

# Montana Freight Assessment

## *Trends and Opportunities to Improve Access and Create Freight Efficiencies for Montana Companies*



Prepared by

**Nicole H. Miller**



For

**Montana Department of Transportation  
Montana Department of Agriculture  
MT Governor's Office of Economic Development**

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16. Abstract  The overall goal of the research plan is to determine if establishing a "Shippers Group" is a worthwhile endeavor. Initial research will 1) identify Montana manufacturing companies and producer groups that import and export to and from Montana with opportunities to leverage freight volumes for improved efficiencies and reduced costs. Once companies, products and commodities are identified research will 2) explore the opportunities for regional hubs, commercial aggregation and combined trade lanes on state and regional levels, outlining cost savings and freight access opportunities.  We believe the research will illustrate a demand, outline solutions and provide a replicable model for future public private partnerships to support a shipper's consortium or association. The benefits and impacts of this project apply to multiple industries and the state as a whole, therefore this project is part of a collaborative approach with The Department of Agricultural and the Governor's Office of Economic Development. Agricultural products account for well over \$600 million worth of Montana's exports annually. If more volume moved via direct container there may be significant opportunities to improve freight access and decrease costs for all shippers in the state of Montana. Through a grant application that would provide additional support and collaboration with the Montana Department of Agriculture, this research can be combined with efforts to explore direct container shipping options for Montana agricultural producers.  Finally, the research will 3) identify the costs and benefits of education and outreach to Montana companies and Metropolitan Planning Organizations. Outreach efforts would include, but are not limited to, education on collaborative freight opportunities, cost analysis of container shipping, and opportunities for regional aggregation.					
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## EXECUTIVE SUMMARY

The intent of this study is to identify viable options and market trends that present opportunities to improve Montana's freight infrastructure in order to directly benefit producers and manufacturers. By developing a more integrated freight network in Montana, exporters can expect to achieve transportation savings and logistics efficiencies. The combined efforts of multiple firms will give service providers the necessary volumes to economically offer improved freight services and access. The hypothesis includes the idea that by creating "anchor shippers" in regions throughout the state, their volumes, combined with smaller shippers, can be leveraged to improve freight access, services and rates. The modal analysis completed for domestic freight indicates that the outbound freight from Montana can be characterized as lower value bulk cargo, and inbound freight is higher value packaged or non-bulk commodities. The high percentages of instate freight, both outbound and inbound by weight and value, underscores a need to increase value-added exports from Montana to other domestic and international markets. The most significant opportunities for Montana's producers and manufacturers to increase distribution and sales are outside Montana state borders.

Using container exports as a tool to identify potential anchor shippers, the locations of Butte, Great Falls and Billings were recognized as export origins of the largest container volumes in Montana. The product and commodity profile for container exports from Montana in 2008-2010 was largely dominated by silane gas and polycrystalline silicon shipped from Butte, followed by peas and non-frozen vegetables from Great Falls and salt, sulfur, earth and stone from Billings. Growth in emerging Asian economies is driving demand for agriculture and natural resources with significant opportunities for value-added food products and manufactured goods. To fully realize gains, producers and manufacturers need a robust logistics and infrastructure to support growth and meet demands of foreign buyers; however, the current freight network in Montana is extremely fragmented among industries and regions, lacking access to Class I rail, intermodal or multimodal consolidations hubs.

Through best practices and lessons learned from neighboring states, shippers associations and service providers identified in this report, we believe there is an opportunity to support the development and establishment of an integrated freight network in Montana to benefit stakeholders throughout the supply chain. The infrastructure investment by Class I railroads, foreign buyers and logistics providers demonstrates a market trend with long-term viability that can directly benefit Montana producers and manufacturers and support economic development in the state. Providing a network to help Montana companies better access existing or new markets and create efficiencies in the supply chain, presents an opportunity for service and transportation providers to develop a business model(s) that benefit stakeholders and support long-term growth.

## PROJECT OVERVIEW

The goal of this research is to identify opportunities for transportation efficiencies in the state of Montana by combining efforts of large “anchor” shippers with those of other smaller importing and exporting firms. In this report, data regarding seaborne international containerized exports is a tool to measure the activity and volumes of firms that have the potential to act as anchors. This research, however, is not limited to particular transportation modes or to overseas destinations. The term “exports” is used in reference to distant markets, both domestic- shipments outside the state of Montana- and international.

The research identifies manufacturing companies and producer groups companies that import to and export from Montana with an assessment of opportunities to leverage freight volumes for improved efficiencies and reduced costs. This project explores the opportunities for regional hubs, commercial aggregation and combined trade lanes on state and regional levels, cost savings and freight access opportunities. The trade data produced from this report it also intended to support economic development initiatives and infrastructure planning within the state of Montana.

The hypothesis of this study is that by developing a more integrated freight network in Montana, exporters can achieve transportation savings and logistics efficiencies and the combined efforts of multiple firms will give service providers the necessary volumes to economically offer improved freight services and access. The report has aggregated information from multiple state departments, stakeholders and third party service providers to generate an overview of the transportation options for companies and producers located in and/or shipping to/from the state of Montana.

The research aims to provide the following analysis:

1. *Modal Analysis.* An inventory matrix of transportation modes, carriers, and contracting options for transporting goods to identified markets based on feedback, insight and data collected from identified stakeholders. This analysis focuses on identified transportation needs and routes of existing exporters and importers and their prospective partners.
2. *Cost and Opportunity Analysis.* A comparative cost analysis of the most promising freight options. The analysis includes an outline of barriers and opportunities identified by shippers and stakeholders.
3. *Market Analysis.* An overview of findings as presented to identified shippers and other affected stakeholders — including public agencies and transportation operators – with an assessment of the identified opportunities.

## BACKGROUND

Montana producers and manufacturers have struggled for decades to find transportation options that will improve the reach and value of the state's products. The cost of inland freight across the country is increasing regularly, and this is especially true in Montana where rates have historically been higher than neighboring states<sup>1</sup>. Limited trade lanes, access points, freight hubs, transloading facilities and equipment all contribute to the excessive and increasing freight costs in Montana. Moreover, rail companies, have limited services in Montana adding additional costs and challenges to businesses.

In February 2009, the Montana Attorney General's office released a report to illustrating the excessive rail rates and lack of service available to Montana shippers. The report titled, *Railroad Rates and Services Provided to Montana Shippers*, incorporated information from the Government Accountability Office (GAO) and the Christensen Final Report to illustrate Montana shippers pay higher than average rail rates per car and ton basis for wheat and commodity shipments originating in Montana<sup>2</sup>.

From 2002 to 2004, two of the state's three intermodal<sup>3</sup> facilities were closed as the railroad industry went through a series of mergers. As a land-locked state, access to intermodal shipping plays a critical role in a company's ability to consistently transport goods at a competitive cost.

In 2008, the Montana Department of Transportation, in cooperation with the U.S. Department of Transportation Federal Highway Administration, commissioned a study to investigate intermodal demand and the opportunity to reinstate intermodal services in Montana. The study, *Container/Trailer on Flatcar in Intermodal Service on Railway Mainlines*, prepared by Prime Focus, LLC and Western Transportation Institute, outlined the history, network and movement of intermodal trailers or containers on Montana's mainline railroads, Burlington Northern Sante Fe (BNSF), and the Union Pacific (UP). The report offers an in-depth history of Montana's intermodal facilities, railroads and shipping stakeholders with an overview of the states export volume. The shipping volume data for the report was collected by contacting companies in Montana and Canada via email and phone to complete a survey. As stated in the report, the survey response was limited and subject to bias feedback. The survey distribution and results focused on the agriculture

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<sup>1</sup> Railroad Rates and Services Provide to Montana Shippers, A report prepared for the State of Montana, February 2009- page 1

<sup>2</sup> Railroad Rates and Services Provide to Montana Shippers, A report prepared for the State of Montana, February 2009- pgs 5, 13

<sup>3</sup> For purpose of this report Intermodal is defined by the American Association of Railroads, the movement of goods in shipping containers or truck trailer by rail cars from origin to destination

and natural resource industry with limited information on manufactured exports or specific origins and destinations of freight. The collected data was incorporated into a series of maps regionalizing the outbound volume by industry for the state of Montana. The report concluded that the states fragmented markets and export volumes did not meet the minimum demands of the primary railroad service provider, BNSF, to reinstate or provide intermodal services to Montana shippers.

At the time the report was completed, the total annual container shipments for the entire state were estimated to be approximately 17,000 twenty foot container equivalents (TEU). In discussions with BNSF the volume requirements to reinstate intermodal service at one facility in Montana is 250 containers per week, which equates to 13,000 TEU/year. To meet this demand roughly 75% of the states entire projected container volume would need to be consolidated at a single intermodal facility. Through additional conversations with BNSF, BNSF Logistics, the North Dakota Port Services and other freight forwarders, it was determined that in order to provide intermodal service not only does export volume need to meet the stated requirements, but there must also be sufficient inbound container cargo to support and create a consistent base for trade flow in the state. To establish inbound container service the ocean carriers (which typically own the containers) and railroads need to agree on a cost to reposition containers for exports. This report provides insight into these and other requirements to support intermodal and other integrated services that may improve the freight environment in Montana.

Infrastructure challenges go beyond the interest of the Department of Transportation and the Attorney General's Office. The following state agencies, organizations and associations have also identified the existing freight infrastructure as an impediment to improving exports and have been involved in the discussion of reducing transportation costs for Montana companies and producers.

- Montana Grain Growers Association
- Montana Wheat and Barley Committee
- Rail Service Competition Council
- Montana Manufacturing Extension Center
- Montana Small Business Development Centers
- Montana Small Business Administration

The impact of Montana's freight and infrastructures challenges is also indirectly reflected in the U.S. International Export Statistics. In the past 10 years (2000-2010), Montana has consistently ranked in the bottom 5% of the nation for U.S. state international export value and in 2010, Montana ranked 49<sup>th</sup> in the nation for manufactured international export

value (Brookings, Export Nation). This bleak trend has recently seen a positive shift with Montana's international export value increasing 48% to over \$190 million from 2005-2010 (Foreign Trade Division of the U.S. Census Bureau). The 2011 forecasts indicates the growth trend will continue as developing nations increase in population and prosperity and global demand for products and services from Montana continues to grow.

This study builds upon previous research on intermodal trailer and container demand on Montana's mainline railroads and identifies opportunities for Montana producers, manufacturers and stakeholders to collaborate and effectively leverage resources in order to increase export volume, reduce transportation cost and effectively compete in the domestic and global marketplace. The goal of this report is to identify market opportunities within the existing infrastructure and negotiate improved shipping rates and services, with the long-term goal of improving intermodal capacity and freight services in the state of Montana. Efforts concurrent with this research and supported by other state departments have been incorporated into this analysis to support the goal of identify specific exporters of agricultural and manufacturing products that may have the ability to help create and support an integrate freight network in Montana.

Maps of Montana's Rail and Highway systems are included as a reference for the modal analysis.

Figure 1: Montana Rail System

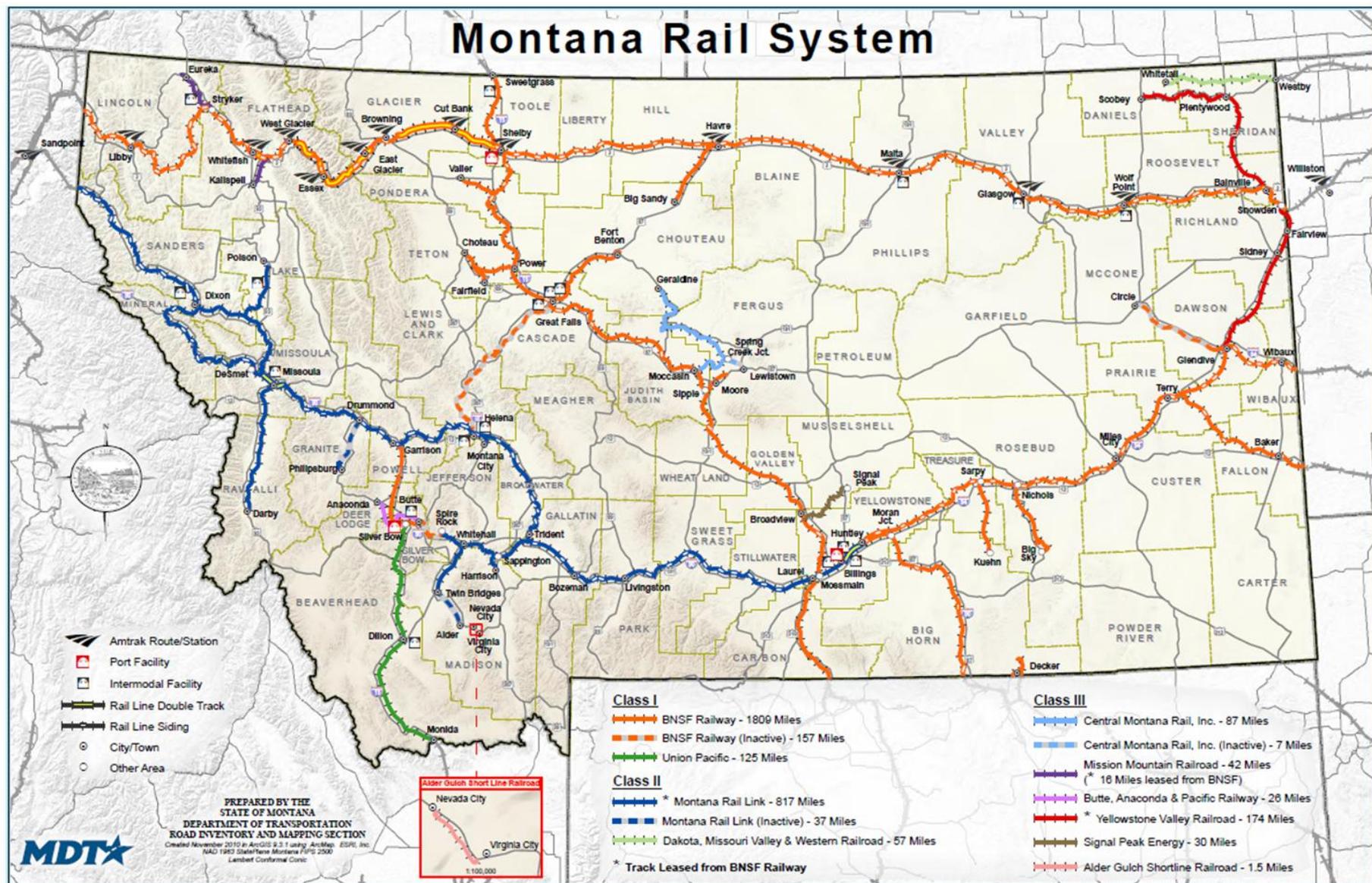


Figure 2: Montana Highway System



## 1. Modal Analysis

The modal analysis outlines the current trade flow and transportation network for businesses that import and/or export from Montana. The analysis provides a summary of transportation modes, volume, carriers, service providers, and domestic and international markets for exports from and imports to Montana.

To outline and identify this information, we focused on existing routes and transportation modes and met with shippers to understand existing needs and challenges. While we were able to capture insight and general freight information from manufacturers, producers, state agencies and past reports, the data was not sufficient to compile a comprehensive assessment of carriers, service providers, origins and destinations or trade lanes of shipments within, to and from Montana. Providing an accurate representation of trade volume by location and company to and from Montana presented a challenge.

The U.S. Census Bureau Foreign Trade Data provides information on international export and import commodities, country destinations and state based on value. While value is important part of the analysis, it does not accurately capture the export and import volume by mode. Additional data compiled from the U.S. Department of Transportation, Research and Innovation Technology Administration, Bureau of Transportation Statistics represented domestic and international trade flows by value, weight and mode. The data provides an additional level of insight (mode and weight) which helps to assess potential freight consolidation opportunity, but again, does not provide an accurate assessment of trailer or container volume, the velocity of shipments, or the origin and final destination (beyond country or state). Past studies projected freight volumes based on survey results from Montana and regional producers and manufacturers. MWTC considered this approach but after reviewing the limited responses from past surveys and conducting initial interviews it was concluded this approach would not provide the level of detail necessary to sufficiently and accurately analyze state shipping volume.

All previously mentioned sources provided detailed information on the value of exports but included very limited or no information on the volume, the origin or destination within Montana, the exporter/importer, the frequency of shipments, or the service providers. After a considerable amount of investigation and research, and with consent of research sponsors, MWTC purchased maritime data from the Journal of Commerce's Port Import Export Reporting Service (PIERS). PIERS is a private source, which produces data on detailed seaborne cargo, including volume, weight, value, commodity, carrier, shipper and consignee detail. While the data is specific to inbound and outbound ocean seaborne cargo, we felt this data was valuable to supplement previously collected data, identify possible anchor tenants and to understand the volume and velocity of cargo that is and can

be containerized based on origin and final destination. PIERS data is some of the most widely used, and is an accepted resource for global import/export trade information. The data collected by PIERS comes directly from Customs Border Patrol Manifest system with information from the Bill of Lading.

PIERS reports containerized cargo by twenty-foot equivalent units (TEU) and tonnage. A source for PIERS data is the vessel manifest for all vessels entering and exiting the United States. Because the data is based on the vessel manifest information, the level of precision for the commodity and value data will differ from that reported in administrative trade statistics. The coverage of the dataset also includes transshipment activity, or shipments passing through the United States, but not part of official U.S. international trade. Therefore, the PIERS data captures a wider range of activity than is represented in official U.S. international trade statistics (which do not include transshipments). PIERS also specifies the city, town or port serving as the origin or destination, while other data sources limit the origin and destination to a state or county. PIERS data consists of more than 15 million bill of lading records collected annually. These, in addition to vessel manifest and other shipping documents, are processed through the PIERS Operations Department to produce data sets as illustrated in Table 1.

**Table 1: Data Fields Captured/ Provided by PIERS**

PIERS Data Fields						
SHIP DATE	ZIPCODE	BOL_NBR	COUNTRY	ORG_DES_ST	CONTAINER FLAG	HAZMAT_FLAG
COMPANY NAME	COM CODE	SLINE	US PORT	NVOCC_FLAG	CONTAINER SIZE	RORO_FLAG
STREET	HS CODE	VESSEL	FRN PORT	U_M	CONTAINER QTY	VALUE
STREET2	COMMODITY	REGISTRY	ULT PORT	KILOS	TEUs	# OF SHPMNTS
CITY	QTY/UNITS	VOYAGE	ORG_DES_CITY	MTONS	REEFER_FLAG	

In an effort to provide a comprehensive overview of the freight activity in Montana, this report will combine the data sets in Table 1 and the data sources outlined in Table 2 to illustrate modal activity, domestic and international trade flows.

**Table 2: Summary of Data Sources used in Modal Analysis**

Source	Volume/ Weight	Value	Markets	Commodity	Shipment Details
Federal Transportation Administration	Tons	Dollars	Domestic	SCTG *	Mode of Shipment
Foreign Trade Division, U.S. Census Bureau	KG	Dollars	Domestic/ International	NAICS * HSCODE* SIC*	N/A
MT Dept. of Commerce	N/A	Dollars	International	HSCODE	N/A
MT Dept. of Agriculture	TEU (projection)	Dollars	N/A	NAICS	Origin* by county
PIERS	TEUs	Dollars	International	COMCODE* / HSCODE	Reference Table 2

\* SCTG stands for the Standard Classification of Transported Goods and is five-digit code for code for the commodity contained in the shipment.

\* NAICS is North American Industry Classification System and is the standard for classifying statistical economic data.

\* HSCODE is a six-digit field denoting the Harmonized Tariff code for all products and commodities.

\* SIC codes refer to Standard Industrial Classification codes. These codes have largely been supplanted by NAICS codes,

\* COMCODE is a seven-digit coding scheme that has been traditionally used by PIERS to classify the product or products being shipped.

\* Origin refers to the specific location from which the shipment originates, Destination is the final specific destination of the shipment

### 1.1 Modal Activity

To determine modal activity, we extrapolated data using The Freight Framework Analysis Data Extraction Tool (FAF<sup>3</sup>) from the Federal Transportation Administration to outline domestic (within the United States), cross-border (Canada and Mexico) and overseas trade flow. The data identifies the 2010 transportation modes of trade flow in Montana based the weight and value of the shipment.

The primary mode of all **outbound** transportation measured by **weight** from Montana is rail with almost 44% of the total freight volume shipping by rail for all destinations (Table 3.1). When measured by **value**, pipeline becomes the dominant transportation mode with 45.6% of the total volume by value, compared to rail with only 12.8% of the volume (Table 3.2). When measured by both weight and value, **over 95% of the total outbound shipments from Montana are to domestic markets.** The 95% also includes producers and manufactures selling to middlemen or brokers in the U.S. who then resell or use within the supply chain for value added exports to international markets.

**Table 3.1: Montana Outbound Trade Flows by Weight**

Montana Outbound Trade Flows in K Tons by Destination and Mode								
Mode of Transportation Outbound from Montana	Destination							
	Domestic		Cross-border: Canada & Mexico		Overseas: All Other Countries		Total All Destinations	
	K Tons	% of Total	K Tons	% of Total	K Tons	% of Total	K Tons	% of Total
Air (includes truck-air)	1	0.0%	0	0.0%	-	0.0%	1	0.0%
Multiple Modes and Mail	4,586	5.5%	40	2.8%	5	0.7%	4,631	5.5%
Other and Unknown	50	0.1%	40	2.8%	0	0.0%	90	0.1%
Pipeline	25,706	31.1%	1	0.0%	-	0.0%	25,707	30.3%
Rail	35,721	43.2%	832	58.6%	677	96.4%	37,230	43.9%
Truck	16,672	20.2%	507	35.7%	20	2.9%	17,200	20.3%
Total	82,736	100%	1,421	100.0%	702	100.0%	84,859	100%
% Total All Destinations		97.5%		1.7%		0.8%		

**Table 3.2: Montana Outbound Trade Flows by Value**

Montana Outbound Trade Flows in Millions of Dollars by Destination and Mode								
Mode of Transportation Outbound from Montana	Destination							
	Domestic		Cross-border: Canada & Mexico		Overseas: All Other Countries		Total All Destinations	
	Millions of \$	% of Total	Millions of \$	% of Total	Millions of \$	% of Total	Millions of \$	% of Total
Air (include truck-air)	\$ 81	0.4%	\$ 17	3.1%	\$ 1	0.2%	\$ 99	0.4%
Multiple Modes & Mail	1,406	6.2%	46	8.2%	4	0.8%	1,455	6.1%
Other and Unknown	75	0.3%	29	5.1%	20	3.8%	124	0.5%
Pipeline	10,885	47.8%	1	0.2%	-	0.0%	10,886	45.6%
Rail	2,561	11.2%	160	28.7%	323	61.8%	3,045	12.8%
Truck	7,764	34.1%	305	54.7%	175	33.5%	8,244	34.6%
Total	\$ 22,772	100%	\$ 558	100.0%	\$ 523	100.0%	\$ 23,853	100.0%
% Total All Destinations		95.5%		2.3%		2.2%		

**Inbound** modes measured by **weight** are dominated by pipeline shipments from Canada. Cross-border inbound freight accounts for almost 64% of the total inbound freight into Montana, of which 95.6% is pipeline shipments from Canada (Table 4.1). Domestic shipments represent 35% of the total inbound volume into Montana which predominately (67%) ships by truck.

**Table 4.1: Montana Inbound Trade Flows by Weight**

Montana Inbound Trade Flows in K Tons by Destination and Mode								
Mode of Transportation	Destination							
	Domestic		Cross-border: Canada & Mexico		Overseas: All Other Countries		Total All Destinations	
Inbound to Montana	K Tons	% of Total	K Tons	% of Total	K Tons	% of Total	K Tons	% of Total
Truck	9,340	67.4%	860	3.5%	183	84.4%	10,383	26.8%
Rail	2,180	15.7%	236	1.0%	31	14.2%	2,447	6.3%
Pipeline	2,006	14.5%	23,555	95.6%	-	0.0%	25,561	66.0%
Multi Mode and Mail	222	1.6%	0	0.0%	2	1.1%	225	0.6%
Other and Unknown	102	0.7%	0	0.0%	1	0.3%	103	0.3%
Air (include truck-air)	3	0.0%	0	0.0%	-	0.0%	3	0.0%
<b>Total</b>	<b>13,853</b>	<b>100.0%</b>	<b>24,652</b>	<b>100.0%</b>	<b>217</b>	<b>100.0%</b>	<b>38,721</b>	<b>100.0%</b>
% Total All Destinations		35.8%		63.7%		0.6%		

**Inbound** transportation modes by **value** are the exact opposite to weight, with almost 68% of the total volume from domestic markets and 32% from Cross Border shipments (Table 4.2). Truck is the primary domestic and overall mode of transportation when measured by value, moving 50% of the total inbound volume. When measured by both weight and value, in 2010, **less than 1%** of the total **inbound** shipments into Montana in 2010 were imports from overseas markets.

**Table 4.2: Montana Inbound Trade Flows by Value**

Montana Inbound Trade Flows in Millions of Dollars by Destination and Mode								
Mode of Transportation	Destination							
	Domestic		Cross-border: Canada & Mexico		Overseas: All Other Countries		Total All Destinations	
Inbound to Montana	Millions of \$	% of Total	Millions of \$	% of Total	Millions of \$	% of Total	Millions of \$	% of Total
Truck	\$ 13,235	70.6%	\$ 460	5.3%	\$ 134	84.1%	\$ 13,830	50.0%
Multi Mode and Mail	3,914	20.9%	-	0.0%	14	8.6%	3,927	14.2%
Pipeline	822	4.4%	8,139	93.1%	-	0.0%	8,961	32.4%
Air (include truck-air)	299	1.6%	10	0.1%	-	0.0%	309	1.1%
Rail	260	1.4%	88	1.0%	6	3.8%	354	1.3%
Other and Unknown	206	1.1%	43	0.5%	6	3.5%	255	0.9%
<b>Total</b>	<b>\$ 18,736</b>	<b>100.0%</b>	<b>\$ 8,741</b>	<b>100.0%</b>	<b>\$ 160</b>	<b>100.0%</b>	<b>\$ 27,637</b>	<b>100.0%</b>
% Total All Destinations		67.8%		31.6%		0.6%		

To identify opportunities to combine or leverage volumes we analyzed domestic, cross border and overseas trade flow by segment (both domestic and international) to outline origins, destinations, cargo and transportation mode.

### 1.1.1 Domestic Trade Flow

A significant portion of the freight in Montana measured by FAF<sup>3</sup> is trade flow where both the origin and final destination is within the state of Montana. In 2010, roughly 52.7 million tons of freight was shipped within the state, representing 45% of the **domestic outbound freight** and almost 80% of the **inbound domestic freight** measured by **weight**.

In the same year, when measured by **value**, \$2.1 billion of intrastate trade represented 60% of **domestic outbound freight** and 53% of **inbound domestic freight**. This indicates that the outbound freight from Montana can be characterized as lower value bulk cargo and inbound freight is higher value package or non bulk commodities. The high percentage of instate freight, both outbound and inbound by weight and value, illustrates an opportunity and need to increase value added exports from Montana to other domestic and international markets.

The total population of Montana is under 1 million people, or roughly .33% of the U.S. population (U.S. Census Bureau). With approximately three quarters of the world's purchasing power and almost 95% of world's consumers outside of the United States (Peterson Institute for International Economics), the most significant opportunities for Montana's producers and manufacturers to increase distribution and sales are clearly outside Montana state borders. The following section outlines the primary destinations and transportation mode of products shipped from Montana in 2010 to other domestic markets (within the U.S.).

#### 1.1.1.1 Domestic Outbound Destinations, Modes and Products

FAF<sup>3</sup> categorizes freight modes as one of the following for domestic shipments:

- Truck
- Rail
- Water
- Air (including truck and air)
- Multiple mode and mail
- Pipeline
- Other and unknown, and
- No domestic mode

For purpose of this report, pipeline as a primary transportation mode was excluded because it does not currently provide opportunities to economically combine or convert freight volumes.

The domestic **outbound** destinations for freight originating in Montana, not including intrastate freight (within the state of Montana) and pipeline as a mode of transport, when measured by **weight**, are fairly evenly divided among the top three destinations of Wisconsin, Idaho and Minnesota, with each receiving 19% of Montana’s outbound freight. The addition of shipments to North Dakota represents almost 80% of freight and domestic destinations for freight originating in Montana (Table 5.1).

**Table 5.1: Outbound Domestic Trade Flow by Weight**  
 (Excludes pipeline shipments and shipments that do not leave the state of Montana).

Domestic Destination of Outbound Freight from Montana			
State	K Tons	% of Total	Cumulative %
Wisconsin	11,101	19.0%	19.0%
Idaho	10,939	19.0%	39.0%
Minnesota	10,889	19.0%	58.0%
Washington	9,629	17.0%	75.0%
North Dakota	2,698	5.0%	79.0%
Indiana	2,528	4.0%	84.0%
Wyoming	2,190	4.0%	88.0%
California	1,174	2.0%	90.0%
Oregon	1,148	2.0%	92.0%
Texas	1,100	2.0%	94.0%
Other	3,633	5.0%	100.0%
<b>Total Volume</b>	<b>57,029</b>		

Source: 2010 Federal Highway Administration

When reviewing **outbound** trade flow by **value**, excluding Montana as a destination and pipeline as a mode, the top two domestic destinations of Montana’s outbound freight are the border states of Idaho and Washington. When combined with shipments to Wyoming, these three states receive just over 50% of Montana’s total outbound freight. The number of distribution markets comprising 80% of outbound freight also increases to over 10 states versus 4 when measure by weight (Table 5.2).

**Table 5.2: Outbound Domestic Trade Flow by Value**

(Excludes pipeline shipments and shipments that do not leave the state of Montana).

Domestic Destination of Outbound Freight from Montana			
State	Total M\$	% of Total	Cumulative %
Idaho	\$ 2,892	24.3%	24.3%
Washington	1,751	14.7%	39.0%
Wyoming	1,351	11.4%	50.4%
California	960	8.1%	58.5%
Utah	556	4.7%	63.2%
Texas	442	3.7%	66.9%
Oregon	405	3.4%	70.3%
Pennsylvania	373	3.1%	73.4%
Iowa	316	2.7%	76.1%
North Dakota	294	2.5%	78.5%
All Other	2,552	10.0%	100.0%
Totals	\$ 11,892		

Source: 2010 Federal Highway Administration, Freight Analysis Framework

To assess consolidation and contracting options for **domestic outbound** trade flow, we reviewed markets outside of the state receiving **more than 5%** of the total outbound freight volume by **weight** and the top five markets measured by **value**.

Table 6.1 is a summary of the data measured by **weight** and illustrates freight from Montana destined for other domestic markets consists mostly (63%) of commodity<sup>4</sup> shipments that predominately ship by rail. Of the markets receiving more than 5% of Montana's freight volume, roughly 40 % of the total freight was routed east to Wisconsin and Minnesota, 19% went to the neighboring state of Idaho and approximately 17% to Washington.

Table 6.2 outlines the domestic outbound trade flow by **value** from Montana to the top five domestic destinations (which represents over 60% of the outbound flow), summarizing the products shipped and mode of transportation. One difference when reviewing the outbound trade flow by value (versus weight) is the primary mode of transportation shifts from rail to truck, with approximately 65% of the shipments transported via truck and only

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<sup>4</sup> A commodity, according to the World Trade Organization, is referred to as a raw material or agricultural crop that is an object of trade.

22% by rail. Another significant difference with volume measured by value is over 71% (\$8.4 Billion) of the shipments remains within the western region<sup>5</sup> of the United States.

Cereal grains are shipped by both rail and truck with the mode unique to the destination. As outlined in Table 6.1 and 6.2, Idaho and Washington are the primary markets for cereal grains from Montana, receiving approximately 90% of the total volume when measured by weight and value. Shipments to Idaho move by truck and shipments to Washington are shipped by rail.

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<sup>5</sup> Western States as defined by U.S. Census Bureau represents Wyoming, Idaho, Washington, Oregon, California, Nevada, Utah, Arizona, Colorado and New Mexico.

**Table 6.1: Montana Outbound Trade Flow and Top 5 States by Product and Weight**

Domestic Destination of Outbound Freight from Montana					
State	Mode				Total K Tons
	Rail	Truck	Multiple Modes & Mail	Other	
<b>Wisconsin</b>					
Coal	8,042	0	2,958		11,001
Wood prods.	13	29	2		44
Nonmetallic minerals	20	13			32
Other foodstuffs	2	16	1		19
Mixed freight		2	0		2
Others	-	3	0	0	3
<b>Total Wisconsin</b>	<b>8,077</b>	<b>62</b>	<b>2,962</b>	<b>0</b>	<b>11,101</b>
<b>Idaho</b>					
Cereal grains		8,966			8,966
Live animals/fish		867			867
Coal-n.e.c.	183	296			479
Wood prods.		184	0		185
Other ag prods.		153			153
Others	54	232	2	1	288
<b>Total Idaho</b>	<b>237</b>	<b>10,699</b>	<b>2</b>	<b>1</b>	<b>10,939</b>
<b>Minnesota</b>					
Coal	9,638	107	705		10,449
Cereal grains	179	7	33		219
Wood prods.	34	50	3		87
Newsprint/paper	33	14	0		47
Nonmetallic minerals	30	9			39
Others	16	28	3	0	47
<b>Total Minnesota</b>	<b>9,930</b>	<b>214</b>	<b>744</b>	<b>0</b>	<b>10,889</b>
<b>Washington</b>					
Coal	5,209	47			5,255
Cereal grains	3,658	0			3,658
Wood prods.	34	43	96		173
Waste/scrap	22	18	110		150
Nonmetal min. prods.	27	65	2		93
Other	42	163	93	1	300
<b>Total Washington</b>	<b>8,991</b>	<b>336</b>	<b>301</b>	<b>1</b>	<b>9,629</b>
<b>North Dakota</b>					
Coal	2,079	285			2,363
Wood prods.		105	0		105
Animal feed		57			57
Newsprint/paper	6	48	0		54
Nonmetal min. prods.	2	29		0	32
Other	-	87	0	0	87
<b>Total North Dakota</b>	<b>2,087</b>	<b>610</b>	<b>0</b>	<b>0</b>	<b>2,698</b>
<b>All Other States</b>					
Coal	5,070	209	58		5,337
Wood prods.	477	865	321	38	1,701
Cereal grains	295	974	36		1,305
Crude petroleum		336			336
Milled grain prods.		294	35		329
Other	555	2,072	126	11	2,764
<b>Total All Other States</b>	<b>6,397</b>	<b>4,751</b>	<b>577</b>	<b>48</b>	<b>11,773</b>
<b>Grand Total</b>	<b>35,721</b>	<b>16,672</b>	<b>4,586</b>	<b>51</b>	<b>57,029</b>
<b>Percentage of Total</b>	<b>63%</b>	<b>29%</b>	<b>8%</b>	<b>0.09%</b>	<b>100%</b>

Source: 2010 Federal Highway Administration, Freight Analysis Framework

**Table 6.2: Montana Outbound Trade Flow of Top 5 States by Product and Value**

Domestic Destination of Outbound Freight from Montana					
State	Mode			Other	Total \$ (Millions)
	Rail	Truck	Multiple Modes & Mail		
<b>Idaho</b>					
Live animals/fish		\$ 1,218			\$ 1,218
Cereal grains		1,145			1,145
Coal	43	63			106
Wood prods.		92	1		93
Other ag prods.		68			68
Others	1	218	41	1	262
<b>Total Idaho</b>	<b>\$ 44</b>	<b>\$ 2,805</b>	<b>\$ 42</b>	<b>\$ 1</b>	<b>\$ 2,892</b>
<b>Washington</b>					
Cereal grains	\$ 932	\$ 0			\$ 932
Basic chemicals		300			300
Printed prods.		106	3		109
Coal-n.e.c.	62	0			62
Wood prods.	8	31	12		52
Others	56	151	84	6	296
<b>Total Washington</b>	<b>\$ 1,058</b>	<b>\$ 588</b>	<b>\$ 99</b>	<b>\$ 6</b>	<b>\$ 1,751</b>
<b>Wyoming</b>					
Gasoline		\$ 219			\$ 219
Mixed freight		186	4		190
Fuel Oils		179			179
Cereal grains		94			94
Misc. mfg. prods.		65	7		72
Others	12	476	100	7	596
<b>Total Wyoming</b>	<b>\$ 12</b>	<b>\$ 1,220</b>	<b>\$ 111</b>	<b>\$ 7</b>	<b>\$ 1,351</b>
<b>California</b>					
Live animals/fish		\$ 134			\$ 134
Misc. mfg. prods.		61	47	16	124
Newsprint/paper	\$ 44	68	5		117
Milled grain prods.		72	3		75
Waste/scrap		74			74
Other	82	206	104	43	435
<b>Total California</b>	<b>\$ 126</b>	<b>\$ 615</b>	<b>\$ 159</b>	<b>\$ 59</b>	<b>\$ 960</b>
<b>Utah</b>					
Misc. mfg. prods.		\$ 167	\$ 65		\$ 232
Crude petroleum		81			81
Wood prods.		70	6		76
Coal-n.e.c.	\$ 21	8			29
Base metals		15	4		19
Other	-	104	16	0	120
<b>Total Utah</b>	<b>\$ 21</b>	<b>\$ 445</b>	<b>\$ 91</b>	<b>\$ 0</b>	<b>\$ 556</b>
<b>All Other States</b>					
Wood prods.	\$ 218	\$ 310	\$ 116	\$ 23	\$ 667
Metallic ores		536	0		536
Coal	649	16	82	-	746
Base metals	196	82	48		326
Misc. mfg. prods.	1	57	171	5	233
Other	236	1,090	487	54	1,868
<b>Total All Other States</b>	<b>\$ 1,299</b>	<b>\$ 2,091</b>	<b>\$ 904</b>	<b>\$ 83</b>	<b>\$ 4,377</b>
<b>Grand Total</b>	<b>\$ 2,561</b>	<b>\$ 7,764</b>	<b>\$ 1,406</b>	<b>\$ 156</b>	<b>\$ 11,887</b>
<b>Percentage of Total</b>	<b>22%</b>	<b>65%</b>	<b>12%</b>	<b>1%</b>	<b>100%</b>

Source: 2010 Federal Highway Administration, Freight Analysis Framework

Overall, coal and cereal grains are the primary **outbound** commodity shipped from Montana to other domestic markets, representing 86% of the outbound freight when measured by **weight** (Table 7.1) and almost 30% of the volume when measured by **value** (Table 7.2). Coal is primarily shipped by rail in open top rail or hopper cars on dedicated point-to-point trains, meaning the coal producer has a contract directly with the railroad company to move the cargo directly from the origin to the destination.

**Table 7.1: Total Outbound Domestic Trade Flow by Weight**

(Excludes pipeline shipments and shipments that do not leave the state of Montana).

Outbound Freight from Montana by Product			
Product	K Tons	% of Total	Cumulative %
Coal	34,901	61.20%	61.20%
Cereal grains	14,148	24.81%	86.01%
Wood prods.	2,296	4.03%	90.03%
Live animals/fish	1,077	1.89%	91.92%
Waste/scrap	470	0.82%	92.75%
Newsprint/paper	468	0.82%	93.57%
Milled grain prods.	408	0.72%	94.28%
Nonmetallic minerals	393	0.69%	94.97%
Crude petroleum	338	0.59%	95.57%
Other	2,528	4.43%	100.00%
<b>Totals</b>	<b>57,029</b>		

Source: 2010 Federal Highway Administration, Freight Analysis Framework

The product portfolio of total **outbound** shipments when measured by **value** is more diverse. Cereal grain is the top export, followed by live animals/fish, coal, wood products and manufactured goods, however when combined these only represent about 55% of the total **domestic outbound** freight. The various industries and products shipping from Montana based on value are represented in Table 7.2.

**Table 7.2: Total Outbound Domestic Trade Flow by Value**

(Excludes pipeline shipments and shipments that do not leave the state of Montana).

Outbound Freight From Montana by Product			
Product	Total Current M\$	% of Total	Cumulative %
Cereal grains	\$ 2,303	19.37%	19.37%
Live animals/fish	1,405	11.82%	31.19%
Coal	1,078	9.07%	40.26%
Wood prods.	999	8.40%	48.66%
Misc. mfg. prods.	716	6.03%	54.69%
Metallic ores	536	4.51%	59.20%
Mixed freight	473	3.98%	63.19%
Basic chemicals	399	3.35%	66.54%
Base metals	398	3.35%	69.89%
Other	3,579	30.11%	100.00%
<b>Grand Total</b>	<b>\$ 11,887</b>		

Source: 2010 Federal Highway Administration, Freight Analysis Framework

As illustrated in Tables 6 through 7, a significant portion of outbound trade flow from Montana to major domestic markets consists of bulk product and commodity shipments when measured both by weight and value. While it is difficult to assess from the FAF classifications the export value or weight of truly value added products, we can at minimum identify that miscellaneous manufactured goods represented 6% (\$716 Million), of the total domestic outbound freight as measured by **value**.

**Value-added manufactured products play an important role in the future of Montana's economy.** In a recent United Nations Press Release, speakers at the third Global Commodities Forum, hosted by the UN Conference on Trade and Development (UNCTAD), said that despite a decade's worth of rising commodity prices, commodity dependent markets [countries] have been unable to benefit from the higher prices, diversify their economies or raise living standards. This applies to Montana as well; the state cannot only rely on raw materials and commodities as a pathway to economic prosperity. Even with global exports increasing 107% from 1996-2010 (Montana Department of Commerce), in 2010 Montana ranked 35<sup>th</sup> in the nation for per capita personal income (\$35,068) and 46<sup>th</sup> in real GDP by state (Bureau Economic Analysis).

To summarize Montana's **domestic outbound** trade flow, the top domestic destinations for freight originating in Montana in 2010 when measured by **weight** is balanced between the Midwest destinations of **Minnesota** and **Wisconsin** and neighboring states of **Idaho** and **Washington**, collectively receiving 75% of Montana's total outbound freight. The shipments were largely dominated by commodity and bulk shipments of coal, cereal grains

and wood products shipped by rail. When measured by **value**, **71% of the freight** (\$8.4 Billion) is shipped to states in the **Western region** of the United States. These shipments were also dominated by commodities and bulk products, however, manufactured goods represented 6% (\$716 Million) of the total domestic outbound shipments.

Manufactured products and value-added goods, leveraged with the volume of outbound commodity shipments, may present an opportunity for Montana producers and companies to create freight efficiencies and secure improved freight contracts. To fully leverage the volume and develop any sort of integrated freight network of domestic inbound freight volume, cross-border and overseas trade must also be included to determine total trade flows and commonly used trade lanes.

#### **1.1.1.2 Domestic Inbound Origins, Modes and Products**

As identified in Table 4.1 and 4.2 almost 70% of Montana's **domestic inbound** freight is shipped by truck when measured by both weight and value. The following tables further assess the characteristics of **inbound** freight to outline potential mode sources and trade lanes to support outbound freight. Tables 8.1 and 8.2 outline the domestic origins and freight classifications for product shipped into Montana based on weight, value and the mode of transportation.

While the inbound product flows provide a sense of commerce and consumer demand, it is the inbound mode that becomes significant when assessing the opportunities for freight efficiencies. As illustrated in tables 8.1 and 8.2 the dominant transportation mode for **inbound** freight when measured by both weight and value is **truck**, with 79% (9.3 million tons) of the total inbound freight by **weight** and 74% (\$1.3 billion) of the total inbound volume by **value**. The total percent of truck mode increased slightly from Table 4 due to pipeline and intrastate shipments being excluded.

Approximately 30% (3.7 million tons) of the **inbound** freight measured by **weight** is **cereal grains**, primarily shipped by truck from Idaho. **Coal** shipped by rail from Wyoming is the second largest inbound product by weight although at one-third the volume of grain. Cloud Peak Energy is a coal producer with mines in Wyoming and Montana and while FAF<sup>3</sup> does not provide information on the freight producer, it is likely a portion of the inbound coal from Wyoming is to support energy production in Montana or consolidated in Montana for further market distribution.

**Mixed freight** rounds out the top three inbound product categories, although it is less than a quarter of the freight volume of cereal grains when measured by weight. When measured by **value**, however, mixed freight becomes the top **inbound** product category consisting of consolidated "less than truckload" (LTL) shipments primarily coming from

Utah and Washington (55%, \$1.4B) followed by truckloads from Illinois, Oregon and California (20%, \$551 million) all three of which serve as major intermodal or port facilities. Tables 9.1 and 9.2 illustrate the product profiles of the top **inbound** freight measured by both weight and value.

**Table 8.1: Montana Inbound Trade Flow of Top 5 States by Product and Weight**

Domestic Origins of Inbound Freight to Montana					
State	Mode			Other	Total K Tons
	Rail	Truck	Multiple Modes & Mail		
<b>Idaho</b>					
Cereal grains		2,954			2,954
Other ag prods.		646	1	0	647
Wood prods.	12	256	5		273
Fertilizers	18	231	11		261
Waste/scrap		32			32
Others	-	104	6	6	116
<b>Total Idaho</b>	<b>31</b>	<b>4,223</b>	<b>22</b>	<b>7</b>	<b>4,282</b>
<b>Wyoming</b>					
Coal	1311	22			1,332
Cereal grains		614			614
Crude petroleum		102			102
Fertilizers	60	85			145
Nonmetal min. prods.	46	84			130
Others	13	286	1	8	308
<b>Total Wyoming</b>	<b>1430</b>	<b>1192</b>	<b>1</b>	<b>8</b>	<b>2,631</b>
<b>Utah</b>					
Mixed freight		358	1		359
Basic chemicals	57	220			278
Nonmetallic minerals		110		0	110
Base metals		45	0	2	46
Crude petroleum		8			8
Others	-	159	3	0	163
<b>Total Utah</b>	<b>57</b>	<b>900</b>	<b>4</b>	<b>2</b>	<b>963</b>
<b>Washington</b>					
Mixed freight		184	0		184
Nonmetal min. prods.		178	1	2	181
Wood prods.	27	101	6		133
Other ag prods.		35			35
Base metals		26	2		28
Other	-	172	4	0	175
<b>Total Washington</b>	<b>27</b>	<b>696</b>	<b>12</b>	<b>2</b>	<b>737</b>
<b>North Dakota</b>					
Cereal grains	56	17			73
Pharmaceuticals		18	3	44	65
Crude petroleum		49			49
Fuel oils		47			47
Machinery		38	1		39
Other	0	156	3	0	160
<b>Total North Dakota</b>	<b>56</b>	<b>326</b>	<b>7</b>	<b>64</b>	<b>452</b>
<b>All Other States</b>					
Wood prods.	21	208	5	7	240
Mixed freight	5	219	9	1	234
Plastics/rubber		199	4	0	204
Nonmetal min. prods.	50	146	4	0	201
Basic chemicals	148	41	0		190
Other	356	1,190	154	14	1,714
<b>Total All Other States</b>	<b>580</b>	<b>2,003</b>	<b>177</b>	<b>22</b>	<b>2,782</b>
<b>Grand Total</b>	<b>2,180</b>	<b>9,340</b>	<b>222</b>	<b>105</b>	<b>11,848</b>
<b>Percentage of Total</b>	<b>18%</b>	<b>79%</b>	<b>2%</b>	<b>1%</b>	<b>100%</b>

Source: 2010 Federal Highway Administration, Freight Analysis Framework

**Table 8.2: Montana Inbound Trade Flow of Top 5 States by Product and Value**

Domestic Origins of Inbound Freight to Montana					
State	Mode			Other	Total \$ (Millions)
	Rail	Truck	Multiple Modes & Mail		
<b>Utah</b>					
Pharmaceuticals		\$ 680	\$ 149	\$ 3	\$ 832
Mixed freight		774	3		777
Articles-base metal		69	7		77
Machinery		66	8		74
Textiles/leather		59	10		68
Others	1	367	33	6	406
<b>Total Utah</b>	<b>\$ 1</b>	<b>\$ 2,014</b>	<b>\$ 210</b>	<b>\$ 9</b>	<b>\$ 2,235</b>
<b>Washington</b>					
Mixed freight		\$ 682	\$ 3		\$ 686
Motorized vehicles		170	19	2	192
Textiles/leather		142	27		169
Pharmaceuticals		37	84	1	121
Machinery		80	30	2	112
Others	11	617	153	2	783
<b>Total Washington</b>	<b>\$ 11</b>	<b>\$ 1,728</b>	<b>\$ 317</b>	<b>\$ 7</b>	<b>\$ 2,063</b>
<b>California</b>					
Electronics		\$ 279	\$ 94	\$ 39	\$ 411
Mixed freight		174	17	3	193
Motorized vehicles		70	119	4	192
Misc. mfg. prods.		64	58	3	124
Other foodstuffs		84	10	0	93
Others	30	339	201	0	570
<b>Total California</b>	<b>\$ 30</b>	<b>\$ 1,008</b>	<b>\$ 497</b>	<b>\$ 120</b>	<b>\$ 1,655</b>
<b>Idaho</b>					
Cereal grains		\$ 310			\$ 310
Other ag prods.		218	1	2	221
Wood prods.	5	127	3		135
Electronics		54	73	6	133
Fertilizers	8	96	6		110
Other	-	299	64	27	390
<b>Total Idaho</b>	<b>\$ 14</b>	<b>\$ 1,104</b>	<b>\$ 146</b>	<b>\$ 34</b>	<b>\$ 1,299</b>
<b>Colorado</b>					
Pharmaceuticals		\$ 324	\$ 14		\$ 338
Mixed freight		162	17	3	183
Textiles/leather		5	53		58
Alcoholic beverages		45			45
Misc. mfg. prods.		39	4	1	44
Other	8	187	79	1	275
<b>Total Colorado</b>	<b>\$ 8</b>	<b>\$ 762</b>	<b>\$ 167</b>	<b>\$ 5</b>	<b>\$ 942</b>
<b>All Other States</b>					
Machinery		\$ 1,350	\$ 149	\$ 76	\$ 1,575
Electronics		432	506	7	944
Misc. mfg. prods.	\$ 1	493	342	12	848
Mixed freight	10	653	95	0	758
Motorized vehicles	2	397	171	68	638
Other	182	3,293	1,315	167	4,957
<b>Total All Other States</b>	<b>196</b>	<b>6,618</b>	<b>2,577</b>	<b>329</b>	<b>9,720</b>
<b>Grand Total</b>	<b>\$ 260</b>	<b>\$ 13,235</b>	<b>\$ 3,914</b>	<b>\$ 505</b>	<b>\$ 17,914</b>
<b>Percentage of Total</b>	<b>1%</b>	<b>74%</b>	<b>22%</b>	<b>3%</b>	<b>100%</b>

Source: 2010 Federal Highway Administration, Freight Analysis Framework

**Table 9.1: Montana Total Inbound Product Profile by Weight**

Product	Total K Tons	% of Total	Cumulative %
Cereal grains	3,735	32%	32%
Coal	1,311	11%	43%
Mixed freight	796	7%	49%
Wood prods.	734	6%	56%
Other agriculture prods.	731	6%	62%
Non-metal mineral prods.	542	5%	66%
Basic chemicals	503	4%	70%
Fertilizers	419	4%	74%
Other foodstuffs	242	2%	76%
Other	2,835	24%	100%
<b>Grand Total</b>	<b>11,848</b>		

Source: 2010 Federal Highway Administration, Freight Analysis Framework (Excluding Pipeline)

**Table 9.2: Montana Total Inbound Product Profile by Value**

Row Labels	Total Current M\$	% of Total	Cumulative %
Mixed freight	\$ 2,643	15%	15%
Machinery	1,901	11%	25%
Pharmaceuticals	1,701	9%	35%
Electronics	1,629	9%	44%
Misc. mfg. prods.	1,184	7%	51%
Motorized vehicles	1,070	6%	57%
Textiles/leather	728	4%	61%
Articles-base metal	647	4%	64%
Chemical prods.	554	3%	67%
Other	5,857	33%	100%
<b>Grand Total</b>	<b>\$ 17,914</b>		

Source: 2010 Federal Highway Administration, Freight Analysis Framework (Excluding Pipeline)

The overall inbound freight volume compared to outbound freight based on weight, driven by bulk commodities, causes an imbalance of freight modes, as illustrated in Table 10. Outbound **rail** is 16 times the volume of inbound rail when measured by **weight**, and is

almost 10 times greater when measured by value. There is also an excess capacity of trucks based on value, creating an environment for competitive rates for backhaul<sup>6</sup> truckload freight.

**Table 10: 2010 Domestic Trade Balance by Mode by Value and Weight**

Mode	Weight in K Tons			Value in M \$		
	Inbound	Outbound	Balance	Inbound	Outbound	Balance
Rail	2,180	35,721	(33,541)	260	\$ 2,561	\$ (2,301)
Truck	9,340	16,672	(7,332)	13,235	7,764	5,471
Multiple modes & mail	222	4,586	(4,364)	3,914	1,406	2,508
Other and unknown	102	50	52	206	75	131
Air (include truck-air)	3	1	2	299	81	218
<b>Grand Total</b>	<b>11,848</b>	<b>57,029</b>	<b>(45,181)</b>	<b>\$ 17,914</b>	<b>\$ 11,887</b>	<b>\$ 6,027</b>

Source: 2010 Federal Highway Administration, Freight Analysis Framework (Excluding Pipeline)

Although it is a smaller percentage of overall freight volume (as identified in Table 3-4), cross border and overseas freight provides the base to create an integrated freight network by identifying anchor shippers and sources (through like-products and industries) and developing a platform for freight efficiencies among shippers and service providers for both domestic and international freight.

### 1.1.2 Cross Border and Overseas Freight

The United States remains a net exporter of food and delivers half of the world's grain supply. In 2010, China became the largest export market for U.S. agriculture with soybeans, cotton, wood, grains and seafood dominating trade activity (National Agricultural Statistics Service, USDA). In the same year exports from Montana were at near record level with combined exports valued at \$1.96 Billion (Montana Department of Commerce).

In 2010 agricultural exports represented nearly 30% of the state's total international exports, comprised mostly of bulk wheat, Montana's top export commodity, representing 102 million bushels valued at \$541.1 million. Bulk wheat exports are hauled by farmers to grain elevators and transported by rail to west coast ports and therefore are not directly

<sup>6</sup> Trucks returning from the original destinations point to the point of origin, [www.businessdictionary.com](http://www.businessdictionary.com)

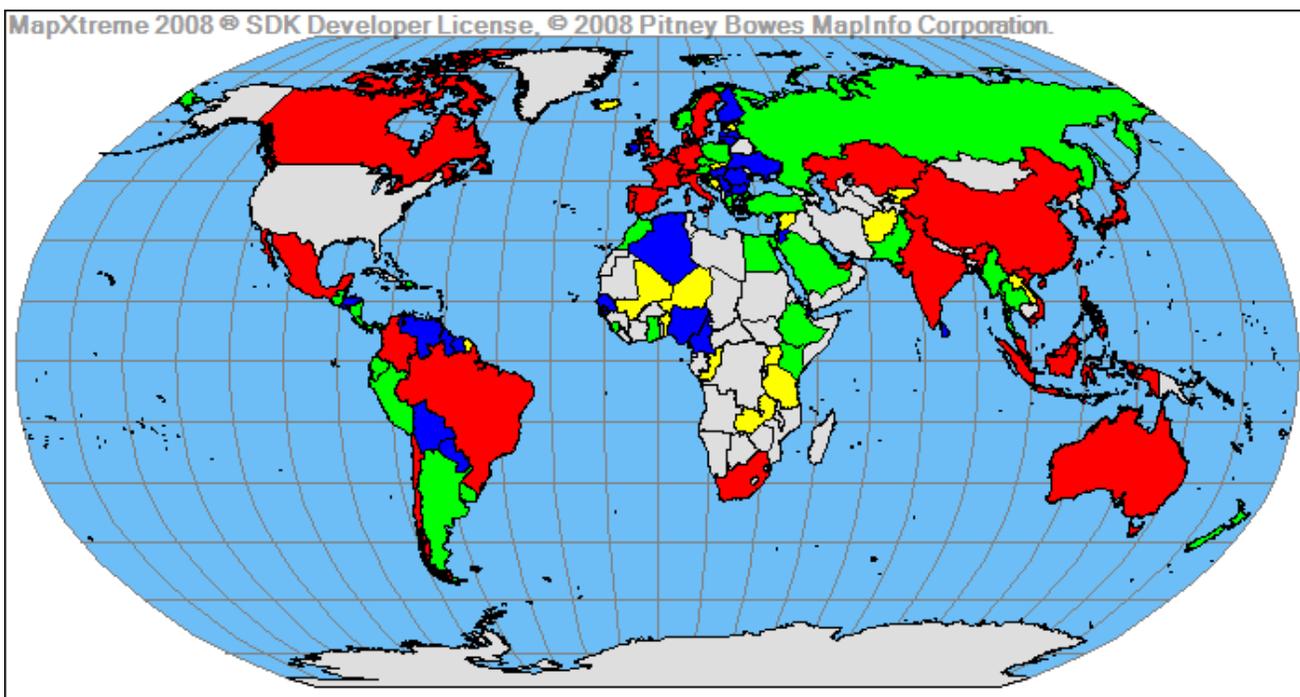
reflected as international exports in national export data sources such as in FAF<sup>3</sup> or International Trade Administration (Montana Department of Commerce).

The international modal activity outlined in the following section summarizes overall international exports (excluding bulk wheat) by destination, product and by mode. When reviewing transportation modes, Canada and Mexico are assessed separately to identify potential cross-border truck and rail exports to support domestic shipments routed north and south as well as possible channels to route freight to markets in Asia and South America.

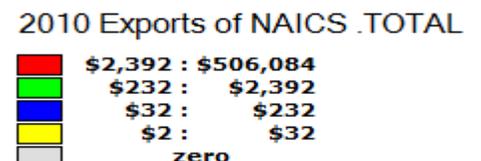
### 1.1.2.1 Export Destinations, Modes and Products

The International Trade Administration (ITA) of the U.S. Department of Commerce tracks U.S. state exports based on the North American Industry Classification System (NAICS). This system was developed by the U.S. Office of Management and Budget, along with other federal agencies and the governments of Canada and Mexico. NAICS is the current standard for industry classification underlying a variety of U.S. government statistics. Figure 3 is the ITA’s illustration of Montana’s manufactured exports in 2010 by country, based on value (excludes wheat and other grains shipped in bulk to the Pacific Northwest grain-handling facilities destined for export markets in Asia).

**Figure 3: Manufactured Exports from Montana, 2010 (in Thousands of \$USD)**



Source: International Trade Administration, U.S. Dept. of Commerce



Below, Table 11 summarizes Montana’s 2010 international exports, not including bulk wheat by country. Our top trading country is Canada, followed by South Korea, China and Japan. Those four countries make up two-thirds of our total exports.

**Table 11: Montana 2010 Exports by Country**

Country	Value \$	% Total	Cumulative %
Canada	\$ 506,083,496	36%	36%
South Korea	186,845,800	13%	50%
China	122,879,496	9%	59%
Japan	109,791,210	8%	67%
Taiwan	93,433,071	7%	73%
Mexico	79,913,713	6%	79%
United Kingdom	37,330,718	3%	82%
Germany	25,623,154	2%	84%
Belgium	24,761,429	2%	85%
Netherlands	18,518,425	1%	87%
Others	183,597,441	13%	100%
<b>Total International Trade</b>	<b>\$ 1,388,777,953</b>		

Source: 2010 International Trade Administration, U.S. Dept. of Commerce

Raw materials and commodity shipments were a significant portion of Montana’s international exports; chemicals, minerals, ore, petroleum and coal products represented 41% of all exports from Montana to international markets in 2010 (Table 12)<sup>7</sup>.

Non-electrical machinery ranks as the state’s second largest export in 2010 representing roughly 16% of total exports. Montana manufacturers such as Tow Haul Smith Equipment and SRS Crisafulli sell high value equipment for mining, infrastructure and agricultural development and have seen continued international markets growth. In 2011, however, the collective total value of machinery exports from Montana decreased 7% in value and 3% as a total percentage of exports (International Trade Administration).

Overall international exports from Montana increased 12% in 2011 with the largest growth - as a total percent of exports - from “Petroleum & Coal Products” (6%), “Minerals & Ores” (4%), “Agricultural Products” (3%) and “Food Manufacturers” (.30%).

**Table 12: Montana Export Product Profile**

<sup>7</sup> Montana Department of Commerce export value differs from the ITA due to combined exports of bulk wheat (from US Agricultural Statistics) shipped via Washington and Oregon that are not included in ITA’s reporting.

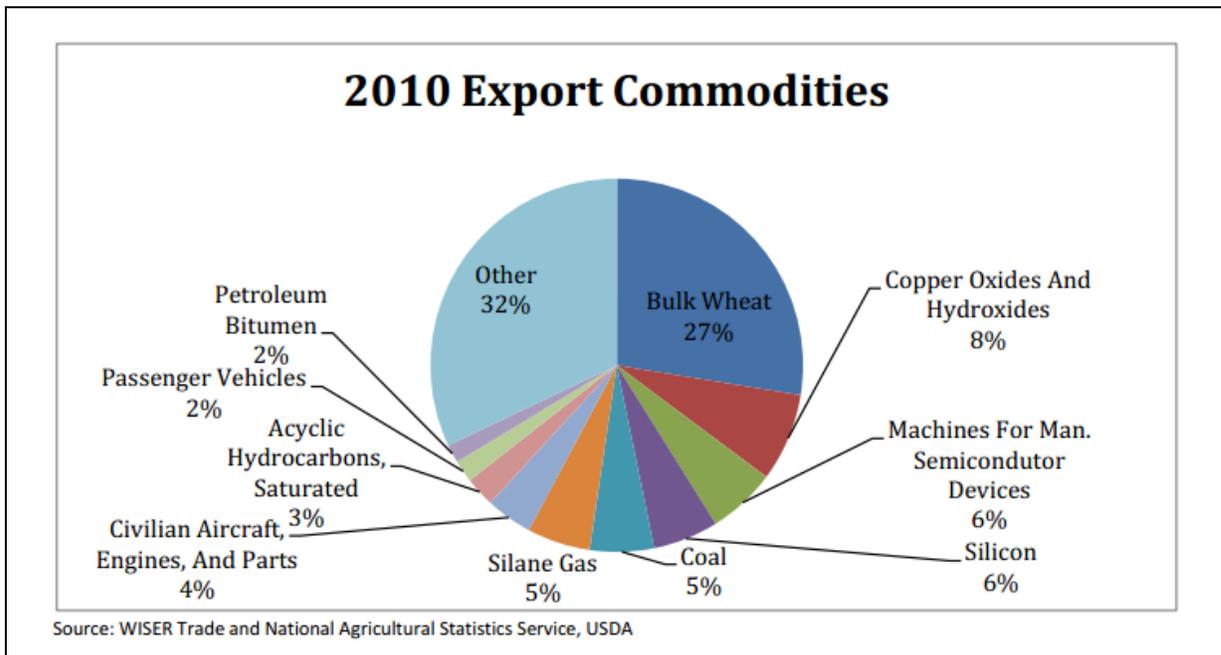
Item	Dollars	% of Total	Cumulative %
325—Chemicals	\$ 369,301,155	26.6%	26.6%
212--Minerals & Ores	155,602,639	11.2%	37.8%
333--Machinery; Except Electrical	220,649,458	15.9%	53.7%
324--Petroleum & Coal Products	54,404,351	3.9%	57.6%
336--Transportation Equipment	137,889,312	9.9%	67.5%
111--Agricultural Products	42,668,981	3.1%	70.6%
331--Primary Metal Mfg	124,071,694	8.9%	79.5%
327—Non-metallic Mineral Products	59,437,120	4.3%	83.8%
311--Food Manufacturers	32,647,271	2.4%	86.2%
211--Oil & Gas	39,400,503	2.8%	89.0%
334--Computer & Electronic Products	22,903,808	1.6%	90.7%
321--Wood Products	25,720,327	1.9%	92.5%
339--Miscellaneous Manufactured Commodities	20,108,482	1.4%	94.0%
112--Other Animals	15,647,386	1.1%	95.1%
All Other	68,325,466	4.9%	100.0%
<b>TOTAL</b>	<b>1,388,777,953</b>		

Source: 2010 International Trade Administration, Dept. of Commerce

The following chart from the Montana Department of Commerce illustrates the product export profile including bulk wheat shipped through the Pacific Northwest ports in 2010.

**Figure 4: 2010 Montana Export Profile**

(Includes bulk wheat shipped through Pacific Northwest ports)



**International freight** from Montana has two segments of each shipment, a **domestic segment** and a **foreign segment**. The **domestic segment mode** for international shipments when measured by **weight** is very similar to domestic mode for freight remaining in the United States with **rail** as the dominant transportation mode. The lack of intermodal service in Montana combined with the product profile of outbound freight (for both domestic and international freight) illustrates the rail volume that ships by unit trains directly to the port. Unit trains are composed of rail cars carrying a single type of commodity that are all bound for the same destination. By only hauling one kind of freight to one destination, a unit train does not need to switch cars at various intermediate junctions allowing for nonstop travel between two terminals. This reduces not only the shipping time but also the cost.

When measured by **value**, the domestic segment mode of international shipments is equally balanced between **rail and truck** (Table 13). This shows the impact from the lack of intermodal and the competitive cost structure (created by capacity of inbound trucks) that incentivizes shippers to truck freight to intermodal facilities or ports (located outside of Montana) where cargo can be consolidated and/or transloaded (moving freight from one mode to another- i.e. rail to truck) in preparation to load onto an ocean vessel.

In 2010, the foreign segment mode for Montana exports to all international markets when measured by **weight** was evenly distributed between rail (39%) and water (38%); see Table 14. Rail is such a significant foreign transportation mode due to the large export trade with Canada. Ninety-four percent of total rail exports are destined for Canada and the remaining 6% is transported to Mexico.

**Truck and rail** combined make up **52%** of the foreign segment mode for international freight when measured by **weight** and **40%** when measured by **value**, both of which illustrate the significant volume of freight from Montana to Canada and Mexico.

**Table 13: Domestic Segment Mode of Transport for MT Exports**

Mode	Total K Tons	% of Total	Total M\$	% of Total
Rail	1,509.3	71%	\$ 483	45%
Truck	527.8	25%	481	45%
Multiple modes & mail	44.8	2%	50	5%
Other and unknown	40.2	2%	49	5%
Air (include truck-air)	0.3	0%	18	2%
<b>Grand Total</b>	<b>2,122.5</b>	<b>100%</b>	<b>\$ 1,080</b>	<b>100%</b>

Source: 2010 Federal Highway Administration, Freight Analysis Framework.

The foreign segment mode of international exports, when measured by value, is naturally dominated (51% of total exports) by the freight that ships by water (Table 14).

**Table 14: Foreign Segment Mode of Transport for MT Exports**

Mode	Total K Tons	% of Total	Total M\$	% of Total
Water	796.4	38%	\$ 553	51%
Truck	286.0	13%	297	27%
Rail	819.9	39%	142	13%
Multiple modes & mail	179.7	8%	42	4%
Other and unknown	40.2	2%	29	3%
Air (include truck-air)	0.3	0%	18	2%
<b>Grand Total</b>	<b>2,122.5</b>	<b>100%</b>	<b>\$ 1,080</b>	<b>100%</b>

Source: 2010 Federal Highway Administration, Freight Analysis Framework.

As directly and indirectly illustrated in Table 11-14, **Canada** and **Mexico** are two of Montana's top export markets. Combined, the countries receive **44%** of Montana's total international **exports**, with 36% exported to Canada and 8% to Mexico. Cross border export transportation modes are in line with domestic outbound shipments, with rail as the dominant mode (58% of all shipments) when measured by weight and over half (53%) of freight is transported by truck when measured by value (Table 15).

Surprisingly, when measured by **weight**, 19% of exports to Canada and Mexico in 2010 were transported by water, of which roughly 76% was fertilizer shipped to Mexico. The remainder was largely made up of a combination of metallic ore shipped to Canada and non-metallic minerals to both markets.

**Table 15: Foreign Mode of Transport for MT Cross Border (Canada & Mexico) Exports**

Mode	Total K Tons	% of Total	Total M\$	% of Total
Rail	820	58%	\$ 142	26%
Truck	286	20%	297	53%
Water	274	19%	72	13%
Other and unknown	40	3%	29	5%
Air (include truck-air)	0.32	0%	17	3%
<b>Grand Total</b>	<b>1,420</b>		<b>\$ 557</b>	

Source: 2010 Federal Highway Administration, Freight Analysis Framework.

To better understand and illustrate the total domestic trade flows (outbound and inbound) in Montana the data for domestic shipments, the domestic segment mode of international exports and cross border shipments were combined to outline the trade balance by mode by regions, based on 2010 data measured in both weight and by value.

Figure 5 illustrates the total **outbound** shipments by **weight** from Montana are primarily destined for the mid-west and western region. Mid-western outbound shipments are dominated by **rail** shipments of coal (approximately 70% of volume) to Minnesota, Wisconsin and Indiana. Outbound freight to Washington is also predominately shipped by rail with coal and cereal grains representing over 90% of the outbound cargo. Idaho is the second largest outbound market when measured by weight, with the main exports consisting of cereal grains (83%) and “live animals/fish” (8%) that primarily shipped by truck due to proximity and cargo. Cereal grain also represents more than 60% of inbound freight to Montana from Idaho, although it is significantly less freight, with 2,954 K Tons inbound and 8,966 K Tons outbound.

**Figure 5: Montana Total Domestic and Cross Border Trade Flows in 2010 (K Tons)**

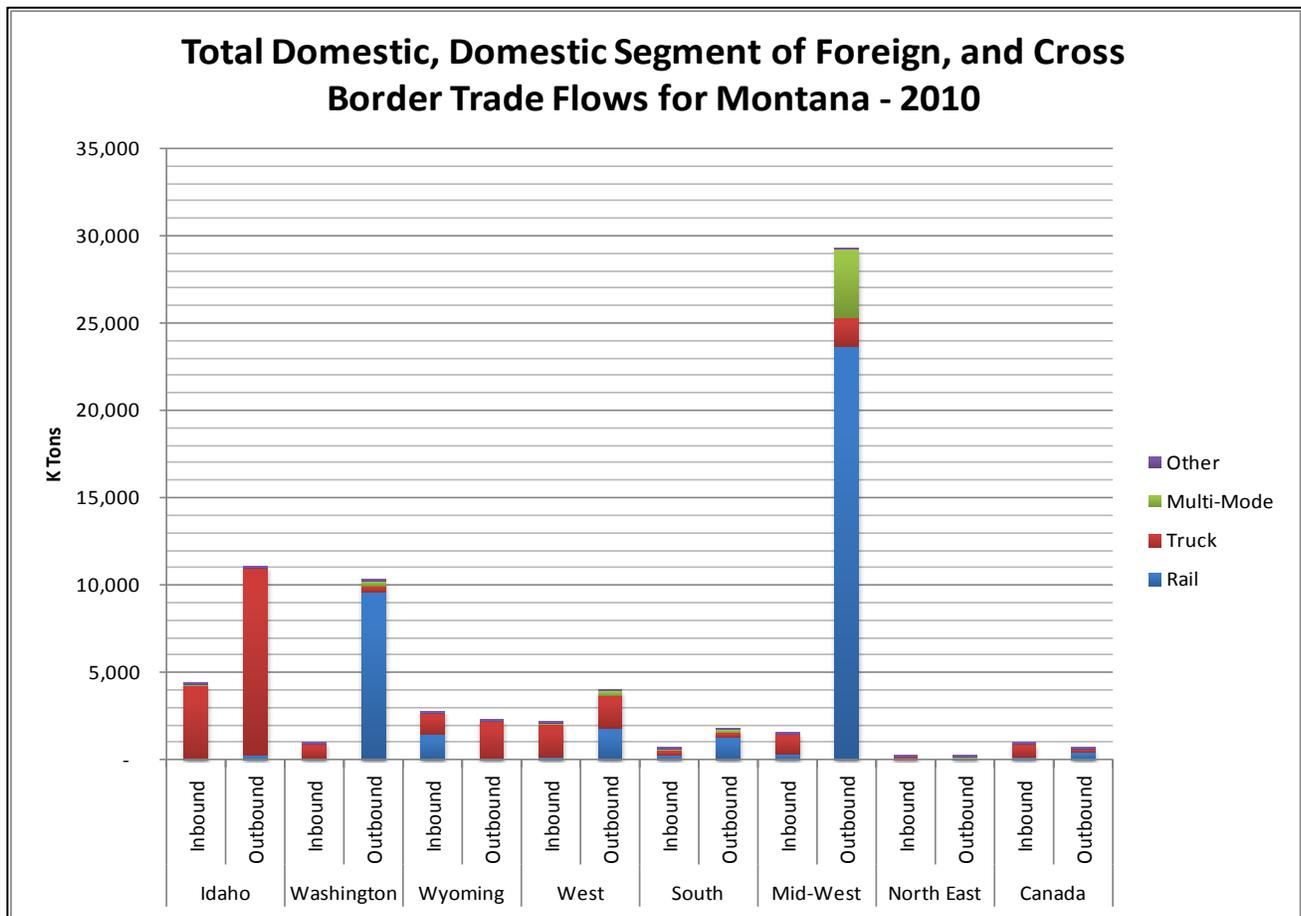
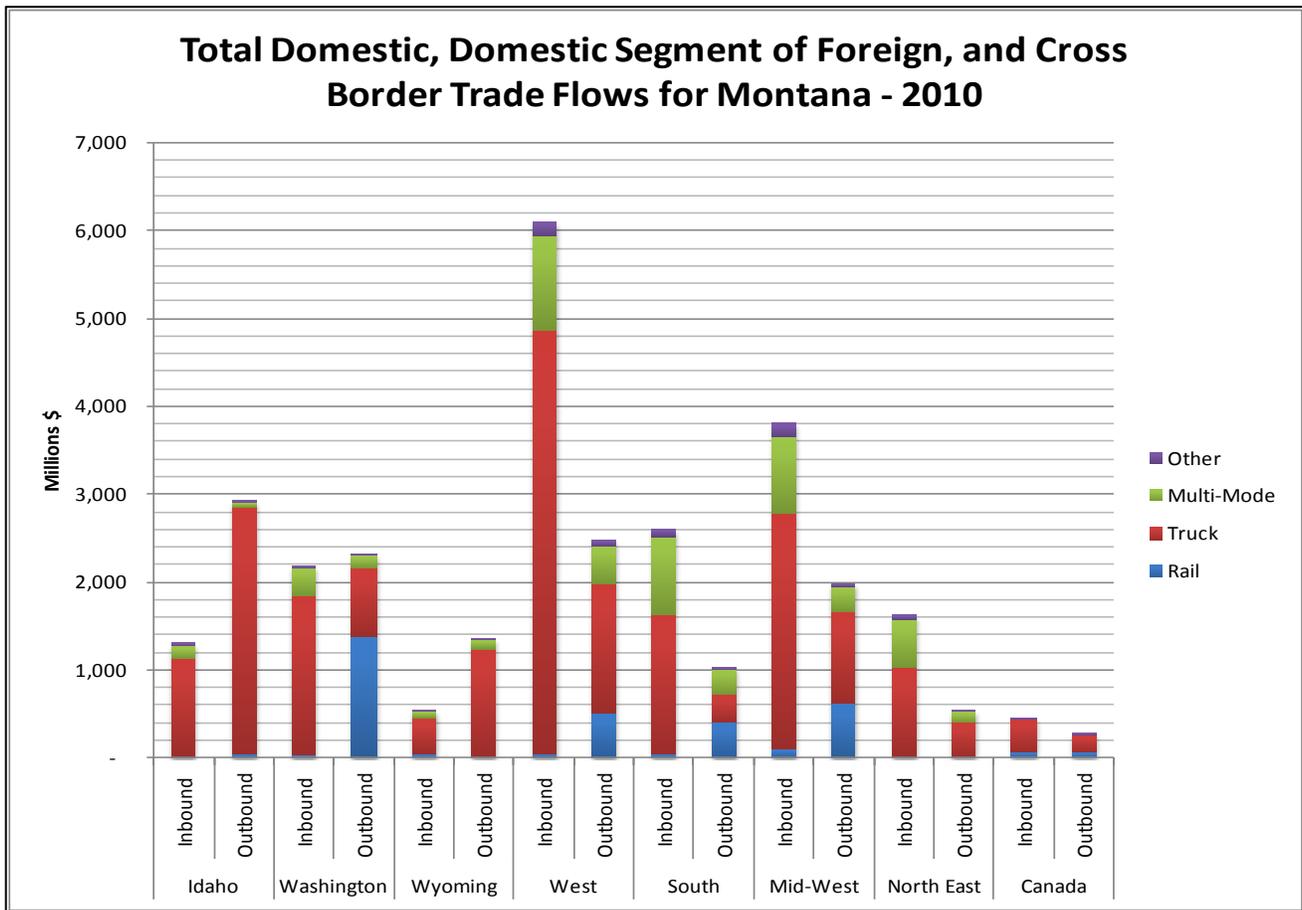


Figure 6: Montana Domestic and Cross Border Trade Flows in 2010 (Millions \$)



- **Western** states represent Oregon, California, Nevada, Utah, Arizona, Colorado, and New Mexico. Idaho, Washington and Wyoming are illustrated separately due to the outbound and/or inbound volume.
- **Southern** states represent Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Alabama, Georgia, Florida, South Carolina, North Carolina, Tennessee, Kentucky, West Virginia, Virginia, Maryland, and Delaware
- **Mid-West** states represent North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Illinois, Wisconsin, Indiana, Ohio, and Michigan.
- **North East** states represent Pennsylvania, New York, New Jersey, Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire, and Maine.

Regional segmentation is based on U.S. Census Bureau segmentation.

This chart represents the total domestic and foreign trade flows that are outbound (Leaving Montana) and inbound (Entering Montana). Montana trade flows with Canada presented in the chart refer only to trade flows entering or exiting a Montana port. A large portion of Montana's trade flows with Canada move through ports in other states.

In Figures 5 and 6 above, the total trade flow with Canada appears less significant due to outbound and inbound freight transported from and to Canada through other states. These charts represent the total domestic and foreign trade flows that are outbound

(leaving Montana) and inbound (entering Montana) through a Montana port and excluding pipeline trade. Approximately 41% (by weight) and 47% (by value) of exports from Montana are transported to Canada through ports outside of Montana. Imports from Canada have a more direct route, 83% (by weight) and 77% (by value) of freight is transported directly to Montana from Canada. The overall trade directly between Montana and Canada transported by truck and rail is fairly balanced. In 2010 exports to Canada totaled \$529 million and imports were \$595 million.

The strong exchange rate of the Canadian dollar to the U.S. dollar is a contributor that may be shifting the trade balance as exports and truck freight to Canada from Montana is increasing. Based on feedback from FedEx representatives located in Butte, Montana, the company's second largest "gateway to Canada" service center, there is more outbound "less than truckload" (LTL) traffic to Canada than inbound from Canada. MWTC visited the newly expanded regional center in early 2012 and the company was already discussing additional expansion to support growing export demands in Canada.

By combining domestic shipments, the domestic segment of international exports and cross border shipments, we see that even when combined, the outbound freight by weight is still heavily dominated by rail with a shortage of inbound volume. The **truck** freight from western regions and the states of Idaho, Washington and Wyoming dominates the total trade flow measured by **value** but illustrates consolidation opportunities for domestic and international shipments based on distribution points and trade lanes.

While the data from FAF<sup>3</sup> provides an overview of the modal activity, it is difficult to assess specific opportunities for Montana exporters because the volume per shipment, exact origin, final destination and shipment dates are not provided in this data. Targeted and specific trade routes and modes will need to be coordinated to make any significant impacts on the overall freight network. The hypothesis of this study is that exporters can achieve transportation savings and logistics efficiencies by combining efforts of multiple firms, in particular by leveraging the volume of large "anchor" shippers with those of other importing and exporting firms. While overseas trade is a small percentage of Montana's freight, the data detailing seaborne international containerized trade provides a tool to measure activity and volumes of firms that have the potential to act as "anchor" shippers.

#### **1.1.2.2 Container Trade Flow in Montana**

Previous Montana Department of Transportation studies and other state reports and studies have outlined the challenges with container freight and rail access in Montana (*Container/Trailer on Flatcar in Intermodal Service on Montana's Railway Mainlines*, 2007, *Railroad Rates and Services Provided to Montana Shippers*, February 2009). These studies and reports outline challenges with rail and container access in Montana, along with issues

of increased rail rates for captive shipping from Montana, the changing economics for railroad companies (reducing the amount of stops and services) and the lack of consolidated or organized container volume to meet the minimum requirement (250 containers per week per train/13,000 TEUs annually) for railroad companies to reinstate or provide intermodal service. There are efforts within the state by the Attorney General's office and the Rail Service Competition Council to address rail rates in addition to several infrastructure development projects that may improve future access and services in regions of the state.

As stated in the background, the purpose of this report is not to duplicate efforts or repeat the findings of research previously completed, but to identify short and long-term opportunities within the existing environment in order to improve freight efficiencies, decrease cost and improve access to domestic and global markets for Montana companies. The hypothesis of this study is that by creating "anchor shippers" in regions throughout the state, their volumes, combined with smaller shippers, can be leveraged to improve freight access, services and rates. To identify potential anchor shippers it was necessary to have an accurate understanding of companies in Montana that ship in large volumes, the precise origin and destination of the freight, the most commonly used routes and the frequency of shipments.

PIERS data source, as previously described in this report, is the primary source used to identify container trade flow – outbound and inbound freight– in Montana. Containers typically transport higher value freight and available in a variety of size options based on the cargo. Figure 7 below outlines the dimensions for the most commonly used dry freight containers. For purpose of this report the container volume is measured in twenty-foot equivalent units (TEUs), which have the freight capacity of 33 cubic meters and 28.2 metric tons.

**Figure 7: Weight and Dimension of Commonly Used Containers**

		20' container		40' container		40' high-cube container		45' high-cube container	
		imperial	metric	imperial	metric	imperial	metric	imperial	metric
external dimensions	length	19' 10 1/2"	6.058 m	40' 0"	12.192 m	40' 0 "	12.192 m	45' 0 "	13.716 m
	width	8' 0"	2.438 m	8' 0"	2.438 m	8' 0"	2.438 m	8' 0"	2.438 m
	height	8' 6"	2.591 m	8' 6"	2.591 m	9' 6"	2.896 m	9' 6"	2.896 m
interior dimensions	length	18' 8 13/16"	5.710 m	39' 5 45/64"	12.032 m	39' 4"	12.000 m	44' 4"	13.556 m
	width	7' 8 19/32"	2.352 m	7' 8 19/32"	2.352 m	7' 7"	2.311 m	7' 8 19/32"	2.352 m
	height	7' 9 57/64"	2.385 m	7' 9 57/64"	2.385 m	8' 9"	2.650 m	8' 9 15/16"	2.698 m
door aperture	width	7' 8 1/8"	2.343 m	7' 8 1/8"	2.343 m	7' 6"	2.280 m	7' 8 1/8"	2.343 m
	height	7' 5 3/4"	2.280 m	7' 5 3/4"	2.280 m	8' 5"	2.560 m	8' 5 49/64"	2.585 m
volume		1,169 ft <sup>4</sup>	33.1 m <sup>3</sup>	2,385 ft <sup>3</sup>	67.5 m <sup>3</sup>	2,660 ft <sup>3</sup>	75.3 m <sup>3</sup>	3,040 ft <sup>3</sup>	86.1 m <sup>3</sup>
maximum gross mass		66,139 lb	30,400 kg	66,139 lb	30,400 kg	68,008 lb	30,848 kg	66,139 lb	30,400 kg
empty weight		4,850 lb	2,200 kg	8,380 lb	3,800 kg	8,598 lb	3,900 kg	10,580 lb	4,800 kg
net load		61,289 lb	28,200 kg	57,759 lb	26,600 kg	58,598 lb	26,580 kg	55,559 lb	25,600 kg

Source: World Shipping Council

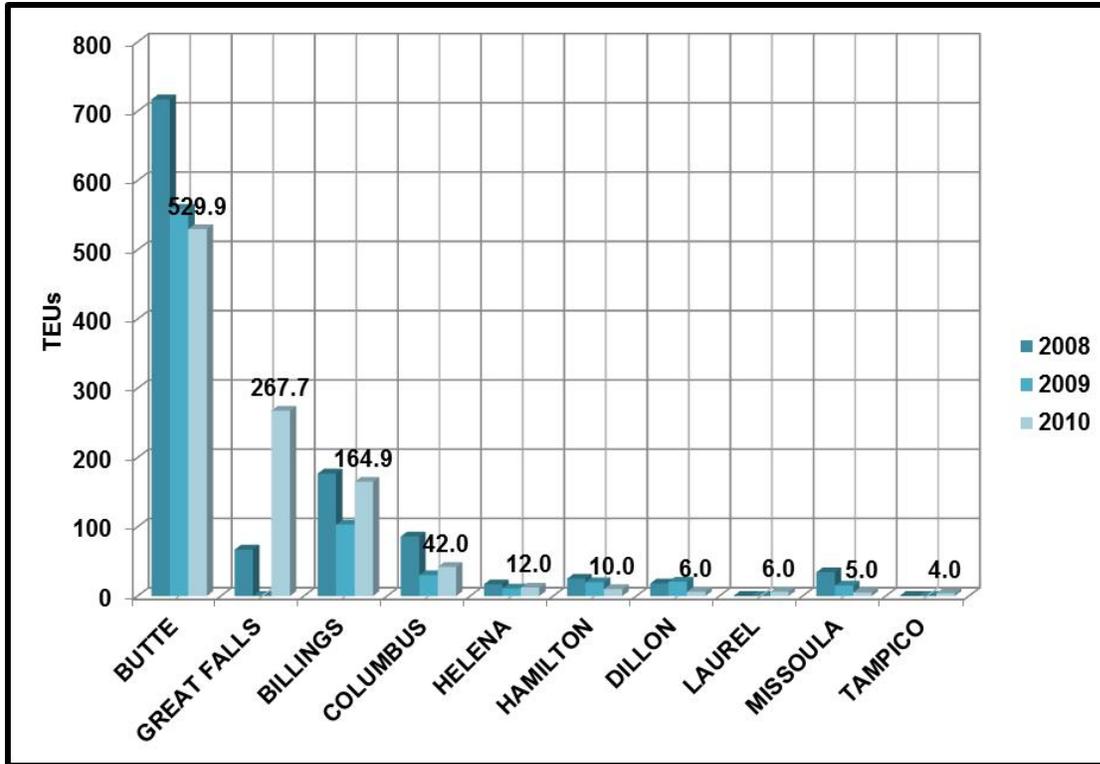
Commodity exports from Montana such as coal, feed grains and ore ship as unpackaged bulk cargo, rather than in containers, and therefore are not included in the PIERS data for Montana container volume. The container volume has been identified based on the origin of the exports and destination of the imports being Montana as reported on U.S. Customs manifest and described on the bill of lading. This allows container freight that is originating or destined for Montana but transported into/from containers at intermodal or port facilities outside of the state to be identified. This process can, however, exclude freight originating in Montana that is sold to or exported by a distributor or parent company located outside the state of Montana that lists the distribution point as the “origin” on the bill of lading. Once an initial set of anchor shippers is identified a more complete assessment of total freight volume and additional sources can be incorporated to identify other companies that may not be recognized by PIERS.

**1.1.2.2.1 Container Freight Export Origins**

The top container freight origins from Montana in 2008-2010 include Butte, Great Falls and Billings. The PIERS Data identified the largest container freight export volume in Montana originates Butte, with 529 TEUs in 2010. Great Falls was second with 51% of the volume of Butte (268 TEUs) and Billings third with 31% of Butte’s volume (165 TEUs-Figure 8). From 2008-2010, as an average, Butte remained the largest container freight origin with 1,806 TEUs. Billings had the second largest volume with 445 TEUs, followed by Great Falls with 335 TEUs. In 2010, containerized agriculture exports from Great Falls experienced

the most significant increase to 268 TEUs, up from 0 TEUs in 2009 and 78 TEUs in 2008. The remaining communities had significantly less container freight volume.

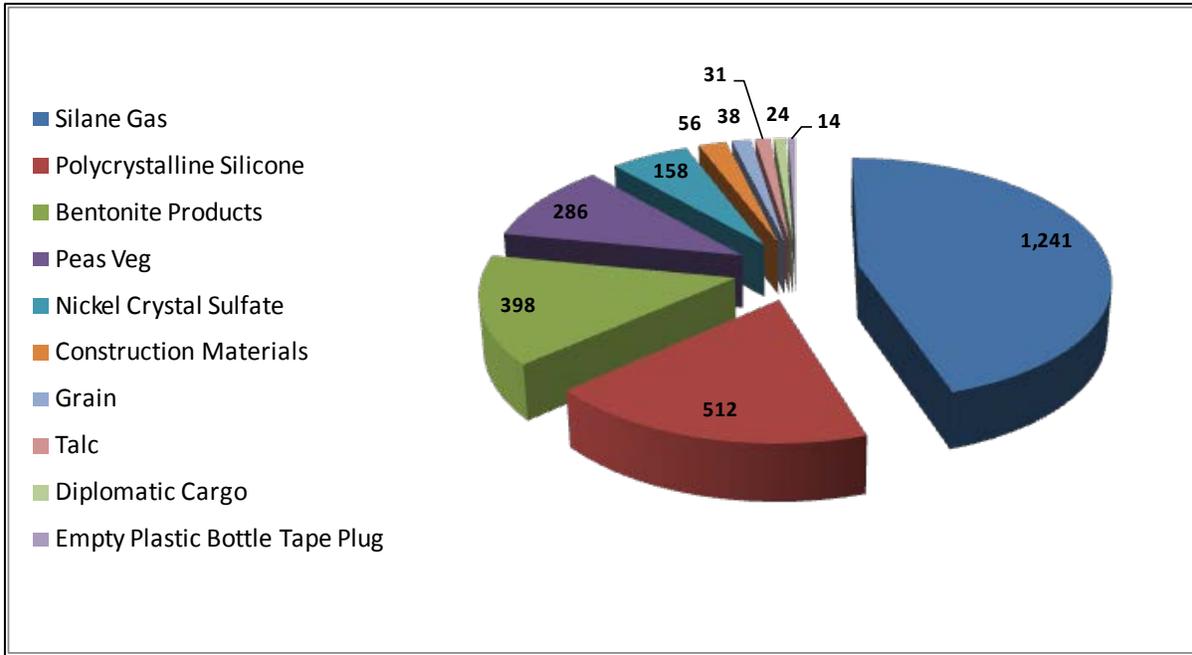
**Figure 8: Top 10 Container Freight Origins in Montana (2008-2010)**



Source: PIERS (Journal of Commerce's Port Import Export Reporting Service)

The product and commodity profile for container exports from Montana in 2008-2010 is largely dominated by silane gas and polycrystalline silicon shipped from Butte, followed by peas and non-frozen vegetables from Great Falls and salt, sulfur, earth and stone from Billings. See Figure 9 below for a full breakdown of container freight by product.

**Figure 9: Montana 2008-2010 Top Export Products by TEU Volume**

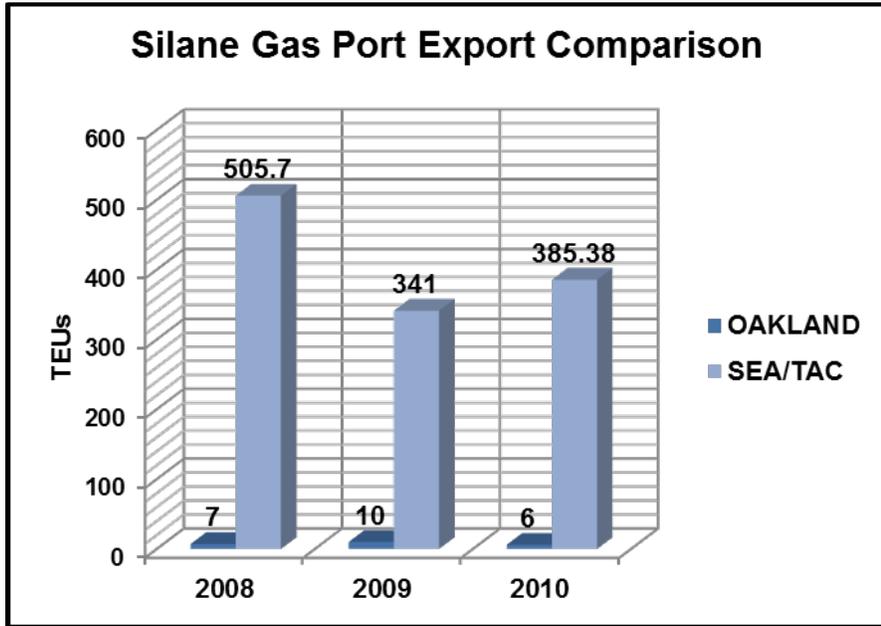


Source: PIERS (Journal of Commerce's Port Import Export Reporting Service)

The container export volume from Butte is driven by a single company, REC Advanced Silicon Inc., one of the world's largest producers of polysilicon and wafers for solar applications. The company is a growing manufacturer of solar cells and modules with 2010 revenues exceeding \$2.2 billion. The company was established and headquartered in Oslo Norway on December 3, 1996 and currently has sales offices in Germany, Spain, Italy, France, U.S., Singapore, China, and Japan. The company's production facilities are located in Norway, Singapore, and the western United States. The company has a production facility in Moses Lake, Washington employing approximately 550 people to support polysilicon and silane gas production exclusively for the solar market. The facility in Butte, Montana employs approximately 330 people, producing polysilicon and silane gas for the electronics industry.

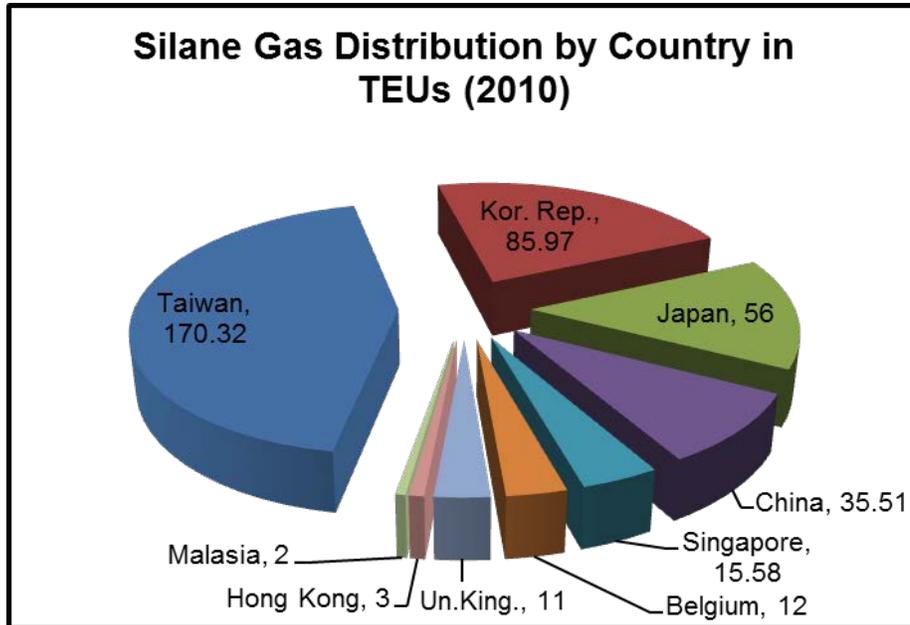
REC Silicon's material exports from Butte totaled approximately \$955 Million from 2008-2010. Silane gas represents approximately 70% of the company's exports from Montana and made up approximately 45% of the state's container export volume in 2010 (PIERS). Silane gas is the primary material used in the production of polysilicon and is an essential material for thin film photovoltaic, semiconductors and LCD display manufacturing. Silane gas ships in an ocean container outfitted to support the highly flammable material. The material produced by REC in Montana is loaded into the specialized containers and predominately trucked to the Port of Seattle where it is then transloaded onto an ocean vessel (Figure 10). Ninety-four percent of the silane gas from REC in Butte is shipped to Asian markets. The remaining 6% is shipped to Europe with 3.1% (12 TEUs) to Belgium and 2.8% (11 TEUs) to the United Kingdom (Figure 11).

Figure 10: Silane Gas Container Exports from Montana 2008-2010



Source: PIERS (Journal of Commerce's Port Import Export Reporting Service)

Figure 11: Montana Silane Gas Export Markets by Country 2010



Source: PIERS (Journal of Commerce's Port Import Export Reporting Service)

The overall container freight volume originating in Butte experienced a 35% decrease in volume from 2008 to 2010, as illustrated in Figure 8, although the export value in the same

time frame increased by 36% and 26% respectively (Table 16), illustrating a likely improvement in logistics efficiencies versus a decline in exports.

**Table 16: Percent Change in Container Freight from Butte 2008-2010**

Year	Exports in TEUs	Exports in Dollars	% Change in TEUs	% Change in Value
2008	716.96	\$ 345,002,478		
2009	559.04	470,783,687	-22.03%	36.46%
2010	529.86	597,070,443	-52.20%	26.61%

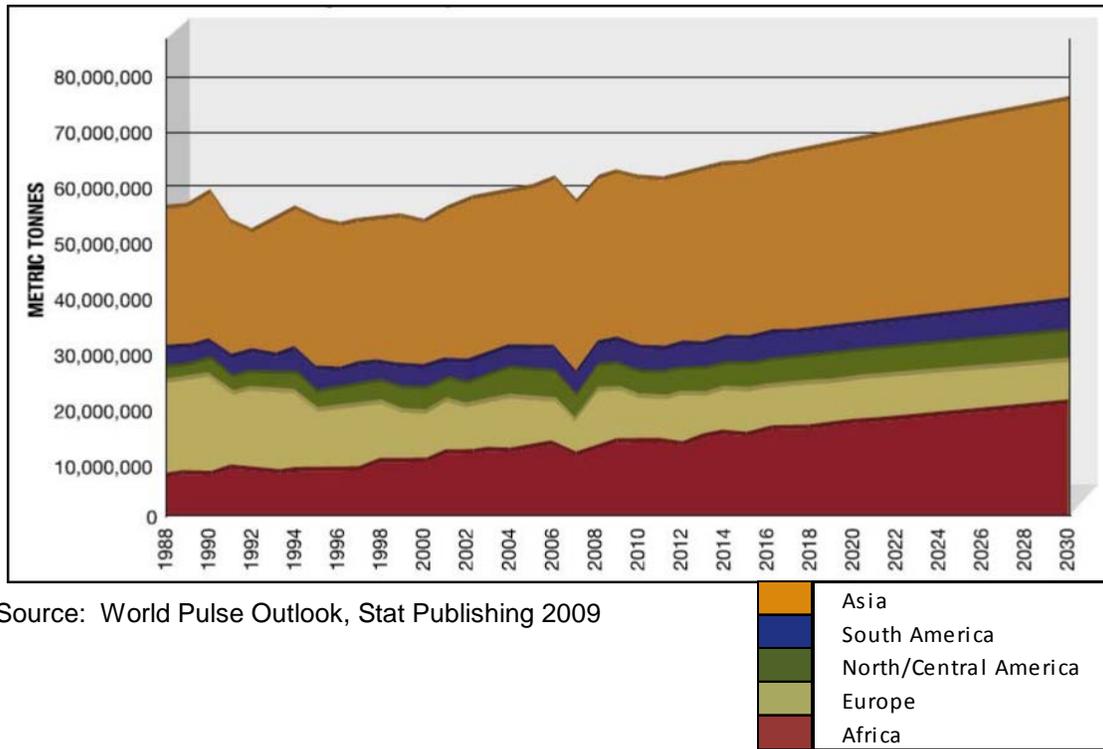
Source: PIERs (Journal of Commerce's Port Import Export Reporting Service)

The Port of Montana is also located in Butte, providing freight services, warehousing and a free trade zone to shipments coming to and from the area, region and state. It is the only point in Montana that services the Union Pacific railroad and it's located at the intersection of Interstate 90 (East-West) and Interstate 15 (North-South). The Port of Montana and a company such as REC Silicon, with significant container trade volume, are key stakeholders to develop freight efficiencies and an integrated freight network in Montana.

In 2010, the container export freight originating in Great Falls was approximately half of the volume compared to Butte but experienced the most significant annual growth in the state for container export volume. In 2008, PIERs recorded 67 TEUs originating in Great Falls. In 2010 this figure increased to 268 TEUs, increasing the export value from \$597,800 to \$2,890,000. The container freight primarily consisted of pulse crops (dried peas, pinto beans, garbanzo beans and lentils).

In 2010, 82% of the container export volume from Great Falls was classified as "Peas, Non-Frozen Vegetables", 14% was grain and the remaining 4% (11 TEUs) was classified as miscellaneous cargo. The significant increase in container export volume is a result of an increased global demand for pulse crops. Pulse crops are an inexpensive source of vegetable-based protein, which has significant demand in emerging and developing global markets. According to World Pulse Outlook, prepared by Stat Publishing in 2009, overall pulse consumption is expected to grow 10% from 2010-2020 and increase 23% from current levels (2009) by the year 2030. Consumption is expected to grow most rapidly in Asia and Africa (Figure 12). Agricultural commodity exports from Montana have collectively increased 33% from 2009-2010, with pulse crops increasing almost 96% in the same time frame (Table 17).

**Figure 12: Pulse Consumption Projections (metric tons)**



Source: World Pulse Outlook, Stat Publishing 2009



**Table 17: Montana Agricultural Export Trends**

Agricultural Exports for Montana - Millions Dollars/1						
Product	Year				Change 2009-2010	
	2007	2008	2009	2010	Percent	Value
Wheat Products	\$ 538.7	\$ 889.2	\$ 557.2	\$ 657.5	18.0%	100.3
Feed Grains and Products	38.4	85.0	64.1	60.4	-5.8%	(3.7)
Fruits and Preparations	2.3	2.0	1.0	3.3	230.0%	2.3
Vegetables and Preparations/ 2	55.4	75.9	71.5	139.9	95.7%	68.4
Live animals and Meat	9.8	10.6	9.2	9.0	-2.2%	(0.2)
Hides and Skins	1.0	3.3	2.3	2.9	26.1%	0.6
Poultry and Products	0.5	0.5	0.5	0.5	0.0%	-
Fats, Oils and Greases	0.4	0.5	0.4	0.5	25.0%	0.1
Feeds and Fodders	59.6	153.1	183.0	340.4	86.0%	157.4
Seeds	14.3	20.7	22.3	17.0	-23.8%	(5.3)
Other	18.6	16.5	17.4	8.7	-50.0%	(8.7)
<b>ALL COMMODITIES</b>	<b>\$ 739.0</b>	<b>\$ 1,257.3</b>	<b>\$ 928.9</b>	<b>\$ 1,240.1</b>	<b>33.5%</b>	<b>\$ 311.2</b>

1/ fiscal year ending September 30, 2/ Vegetable category includes dry beans, dry peas, lentils and fall potatoes, Source: Economic Research Service, U.S. Agricultural Trade Update

Great Falls is located in Montana's "Golden Triangle", an area encompassing Shelby, Havre and Great Falls. This seven county area produced 45% of the state's annual wheat crop (Montana Wheat & Barley Committee) and 14% of total pulse crop acreage in 2010 (Montana Department of Agriculture), making it the second largest region in the state for planted pulse crops. The largest region for planted pulse crops is Northeast Montana with approximately 74% of the total acreage and a 25% increase in planted acreage from 2009-2010. In the same time period the Golden Triangle region experienced a 143% increase in total planted acres of pulse crops (Table 18), the most significant growth rate in the state.

From 1998 to 2010 total pea acres in Montana increased 548% from 35,000 to 227,000, in the same time period lentil acres increased at nearly three times the rate of peas and grew from 16,000 to 255,000 total acres. In 2011 Montana lead U.S. production of peas and lentils with over half of all lentil acres and nearly half of all pea acres (Montana Department of Agriculture). Research conducted by the Montana Department of Agriculture indicates there is substantial growth of the pulse industry in Montana and forecasts with a transition of pulse crops grown on 25% of Montana's fallow cropland (approximately 900,000 acres) the annual benefit to Montana's economy is estimated to exceed \$240 million.

**Table 18: Montana Pulse Crop Acreage 2009-2010**

County	Pulse Crop Acres Planted 2009	Pulse Crop Acres Planted 2010	Acreage Increase	Percent Increase	% of MT Production
	(Irrigated + Dry Land, excluding Dry Beans)				
Daniels	53,199	62,084	8,885	16.7%	12.7%
Dawson	7,742	11,821	4,079	52.7%	2.4%
McCone	18,308	23,801	5,493	30.0%	4.9%
Richland	7,025	7,520	495	7.0%	1.5%
Roosevelt	36,208	46,925	10,717	29.6%	9.6%
Sheridan	110,997	154,144	43,147	38.9%	31.6%
Valley	56,923	54,152	(2,771)	-4.9%	11.1%
<b>Northeast MT</b>	<b>290,402</b>	<b>360,447</b>	<b>70,045</b>	<b>24.1%</b>	<b>73.8%</b>
Cascade	1,094	3,569	2,475	226.2%	0.7%
Choteau	4,127	8,541	4,414	107.0%	1.7%
Glacier	3,660	15,969	12,309	336.3%	3.3%
Hill	3,901	6,916	3,015	77.3%	1.4%
Liberty	4,353	12,436	8,083	185.7%	2.5%
Pondera	3,953	6,329	2,376	60.1%	1.3%
Teton	3,554	6,407	2,853	80.3%	1.3%
Toole	2,427	5,779	3,352	138.1%	1.2%
<b>Golden Triangle</b>	<b>27,069</b>	<b>65,946</b>	<b>38,877</b>	<b>143.6%</b>	<b>13.5%</b>
<b>State Total</b>	<b>374,582</b>	<b>488,130</b>	<b>132,888</b>	<b>35.5%</b>	

Source: Montana Department of Agriculture

Columbia Grain International (CGI) is the primary exporter of containerized freight originating in the Great Falls area and one of the state's largest overall agricultural producers and exporter of grain, peas and lentils. In conversations with CGI, the container volume provided by PIERS does not reflect the true container export volume of approximately 3,000 TEUs which ships from a grain elevator in Seattle. Eighty-five percent (2,550 TEUs) of the freight originates in Montana, mostly (80%) from the Northeast counties/region. The discrepancy in volume illustrates potential volume that has been missed by U.S. Customs reporting due to incomplete data and freight that is consolidated and exported by shippers outside of Montana.

CGI transports its export volume by rail in hopper cars or by barge (from Lewiston, Idaho) to west coast ports and transloads the freight into containers at port facilities (the company

owns a transloading facility in Portland, Oregon). Approximately 65% of CGI's container volume in 2010 was shipped as bulk (unpackaged) product; the remaining 35% was bagged prior to being loaded into containers. The bagged container exports of peas and lentils ship in bulk bags ranging from 10-220 pounds based on the buyers' needs. The company does not (nor has interest to) produce value-added food products but does process a small percentage of goods for government contracts of exports to Africa.

The company is owned by the Marubeni Corporation out of Japan, contributing to the company's role and recognition of the growing global demand for pea and lentil exports. CGI hosts three to four delegations a year from Pakistan, India, Turkey and other markets throughout Asia and the Middle East and also actively participates in international trade shows seeking new export opportunities. The company has a rather sophisticated freight network and considerable export volume, allowing the company negotiating power with railroads and freight service providers. If intermodal services were available in Montana the company has communicated its willingness to use the facilities, if there was an opportunity to decrease costs and streamline current inbound or outbound shipments.

Another large exporter based in the Great Falls is Pasta Montana, a value-added food product manufacturer selling branded and private label pasta and raw ingredients to domestic and international markets. The company is also owned by a Japanese firm that imports 100% of Pasta Montana's exports into the Japanese market for local distribution. The parent company is also the exporter of record and does not record Montana as the point of origin and therefore it is not listed in the PIERs database. In summer of 2011 the company projected they export approximately 500 forty foot containers on an annual basis, averaging 40 containers per month with consistent demand. With less than half of Pasta Montana's production exported to overseas markets, the company is interested in collaborating efforts with other food product manufactures in Montana to gain efficiencies in distribution networks throughout the U.S., particularly in the Pacific Northwest.

CGI and Pasta Montana combined, offer an additional 57 TEUs per week that could potentially ship from the Great Falls area. As global food demand continues to increase and Montana producers increase their container shipping practices for pulse crops and other agricultural exports, container export volume from the Golden Triangle region has the potential to experience significant gains in export volume. Improving value added production opportunities the pulse crops and agriculture industry in Montana will also contribute to the total outbound container volume for the state and region.

Rounding out the state's major container exports, with approximately 13% of the total volume, is the export of bentonite ("Salt, Sulfur, Earth and Stone"), originating in Billings, Montana. Similar to container exports originating in Butte, the volume from Billings is

largely driven by one company, Wyo-Ben Inc., which mines, processes, and distributes high quality sodium bentonite products throughout the world. Wyo-Ben was founded in 1951 and remains a privately held company headquartered in Billings, Montana. The company employs approximately 100 individuals and has three bentonite processing facilities located in the Big Horn Basin region of North Central Wyoming and South Central Montana. Wyo-Ben's products include drilling and construction products, environmental sealants, sorbents and binders, industrial applications, and industrial waste water treatments. Wyo-Ben is one of the largest exporters of container freight, exporting 398.97 TEUs valued over \$17 million from 2008-2010 (PIERS).

The only operational intermodal freight facility in the state of Montana that currently has dedicated train service for container exports by rail is located in Billings. According to the Western Transportation Institute, the Burlington Northern Santa Fe (BNSF) rail company offers intermodal trailer service to Billings, but no outbound freight is loaded onto the trains. And because Billings is on a coal route of the BNSF, access to track and terminal is limited. Currently outbound container freight from Billings and Wyo-Ben is primarily transported by truck, transloaded into containers and shipped from the Port of Seattle, Portland or Tacoma eastbound to Australia, Japan, Malaysia and South Korea.

Container exports from Montana play an important role in optimizing the freight services and efficiencies for manufacturers and producers throughout the state. To establish direct rail access for exports from Montana a volume of 250 containers per train on a weekly basis was identified as the minimum requirement by the railroad companies to offer intermodal services (Montana Department of Transportation report, *Container/Trailer on Flatcar in Intermodal Service on Montana's Railway Mainlines*, 2007).

In 2010, Montana international exports totaled \$1.96 Billion (Montana Department of Commerce)<sup>8</sup>, over \$618 million exports shipped by ocean container (PIERS) so it is estimated that roughly 31% of Montana's international export volume is shipped by container when measured by value. According to PIERS, in 2010 there were approximately 3,011 TEUs of freight that originated in Montana destined for overseas markets. Of this, 23% (696 TEUs) was shipped directly from Montana, 56% (1,689 TEUs) was loaded into containers in Washington state and the remaining 21% transloaded to containers of a variety of states and provinces. The volume of container freight originating in Montana is likely greater because PIERS data only represents ocean cargo with a Montana origin or destination on the U.S. Customs manifest and bill of lading. Freight from Montana transported to another state or province and shipped overseas or sold through a broker, is not included in this figure if Montana is not listed as the origin.

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<sup>8</sup> Montana Department of Commerce export value differs from the ITA due to combined exports of bulk wheat (from US Agricultural Statistics) shipped via Washington and Oregon that are not included in ITA's reporting.

Canada and Mexico represent 44% of Montana’s international exports and trade volume, while this data is not included in the PIERS data because it is non-ocean cargo, the cross border volume can contribute to the necessary volumes required for intermodal service. In April 2010 the Montana Department of Transportation completed a study on the impacts of Canadian cross border traffic. The primary interest for this report was the truck volume forecasts for the ports of entry from Canada into Montana. The truck volume reported in this study represented approximately 45.5% of the total trade volume between Montana and Canada (Oil Pipeline export/import volume not included). The most likely forecast scenario projects a growth of approximately 200 trucks a day, or 73,000 trucks a year by 2028. The upper range of potential outcomes for truck volume is approximately 400 trucks a day or 146,000 trucks a year. This is a rather wide range of possibilities, indicating it will be important to continue to compare current port of entry truck volume with forecasts. The projected forecast indicates a significant trade volume that can be incorporated into freight projections to meet the requirements of railroads servicing Montana and Canada, particularly for freight and shipments routed north or south from Montana through or destined for markets/cities with intermodal facilities. Figure 13 illustrates intermodal locations for railroads currently servicing freight from Montana.

**Figure 13: North American Intermodal Network**



Source: Intermodal Association of North America

The FAF<sup>3</sup> or ITA trade data on Canada and Mexico, unlike PIERS, does not provide an end destination beyond the country name. To ultimately identify and leverage both domestic and cross border export freight (Figure 5-6) with overseas trade volume it will require a

coordinated effort among service providers, shippers and stakeholders to accurately identify and coordinate the potential freight volume and routes to bring volumes closer to the requirements of the railroads.

Table 19.1 and 19.2 identify Montana’s top exporters by TEU volume based on data collected by PIERS and industry knowledge from the Montana Department of Commerce. While there is slight overlap, the combined lists creates a base of companies that can potentially help to create a consistent volume of export freight.

**Table 19.1: Montana’s Top Container Exporters**

TOP Exporters from Montana based on TEU Volume		
Company	TEUs	Value
REC Advanced Silicon Materials LLC	1,799	\$ 955,438,088
Wyo-Ben Inc	399	17,455,866
Columbia Grain International	324	5,929,082
Stillwater Mining Company	158	4,849,253
Fox Lumber Sales	49	7,031,463
Barretts Minerals Inc	45	1,020,436
Greenway Enterprises, Inc.	40	453,841
Sunrise Enterprises	20	370,643
TMW International, Inc.	13	230,842
Partnered Beverages	11	303,775

Source: PIERS

**Table 19.2: Montana's Potential Top Exporting Companies**

Company Name	City	County	Product
REC	Butte	Silver bow	Silicon and Silane gas
American Chemet	East Helena	Lewis & Clark	Copper oxides
Semitool	Kalispell	Flathead	Semiconductor fabrication equipment
Montana Resources	Butte	Silver bow	Copper Ore, molybdenum
Luzenac	Three Forks	Gallatin	Talc
Holcim	Three Forks	Gallatin	Portland Cement
Plum Creek	Columbia Falls	Flathead	Fiberboard and Plywood
Pasta Montana	Great Falls	Cascade	Pasta
Quad Five	Ryegate	Golden Valley	Animal donor blood
Aspen Air	Billings	Yellowstone	Acyclic Hydrocarbons
ConocoPhillips refining	Billings	Yellowstone	Petroleum products
ExxonMobil refining	Billings	Yellowstone	Petroleum products
Decker Coal	Decker	Big Horn	Coal

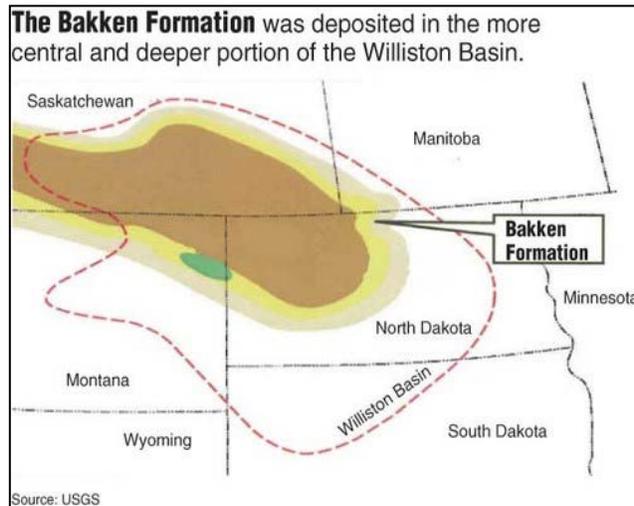
Montana Department of Commerce

To create a favorable freight environment for railroads and freight service providers, in addition to total outbound volume, the inbound volume and mode must also demonstrate and support a minimum velocity, enabling freight to move quickly in and out of Montana. Inbound trade data outlined in the following section illustrates importers in Montana from 2008-2010 that can potentially support or match future export volume.

#### 1.1.2.2.1 Container Imports to Montana

The container import environment in Montana has changed dramatically in the past two years due to the development of the Bakken Formation in Eastern Montana. The Bakken Formation is a subsurface rock unit underlying parts of Montana, North Dakota and Saskatchewan, containing significant producible oil reserves (Figure 14). The oil development in the Bakken is a result of newer horizontal drilling technology that makes extracting the reserve more economical. In summer of 2011 the projected oil reserves were about 4.3 billion recoverable barrels of oil with projections continually increasing, indicating continued investment and development (Railway, BNSF). Materials and supplies to support drilling activities have directly increased the total inbound container volume into and through Montana by 35% from 2009-2010 (PIERS).

**Figure 14: The Bakken Formation**

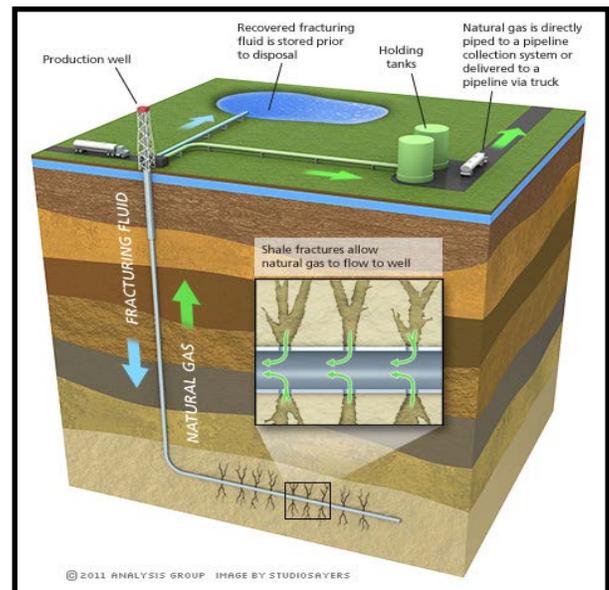


The primary import is ceramic proppant, referred to as “frac” sand, used for hydraulic fracturing, which is the process of initiating and subsequently creating a fracture in a rock layer, employing the pressure of a fluid as the source of energy. The fracturing is done from a wellbore drilled into reservoir rock formations, allowing the oil and gas to rise to the surface, increasing the extraction rates and ultimate recovery of oil and natural gas. The process is illustrated in Figure 15.

The largest proven reserves of frac sand are located in Australia, China, Brazil, Guinea, and India. Frac sand is processed in the country of origin and packaged into bulk bags containing 3,300 lbs each. The bulk bags are then loaded into overseas shipping containers and transported via ocean freighter. Ninety-five percent of the frac sand, imported by Montana importers, comes from China and routed through the Port of Seattle. The remaining 5% is imported from Hong Kong and is routed through the Port of Tacoma.

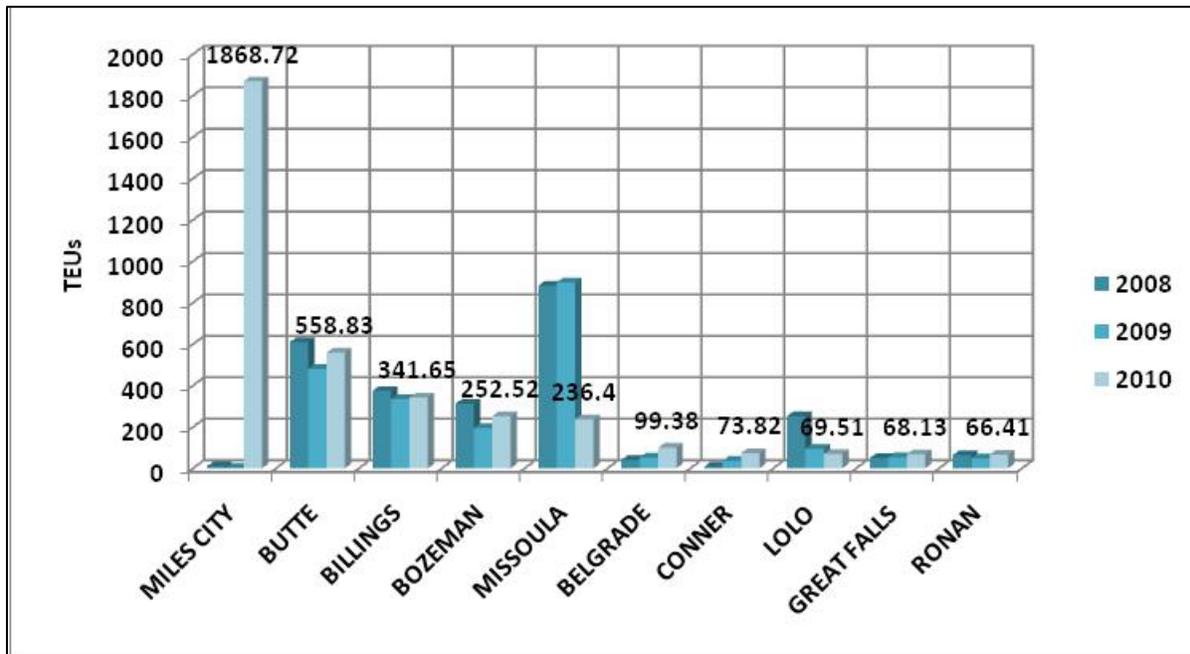
Accordingly to Railway, a publication produced by BNSF, the increased demand for frac sand has led to discussions about using unit trains to keep job sites in steady supply. In June 2011, BNSF held its first Sand Symposium with more than 80 shippers, receivers, transloaders and short-line representatives to discuss the challenges of the high demand. The demand is clearly illustrated in Figure 16, which outlines container freight volume by Montana importers from 2008-2010.

**Figure 15: Hydraulic Fracturing Process**



Source: Analysis Group, Energy Consulting

**Figure 16: TEU Volume and Locations of Montana Imports and Importers**



Source: PIERs (Journal of Commerce's Port Import Export Reporting Service)

The importer of record for the container freight into Miles City is Sanjel USA. Sanjel is a privately owned energy service company with operations throughout North American and global markets employing approximately 2,800 people. Locally, the company has offices in Miles City, Billings, Williston and Chinook. Sanjel offers specialized service lines for Acidizing, Cementing, Coiled Tubing, Fracturing and Nitrogen. Each service line has its own engineered products and custom-designed and manufactured equipment. Sanjel's fracturing equipment is purported to be one of the newest and most technically advanced fleets in the industry. According to PIERs, Sanjel USA is the largest importer of container freight located in Montana, importing approximately 1,868 TEUs of ceramic sand valued at over \$16 million, representing approximately 60% of the total TEUs.

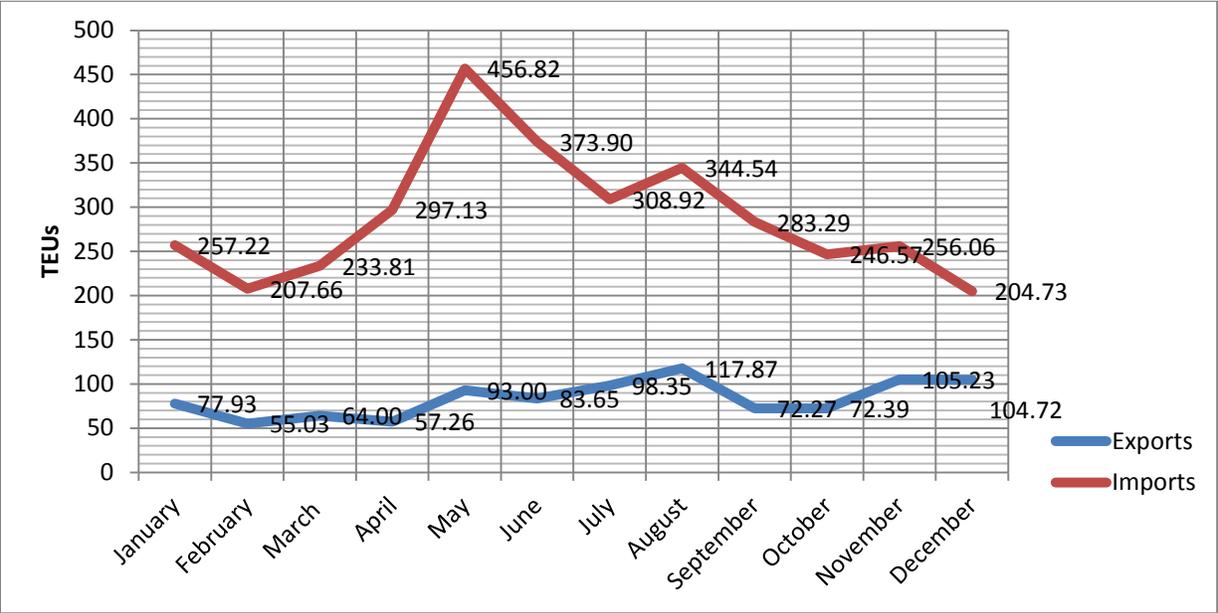
In conversations with Sanjel's procurement manager, MWTC learned that the containers are not directly transported into Miles City but are shipped by rail to Culbertson, Montana and Williston, Sydney, and Minot, North Dakota and then transloaded to storage facilities near the rail access points. Sanjel's Miles City office manages the logistics process for freight into the Bakken area and is listed on the bill of lading as the importer of record and consignee, with the destination on the bill of lading listed as "unknown". In speaking with Sanjel, they clarified the majority of their imports are shipped by rail in box or hopper cars from the Port of Seattle to the destinations listed above. Sanjel transported a portion of their freight in 2010 by container to explore the economic feasibility of importing ceramic sand in containers, with the empty container then used for agricultural exports. Sanjel

prefers to transport their freight by container, however, after exploring container freight options in 2010, the company deemed it was not feasible as they could not meet the time limits to unload and “turn” the container. If a pool of containers were repositioned at a port near the company’s storage facilities, it would change the dynamics and make it feasible for the company to use containers for all imports.

Another dynamic that may change the import of frac sand and the overall potential for inbound container volume is the fracturing process moving from ceramic sand to natural sand, which can be sourced domestically. In conversations with Sanjel, this was an industry trend the company was continuing to watch but did not confirm if or how much of their volume was moving from ceramic to natural sand.

After Sanjel, REC Silicon is the second largest importer of record in Montana, however, the volume is significantly less than Sanjel, and mostly consists of empty containers to support the company’s export operations previously discussed on page 38-39. The total volume in the time frame was over 10,400 TEUs, valued at approximately \$440 million. Forty percent of the volume was imported in 2010 with approximately 18% of the volume from 2008-2010 a direct result of Sanjel’s operations in Miles City, which was identified as container volume transloaded at west coast ports and railed in hopper cars to oil development sites in Montana and North Dakota. The TEU import volume in Figure 17 represents almost 2,000 importers in Montana and while the final destination for 97% of the volume identified by PIERS is listed as “Unknown” on the import documentation, the graph represents potential container volume that can possibly provide the necessary volumes to support intermodal services in Montana.

**Figure 17: Montana Export/Import Overlay Analysis (2008 – 2010 Monthly Averages)**



Source: PIERs (Journal of Commerce's Port Import Export Reporting Service)

Importing companies can be protective of information about the locations and/or type of freight that is routed inbound to Montana. Additional conversations with importers and service providers may provide a more precise understanding of the volumes and opportunities to match export volume. Table 20 outlines the top Montana based importers of ocean container freight from 2008-2010.

**Table 20: 2010 Montana Ocean Container Imports**

2010 Montana Ocean Container Importers		
Company	TEUs	Value
Sanjel USA	1,868	\$ 16,105,436
REC Advanced Silicon Materials LLC	991	84,654,410
R Brown Inc	814	9,474,446
Sun Mountain Sports, Inc.	741	30,435,992
JW Pike Ltd	398	5,274,566
Container Logistics Inc	345	26,962,173
Stillwater Mining Company	244	22,655,093
Big Sky Carvers	238	5,990,284
Simms Fishing Products LLC	216	11,384,396
Jore Corp	198	10,236,142

Source: PIERs (Journal of Commerce's Port Import Export Reporting Service)

## 1.2 Service Providers

Freight service providers operating and servicing Montana companies clearly play an important role to current and future solutions to freight challenges in the state of Montana. To improve and increase trade lanes, access points, freight hubs, transloading facilities and carriers will require the coordinated efforts of service providers among all modes, as well as shippers and stakeholders.

The current economics and technology within the freight industry have changed the dynamics and traditional role of service providers. In February 2010, the Journal of Commerce featured two articles, *Taking Trucks to the Tracks* and *New Thinking on Intermodal*, discussing how the traditional roles of service providers are changing as collaboration improves to increase intermodal services to companies without direct access to rail. Trucking companies, such as J.B. Hunt, Swift Transportation and Schneider National, are making intermodal service part of their portfolio as they look to offer more rounded and fully integrated logistics services. Even railroads companies like BNSF have an interest in collaborating rather than trying to compete on price for the same load. The following quotes from the articles communicate the benefit and need for improved collaboration among service providers:

*“A lot of shippers don’t believe intermodal will work for them, for one of two reasons – they tried it in the past and had a bad experience, or maybe they were given a proposal that didn’t meet their needs.”*

Steve Branscum, group vice president for consumer products at BNSF

*“The prerequisite to making [intermodal] work is you have to have an intermodal provider that is truly controlling the total aspects of the move door to door. You have to have more sophisticated control over the highway move; you have to have stuff going and coming or the empty miles will kill you. One of the questions is how many out-of-route miles do you have to endure in order to get on the rails, so the terminal location becomes more critical. It needs to be on the way.”*

Larry Gross, senior consultant with FTR Associates

MWTC met with and interviewed several freight service providers operating or servicing Montana companies to gain insight on current services available and to gauge future interest in shared transportation solutions. There are multiple providers of freight services in Montana; however, most serve in a traditional capacity with limited discussion on utilization of integrated freight solutions.

### 1.1.2 Trucking Companies

Trucking companies, particularly the national companies, servicing Montana do have access to intermodal and integrated services, but the service centers in Montana were not (or did not communicate if they were) actively seeking or developing intermodal services for customers. Backhaul freight opportunities and proximity to destination, as identified in the modal analysis of this report, enable truck companies in Montana to offer very competitive rates to rail. While most Montana companies do not have direct access to rail, limited by either volume or location, to offer integrated freight solutions the trucking companies would need a heightened demand by customer for the efficiencies and services gained by rail (i.e. container or trailer on flat car service).

FedEx is recognized as the largest LTL carrier in the U.S. and as previously mentioned in this report the company has a newly expanded service center in Butte, Montana. In early 2011 the company merged its regional network with a previously separate system of FedEx National LTL enabling the company to reengineer its LTL network. As part of the redesigning of its services, the company says it plans to be more active on the intermodal side. Class I railroad carrier Norfolk Southern was selected as the primary eastern rail carrier and it is likely the company uses BNSF for west coast services, although not officially reported by either company.

The move into intermodal by FedEx shows that rail pricing and reliability can now compete with truck services in some markets. The service center in Butte does not currently offer intermodal service, however, it does provide Montana companies, 87% of which are classified as small businesses, with more direct access to a national carrier with the capacity to offer integrated freight services and a local stakeholder that can be influential in establishing a more integrated freight network in Montana. MWTC has met with FedEx on multiple occasions regarding domestic and international services. FedEx is the national sponsor of ExporTech, a program developed by the Manufacturers Extension Program and the U.S. Commercial Service, to help companies develop and implement an international export strategy. MWTC, in partnership with the Montana Manufacturing Extension Center, administers the program in Montana. FedEx is participating in ExporTech program in Montana and has expressed interest in being involved in further development and discussion of an integrated freight network in Montana.

UPS is multi-billion dollar global corporation with a goal of enabling commerce around the globe. UPS accepts full truckload and LTL shipments. Airfreight service is also available to over 60 countries around the world. UPS provides shipment tracking services as well as logistic assistance for businesses. Similar to FedEx, UPS can offer intermodal services, and has the ability to act as a freight forwarder to arrange both full container and less than full container (LCL) ocean shipments as part of its global supply chain solutions. MWTC was

not able to identify businesses using the company as their fully integrated service provider for domestic and international freight, but as a service provider in Montana with a global network, it is important for UPS be a key stakeholder in further conversations and development of a freight network in Montana.

Watkins & Shepard Trucking is headquartered in Missoula, Montana and offers LTL and truckload freight hauling throughout the US from about 20 terminals, mainly west of the Rockies. The company's fleet consists of about 630 tractors and 1,600 trailers. Standard dry vans account for the majority of the company's trailers, but they also use flatbed trailers. Watkins & Shepard offers logistic services specializing in over the road transportation but provided little or no information on the company's ability to offer intermodal or integrated freight services.

Old Dominion is based in Thomasville, North Carolina and has a total of 216 service centers, including 12 located in Montana (Table 21). Each service center offers daily pickup and delivery of full truckload or LTL shipments that can be sent anywhere in the U.S., as well as globally. The company generally utilizes 27-foot trailers, but larger sizes are available based on the needs of the shipper. Old Dominion provides basic logistic services for companies needing assistance with their export demands.

Con-way Inc. is a freight transportation and logistics services company headquartered in Ann Arbor, Michigan with five service centers in Montana. Con-way is recognized as an industry leader in the transportation and logistics industry and delivers services through its primary operating companies of Con-way Freight, Con-way Truckload, and Menlo Worldwide Logistics. These operating units provide day-definite LTL, full truckload and intermodal freight transportation, logistics, warehousing and supply chain management service. Additionally the company also offers trailer manufacturing for specialized cargo. Con-way Inc. and its subsidiaries operate from more than 500 locations across North America and in 20 countries across five continents.

Reddaway was founded in Clackamas, Oregon and has served the Pacific Northwest since 1919 including service in Montana. The company has 2,600 employees and has earned the prestigious Quest for Quality award from Logistics Management magazine for 17 consecutive years. Reddaway offers both full truckload and LTL services and primarily serves the western states and British Columbia, Canada.

Table 21 outlines major trucking companies in Montana with service center locations providing LTL and FTL freight and transportation services. While not all offer intermodal services, all are stakeholders in the freight landscape in Montana and have the potential to play key and influential roles in the development of a more integrated freight network.

**Table 21: Montana Truck Company Service Center Locations**

Montana Truck Company Service Center Locations						
	Old Dominion	Conway	USF Reddaway	Fed Ex	UPS	Watkins Shepard
Billings	X	X	X	X		X
Bozeman	X			X		
Butte	X	X		X		
Great Falls	X	X	X	X		
Glendive	X	X		X		
Havre	X					
Helena	X					X
Kalispell	X			X	X	
Lewistown	X					
Miles City	X					
Missoula	X	X	X	X		X
Sidney	X					
Three Forks			X			

Source: Company websites and interviews (additional detail is provided in References)

### 1.2.2 Railroad Companies

The extensive history and overview of Montana’s rail providers, along with their intermodal activity, was previously detailed in container shipping report by prepared by Prime Focus, LLC and Western Transportation, *Container/Trailer on Flatcar in Intermodal Service on Railway Mainlines*. For purposes of this report the information on rail services providers is updated or new information to support and supplement the previous report(s).

BNSF is Montana’s primary freight rail transporter. Prior to being purchased by Berkshire Hathaway, the company publicly reported approximately 74% of the company’s outbound volume from Montana was coal (275 K carloads). In 2010, more than 272.2 million tons (51% of BNSF trains per day) originated from mines in southwest Montana and northeast Wyoming (Railway, BNSF). Of this volume, approximately 2% was exported to Asia. As previously outlined in this report, 2011 coal exports from Montana were a top growth categories and are likely taking up additional rail capacity on BNSF’s freight network.

In addition to growth of coal exports, the Bakken shale output is exceeding pipeline capacity and more crude oil is moving by rail. According to BNSF’s internal magazine, Railway, growth of crude is occurring at such a rapid pace the company is working to collectively change the supply chain model and find ways to increase delivery capacity. To do this the company is adding more unit-trains between crude destination and origination

facilities. The company is planning to have four new facilities by the end of 2012 and five new facilities in 2013, however the exact locations were not released at the time this report was published.

MWTC met with BNSF on multiple occasions to discuss options and best practices to improve rail access and freight efficiencies for Montana companies. The increased demand for containerized agricultural exports and the oil and gas developments in Eastern Montana and North Dakota presented additional opportunities and volumes that previously did not exist and provided a new platform for discussions. In June 2011, BNSF identified “match-backs” - pairing the move of empty containers from inland ports with demand from exports (particularly agriculture) - as a growth market for the company. BNSF did state however that any new consolidated services by BNSF in Montana will have to be complimentary to existing routes or services supporting coal and crude freight.

BNSF played a key role in establishing an intermodal facility in Minot North Dakota, which has freight challenges and needs similar to Montana. MWTC met with the company to gain insight regarding best practices and lessons learned from the company’s activities in North Dakota and the partnership with North Dakota Port Services (NDPS), a privately owned company. In meetings with NDPS, the company communicated it had spent significant time and resources developing a business model to determine the viability of the intermodal location and potential freight volume available to BNSF. According to BNSF a coordinated effort by NDPS with local and state government and stakeholders within the private industry played a critical role in engaging BNSF to move forward with a pilot intermodal project in Minot. The port developed the infrastructure and purchased the equipment and BNSF introduced BNSF Logistics (a separate but affiliated company) to provide the necessary services to coordinate inbound and outbound freight. In meetings with NDPS and BNSF Logistics it was expressed that while they have been successful in establishing the pilot service, they are still working to establish the long-term feasibility of the port.

Additional rail access or intermodal services by BNSF in Montana will likely be linked to the success and outcomes of NDPS. Additionally, NDPS services a 250 mile radius from Minot, which includes shippers for the Northeast corner of Montana, so volume growth and demands outside of this area will need to be shown to pique the interest of BNSF. Companies exporting freight from this region, however, will still benefit from the improved rates and market access and services provided by NDPS and BNSF Logistics. It is important to demonstrate that any new intermodal activity in Montana as presented to BNSF not take away volume from Minot or other existing intermodal sites that are not operating at full capacity.

MWTC, report sponsors and other freight stakeholders in Montana met with BNSF in February of 2011 to discuss strategies to improve rail access in Montana. The purpose of the meeting was to better understand BNSF’s business requirements (and metrics) to

establish an intermodal facility and improve rail access in Montana. We discussed lessons learned from the establishment of the intermodal facility in North Dakota, growth opportunities trending in Montana, and strategies to support future infrastructure development. Ultimately, the goal of the meeting was to collect accurate information and to collectively engage stakeholders to assess and discuss intermodal development in Montana. As part of the process, the aim is to align expectations and develop a long-term strategy to foster economic growth.

John Miller, Vice President of Agricultural Service, gave an overview and history of grain shipping via container, and stated that grain in a container is not a trend but something BNSF sees will remain in demand, advising that approximately 8% of U.S. grain ships via container. John also gave an overview of his background and the role he played in setting up the Minot ramp. He made a significant contribution in getting BNSF to commit to the project in North Dakota, largely by bringing BNSF Logistics a commitment by OOCL, an ocean container company to support activity and services at NDPS. The discussion/process to develop NDPS took over 2 years. After 6 months of discussion with North Dakota Port Services (NDPS), the city of Minot and other stakeholders, BNSF was willing to move forward. It took another year and half to get all the pieces in place with BNSF, BNSF logistics and the Minot facility.

Key aspects contributing to the development of Minot facilities and intermodal services included:

- Demonstrated ability to consolidate sufficient and consistent freight volume to support the velocity (frequency, route and volume) requirements of BNSF
- Private investment from North Dakota Port Services
- Acceptance of BNSF Logistics to coordinate shipments
- Commitment from shippers to support containers routed from Chicago (started at 40/week)
- OOCL took a risk/chance on Minot
- City, state and federal grants reduced risk and demonstrated support from community
- Minot is on the BNSF main line (They looked at Bismarck initially. Bismarck was vying for the ramp, but that location didn't make sense)

Major factors that BNSF outlined for a successful intermodal model in Montana include:

- Consistent imports, sustainable inbound supply for containers
- Efforts/opportunities to limit repositioning costs (the cost of transferring/moving empty containers).
- Competitive steamship lines willingness to participate

- Infrastructure to support “first and last mile” - the transport of goods to the final destination and/or from origin point to the rail transportation hub- of freight transportation

BNSF communicated they would like to see one train per week at minimum, but are willing to be flexible for a trial period, and expressed interest in reviewing trade flow volumes to evaluate potential opportunities and problem areas. As a result of the meeting, BNSF recommended to be careful about regionalizing efforts and suggested if the state can come together to find the best solution for all, it has a much better chance of success with the company.

The Union Pacific (UP) railroad services the Port of Montana and has 125 miles of track parallel to the I-15 north south corridor from Idaho to the Port. UP sees significant potential for intermodal growth and is working to convince shippers to shift a portion of their freight from truck to rail. The company identified 11 million truck moves a year throughout the U.S. that could potentially be transported by rail as long as railroads offer timely, dependable service. By carrying freight 500-600 miles per day, which is the distance a truck with a single driver covers, UP can compete with over-the-road trucking (Journal of Commerce). Union Pacific provides door-to-door supply chain logistics services, including real time product tracking, direct carrier container, and transload management to help shippers manage a single freight movement through the carrier with one point of contact. The company recently invested in the development of a transloading unit for grain at the company’s Yermo facility, near the ports of Long Beach and Los Angeles, where grains shipments are transferred from rail hopper cars to containers, then shipped overseas. The company is also heavily engaged in moving freight to and from the Bakken Formation through intermodal facilities in the Midwest. While the UP has limited track miles in Montana, the company has continued to be engaged in conversations with MWTC regarding a freight network and the current intermodal environment in Montana.

Montana Rail Link is the largest privately owned railroad in the U.S. and as illustrated in Figure 1 serves western Montana. While the local company is very interested and eager to provide intermodal and container service to its customers, the demand and volume are not sufficient to currently offer such services. In 2011 the company researched the feasibility of exporting wood products from Western Montana in containers, but at the time the economics did not play out. The wood products industry is continuing to see increased demand for containerized lumber to support construction demand, particularly in China, Japan and India (Vanport International), but currently there are a limited number of wood product exporters in Montana. The limited volume of wood product container freight originating in Montana is currently transported by truck and transloaded into containers at west coast ports destined for the markets mentioned above. As more wood products

producers in Montana are able to take advantage of export opportunities, MRL will revisit the opportunities to offer consolidation and container freight services.

While Canadian railroads do not directly operate in Montana, they are becoming increasingly competitive in the U.S., and with overseas coal exports moving through Canadian ports, it is worth noting the influence of their activity. Both Canada Pacific (CP) and Canadian National (CN) railroads have expanded their share of U.S. bound freight through Chicago. This has motivated railroads in the west to build inland logistics hubs and go after export cargo. Additionally, CN routes import and export freight from/to Asia through Prince Rupert Port (identified in Figure 13) which is two days shorter than freight routed through U.S. gateways, adding additional pressure to U.S. railroads to increase and improve services. BNSF does have direct operations from Vancouver, B.C. to the U.S. border of Washington State to service freight between Canadian Ports and the U.S. market.

In addition to the railroad companies listed above, there are several Class III railroads operating in Montana that are more adaptable and can cater to specific customer needs, and can serve the first and last mile in captive rail shippers supply chain. The shortline rail companies in Montana may have the capability (based on locations) to offer support services based on identified needs of Class I railroad companies to create a more flexible intermodal service network in Montana.

### **1.2.3 Ports and Consolidation Facilities**

Both the Port of Northern Montana (Shelby) and the Port of Montana (Butte) have access to Class I rail and offer warehousing services, however, to fully meet the needs of multiple shippers and economically offer consolidation services, the inland ports need sufficient volume to support the integration of intermodal services and unit trains.

As an update to previous reports, the Port of Montana has officially become recognized as a BNSF transload facility, providing the opportunity for more Montana companies to make use of the services and capabilities at the Port. In interview with the Port it was reported the 2011 volume at the Port increased 30% from 2010 and contracted services for Union Pacific increased to provide additional auto distribution services.

In 2011, the Port of Northern Montana received a \$17 million grant to complete the construction of Port of Northern Montana Multimodal Hub Center. The funds will complete a missing freight rail transportation link between Montana and all ports served by BNSF on the West Coast and Great Lakes region. Primary port connections include the Ports of Seattle, Tacoma, Longview, Vancouver (Washington) and the Port of Duluth in Minnesota. Federal funds in addition to non-federal investment are being used to complete the construction of the inland port. The federal investment will construct 10,860 lineal feet of track (per BNSF specifications) to support BNSF's Class 1 intermodal trains, construct an

access road and a 20-acre lay down yard to stage over-sized equipment. The grant application illustrates that demand does exist but current track configurations cannot accommodate unit trains and limits the volume necessary to offer intermodal services. The construction and hub center is expected to be online and functioning by 2015.

The development of this inland port will enable Montana companies to ship and receive containerized international cargo. BNSF has committed to operating one intermodal train per week provided there is a suitable facility to accommodate unit trains of containers and sufficient volume to load a full inbound and outbound train. Sufficient volume has been identified and validated by the Port of Northern Montana (Figure 18), forecasting that inbound containers will carry energy equipment and supplies to support traditional and renewable energy projects, and outbound trains transporting regionally manufactured goods and containerized agricultural commodities to emerging industrialized nations. Combined these are expected to provide the freight velocity needed to support rail services at the inland port facilities.

**Figure 18: Projected TEU Freight Volume at Port of Northern Montana**

Employer	Product and Destination	Estimated Containers/Year	Permanent Jobs Created	Pledged Commitment
<b>American Pulse</b>	Peas/Lentils	2,600	25	\$2 million for American Pulse facility construction near proposed inland port
	<b>India</b>			
<b>Malteurop</b>	Montana	520	2	\$500,000 for Euro Malt facility construction near proposed inland port
	<b>Canada</b>			
<b>Green Prairie International</b>	Compressed Hay	1,300	15	\$1 million for Lift Machine
	Japan			
<b>North-West Pork Cooperative</b>	Pork	5,040	235	\$250 million for pork processing facility near proposed inland port
	<b>China</b>			
<b>Pasta Montana</b>	Pasta	780	2	To Be Announced
	<b>Japan</b>			
<b>Halliburton</b>	Frac Sand	1,820	9	To Be Announced
	<b>Williston Basin</b>			
<b>Mountain View Reload</b>	Frac Sand	1,040	5	\$1 million for facility construction near proposed inland port
	<b>Canada</b>			
<b>Sanjel Corp</b>	Frac Sand	780	2	To Be Announced
	<b>Montana</b>			
<b>Mountain Grow</b>	Bagged Potassium	10,400	25	To Be Announced
	<b>India</b>			
<b>TOTAL INVESTMENT</b>		<b>24,280</b>	<b>320</b>	<b>\$254.5 Million Plus TBA Commitment</b>

Source: Port of Northern Montana Tiger Grant Application

Figure 18 illustrates the role that traditional energy development can play in achieving TEU volumes. The import of frac sand has changed the freight dynamics in Montana and North Dakota, where the majority of the development has occurred. As stated in the AgWeek article, *Oil Boom is Changing Container Economics*, the oil boom in western North Dakota is changing the economics of railroad shipping containers, potentially benefitting agricultural shippers who want to send their products west through Pacific Northwest ports, or even to the east.

In July 2010, North Dakota Port Services (previously described in this section) established an intermodal facility in Minot, North Dakota. The facility services customers in a 250 mile radius and is serviced by BNSF's Northern Tier intermodal line. The port is adjacent to BNSF's main-line switchyard with daily service and four-lane highway access. BNSF Logistics, separate from BNSF Railway but part of BNSF Corporation, has an office at the port and is the primary service provider for shippers in the region looking to obtain container freight services. North Dakota Port Services created a joint venture with BNSF Logistics, BNSF Railway, Ocean Carrier Partners and the shipping community to leverage eastbound flow of containers loaded with ceramic proppant as part of "shared supply chain" initiative.

BNSF Logistics plays the key role in balancing the import and export customer demand and building the critical mass needed to support consistent, trainload quantities. They also manage ocean carrier contracting, rail and ocean equipment inventory management, waybill organization and supply chain tracking.

MWTC met with North Dakota Port Services and BSNF Logistics in February, 2012 to get a better understanding of the freight services and the resources required to establish the freight network. The primary take away from this meeting was the coordinated effort among stakeholders (public and private) to recruit BNSF Logistics, an essential partner in the ability to offer container services in Minot. While there has been a significant increase in container volume to the area from the oil and gas developments, it was clearly expressed that the port is still developing and testing strategies to support a viable long-term model. The port director also communicated the significant time and resources dedicated to developing a business model and metric analysis to illustrate the possibilities and benefits of the port to strategic partners like BNSF.

To increase supply chain efficiencies and reduce freight costs in Montana (at state or regional level) it became evident to MWTC that shippers need better access to service providers, particularly for international freight, and service providers need help identifying existing and potential freight volume in Montana. In an interview with a consumer products company in Bozeman, the logistics manager informed MWTC they had chosen their freight forwarder simply because the forwarder had worked with another local company. Similarly, in conversations with freight forwarding companies that service

Montana, they were not aware of the company in Bozeman or their potential freight volume.

BNSF described Next Generation intermodal as a process that allows flexibility on where freight enters and exits the rail system and leverages the networks of major third-party logistics providers. The development or support for a more flexible network emphasizes the need for service providers to coordinate services – thus ultimately providing new business opportunities for service providers and improved market access and supply chain efficiencies for shippers. While the Port of Northern Montana has been able to identify volume potential, they will also need strategic partnerships with logistics service providers to coordinate freight activity (similar to the relationship with North Dakota Port Services and BNSF Logistics).

#### **1.2.4 Contracting Options**

MWTC reviewed a multitude of shipping organizations to analyze the viability of a shipping association and the opportunities it can provide for improved and future contracting opportunities for Montana companies. The associations review included:

- Midwest Shippers Association
- U.S. Shippers Association
- American Import Shippers Association
- American Cotton Shippers Association
- North American Rail Shippers Association
- Food Shippers Association of North America
- The American Institute for Shippers Associations

Upon reviewing the seven shipping associations, it was evident they have all developed or stated the importance of the four core competencies listed below:

1. Provide customers with a large variety of transportation alternatives.
2. The automation of the contract management system.
3. The ability to create strength and demand at the end of the supply chain by locating experienced foreign buyers interested in establishing ongoing trade relationships.
4. The continuous sharing of information, ongoing learning, and networking.

The first competency describes a necessity to provide customers with a large variety of transportation alternatives by having arrangements with trucking companies, rail companies, and ocean carriers. This is only possible through having developed strong relationships among the various shipping service providers throughout the entire supply chain. Cross coordinating with other export promotion programs is also frequently encouraged. By utilizing multiple groups with similar objectives, economies of scale can be

realized in regions that they did not exist before. The development of these complex network relationships appears to be the key for acquiring the necessary leverage for negotiating discounted freight rates.

The second core competency that has established itself as the new trend among leading shippers is the automation of the contract management system. An example of this is the “Rate Explorer” tool utilized by the U.S. Shippers Association. This tool automates the portfolio of ocean contracts and provides association members with all known contracted container rates and services in order to improve their international logistics processes. This makes it possible for the users to calculate the bottom line cost for multiple scenarios (Door to Port, Port to Port linked with various inland rates, etc.). These computerized contract management systems allow association members to identify their transportation cost based on their needs and provides side-by-side comparison of various shipping options. The end result has been an improvement in the accuracy of sales quotes and optimized booking decisions. It also allows leading shipper associations to pool their expertise and varied spectrum of negotiating skills possessed by the association members.

The third core competency is directly related to successful international marketing strategies. The leading shipper associations were frequently noted for their ability to create strength and demand at the end of the supply chain by locating experienced foreign buyers interested in establishing ongoing trade relationships. Their strategy involves acting as a portal for identified foreign merchants and distributors that wish to purchase American products. A key component of this strategy is that information about the American companies must be made available to foreign purchasers in a clear and concise manner. A commonly noted mistake is that trade groups frequently provide ample export information to American producers, but provide only minimal information to potential foreign buyers, partners and end consumers.

The fourth identified core competency is the continuous sharing of information, ongoing learning, and networking. The leading shipper associations are known for providing continuous information and trends on the global economy on their websites. With the vast amounts of information available to the public through the World Wide Web, the ability to provide the appropriate and relevant information for identified industries is paramount for success. Successful shipper associations hold multiple annual conferences, networking opportunities, and multiple trade shows that are attended by the shipping associations and made available to the association members.

A strategy used by shipping associations is to focus on developing new or stronger relationships with existing shipping service providers and other export promotional

organizations. Three identified shipping association that present opportunities for collaboration in establishing a freight network in Montana include:

The North American Rail Shippers Association: The umbrella organization of five regional associations of rail owners, this organization links the entire United States with Canada and Mexico. Both Montana Rail Link and BNSF are already members of this association and may be able to share insight regarding the possibility of combining or leveraging volumes for improved rail access in Montana. It is also possible that new opportunities could be found or developed through networking or a partnership with the association.

The Pacific Merchant Shipping Association: This association is domiciled in the Seattle based World Trade Center. The Montana World Trade Center's membership in the World Trade Center Association and other affiliations with the Port of Seattle may be an opening to develop better relationships with the ocean freight carriers in order to learn about and discuss discounted freight rates established by the organization.

Midwest Shippers Association: Formed by the Minnesota legislature to act as an advocate to improve the freight environment (access and rates) in the region, this organization works on behalf of companies throughout the Midwest, including companies in Eastern Montana, with a focus on agriculture exports. Midwest Shippers Association has identified the Seattle/Tacoma ports as the gateway to the Asian market. The relationships it has established with the various freight services and industry make the organization a valuable contact/partner with the possibility of leveraging the existing programs or initiatives to further assist Montana companies. In summer 2011 the association held a conference and trade show in Seattle with the focus on agricultural container exports, introducing and providing informational tours of the various ocean freight companies to the association members.

In conversations with the organization regarding efforts in Montana, Bruce Abbe, Executive Director of the Midwest Shippers Association, shared information on current freight dynamics in the West and provided recommendations based on the organizations past and current initiatives. The organization does not act a consolidator of freight, expressing it would be difficult (and unnecessary) for them to compete with services offered by private industry. The organization, however, does provide a platform for shippers to communicate and coordinate needs with service providers through their website, as well as through formal and informal meetings and networking events. Mr. Abbe also reiterated a point made by BNSF; a key factor to gain access to intermodal and improved contract rates will require successful recruitment of and a willingness to participate by ocean container companies.

Based on feedback from BNSF, the most competitive ocean container companies in 2011 were OOCL, APL, Maersk and China Shipping, all of which currently work with Montana importers. The Port of Northern Montana was able to get a commitment from Orient Overseas Container Line (OOCL) to support container services once the multimodal hub is complete. Table 22 outlines the top ocean carriers and container volume, by TEU, serving Montana importers and are most likely the companies willing to engage in contract negotiations to establish intermodal or consolidation of overseas cargo in Montana. In conversations with several of ocean carriers listed, they expressed interest in learning more about freight and intermodal activities in Montana. However to engage in any contract negotiations or to provide rate estimates, the rail company will need to be consulted and importers will need to be able to commit to volumes, specify trade lanes and a consolidation point(s). In addition, as previously mentioned, third party logistics service providers play a key role in successful freight consolidation and intermodal activity, and will also need to be included in contract negotiation. Table 23 outlines a list of non-vessel operating common carriers (i.e. freight forwarder and 3PL's) that serviced Montana importers in 2010.

**Table 22: Top Ocean Carriers/Container TEU Volume w/ MT Companies**

<b>VOCC</b>	<b>TEU Import Volume</b>
Maersk Line	537
Hyundai Merchant Marine	399
China Shipping Container Lines Co. Ltd	316
Hanjin Shipping Company Ltd	263
Nyk Line (Nippon Yusen Kaisha)	249
Hapag Lloyd A G	217
China Ocean Shipping Company	198
Evergreen Line	198
Mitsui O S K Lines Ltd	167
Compagnie Maritime D'affretement	158
Westwood Shipping Lines, Inc	127
Orient Overseas Container Line Ltd (OOCL)	121
MSC-Mediterranean Shipping Company S A	77
Yang Ming Marine Transport Corp	69
AOL Co PTE Ltd-NOL Group	68

Source: Datamyne, Inc.

**Table 23: Top Non Vessel Ocean Carriers MT Container TEU Volume**

<b>NVOCC</b>	<b>TEU Import Volume</b>
Domart Energy Services 2007 Ltd	919
JHJ International Transportation Co Ltd	427
Expeditors International Of Washington Inc	374
Binex Line Corporation	302
Orient Express Container Co Inc	67
UPS SCS (Asia) Limited	60
Round-The-World Logistics (USA) Corp	59
Topocean Consolidation Service (LA) Inc	57
Zen Continental Co Inc	56
Worldwide Ocean Line	54

Source: Datamyne, Inc.

## 2. Cost and Opportunity Analysis

A goal in this research project was to provide a comparative cost analysis of the most promising freight options and include an outline of barriers and opportunities identified by shippers and stakeholders. The aim was to get domestic rates based on the trade lanes identified in the modal analysis and international rates based on the trade lanes of the top export and imports as identified by ITA, Montana Department of Commerce and PIERS. From there, the intent was to compare the inbound/outbound shipping/freight rates quoted for Montana to rates for other captive shipping markets, states and regions that have direct access to inland intermodal and consolidation services. Additionally, the rates could then be used by shippers as a base rate to benchmark their freight costs and potentially improve freight contacts.

Although several meetings and conversations occurred with freight forwarder, trucking companies and railroads in effort to establish a rate matrix, companies resisted quoting rates for the following reasons:

- Long term domestic contract rates require frequency and volume/shipment to be specified
- Rates fluctuate frequently based on market dynamics and seasonality
- Reluctance to provide rates to be published or publically compared with competitors
- Volume was not formally committed from shipper

If or when collective efforts move forward to establish a more formalized integrated freight network in which shippers and service providers are given a platform to actively engage in freight rate negotiations, freight service providers were willing to provide specific rates and discuss contract rates with shippers based on volume commitments for specific trade lanes, frequency and modes.

As part of the cost and opportunity analysis we identified specific barriers and opportunities that impact transporting goods to and from Montana.

## 2.1 Barriers

As one of the largest states in the nation geographically with less than one million in population, one of the most significant challenges Montana faces in order to establish a competitive freight environment is the ability to generate and coordinate inbound and outbound volume to support needs of multiple industries. High freight costs make it difficult or impossible for Montana manufacturers and agriculture producers to successfully compete in the domestic or global marketplace. Combining volume to create efficiencies and reduce costs requires an inland port or consolidation point with the capacity to support the volume necessary (identified previously in this report) to provide sufficient return on investment to railroad companies and third party logistics providers capable of offering intermodal services. Additionally, shippers will need sufficient incentives or motivation to offset any switching cost or perceived challenges to revise or update their current logistics processes.

The following summarizes the barriers and challenges to creating a competitive freight environment in Montana, as identified by potential anchor shippers and freight service providers over the time frame of the research project:

- Inland freight costs to/from Montana make it difficult (or impossible) to compete with companies located near or at ports or major distribution center
- Companies do not have immediate access to railway main-lines or volume to support unit trains
- Railroads not currently providing intermodal train service to Montana terminals<sup>9</sup>
- Lack of committed trade volume to support the economics of intermodal rail service or facility
- Local governments not involved or supportive of a collective concept (planning – implementation)
- Traffic needs to be incremental to existing intermodal terminals currently serving Montana
- Proximity to ports can be cost preventative for rail
- Minimal coordination among industries or regions to integrate or share transportation cost
- Fragmented industries over a vast geographic region challenges companies' efforts to consolidate freight with like industries or trade lanes
- Rail capacity on trade routes are committed to unit trains with limited additional capacity for intermodal freight
- Access to containers is not consistent and can fluctuate based on domestic and global demand, limiting willingness of steamship lines to reposition containers at inland ports

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<sup>9</sup> BNSF has committed to piloting a unit train when Port of Northern Montana multimodal hub is operating

- Shipping lines not committed to utilizing facilities in Montana to consolidate or store containers
- Lack of local service providers that could adapt or meet exporter needs (services and equipment)
- Lack of workforce to support export needs
- Lack of knowledge or understanding of opportunities and advantages of intermodal or containers freight
- Volatile market dynamics make it difficult to forecast trade lanes or volumes
- Not aware of government or private industry resources available
- Not aware or interested in new market opportunities
- Poor condition of transportation infrastructure, especially in rural parts of the United States

While not able to formally commit to developing or participating in an integrated freight network, generally both shippers and service providers were interested and eager to engage in future conversations to discuss solutions and opportunities for the identified barriers and challenges.

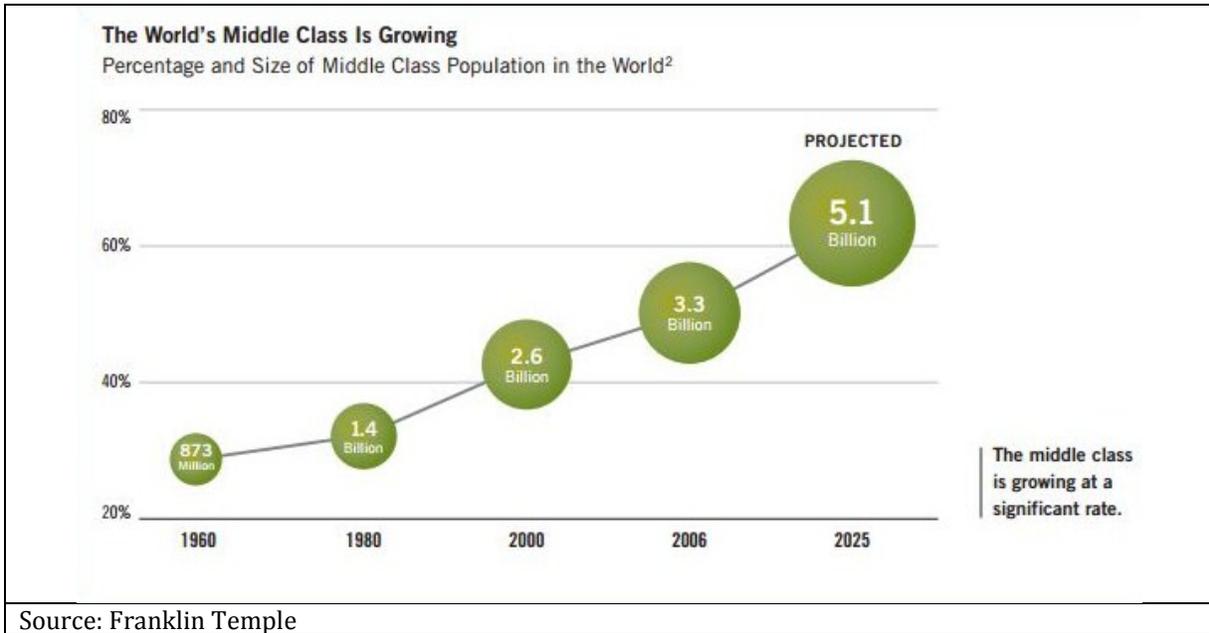
## **2.2 Opportunities**

The current global demands for commodity and value-added exports from Montana offer new opportunities to support the development of a more integrated freight network within the state.

Industries that did not previously require intermodal services in Montana are now seeing a shift in demands and market trends. Additionally, new markets and industries are developing to further support the investment in intermodal and consolidation services within the state. The largest opportunities, based on the industry profiles in Montana, are within the agriculture and manufacturing sectors, particularly within grain exports, pulse crops and value-added food products to supply the demand of the increasing middle class in emerging economies.

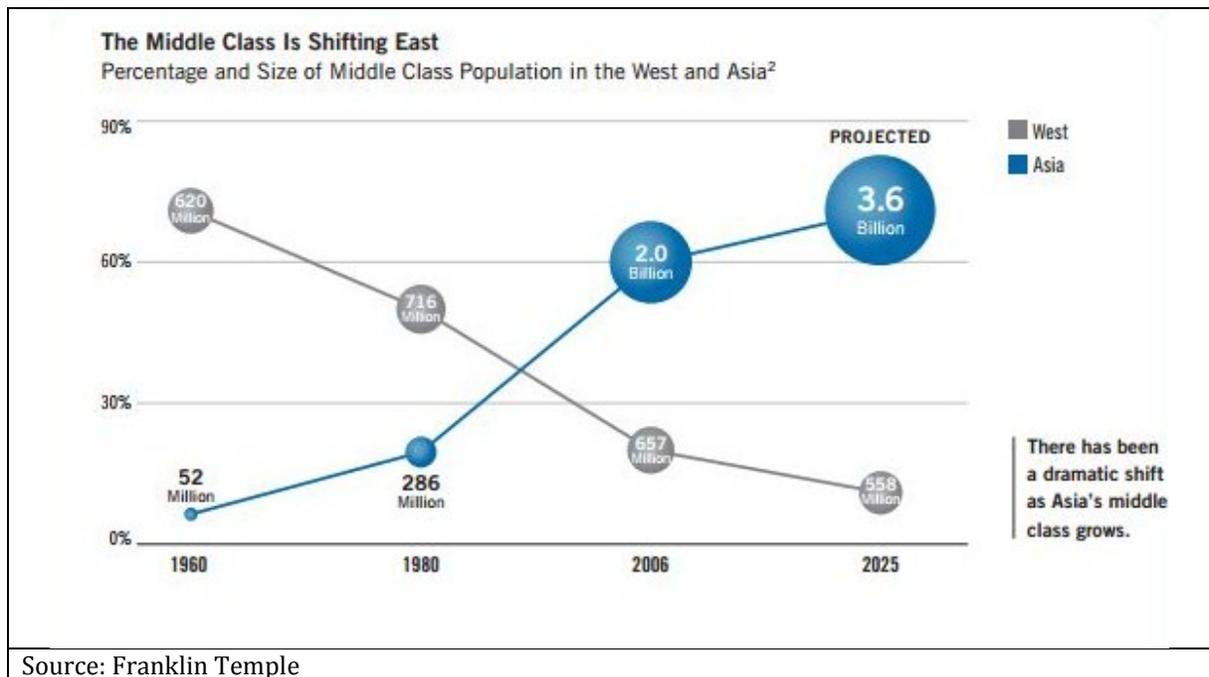
In 2006 for the first time in history, more than half of the world's population was considered middle class (*The Economist*, February 2009). The size of the world's middle class is projected to increase rapidly and steadily over the coming years to more than 5 billion in 2025 (Figure 19).

**Figure 19: Growth Rage of World's Middle Class**



The location of middle class has also seen been a dramatic shift. In 1960, there were 620 million middle class people in the West while there were 52 million in Asia. By 2025, more than 60% of the world's middle class is projected to be in Asia (Figure 20).

**Figure 20: Middle Class Population Growth Markets**



Industries that did not previously require intermodal services in Montana are now seeing a shift in demands and market trends. Additionally, new markets and industries are developing to further support the investment in intermodal and consolidation services within the state. The largest opportunities, based on the industry profiles in Montana, are within the agriculture and manufacturing sectors, particularly within grain exports, pulse crops and value-added food products to supply the demand of the increasing middle class in emerging economies.

As preserved grains and food grade agriculture products increase in global demand, and food security remains a concern, there is a trend for more agriculture exports to ship in containers. Bulk wheat is 28% of Montana's international exports (Montana Department of Commerce), and can have significant impact on the overall container trade flow on west coast ports, particularly as access to container shipping is more established and producers focus on value-added and food grade exports.

A surge in U.S. grain container exports from 2004-2008, largely driven by significant increases in bulk carrier freight rates, initiated the trend of shippers using containers as their default exporting method rather than a substitute for bulk options. Container lines generally welcome grain exports to fill empty backhaul freight created by the U.S. trade deficit. Containers exports can be subject to seasonal shortages and force container companies to keep the container near the port, rather than lose days waiting for backhaul freight, but there is still a steady flow of container being used for wheat exports (World Grain News). U.S. agriculture container exports accounted for 21% of total agriculture exports in 2010, a 4% increase from 2006.

This demand is largely driven by buyers in Asian markets that want to mitigate risk and protect their cargo from source to destination. Boxing up grain near ports and thousands of miles from fields may not satisfy foreign customers that may prefer their goods to be separate (rather than ship in bulk) for the entire journey. Seaborne grain container deliveries to Asia climbed 29% in the first eight months of 2011 (USDA). Taiwan is the largest destination for U.S. grain container shipments; China is second, but the top overall destination for U.S. agricultural products. Grain importers in China are also increasingly opting to receive the cargo in containers as it is easier to find financing when their shipments are containerized (Journal of Commerce).

Ag producers are, however, far from container hubs in Chicago and West Coast ports. Historically the challenge for containerized grain exports has been the demand for export containers of grain far exceeds the supply of available containers (Long Beach Port). Imbalance of freight moving inbound and outbound creates problems in terms of positioning railcars and containers. Transportation costs, capacity and sustainability considerations are increasing the value of rail and intermodal solutions (Inbound

Logistics). With capacity issues becoming an increasing concern for shippers across all industries, the efficacy gained by intermodal positions railroads and for greater success.

BNSF said transloading (transferring cargo from bulk cars to containers or vice versa) near ports is efficient, but also serves inland transloading facilities in the Midwest. The company sees an opportunity for growth by matching containers in urban centers with areas producing agricultural exports, a process referred to as “match-back”. BNSF is investing \$680 million in container yards, half of which are in the Midwest.

Railroads overall are investing capital to expand track and port capacity to handle agriculture exports to Asia and intermodal import traffic. UP and BNSF are collaborating on a new facility at the Port of Long Beach. BNSF also has plans for a transload facility in Amarillo that will cater to agricultural shipments.

This growth trend is not just affecting railroads. Increased grain exports are spurring the Southern California Ports to pursue more farm product exports (Agriculture Transportation Coalition). The Port of Long Beach is studying additional export grain units and Total Terminals International is considering construction of grain transloading facilities. For the first time, a large volume of containerized grain is moving to the L.A. Long Beach port. The fact that railroads are seeking additional supply and companies are willing to make investments in infrastructure at the port facilities to support agriculture exports indicates that the trend is expected to continue.

The infrastructure investment from Montana’s largest grain growers also supports this trend. Asia Pacific companies are competing aggressively for Montana grain, either by upgrading existing elevators, or by building new high-speed facilities capable of moving millions of bushels of Montana wheat (Montana Standard). Mitsui, Columbia Grain (owned by Marubeni Corp. of Japan), and EGT, LLC (stakeholders include STX Pan Ocean, ITOCHU and Bunge North America) are the most aggressive in pursuing new capacity. EGT has invested in building three high-speed shuttle loaders. According to Gary Brester, an agriculture economist from Montana State University, grain elevation isn’t a high-profit game so investment is being driven by food security (Montana Standard), strengthening the idea that there is an opportunity to meet demands with containerized exports originating in Montana.

Open-top hopper cars can carry more grain than can fit into a container and will likely remain the dominant method of transporting crops. However, as higher quality and value-added foods exports increase in demand, there will be a greater percent of containerized agricultural exports (Bruce Abbe, Midwest Shippers Association). It is not always cost effective for railroads and container shipping companies to offer or increase rural access to rail facilities and containers. Railroads and ocean carriers struggle to come together on a cost to reposition container equipment in rural areas. It is not viewed as cost effective or

efficient for ocean carriers to reposition empty containers in the Midwest, however shipments from Montana have a proximity advantage to ports in the Pacific Northwest and, with the proper infrastructure and velocity, the potential to turn containers more quickly and minimize costs.

In addition to agriculture exports, there are a multitude of industries that have increasing opportunities from the rising demands in emerging economies. One industry that is vital to Montana and that may see a complete turnaround due to global demands is the wood products industry. Chinese authorities announced a plan to build 35 million affordable housing units between the years 2011-2016, with 10 million estimated in 2011, alone.

Export opportunities for wood products to Asia have demonstrated strong growth during the last year and are expected to continue into the future. In 2011, U.S. exports of wood products to China increased by 144% and exports to Japan increased by 16%. The Chinese market is known to be very price sensitive, but will accept large monthly orders. The Japanese market is more focused on quality and delivery consistency, rather than spot rates. Taiwan, South Korea, and India are small volume markets when compared to China and Japan, but are showing signs of positive growth that is expected to continue into the future.

U.S. and Canadian exporters have been capitalizing on the demand, particularly as domestic markets remain unstable. Exports of wood products are shipped from West Coast ports in containers to Asian markets. As Montana's wood products industry becomes more focused on global markets, it presents an opportunity to combine and leverage additional freight volume but will require and need local or regional intermodal and logistics services to fully realize export gains.

The overall demand for grain exports combined with the rising demand for pulse crops (as identified in this report) and the increasing market opportunities for value-added products from the U.S. creates a new and dynamic freight environment that enables producers and manufacturers, as a whole, to effectively negotiate with rail companies and service providers for long-term viable service options, benefitting Montana exporters. The position of the rail companies, with new investment and interests to support export growth and the surge of oil and gas developments, creates an opportunity for new businesses models that can benefit shippers, rail companies and service providers.

New business development and increasing demand for Montana exports presents a chance to create and develop an integrated transportation solution through state freight networks, service and logistics providers that can identify and consolidate complementary import and export demand. An integrated freight network increases the flexibility within the supply chain, serving the interests of the rail companies and shippers. For example, by

converting some railcar movement to container, it creates more flexible capacity for bulk freight commodities from Montana, such as coal, crude oil and petroleum. Integrated, closed-loop networks also accelerate container turns, improving asset utilization and further driving the economic advantages and incentives for those actively engaged within the freight network (Inbound Logistics).

Third party logistics (3PL) providers are advancing services to link shippers to shippers, smoothing paths toward collaborative distribution, finding and matching compatible customers, redefining shared shipping services and building national platforms for more intense cooperation among shippers (Journal of Commerce). 3PL brings technology, a carrier base and customer lists that can streamline the process to vet and develop long term partnerships. As highlighted by conversations with the North Dakota Port Services and BNSF, 3PL service providers must play an integral role in developing a more robust freight environment in Montana.

As capacity tightens and shippers turn to dedicated carriage, more shippers are shifting from truckload to intermodal (Transplace Logistics). The trend presents an opening for shippers and service providers to increase cross-customer regional dedicated fleets and opportunities to put shippers together in shared dedicated networks (for both rail and truck). A share ride can shave 7-20% off transportation cost (Schneider Logistics). The future will be more shippers aligning deliveries and sharing trucks (Kane is Able Logistics), prompting service provider to develop and offer collaborative distribution programs, which has been recognized to save shippers up to 35% on logistics costs.

In Montana there is an opportunity for stakeholders (i.e. Economic development groups, Ports, Shippers and Producers) to collaborate and present a business model to 3PL providers that outlines the opportunity to establish consolidation points, run piggyback trailers by rail to intermodal hubs, and arrange regional deliveries to larger metro areas and distribution facilities. This provides a basis for lowering the cost of domestic shipping out of Montana and creates a platform for lowering the cost of exporting out of Montana to international markets. Service providers have expressed interest in evaluating a model if it can be demonstrated that there is enough domestic cargo on key trade lanes to make it viable. The modal analysis in this report offers a base to initiate discussions on potential trade lanes and distribution centers (identified by large volumes to Washington and distribution centers in the Midwest and Western states)

To support the opportunities for new business development for rail companies and service providers, there are best practices from other states in similar freight environments that can be implemented in Montana to advance current efforts and initiatives.

A North Dakota contingent led by Governor John Hoeven convinced BNSF to implement the co-load concept provided the private sector committed a high enough container volume to

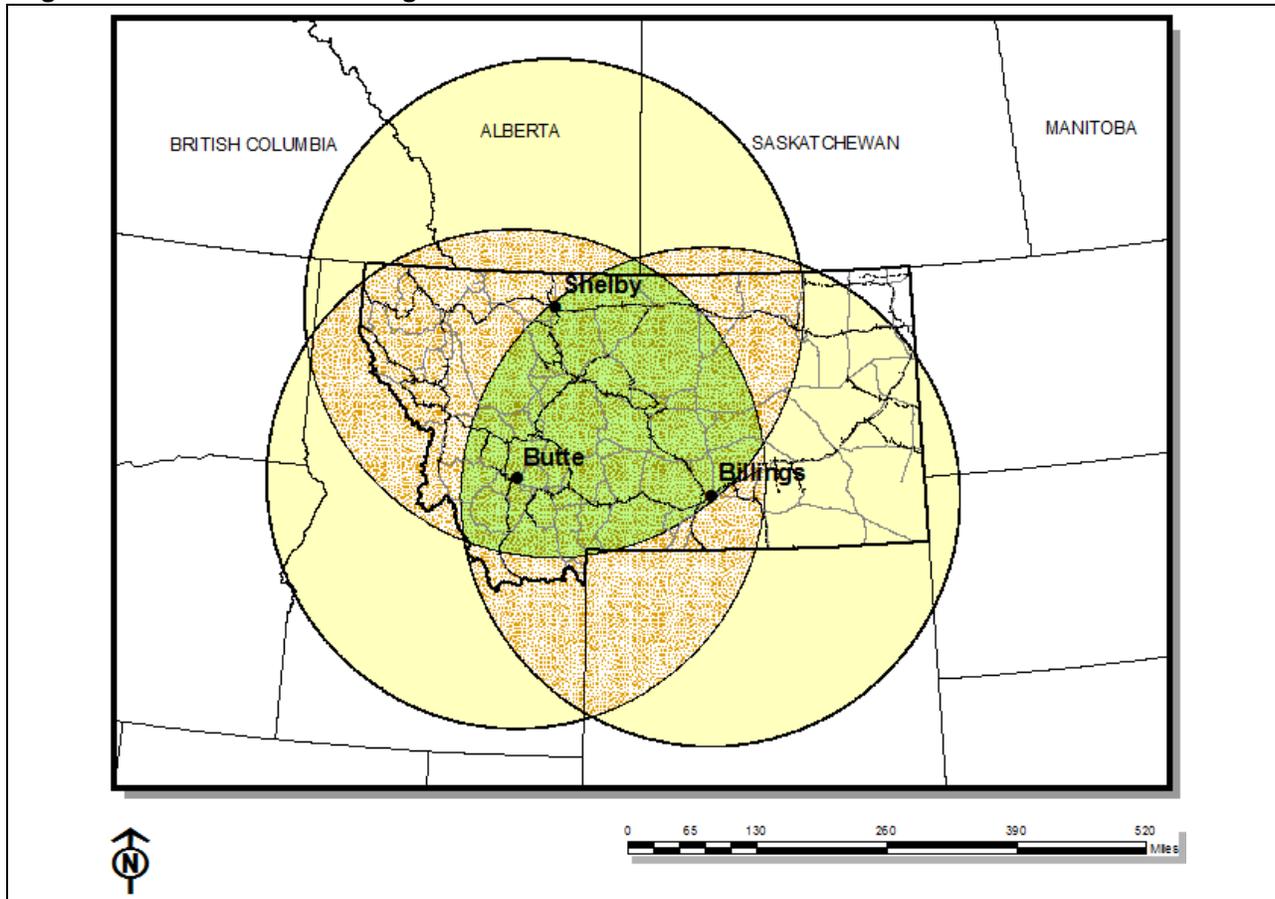
make the plan attractive to container shipping companies. This resulted in the development North Dakota Port Services, previously discussed in this report.

South Dakota lacks Class I rail service resulting in export container shipments needing to be trucked to rail ramps in Omaha, Kansas City or Minneapolis. A transportation and logistics task force has been working on improving rail access in the state since 2006. The task force has also reviewed match-back services. Challenges in South Dakota include using the same railroad line, convincing container companies to move equipment into the state to allow for the reloading of container for export without checking for damage, as well as asking for five to seven days to turn import containers around for export without being charged. Research and initiatives from the South Dakota task force can provide insight and resources to advance efforts in Montana.

In addition to state and local governments, service organizations have played an integral role in the advancement of investment and infrastructure development. The Great Plains International Trade Association, based in Sioux Falls, has worked with importers and exporters in South Dakota, Minnesota, Nebraska and Iowa to get more importers and exporters together in order to share containers. The organization emphasizes if states and local areas work together, there is a better chance of success in recruiting the private industry partners necessary to develop new infrastructure. Railroads and steamship lines are businesses and presenting business plans that create opportunities for profitability improve chances for success.

In meetings with BNSF, the company reiterated on multiple occasions the development of an intermodal strategy must be compatible with the strategies of railroads, which are seeking business ideas that are profitable and sustainable. In North Dakota BNSF was approached by over 10 different sites each seeking intermodal access that failed to work out. Minot was selected as the best chance for success largely because of its geographic location in relation to the BNSF line. In conversations with North Dakota Port Services freight can economical be transloaded or consolidated within a 250 mile radius of an intermodal or multimodal facility. Figure 21 represents a 250 mile radius of existing ports within the state of Montana and outlines the proximity of potential exports and imports as previously identified in this report.

**Figure 21: 250 Radius of Existing Ports in Montana**



As global demands for Montana exports increase, it is essential for stakeholders among public and private industry to collaborate to effectively develop strategies and infrastructure that best position Montana companies in the global marketplace. Without developed infrastructure to support global demands, companies currently operating in Montana will likely invest outside of the state (near port facilities) to support their needs. States that are not able to offer competitive rates are seeing companies (often those that are economic drivers in rural communities) purchase warehouses at rail hubs, establishing central staging locations around the world, decreasing jobs and opportunities to build or create collaboration among shippers (Journal of Commerce).

### **3. Market Analysis Summary**

Over the duration of the research project, MWTC contacted or met with a variety of shippers and freight services providers participating in domestic and international freight activity, as illustrated in the modal analysis for this report. While companies were protective of their total volume, rates and existing logistics contracts, they recognized the

challenges and expressed interested to participate in further organized discussions on state and regional levels to talk about opportunities and strategies to improve freight access and services to better meet their needs and market demands.

The following summarizes and provides an overview of the findings from the modal and cost opportunity analysis:

- Only a small percentage of Montana products are directly exported
- Global demand best positions Montana's agriculture and value-added manufacturers for new growth opportunities
- Commodity exports from Montana are often sold to domestic brokers (wholesalers, middlemen), limiting gains to producers and the state that can be realized by international exports and global demand
- Fragmented industries, vast geography, and limited networks have prohibited or limited collaboration among shippers to identify or gain freight efficiencies
- Volume to support a long term successful intermodal strategy and activity cannot be dependent on any one industry (i.e. pulse crops or frac sand)
- Integrated freight networks can provide flexibility for service providers to support rural networks and support or develop logistics services in areas not currently or poorly serviced
- New infrastructure investments within the state and by stakeholders creates opportunities to present new business models strategically aligned with transportation and service providers

These findings present a chance to advance conversations and initiatives that can help to support or further develop and streamline export opportunities for Montana manufacturers and producers, and to create a network of stakeholders to develop a business model(s) that collectively can attract and help develop an integrated freight network.

Based on research conducted for the modal analysis in this report, the insight gained through industry feedback and best practices and models established in other states and organizations, MWTC recommends the following actions to help realize export opportunities and gain freight efficiencies for Montana manufacturers and producers.

- 1. Develop a more integrated approach among local and state governments with state and national organizations so Montana companies and producers can better understand, utilize and leverage state resources and networks to take advantage of global opportunities.**

The following is an example of several departments and organizations that work to promote and improve export and business opportunities for Montana producers and manufacturers.

- Montana Governor’s Office of Economic Development
- Montana Department of Commerce
- Montana Department of Agriculture
- Montana Department of Transportation
- Montana World Trade Center
- Montana Export Assistance Center
- Montana Grain Growers Association
- Montana Wheat and Barley Committee
- Montana Manufacturing Extension Center
- Montana Small Business Development Centers
- Montana Small Business Administration
- Montana Economic Development Associations
- Montana State Congressional Delegation
- Montana Chamber of Commerce
- Rail Service Competition Council

The organizations may be aware of one another, and in some cases have partnerships, but it’s vital to bring these and other organizations together to collectively collaborate on initiatives in order to leverage resources and networks to improve freight access and rates. A specific example would be working together to host a reverse trade mission(s) of foreign buying delegations that can add significant and persuasive value to freight discussions with rail road and ocean freight carriers. Incorporating buyers can positively contribute to freight negotiations by illustrating existing and future demand, resulting in improved contract rates and export opportunities.

**2. Education on container shipping and logistics processes and opportunities, particularly for agriculture exporters.**

In meetings with the North Dakota Port Services and BNSF Logistics, they stressed the importance of educating agriculture producers on the process and advantages of shipping by container. While NDPS had intermodal capability and capacity, there was a learning curve and reluctance identified for producers to transition from loading grain in rail hopper cars to containers. To recognize gains in the global market demands for agriculture exports, a proactive education program (modeled after those developed by the state of North Dakota) can prepare Montana producers to take advantage of container and/or intermodal shipping once available.

**3. Develop a targeted strategy and/or business plan to improve interaction between modes and industries by attracting 3PL and developing an integrated freight network, providing flexibility to Class I rail companies.**

By using information collected in the modal analysis of this report, a targeted strategy and/or business plan can be developed to outline potential synergy between modes and provide a platform for a collective approach for shippers, transportation and service

providers and other stakeholders, ultimately creating an opportunity to attract 3PL's and create an integrated freight network within the state and or regions of the state.

#### **4. Support efforts to develop an integrated freight network by establishing a freight association, task force, or network lead by private industry.**

MWTC reviewed a multitude of shipping organizations to analyze the viability of a shipping association and the potential for improved and future contracting opportunities for Montana companies. Through meetings, interviews and research, MWTC concluded a freight resources association or group to be successful it must 1) provide customers with a large variety of transportation alternatives, 2) provide tools for or a source for automation of the contract management systems, 3) have the ability to create strength and demand at the end of the supply chain by locating experienced foreign buyers interested in establishing ongoing trade relationships and 4) provide a platform for continuous sharing of information, ongoing learning, and networking.

#### **4. Conclusion**

The hypothesis of this study is that by developing a more integrated freight network in Montana, exporters can achieve transportation savings through logistics efficiencies and the combined efforts of multiple firms will give service providers the necessary volumes to economically offer improved freight services and access. The hypothesis includes that by creating "anchor shippers" in regions throughout the state, their volumes, combined with smaller shippers, can be leveraged to improve freight access, services and rates.

The modal analysis completed for domestic freight indicates that the outbound freight from Montana can be characterized as lower value bulk cargo and inbound freight is higher value package or non-bulk commodities. The high percentage of instate freight, both outbound and inbound by weight and value, illustrates an opportunity and need to increase value-added exports from Montana to other domestic and international markets. The most significant opportunities for Montana's producers and manufacturers to increase distribution and sales are outside Montana state borders.

Using container exports as a tool to identify potential anchor shippers, the locations of Butte, Great Falls and Billings were recognized as export origins for the largest container volumes in Montana. The product and commodity profile for container exports from Montana in 2008-2010 was largely dominated by silane gas and polycrystalline silicon shipped from Butte, followed by peas and non-frozen vegetables from Great Falls and salt, sulfur, earth and stone from Billings.

Growth in emerging Asian economies is driving increased demand for agriculture and natural resources, with significant opportunities for value-added food products and

manufactured goods. To fully realize gains, producers and manufacturers need a robust logistics and infrastructure to support growth and meet demands of foreign buyers. The current freight network, however, in Montana is extremely fragmented among industries and regions, lacking access to Class I rail, intermodal or multimodal consolidations hubs.

Through best practices and lessons learned from neighboring states, shippers associations, and service providers identified in this report, there is the potential to support the development of an integrated freight network in Montana to benefit stakeholders throughout the supply chain. The infrastructure investment by Class I railroads, foreign buyers and logistics providers illustrates a market trend with long-term viability that can directly benefit Montana producers/manufacturers and support economic development in the state. Providing a platform or network to help Montana companies create efficiencies in the supply chain (i.e. through leveraged volume) presents an opportunity to work with service and transportation providers to establish business model(s) that benefit all stakeholders and support long-term growth.

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## APPENDIX A: Transportation Study Contacts

Montana World Trade Center Transportation Study Contacts					
Resources					
Organization	Goods/Industry	Address	Email	Phone/ Fax	Contact
Wheat & Barley Committee	Government	Great Falls, MT	kfalcon@mt.gov	(406) 761-7732	Kim Falcon
Manufacturing Extension Center	Research & Resources	MSU Bozeman, MT	mmec@coe.montana.edu	(406) 994-3812	Steve Holland Chad Lee, Ron De Yong, Marty Earnhart
Dept. of Agriculture	Government	Helena, MT	chlee@mt.gov	(406) 444-0132	Jim Lynch, Hal Fossum
Dept. of Transportation	Government	Helena, MT	mdt.mt.gov	(406) 444-6200	
Montana Grain Growers Assoc.	Industry Assoc.	Great Falls, MT	mgga.org	(406) 761- 4596	Lola Raska
Port of Montana	Shipping/Transportation	P.O. Box 3641, Butte, MT, 59702	kathy@porfmontana.org	(406) 723-4321	Kathy Fasso, GM Patty Hempstead, John Reynolds
Montana Rail Link	Railway	Missoula, MT	montanarail.com	(406) 523-1500	Howard Nash
Midwest Shippers' Assoc.	Shipping Co-op	Eden Prairie, MN	info@mshippers.org	(952) 253-6231	
Western Transportation Inst.	Research & Resources	Bozeman, MT		(406) 994-6114	Jerry Stephens, Steve Albert
MT Dept. of Commerce	Government	Helena, MT	swarren@mt.gov	(406) 841-2754	Sara Warren
US Dept. of Commerce/MT Export Assistance Center	Government	Missoula, MT	carey.hester@trade.gov	(406) 370-0097	Cary Hester
Rail Logistics LLC	Logistics & Transportation	Overland Park, KS	rlx.com/contact	(913) 491-0050	
Arcadia Cooperative Assoc.	Shipping Co-op	Arcadia, WI	arcacct@centurytel.net	(608) 323-3311	Bob Boberg
BNSF	Railway				Barbara Rance, Darrell Miller
Congressman Rehberg's Office	Government	Missoula Office, 301 E. Broadway Suite 2 Missoula, MT		(406) 543-9550 (406) 543-0663	Maren Olsen
Economic Development	Government	Main Office, P.O. Box 200801, Helena, MT	business@mt.gov caageson@mt.gov	(406) 444-5634	Evan Barrett, Chris Aegeson
Great Falls Development Authority	Government	300 Central Ave., P.O. Box 949, Great Falls, MT	jgormley@gfdevelopment.org	(406) 771-9020 (406) 454-2995	Brett Doney
MT Chamber of Commerce	Government	900 Gibbon Street, P.O. Box 1730, Helena, MT	webb@montanachamber.com	(406) 442-2405 (406) 442-2409	Webb Brown
MT Farmers Union	Industry Assoc.	300 River Drive N, P.O. Box 2447, Great Falls, MT		(406) 452-6406 (406) 727-8216	Alan Merrill, Sandy Courtenage
MT SBA	Government/Industry Assoc.	10 W 15th St. Suite 1100, Helena, MT		(406) 441-1081 (406) 441-1090	Michelle Johnson
Prospera Business Network	Industry Assoc.	222 E. Main St. Suite 102, Bozeman, MT		(406) 587-3113 (406) 587-9565	Bob Heitala, Amanda Shultz, Peter Bartelsen
Rail Service Competition Council	Industry Assoc.	Special Studies Rail, Transit, & Planning Division		(406) 444-6116 (406) 444-7671	Larry Bonderud
Senator Baucus's Office	Government	Missoula Office, 280 Front St. Ste 100 Missoula, MT		(406) 329-3123	Jenn Ewan
Senator Tester's Office	Government	Missoula Office, 130 W. Front Street Missoula, MT		(406) 728-3003 (406) 728-2193	Pam Cote
Union Pacific	Railway	1400 Douglas St., Omaha, NE		(888) 870-8777	Dan Harbeck, Jared Gooch
UPS	Shipping				Chris Bowman
MT Economic Development Assoc.	Industry Assoc.	118 E. 7th St. Ste 2A, Anaconda, MT		(406) 563-5259 (406) 563-5476	
Montana Stock Growers Assoc.	Industry Assoc.	450 N. California, Helena, MT		(406) 442-3420 (406) 449-5105	
National Cattlemen's Beef Assoc.	Industry Assoc.				
Forte Logistics	Logistics & Transportation	301 54th Ave. E. Ste 200, Fife, WA		(253) 926-5456 (253) 926-5457	Bruce Buchanan
Fed Ex	Shipping				Steve Mitchell
Expeditors	Shipping	1015 3rd Ave. 12th Floor, Seattle, WA		(206) 674-3400	Keith Pettyjohn
Unishippers of Montana	Shipping		montana_franchise@ unishippers.com		
A.N.Deringer, Inc.	Import/Export	110 Central Ave., Sweetgrass, MT 59494	lmydland@anderinger.com	(406) 335-2300 (406)335-2295	Linda Mydland Branch Manager, LCB, CCS

## APPENDIX A: Transportation Study Contacts

Montana World Trade Center Transportation Study Contacts					
Manufacturing/Industrial Companies					
Organization	Goods/Industry	Address	Email	Phone/Fax	Contact
REC	Silicone & Silane Gas	119140 Rick Jones Way, Silverbow, MT	recgroup.com/en/contact	(406) 496-9720 (406) 496-9898 (406) 496-9854	Terry Jennings Shirley Mandock
American Chemet	Copper Oxides	E. Helena, MT	chemet.com/contact/	(847) 948-0800	
Semitool/Applied Mats.	Semiconductor Fab. Equip.	655 W. Reserve Dr., Kalispell, MT	semitool.com/contact	(406) 752-2107 (406) 752-5522	
Montana Resources	Copper Ore, Molybdenum	600 Shields Ave., Butte, MT	montanaresources.com/ contact	(406) 496-3200 (406) 723-9542	
Luzenac	Talc	767 Old Yellowstone Trail, Three Forks, MT	luzenac.com/contact_us	(406) 285-5300 (406) 285-3323	
Holcim	Portland Cement	4070 Trident Rd., Trident, MT	holcim.com	(406) 285-3241	
Plum Creek (Local?)	Fiberboard & Plywood	Columbia Falls, MT	plumcreek.com	(406) 892-6200	
Quad Five	Animal Donor Blood	361 Rothiemay Rd., P.O. Box 69, Ryegate, MT	quadfive@quadfive.com	(800) 821-3145 (406) 568-2307	
Aspen Air	Acyclic Hydrocarbons	1524 Lockwood Rd., Billings, MT	info@aspenairecorp.com	(406) 259-9014 (406) 259-9024	
ConocoPhillips Refining	Petroleum Prods.	Billings, MT	conocophillips.com	(406) 255-2500	
ExxonMobil Refining	Petroleum Prods.	Billings, MT	exxonmobil.com	(406) 657-5380	
Decker Coal	Coal	12 Lakeshore Rd., Decker, MT		(406) 757-2561	
Sonju Industrial	Aerospace Manufacturing	2902 Hwy. 93 S., Kalispell, MT	jon@sonjuind.com	(406) 752-7979	Jon Sonju (Sales Manager)
Timberline Tool	Tool Manufacturing	P.O. Box 1328, Whitefish, MT	sales@timberlinetool.com	(406) 755-6845 (406) 257-2711	
Counter Assault	Bear Spray	120 Industrial Court, Kalispell, MT	counterassault.com	(406) 257-4740 (406) 257-6674	
Mark Rite Lines Equip. Co.	Equipment Manuf.	P.O. Box 31154, Billings, MT		(406) 869-9900 (406) 896-8880	Steve Shinnars
RM International	Hot Tubs / Spas	Stevensville, MT			Russell Moody
Smith Equipment	Off-road Equip. Manuf.	P.O. Box 3487, Bozeman, MT	towhaul@towhaul.com	(406) 388-3424	Dianna Kegel
SRS Crisafulli	Equipment Manuf.		SRSC@crisafulli.com		
Montana Stone Gallery	Stone	6900 Kestrel Drive, Ste 17, Missoula, MT		(406) 541-7625	Torin Dixon
Porter Block	Construction Mats.	3002 River Lakes Dr., Whitefish, MT		(406) 270-6797 (406) 862-1496	John Porterfield (President)
Botanie Natural Soap Inc.	Soap	Missoula, MT	tim@botaniesoap.com	(406) 728-7627	Timothy Ludicello
Brookside Woolen Mill	Wool Products	Box 1546, Hwy. 2, Malta, MT 59538	www.montanagreeninsulation. com	(406) 654-1351 (406) 654-4428	Thayne & Michelle Mackey
Bench Industries	Grain Cleaning Equip. Manufacturer	P.O. Box 3167, Great Falls, MT 59403	www.benchindustries.com	(406) 727-6514 (800) 977-6514 TF	
Mosdal Scale Systems Inc.	Custom Agricultural Scale Equip. Manufacturer	16437 Iowa Ave., Broadview, MT 59015	www.mosdal.com	(406) 667-2233 (775) 540-4440	Jarred Mosdal
Roscoe Steel & Culvert	Metal Products	5405 Momont Rd., Missoula, MT 59808	tzanto@roscoesteel.com	(406) 532-7118 (406) 542-1941	Ted Zanto
Big Equipment Co., LLC	Heavy Equipment (?)	1287 Hwy.87, Havre, MT 59501	www.bigequipment.com	(406) 265-9554 (406) 265-9367	Ron Harmon
Native Seedsters, Inc.	Seed Harvesting Implements	100 Poly Dr., Ste. 150, Billings, MT	www.nativeseedsters.com	(406) 294-2995	Lee Arbuckle
Western Bee Supplies	Lumber	P.O. Box 190, 5 9th Ave. E., Polson, MT 59860	www.westernbee.com	(406) 883-2918 (800) 548-8440 TF (406) 883-4336 Fax	Rick Molenda, GM

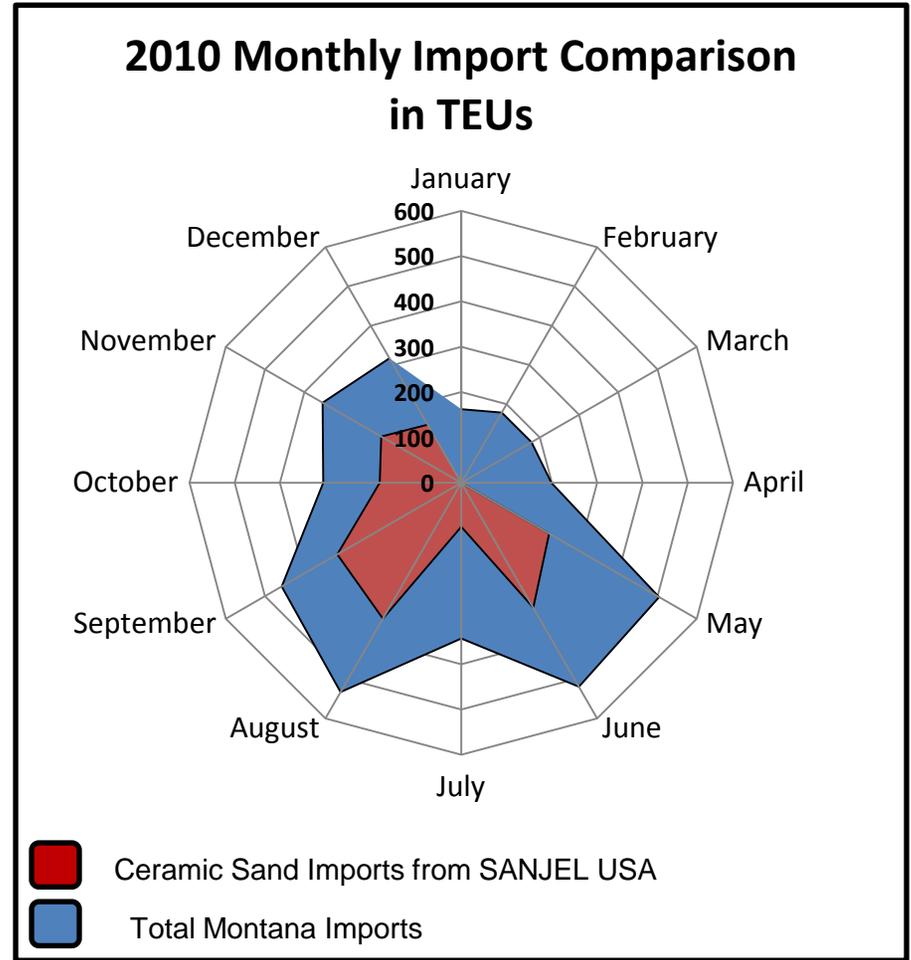
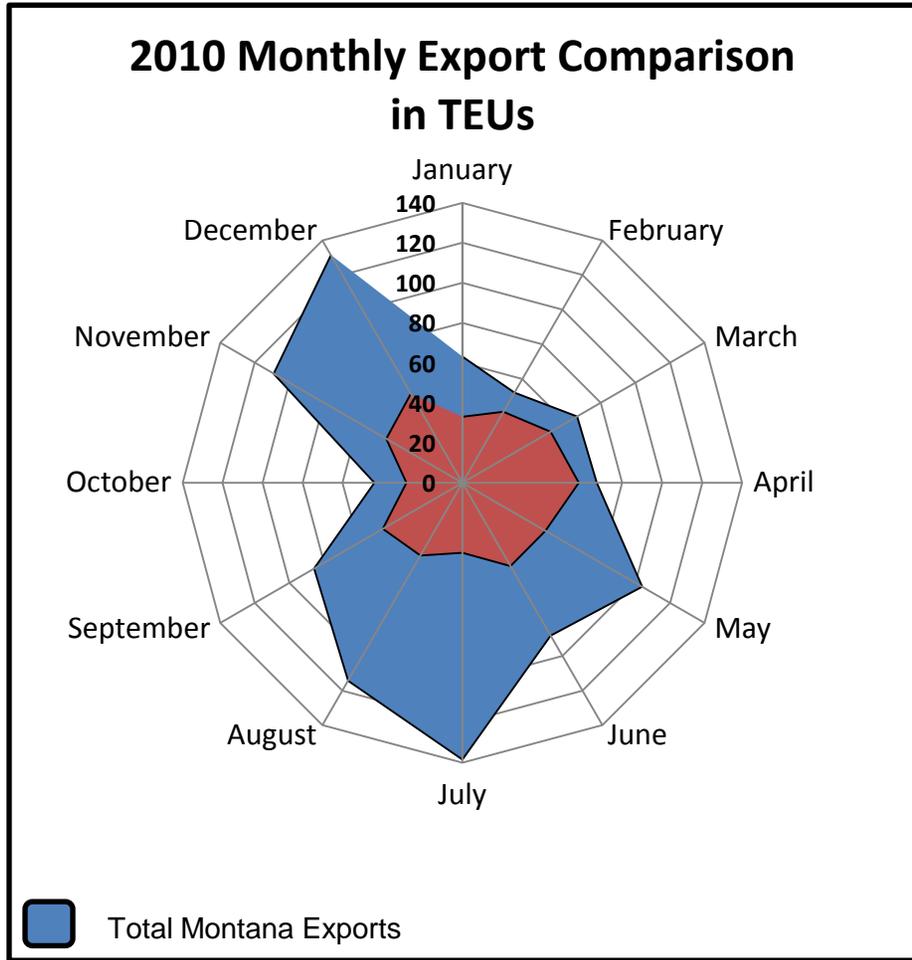
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Montana World Trade Center Transportation Study Contacts					
Agricultural Companies					
Organization	Goods/Industry	Address	Email	Phone/FAX	Contact
Mattson Farms	Bulk Wheat	P.O. Box 382, Chester, MT	info@mattsonfarms.com	(406) 292-3623	
Wheat MT Farms	Bulk Wheat	10778 Hwy. 287, Three Forks, MT	info@wheatmontana.com	(406) 285-3614 (406) 285-3749	
Kamut International	Bulk wheat	P.O. Box 4903, Missoula, MT	kamut.com/en/contact	(406) 251-9418 (406) 251-9420	Trevor Blyth (CEO)
Plain Grains, Inc.	Bulk Wheat	321B CTD, Stillwater, OK	pgiadmin@plaingrains.org	(405) 744-9333	
American Pulses	Processed Pulses	606 4th Street, P.O. Box 202, Hingham, MT	contact@americanpulses.com	(406) 545-3557-59 (406)-545-3558	Anish Vaid
Timeless Seeds	Organic Grains	P.O. Box 881, Conrad, MT	info@timelessfood.com	(406) 278-5722 (406) 278-5720	
Montana Specialty Mills	Organic Grains	525 3rd St. NW, Great Falls, MT, 59404	www.mtspecialtymills.com	(406) 761-2338 (406) 761-7926	Gordon Svenby
JM Grain	Pulses (Pea & Lentil)	100 1st Ave. S., P.O. Box 3186, Great Falls, MT 59403	jmgrain.com	(406) 268-1028	Justin Flaten, Owner, Holly Johnson
Trinidad Benham Corp.	Pulses (Pea & Lentil)	3338 54th St. W., Billings, MT 59106	trinidadbenham.com	(406) 839-7054	Martin Franko
United Pulse Trading	Pulses (Pea & Lentil)	1720 Burnt Boat Dr., Ste 104, Bismarck, ND 58503	about-alliance/unitedpulse Ebartsch@uspulses.com	(701) 751-1623	Eric Bartsch
Pro Co-Op	Pulses (Pea & Lentil)	45 S. Main, P.O. Box 167, Opheim, MT 59250	pro_coopryan@ or pro_coopjeff@nemont.net	(406) 762-3231 (406) 762-3241	Ryan Nelson, GM Jeff Winkler
Yellowstone Bean Co.	Pulses (Pea & Lentil)	329 River Road, Bridger, MT 59014	yellowstonebean.com	(406) 662-3622	
Columbia Grain	Pulses (Pea & Lentil)	900 2nd Ave N. Great Falls, MT	vanpevenage@ columbiagrains.com	(406) 453-6506	Jeff Van Pevenage
Spokane Seed Co.	Pulses (Pea & Lentil)	E 6015 Alki, Spokane, WA 99211-1007	dwp.bigplanet.com/ spokaneseed	(509) 535-3671 Ext 6687	Charlie Shrope
Viterra	Pulses (Pea & Lentil)	Ray, ND (east of Williston)	www.viterra.ca jbloms@agricorunited.com	(701) 568-3315	Joe Bloms
George F. Brocke & Sons, Inc.	Pulses (Pea & Lentil)	P.O. Box 159, 901 Hwy. 3 W., Kendrick, ID 83537	brockco@tds.net	(208) 289-4231 (208) 289-4242	Dean H. Brocke
Safflower Technology Int'l	Oilseed Company		mbergman@safflowertech.com		
Montana Milling, Inc.	Cereal Grain/Grain Products	2123 Vaughn Rd., Great Falls, MT, 59404	www.montanamilling.com	1-800-548-8554	Greg Thayer, CEO
Montana Flour & Grain	Cereal Grain/Grain Products	P.O. Box 517, 2500 Choteau St., Fort Benton, MT, 59442	www.montanafLOUR.com 7mfg@ttc-cmc.net	(406) 622-5436	Andre Giles
General Mills, Inc.	Cereal Grain/Grain Products	2500 9th Ave. N. Great Falls, MT, 59401	jeff.shapiro@generalmills	(406) 727-5500	Jeff Shapiro, Plant Manager
Cereal Food Processors	Cereal Grain/Grain Products	900 16th St. N., Great Falls, MT, 59401	d.hodges@cerealfood	(406) 727-7366 (406) 761-3471	Dave Hodges, Manager
MaltEurop	Cereal Grain/Grain Products	415 U.S. Hwy 87, Great Falls, MT, 59404	mblack@malteurop.com	(406) 791-2808 (406) 727-4361	Mark Black, Procurement & By-product Manager
Schulz Grain	Cereal Grain/Grain Products	P.O. Box 2961, Great Falls, MT, 59403	dwshulz@hotmail.com	(406) 727-3855 (406) 727-4862	Dan Schulz
Montana Gluten Free Processors	Gluten Free Products	P.O. Box 301, 141 Andrea Dr., Belgrade, MT, 59714	info@montanaglutenfree.com	(406) 600-7400	Collin Watters
Western Sugar Cooperative	Sugar Beet Pulp Pellets	3020 State Avenue, Billings, MT, 59107	www.westernsugar.com	(406) 245-6393 (406) 248-3677	Thomas Lee 247-8020 / 861-7634 Cell
Circle S Seeds/Circle S Grains	Cereal Grain/Grain Products	P.O. Box 130, Three Forks, MT 59752	www.circlesseeds.com/ circles@theglobal.net	(406) 285-3269 (406) 285-3040	Steve McDonnell
Don Nagy	Cereal Grain/Grain Products	P. O. Box 89, Sweetgrass, MT 59484		(406) 937-2743 (406) 937-2744	Don Nagy
Busch Ag Resources, Inc.)	Cereal Grain/Grain Products	2440 U.S. Hwy. 89, Fairfield, MT 59436	josh.wulf@anheuser-busch.com	(406) 467-2539 (406) 467-3498	Josh Wulf, Elevator Manager
SK Foods, Inc.	Organic Buyer (Out of State)	4749 Amber Valley Pkwy., Ste. 1, Fargo, ND 58104	www.skfood.com/ ronschlecht@skfood.com	(701) 356-4106	Ron Schlecht
Ofarm	Organic Buyer (Out of State)	9896 County D, Brussels, WI 54204	www.ofarm.org/ jbobbe@ofarm.org	(920) 825-1369	John Bobbe, Exec. Dir.
Montana Organic Producers Co-Op	Industry Assoc.	1350 Custer Gulch Rd., Lavina, MT 59046	www.mopcoop.org/ familyfarms@mopcoop.org	(406) 667-2332	Mark Smith, Administrator
Milling/Central Milling Company	Organic Buyer (Out of State)	14400 N. Hwy. 38, Collinston, UT 84306		(435) 458-2249	Lyle Perry
Bob Quinn	Individual Organic Farm	333 Kamut Ln., Big Sandy, MT 59520	bob.quinn@kamut.com	(406) 378-3105	Bob Quinn
Randy Hinebauch	Individual Organic Farm	P.O. Box 97, Chinook, MT 59523		(406) 357-3340	Randy Hinebauch

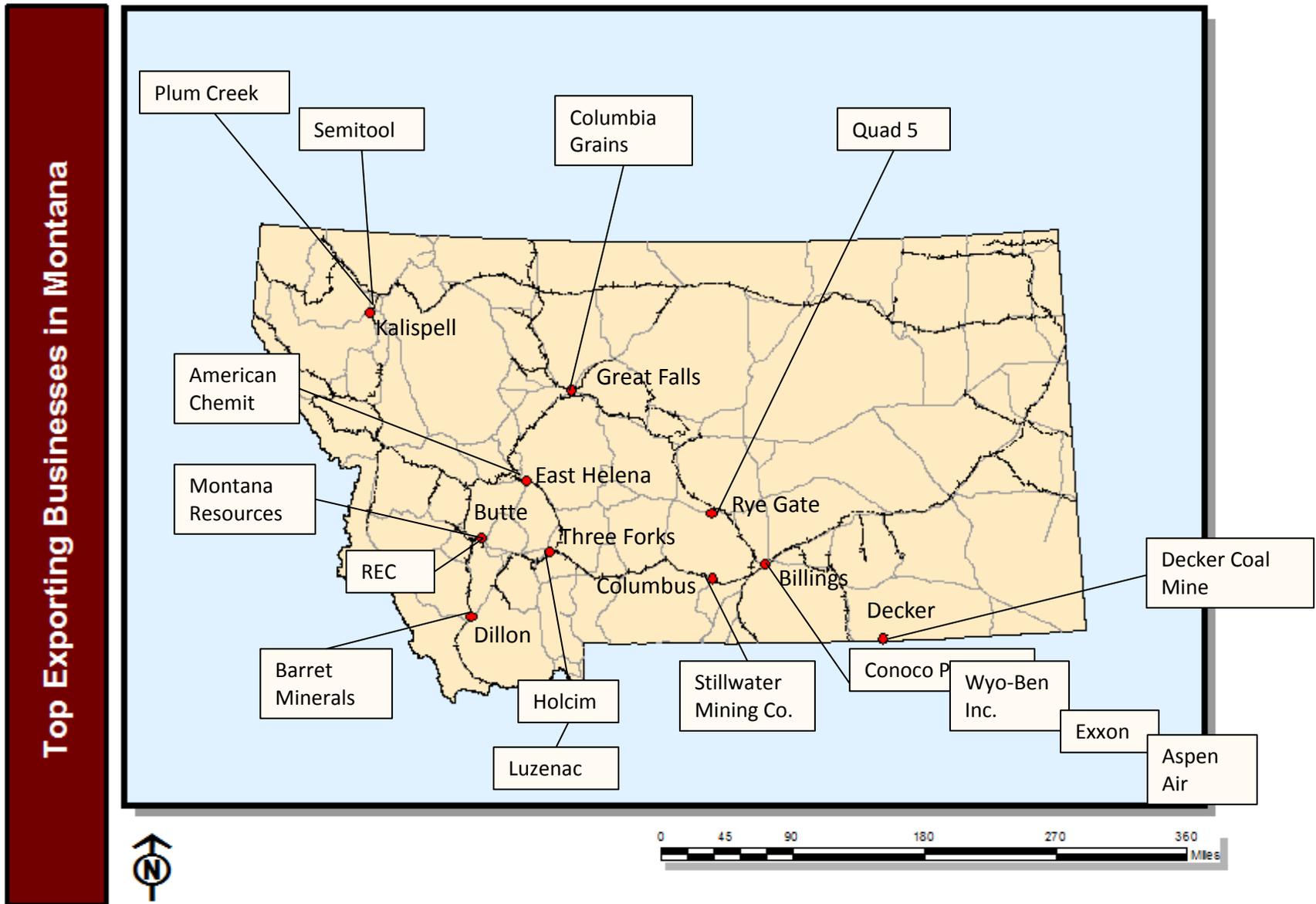
## APPENDIX A: Transportation Study Contacts

Agricultural Companies					
Organization	Goods/Industry	Address	Email	Phone/FAX	Contact
Columbia Grain International	Grain Exporter	111 SW Columbia St., Ste. 1200, Portland, OR 97201	web-info@columbiagrains.com	(503) 224-8624 (503) 241-0296	Kurt Haarmann, Grain Merchant
United Harvest, LLC	Grain Exporter	200 SW Market St., Ste. 1780, Portland, OR 97201		(503) 944-1900 (503) 944-1939	Mark Neher, Head Merchant
Cenex- Harvest States	Grain Exporter	5500 Cenex Dr., Inver Grove Heights, MN 55077	ryan.caffrey@chsinc.com	(651) 355-6840 (651) 355-6570	Ryan Caffrey, Barley Merchant
New Century Ag	Pulses (Pea & Lentil)	P.O. Box 125, Fortuna, ND 58844	rich_newcentag@nemont.net	(701) 834-2311 (701) 834-2355	Richard Larsen, GM
Globeways Canada Inc.	Pulses (Pea & Lentil)	120 Traders Blvd., Unit 118, Mississauga ON-L4Z 2H7, Canada	www.globeways.com/ raj@globeways.com	1-800-979-0212 (909) 712-1010 Main (416) 837-1400 Cell (647) 439-1335 Fax	Rajesh Jain
Nortana Grain	Pulses (Pea & Lentil)	P.O. Box 177, Lambert, MT 59243		(406) 774-3331	Rondei Beery
CHS-Valier	Pulses (Pea & Lentil)	924 Railroad Ave., Valier, MT 59486	www.chsmontana.com/ kenneth.slezak@chsinc.com	(406) 279-3615	Ken Slezak, Pulse Merchandiser
Bowman Grain, Inc.	Pulses (Pea & Lentil)	P.O. Box 91, Bowman, ND 58623	bowgrain@ndsupernet.com	(701) 523-3173 (701) 523-5650	Robert White
Paulson Premium Seeds	Pulses (Pea & Lentil)	P.O. Box 723, Bowman, ND 58623	www.paulsonseed.com/ seedsales@paulsonseed.com	(701) 523-5392 (701) 523-5394	Diane Paulson
Mark Aageson	Container Shipping Experience	10 Lila Dr., Havre, MT 59501-5245	aaugie@bresnan.net	(406) 265-2039	Mark Aageson
Westbred LLC	Pulse Grower with Container Shipping Experience	8 West Park, Ste. 210, Butte, MT 59701	www.westbred.com/ rueland@westbred.com	(406) 782-4670 (406) 223-7338 Cell (406) 782-5332 Fax	Ron Ueland, President & GM
Basin Seed LLC	Seed Dealers	669 Elevator Rd., Stanford, MT		(406) 566-2282 (406) 868-2739 Cell (406) 566-2368 Home	Jim Kulish
Barber Seed Service, Inc.	Seed Dealers	2648 Benchland Rd., Denton, MT 59430	www.barberseed.com/ barberseed@mtintouch.net	(406) 567-2211 (406) 567-2636	Mike DeVries
Heartland Seed	Seed Dealers	101 Indian Butte Rd., Moccasin, MT 59462		(406) 423-5600	Steve Grove
Wild Horse Seeds	Seed Dealers	Box 1028, Havre, MT 59501	wildhorse@mtintouch.net	(406) 265-5443 (406) 265-5444	Brad Ruhkamp
MT Seed Growers' Assoc.	Industry Assoc.	MSU/Marsh Lab, P.O. Box 173146, Bozeman, MT 59717	www.ag.montana.edu/ msga/rlarson@montana.edu	(406) 994-3516 (406) 994-1725	Ronald Larson, Manager
Canadian Seed Growers' Assoc.	Industry Assoc.	202-240 Catherine Street, P.O. Box 8455, Ottawa, Ontario, K1G 3T1	adophed@seedgrowers.ca	(615) 236-0497 (613) 563-7855	
Montana Seed Trade Assoc.	Industry Assoc.	P.O. Box 1336, Townsend, MT 59644	www.mtseedtrade.com/ hljohnson@copper.net	(406) 266-3190 (406) 266-3866	Harry Johnson
Montana State Beekeepers Assoc.	Industry Assoc.	P.O. Box 158, Power, MT 59468	rehmbees@3rivers.net	(406) 463-2227	Will Rehm
Montana Alfalfa Growers Association	Industry Assoc.	9265 Paradise Valley Road, Chinook, MT 59523		(406) 357-4182	Ernest Johnson
Montana Agricultural Business Association	Industry Assoc.	1806 Capitol, Helena, MT 59601-4714	mabamgea@bresnan.net / www.mtagbiz.org	(406) 449-7429	Pam Langley
Montana Farm Bureau Federation	Industry Assoc.	502 South 19th, Ste. 104, Bozeman, MT 59718	info@mfbf.org / www.mfbf.org	(406) 587-3153 (406) 587-0319	Jake Cummins
Montana Farmer's Union	Industry Assoc.	P.O. Box 2447, Great Falls, MT 59403-2447	info@montanafarmersunion.com	(406) 452-6406 (406) 727-8216	Alan Merrill
Montana Grain Elevators Association	Industry Assoc.	1806 Capitol, Helena, MT 59601-4714	mabamgea@bresnan.net	(406) 449-7391 (406) 449-7429	Pam Langley
Montana Organic Association	Industry Assoc.	P.O. Box 1675, Polson, MT 59860	association.org / www.mtorganicassociation.org	(800) 871-0019	Lise Rousseau-Silva

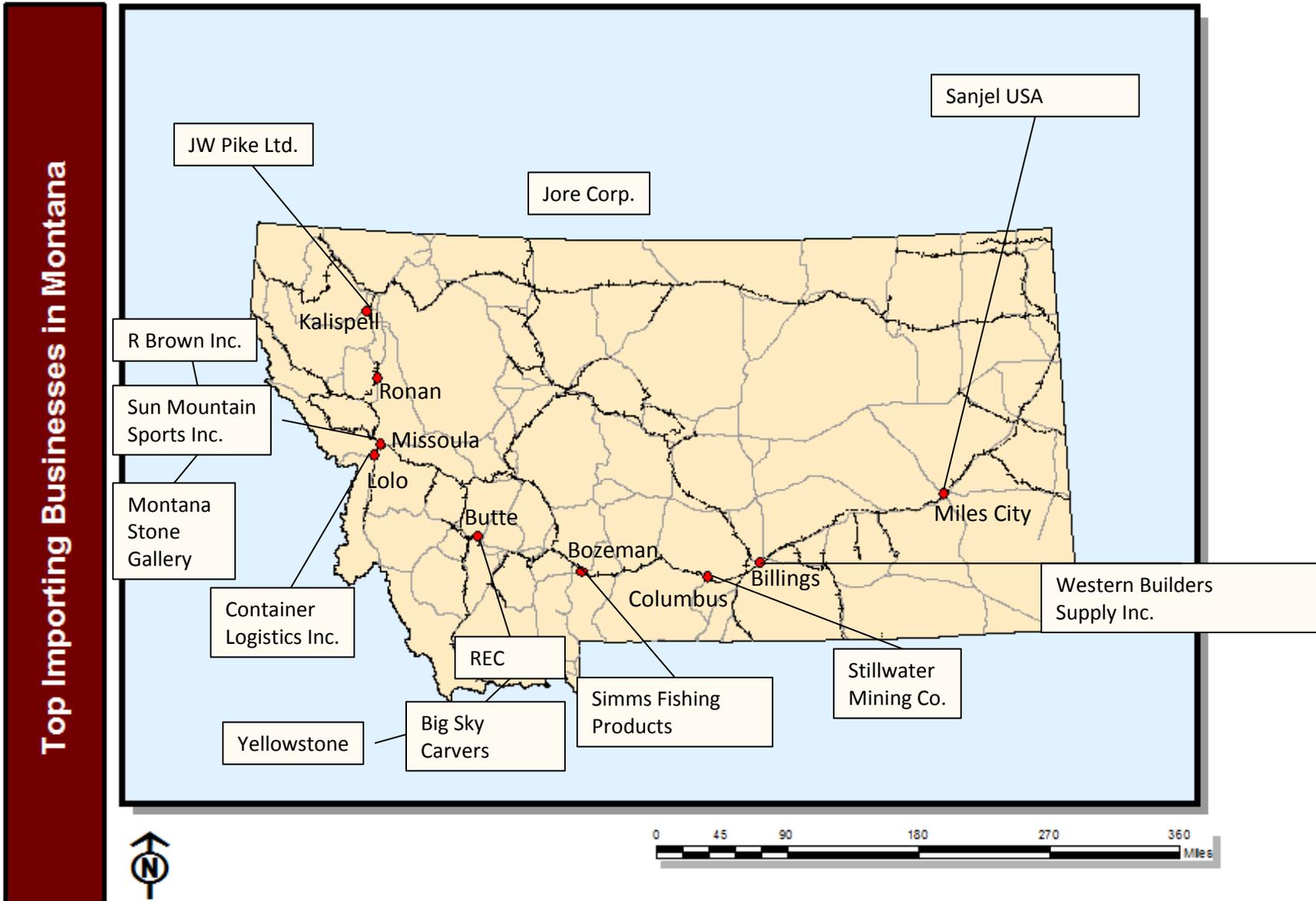
APPENDIX B: Montana Total 2010 Export/Import Comparisons With Business Leaders (In TEUs)



### APPENDIX C: Montana's Top Exporting Businesses by City



APPENDIX D:  
Montana's  
Top Importing  
Businesses  
by City





**APPENDIX E: Containerized Monthly Import Trends  
for The Port of Tacoma and The Port of Seattle**

