are not based on an expected rate and service level.

Truck/Rail Container Intermodal Terminal Costs

An economic engineering model is developed to simulate costs for an intermodal facility. This model provides decision makers with an estimate of start-up and annual costs. Moreover, it provides insight into traffic volumes needed to make such a facility feasible.

The model shows the estimated investment expenditure for a base case facility capable of handling 50,000 lifts per year to be approximately \$2 million. The estimated annual fixed and variable costs for the base case intermodal facility capable of handling 50,000 lifts per year including facility and equipment depreciation, return on investment, taxes, insurance, maintenance, management, building expenses, and accounting expenses is \$500,000 per year. While these base case estimates are not exact, they represent a reasonable approximation of what such a facility would cost to maintain and

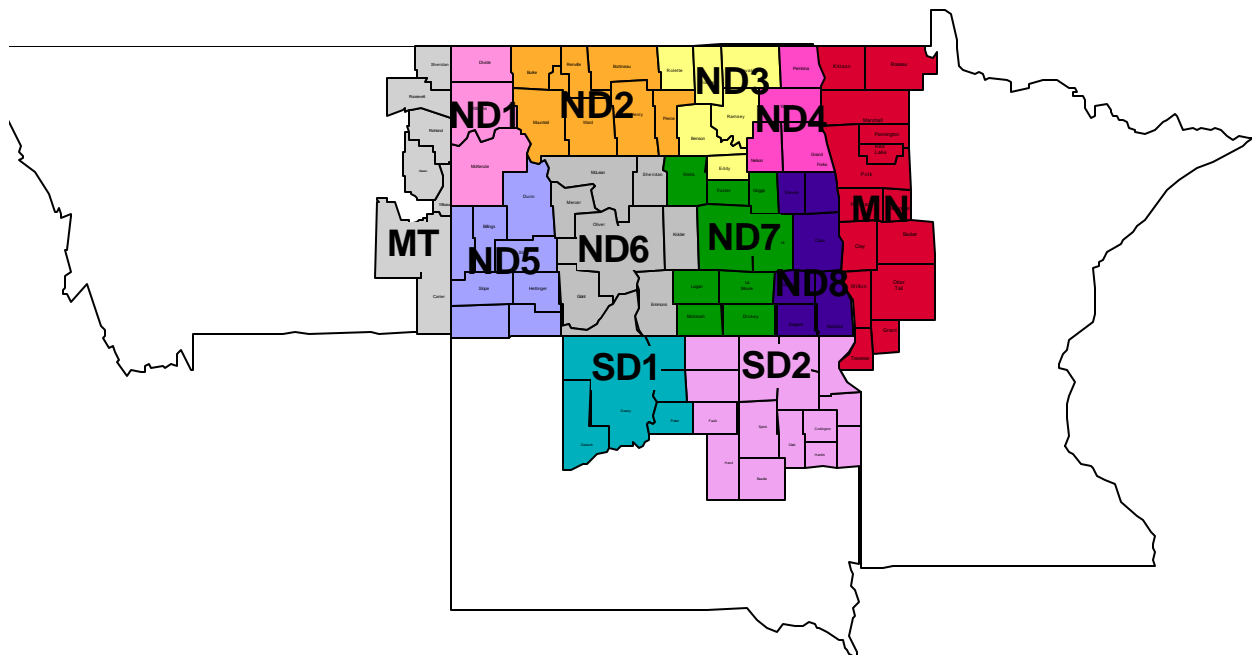


Figure 1. Surveied Regions in North Dakota, South Dakota, Montana (MT), and Minnesota (MN)

operate. It is possible to reduce costs somewhat by employing used equipment or by using existing track.

Some insight into the types of volumes that would be necessary to support such a facility might be obtained by comparing an average revenue per lift to the costs per lift.³ Leeper, et. al (1996) estimate that the lift revenues at Dilworth, Minn. are in the range of \$10 to \$15. If these numbers are put in current dollars using the GDP Implicit Price Deflator, the range is \$10.94 to \$16.41 in 2001 prices. At the high end of the revenue range, this would suggest that a facility may be feasible with as few as 13,000 containers annually. At the low end of the revenue range would suggest that a facility would need 21,000 lifts per year to be feasible.⁴ This is consistent with correspondence with the BNSF suggesting that most of the facilities they serve have at least 20,000 loaded containers per year.

Location Analysis

A variety of locational factors enhance the viability of an intermodal container facility. Locational factors contributing to the likely success of an intermodal container facility include, but are not limited to: (1) potential container volume, (2) the availability of multiple railroad alternatives, (3)

³It is important to note that these cost estimates and average revenue estimates are reasonable estimates given the information we have. However, the point where average revenue per lift is equal to cost per lift from this model should not be considered as a solid break-even point. Rather, the numbers are illustrative of a range of traffic where such a facility may be feasible.

⁴One container generally requires two lifts.

location on an intermodal rail line, (4) location on the National Highway System, and (5) the availability of accessorial services such as a fuel stop at the location.⁵

Although not quantifiable, the availability of complementary transportation services, such as international air service, and express package and LTL terminals, as well as business services can also increase the likely success of a new intermodal container facility. In particular, one of the benefits of an intermodal container facility may be to attract firms that may benefit from the lower logistics costs offered with such a facility. The addition of an intermodal facility is likely to have a greater impact on attracting new businesses in locations that may offer a variety of transportation and business services. Because the availability of such services is not quantifiable, they are not analyzed further. The following paragraphs will explore various potential locations for an intermodal facility in North Dakota in terms of these criteria.

Although the study examines a variety of locations, we highlight Fargo, Minot, and Valley City, as each presents a unique situation in terms of a potential intermodal container facility. Fargo is chosen due to its location in a region that has high potential COFC volumes and its close proximity to other regions with high potential COFC volumes, its location on two interstate highways, its location on an intermodal line, and the fact that it currently serves as a fuel stop for the BNSF railroad. Minot is chosen due to its unique characteristics of being the only location in North Dakota with two competing

⁵These factors were developed from a review of literature related to the development of intermodal container facilities, from site visits at intermodal facilities in Billings and Butte, Mont., and Dilworth, Minn., and from discussions with the BNSF. Unfortunately, we were unable to obtain direct input from the Canadian Pacific Railroad in this study. CP Rail chose not to provide guidance or answer any questions regarding desirable locations or operational characteristics that would fit an intermodal terminal location.

intermodal lines, its location on the national highway system, and its current fuel stop for the BNSF.

Valley City is chosen due to its close proximity to high potential COFC volumes, its location at the intersection of two competing railroads, and its location on the National Highway System.

Figure 2 shows the three cities and the 100-mile radius around each and Tables 2 and 3 report the other characteristics of each and the estimated potential COFC traffic volumes.

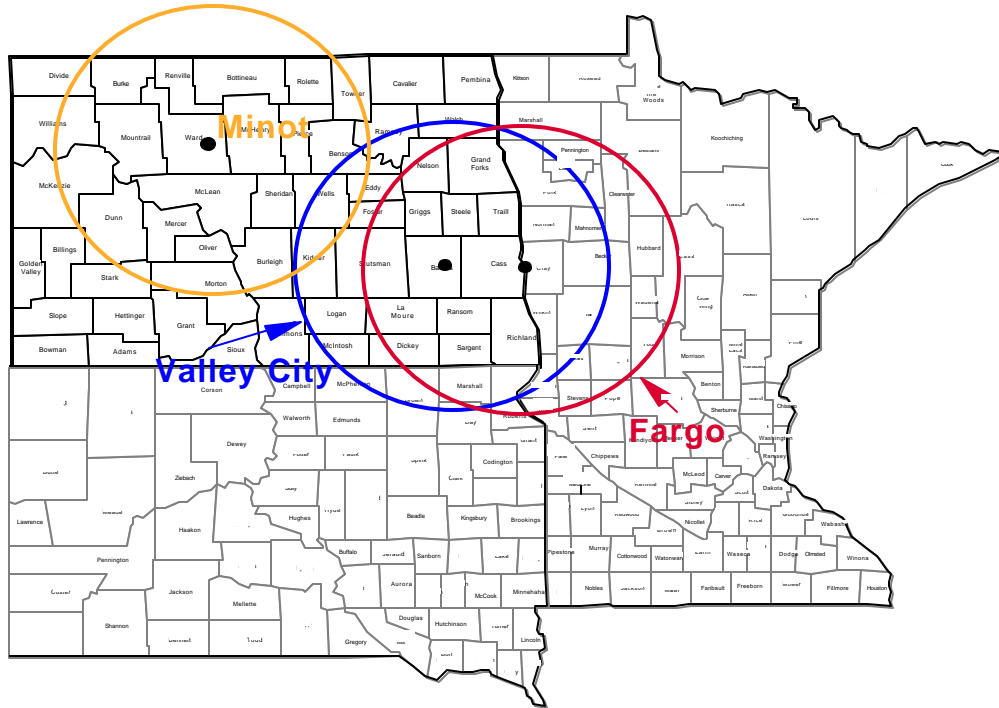


Figure 2. 100 Mile-Radius Around Three Cities (Fargo, Valley City, and Minot)

Table 2. Cities Chosen for Analysis and Locational Factors .

City	Accessorial Services	Competition CP and BNSF	Intermodal Line	Located on National Highway System
Fargo	Yes (Fuel Stop for BNSF)	No	Yes (BNSF)	Yes
Valley City	No	Yes (BNSF)(CP)	Yes (CP)	Yes
Minot	Yes (Fuel Stop for BNSF)	Yes (BNSF)(CP)	Yes (BNSF)(CP)	Yes

* Assumes 10,000 containers loaded by the Tioga alfalfa pelleting facility.

Table 3. Estimated Potential 20' Containers

City	Estimated Potential Twenty foot Containers					
	100 mile-radius		150 mile-radius		200 mile-radius	
	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound
Fargo	16,021	3,229	20,428	3,884	22,962	4,248
Valley City	15,225	2,757	21,153	4,172	23,282	4,329
Minot	3,391 (13,391)*	488	5,907 (15,907)*	1,022	13,573 (23,573)*	2,186

* Assumes 10,000 containers loaded by the Tioga alfalfa pelleting facility.

** Within the literature containers are measured in TEUs (20 foot equivalent unit).

*** 40' containers may be loaded instead of 20' containers. Estimated potential 40' containers can be obtained by multiplying the above estimates by .909.

As the Table 3 shows, each of these cities is estimated to have at least 13,000 potential outbound containers. A previous section of the report suggested that under specific conditions, 13,000 to 21,000 containers may be enough to make a new intermodal container facility viable. In looking at each community separately, Fargo offers the highest estimated potential outbound and inbound container volumes for the 100 mile-radius, is on an intermodal line, offers refueling to the BNSF, and has direct access to two interstate highways. However, Fargo does not have multiple railroad options. Nonetheless, the community represents one potentially viable location for an intermodal container facility.

One important discussion point related to Fargo is that a facility already exists in Dilworth, Minn. a location within three miles of Fargo. However, several problems exist with the current facility, and these problems are unlikely to be resolved at the current location. Problems include a lack of space for expansion into other areas such as warehousing, unavailability of equipment, and congestion.

Moreover, the facility is privately owned and operated and is not in North Dakota. Therefore, the ability to use state and local economic development tools for this facility - tools that may enhance the facility's chances for success - is limited.

Valley City also ranks high in potential container volume, but not as high as Fargo. While the city has railroad alternatives (BNSF and CP), it is located on only one intermodal line. As suggested previously, competition is not likely to have a big effect on rates and services in cases where the location is not on two intermodal lines. Thus, based on the stated criteria, Valley City does not appear to have advantages over Fargo. However, a more remote or rural site may be desirable for loading and unloading of containers where it would not interfere with other railroad operations, and where more space is available. The rurality of Valley City compared to Fargo may be an advantage.

Finally, Minot has a large amount of potential COFC volume if the estimate of 10,000 potential containers out of the new Tioga alfalfa pellet facility is correct. Moreover, Minot has one advantage that no other community has in the state of North Dakota - it is located on two competing intermodal rail lines. To the extent that such competition acts to discipline railroad rates and service, such a location may have a higher amount of potential container volume than estimated. Other advantages of Minot are the same as Fargo and Valley City, including a location on the National Highway System and the availability of a fuel stop for the BNSF. Finally, the BNSF stated that Minot would cause the least amount of disruptions to its operations, as intermodal trains currently stop there to change crews and some intermodal switching occurs there. The ability to attract the necessary amount of traffic still remains a concern in Minot, however.

The estimates of potential containers for the three cities can be expanded to 150 and 200 mile-

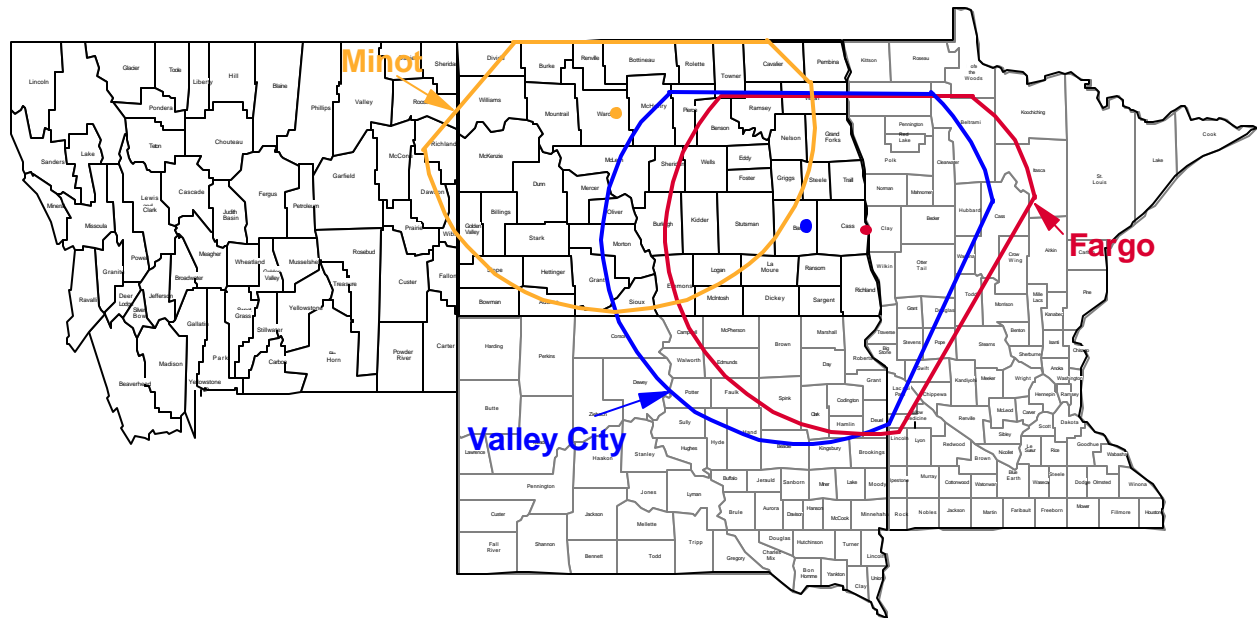


Figure 3. 150-Mile Radius of Three Cities (Fargo, Valley City, and Minot) to Estimate Potential Tons with New Intermodal Facility

radius (Figures 3 and 4).

Potential manufacturing and grain tons were measured to provide total potential 20' container volumes. However, this study has excluded areas located closer to other intermodal facilities, such as Minneapolis, Winnipeg, and Regina. Because shippers are likely to use closer intermodal facilities, it is rational to exclude these areas

According to the analysis, using the 150 mile radius, Valley City was found to have the largest container volume among the three cities at an estimated 21,153 containers (Table 3). Unlike the results of the 100 mile radius, Fargo had the second largest container volume at an estimated 20,428 containers. The reason for the lesser volume at Fargo was because the circle was closer to the intermodal facility located in Minneapolis thereby excluding some of the radius. For the 200-mile radius, Minot showed the largest container volume at an estimated 23,573 containers (Table 3). This estimate included 10,000 containers loaded by the Tioga alfalfa pelleting facility. Again, Valley City had the second largest volume estimate at 23,282 containers.

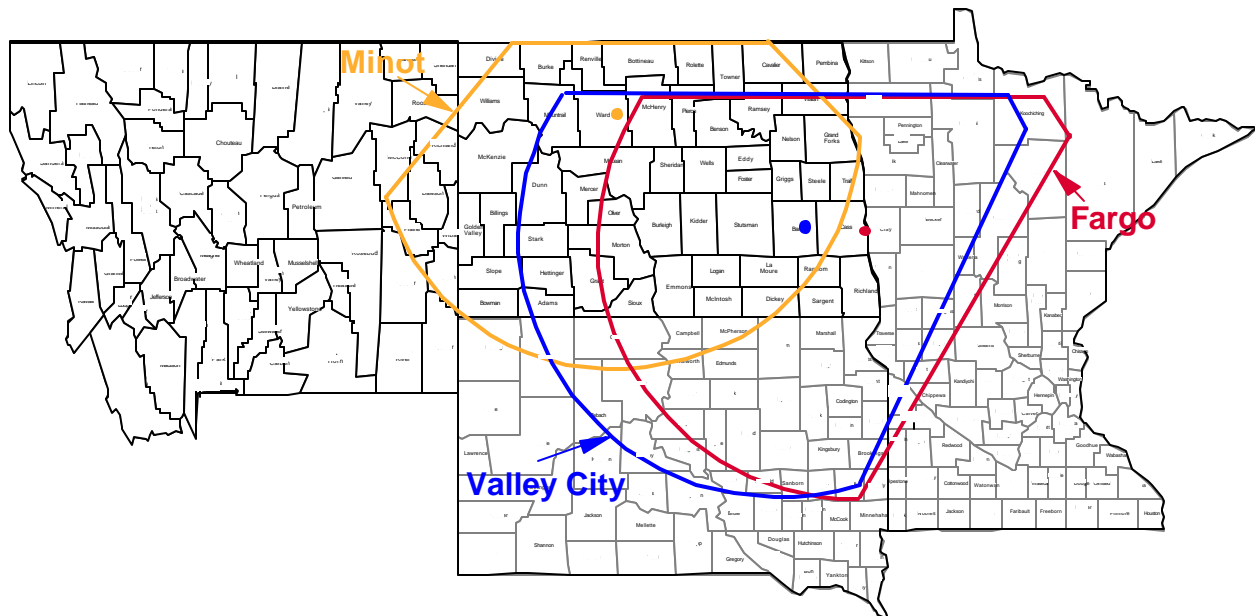


Figure 4. 200-Mile Radius of Three Cities (Fargo, Valley City, and Minot) to Estimate Potential Tons with New Intermodal Facility

In summary all three communities offer some advantage not realized by the other two. A complete feasibility analysis would require better data on potential volumes and capital/operation cost estimates for a specific site and type of facility.

IV. OPTIONS/ACTIONS TO CONSIDER

In examining funding options for a new facility, we found several potential sources, but some problems with each. One of largest barriers to funding and intermodal container facility is that federal and state transportation funding rules limit the way highway funding can be appropriated within the state. Specifically, a North Dakota Statute prevents state highway funds from being used for non-highway purposes. Moreover, allocated Federal highway funds cannot be used to construct an intermodal container facility. Relaxation of state and federal rules limiting funding flexibility may enhance opportunities for funding such a facility.

An important element of intermodal container facility success in Montana has been the enabling legislation allowing for Port Authority. Such authority may serve as a means for funding an intermodal facility. “The term Port Authority refers to a state or local government that owns, operates, or otherwise provides wharf, dock, and other terminal investments at ports” (Coyle et.al., 1994). Ports can be municipal airports or other public transportation systems moving people and goods.

Many cities, counties, regions, and or states have built terminal facilities to promote transit and efficient freight transportation using Port Authority. In the case of freight, the Port Authority may operate portions or all of the facility or lease facilities to private firms. Often, the Port Authority has taxing authority to provide funding for constructing and operating a facility. Many states, counties, and

or municipalities have engaged using Port Authority as a tool for providing shipping options for existing and or new development.

Although North Dakota does not have laws allowing for Port Authority, such a law could provide a method for cities, counties and/or regions to access the tax base for funding and/or maintaining for an intermodal facility. However, it may take initial funding from the state's general fund or a low interest loan from the Bank of North Dakota to make the initial investment.

Other options for funding an intermodal facility include public/private partnerships. Our interview with BNSF revealed a willingness to work with public agencies in a public/private

partnership. This may be a desirable option for funding such a facility, since such a commitment from both the public and private sectors may enhance the potential for success.

Other considerations in examining the possibility of funding an intermodal container facility include a need to diversify beyond intermodal container transportation, the need for cooperation/commitment from the railroad(s), cooperation and commitment from shippers, and cooperation among communities, counties, regions, and states.

Another possibility for funding is presented by the recently passed farm bill. A section of the farm bill authorizes a Northern Great Plains Authority in the states of Iowa, Minnesota, Nebraska, North Dakota, and South Dakota. "The Authority is expected to develop a series of comprehensive coordinated plans for economic development of the region. The Authority may approve grants to states and public and nonprofit entities for projects including transportation and telecommunication infrastructure projects, business development and entrepreneurship, and job training. Extends the program but no funds are provided."(source: www.rurdev.usda.gov/rd/farmbill/sections.html)

The main reason for the authority is to provide economic development for the Northern Great Plains regions. Even though no funding has been provided, the possibility exists for funding in the future. This Regional Authority may provide an avenue for funding an intermodal terminal facility.

V. FINAL COMMENTARY

Final determination as to whether or not a facility is built in North Dakota is up to the leadership of both public and private sectors. The information in this report provides a basis for discussing the pros and cons of constructing an intermodal terminal. Cooperation among state and local government leaders along with business leaders can bring about a plan for increasing the transportation options for the shippers of the state.

A multi-faceted terminal serving many different interests and filling niche transportation demands may provide opportunities for existing businesses to diversify and grow, and for potential new businesses in the state and surrounding region. The trend of increased production of identity preserved agricultural products and a growing viable manufacturing sector requires additional logistical and transportation options be considered.