



Final Report

REGIONAL FREIGHT PLAN

FOR FARGO-MOORHEAD METROPOLITAN
COUNCIL OF GOVERNMENTS

September 28, 2017



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Executive Summary

“Goods trade delivers unquestionable returns to metropolitan economies, making it imperative that metropolitan leaders understand how their economic base relates to current and prospective trade partners.”¹

- Global Cities Initiative - Brookings Institution and J.P. Morgan Chase

In today’s digital economy, demands for freight services are increasingly driven by e-commerce that allows companies and consumers to shop vendors around the globe for goods and services with the click of a mouse. As the Brookings report cited above notes: “digital communications have also enabled global value chains, allowing value creation through the production, manufacturing and assembly of products to occur in multiple locations, in various firms, and typically spans manufacturing and service industries,” often in more than one region or nation. To compete in this complex environment requires agile supply chains that can adapt to constantly changing market conditions and consumer demands.

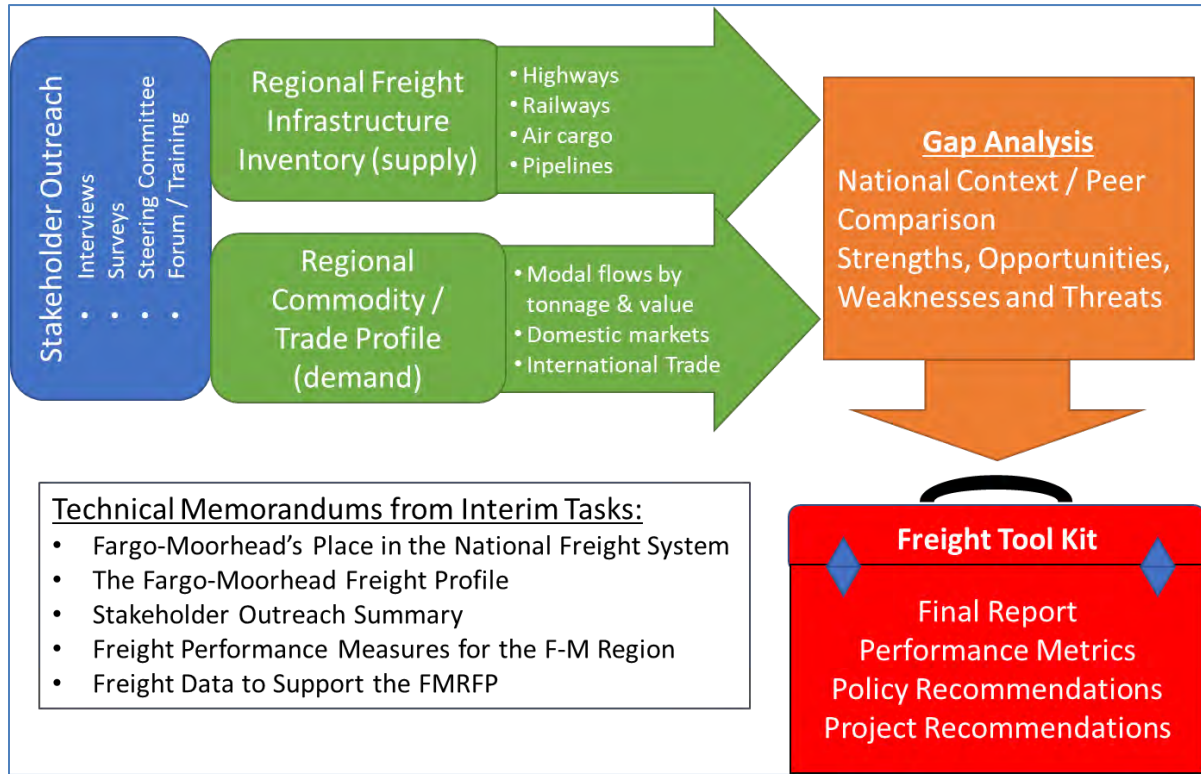
Congress has recognized the importance of freight transportation in recent highway reauthorization programs, and the most recent: Fixing America’s Surface Transportation (FAST) Act enacted in 2015 created two new freight funding programs: 1) National Highway Freight Program, and 2) a discretionary freight-focused grant program originally called FASTLANE that the current administration has rebranded as Infrastructure For Rebuilding America (INFRA) Grants.

To access formula funds in the National Highway Freight Program, states are required to complete an USDOT approved freight plan. Locally, metropolitan planning organizations (MPOs) like Metropolitan Council of Governments (Metro COG) are encouraged to develop freight plans that complement State freight plans but reflect the needs and objectives of the region. The Fargo-Moorhead Regional Freight Plan (FMRFP) examines factors affecting freight movement to, from and within the region to inform Metro COG’s other long- and short-range transportation planning efforts. From first and last mile truck movements to long-haul freight entering and exiting the region, understanding regional supply chain elements is important in determining future investment needs to keep local infrastructure efficient and effective in supporting freight movement.

Exhibit ES-1, shows the high-level approach for completing the Fargo-Moorhead Regional Freight Plan.

¹ Adie Tomer, Joseph Kane, and Robert Puentes. *Metro Freight: The Global Goods Trade that Moves Metro Economies*. Global Cities Initiative, A Joint Project of Brookings and JP Morgan Chase | October 2013

Exhibit ES-1: High-level Process Flow for Conducting the Fargo-Moorhead Freight Plan



Source: Quetica, LLC

In June 2014, at the request of incoming Federal Highway Administration (FHWA) director Greg Nadeau, Fargo hosted a Freight Policy Roundtable. The Fargo Roundtable, part of a national listening tour that brought together public agencies from three states and regional businesses, began a dialogue about freight and the economy. In 2014, NDDOT was also working on its first statewide freight plan. These two events prompted Metro COG to begin conversations about the role of freight in local planning efforts.

Metro COG, the metropolitan planning organization for the Fargo-Moorhead Region, undertook the Regional Freight Plan to better understand, and inform regional leaders about the transportation service and infrastructure needs of firms in the regional economy. While Metro COG’s primary planning interests lie in the public elements of the region, the FMRFP examines freight infrastructure and freight service demands across all modes in the regional transportation network.

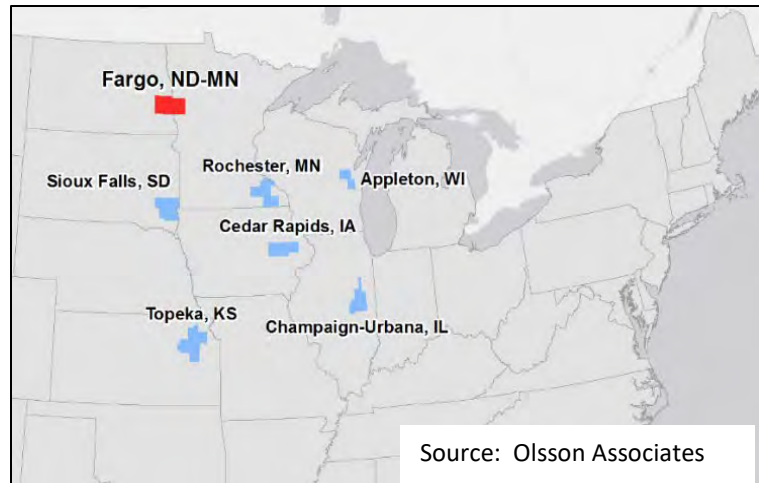
The FMRFP is intended to help guide freight investments in the region that support the safety, social equity, economic productivity, sustainability and livable community goals established under Metro COG Long Range Transportation Plan (LRTP). The freight plan also presents performance metrics to assist Metro COG in monitoring programs, project prioritization/selection, and support federal guidance for competitive funding programs.

Fargo-Moorhead’s Freight Profile

The Fargo-Moorhead region enjoys a multimodal freight network. During interviews with businesses in the region, stakeholders spoke highly of existing infrastructure and access to services, but also noted the lack of local access to rail container services and inland barge transport. Some stakeholders believe that better access to intermodal container service in the region would boost regional economic opportunities. A common means of gauging performance in the private sector is to compare a firm against industry performance benchmarks. Using the same approach in the public sector, it is expected that not all communities will have the same level of access to all elements of the multimodal transportation network. As part of the study, economic performance and modal networks of the Fargo-Moorhead Region were compared or “benchmarked” to the six cities in the Midwest that are shown in the map of **Exhibit ES-2**.

Exhibit-ES2: Comparative Metropolitan Statistical Areas

Overall, the comparative analysis between peer metropolitan statistical areas (MSA’s) found the Fargo-Moorhead economy was well diversified, with low unemployment and strong employment growth. In terms of the six peer MSAs, Fargo-Moorhead was squarely in the middle on several benchmarking metrics, including the share of international trade as a portion of the regional economy. While most metropolitan

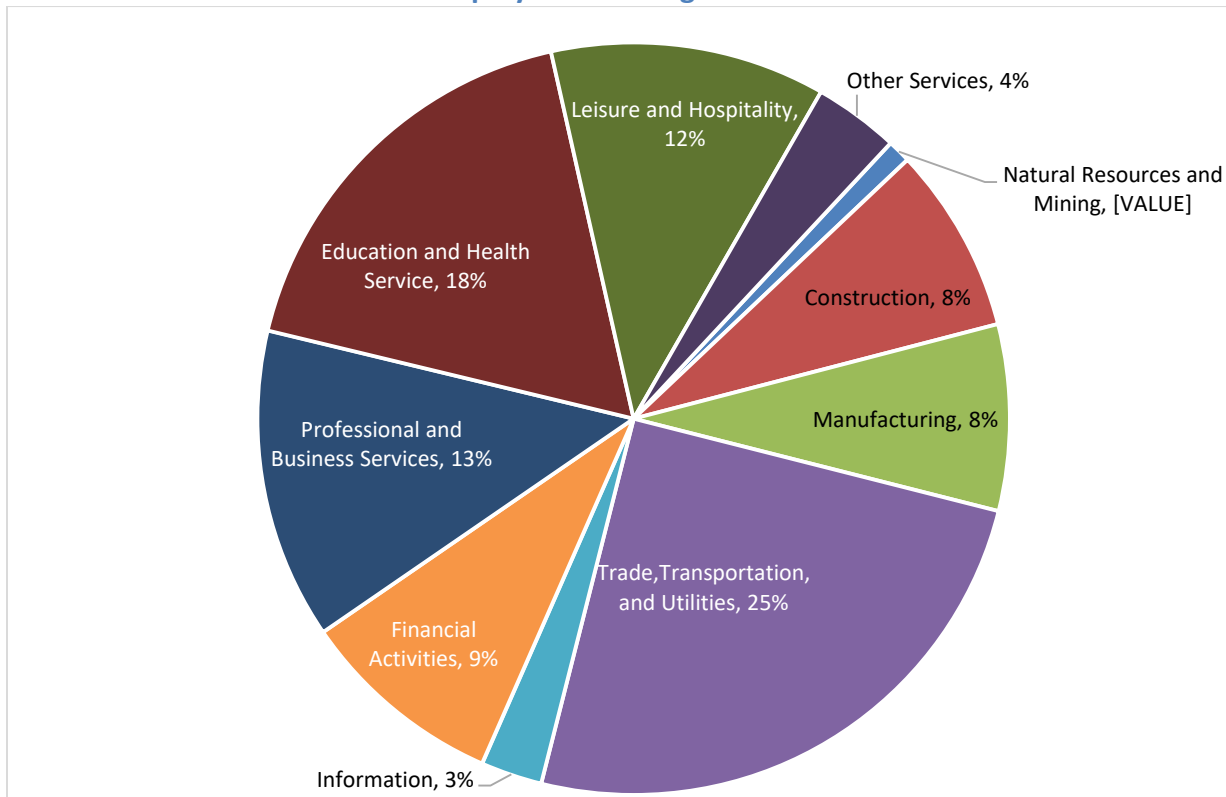


areas saw little export growth during the Great Recession, some peer MSAs performed considerably better than Fargo-Moorhead. From 2003–2008, Fargo-Moorhead’s exports by value grew 13.7 percent; but, from 2008-2014 exports grew only 1.4 percent. The slower growth of exports in recent years is a concern that should be monitored. In terms of freight services, the network comparison found no peer MSAs with dedicated intermodal rail services. However, the development of a new intermodal yard has been initiated in the Cedar Rapids, IA MSA.²

Exhibit ES-3 displays the key industries in the Fargo-Moorhead Region in terms of employment. *Trade, Transportation and Utilities* is the largest employment sector in the region, representing one-quarter of all employment in the MSA. *Natural Resources and Mining* is the smallest industry sector, representing just one percent of the regional economy, however it is likely that mining in other parts of the state contributes to other sectors including professional services.

² <http://www.news.iowadot.gov/newsandinfo/2016/07/branstad-reynolds-announce-iowa-awarded-more-than-25-million-for-intermodal-transportation-facility-.html>

Exhibit ES-3: Employment in Fargo-Moorhead MSA 2015



Source: Bureau of Labor Statistics, 2015

Location quotient (LQ) analysis examines industry concentrations of a regional economy when compared to a state or national economy. An LQ analysis for the Fargo-Moorhead economy found seven occupations that were five times more concentrated within the region as compared to the national economy. The concentration of jobs for Farm Equipment Mechanics and Service Technicians in the Fargo-Moorhead Region is more than nine times the national average. Some of these occupations support freight modes as well, for example diesel mechanics in the farm equipment industry can transition easily to truck or rail equipment. While the region also hosts several truck driver training programs, enrollment in these programs has declined recently.

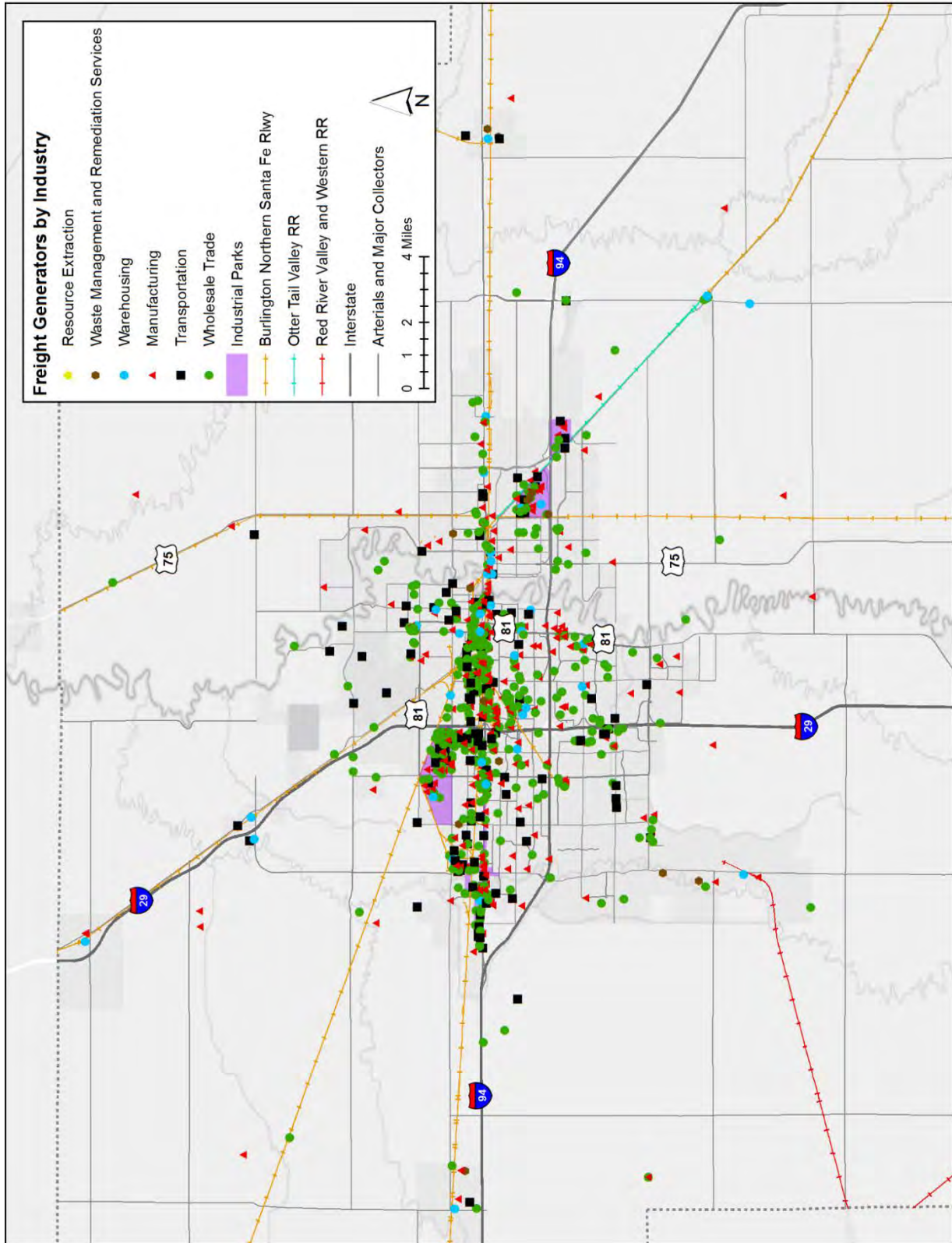
DIESEL LAB AT M-STATE COMMUNITY AND TECHNICAL COLLEGE



Freight Generators in the Fargo – Moorhead Region

Freight generators are sites that generate or receive large volumes of freight, including manufacturing centers, distribution centers and/or large retail centers. **Exhibit ES-4** shows the location of major freight activity generators in the Metro COG Region.

Exhibit ES-4: Freight Generators in the Fargo-Moorhead Region



Source: Metro COG

Freight Flows in the Fargo-Moorhead Region

The freight facilities shown in the previous map receive and ship freight from other locations, most likely exchanging goods with locations inside and outside of the region. The study analysis also examined the nature of Fargo-Moorhead's freight flows in terms of modal volume and trade with other U.S. regions.

Exhibit ES-5 shows the high-level modal makeup of Fargo-Moorhead's commodity flows in 2014.

When examined by weight, the highway/truck mode dominates regional freight flows with an 88% mode share, this compares to an 84% truck share nationally. At the national level, rail accounts for approximately 10% of freight flows by weight, and in the Fargo-Moorhead Region, rail accounts for an 11% mode share by tonnage. The share for multiple modes by weight is just one percent in the region, by tonnage, but 14% by value.

Exhibit ES-5: Mode Share for All Freight Flows in the Fargo-Moorhead Region - 2014



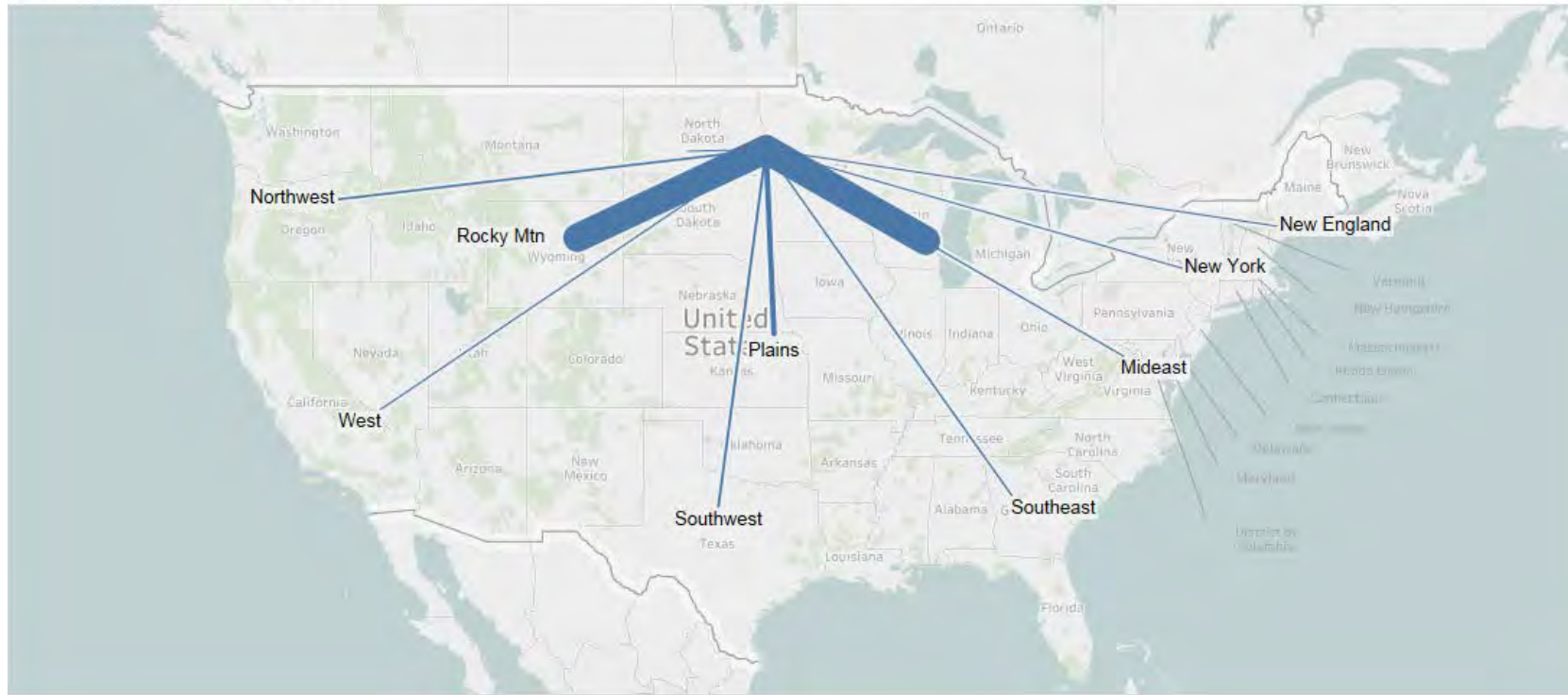
Source: FHWA Freight Analysis Framework Version 4 (FAF-4) and Quetica.

Directional Freight Flows for the Fargo-Moorhead Region

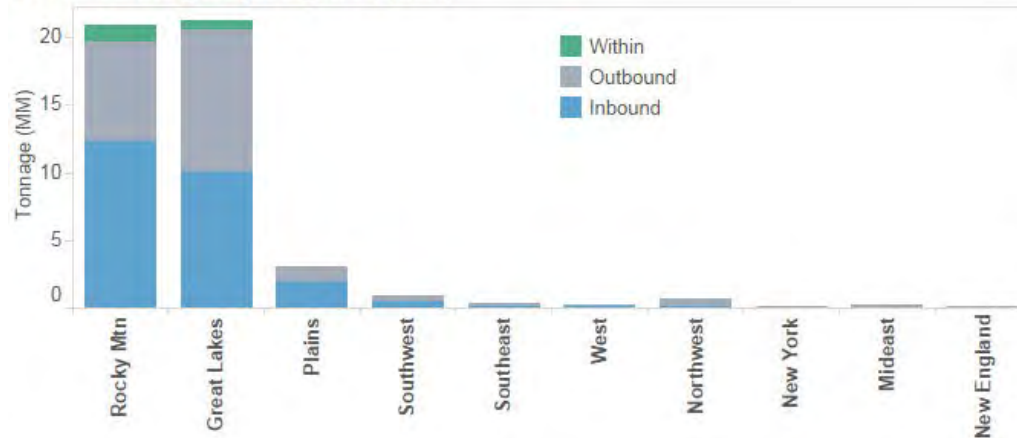
Providers of transportation services across all modes prefer to serve areas that exhibit a balance between inbound and outbound freight. *Lane balance*, especially in high volume lanes, raises equipment utilization for carriers and reduces the frequency of empty backhauls. The commodity flow analysis examined the volume and value of goods moving between the Fargo-Moorhead Region and ten multi-state US regions that were broadly aggregated into sub-regions of the eastern U.S. and western U.S. It should be noted that the Fargo-Moorhead Region was split between two of these sub-regions: Cass County, ND is part of the Rocky Mountain Region in the West, and Clay County MN is part of the Great Lakes Region in the East. The maps in **Exhibits ES-6** and **ES-7** show commodity flows by tonnage values, with additional details in a tabular format of inbound and outbound flows by mode.

Exhibit ES-6: Trade between Fargo-Moorhead and Multistate US Regions by tonnage – 2014

Total Tonnage by Region



Total Tonnage by Region (\$MM)



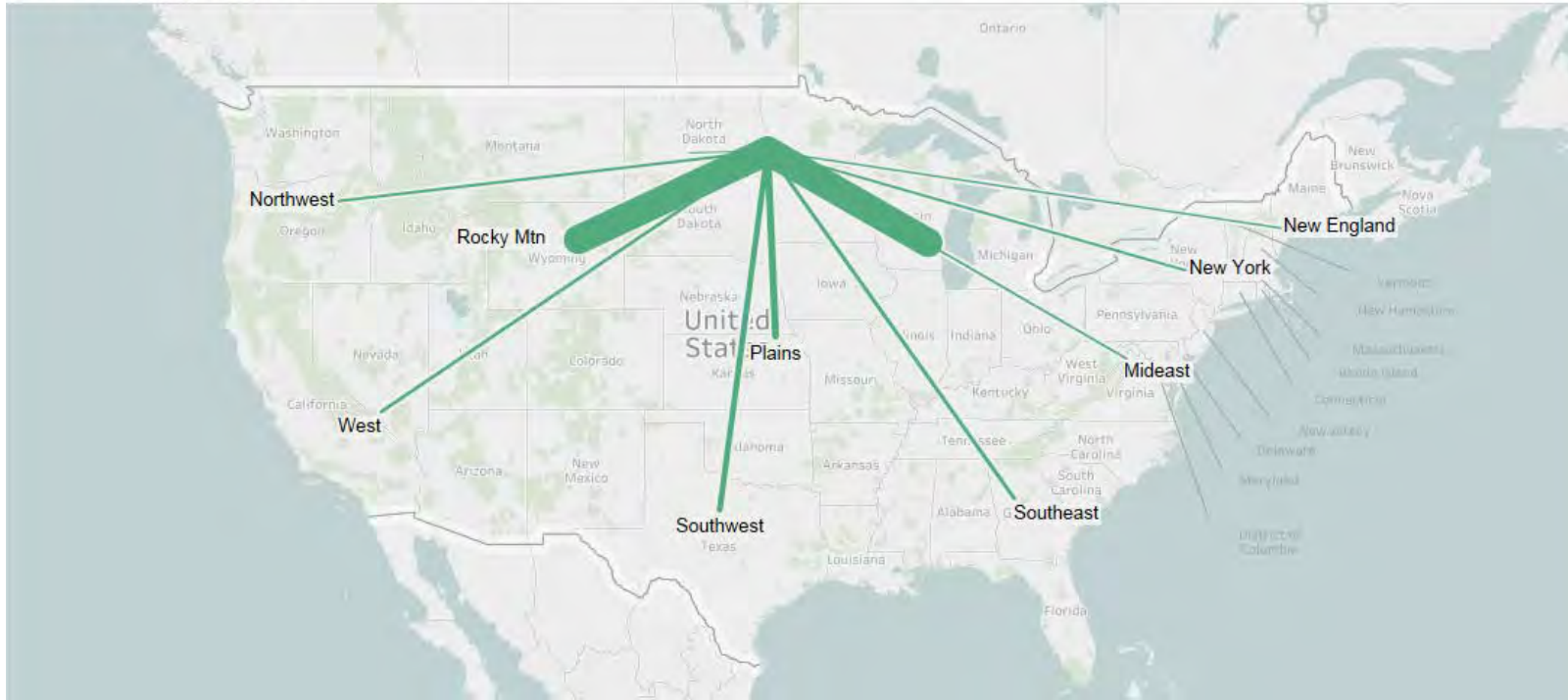
Percent of Tonnage by Direction (%)

Region	Outbound	Inbound	Within
Rocky Mtn	35.3%	59.0%	5.7%
Great Lakes	49.6%	47.4%	3.0%
Plains	37.4%	62.6%	
Southwest	51.8%	48.2%	
Southeast	55.0%	45.0%	
West	68.6%	31.4%	
Northwest	88.6%	11.4%	
New York	48.0%	52.0%	
Midwest	87.9%	12.1%	
New England	88.5%	11.5%	
Grand Total	43.6%	52.6%	3.8%

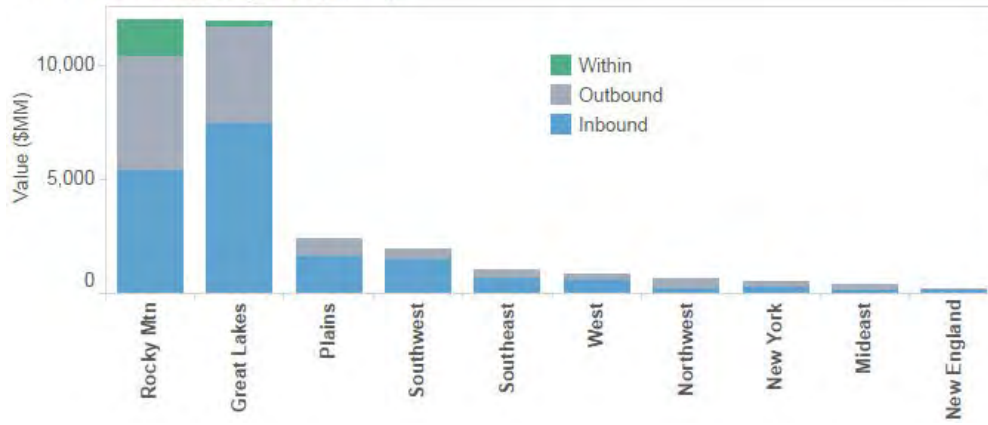
Source: FHWA FAF-4 and Quetica.

Exhibit ES-7: Trade between Fargo-Moorhead and Multistate US Regions by value – 2014

Total Value by Region



Total Value by Region (\$MM)



Percent of Value by Direction (%)

Region	Outbound (%)	Inbound (%)	Within (%)
Rocky Mtn	41.6%	44.7%	13.6%
Great Lakes	35.7%	62.6%	1.7%
Plains	34.1%	65.9%	
Southwest	21.6%	78.4%	
Southeast	39.6%	60.4%	
West	28.6%	71.4%	
Northwest	66.8%	33.2%	
New York	48.6%	51.4%	
Mideast	60.5%	39.5%	
New England	53.1%	46.9%	
Grand Total	38.1%	56.1%	5.8%

Source: FHWA FAF-4 and Quetica.

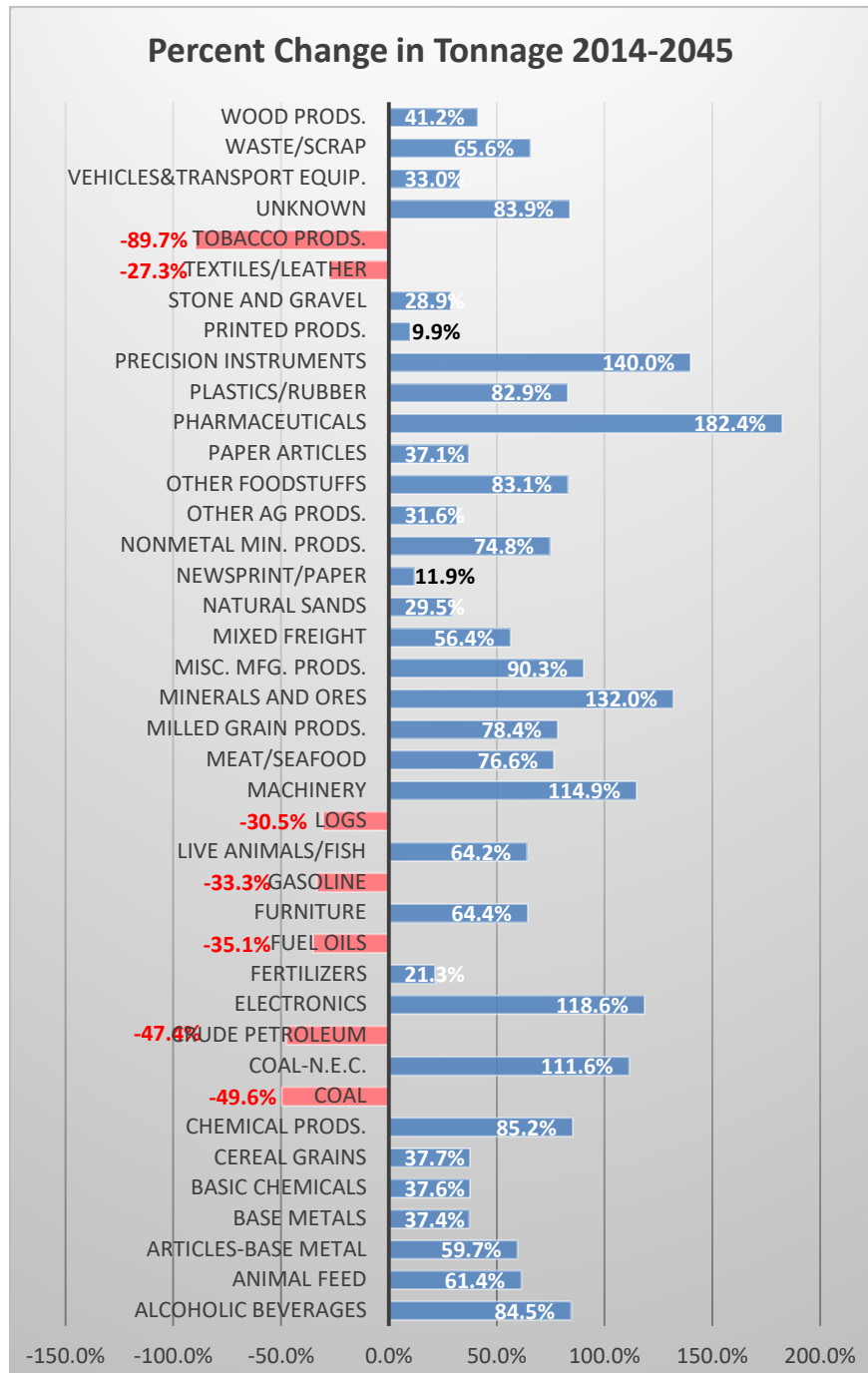
Future Freight Flows for the Fargo-Moorhead Region

FHWA produces commodity flow forecasts as part of the Freight Analysis Framework (FAF) data series.

Exhibit ES-8 shows the predicted percentage change in commodity flows for the Fargo-Moorhead Region between 2014 and 2045.

Six commodity groups are predicted to see total tonnage increases exceeding 100 percent: *Pharmaceuticals* (182.4%); *Precision Instruments* (140.0%); *Minerals and ores* (132%); *Electronics* (118.6%); *Machinery* (114.9%), and; *Coal* (111.6%). Six commodity groups are forecast to see declines in total tonnage: *Tobacco Products* (89.7%); *Coal* (49.6%); *Crude Petroleum* (47.4%); *Fuel oil* (35.1%); *Gasoline* (33.3%), *Logs* (30.5); and *Textiles/Leather* (27.3%). It should be noted that the forecast data provided is for only four modes: truck, rail, water and multiple modes. It must be noted that FAF does not provide forecasts for pipelines, which may account for the decline in petroleum. It is likely that the forecast reflects declines in regional petroleum movements by rail, but does not show projected increases in petroleum movements by pipeline.

Exhibit ES-8: F-M Commodity Flow Forecast (Change in Tonnage)



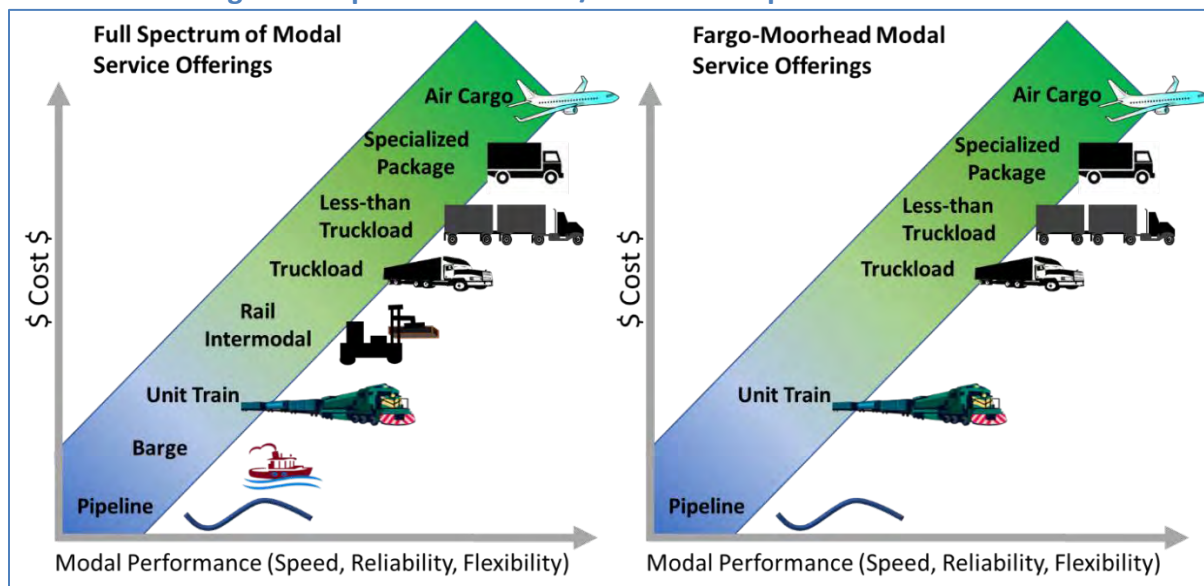
Source: FHWA, FAF-4 / Quetica.

Stakeholder Views of Regional Freight Services

From its establishment in 1871, as the location where the Great Northern Railroad would cross the Red River linking the Midwest to the Pacific Northwest, Fargo's regional economy has been intimately tied to transportation infrastructure. Today, the regional economy is supported by several important modal networks: BNSF now operates on the Great Northern Corridor; Fargo is at the crossroads of Interstate Highways 29 and 94; the region is also served by extensive national, state and local road networks; several pipelines support energy needs of the region; and Hector International Airport provides daily flight schedules for passengers and packages. The multimodal nature of the region's freight services supports a diverse, growing regional economy; however, many stakeholders express the view that the lack of some key service offerings are a significant barrier to even more economic diversification.

Each freight mode provides a mix of cost, speed, accessibility and flexibility that shapes service attributes. Service needs play a major role in determining the mode(s) used by specific industries for the commodities they consume and produce. High cost air cargo services are typically used for products with a high value to weight ratio (e.g. computer chips), or those extremely time sensitive (e.g. fresh flowers). Low cost service options like pipeline and barge are used for products with low value to weight ratios (e.g. crude oil, water), and low time sensitivity (e.g. road salt). While air cargo and pipeline transport represent opposite extremes in the cost/service spectrum of freight services, many options exist in between. The left side of **Exhibit ES-9** shows some of the most common modal freight service options, aligned along a spectrum based on cost and service flexibility. The right hand side of the exhibit shows the common service offering in the Fargo-Moorhead Region. The nearest barge access is on the Mississippi River in Saint Paul, Minnesota, over 200 miles away. A repetitive issue raised by stakeholders concerned poor access to intermodal rail services. The nearest intermodal rail terminals are in Minneapolis (230 miles) and Winnipeg (220 miles).

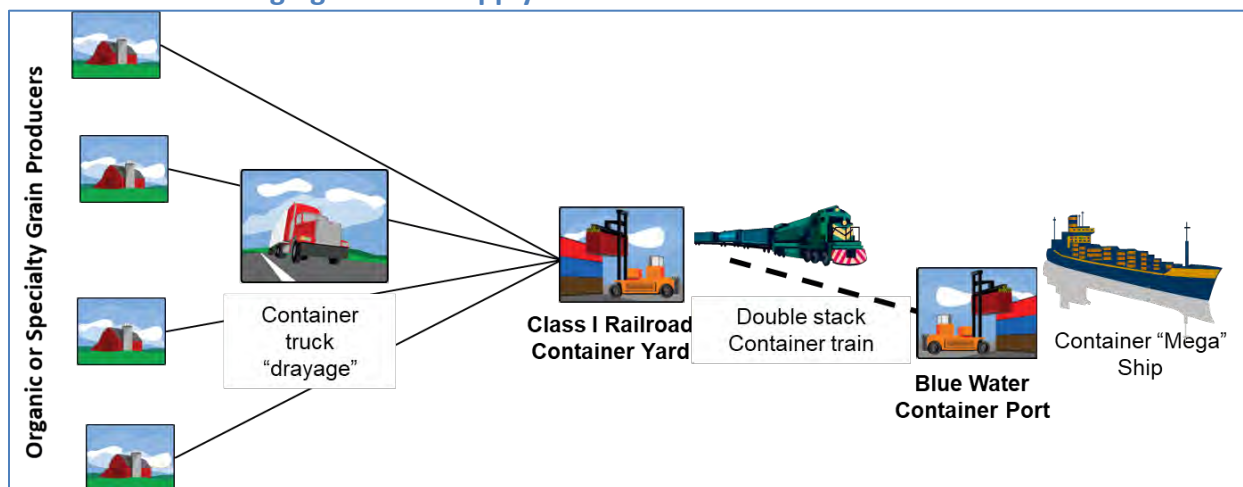
Exhibit ES-9: Freight Transportation Service/Cost Modal Spectrum



Source: Quetica, LLC

Access to competitively priced services best suited to meet the industrial mix of the local/regional economy is important to economic efficiency. While the Fargo-Moorhead economy has become more diversified, it remains heavily influenced by agriculture. There is growing demand in export markets for organic and/or “identify preserved” (IP) crops. An IP crop typically has special characteristics (e.g. grown from non-GMO seeds, or grown without chemical fertilizers) and the IP supply chain provides the buyer with a great deal of transparency about how the crop is handled and transported. A typical IP grain supply chain requires meticulous care be taken to prevent cross-contamination or mixing with other grains during harvest and transport. To ensure this integrity during transport, most IP grains are shipped in 20-foot or 40-foot international containers. The supply chain for IP grains is depicted in **Exhibit ES-10**. In recent years, pulse crops (dried beans, chick peas and lentils), also referenced as legumes, are increasingly being grown in the Northern Plains, as an IP export crop to countries like India, Pakistan and China. In 2015, North Dakota was the nation’s top producer of legumes.³

Exhibit ES-10: Emerging IP Grain Supply Chain

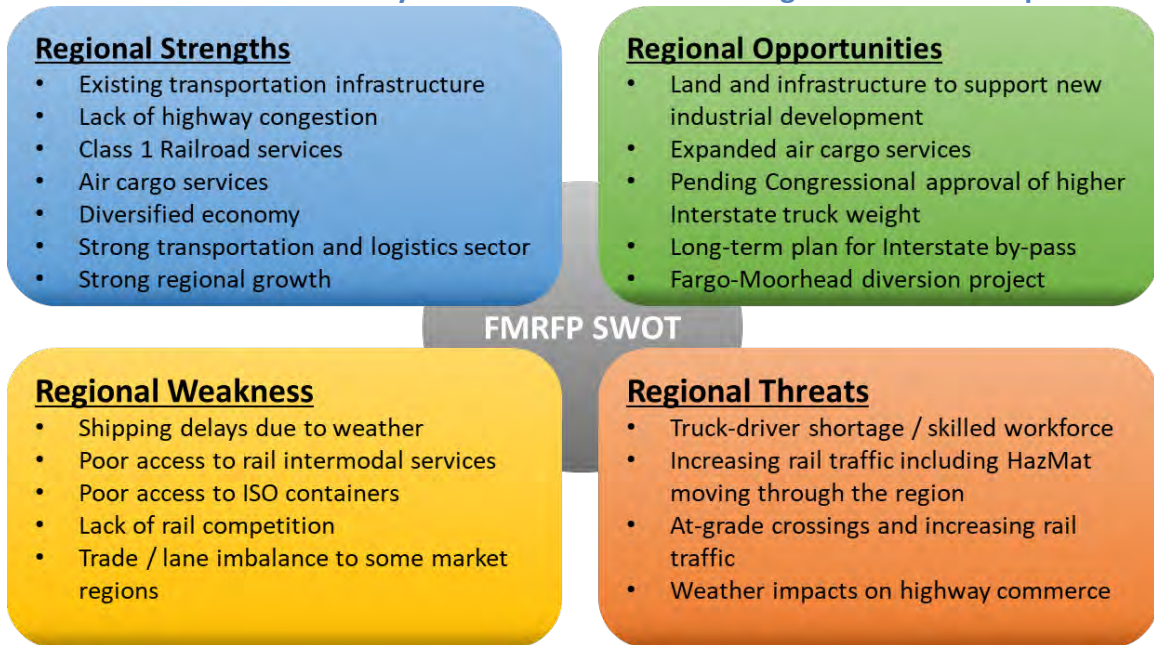


Consistent with its origins as a region built upon key transportation facilities, Fargo-Moorhead’s greatest strength lies in its existing transportation infrastructure: uncongested roadways, with access to high-level road and railroad networks. Many of the stakeholders noted the region’s lack of congestion as a regional strength, with recurring congestion during peak travel generally limited to short durations of roughly 15 minutes. Shippers and carriers report that interstates and major highways are generally in good condition and support efficient freight movements in both north-south and east-west directions.

Exhibit ES-11, on the next page, provides a broad summary of the Strengths, Weakness, Opportunities and Threats identified through data analysis, stakeholder interviews, truck driver surveys, and a regional freight forum conducted to have a dialogue about early study findings.

³ Alan Bjerga, Bloomberg Businessweek: *Peas on the Prairie Destined for New Delhi; Indian Appetites are changing the U.S. crop mix*. March 31, 2016. <http://www.bloomberg.com/graphics/2016-pulse-crops/>

Exhibit ES-11: Summary SWOT Matrix based on Freight Stakeholder Input



Fargo-Moorhead Regional Freight Plan Recommendations

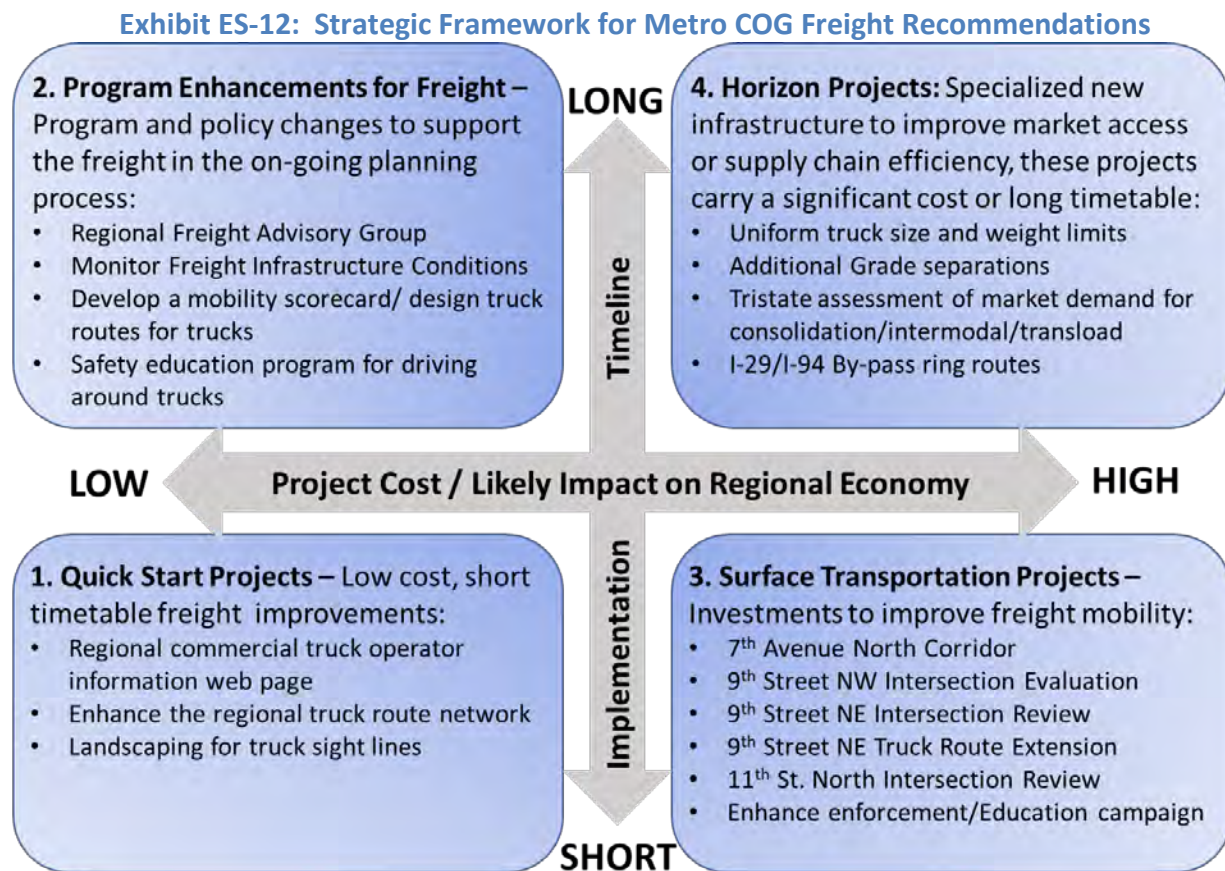
“Metropolitan economies cannot function unless they trade goods with one another. Land, labor, and capital limit what a metropolitan area can produce on its own, meaning goods trade is essential to deliver economic benefits to metropolitan economies. If economic benefits compel metropolitan areas to trade, then transportation makes those benefits a reality.”

- Global Cities Initiative, Brookings Institute and JPMorgan Chase

The statement above from one in a series of reports issued by the Brookings Institution about the impact of goods movement on metropolitan economies is just one more piece of evidence in an already extensive and growing archive of research and policy studies that demonstrates the critical link between economic prosperity in urbanized areas and strong freight transportation networks. A key goal for Metro COG in undertaking the regional freight plan is to better understand the freight needs of industrial and retail segments of the regional economy, and to provide recommendations (short-term and long-term, policy and projects) that will improve mobility of the regional freight network. From a process standpoint, a key outcome of the study is the development of recommendations that mitigate weaknesses and threats, while taking advantage of regional strengths to capitalize on opportunities. The recommendations framework provided in **Exhibit ES-12** presents a summary of the recommendations put forth as a result of data analysis and stakeholder outreach. This framework recommends projects and policies on two primary dimensions: a) Project or policy implementation cost, and b) Implementation timeframe. A third dimension is presented as synonymous with project cost: Impact on Regional Economy. The implication being that significant project investments should be

expected to have significant impacts on regional economic development. Using the primary dimensions of cost and time, four project/policy categories are:

1. **Quick Start Projects:** The public sector plans with time horizons of 20 years or more. Businesses plan for 1-5 years. Quick start projects are low cost, with short implementation horizons for the purpose of demonstrating to private sector partners that their input was received and acted upon.
2. **Program Enhancements for Freight:** Actionable strategies and projects that Metro COG can consider are to enhance existing planning activities to incorporate freight considerations to a greater degree in a continuous and on-going manner.
3. **Surface Transportation Projects:** These short range projects have been identified as being potential projects that will require further analysis prior to implementation. Traffic signal warrants, geometric reviews, and other engineering analysis will be necessary to understand the ultimate build out of the recommended projects.
4. **Horizon Projects:** This category of projects intends to address freight specific projects and/or policies that, due to their nature, are relatively high cost and/or may require long time horizons (e.g. more than 5 years) to implement due to regulatory hurdles, the state of technology, public acceptance, or private sector buy-in.



Recommendations on a Metro Freight Scorecard and Next Steps

Exhibit ES-13 presents a framework for preparing a comprehensive scorecard to monitor Metro 2040 Plan Goals from a freight perspective.

Exhibit ES-13: Recommendations for Metro COG Performance Objectives and Measures

MPO Planning Factors / Metro 2040 Plan Goals	Overall Measurement Objective	Data Metrics	Performance Measure / Scorecard Measure
Safety Provide Safe and Secure Transportation	Reduce the number of truck crashes in the Metro COG region (long term downward trend)	Federal Motor Carrier Safety Administration (FMCSA) safety data MCMIS & FARS ⁴	Annual truck crashes in Cass and Clay County
			Fatal truck crashes in Cass and Clay County
System Preservation / Maintain Existing System	Maintain bridges and pavement in a State of Good Repair on designated truck routes.	Pavement Condition Rating	Truck route infrastructure condition score
		Bridge Condition Ratings	
		Posted bridges on truck routes	
System Management and Operations / Improve the Efficiency, Performance and Connectivity of a Balanced Transp. System	Reduce bottlenecks / circuitry on truck routes	Low bridge clearance on truck routes	Truck route geometric design scorecard
		Inadequate intersections on truck routes	
Economic Vitality / Support Economic Vitality	Export trade to support business and job growth	Metropolitan Export Trade Value	Exports as a percent of regional GDP
Accessibility / Maximize Cost Effectiveness	Business access to rail transload / intermodal	GIS/location data on transload and intermodal facilities	Facilities within 50 mi., 100 mi 150 mi., 200 mi. and 250 mi.
Connectivity Across Modes	See Accessibility / Cost Effectiveness	See above	See above
Environment / Protect the environment and conserve resources	Reduce idling and emissions at regional at-grade crossings		

Once the final scorecard and performance measures are established, Metro COG and its stakeholders can also add the scorecard or specific elements to annual reports so the region's stakeholders can monitor progress toward goals. Since performance measurement is an interactive process, it is important not only to measure the region's performance annually but to also pause occasionally to ensure that the scorecard continues to reflect stakeholder concerns in the region, changes to the regional economy and the Fargo-Moorhead freight environment.

⁴ Motor Carrier Management Information System (MCMIS) and Fatal Accident Records System (FARS)

Chapter 1: The Fargo-Moorhead Regional Freight Plan: Understanding Business Transportation Needs in the Modern Economy

Purpose and Need

In June 2014, at the request of incoming Federal Highway Administration (FHWA) director Greg Nadeau Fargo hosted a Freight Policy Roundtable. The Fargo Roundtable part of a national listening tour that brought together public agencies from three states and regional businesses to begin a dialogue about freight and the economy. In 2014, NDDOT was also working on its first statewide freight plan. These two events prompted Metro COG to begin a dialogue about the role of freight in local planning efforts.

The purpose of the Fargo-Moorhead Regional Freight Plan (FMRFP) is to assist the Metropolitan Council of Governments (Metro COG), the designated metropolitan planning organization (MPO) for the Fargo-Moorhead Region, develop a better understanding of the transportation service needs of industrial and retail sectors in the local economy. In requesting proposals for the FMRFP Metro COG indicated the plan should answer the following questions:

- *What freight networks do manufacturers and retail businesses in the region use?*
- *What are the chokepoints that cause friction on these networks?*
- *What are the project needs on the network that can improve regional freight mobility, and what improvements can the MPO recommend to make improvements on publicly funded freight facilities?*

This final report summarizes findings from ten task activities that defined the work plan for the FMRFP. Greater details about the data analysis and stakeholder outreach undertaken to support the plan can be found in a series of five technical memorandums that preceded this final report, these *Tech Memos* are:

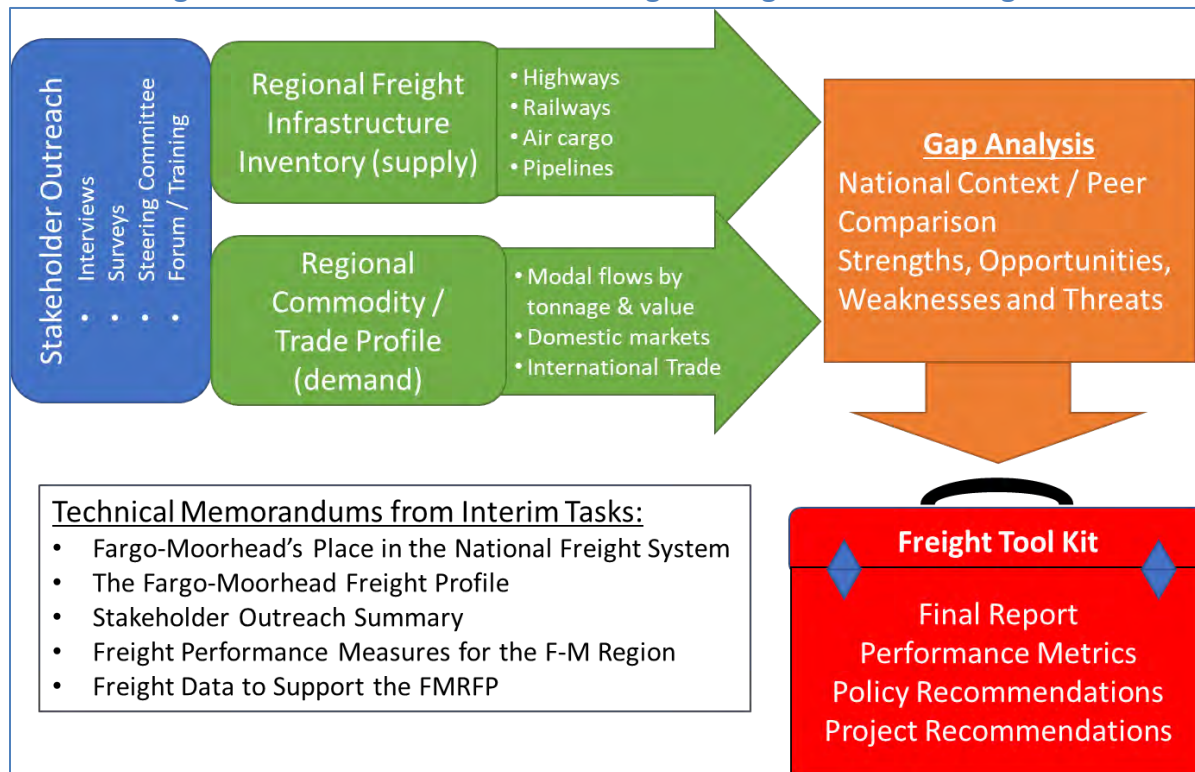
1. The Fargo-Moorhead Region's Place in the National Freight System
2. The Fargo-Moorhead Freight Profile: Regional Freight Assets and Regional Freight Demand
3. Stakeholder Outreach Summary
4. Freight Performance Measures for the Fargo-Moorhead Region
5. Freight Data to Support the Fargo-Moorhead Regional Freight Plan

The FMRFP is intended to help guide freight investments in the region that support the safety, social equity, economic productivity, sustainability and livable community goals established under Metro COG Long Range Transportation Plan (LRTP). The freight plan also presents performance metrics to assist Metro COG in monitoring programs, project prioritization/selection, and support federal guidance for competitive funding programs.

The process diagram in **Exhibit 1**, shows the high-level approach for completing the Fargo-Moorhead Regional Freight Plan. Green elements represent quantitative analyses undertaken to answer questions about the key freight networks in the region (public and private), and the current and future demands on these networks from freight movements. The blue element shows stakeholder outreach activities conducted to gather qualitative information about network preferences and performance of regional freight networks. The gap analysis (orange) integrated the qualitative and quantitative activities to

establish initial indications of regional network performance. The *Tool Kit* shown in red is the formulation of recommendations and performance measures to improve and monitor the Fargo-Moorhead Freight System moving forward.

Exhibit 1: High-level Process Flow for Conducting the Fargo-Moorhead Freight Plan



Source: Quetica, LLC

Background

In the 21st century economy, freight demand is increasingly driven by digital communication networks that enable companies and consumers to shop globally for goods and services. Congress has recognized the importance of freight transportation in the last two federal funding programs: In 2012, Moving Ahead for Progress in the 21st Century Act (MAP-21) made numerous changes to improve the condition and performance of the national freight network and support investment in freight-related surface transportation projects. That effort was expanded by Fixing America’s Surface Transportation Act (FAST) of 2015, which created two new freight funding programs: 1) National Highway Freight Program, and 2) a discretionary freight-focused grant program (FASTLANE). Together these two programs should provide nearly \$11 billion for freight related infrastructure investment over 5 years.

On July 5, 2017, USDOT released a Notice of Funding Opportunity called *Infrastructure For Rebuilding America (INFRA)* Grants. USDOT and the Administration suggest that INFRA grants will advance the FASTLANE grant program established in the FAST Act of 2015. INFRA is expected to increase the impact of projects by leveraging capital and allowing innovation in the project delivery and permitting processes, including public-private partnerships. INFRA also promotes innovative safety solutions and targets performance and accountability in project delivery and operations.

To access formula funds in the National Highway Freight Program, states are required to complete an USDOT approved freight plan. Locally, MPOs like Metro COG are encouraged to develop freight plans that complement State freight plans, but reflect the needs and objectives of the region. The Fargo-Moorhead Freight Plan examines factors affecting freight movement to, from and within the region to inform Metro COG's other long- and short-range transportation planning efforts. From first and last mile truck movements, to long-haul freight entering and exiting the region, understanding regional supply chain elements is important in determining future investment needs to keep local infrastructure efficient and effective in supporting freight movement. The quantitative elements of the analysis examine supply and demand: The demand analysis examines the volume of freight moving in, out and within the region by tonnage and value on the primary freight modes; and the supply analysis documents the regional inventory of freight assets, public and private, available to support trade in the region. Documenting the existing inventory of regional freight assets was the first step in answering Metro COG's questions about the regional networks that area businesses rely on.

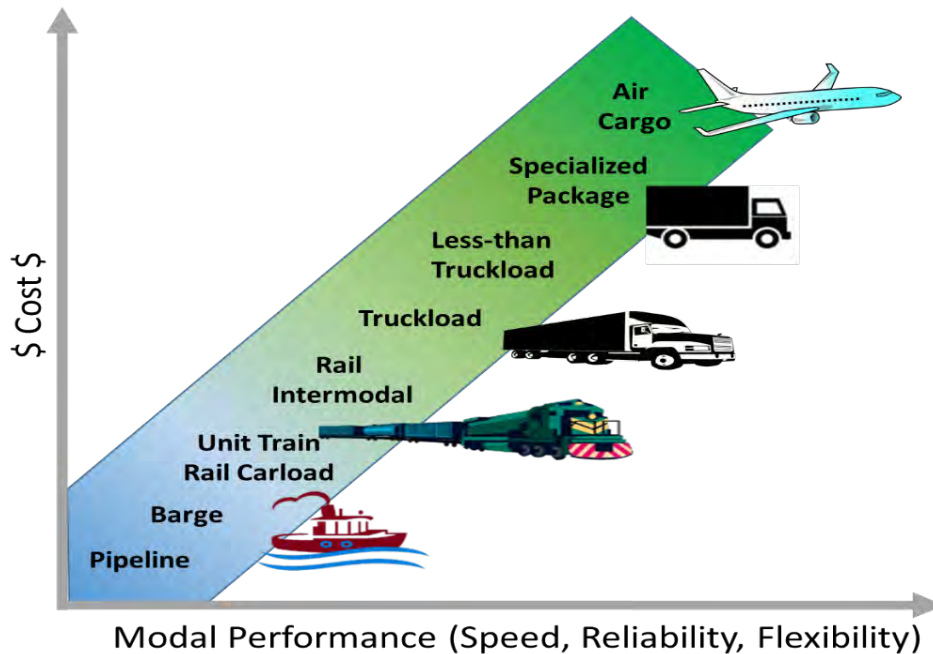
Chapter 2: Modal Freight Networks in the Fargo-Moorhead Region

Freight networks, both public and private, in the Fargo-Moorhead Region have been evolving since the City of Fargo was founded in 1871. For Metro COG's planning purposes, the primary interest lies in the public elements of the regional freight network. However, because public and private elements often act as substitutes for one another, it is important to examine the supply and demand on all elements of the regional freight network.

Each freight mode provides a mix of cost, speed, accessibility and flexibility that shape the offering of service attributes. Service needs play a major role in determining the mode(s) used by specific industries for the commodities they consume and produce. For example, air cargo is most often used to transport products with a high value to weight ratio (e.g. computer chips), or products that are extremely time sensitive (e.g. fresh flowers). In contrast, pipelines and barges transport products with low value to weight ratios (e.g. crude oil, water), and low time sensitivity (e.g. road salt).

Exhibit 2 shows the variety of cost and service attributes associated with the most common freight modes and service options. Access to competitively priced services best suited to meet the industrial mix of the local/regional economy can be critically important to economic efficiency. Companies consider many factors when making decisions about where to locate, expand or relocate industrial or warehousing facilities that create jobs and economic activity in a region. These factors included labor force, state and local taxes, utilities, and proximity to process inputs or support services. That said, site development surveys have consistently ranked access to quality transportation infrastructure and services as a top priority in business location decisions for manufacturing.

Exhibit 2: Freight Transportation Service/Cost Modal Spectrum



Source: Quetica, LLC

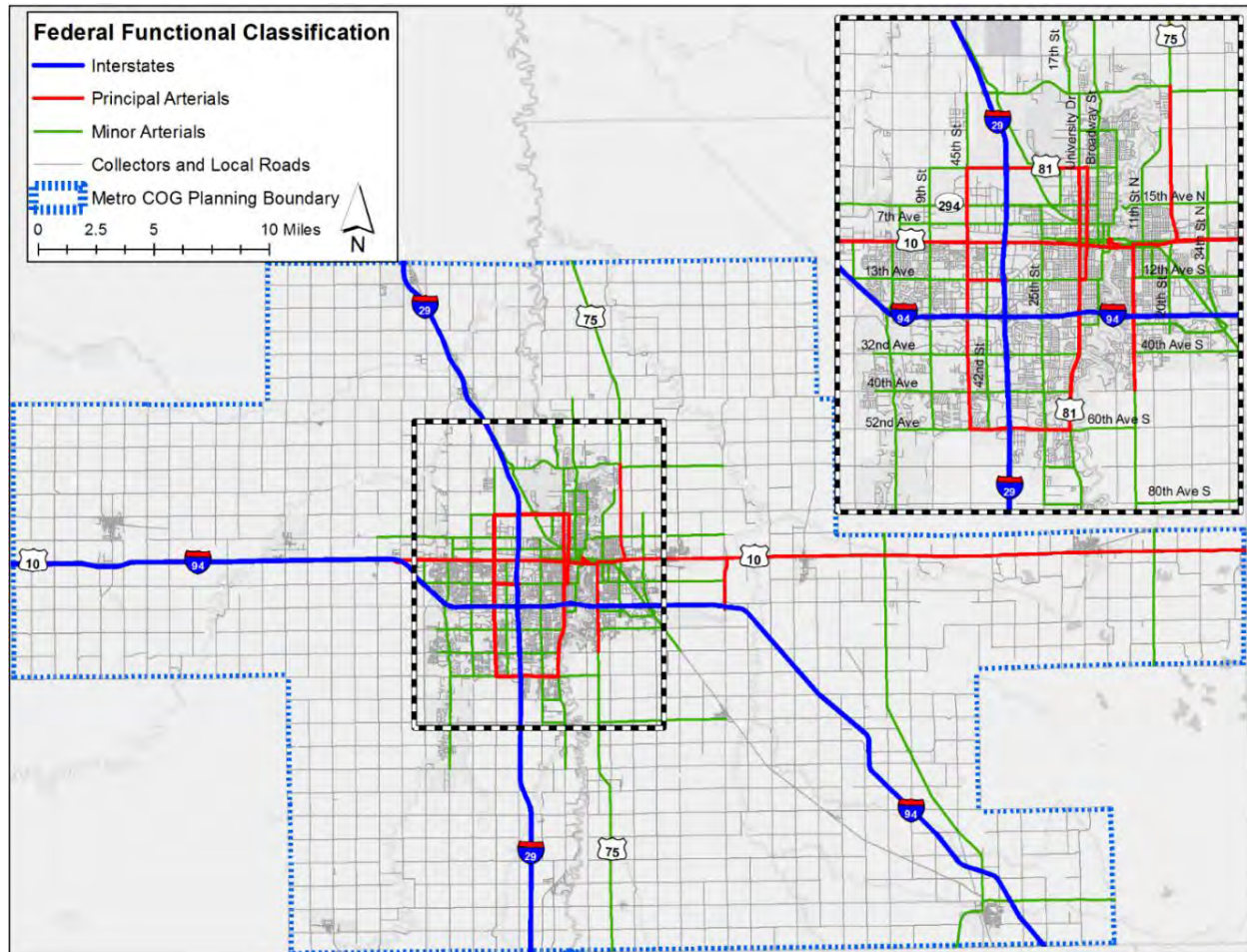
Regional Truck Networks in the Fargo-Moorhead Region

Nationally, about 77 percent of domestic freight movements by volume (i.e. weight) occur on the nation's highways. In the Fargo-Moorhead Region 88 percent of freight movement by volume occurs on highways. Fortunately, the region enjoys a well-developed, primary roadway network that is shown in **Exhibit 3**. The most prominent feature of the regional network is the intersection of north/south and east/west interstate highways: I-94 and I-29. While interstate routes spanning the nation from east to west are fairly evenly distributed, in the Western U.S. north-south interstate routes are sparse. For example, south of I-94 in Fargo, I-90 passes through Sioux Falls 245 miles to the south; however, west of I-29 the next north/south Interstate route is I-15, 830 miles to the west.

I-29 serves as the primary north/south thoroughfare through the region and is supplemented by principal arterials to the west (45th Street in Fargo) and east (US 81 as University Drive and 10th Street in Fargo; US 75 in Moorhead). I-94 serves the major east/west movement throughout the region. Local east/west connectivity is provided by principal arterials, such as US10 (Main Avenue in Fargo; Center Avenue in Moorhead). Numerous minor arterials and major collectors also serve the Fargo-Moorhead metropolitan area.

The map in **Exhibit 3** shows other key highways in the region using the Federal Functional Classification System (FFCS). Interstates and arterials serve as the primary network on which roadway-based freight moves throughout the Fargo-Moorhead Region. Metro COG recently proposed an update to the regional FFCS following the 2040 Long Range Plan update; the draft FFCS is currently under review by the NDDOT.

Exhibit 3: Fargo-Moorhead Regional Roadway Network



Source: Metro COG 2016

In addition to the FCCS, the federal government and Congress have designated a number of highway systems and networks, which can impact freight policy, especially truck size and weight regulations:

- **The National Multimodal Freight Network (NMFN):** The FAST Act requires FHWA to establish or redefine a Nation Highway Freight Network that supplants the national freight network directives established under MAP-21. The network as established by the Fast Act includes:
 - a) **Primary Highway Freight System (PHFS)** - This is a network of highways identified as the most critical highway portions of the U.S. freight transportation system determined by measurable and objective national data.
 - b) **Interstate Routes not on the PHFS** - These highways consist of the remaining portion of Interstate roads not designated as part of the PHFS. These routes provide important continuity and access to freight transportation facilities.
 - c) **Critical Rural Freight Corridors (CRFC)** - These are public roads not in an urbanized area which provide access and connection to the PHFS and the Interstate with other important ports, public transportation facilities, or other intermodal freight facilities.

- d) Critical Urban Freight Corridors (CUFC) - These are public roads in urbanized areas which provide access and connection to the PHFS and the Interstate with other ports, public transportation facilities, or other intermodal transportation facilities.
- **The National Highway System (NHS):** Introduced by the Intermodal Surface Transportation Efficiency Act of 1991, the NHS was created in 1995. The NHS is a national priority network for planning and federal-aid funding, consisting of roadways important to the nation's economy, defense, and mobility.
- **Strategic Highway Network (STRAHNET):** A network of highways important to the United States' strategic defense policy, which provide defense access, continuity and emergency capabilities for defense purposes. In 1991, Congress adopted STRAHNET into the NHS.
- **National Network Highways:** In 1982 Congress passed the Surface Transportation Assistance Act (STAA), which imposed a federal weight limit of 80,000 gross vehicle weight (GVW) as the maximum for commercial trucks across the entire Interstate Highway System, with exceptions for states with "*grandfather rights*."⁵ STAA also prohibited states from limiting the length of trailers in combinations of one tractor and two trailers to less than 28 feet or imposing an overall length limit on combination vehicles. Federal-Aid Primary roads that could safely accommodate STAA vehicles were codified as the National Network in 23 CFR 658, Appendix A.

The increasing number of congressional designations on highway systems can be confusing, especially as some systems have specific implications for regulating freight movement (e.g. National Network) or directing federal funds to important freight related projects (NHS and NMFN)). Perhaps the most important of these designations at the current time is the designation of Critical Urban Freight Corridors under the FAST Act's NMFN. During this study, Metro COG was meeting with the NDDOT to determine the regional elements of that network in Fargo.

Another network of relevance for the region is The National Network (NN), also referenced as the National Truck Network. The NN authorized by the STAA of 1982 required states to allow conventional combinations on "the Interstate System and those portions of the Federal-aid Primary System ... serving to link principal cities and densely developed portions of the States ... [on] high volume route[s] utilized extensively by large vehicles for interstate commerce ... [which do] not have any unusual characteristics causing current or anticipated safety problems."⁶ The NN for North Dakota is shown in **Exhibit 4**.

The NN was created by Congress as the highway system where federal truck size limits apply (federal weight limits apply only to Interstate highways), with exceptions for *grandfather* rights. North Dakota has a grandfather provision for twin-trailer configurations: "*where the cargo carrying length shall not exceed 100 feet on a semitrailer and trailer, or semitrailer converted to a trailer by the use of a converter dolly and fifth wheel when the power unit is a truck-tractor.*"

⁵ The STAA also sought to resolve controversies with states claiming grandfathered weight limits based on pre-1956 permit practices. Congress granted to the states the ability to permit vehicles "*which the State determines could be lawfully operated in 1956 or 1975.*" North Dakota has a grandfathered gross vehicle weight limit of 105,500 pounds, the details of this allowance can be found in federal statues 23CFR Part 658, Appendix C.

⁶ Conventional combinations are tractors with one semitrailer up to 53 feet in length or a twin trailer configuration with two 28-foot units (i.e. semitrailer-trailer).

Exhibit 4: National Network (NN) Routes; North Dakota and Northwestern Minnesota.



Source: FHWA website HEPGIS: <https://hepgis.fhwa.dot.gov/fhwagis/#>

During the 2017 legislative session North Dakota passed a bill that would create a network of highways in the state where vehicles with a GVW of 129,000 pounds would be allowed to operate. The bills' sponsors argued that it is intended to make the Port of Minot more competitive.⁷ The proposed network includes Interstates I-29 and I-94 in the Fargo-Moorhead Region. However, allowing heavier trucks on Interstate highways will require Congressional approval; and, the Minot Port recently entered foreclosure due to a loan default.⁸

Regional Traffic Volumes, Congestion and Impacts on Freight

The majority of the Fargo-Moorhead Region experiences very limited congestion. The 2014 LRTP update identified eight locations within the Fargo-Moorhead Region experiencing a level of service (LOS) operating below LOS D, the operating condition considered to be an acceptable level of congestion in the region. These locations include:

- 1st Avenue North – between University Drive and Broadway
- 25th Street – around the I-94 interchange
- I-94 – at the I-29 system interchange

⁷ North Dakota Trade Office website, *Truck Productivity Bill Needs Support*. January 19th, 2017.

<http://ndto.com/2017/01/truck-productivity-bill-needs-support/>

⁸ Minot Daily News, *Intermodal Facility Faces Foreclosure*. May 21, 2017. Minot Daily News website:

<http://www.minotdailynews.com/news/local-news/2017/05/intermodal-facility-faces-foreclosure/>

- I-94 – at the US 75 interchange
- 32nd Avenue South – at I-29 interchange
- Fletcher Drive – between Westrac Drive and 4th Avenue South
- Main Avenue – between 25th Street and Broadway
- 17th Avenue South – between 25th Street and 42nd Street

A map of typically congested segments from the 2014 Long Range Transportation Plan Update is shown in **Exhibit 5**. It should be noted that some locations of congestion in the Fargo Area have been widened/reconstructed in recent years, or are scheduled to be in the near future. These areas include:

- 25th Street from 17th Avenue South to 23rd Avenue South widened from four- to six-lanes, including the I-94 bridge, with an additional slip ramp for northbound traffic on 25th Street onto I-94 east (2014)
- I-94 and US 75 interchange reconstructed as a DDI, with auxiliary lanes from 24th Avenue South to 30th Avenue South (2016)
- 32nd Avenue South to be widened from four-to six lanes, including the I-29 bridge, with an additional southbound loop ramp for eastbound 32nd Avenue traffic (began March 2017)

NDDOT monitors general traffic and truck traffic on the regional transportation system by obtaining biannual traffic counts in the region. The most recent complete system count is from 2015. According to these records, the largest number of trucks in the Fargo-Moorhead Region travels on 12th Avenue North (3,065 per day; and over 18 percent of total daily traffic on that route). 32nd Avenue South also carries over 2,500 trucks per day, totaling nearly nine percent of total daily traffic.

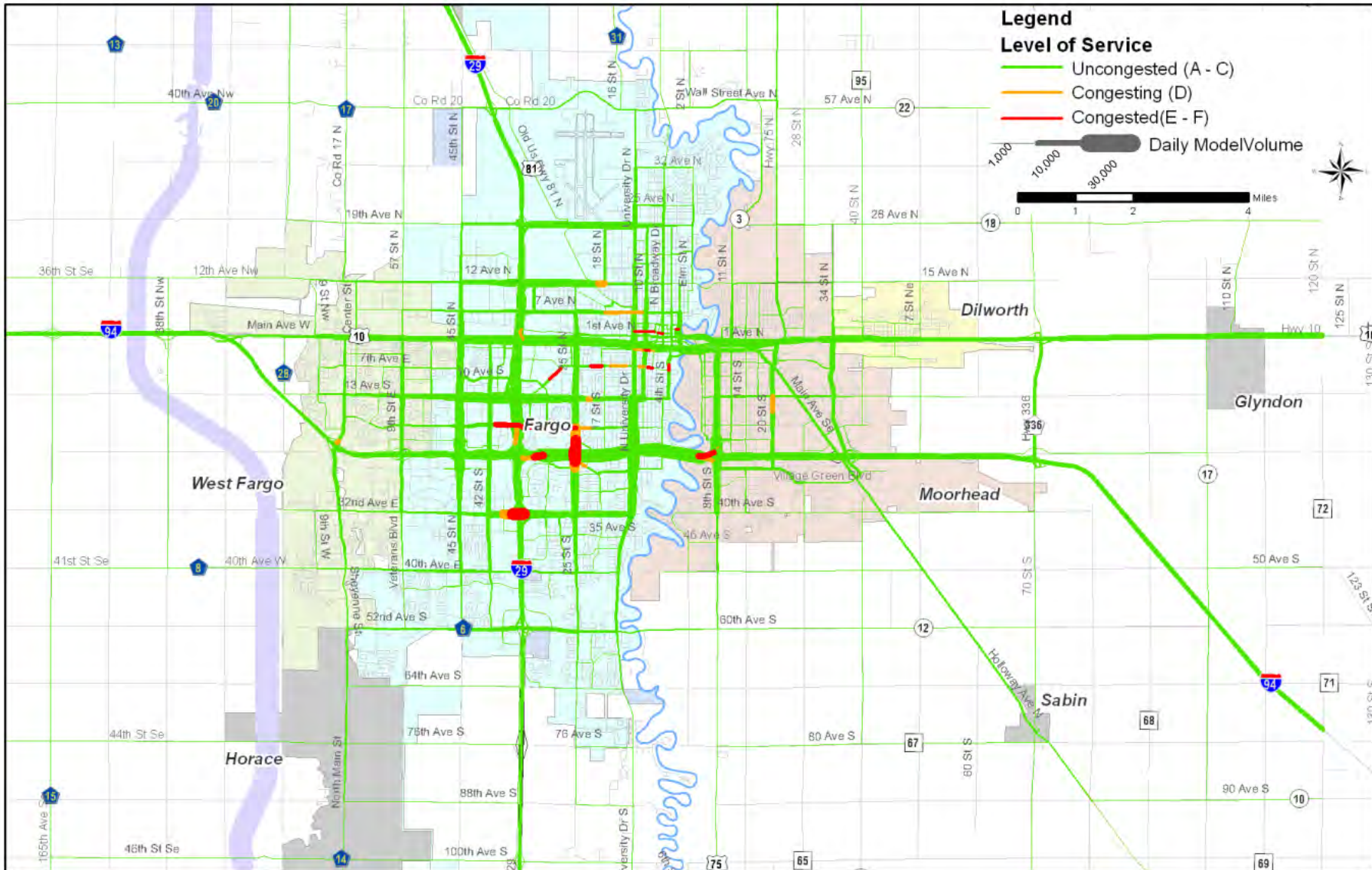
Interstate 29 and Interstate 94 experience average daily truck traffic that exceeds 2,500 and 1,800 vehicles respectively. Regionally, truck traffic on I-29 and I-94 averages eight percent of total daily traffic.⁹

Another way to evaluate the fluidity of freight flows is to examine the Travel Time Index (TTI), freight performance metric developed by FHWA and the trucking industry. The TTI measures the extent of unexpected delays: it *represents the total travel time that should be planned when an adequate buffer time is included*.¹⁰ The planning time index factors in the extra time needed for account for typical delays as well as unexpected delays on a highway facility. The TTI is calculated using a 95th percentile of travel times in light or free-flow traffic.

⁹ https://gis.dot.nd.gov/external/ge_html/?viewer=ext_transinfo

¹⁰ FHWA, Office of Operations web site: *Travel Time Reliability: Making It There on Time, All the Time*. https://ops.fhwa.dot.gov/publications/tt_reliability/TTR_Report.htm#planning

Exhibit 5: 2010 Modeled Average Daily Traffic and Level of Service

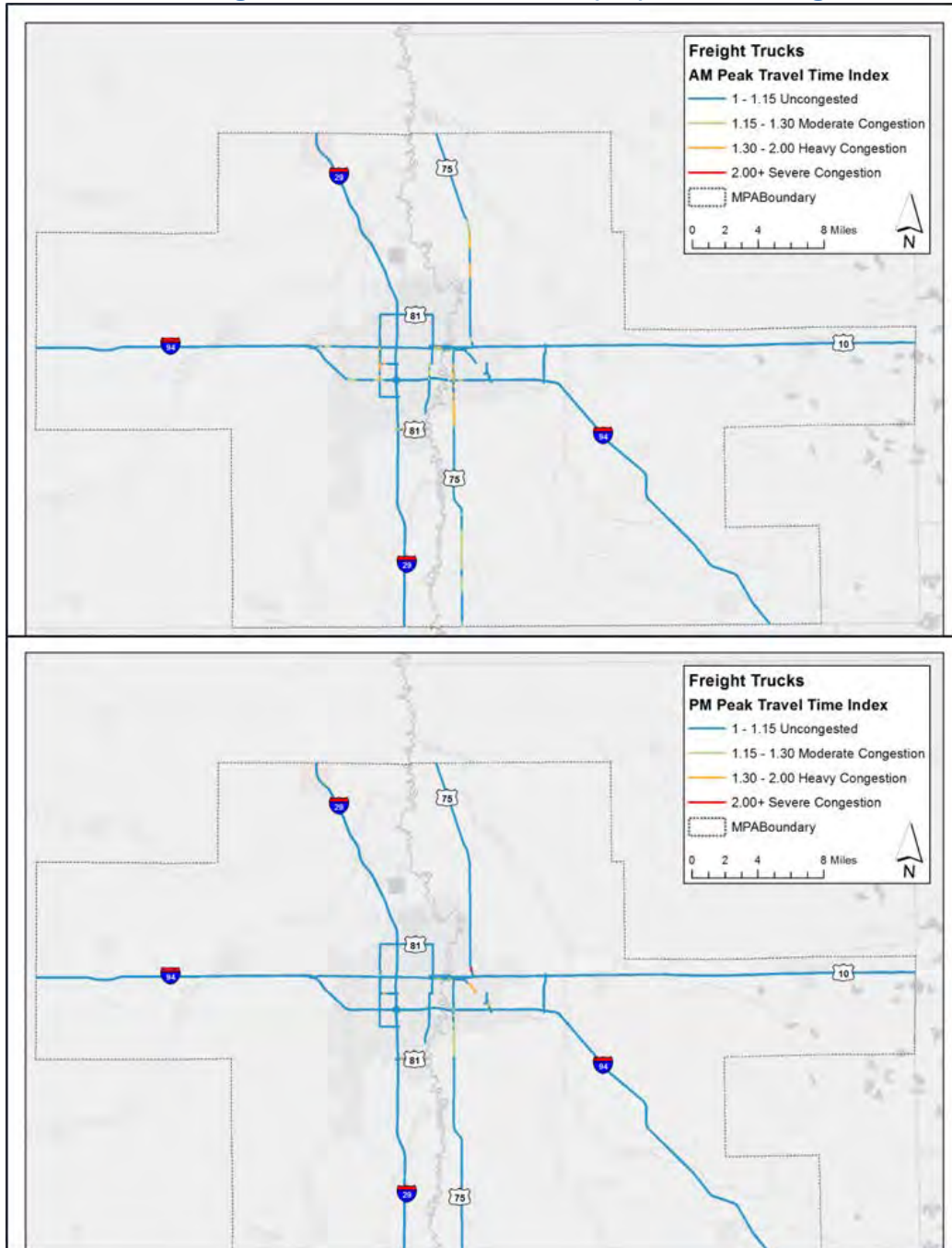


Source: Figure 2-4: 2010 Modeled Average Daily Traffic & Level of Service

<http://www.fmmetrocog.org/new/assets/documents/LRTP/2014%20Long%20Range%20TransportationPlan%20-%20Metro%202040%20Approved%20071714.pdf>

Exhibit 6 maps AM and PM truck traffic data taken from the National Performance Management Research Data Set (NPMRDS) for the month of January 2017. The maps show the Travel-Time Index (TTI) for elements of the National Highway System in the Fargo-Moorhead Region. Overall, these maps suggest very little congestion on the key facilities across the region. However, January is typically a slow month for freight movement, especially in agriculture-based economies. As will be discussed later in the report, Metro COG should continue to monitor the TTI, especially during peak months for truck traffic.

Exhibit 6: AM and PM Freight Trucks Travel Time Index (TTI) I-94/I-29, Fargo-Moorhead



Source: FHWA, National Performance Management Research Data Set, Mapped by Metro COG

Designated Truck Routes

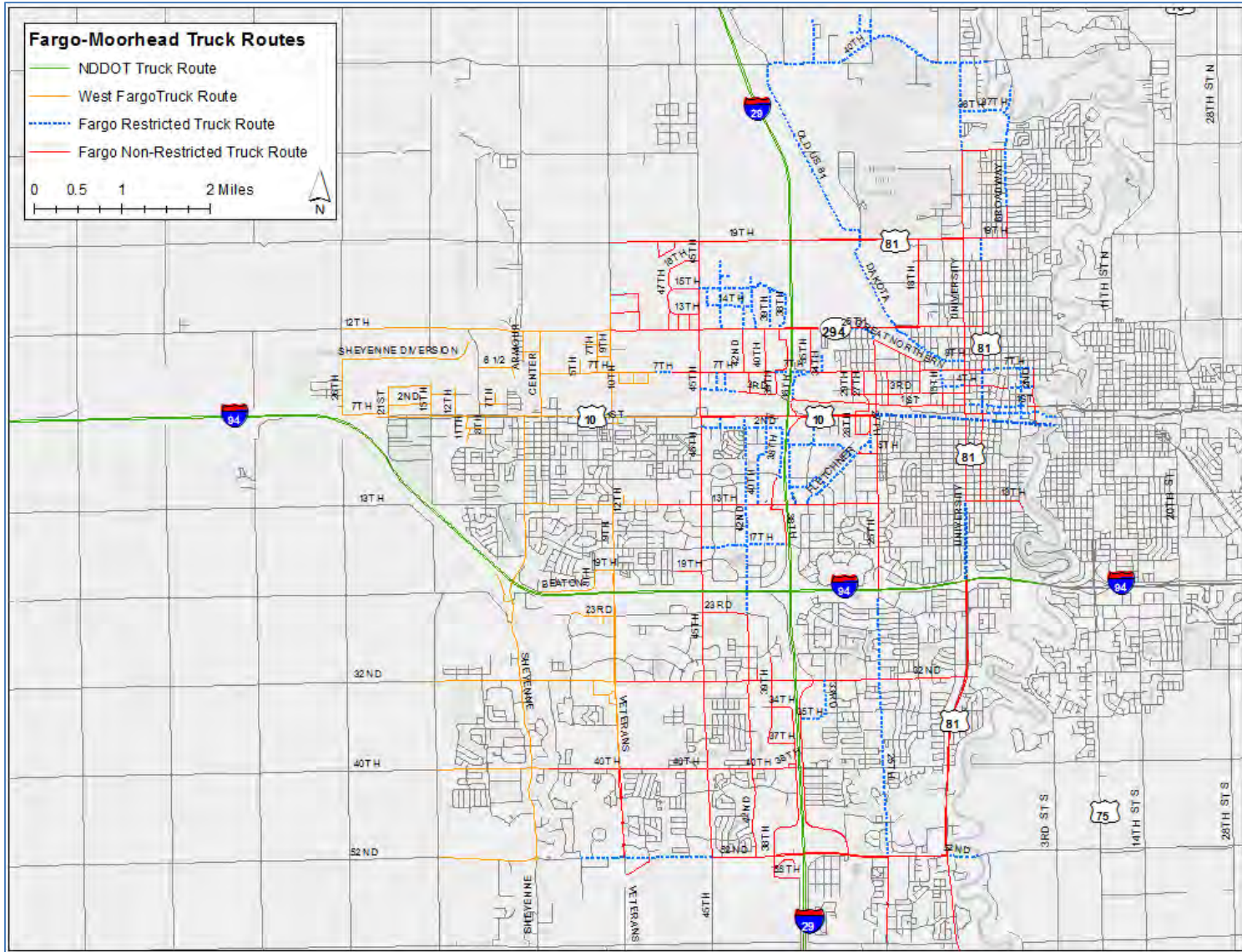
The NDDOT, City of West Fargo, and City of Fargo have developed a truck route network on the North Dakota side of the Red River to encourage truck travel on certain routes in the Fargo-Moorhead Region. **Exhibit 7** displays the truck route network in the Fargo-Moorhead Region, which includes I-94, US 81, US 10, and North Dakota 294. Where the NDDOT system is overlapped by locally designated systems, the local systems are shown. NDDOT's truck routes are displayed in green, West Fargo's truck routes are displayed in orange, Fargo's non-restricted truck routes are shown in red, and Fargo's restricted truck routes are shown in a hashed blue line.

The City of Fargo's truck route system is the most complex of the three in that it involves a seasonal determination for restricted and non-restricted truck routes. Restricted truck routes are not open to heavy truck traffic during the spring load restriction period. During the winter, an additional 10 percent weight exemption may be issued between December 1st and March 7th each year. If the spring thaw occurs prior to March 7th, this 10 percent exemption is cancelled. The City of Fargo updated their truck route map in the spring of 2017. These changes have been reflected in the map on the following page.

The City of Moorhead does not have designated a truck route system. In discussions with city staff, a number of reasons were cited for not designating truck routes:

- Concerns that designating truck routes would spur calls from citizens whenever they saw a truck not on a designated route.
- The main routes used by trucks in and through Moorhead are primary highways; I-94, US-75 and US-10. Signing these highways as truck routes would incur unnecessary cost and maintenance.
- The city also cited MnDOT policy and **Minn. Stat, Sec. 169.87, Seasonal Load Restriction; Route Designation**. Subsection (e.) of this statute requires local authorities to petition MnDOT when a proposed truck routes would utilize routes under state jurisdiction. MnDOT must then review the proposed route to determine if the route would create "*unusual hazards.*" Discussions with the MnDOT State Aid office suggested that this statute is most often applied when local jurisdictions wish to extend the NN for twin-trailer combination operations.

Exhibit 7: Fargo-Moorhead Regional Truck Route Map



Sources: City of West Fargo <http://www.westfargond.gov/Home/Departments/Public-Works/Over-Dimensional>, City of Fargo <http://www.cityoffargo.com/Maps/FargoTruckRouteMap.aspx>, NDDOT https://www.dot.nd.gov/divisions/planning/docs/2014CDRS_Reduced.pdf

Regional Roadway Design Issues

Based upon stakeholder interviews and a review of the transportation network, only minimal bottlenecks or design issues were identified on the major highway networks in the Fargo-Moorhead Region. The increasing use of modern roundabout designs on major truck routes has created concerns with the 12th Avenue North Reconstruction project. Located in the northern portion of West Fargo, 12th Avenue North is a designated truck route, with an industrial park situated on the north side of the avenue. Some stakeholders expressed concerns about the placement of a roundabout on a designated truck route, adjacent to the industrial park, suggesting that roundabouts impede truck traffic or make it more difficult for trucks to efficiently navigate a corridor. A study completed by MnDOT in May 2015; *Manufacturers' Perspectives on Minnesota's Transportation System – District 4* found similar concerns:

Though roundabouts are known to improve safety and efficiency for passenger vehicles, 23 businesses had mixed reactions to their use. Some businesses supported roundabouts because they improve safety at intersections. In contrasting roundabouts with stoplights or four-way stops, respondents noted that trucks encounter fewer vehicles—reducing the chance of a crash—and do not have to stop and restart—reducing fuel costs and minimizing downshifting. Concerns about roundabouts were split evenly between manufacturers and carriers and between businesses that worked with oversize or overweight loads and those with regular sized loads. Businesses that expressed concern said the curves of roundabouts are too tight for trucks to navigate and recommended that MnDOT reduce the slope of the curb and truck apron that surrounds the central island... Respondents identified two specific intersections with roundabouts as problematic:

- *Highway 75 and County Highway 12, south of Moorhead*
- *Highway 59 and Willow Street in Detroit Lakes*

Roadway Policy Issues

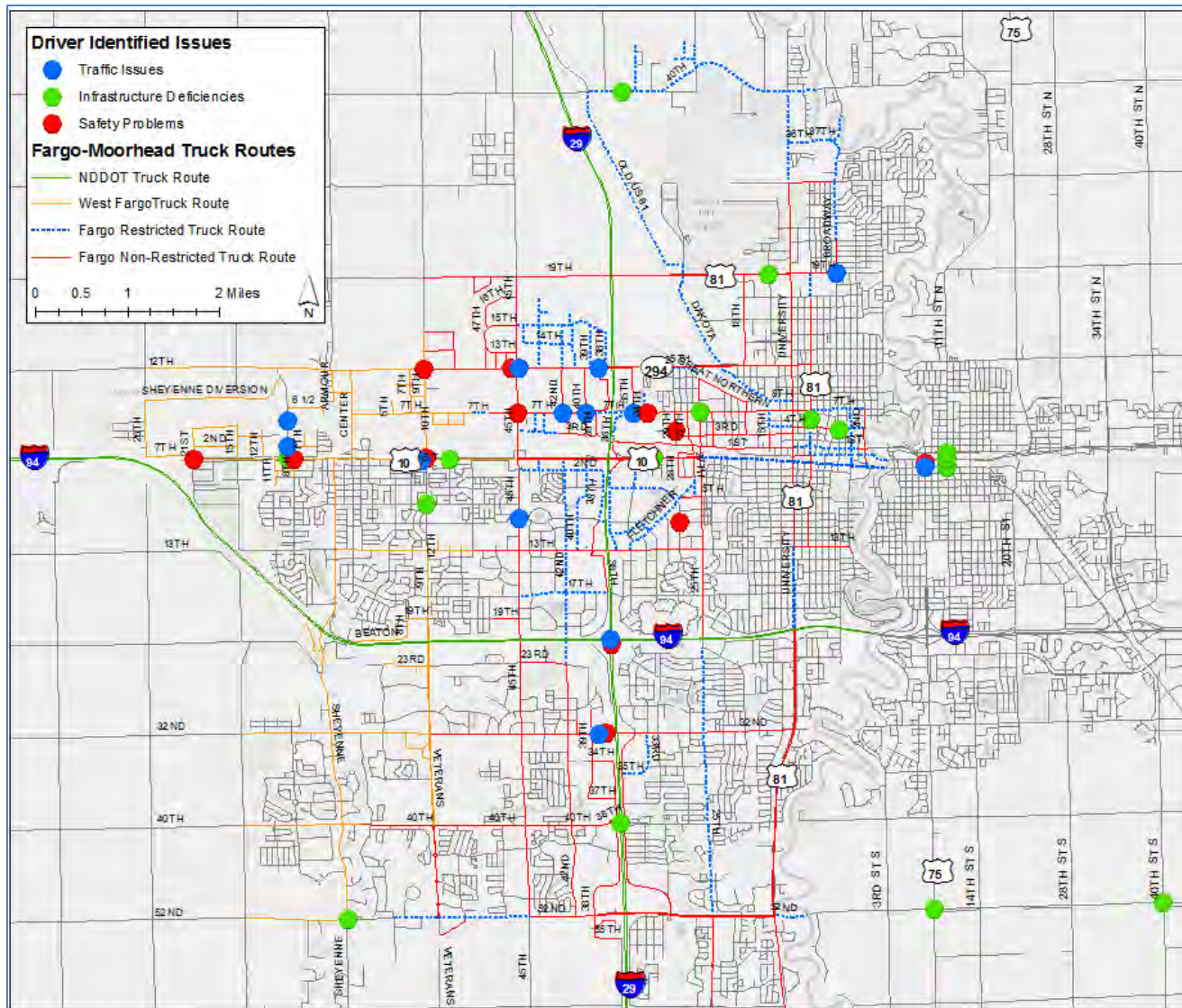
Stakeholders also noted the differences in truck weight limits between North Dakota and Minnesota. Trucks in normal operations are limited to 80,000 pounds (lbs.) gross vehicle weight (GVW) on Minnesota highways most of the year. During winter months, Minnesota's GVW increases 10 percent to 88,000 lbs. during sugar beet, carrot and potato harvest from the beginning of harvest through November 30.¹¹ In North Dakota, trucks are currently allowed to operate up to 105,500 lbs. GVW. As a result, trucks in North Dakota can carry approximately 40 percent more payload by weight during the non-bonus season and about 25 percent more payload during the winter bonus and harvest seasons as compared to Minnesota.

¹¹ Much like North Dakota's grandfather provision that allows 105,500 lbs. GVW on Interstate Highways, Minnesota claimed a grandfather right for a 10% increase in GVW on Interstate Highways during periods when the roadway is frozen. Other commodity specific increases off Interstate Highways are governed by state statute. Most operations in excess of 80,000 lbs., including the winter increase on Interstate Highways requires a permit.

Regional Roadway Traffic /Operational Issues

During the study, the project team met with companies that operate trucks on the regional roadway system. Driver breakroom surveys were used to help identify infrastructure, traffic and safety issues in the region. A map showing the issues identified through the truck driver map survey are shown in **Exhibit 8**. The highest concentration of driver issues occurs on 7th Avenue North corridor in Fargo. Truck drivers said they would like to see traffic signals added at 35th Street, 40th Street and 42nd Street. Some drivers felt that there was not enough room for trucks to navigate the 25th Street intersection for trucks wanting to continue moving north or south. Issues were also noted for the 45th Street intersection when trucks are turning eastbound onto 7th Avenue North from 45th Street.

Exhibit 8: Issues Identified by Truck Drivers



Source: Olsson Associates

Another cluster of issues was identified on the 9th Street NW corridor near Main Avenue in West Fargo. Truck drivers identified the need for a traffic signal at the 2nd Avenue NW intersection. Additional traffic control on Main Avenue near the 9th Street NW intersection near the West Fargo Truck Stop was also an identified need. Drivers also indicated they would like the truck restrictions removed from 9th Street NW (County Road 19) between Main Avenue and 13th Avenue.

A third cluster of issues was located around 11th Avenue North in Moorhead. Truck drivers cited poor turning radii and utility poles located near the curb as obstacles near 1st Avenue North, US 10 and Main Avenue intersections. Drivers also identified safety and traffic issues located at the intersection of US 10 and US 75 in Moorhead but did not provide specific comments.

Truck drivers expressed concerns about the roundabouts located at the intersection of 52nd Avenue South and Sheyenne Street (County Road 17) and the intersection of 60th Avenue South and US 75. Both of the roundabouts are modern roundabouts that have been recently constructed with aprons to allow for truck traffic to pass through. General comments from truck drivers included a desire for better traffic enforcement, and driver education. In many cases, irritants resulted from the lack of simple driver courtesies such as using turn signals and having through traffic use left-hand lanes when on divided, four lane highways with controlled access.

The Regional Railroad Network

The railroad gave birth to Fargo: In 1871, Fargo was a tight cluster of canvas tents housing employees of the Northern Pacific Railroad and their families. Fargo was chosen as the location where the Northern Pacific rail line would cross the Red River linking the Midwest to trans-pacific gateways in the Pacific Northwest. The city was later named for William G. Fargo, a director at Northern Pacific and the co-founder of Wells Fargo Express Company. Fargo's rail heritage continues today as the Fargo-Moorhead Region is served by the BNSF Railway (formerly Burlington Northern-Santa Fe and successor to the Northern Pacific), along with the Otter Tail Valley Railroad (OTVR), and the Red River Valley & Western Railroad (RRVW). The primary carrier for rail freight in the Fargo-Moorhead Region is the BNSF.

BNSF Railway

A map of the Fargo-Moorhead regional railroad network is shown in **Exhibit 9**. The BNSF Railway is the only Class 1 Railroad operating in the region. BNSF's Great Northern Corridor, part of the Twin Cities Division, runs through the region connecting Chicago to ports in the Pacific Northwest. The Staples Subdivision (from Minneapolis, MN) connects to the P Line, the Hillsboro Subdivision, Prosper Subdivision, and the KO Subdivision in the Fargo-Moorhead Region.

Rail traffic on the BNSF mainline track reached a peak during the fall 2013 and winter 2014. A rapid increase in crude oil production in the Bakken region of western North Dakota, coupled with a very cold winter and a record harvest, strained the railroad's ability to handle the volume of traffic. As a result of what was widely reported as a service "meltdown," BNSF invested over \$400 million in its North Dakota infrastructure, double-tracking 50 miles of mainline, upgrading to Centralized Traffic Control between

Bismarck and Fargo, building additional sidings, surfacing and undercutting over 900 miles of track and replacing over 100 miles of rail.¹²

BNSF owns the trackage rights to the Otter Tail Valley Railroad, between Moorhead, MN to Fergus Falls, MN. This 54-miles of track has a weight capacity of 286,000 lbs. and is generally used to transport chemicals, coal and grain. BNSF also operates on the Red River Valley & Western (RRVW) track located in the southwestern portion of the Fargo-Moorhead Region. The RRVW controls over 517 miles of track throughout Minnesota and North Dakota, primarily used to transport grain.

At-Grade Highway-Rail Crossings

There are 270 at-grade crossings on the railroad network within the Metro COG Planning Boundary. This includes 206 at-grade crossings on track owned by the BNSF, 24 crossings on the Otter Tail Valley Railroad, 38 crossings on the Red River Valley & Western Railroad and a single crossing of the Minnesota Northern Railroad. Of the total 270 crossings, there are 110 public, at-grade crossings within the core of the Metro COG Planning Area. Crossing locations are also shown in **Exhibit 9**.

Moorhead Downtown Grade Separation Study, 2016

In 2016, Metro COG completed the *Moorhead Downtown Grade Separation Study* to evaluate several alternative grade separated crossings investment options in downtown Moorhead. The *Moorhead Downtown Grade Separation Study* recommended the City of Moorhead and Metro COG further pursue a grade separation project at the 11th Street location.

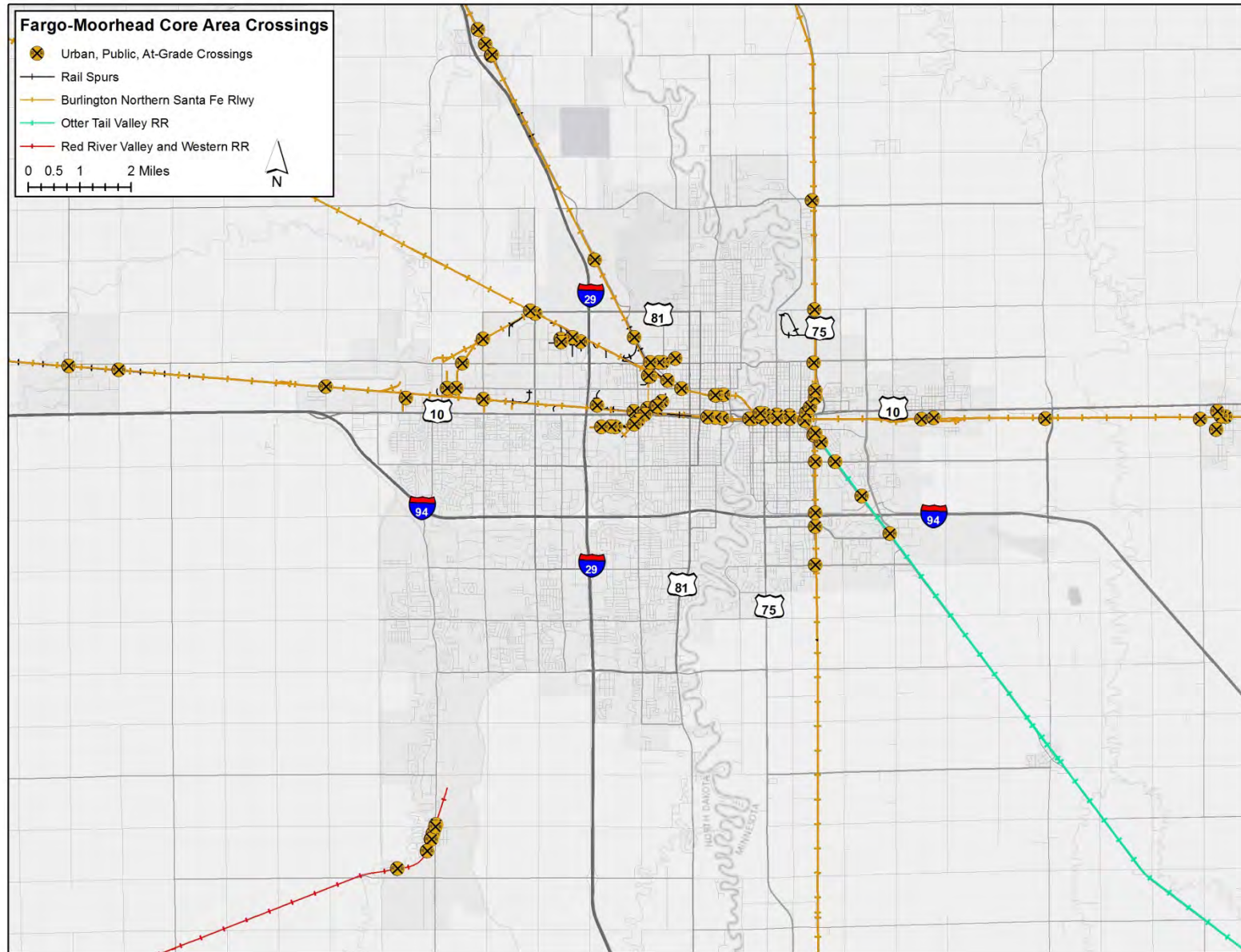
The 11th Street grade separation is estimated to cost \$61 million, and is actually a second priority behind the development of a grade separation at SE Main Avenue and the intersection of 20th/21st Street. On May 26, 2017, the Minnesota Legislature approved an infrastructure funding package that included \$42.3 million towards the construction of the railroad underpass at Main Avenue and 20th/21st Streets.

Both these grade-separation projects are part of a FASTLANE FY17 Large Project grant application submitted in December 2016¹³.

¹² <https://www.bnsf.com/customers/oil-gas/img/northern-corridor.pdf>

¹³ On June 28, 2017, all FASTLANE FY17 Large Project applicants were notified that USDOT would be reissuing a Notice of Funding Opportunity for Nationally Significant Freight and Highway Projects (INFRA) for fiscal years 2017 and 2018 soliciting applications for awards under the program's FY 2017 and FY 2018 funding. In other words, will not be awarding any Large Project grants previously solicited in December 2016 for the FY 2017 funding.

Exhibit 9: Fargo-Moorhead Railroad Network, including At-Grade Crossings



Source: US Census TIGER/Line Geography, 2016 <https://www.census.gov/geo/maps-data/data/tiger-line.html> . Grade Crossing from Bureau of Transportation Statistics

Air Cargo in the Fargo-Moorhead Region

Commercial air service in the Fargo-Moorhead Region operates out of Hector International Airport (FAR). Commercial flights are provided by Allegiant, American Airlines, Delta and United Airlines to the following locations on a daily basis:

Atlanta*	Las Vegas	Phoenix-Mesa
Chicago	Los Angeles*	Tampa-St. Petersburg
Dallas-Ft. Worth	Minneapolis-St. Paul	
Denver	Orlando-Sanford*	* Indicates seasonal service

Air cargo flights are operated by UPS, DHL, and FedEx Express. Typical daily traffic includes up to four UPS feeder flights to Sioux Falls, SD per day. DHL typically ships one or two vanloads of small parcels onto Delta Airlines flights to Minneapolis for further forwarding. Additionally, FedEx Express operates two Airbus A300s traveling directly to the FedEx Express hub in Memphis. Due to the nature of air freight, Hector International Airport only receives credit for the landed weight of aircraft carrying cargo only. Therefore, shipments via DHL that occur on Delta Airlines flights are not counted.

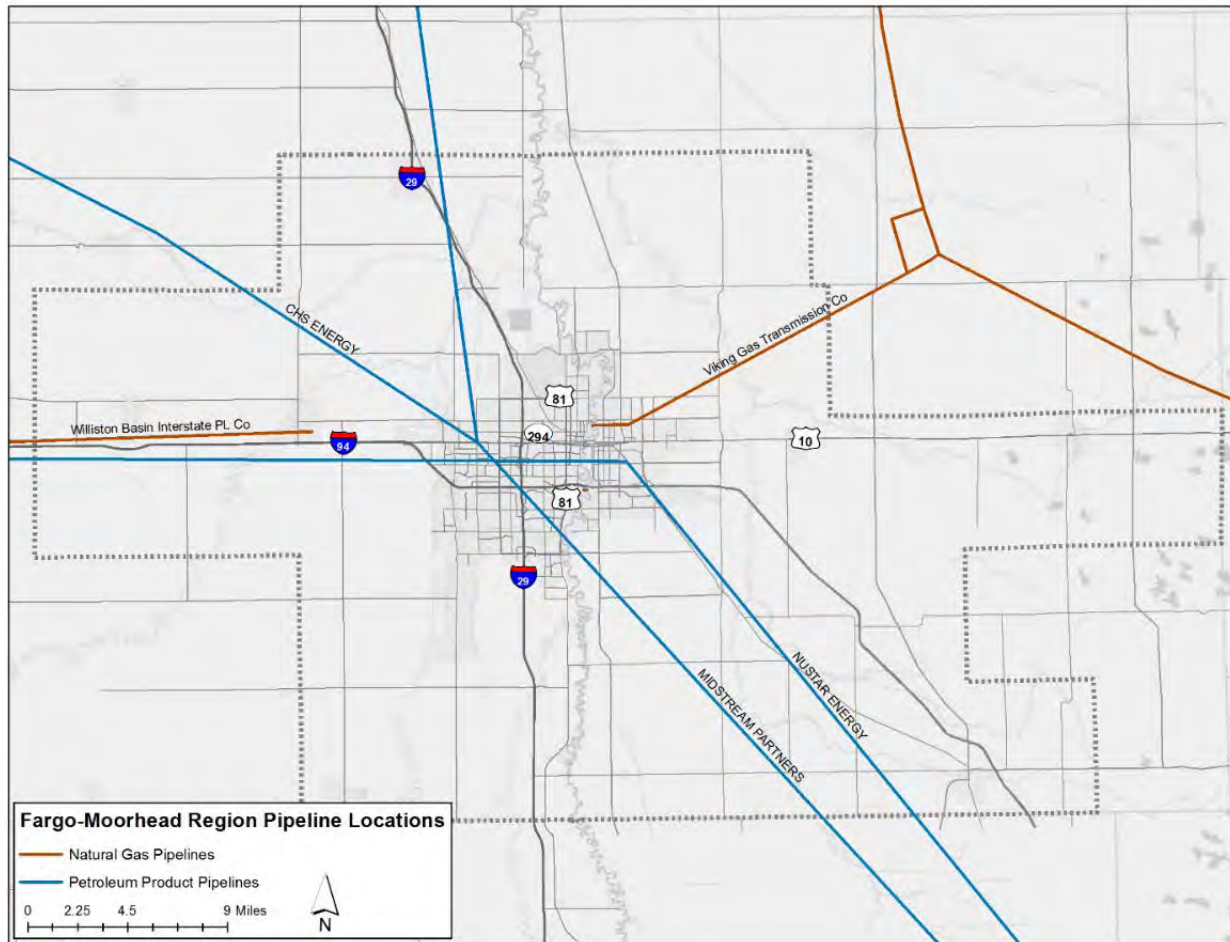
The airport is currently undergoing a master planning effort to assist the community in planning for the expansion of air freight and commercial operations for the future. The updated master plan is anticipated to be completed in 2017.

Between 2015 to 2016, Hector International Airport saw more than a 300 percent spike in the weight of landed air cargo. In April 2016, the Fargo Municipal Airport Authority signed a five-year deal with FedEx on a new air shipping facility. The deal included the modification of an existing building for sorting and a new hanger for aircraft maintenance and support. A previous facility had operated out of Grand Forks International Airport. The new facility, which operates seven days a week, accommodates up to 20 FedEx Express flights daily and services 100 truck routes weekly

Regional Pipeline Network

Oil and gas production in the Bakken region of western North Dakota encourages the expansion of pipeline development throughout the state. Pipelines provide an efficient and safe mode to move petroleum from production areas to refineries. A map of the existing petroleum product and natural gas pipelines in the Fargo-Moorhead Region is show in **Exhibit 10**. It should be noted that these locations are approximate and based upon public data.

Exhibit 10: Fargo-Moorhead Regional Pipelines



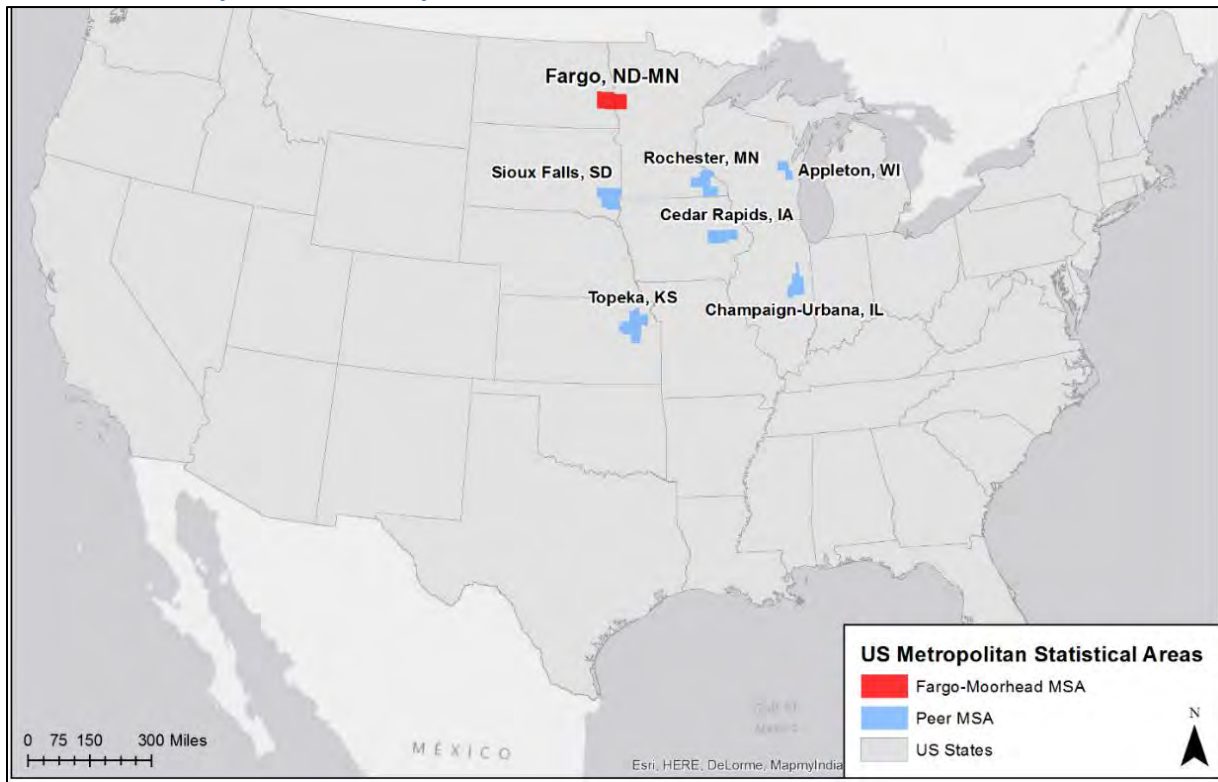
Source: US Energy Information Administration, 2016. https://www.eia.gov/maps/layer_info-m.php

Comparing Fargo-Moorhead Freight Networks to Peer Cities

The Fargo-Moorhead region enjoys a multimodal freight network. During interviews with businesses in the region, stakeholders spoke highly of existing infrastructure and access to services, but also noted the lack of local access to rail container services, and inland barge transport. Some stakeholders believe that better access to intermodal container service in the region would boost regional economic opportunities. A common means of gauging performance in the private sector is to compare a firm against industry performance benchmarks. Using the same approach in the public sector, it is expected that not all communities will have the same level of access to all elements of the multimodal transportation network. As part of the study, economic performance and modal networks of the Fargo-Moorhead Region were compared or benchmarked to six cities in the Midwest of similar size:

- Appleton, WI
- Cedar Rapids, IA
- Champaign, IL
- Rochester, MN
- Sioux Falls, SD
- Topeka, KS

Exhibit 11: Comparative Metropolitan Statistical Areas



Source: Olsson Associates

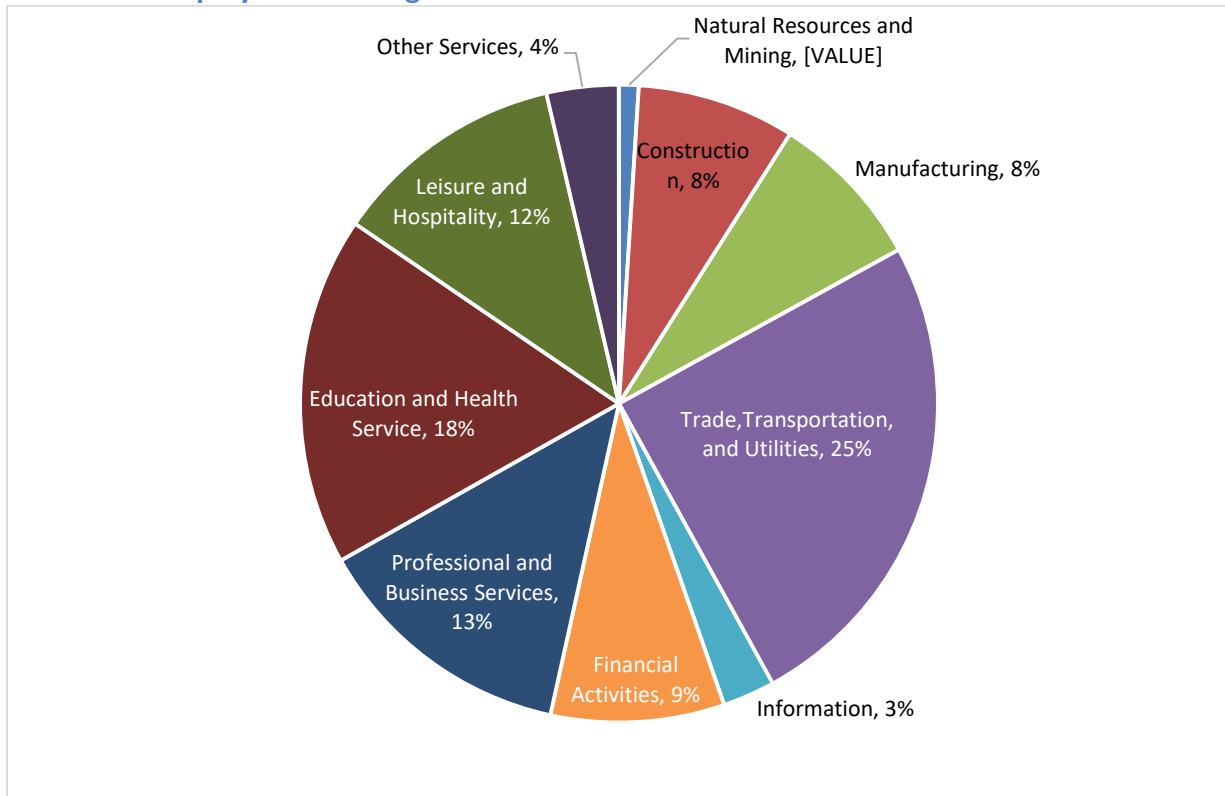
Overall, the comparative analysis between peer metropolitan statistical areas (MSA's) found the Fargo-Moorhead economy was well diversified, with low unemployment and strong employment growth. In terms of the six peer MSAs, Fargo-Moorhead was squarely in the middle on several benchmarking metrics, including the share of international trade as a portion of the regional economy. While most metropolitan areas saw little export growth during the Great Recession, several peer MSAs performed considerably better than Fargo-Moorhead. From 2003–2008, Fargo-Moorhead's exports by value grew 13.7 percent; however, from 2008-2014 exports grew only 1.4 percent. The slower growth of exports in recent years' is a concern that should be monitored. In terms of freight services, the network comparison found no peer MSAs with dedicated intermodal rail services. However, the development of a new intermodal yard has been initiated in the Cedar Rapids, IA MSA.¹⁴

¹⁴ <http://www.news.iowadot.gov/newsandinfo/2016/07/branstad-reynolds-announce-iowa-awarded-more-than-25-million-for-intermodal-transportation-facility-.html>

Chapter 3: Freight Dependent Industries in the Fargo-Moorhead Region

This chapter examines the industries in the Fargo-Moorhead Region that ship and receive goods, and the demands they place on regional infrastructure. **Exhibit 12** displays the key industries in the Fargo-Moorhead Region in terms of employment. *Trade, Transportation and Utilities* is the largest employment sector in the region, representing one-quarter of all employment in the MSA. *Natural Resources and Mining* is the smallest industry sector, representing one percent.

Exhibit 12: Employment in Fargo-Moorhead MSA 2015



Source: Bureau of Labor Statistics, 2015

Location quotient (LQ) analysis examines industry concentrations of a regional economy when compared a state or national economy. An LQ analysis for the Fargo-Moorhead economy found seven occupations that were five times more concentrated within the region as compared to the national economy (**Exhibit 13**).

The concentration of jobs for *Farm Equipment Mechanics and Service Technicians* in the Fargo-Moorhead Region is more than nine times the national average. *Agricultural and Food Science Technicians*, and *Public Address Systems and Other Announcers* both have concentrations in the region over 7 times the national average for these occupations.

Exhibit 13: Fargo-Moorhead Regional Occupation Concentrations

Occupation	Regional Employment	Location Quotient	Mean Hourly Wage
Farm Equip Mechanics & Service Techs	340	9.23	\$23.09
Agricultural and Food Science Technicians	160	7.78	\$18.33
Public Address System & Other Announcers	60	7.42	\$13.12
Soil & Plant Scientists	80	5.7	\$30.72
Helpers, Construction Trades, All Other	100	5.24	\$10.25
Pharmacy Aides	190	5.11	\$10.88
Engine and Other Machine Assemblers	190	5.08	\$20.16

Some of these occupations support freight modes as well, for example diesel mechanics in the farm equipment industry can transition easily to truck or rail equipment. While the region also hosts several truck driver training programs, enrollment in these programs has declined recently.

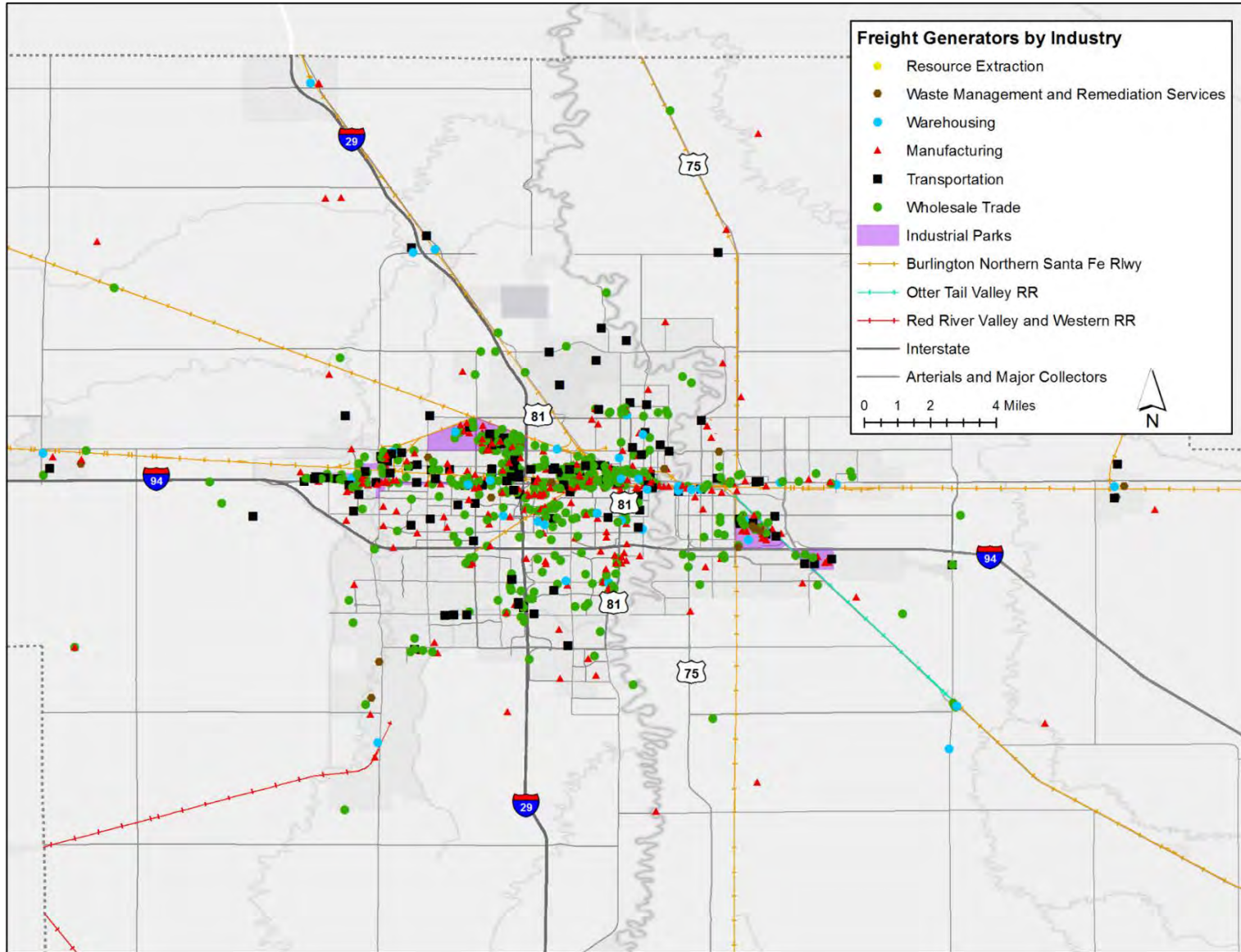
Freight Generators in the Fargo – Moorhead Region

Freight generators are sites that generate or receive large volumes of freight, including manufacturing centers, distribution centers and/or large retail centers. The Fargo-Moorhead Area has a growing manufacturing and distribution industrial base that includes companies like Case-New Holland, True North Steel, Cargill, American Crystal Sugars-United Sugars, John Deere, Cardinal Glass Industries, and Integrity Windows and Overhead Doors. Distribution centers such as the SuperValu food product distribution location, Reile’s Transfer and Delivery, Praxair Distribution, and other trucking or transportation related companies also contribute to freight traffic to and from the Fargo-Moorhead Region. Business parks and retail hubs also generate freight in the Fargo-Moorhead Area. Four specific areas in the region have been zoned for industrial development (i.e. industrial parks). **Exhibit 14** shows the location of major freight activity generators

DIESEL LAB AT M-STATE COMMUNITY AND TECHNICAL COLLEGE



Exhibit 14: Freight Generators in the Fargo-Moorhead Region

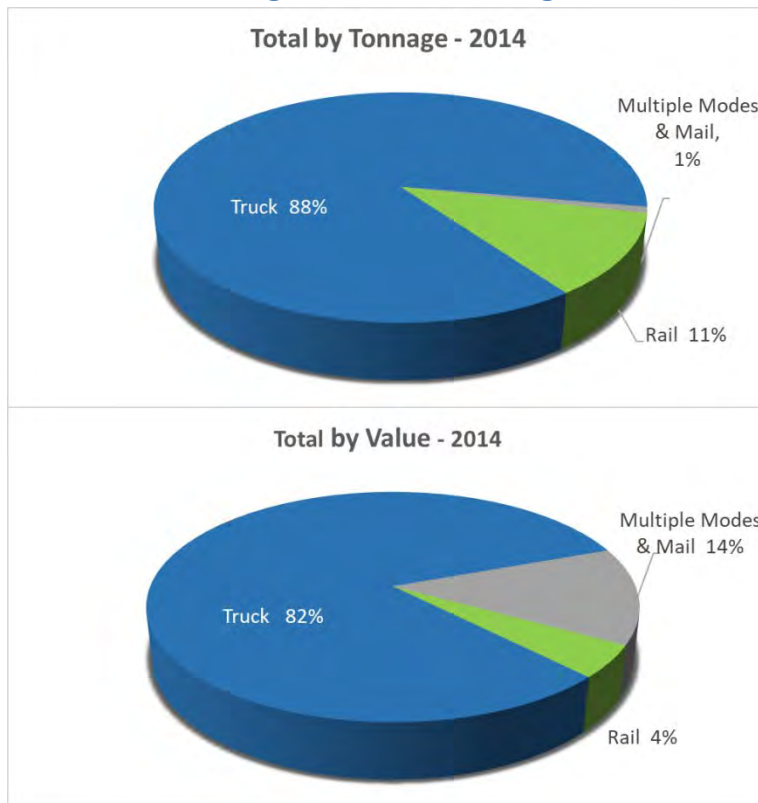


Chapter 4: Freight Flows in the Fargo-Moorhead Region

The freight facilities shown in the previous map receive and ship freight from other locations, most likely exchanging goods with locations inside and outside of the region. This Chapter examines the nature of Fargo-Moorhead’s freight flows in terms of modal volume and trade with other U.S. regions.

Exhibit 15 shows the high-level modal makeup of Fargo-Moorhead’s commodity flows in 2014.¹⁵ When examined by weight, the highway/truck mode dominates regional freight flows with an 88 percent mode share, as compared to just 84 percent truck mode share nationally.¹⁶ Nationally, rail accounts for approximately 10 percent of freight flows by weight, while in the Fargo-Moorhead Region, rail accounts for 11 percent. The slice for multiple modes by weight is just one percent in the region, versus three percent nationally.¹⁷ By value, Multiple Modes and Mail make up a 14 percent share regionally, versus 12 percent nationally.

Exhibit 15: Total Freight Flows for the Fargo-Moorhead Region by Tonnage and Value



Under the modal definitions of the Freight Analysis Framework (FAF) data used for this study, *Multiple Modes and Mail* represents commodities that move by more than one mode. Shipments reported as *Multiple Modes* can include anything from containerized cargo to bulk commodities moving to a railhead by truck, and rail to port. The "Mail" component recognizes that shippers who use parcel delivery services typically do not know what modes were involved after the shipment was picked up.

The *Air* mode in FAF, which was not included in the analysis only includes shipments weighing more than 100 pounds.

Source: FHWA Freight Analysis Framework Version 4 (FAF-4) and Quetica.

¹⁵ For the commodity analysis, the Fargo-Moorhead Region was defined as Cass County, ND and Clay County MN.

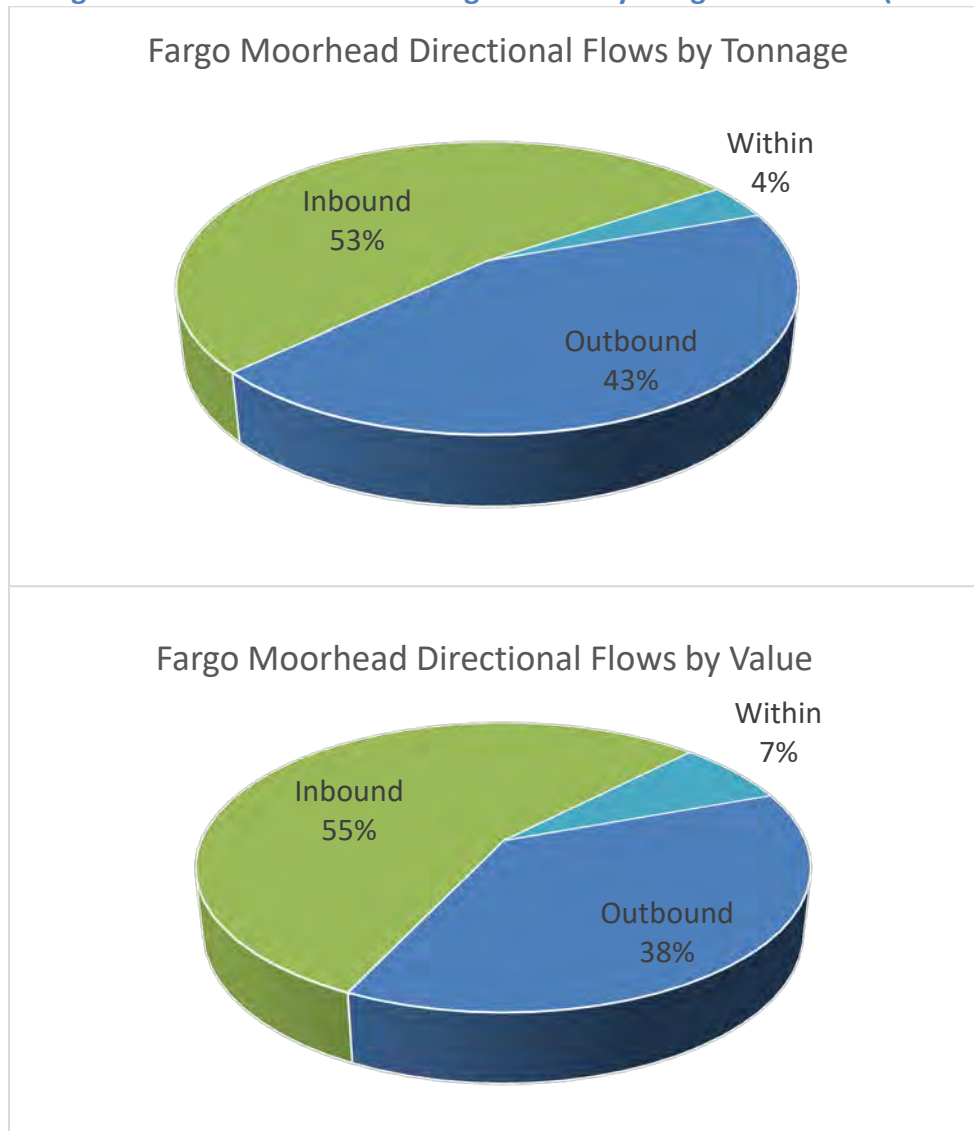
¹⁶ The Fargo-Moorhead analysis explores flows for four of seven mode types in the FAF database. Flows were not disaggregated / analyzed for; Air, air and truck; Pipeline; and, Other & unknown. The percentage shares both regionally and nationally are based on the cumulative total for the four modes analyzed. The analysis year for national flow mode shares is 2013, while regional flows reflect 2014.

¹⁷ Includes shipments by multiple modes and by parcel delivery services, U.S. Postal Service, or couriers. Mode share comparisons based on domestic flows only.

Directional Freight Flows for the Fargo-Moorhead Region

Providers of transportation services across all modes prefer to serve areas that exhibit a balance between inbound and outbound freight. *Lane balance*, especially in high volume lanes, raises equipment utilization for carriers and reduces the frequency of empty backhauls. **Exhibit 16** shows the total volume of freight moving in, out and within the Fargo-Moorhead Region, and suggests an overall high degree of balance between inbound and outbound flows by both weight and value. While the two pie charts below are similar, the region experiences a somewhat higher imbalance based on value for outbound movements as compared to weight. This observation suggests the region imports higher value goods than it exports, acting as a distribution hub for high value goods across a broader area.

Exhibit 16: Fargo-Moorhead Directional Freight Flows by Weight and Value (Domestic only)



Source: FHWA FAF-4 and Quetica.

Directional Flows/Lane Balance between Fargo-Moorhead and Sub-National Regions

This section examines the volume and value of goods moving between the Fargo-Moorhead Region and ten multi-state US regions shown in **Exhibit 17**. These ten regions have been broadly aggregated into sub-regions of the eastern U.S., and western U.S. It should be noted that the Fargo-Moorhead Region is included in two of these sub-regions: Cass County, ND is part of the Rocky Mountain Region in the West, and Clay County MN is part of the Great Lakes Region in the East.

Exhibit 17: Sub-National Regions for Fargo-Moorhead Commodity Flow Analysis

Region (East)	States in Region	Region (West)	States in Region
Great Lakes	IL, IN, MI, MN, OH, WI	Northwest	AK, ID, OR, WA
Mideast	DC, DE, MD, PA, VA, WV	West	AZ, CA, HI, NV
New England	CT, ME, MA, NH, RI, VT	Rocky Mountain	CO, MT, ND, SD, UT, WY
New York	NJ, NY	Plains	IA, KS, MO, NE
Southeast	AL, GA, FL, KY, MS, NC, SC, TN	Southwest	AR, LA, NM, OK, TX

Flows between Fargo-Moorhead and Eastern US Multistate Regions:

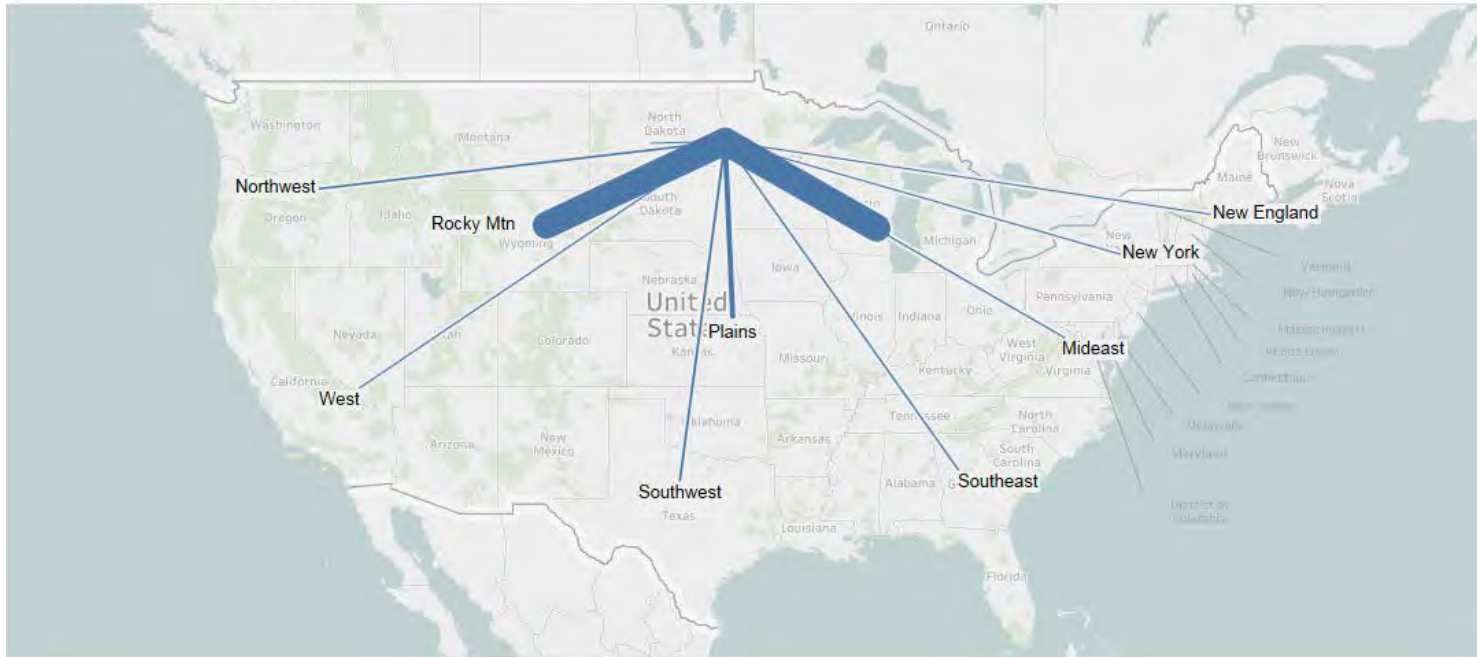
Origin-destination pairings or “lane” pricing for carriers is influenced by the available capacity in that lane. Where there is empty movement of equipment, there is a general lack of revenue to cover associated costs. Thus, carriers may reduce prices presented to a shipper to attract goods to the lane. Information about commodity flow balance, primarily by weight, within specific travel or trade lanes can provide additional information about supply chain patterns and suggest where a traffic lane imbalance might offer opportunities for back haul opportunities. The recognition of excess transport capacity in some corridors can be utilized as an economic development incentive to businesses that can utilize the excess capacity in those lanes.

Exhibit 18 shows trade flows by weight between Fargo-Moorhead the ten multi-state regions. Overall, domestic flows between Fargo-Moorhead and the rest of the country by weight are fairly well balanced. Trade flows between Fargo-Moorhead and all western regions combined tilt slightly toward higher inbound flows (57%), with some specific regions highly imbalanced. For example, the West Region which includes the Los Angeles and Long Beach Ports has more than twice the level of outbound freight as inbound, however the total tonnage is small. It is important to note that the Great Lakes Region, which includes Clay County, MN and the Rest of Minnesota as well as nearby states, accounts for 96 percent of all trade flows between Fargo-Moorhead and eastern jurisdictions by weight. The Rocky Mountain Region, which includes Cass County and the Rest of North Dakota as well as nearby states, accounts for 81 percent of all trade flows between Fargo-Moorhead and western domestic jurisdictions by weight.

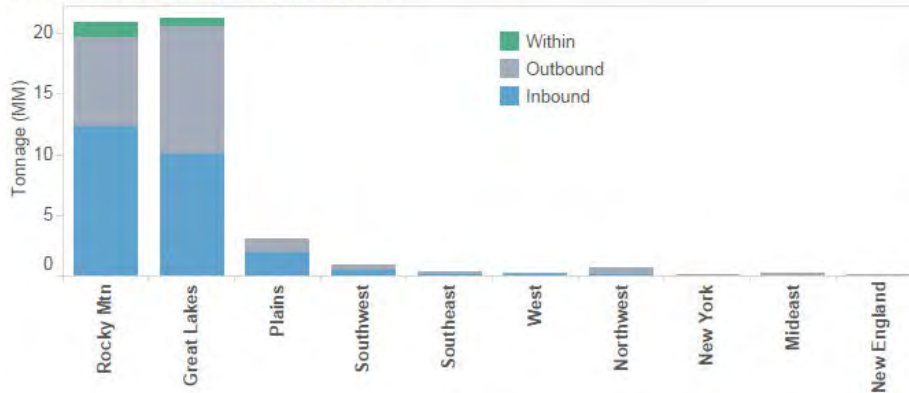
Exhibit 19 provides a map of commodity flows by value. And, **Exhibit 20** provides additional details in a tabular format of inbound and outbound flows by mode.

Exhibit 18: Trade between Fargo-Moorhead and Multistate US Regions by Tonnage – 2014

Total Tonnage by Region



Total Tonnage by Region (\$MM)



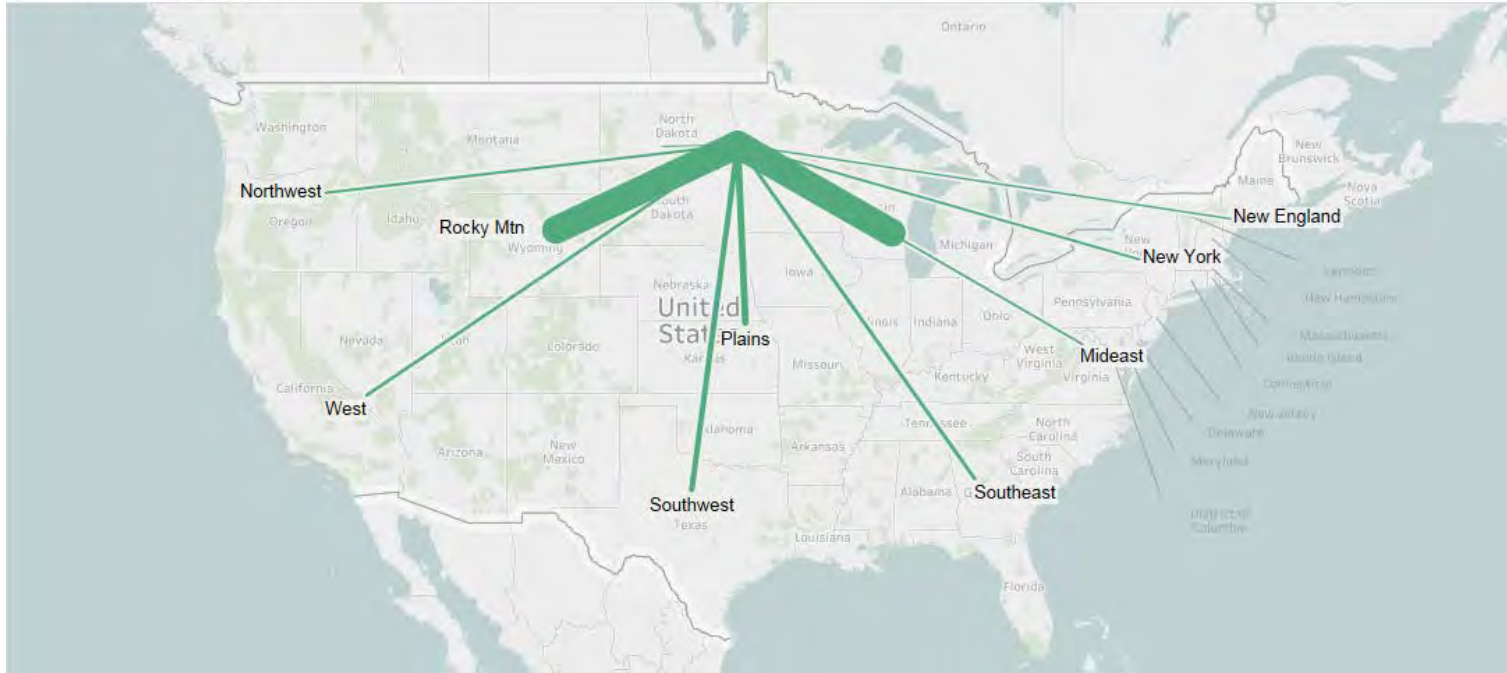
Percent of Tonnage by Direction (%)

Region	Outbound	Inbound	Within
Rocky Mtn	35.3%	59.0%	5.7%
Great Lakes	49.6%	47.4%	3.0%
Plains	37.4%	62.6%	
Southwest	51.8%	48.2%	
Southeast	55.0%	45.0%	
West	68.6%	31.4%	
Northwest	88.6%	11.4%	
New York	48.0%	52.0%	
Midwest	87.9%	12.1%	
New England	88.5%	11.5%	
Grand Total	43.6%	52.6%	3.8%

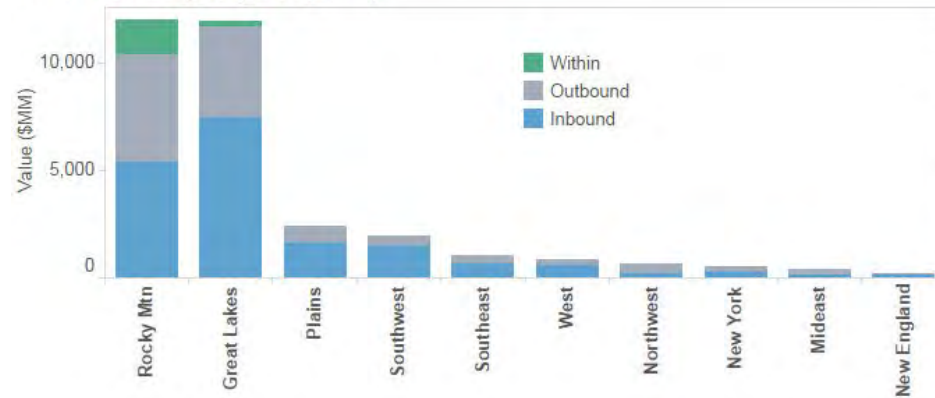
Source: FHWA FAF-4 and Quetica.

Exhibit 19: Trade between Fargo-Moorhead and Multistate US Regions by Value – 2014

Total Value by Region



Total Value by Region (\$MM)



Percent of Value by Direction (%)

Region	Outbound (%)	Inbound (%)	Within (%)
Rocky Mtn	41.6%	44.7%	13.6%
Great Lakes	35.7%	62.6%	1.7%
Plains	34.1%	65.9%	
Southwest	21.6%	78.4%	
Southeast	39.6%	60.4%	
West	28.6%	71.4%	
Northwest	66.8%	33.2%	
New York	48.6%	51.4%	
Midwest	60.5%	39.5%	
New England	53.1%	46.9%	
Grand Total	38.1%	56.1%	5.8%

Exhibit 20: Regional Flows to/from Fargo-Moorhead by Mode (tonnage and value)

Trade Region	Mode	Tonnage Outbound	Tonnage Inbound	Value Outbound	Value Inbound
Rocky Mountain	Multiple modes*	12,242	27,097	\$390,513,375	\$360,483,366
	Rail	102,224	1,126,870	\$38,050,141	\$108,352,755
	Truck	7,262,907	11,193,290	\$4,564,759,786	\$4,896,406,571
	Water	13	0	\$8,698	\$0
Plains	Multiple modes*	11,983	7,009	\$52,279,866	\$115,936,920
	Rail	838,092	60,445	\$239,729,329	\$6,328,734
	Truck	294,611	1,845,630	\$536,511,870	\$1,479,692,585
	Water	1	0	\$959	\$0
Northwest	Multiple modes	49,801	1,850	\$241,699,585	\$3,819,691
	Rail	561,412	8,751	\$117,267,788	\$134,437,813
	Truck	21,766	70,930	\$358,967,373	\$138,257,504
Southwest	Multiple modes*	15,558	44,863	\$66,688,002	\$455,291,728
	Rail	373,716	74,788	\$104,915,497	\$97,675,938
	Truck	74,171	312,540	\$242,636,052	\$957,978,829
	Water	1,715	0	\$1,148,760	\$0
West	Multiple modes*	9,006	7,484	\$80,999,746	\$315,070,605
	Rail	102,937	2,139	\$33,994,386	\$1,273,587
	Truck	37,336	58,859	\$130,265,728	\$295,708,862
Great Lakes	Multiple modes*	38,622	65,492	\$275,351,865	\$974,925,931
	Rail	1,461,459	321,139	\$460,684,538	\$95,612,281
	Truck	9,022,254	9,680,226	\$3,520,078,332	\$6,389,715,897
	Water	509	0	\$340,710	\$0
Mideast	Multiple modes*	5,365	2,507	\$48,500,807	\$70,685,317
	Rail	181,975	12,984	\$55,841,387	\$4,917,516
	Truck	30,971	14,536	\$123,779,126	\$73,531,265
	Water	141	0	\$94,758	\$0
New England	Multiple modes*	17,007	4,474	\$40,480,287	\$87,727,268
	Rail	60,580	780	\$19,264,634	\$560,650
	Truck	10,491	6,187	\$59,511,141	\$17,071,947
New York	Multiple modes*	1,914	1,832	\$34,699,861	\$57,039,195
	Rail	9,896	27,921	\$5,236,110	\$54,939,790
	Truck	35,012	20,974	\$206,928,483	\$149,631,513
	Water	62	0	\$41,294	\$0
Southeast	Multiple modes*	9,038	23,276	\$115,882,230	\$224,711,608
	Rail	107,774	67,213	\$35,438,390	\$45,937,113
	Truck	77,870	68,763	\$252,292,752	\$346,145,793
	Water	191	0	\$127,647	\$0

Key Commodities Traded between Fargo-Moorhead and Multi-state U.S. Regions

The following section discusses the key commodity movements between the Fargo-Moorhead Region and each of the ten multi-state regions analyzed for the study. The regions are presented in rank order from the highest to lowest in terms of domestic tonnage.

ROCKY MOUNTAIN REGION: The Rocky Mountain Region represents Fargo-Moorhead’s top domestic trade market, edging out the Great Lakes Region only slightly. The Rocky Mountain states include North

Dakota and five surrounding western states. The largest volume flow into Fargo-Moorhead from the Rocky Mountain Region is *Stone and Gravel*, followed by *Cereal Grains* and *Other Agriculture Products*. The largest outbound commodities are *Cereal Grains* and *Other Agriculture Products*, followed by *Alcoholic Beverages*. The highest inbound value flows are *Machinery, Vehicles and Transportation Equipment*, and *Cereal grains*. Outbound flows by value are led by *Vehicles and Transportation Equipment, Machinery*, and *Cereal grains*. Trade flows with the Rocky Mountain Region, whether outbound, inbound or within are dominated by the highway/truck mode.

GREAT LAKES REGION: States in the Great Lakes Region, including Minnesota account for 44 percent of total domestic trade with Fargo-Moorhead by weight and 32 percent of total domestic trade by value. When examined by tonnage, *Cereal Grains* is the top commodity movement both inbound and outbound between Fargo-Moorhead and the Great Lakes Region. *Other Agriculture Products* is the second largest flow by weight, followed by; *Animal Feed, Non-metallic Minerals, Stone and gravel, and Other Foodstuffs*. *Cereal Grains* is also the top outbound commodity by value from Fargo-Moorhead to the rest of the Great Lakes Region, accounting for nearly \$2 billion in trade in 2014. Other top outbound commodities by weight include *Other Agriculture Products, Machinery*, and, *Vehicles and Transportation Equipment*. By value the top inbound commodities are *Miscellaneous Manufactured Products* (\$940 M), *Vehicles and Transportation Equipment* (\$813 M), and *Other Agriculture Products* (\$781 M).

PLAINS REGION: Iowa, Kansas, Missouri and Nebraska make up the Plains Region, and a significant trading partner to the Fargo-Moorhead Region. In 2014, Fargo-Moorhead exchanged over 3 million tons of goods valued at more than \$2.4 billion with states of the Plains Region. Both outbound and inbound volume to/from the Plains Region is dominated by *Cereal Grains* and *Other Agriculture Products*. While *Cereal Grains* and *Other Agriculture Products* are also among the top outbound and inbound commodities by value, *Machinery* ranks second in value both outbound and inbound. Approximately three-quarters of this trade moves by truck.

SOUTHWEST REGION: The Southwest is made-up of five states including Texas and Louisiana which have significant port gateways on the Gulf Coast. Trade flows are highly balanced by weight, however by value inbound flows account for 78 percent of the trade exchanged. The top outbound commodities by weight are *Cereal Grains* and *Other Foodstuffs*. Top inbound commodities by weight include *Machinery, Chemical Products* and *Base Metals in Primary or Semi-Finished Form*. By value the top outbound products are *Machinery* and *Miscellaneous Manufacturing Products*. Key inbound products by value include, *Machinery* and *Electronics*.

NORTHWEST REGION: Pacific Northwest Ports; Seattle, Tacoma and Portland represent major gateways for grain and food exports to China and other Asian countries. Most of the trade, between Fargo-Moorhead and the Northwest, moves outbound. Not surprisingly, the top outbound commodities by weight and value are *Cereal Grains* and *Other Agriculture Products*. Key inbound movements include *Miscellaneous Manufactured Products* (weight and value), *Fertilizers* (weight), and *Machinery* (value). Railroads carry 89 percent of the outbound tonnage to the Northwest, but just 16 percent of the value. And, while railroads carry just 10 percent of the inbound tonnage, it accounts for nearly half (49%) of

the inbound volume. This juxtaposition of rail tonnage and value, likely reflects low value agriculture products moving out of the region, and higher value industrial products and consumer goods moving inbound by rail.

SOUTHEAST REGION: The Southeast Region, which includes major freight hubs and port gateways in the Carolinas, Florida and Mississippi represents a significant domestic trade partner for Fargo-Moorhead, with over 354,000 tons and \$1 billion in trade. Outbound tonnage is led by *Cereal grains* and *Other Agriculture Products*; inbound tonnage is led by *Non-Metallic Mineral Products* and *Newsprint/paper*. *Machinery* is a top commodity by value, both outbound and inbound. *Pharmaceuticals* is another top inbound commodity group by value. In modal terms, 55 percent of the outbound tonnage to the Southeast moves by rail, 40 percent by truck and most of the remainder by multiple modes. Most inbound tonnage from the Southeast arrives by truck (62%) and multiple modes (29%). Inbound value is 56 percent by truck, and 36 percent by multiple modes.

MIDEAST REGION: The Mideast Region lies east of the Ohio Valley, and includes several deep-water ports like Hampton Roads, VA and Baltimore, MD. By weight, outbound trade is led by *Cereal Grains*, and *Other Agriculture Products*. By value, *Machinery* and *Miscellaneous Manufactured Products* are the top outbound trade flows. The top inbound commodity by weight is *Newsprint/paper* and by value inbound commodities are led by *Miscellaneous Manufactured Products* and *Base Metals*. In terms of modes used; 83 percent of the outbound tonnage to the Mideast moves on the rail system, however rail movements represent only 24 percent of outbound trade by value. Trucks carry 54 percent of the outbound value of Mideast trade, and multiple modes move another 21 percent of the outbound value. Trucks and multiple modes move 97 percent of inbound Mideast trade by value.

WEST REGION: The West Region includes California, and the ports of Los Angeles and Long Beach (LA/LB), the largest containerized freight gateways in North America. While the LA/LB ports can offer better ocean liner container rates due to volume, rail access to the LA/LB ports from Fargo-Moorhead is less direct than rail access to gateways in the Pacific Northwest. Of the five western regions, the states of the West Region have the lowest trade exchange with the Fargo-Moorhead Region by tonnage and value. By tonnage most of the flow moves outbound from Fargo-Moorhead (69%), while by value most of it moves inbound (71%). Sixty-nine percent of outbound tonnage moves via rail, while inbound tonnage is primarily truck-based (86%). By value, 53 percent of outbound flows move by truck, and only 14 percent moves by rail. The juxtaposition of directional flow shares in terms of tonnage and value suggests that Fargo-Moorhead ships raw materials outbound to the West Region and receives finished products moving inbound. The FAF data shows *Cereal Grains* as the top outbound commodity by weight, followed by *Other Foodstuffs* and *Other Agriculture Products*. By value, inbound flows are led by *Miscellaneous Manufactured Products*, *Vehicles and Transportation Equipment* and *Precision Instruments*.

NEW ENGLAND REGION: Trade with the six states of the New England Region totaled just under 100,000 tons, valued at \$225 million. *Cereal Grains* is the top outbound commodity by volume to New England, and *Machinery* and *Miscellaneous Manufactured Products* are the top outbound flows by value. *Other*

foodstuffs and *Miscellaneous Manufactured Products* are top inbound volumes, and *Miscellaneous Manufactured Products* and *Electronics* are the top product value flows. Nearly 70 percent of the outbound tonnage going to the New England Region is moved on rail, while just seven percent of the inbound tonnage moves by rail. Trucks carry one-half (50%) of the outbound value, but just 16 percent of inbound value. Multiple Modes and Mail convey 83 percent of inbound trade value, and 34 percent of outbound.

NEW YORK REGION: Trade with the New York Region (states of New York and New Jersey), is highly balanced. *Machinery* and *Other Agriculture Products* are the top outbound flows by weight, while *Miscellaneous Manufactured Products* and *Machinery* are the leading out-flows by value. Inbound, both tonnage and value are led by *Coal-n.e.c.* and *Other Agriculture Products*.¹⁸ In terms of modal share, trucks carry 75 percent of the outbound tonnage, and 84 percent of the outbound value. On inbound flows, railroads handle 55 percent of the tonnage, but just 21 percent of the value, while trucks carry 57 percent of the value.

Fargo-Moorhead Export Trade Flows

The international trade data from the FAF-4 dataset was not disaggregated for this study effort, due to the level of effort required and concerns over the quality of the data. In 2015, the Brookings Institution released a data series that examine the export economies of all metropolitan statistical areas in the U.S.¹⁹ A summary of Fargo-Moorhead exports by value is shown in **Exhibit 21**. Exports from the Fargo-Moorhead Region had a value of \$1.420 billion in 2014²⁰, equaling 9.9 percent of the metro area gross domestic product (GDP). These exports were linked to directly supporting 9,513 jobs. Annual growth in the export market from 2008-2014 was 1.4 percent. Between 2003 and 2014, the value of exports from the Fargo-Moorhead Region has grown by 6.8 percent annually.

In 2014, the region's top five exporting industries accounted for 43 percent of the export value from Fargo-Moorhead. Engine and Power Equipment produced \$202.3 million in exports (14.2% of total export value). Nationally, the Fargo-Moorhead Region ranks 23rd in the value of Engine and Power Equipment exports. Fargo-Moorhead ranks 27th in the value of Agriculture, Construction and Mining Machinery exports.

When regional exports were compared to six peer MSAs (Cedar Rapids, IA; Appleton, WI; Sioux Falls, SD; Champaign-Urbana, IL; Rochester, MN; and Topeka, KS), Fargo-Moorhead falls squarely in the middle in terms of total export value, but is near the bottom in terms of exports as a share of regional GDP. Fargo-Moorhead was fifth among the seven MSAs in terms of jobs supported by exports. Among peer

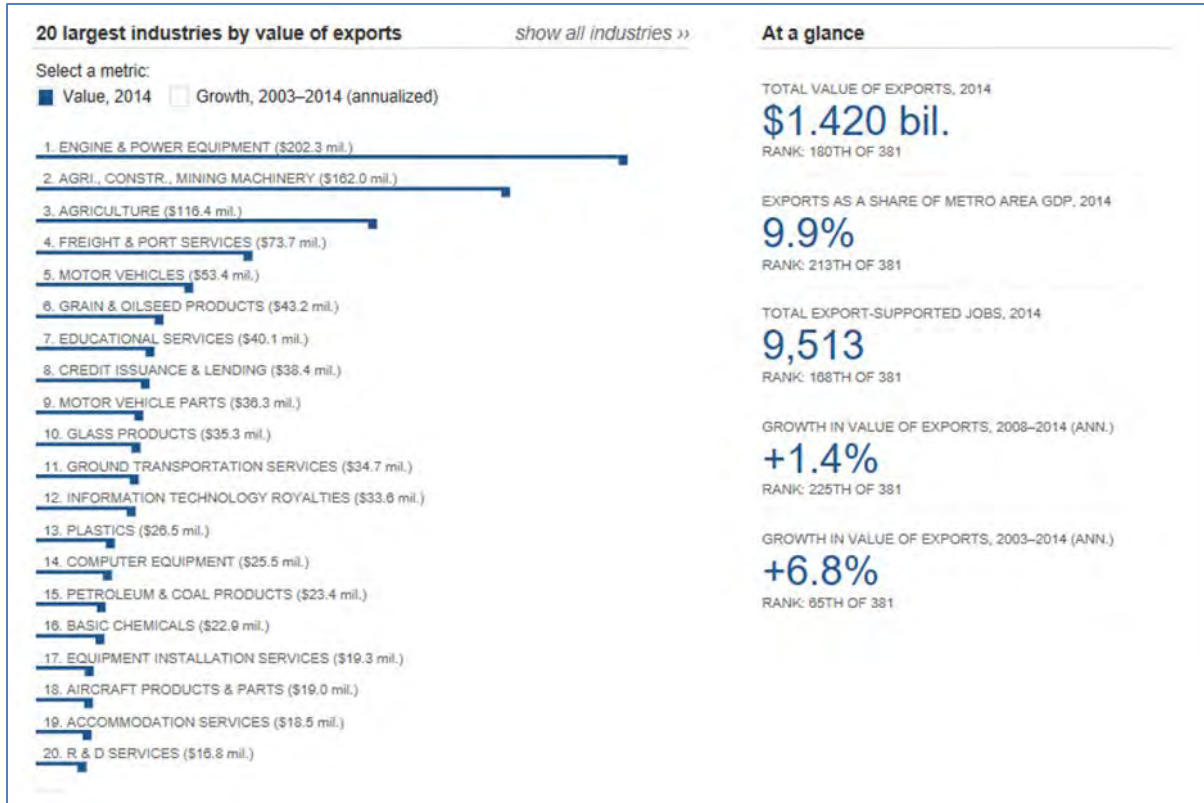
¹⁸ *Coal-n.e.c.* "Coal-not otherwise classified" includes products such as lubricating oils, and gaseous hydrocarbons such as liquefied natural gas, propane and petroleum asphalt.

¹⁹ Brookings Institution, Export Monitor 2015. <https://www.brookings.edu/interactives/export-monitor-2015/>

²⁰ <https://www.brookings.edu/interactives/export-monitor-2015/>

MSAs, the Fargo-Moorhead Region exhibited the fastest growth in GDP between 2003 and 2014. However, exports from Fargo-Moorhead slowed considerably between 2008 and 2014, growing by only 1.4 percent, at the same time that the regional economy as a whole grew 3.9 percent.

Exhibit 21: Fargo-Moorhead MSA Export Activity, 2014

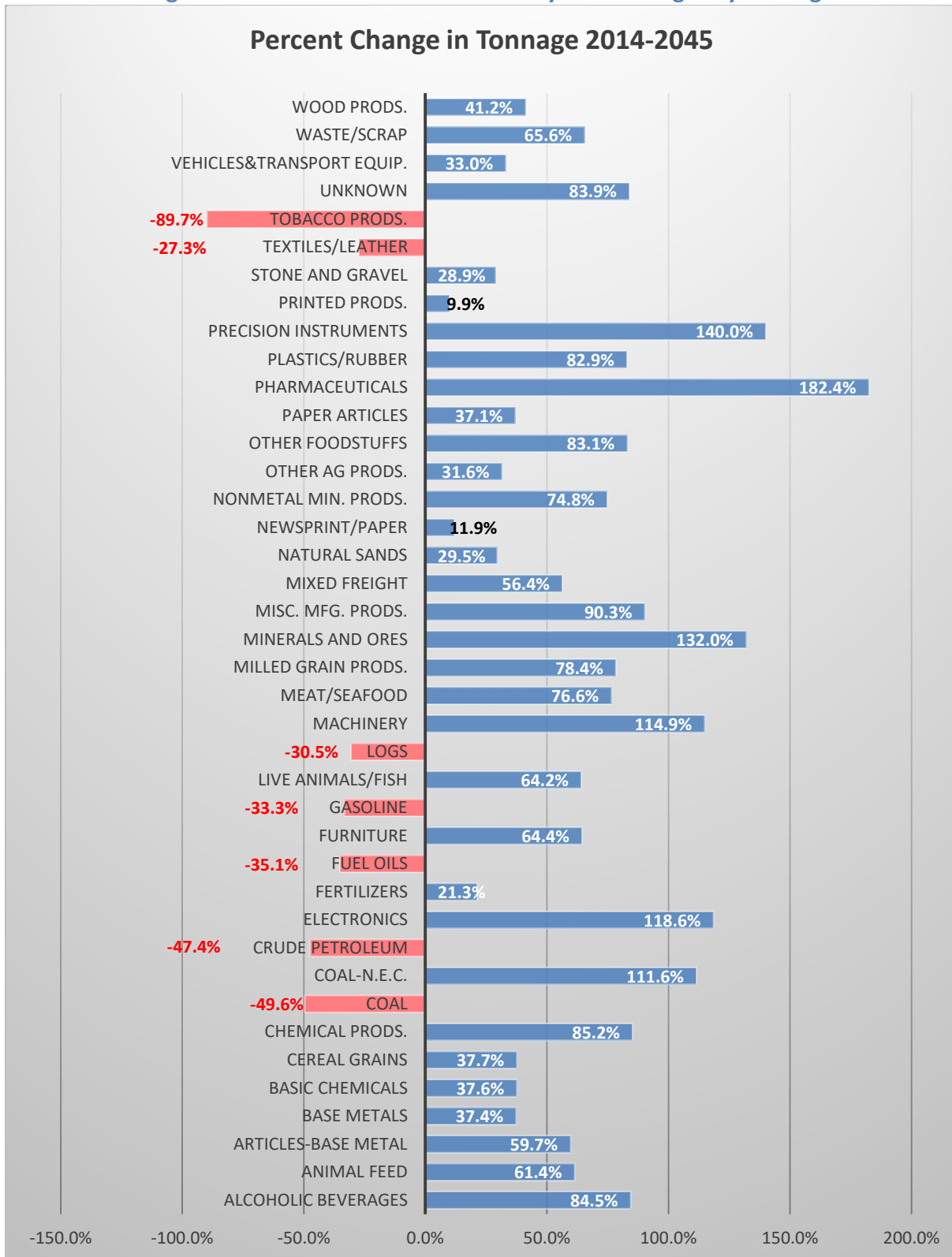


Source: Brookings Institute Export Monitor <https://www.brookings.edu/interactives/export-monitor-2015/>

Future Freight Flows for the Fargo-Moorhead Region

FHWA produces commodity flow forecasts as part of the FAF data series. **Exhibit 22** shows the predicted percentage change in commodity flows for the Fargo-Moorhead Region between 2014 and 2045. Six commodity groups are predicted to see total tonnage increases exceeding 100 percent: *Pharmaceuticals* (182.4%); *Precision Instruments* (140.0%); *Minerals and ores* (132%); *Electronics* (118.6%); *Machinery* (114.9%), and; *Coal* (111.6%). Six commodity groups are forecast to see declines in total tonnage: *Tobacco Products* (89.7%); *Coal* (49.6%); *Crude Petroleum* (47.4%); *Fuel oil* (35.1%); *Gasoline* (33.3%), *Logs* (30.5); and *Textiles/Leather* (27.3%). It should be noted that the forecast data provided is for only four modes: truck, rail, water and multiple modes. It must be noted that FAF does not provide forecasts for pipelines, which may account for the decline in petroleum. It is likely that the forecast reflects declines in regional petroleum movements by rail, but does not show projected increases in petroleum movements by pipeline.

Exhibit 22: Fargo-Moorhead Forecasted Commodity Flow Changes by Tonnage: 2014-2045



Source: FHWA, FAF-4 / Quetica.

Chapter 5: Stakeholder Views of Trade and Transportation in the Region

Effectively engaging and communicating with freight stakeholders is an important step in building a common understanding about the relationships between transportation and economic development. Input from stakeholders is an important component of transportation planning and programming resulting in better decision making for people and goods movement. The goal of meeting and talking with industry and government stakeholders was to collect information about freight transportation services and industry supply chains in the Fargo-Moorhead Region. The largely qualitative information gained from the stakeholders was intended to provide guidance on issues such as: access to markets; transportation's role in the regional business environment; access to freight transportation options; government policy and regulations; and, operating conditions for freight service providers. Stakeholder input is also used to help verify conclusions from quantitative data analysis.

Diversity in perspectives was a key element of the stakeholder outreach efforts for the FMRFP. Rarely is a single freight stakeholder group well versed in all topics. The FMRFP outreach approach was developed with the following groups in mind:

- **Shippers/Receivers:** Shippers represent entities within the supply chain that produce or manufacture products that are then shipped to retail or wholesale customers (receivers). Examples of shippers in the Fargo-Moorhead Area include: Bobcat Company, American Crystal Sugar and SK Foods. Receivers include retailers like Scheels and Walmart, and supplier/distributors like Northern Pipe Products or Aggregate Industries.
- **Carriers / Transportation Service Providers:** Carriers represent the various modal service providers in trucking, rail and air cargo. Examples include Midwest Motor Express, Magnum Trucking, BNSF and FedEx.
- **Economic Development / Transportation Planning Agencies:** While the focus of stakeholder outreach is on private sector partners, many economic development and transportation planning agencies have been working with shippers, receivers and carriers for many years, and can offer insights and historical context that may not be available through other sources.
- **Academia:** Universities, colleges and technical schools are often an important link between the public and private sectors. Generally, academia is a good source of information on research and supply chain training opportunities. The Upper Great Plains Institute, a transportation center at North Dakota State University in Fargo, is a designed USDOT Regional Transportation Center.

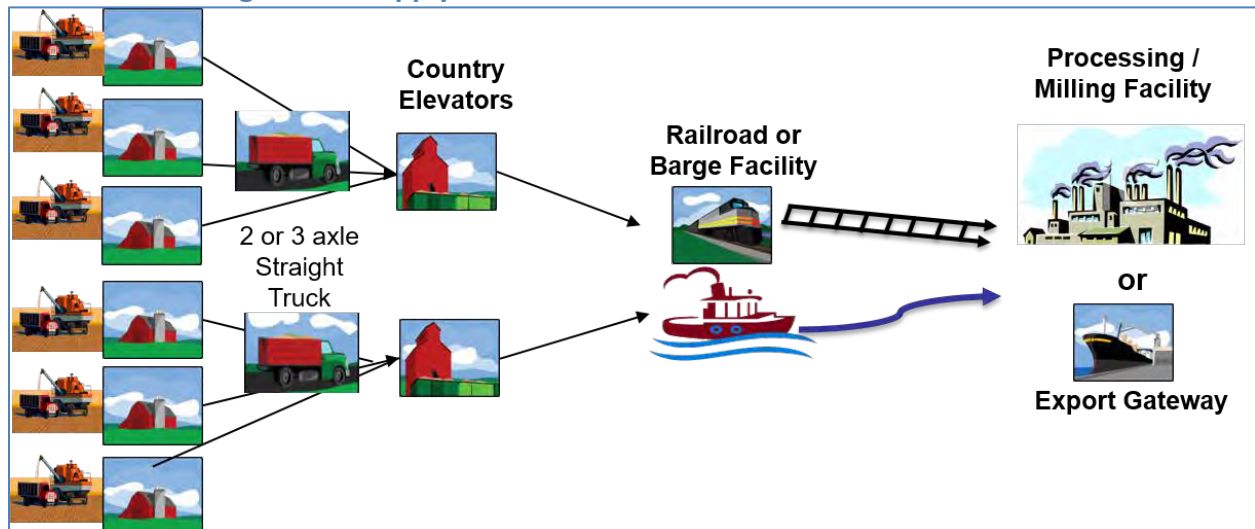
The project team interviewed companies that produce goods largely consumed outside the Fargo-Moorhead Region. These goods include both raw and processed agriculture, as well as manufactured products. Generally, the companies interviewed viewed the region's transportation assets as "excellent," noting generally good connectivity, good infrastructure condition and lack of congestion. However, some users of rail services recalled the difficulties of securing rail assets during the fall of 2013 and winter of 2014. The period referenced has been described as the "perfect storm" of conditions that culminated in what was a widely-reported rail service meltdown that affected primarily agriculture shippers in the Upper Midwest and Northern Great Plains; including North Dakota and Minnesota.

The Great Northern Corridor is the BNSF mainline rail corridor running between Chicago and the Pacific Northwest; the corridor passes through Fargo. In response to the issues that arose on the Great Northern Corridor in 2013 and 2014, BNSF increased its 2015 capital investment plan to \$6 billion for terminal and line expansions, with much of this investment going into the company’s northern rail lines. When interviewed for the FMRFP, BNSF officials expressed confidence that these investments will prevent a repeat of similar service disruptions in the foreseeable future.

Another rail issue that arose during interviews is the region’s limited options for accessing intermodal rail services. Currently, the nearest intermodal rail facilities to the Fargo-Moorhead Area are in Minneapolis (230 miles), Winnipeg (220 miles) and Minot (270 miles). As noted earlier, the Minot facility recently entered foreclosure.

Since it’s early history, Fargo and the surrounding Red River Valley have been a major agriculture producing area in the U.S. In its early history, Minneapolis was known as the *Flour Milling Capital of the World* processing wheat brought by train from the Red River Valley and other areas in the Northern Plains grain belt. While farmers evolved on-field production practices with the introduction of machinery, during most of the 20th century the grain supply chains for crops like wheat remained largely unchanged. The “nostalgic” grain supply chain of the 20th century is depicted in **Exhibit 23**. A key feature of the “nostalgic” grain supply chain was the view of grain as a fungible commodity. A fungible commodity is one that is mutually interchangeable with others of the same kind. Fungible grains are well suited for “bulk” transport modes such as rail carload or barge. In this model, farmers brought their harvest to a country elevator, where all grains of the same type were mixed together, without regard to how the crop was grown; i.e., what fertilizers or pesticides were applied.

Exhibit 23: Nostalgic Grain Supply Chain



Source: Quetica, LLC

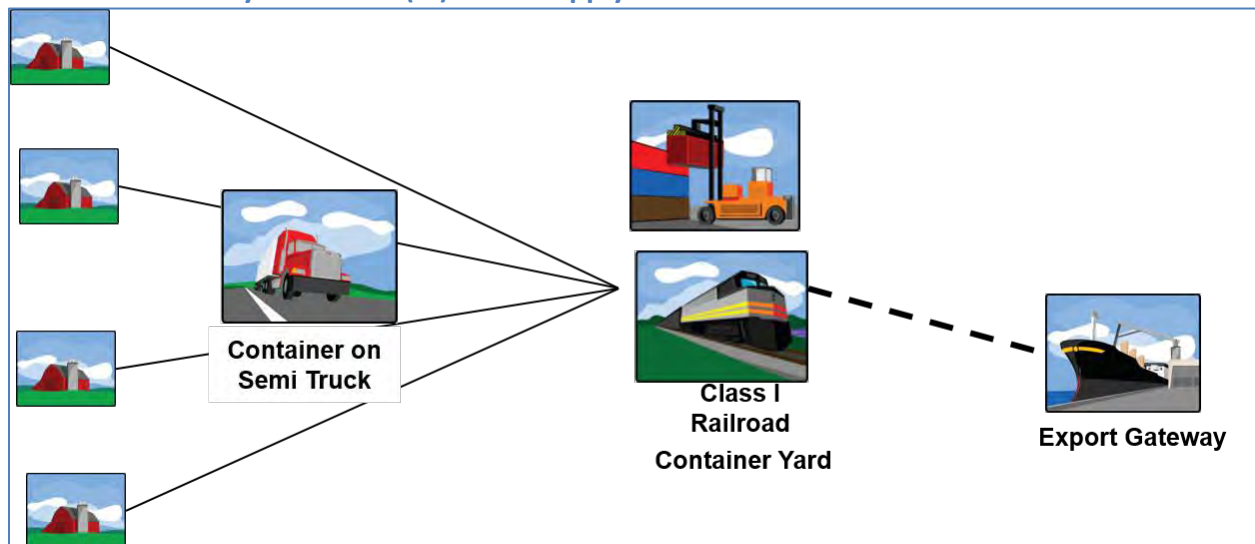
In the later part of the 20th century, food harvesting and processing automation resulted in unintended consequences that led to several large-scale food contamination events. At the same time, consumers around the world also grew more concerned about the possible long-term health effects of ingesting

genetically modified (GMO) crops. In response, many export markets now demand organic and/or “identify preserved” (IP) crops. An IP crop typically has special characteristics (e.g. grown from non-GMO seeds, or grown without chemical fertilizers) and the IP supply chain provides the buyer with a great deal of transparency about how the crop is handled and transported. A typical IP grain supply chain requires meticulous care be taken to prevent cross-contamination or mixing with other grains during harvest and transport. To ensure this integrity during transport most IP grains are shipped in 20-foot or 40-foot international containers. The supply chain for IP grains is depicted in **Exhibit 24**.

In recent years, pulse crops (dried beans, chick peas and lentils), also referenced as legumes, are increasingly being grown in the Northern Plains, as an IP export crop to countries like India, Pakistan and China. In 2015, North Dakota was the nation’s top producer of legumes.²¹

For FMRFP, the project team also interviewed the North Dakota Trade Office (NDTO). NDTO is a partner in the North Dakota Intermodal Initiative (NDII), a project focused on increasing containerized grain exports to assist in the growth of specialty crops in North Dakota. The NDII is hoping to capitalize on existing intermodal capacity issues in the Minneapolis-St. Paul area by providing an outlet for containerized freight via an intermodal facility in Minot, however Minot remains a substantial distance by highway from the Fargo-Moorhead Area, and according to recently news reports was experiencing financial difficulties which could result in closure.²²

Exhibit 24: Identify Preserved (IP) Grain Supply Chain



Source: Quetica, LLC

²¹ Alan Bjerga, Bloomberg Businessweek: *Peas on the Prairie Destined for New Delhi; Indian Appetites are changing the U.S. crop mix*. March 31, 2016. <http://www.bloomberg.com/graphics/2016-pulse-crops/>

²² Minot Daily News: *Intermodal facility faces foreclosure* <http://www.minotdailynews.com/news/local-news/2017/05/intermodal-facility-faces-foreclosure/>

The NDTO cites the lack of intermodal capacity as a key factor in limiting the supply chain efficiency necessary to support a 21st century economy in North Dakota. However, having a more robust intermodal facility in North Dakota is just one hurdle; getting a supply of empty 20-foot containers into the market is another challenge to the efficiency of the supply chain that is largely dependent on steamship line operating policies.

The 20-foot container relocation issue is worthy of additional explanation: Most consumer goods from Asia reach U.S. coastal ports in 20- or 40-foot “international” or ISO containers.²³ Because most international containers inbound to the U.S. are filled with relatively light weight consumer goods, shippers try to maximize the efficiency of the domestic land transport portion of an international container movement by stripping and reloading the contents of many 20- and 40-foot containers into 53-foot “domestic containers.” Transloading containers typically occur at inland port facilities a short distance from the ocean port. ISO containers are typically loaded with homogenous product contents. Reloaded domestic containers frequently contain a variety of products bound for retail distribution. Domestic containers transported by train or truck for inland distribution. Empty ISO containers are loaded back on ships for the return trip to the origin country. Consequently, most ISO containers never make it to inland U.S. locations. Those that do are typically staged at major intermodal hubs in large cities. Unlike consumer goods, agriculture products like pulse crops are heavy and exceed highway weight limits if loaded to capacity in a 53-foot domestic container; and, only partially loading a domestic container with loose products like grain can result in unsafe load shifts. For these reasons, 20-foot ISO containers are the preferred equipment for exporting specialty crops.

A Summary of Stakeholder Interviews: A SWOT Analysis

One of the goals of the Fargo-Moorhead Regional Freight plan is to identify actionable policies, strategies, projects and program metrics that will address short and long-term freight needs of the region. The freight plan is being conducted to advance the region’s economic growth via sound transportation infrastructure and services. Using stakeholder input gathered through interviews, a high-level summary of a Strengths, Weaknesses, Opportunities and Threats (SWOT) is presented.

Stakeholder Views on Regional Strengths

Consistent with its origins as a region built upon key transportation facilities, Fargo-Moorhead’s greatest strength lies in its existing transportation infrastructure: uncongested roadways, with access to high-level road and railroad networks. Many of the stakeholders noted the region’s lack of congestion as a regional strength, with recurring congestion during peak travel generally limited to short durations of roughly 15 minutes. Shippers and carriers report that interstates and major highways are generally in good condition and support efficient freight movements in both north-south and east-west directions.

²³ 20 feet and 40 feet are the dimensions recognized by the International Standards Organization or ISO. Container ship capacities are typically provided in twenty-foot container equivalency units or TEUs.

The stakeholder interviews validated that the Fargo-Moorhead Region is becoming known as a freight hub for the North Dakota/Western Minnesota market. Stakeholders frequently cited the intersections of I-94 and I-29, the concentration of motor carriers and particularly long-haul carriers, access to Class 1 mainline rail service on the BNSF, and daily air freight service from Hector International Airport.

Another often cited strength is the region's diversified economy. Stakeholders see the strong base of traditional agriculture and equipment manufacturing being increasingly complemented by new emerging industries including IT and medical services. Equipment manufacturers are retooling to diversify their markets. The transportation and logistics sector has also become a significant contributor to employment growth as more workers move goods as a primary occupation. Oil production in the Bakken Region has also created opportunities for manufacturers in the Fargo-Moorhead Region, with indications that the region is becoming the manufacturing hub for oil production support.

Population and employment growth continued in the Fargo-Moorhead Region even during the *Great Recession* years. Population growth has steadily increased since 2000 and the region is attracting a large number of young families. Unemployment is low, but the difficulty in recruiting workers puts pressure on job growth in tech and other emerging industries.

Stakeholder Views on Regional Weaknesses

The absence of regional intermodal rail facilities is viewed by some as a major competitive disadvantage. Containerized goods come into the region from Minneapolis and other locations, but the cost to dray outbound containers to the closest intermodal ramps in Minneapolis, Chicago or Winnipeg, Canada make shipping by container more expensive for regional producers. Some stakeholders saw the Regional Freight Plan as an opportunity to advance intermodal service as one of the region's top policy issues.

Shippers would like to explore potential options to access expanded intermodal services from other gateways including the Ports of Duluth and Winnipeg and emphasize opportunities to collaborate with area growers and partners from other freight intensive industries who could benefit from improved intermodal access. Stakeholders recognize the ability to re-position empty containers in the region as a primary impediment to being able to support intermodal service. Ideas put forward for establishing a pool of available containers include developing a large distribution center in the region, identifying a consortium of shippers to support state initiatives for intermodal and exploring technologies that can facilitate a better balance between inbound and outbound containers in the region.

Most companies in the region that use rail, do so for shipping grain, food products and other bulk commodities like coal and sugar. Large machinery is also transported by rail on flatbed trailers. Economic development agencies noted their prospects for new development are generally not asking for intermodal access. For many shippers, the availability BNSF mainline service appears to be the most immediate concern, however the lack of rail competition elicited perceptions of rail services as expensive, slow and inflexible. Regional business shippers stress that rail services at competitive rates are required for them to compete in the global market.

Stakeholder Opinions on Regional Opportunities

The regional economy is growing, and future plans are in the works for new industrial development. The northern portion of the study region benefits from direct rail access, Hector International Airport and good highway access. For example, the City of Fargo has developed a proposal to reconstruct I-29 and 100th Avenue South (County Road 14) to accommodate higher volumes of freight traffic at the interchange, with Fargo and several adjoining jurisdictions creating Special Assessment Districts to fund a portion of needed freight system improvements. Improving Sheyenne Street is a high priority for the City of West Fargo, with the city providing \$26 million in local funding to make improvements. The Sheyenne Street corridor project improved first/last mile connections to the interstate system. The City of West Fargo's upcoming comprehensive plan update will be an opportunity to address residential street standards in order to design subdivisions for truck deliveries and the e-commerce market. Stakeholders also expressed support for exploring the feasibility and routing for a regional bypass or "loop" route, but raised concerns about potential land use impacts based on a review of existing proposals.

The recent growth in air freight operations and expansion of commercial businesses near Hector International Airport was also identified as a positive opportunity for the region.

There is opportunity to expand the region's footprint long-term by developing land to the west of the region that is currently in a floodplain. The opportunity is dependent on diverting the Red River, a project that may take 10 years or more to complete and requires a high degree of intergovernmental coordination (an early phase of the project is underway). Expanding developable industrial land to the west would address the perception expressed by stakeholders that there is a lack of new industrial land near the infrastructure designed to support industrial development in the region.

Interviews confirmed the support among business shippers in the region for higher truck size and weight limits to increase truck productivity and harmonization of freight movements across state and provincial borders. As noted, the North Dakota legislature recently passed a bill increasing weight limits on some interstate corridors up to 129,000 pounds (lbs.), but the law will now require Congressional approval.

Stakeholder Opinions on Regional Threats

As the trade profile data demonstrates, shipping from the Fargo-Moorhead Region is predominantly done by truck. There are multiple truck carriers serving the regional market and shippers benefit from the capacity and competition in the market leads with better rates and deals. However, with trucking being the dominant mode, driver shortages are disproportionately impacting industry in the region. Stakeholders concerned with future regional competitiveness mention driver recruitment and retention as a top concern in terms of being able to expand the freight and logistics industry in the future. A related concern was expressed about new regulations impacting the trucking industry that will likely drive up costs for shippers.

Stakeholders also mention the importance of addressing the impact of rail that moves through but does not directly benefit the region. Through rail traffic is increasingly made up of shipments of oil and other

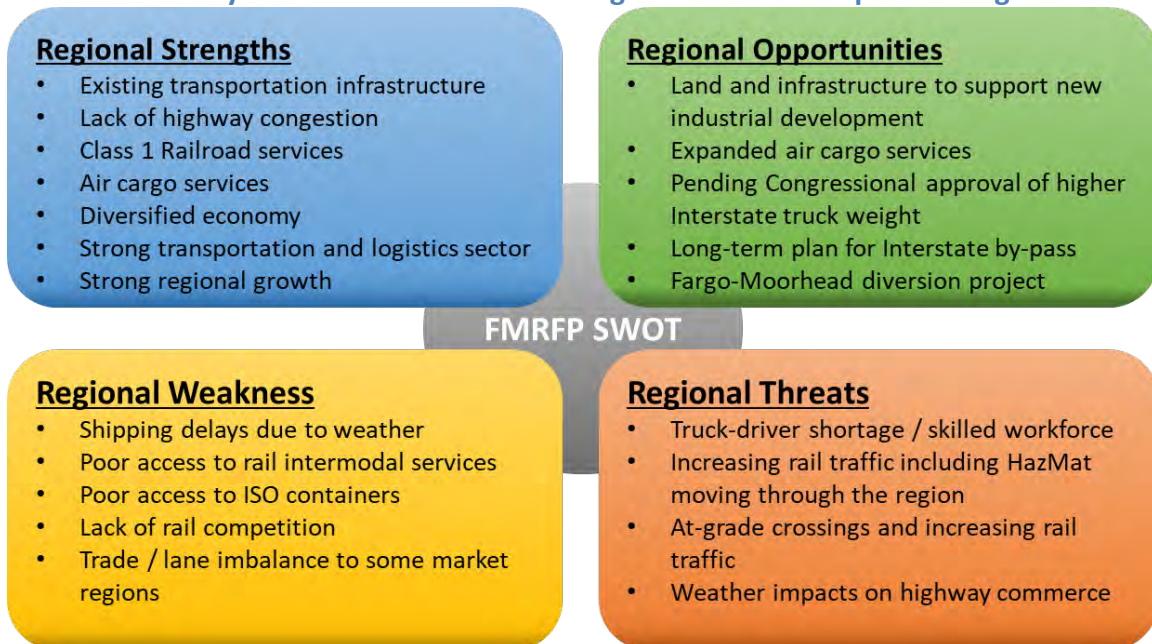
hazardous materials. Stakeholders express concern about hazardous materials moving by rail through the center of the region and specifically, the ability for local jurisdictions to plan for emergencies without advance notification on the nature of products that are being shipped. Communities in the region have initiated several lawsuits to require the railroads to coordinate in local emergency management response and training.

Stakeholders were also concerned with the lack of grade-separated rail crossings in the region and how north-south freight flows through the region are negatively impacted by the lack of unobstructed crossings. Support for grade separation projects in the City of Moorhead was a top priority, along with more in-depth analysis of where to implement grade crossing improvements.

Weather was cited as a persistent challenge to shippers in the region, particularly during winter months. During the winter, supplemental trucking capacity is often needed to counter expected weather delays. Shippers mitigate weather issues by following forecasts, accelerating orders and keeping up to date emergency plans.

Some stakeholders expressed concerns about the low value of goods that are currently shipped in the region as well as a relative lack of trade with east coast compared with west coast markets. Another commenter said a debate was currently taking place in North Dakota about the placement and safety of transporting crude oil by pipeline. One view sees pipelines as a good alternative to rail for transporting oil, another view expresses safety and environmental concerns. The outcome of this debate may determine the viability of building new pipelines in the region. Stakeholders expressed interest in exploring the role of pipelines through a freight planning process and specifically the significance of pipelines as a mode for commodities moving through the region. A summary SWOT matrix based on stakeholder input is shown in **Exhibit 25**.

Exhibit 25: Summary SWOT Matrix based on Freight Stakeholder Input for Fargo-Moorhead



Chapter 6: Fargo-Moorhead Regional Freight Plan Recommendations

“Metropolitan economies cannot function unless they trade goods with one another. Land, labor, and capital limit what a metropolitan area can produce on its own, meaning goods trade is essential to deliver economic benefits to metropolitan economies. If economic benefits compel metropolitan areas to trade, then transportation makes those benefits a reality.”

- Global Cities Initiative, Brookings Institute and JPMorgan Chase

The statement above from one in a series of reports issued by the Brookings Institution about the impact of goods movement on metropolitan economies is just one more piece of evidence in an already extensive and growing archive of research and policy studies that demonstrate the critical link between economic prosperity in urbanized areas and strong freight transportation networks. A key goal for Metro COG in undertaking the regional freight plan is to better understand the freight needs of industrial and retail segments of the regional economy, and provide recommendations (short-term and long-term, policy and projects) that will improve mobility of the regional freight network. From a process standpoint, a key outcome of the study is the development of recommendations that mitigate weaknesses and threats, while taking advantage of regional strengths to capitalize on opportunities. The recommendations framework in **Exhibit 26** on the following page presents a summary of the recommendations put forth as a result of data analysis and stakeholder outreach. This framework recommends projects and policies on two primary dimensions:

- A. Project or policy implementation cost**
- B. Implementation timeframe**

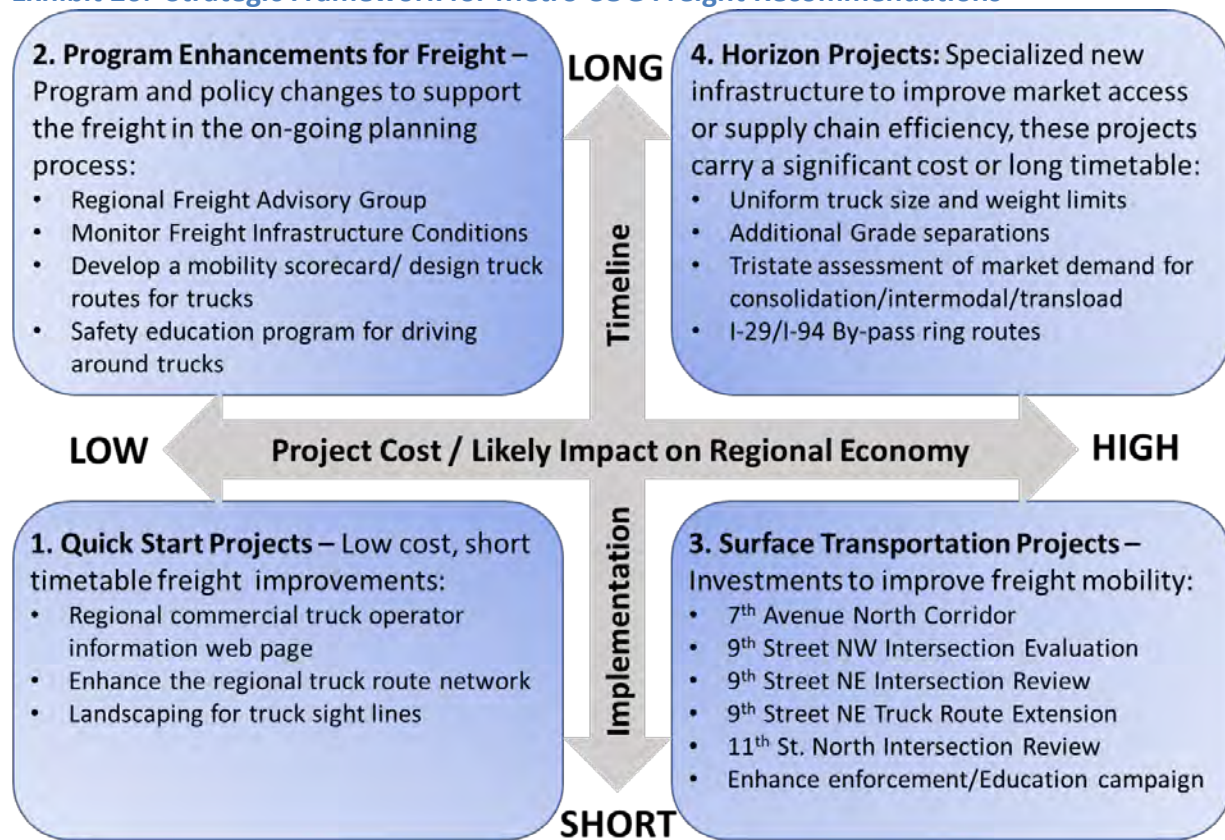
A third dimension is presented as synonymous with project cost: Impact on Regional Economy. The implication being that significant project investments should be expected to have significant impacts on regional economic development.

Using the primary dimensions of cost and time, four project/policy categories are:

1. **Quick Start Projects:** To be effective, freight planning requires public agencies to invite private sector businesses into the planning process to gather their input and gain from their understanding of the freight industry. Experience has shown that it is important to match private sector expectations for action following the completion of a freight focused planning study. Many public sector planning efforts have time horizons of 20 or 30 years, while most businesses have planning horizons of 1-5 years. Quick start projects are defined as low cost, with a short implementation horizon for the purpose of demonstrating to private sector partners that their input was received and acted upon.
2. **Program Enhancements for Freight:** Actionable strategies and projects that Metro COG can consider to enhance existing planning activities to incorporate freight considerations to a greater degree in a continuous and on-going manner.

3. **Surface Transportation Projects:** These short range projects have been identified as being potential projects that will require further analysis prior to implementation. Traffic signal warrants, geometric reviews, and other engineering analysis will be necessary to understand the ultimate build out of the recommended projects. Once the engineering efforts have been completed, it is recommended that eligible projects be submitted for funding through the Metro COG Transportation Improvement Program (TIP). Projects recommended in this category have been identified as considerations that could significantly improve regional freight mobility with modest investments.
4. **Horizon Projects:** This category of projects intended to address freight specific projects and/or policies that due to their nature are relatively high cost and/or may require long time horizons (e.g. more than 5 years) to implement due to regulatory hurdles, the state of technology, public acceptance, or private sector buy-in.

Exhibit 26: Strategic Framework for Metro COG Freight Recommendations



I. Quick-Start Projects

The data analysis conducted for the FMRFP clearly showed the regions heavy reliance on trucks to support regional commerce. And, while the data also shows that the region’s major highway facilities are relatively

- 1. Quick Start Projects –** low cost, short timetable freight improvements:
- Regional commercial truck operator information web page
 - Enhance the regional truck route network
 - Landscaping for truck sight lines

congestion-free, truck drivers had many comments about the regions “*first and last mile routes.*”

Historically, many urban areas in the U.S. have designated truck routes as a means of keeping trucks out of residential neighborhoods. However, from the standpoint of improving regional freight mobility, possibly the most important action an urban area can take is the designation and management of truck route networks, that are designed, operated and maintained to accommodate large trucks.

Recommendation QS-1: Develop a regional truck operator information web page.

Road closures due to construction and weather events were concerns raised during various stakeholder outreach activities. It was also suggested during the Regional Freight Forum that Metro COG consider developing a regional *trucker’s guide* showing truck routes and providing other pertinent information about cross border trucking regulations. A problem with printed materials is that they are often quickly out-of-date as routes and regulations may change. One way for Metro COG to respond to concerns raised by the regional trucking community would be through the development of a page on the MPO website that provides a single source of regional information to truck drivers and trucking companies. Currently, NDDOT, MnDOT, the City of Fargo, and the City of West Fargo all post information regarding truck routes and weight restrictions on their own, individual websites. Due the numerous sources of information, it can be somewhat onerous to identify an acceptable route through the region. Further, the available truck routing information is passive, in that it is not updated to reflect closures or detours due to construction, utility work, traffic incidents, or other reasons for a deviation.

Development of a single source for truck route information and condition in the Fargo-Moorhead Region can assist the trucking industry in properly navigating the region’s roadways, reducing delay due to truck traffic attempting to use routes that are not suitable for their use due to width, radii, or weight restrictions. It is recommended that this information be develop in a single location that is easy to find and to interpret. If possible, it is recommended that information be linked to the efforts to update the regional traffic incident management/alternate routing program, and to the 511 sites maintained by both MnDOT and NDDOT. Active, up to date information dissemination concerning closures, incidents, construction restrictions or other temporary impedances is a valuable strategy in assisting the freight network’s smooth operation.



The Tampa Bay MPO; Forward Pinellas offers an example of a truck information web page that includes a link to the regional truck route map, the region’s strategic freight plan, and a freight improvement database in a GIS format.

<http://forwardpinellas.org/the-way-you-move/trucks-and-freight/>

Recommendation QS-2: Enhance/Expand the Regional Truck Route Network

Currently Fargo and West Fargo have designated truck routes, however as noted earlier the City of Moorhead does not have designated a truck route network. Moorhead officials cite the cost of additional signage and suggested that the city’s truck routes are obvious, with I-94, US-10, US-75 and

MN Hwy 52 as the primary truck routes in town. City officials also noted concerns about getting calls from residents when trucks are seen operating on a route not-designated as a truck route.

While the city's concerns are valid, from a regional perspective for facilitating freight movements, the primary purpose of identifying truck routes is to facilitate the development of routes designed, operated and maintained to accommodate large commercial vehicles. Growing congestion and the service sensitivity of local industries and major retailers (e.g. Cabela's) argue for the establishment of a core network that facilitates commercial vehicle flows region wide. The strategic purpose of a designated truck route network should be viewed from two perspectives:

1. From a land use and development perspective, the network is protected by zoning, building permits, and enforcement, so it can sustain truck traffic volumes efficiently.
2. From an operations perspective, the network is managed for freight. Traffic operations (and future traffic management centers) observe the routes, have staff members conversant with trucking regulations and requirements, and can reach the logistics community with timely advisories about construction impacts or other unplanned closures. Signals are also timed appropriately for corridors with frequent truck movements from known freight generators and receivers.

It must also be noted that truck drivers, unlike daily commuters are often entering the region from out-of-town, out-of-state, or from out of the country, and maybe unfamiliar with the local area. A study completed by MnDOT District 4 in 2015 that involved extensive outreach with businesses in Western Minnesota found that one of the most common issues was signage: *"To improve safety and efficiency, respondents requested signage to better identify truck routes, intersections, businesses and exits. They also preferred that signs at intersections—such as stop signs or signs warning drivers of an upcoming intersection—have (flashing) lights."*²⁴

It must also be noted that the recent Minnesota Statewide Freight Plan, includes a strategy/policy statement encouraging the implementation of truck routes in urban areas across the state:

TRUCK ROUTES: *Urban areas are often where the most conflicts between trucks and other motoring vehicles occur. This is not only on the highway system but also on the local roadway network, as trucks travel the system making pickups and deliveries. Truck route designation can help focus through truck trips and minimize neighborhood cut-through traffic. With the current emphasis on Complete Streets...there is a growing number of streets that have designated bike lanes and pedestrian pathways. In some cases, these uses are occurring on truck routes, creating safety issues and concerns. Trucks that must cross bike lanes to access on-street loading zones or that double-park due to lack of sufficient on-street parking for trucks can create particular hazards for bikes. To operate safely and improve efficiency, truckers often work during off-peak hours whenever possible; however, it is the responsibility of local planners to consider/designate truck routes/routing in their jurisdictions.*

²⁴ MnDOT, *Manufacturers' Perspectives on Minnesota's Transportation System – District 4*. May 2015. pg. 29

*Action: Consider trucks in planning; designate truck routes to focus truck movements (and separate from conflicting transportation uses) especially in industrial and urban areas with restrictions/enforcement in adjacent residential areas.*²⁵

Recommendation QS-3: Landscape Truck Routes to Accommodate Truck Drivers

When designing intersections, it is important that a vehicle driver have an unobstructed view of the entire intersection and adequate views of intersecting roadways to avoid a collision. In the U.S., the American Association of State Highway and Transportation Officials (AASHTO) has taken the lead on establishing policy for the geometric design of streets and highways. *“The AASHTO Green Book specifies a value of 1,080 mm [3.5 ft] for driver eye height, based on consideration of a passenger car as the design vehicle. By contrast, a value of 2,400 mm [8.0 ft] is recommended by the Green Book for truck driver eye height.”*²⁶

Exhibit 27: Boulevard Trees at 34th St. N and 7th Av. N



One of the truck driver comments received on break-room surveys stated: *“boulevard trees encroach on the roadway making it difficult to see oncoming traffic without pulling into the intersection.”* Landscaping, when combined with either oncoming traffic or center medians, can be a safety hazard truck driver in terms of sight distance and maneuverability. Arranging for city maintenance engineers to do a truck driver “ride

along” is a quick, low cost means of interacting with the truck driving community and seeing the roadway from their viewpoint. Another option is for Metro COG to initiate and market an online “Suggestion Box” where truck drivers or company officials can submit suggestions for improving regional truck routes. An example of this type of effort comes from the Delaware Valley Regional Planning Commission (DVRPS), that boasts one of the longest running MPO freight programs in the nation. For several years DVRPC sponsored a program called *Freight Forward*, that was designed to generate industry input on quick start projects. Maintenance and minor improvements to highways, bridges, and railroads were promoted as opportunities to make freight operations more efficient and safer. Example projects included: fixing potholes, resurfacing a highway/railroad grade crossing, installing directional signage, re-stripping pavement, and maintaining landscaping to accommodate truck driver sight lines.

²⁵ Minnesota GO: Statewide Freight System Plan, Minnesota Department of Transportation, May 2016. Pg. 74.

²⁶ Harwood, et.al., *Review of Truck Characteristics as Factors in Roadway Design*, NCHRP Report 505. National Academy of Sciences, Transportation Research Board. 2003. pg. 49.

II. Metro COG Program Enhancements for Improving Freight Mobility

The Program Enhancement element of the recommendations framework presents strategies and projects that Metro COG may consider in its on-going planning activities. The recommendations presented in this element describes steps that can be taken to develop a freight integrated multimodal planning process, including opportunities for broader freight partnerships, performance monitoring of important public freight assets and education programs to support the freight community.

2. Program Enhancements for Freight – Program and policy changes to support the freight in the on-going planning process:

- Regional Freight Advisory Group
- Monitor Freight Infrastructure Conditions
- Develop a mobility scorecard/ design truck routes for trucks
- Safety education program for driving around trucks

Recommendation PE-1: Form a Standing Freight Advisory Committee (FAC) to Assist Metro COG Freight Planning Efforts

Effectively engaging and communicating with freight stakeholders is an important step in building a common understanding about the relationships between transportation and economic development. Input from stakeholders is an important component of transportation planning and programming resulting in better decision making for people and goods movement. In freight-oriented transportation planning efforts “engaging the private sector” is public involvement aimed at establishing two-way communications with private sector users and providers of freight services; those most affected by freight related transportation planning and investment decisions.

Demonstrating the value of a state or metropolitan transportation plan or improvement program can be a significant challenge, especially if the plan or program contains few provisions specifically addressing concerns of freight stakeholders. Communicating goals, objectives, and benefits of plans and programs to the private sector requires an effective public involvement program.

Before initiating the regional freight plan, Metro COG formed a Study Steering Committee that included

Exhibit 28: Metro COG Freight Plan Steering Committee

Freight Plan Steering Committee Member	Organization Represented
1. Adam Altenburg	Metro COG
2. Jonathan Atkins	City of Moorhead
3. Megan Benavidez	United Sugars
4. William Christian	Metro COG
5. Rebecca Geyer	NDDOT
6. Stephanie Hickman	FHWA
7. James Johannesson	Magnum Logistics
8. Michael Johnson	NDDOT
9. Mary Safgren	MnDOT District 4
10. John Tompkins	MnDOT
11. Mark Vaux	Greater Fargo Moorhead EDC
12. Colleen Weatherford	BNSF
13. Larry Weil	City of West Fargo
14. Mark Wolter	Midnight Express

private sector freight interests from producer and carrier industries in the regional, as well as local planning partners (Exhibit 28). The existing Freight Plan Steering Committee is a great starting point that Metro COG should consider expanding.

The following steps are presented as considerations in moving the existing ad-hoc steering committee to a standing freight advisory committee.

- I. **Seek support and assistance from the Upper Great Plains Transportation Institute (UGPTI):** Academic institutions can often provide an important link between the public and private sectors. UGPTI has a long legacy of freight related research and education in North Dakota and the nation. UGPTI also leads the Mountains-Plains Consortium, one of just seven Regional University Transportation Centers in the nation that receive federal funding to support transportation research, education and workforce development. There are many examples regionally and across the nation of universities that support freight advisory committees. For example, the University of Minnesota makes meeting arrangements, coordinates agendas and speakers and publishes white papers and annual reports for the Minnesota Freight Advisory Committee. Generally, academia has been proven to be a good facilitator of public and private interests on freight related research and supply chain training opportunities.
- II. **Expand existing membership to broaden industry representation:** The Fargo-Moorhead regional economy was built on agriculture, but one of the key findings from the data analysis is the growing diversity in the regions manufacturing economy. If the existing Steering Committee is transitioned to a standing committee of the MPO, consideration should be given to expanding private sector membership to more manufacturing representatives, and other transportation services representatives such as a regional shortline railroad and an air-cargo service provider.
- III. **Create a select few members to form an Executive Committee to establish a two-year plan for the Fargo-Moorhead FAC:** A good way to attract interest and participation of private sector representatives is to answer questions about why, what, and who the proposed committee is being formed, up front. Outreach with stakeholders in the region provided fodder for a number of potential mission statements for a regional FAC, including:
 - **Foster a robust regional workforce:** During many of the interviews conducted, the regional workforce was a topic of concern. From truck drivers to IT professionals the ability to attract skilled workers and young talent to transportation related job offerings in region could become a key focus of a regional FAC.
 - **Smart growth and industrial development:** Among the opportunities in the regional SWOT, is the potential for industrial growth north and west of downtown. Developing a sense of trust and comradery with the private sector as this development moves forward, is also a good way to be in a position to learn of expansion plans and exchange ideas on good land use planning.
 - **Make Fargo-Moorhead a logistics friendly community:** Some communities get it, and some don't. An example of a community that has taken on the responsibility for educating itself on what logistics friendly means is Tucson, AZ. In 2007, the economic

development agency in Tucson formed the Southern Arizona Logistics and Education Organization (SALEO). *“SALEO was born from the need to heighten awareness and spotlight the importance of the transportation and logistics industry and especially the role that this industry plays in the region's supply chain as a catalyst for economic development.”* SALEO is a volunteer organization that holds monthly dinner meetings, with a focus on educating its members and the broader community on logistics. In large part the early focus of the group was to understand what would make Tucson an attractive place for a Class I rail carrier (in this case UP) to make additional investment in the region. For more about SALEO visit: <http://saleo.org/>

Experience has shown that participation is often driven by the level of interest in key meeting topics, and the economy and politics are two sure fire crowd pleasers. Another issue that must be addressed is how often to meet. Most standing FAC's meet three or four times annually, but seeking feedback from membership about frequency, timing and venues is a good first step in establishing two-way communicating with members. The following are some suggested topics that could be presented to an Executive Committee for further consideration:

- a. **Legislative/Congressional Debrief:** The private sector is typically very interested in laws and regulations affecting their business – so holding one meeting each year to get feedback from elected officials on transportation funding programs, regulations or special legislation (e.g. truck size and weight provisions) is a good way to attract members to meetings.
- b. **Economic/Workforce session:** Another topic of key interest to the private sector is the economic outlook for the coming year. The Ninth District of the Federal Reserve Bank based in Minneapolis covers six states including North Dakota. The Fed has researched and written extensively in recent years about the Bakken Oil Boom, but maintains a plethora of data and statistics on the regional economy. In addition to a presentation from the Fed, other economists from other banks, state agencies and universities could be invited to give their views on the near term future for the region.
- c. **Hold an annual partnering meeting:** Transportation, economic development, and business associations already exist in the Fargo-Moorhead Region working toward common goals. For example, the Transportation Club of Fargo-Moorhead meets monthly to discuss a variety of transportation related topics – with most members representing the trucking industry. Another area for partnering concerns statewide freight planning and FACs. During the Freight Forum conducted for the FMRFP, several attendees indicated that they wished more coordination would occur between statewide freight planning and the MPO. In addition to inviting private sector groups to a partnership agenda, Metro COG could also invite NDDOT and MnDOT to discuss their planning efforts as well.

- d. **Conduct a peer-to-peer meeting:** Many communities across the national hold peer-to-peer (P2P) meetings with partner cities that have focused on and overcome particular challenges. USDOT even sponsors a freight P2P program as an element of its professional development program: *“The Peer-to-Peer Program (P2P) puts public sector freight transportation professionals in touch with experts in the field and provides technical assistance in order to enhance overall freight skills and knowledge. The program is available to public entities, including State departments of transportation (DOTs) and metropolitan planning organizations (MPOs).”*²⁷

Recommendation PE-2: Monitor Freight Infrastructure Conditions

The next two recommendations focus on ways that Metro COG can better integrated considerations for freight infrastructure into its existing planning functions. The first of these recommendations is to develop comprehensive data collection and performance assessment of pavement, bridge and airport infrastructure in the region. Due to the bi-state nature of the region, existing data systems are comparable, but not completely compatible. Therefore, a good first step is to develop data apples to apples data programs for monitoring important regional freight infrastructure.

PE-2A: Develop a Regional Pavement Management System

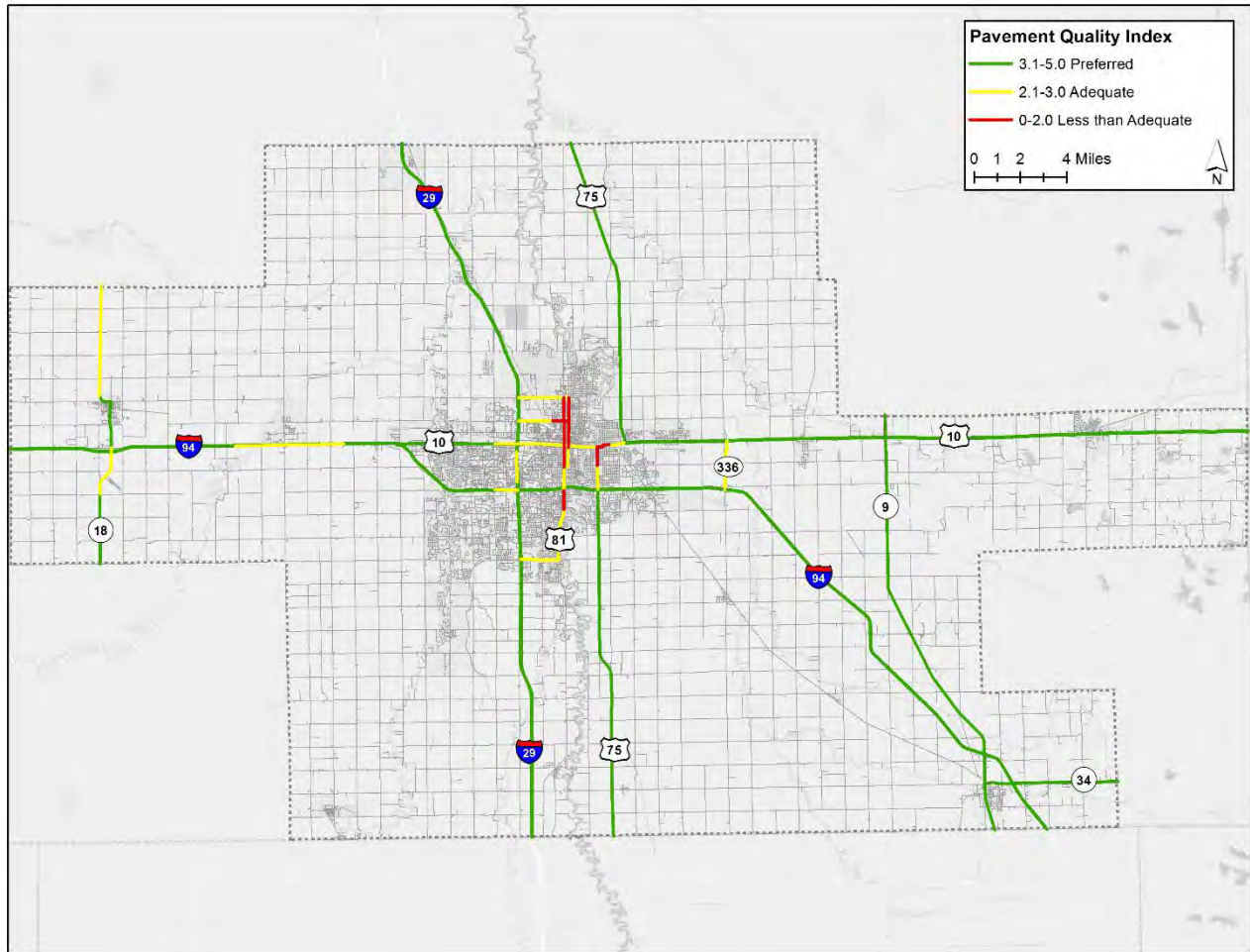
Understanding infrastructure condition is critical in prioritizing needed rehabilitation or replacement investments. In multijurisdictional areas, especially those that also concern multiple states, defining a unified system under which pavement conditions on routes that transverse the region can assist decision makers in systematically upgrading and maintaining critical infrastructure. A unified system promotes a region’s ability to work together by depicting the condition of the transportation network in terms that are easily understood by users and decision makers throughout the region.

Currently, NDDOT collects and publishes pavement condition information for the state highway system in North Dakota based upon the International Roughness Index (IRI). MnDOT also collects and publishes pavement condition information on state owned highways in Minnesota. MnDOT uses multiple metrics to rate pavement condition on their trunk highway system and publishes an annual report documenting their results, procedures, and policies. Cities and counties in the region do not have a regular pavement management program to document and track pavement condition in the region.

Where data is available, a unified system can be developed based upon conversion factors published by MnDOT in their annual reports by converting the NDDOT IRI data into the MnDOT Pavement Quality Index (PQI) data. Converting this information to a common rating system yields the information shown in **Exhibit 29**.

²⁷ <https://ops.fhwa.dot.gov/freight/fpd/p2p/index.htm>

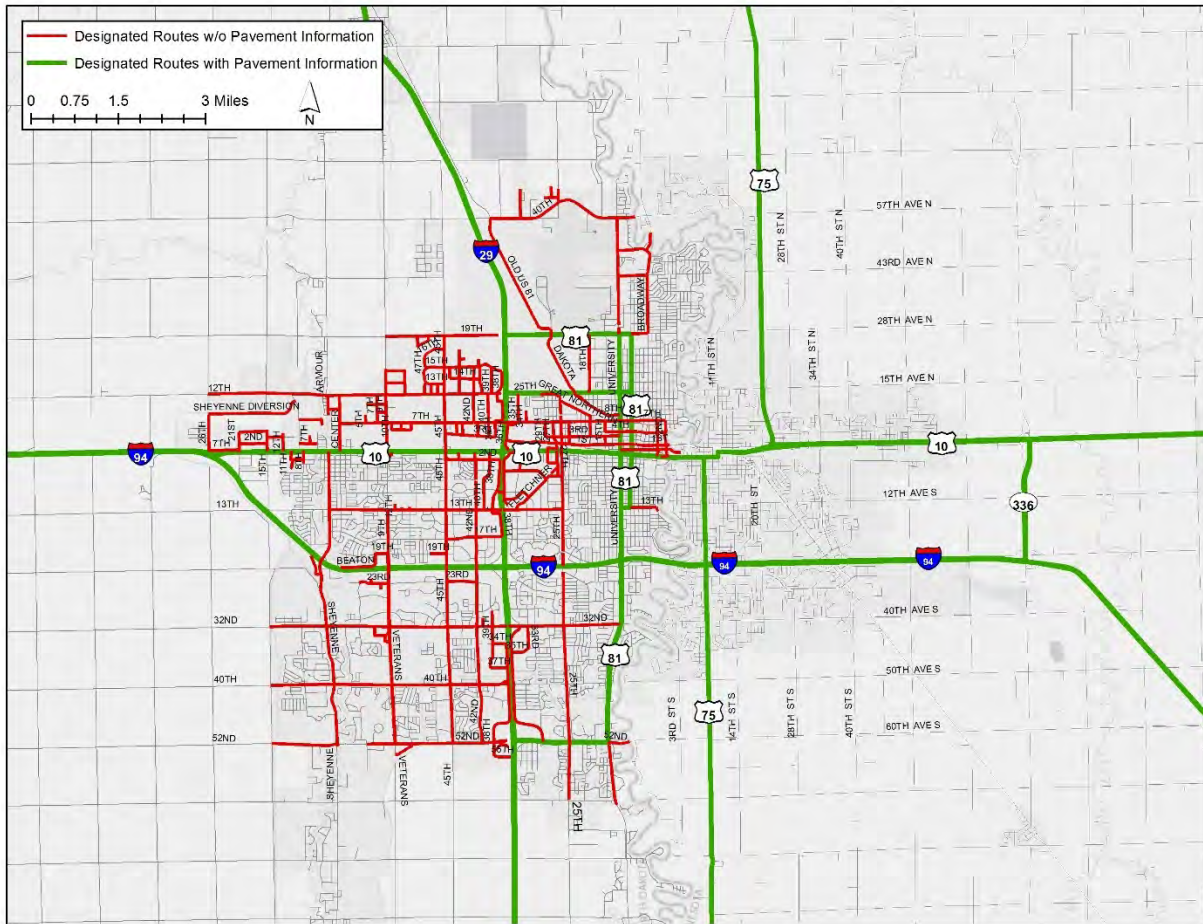
Exhibit 29: MnDOT Pavement Quality Index (PQI)



Source: Quetica, LLC

Based upon the data available and impressions gained from site visits, pavement condition in the Fargo-Moorhead Region is generally very good. However, the lack of a comprehensive pavement management system may hinder the region in effectively targeting pavement improvements to meet the needs of the system. Due to the higher assumed quotient of heavy vehicles, pavement on designated truck routes will degrade more quickly than pavement on non-designated truck routes (all else being equal). While the existing management systems for NDDOT and MnDOT cover some of the designated truck routes in the region, numerous routes do not have baseline pavement information from which to track progress or need for rehabilitation effectively. **Exhibit 30** shows the gap in truck routes with and without pavement condition information. It should be noted that truck routes are currently not designated in the Minnesota portion of the Metro COG region other than the MnDOT trunk highway system.

Exhibit 30: Designated Routes with and without pavement information



Source: Quetica, LLC

It is recommended that Metro COG and its partners begin to collect and monitor pavement condition on designated truck routes. Additionally, truck routes should be designated (or heavily truck traveled routes) and monitored in Minnesota to ensure that the region’s infrastructure advantages are maintained and improved in the coming years. Interim steps to developing a robust, automated pavement rating system may be taken by utilizing the FHWA Highway Performance Monitoring System Field Manual’s Present Serviceability Rating (PSR) ²⁸ by qualitatively rating pavement condition based upon the information contained in Table 4.4 of the manual shown below in **Exhibit 31**.

²⁸ FHWA, Office of Highway Policy Information web site: *Highway Performance Monitoring System Field Manual* https://www.fhwa.dot.gov/policyinformation/hpms/fieldmanual/hpms_field_manual_dec2016.pdf

Exhibit 31: Table 4.4 Present Serviceability Rating

PSR	Description
4.0 – 5.0	Only new (or nearly new) superior pavements are likely to be smooth enough and distress free (sufficiently free of cracks and patches) to qualify for this category. Most pavements constructed or resurfaced during the data year would normally be rated in this category.
3.0 – 4.0	Pavements in this category, although not quite as smooth as those described above, give a first class ride and exhibit few, if any, visible signs of surface deterioration. Flexible pavements may be beginning to show evidence of rutting and fine random cracks. Rigid pavements may be beginning to show evidence of slight surface deterioration, such as minor cracks and spalling.
2.0 – 3.0	The riding qualities of pavements in this category are noticeably inferior to those of new pavements, and may be barely tolerable for high-speed traffic. Surface defects of flexible pavements may include rutting, map cracking, and extensive patching. Rigid pavements in this group may have a few joint failures, faulting and/or cracking, and some pumping.
1.0 – 2.0	Pavements in this category have deteriorated to such an extent that they affect the speed of free-flow traffic. Flexible pavement may have large potholes and deep cracks. Distress includes raveling, cracking, rutting and occurs over 50 percent of the surface. Rigid pavement distress includes joint spalling, patching, cracking, scaling, and may include pumping and faulting.
0.1 – 1.0	Pavements in this category are in an extremely deteriorated condition. The facility is passable only at reduced speeds, and with considerable ride discomfort. Large potholes and deep cracks exist. Distress occurs over 75 percent or more of the surface.

Source: FHWA Highway Performance Monitoring System Field Manual

PE-2B: Monitor Bridge Condition on Truck Routes

Unlike pavement condition, bridges in the Fargo-Moorhead Region are well monitored due to the requirements of the National Bridge Inventory²⁹ (as administered by FHWA). Per federal requirements, bridges in the U.S. must be inspected every other year. This information is available to the public via the national bridge inventory and may be mapped and analyzed openly.

Currently, 275 bridges cross features in the Metro COG planning area. Of these bridges over 160 are located in Minnesota. As there is not a currently designated local truck route system in this part of the Metro COG planning area, it is impossible to determine the bridges that should be monitored as a part of this program’s recommendations. In North Dakota, all but seven of the bridges listed on the NBI in the Metro COG region are a part of a designated truck route. Most of these bridges are in good condition and are not structurally deficient or functionally obsolete. Due to the critical nature of bridge connections across the Red River and other features in the Fargo-Moorhead Region, it is recommended that Metro COG begin actively monitoring the condition of bridges on the regional freight network (designated truck routes).

This activity will assist Metro COG and its partners in developing strategies and understanding the timelines that may be necessary to repair or replace freight significant bridges in the region. By

²⁹FHWA, Bridges and Structures web site: *National Bridge Inventory (NBI)*
<https://www.fhwa.dot.gov/bridge/nbi.cfm>

monitoring and communicating these results to decision-makers, Metro COG can assist the region in becoming more prepared to conduct these costly projects.

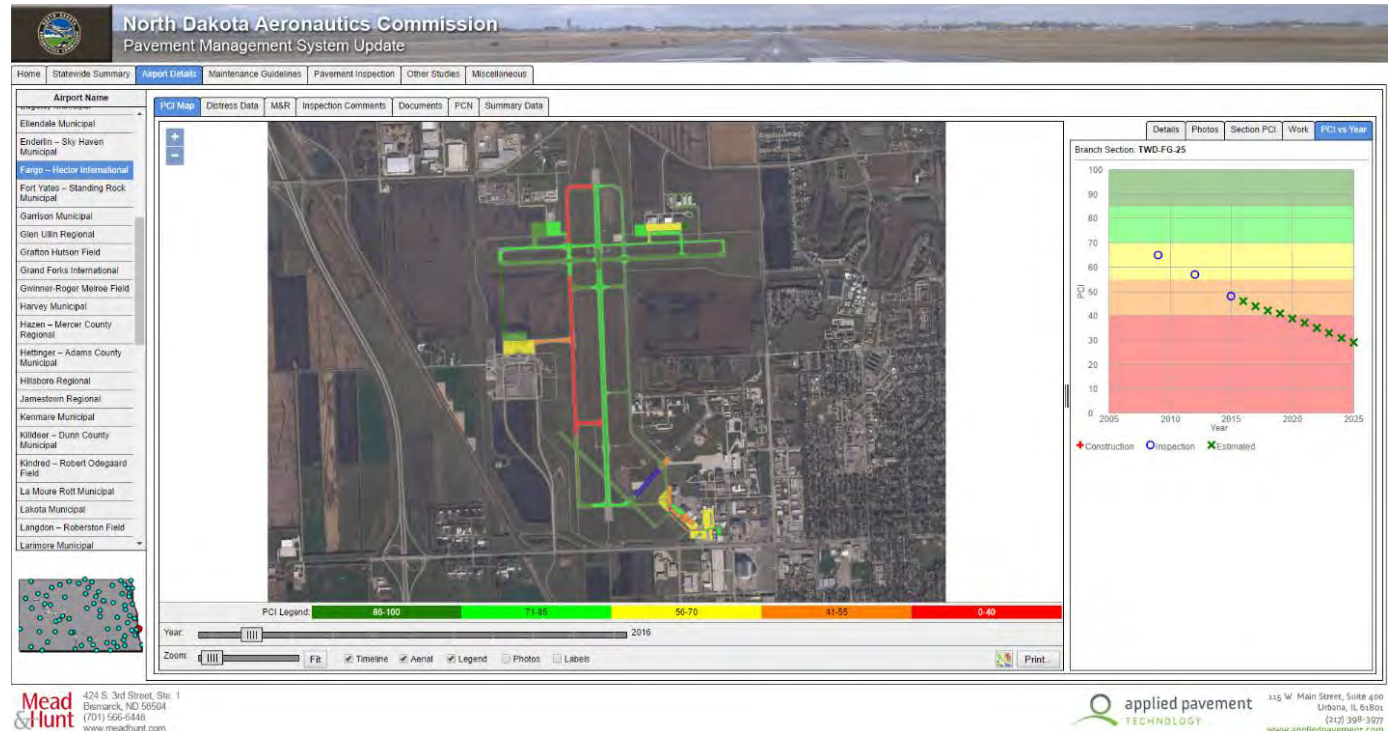
PE-2C: Monitor Airport Infrastructure Conditions

Hector International Airport offers the Fargo-Moorhead Region a critical connection to global markets for freight with a high value to weight ratio. Several key businesses in Fargo-Moorhead Region rely on this connection to ship electronic components, medical supplies and other high value goods to consumers around the globe. Currently, the North Dakota Aeronautics Commission surveys runway pavement conditions for all public use airports every three years. Functionality of the existing NDAC website allows for users to review forecasted pavement conditions through horizon year 2025.

Understanding that necessary improvements are on the horizon is an important part of system preservation strategies. Leveraging this information will allow for Metro COG and its partners to understand the existing and forecast future condition of the pavements at Hector International Airport and assist in scheduling needed rehabilitation or replacement projects.

It is recommended that Metro COG partner with Hector International Airport and NDAC to display this information and monitor the condition of the airport’s infrastructure to assist in securing additional funding for upgrades. An example of the NDAC website is shown below in **Figure 32**.

Exhibit 32: North Dakota Aeronautics Commission Website



Source: <https://aero.nd.gov/app/pavement/#path=2/19>

Recommendation PE-3: Develop a Performance Scorecard for Truck Routes

The Balanced Scorecard was first introduced as business acumen in the 1990's in Harvard Business Review. Today the performance scorecard has been widely adopted in both the private and public sectors as an easy to interpret means of assessing and reporting progress toward performance goals. In the business world, a balanced scorecard attempts to translate vision and strategy into metrics across four perspectives: 1) Financial, 2) Internal business process; 3) learning and growth; and, 4) customer.³⁰

Metro COG's Long Range Transportation Plan establishes seven transportation related goals for the region:

1. Maintain the Existing System
2. Improve the Efficiency, Performance and Connectivity of a Balanced Transportation System
3. Maximize the Cost Effectiveness of Transportation
4. Promote Consistency between Land Use and Transportation Plans to Enhance Mobility and Accessibility
5. Provide Safe and Secure Transportation
6. Support Economic Vitality
7. Protect the Environment and Conserve Resources

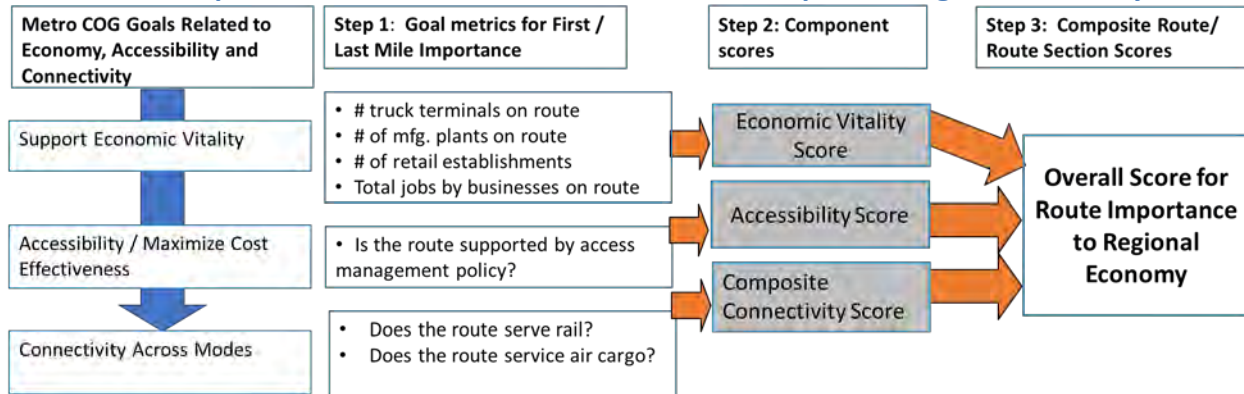
Not all of the regions goals can be promoted or monitored based on the performance of first and last mile truck routes. Nonetheless, the seven goals above can be categorized into two groups: 1) Transportation Benefits and Externalities, and 2) Infrastructure Performance. Using this broad categorization, it is proposed that two potential freight performance scorecards could be developed to support regional goals. The first scorecard could be used to identify and rank first/last mile routes in the Fargo-Moorhead Region that are important from an economic and freight connectivity standpoint. The first proposed scorecard, in concert with stakeholder input could be used to identify future first/last mile routes most important to the continued economic vitality of the region. The second scorecard would be used to rate and rank the performance of important truck routes in the region.

Identifying and Monitoring Important First / Last Mile Routes in the Fargo-Moorhead Region

As noted the primary purpose of this metric is to identify current and future routes important to goods movement in the region. The metric scores could also be used to track the importance of truck routes to the region's economy over time as new development occurs. If Metro COG proceeds with forming a standing freight advisory this and the complementary scorecard for rating truck routes could be tools that the FAC could work to improve over time, especially by seeking data from companies located along these routes. **Exhibit 33**, shows the process for developing the proposed scorecard:

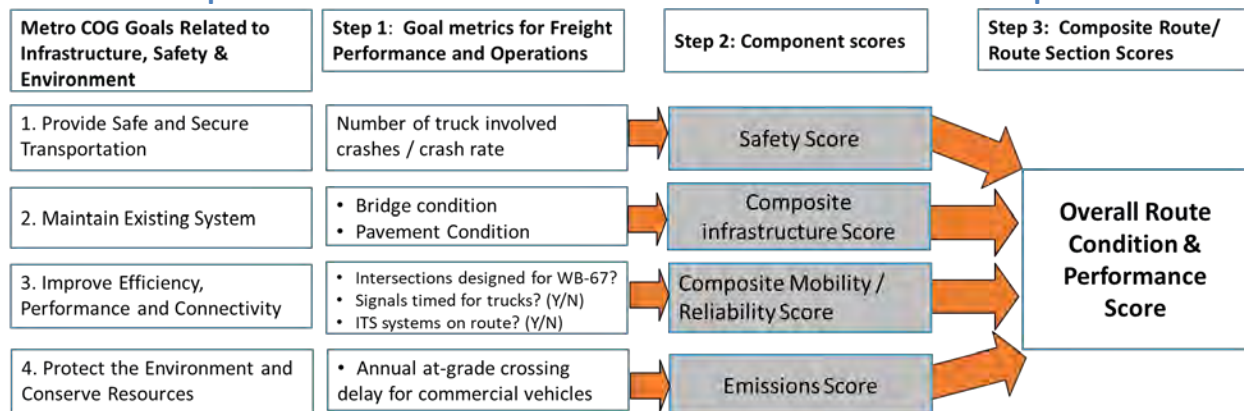
³⁰ Kaplan, Robert S., *Conceptual Foundations of the Balanced Scorecard, Working Paper 10-74*. Harvard Business School. 2010. Accessed online at: <http://www.hbs.edu/faculty/Publication%20Files/10-074.pdf>. Accessed 7-23-15

Exhibit 33: Proposed Truck Route Scorecard to Measure Impact to Regional Economy



A second proposed truck route scorecard would translate Metro COG performance goals for: 1) Safety; 2) Asset Management; 3) Mobility and Reliability; and, 4) Environmental Impact, into a composite score for each of the regions identified truck routes or route segments. The diagram in **Exhibit 34**, displays the proposed framework for the First/Last Mile Truck Route Scorecard. This scorecard would provide a consistent metric to rate and rank the condition and performance of truck routes region-wide.

Exhibit 34: Proposed Truck Route Condition and Performance Scorecard Component Metrics



In 2006 MnDOT sponsored the development of a similar scorecard metric to monitor truck routes in the Minneapolis-St. Paul Area. The *Twin Cities Metro Area Freight Connectors Study* was originally developed to support the identification of potential candidates for National Highway System Intermodal Freight Connectors, using industry clusters to make the case for key truck routes.³¹ The City of Minneapolis used the study to justify the addition of Lowry Avenue to the list of intermodal freight connectors in Minnesota. Minneapolis then submitted a successful grant request to replace the Lowry Avenue Bridge under the NHS program.

³¹ MnDOT, *Twin Cities Metro Area Freight Connectors Study*, October 2006.

<http://www.dot.state.mn.us/ofrw/PDF/TCMAfreightConnectorsFinalReport.pdf>

III. Recommendations for Future Surface Transportation Projects

The largest and most directly freight related projects in the Metro COG region continue to be the major grade separation projects at 11th Street and 20th/21st Streets in Moorhead. It is recommended that these projects continue to be the region's focus for major capital improvement projects related to freight. As a part of the stakeholder outreach of this project, several additional minor projects were identified that should be considered for implementation.

3. Surface Transportation Projects – Investments to improve freight mobility:

- 7th Avenue North Corridor
- 9th Street NW Intersection Evaluation
- 9th Street NE Intersection Review
- 9th Street NE Truck Route Extension
- 11th St. North Intersection Review
- Enhance enforcement/Education campaign

During the study outreach efforts, truck drivers identified numerous locations where they feel traffic control action may be warranted. Specifically, on the 7th Avenue North corridor several intersections were identified along with other issues including turning radii and sight obstructions from boulevard trees were noted. Projects listed in the following pages include corridor and intersection focused solutions as well as larger region-wide campaigns to ease conflicts in the movement of freight inside and through the Metro COG region.

It should be noted that the project locations recommended below will require additional engineering analysis prior to being ready for implementation. The preliminary engineering study for each of these surface transportation projects will ultimately need to be conducted through partnerships with local and state entities. Metro COG's current policy is to only fund the implementation (land acquisition and construction) of a project through the region's Transportation Improvement Program (TIP). Earlier planning or engineering analysis costs are borne by the sponsoring jurisdiction.

Recommendation STP-1: 7th Avenue North Freight Corridor Study

Truck drivers identified the need to review several intersections on the 7th Avenue North corridor. The 35th Street, 40th Street and 42nd Street intersections were identified as potentially needing signalization to assist truck drivers in navigating the corridor safely and efficiently. Geometric concerns were also raised at the 25th Street and 45th Street intersections as radii may not be able to accommodate trucks and trailers. On the eastern end of the corridor (east of I-29), street trees were noted to be blocking sight lines for truck drivers turning out of business and industrial parks in the area. Access control concerns and a need for enhanced traffic enforcement were also identified by truck drivers as issues on the corridor.

7th Avenue North is both a restricted and non-restricted truck route inside of Fargo and is designated as a truck route in West Fargo. The proposed actions for this project would include a review of traffic counts, signal warrants, sight distances, turn radii, and speeds along the corridor from 25th Street in Fargo to 9th Street Northeast in West Fargo. Project cost is estimated at \$25,000. As the project is multijurisdictional, it is recommended that Metro COG engage both the City of Fargo and the City of West Fargo to review the need for this project.

Exhibit 35: 7th Avenue North Freight Corridor Study



Recommendation STP-2: 9th Street Northwest Intersection Evaluation 1

Truck drivers identified issues with the stop controlled intersection of 9th Street Northwest and Main Avenue (US 10) in West Fargo. This intersection provides access to the industrial parks in Northwest Fargo. The proposed project would review traffic counts, assess signal warrants, sight distances, turn radii, and speed data at the intersection of 9th Street Northwest and Main Avenue. 9th Street Northwest is a designated truck route in West Fargo. Main Avenue (US 10) is designated as a truck route by both West Fargo and the NDDOT. Estimated project cost for this analysis including signal warrant review and geometric investigations is approximately \$5,000.

Exhibit 36: 9th Street Northwest and Maine Avenue



Recommendation STP-3: 9th Street Northeast Intersection Review

Truck drivers identified the need to review the intersections of 9th Street Northeast and Main Avenue, 1st Avenue East, and 7th Avenue East. Encroaching signal poles/light poles were identified at the 1st Avenue East intersection as a barrier to turning movements. The Intersections at Main Avenue and 7th Avenue were also identified for review.

It is recommended that a project be conducted to review traffic counts, and assess signal warrants, sight distances, turn radii, and speed at the intersection of 9th Street NE and Main Avenue, 9th Street NE and 1st Avenue East, and 9th Street NE and 7th Avenue East. The estimated cost for the intersection reviews including signal warrant analysis and geometric review is approximately \$15,000.

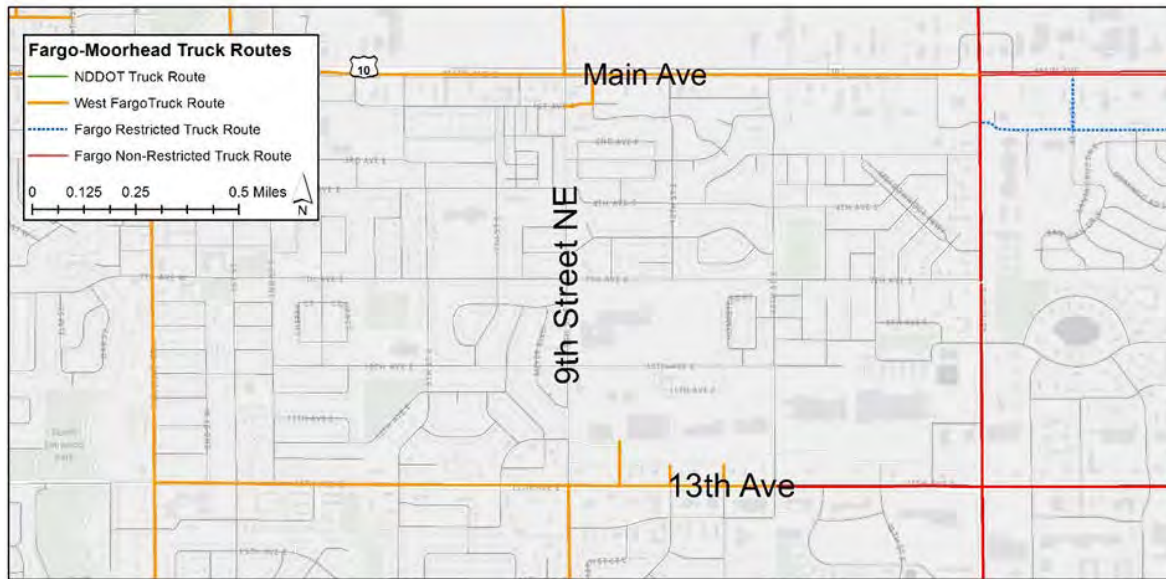
Exhibit 37: 9th Street NE Intersection Evaluations



Recommendation STP-4: 9th Street Northeast Truck Route Extension

Truck drivers identified a gap in the existing truck routing system in West Fargo between Main Avenue and 13th Avenue South. In this location, 9th Street Northeast is not designated as a truck route. It is recommended that the City of West Fargo review this location for a potential conversion to a designated truck route to provide additional north/south connectivity in West Fargo. Costs to conduct this conversion are deemed to be mostly administrative to review the truck routing map and the conditions of the roadway. Minor capital costs may be incurred for truck route signage.

Exhibit 38: Project #4- 9th Street NE Truck Route Extension



Recommendation STP-5: 11th Street North Intersection Review

Truck drivers identified the need to review turning radii and utility pole locations at the intersections of Main Avenue, Center Avenue (US 10/75) and 1st Avenue North in Moorhead. The recommended project would examine these constraints and recommend improvements or utility relocations to assist trucks in making turning movements at these locations. Project costs are estimated at \$15,000 to review intersection geometry, utility issues, traffic signalization at three intersections. Capital cost of \$150,000 to relocate utilities and upgrade geometry (if needed). There are no designated truck routes in Moorhead.

Exhibit 39: Project #5 -11th Street North Intersection Review



Recommendation STP-6: Enhanced Enforcement/Education Campaign

Stakeholders and truck drivers brought to light issues concerning the motoring public's adherence to traffic laws including speed differential, obeying of stop signs and signals, and proper use of turn signals during lane changes. It is recommended that Metro COG work with Upper Great Plains Transportation Institute (UGPTI) to develop an education campaign for motorists in the Fargo-Moorhead Region. UGPTI is unique in terms of its deep expertise in truck safety, as well as a program center for safety:

The Rural Transportation Safety and Security Center (RTSSC) vision is to promote and enhance the region's transportation safety and security through research, education, and outreach, in a partnership with stakeholders. The Center was initiated in collaboration with the North Dakota Department of Transportation under a grant from the Federal Highway Administration.³²

Partnering with the RTSSC would seem to be a perfect fit in response to concerns raised regional truck drivers. Assistance could also be provided to help law enforcement to pilot additional enforcement campaigns on truck routes in Fargo-Moorhead. Project costs are variable depending on the size and scope of the enforcement and education campaigns.

Finally, it should be noted that the Federal Motor Carrier Safety Administration (FMCSA), recently dusted off and rebranded a marketing and education campaign about how to safety drive around trucks. What was initially developed as the "No Zone" campaign has been updated and rebranded as the *Our Roads, Our Safety* campaign. The website about opportunities to partner and download outreach materials can be found at:

https://www.fmcsa.dot.gov/ourroads?utm_source=direct&utm_medium=rotator&utm_content=website&utm_campaign=OROS-2017

IV. Metro COG Freight Horizon Projects

Horizon Project recommendations address non-traditional projects and/or policies that due to their nature are high cost or may require long time horizons due to regulatory hurdles, the state of technology, public acceptance, or private sector buy-in.

Recommendation HP-1: Assess and Monitor Truck Size and Weight Regulatory Changes

As was noted earlier, during the 2017 the North Dakota passed a bill that would create a network of highways in the state where vehicles with a GVW of 1129,000 pounds would be allowed to operate. The proposed network includes Interstates I-29 and I-94 in the Fargo-Moorhead Region. However, allowing heavier trucks on Interstate highways will require Congressional approval.

It should be noted that North Dakota's request for higher truck weight limits may not be the only change request before Congress. A Bloomberg News Blog recently reported on the formation of a shipper

³²<http://www.ugpti.org/rtssc/about/>

coalition: Safer Hauling and Infrastructure Protection (SHIP) that has formed and is lobbying members of Congress to increase the weight limit on a six-axle tractor semi-trailer configuration to 91,000 lbs. GVW.³³ SHIP members include the American Soybean Association and the Agriculture Transportation Coalition. Another group; Coalition for Efficient and Responsible Trucking (CERT) is advocating for the adoption of twin 33 foot trailers as a national standard.

Changes in truck size and weight can impact the need for updates to geometric design standards, as well the need to assess impacts on regional pavements and bridges. While the changes proposed by the North Dakota Legislature would only affect a few regional roadways, changes being proposed by national coalitions could have broader impacts on the region.

Recommendation HP-2: Seek Funding for Additional Grade Separations in the Region:

It is recommended that the Moorhead Grade Separation, Safety and Mobility Project previously submitted as a FASTLANE Discretionary Grant Application in December 2016 be reconfigured to align with the INFRA Notice of Funding Opportunity and resubmitted by Nov 2, 2017. On its website, USDOT states that the INFRA program is designed to increase the competition for funding by focusing on projects that improve economic vitality, leveraging private sector participation, show innovation, and improve the performance of the transportation system.³⁴ The INFRA program will make approximately \$1.5 billion available to projects that are in line with the Administration's principles to help rebuild America's infrastructure. USDOT intends to focus on project proposals that fall under the following key principles:

- Make Targeted Federal Investments.
- Encourage Self-Help.
- Align Infrastructure Investment with Entities Best Suited to Provide Sustained and Efficient Investment.
- Leverage the Private Sector.

The Moorhead Project configured as a large project (over \$100 million in total cost) should be resubmitted under INFRA with the same bundle of grade crossings. Based upon the updated criteria and emphasis, we recommend the following strategy:

1. First, it is imperative that the project retains in the "Large" project classification as this will provide access to available funding exceeding \$1.5 billion. "Large" project funding available in this funding round is about twice that seen in previous FASTLANE rounds since USDOT is combining previously un-awarded funding available in FASTLANE FY17 with the funding available under FAST Act for FY18.

³³ Nancy Ognanovich, Beyond the Hill Blog: *Big Rigs Getting Bigger? Congress Under Pressure to Raise Truck Weight Limits*. July 7, 2017. <https://www.bna.com/big-rigs-getting-b73014461357/>

³⁴ <https://cms.dot.gov/buildamerica/infragrants/frequently-asked-questions>

2. Second, with the addition of \$42 million state funding secured in the last legislative session, the project will be able to show a high level of local support with this strong match. The demonstration of a strong multi-jurisdictional partnership and increased self-funding should make this project more competitive than it was under FASTLANE FY17 as it represents increased self-funding, one of the four key principles stressed by the current federal Administration.
3. Third, the ability to tie multiple grade separations into a “corridor” improvement has been an example used by USDOT in their recent webinars on INFRA. Thus, this project should be positioned as a corridor improvement to strongly compete at the national level.
4. It will be important to refresh the prior application by making sure that the Administration’s key criteria are met with the completion of this project, instead of using the option to resubmit³⁵ their previous FASTLANE application, by adding an appendix that explains on how the project competitively addresses the improved INFRA Grant criteria.

Recommendation HP-3: Tristate Assessment of Market Demand for Consolidation Centers, Transload and/or Intermodal Rail Facilities

During interviews, and at the Regional Freight Forum the desire for better access to rail transload and/or intermodal container services was repeatedly expressed by stakeholders. The issue of intermodal rail service in North Dakota has been examined on a number of occasions over two decades. In 2002, UGPTI examined the role of container services in North Dakota grain markets.³⁶ In 2007 NDDOT sponsored a study to examine the feasibility of co-load container services between Minot, ND and Dilworth, MN.³⁷ More recently other entities in North Dakota have proposed studies to examine the feasibility of either intermodal or transload facilities serviced by Class I railroads. Most of these previous efforts have had two things in common:

- Previous studies or study proposals have identified the solution, and then developed a study or research plan intended to prove the feasibility of the solution;
- Previous study efforts have been largely bounded by geo-political geography (likely due to funding sources or competitive concerns).

During the freight forum, an idea was put forward to examine the demand for rail services covering a, broader tristate region that would include Eastern North Dakota, Northeastern South Dakota and Western Minnesota. It is recommend that such a study be designed with no preconceived solution, but rather focus on closely examining existing demands within the shipper community, and then develop recommendations about what types of freight facilities and services would best fill that need.

³⁵ <https://www.transportation.gov/buildamerica/infragrants/repeatapplicants>

³⁶ Berwick, et. al. *North Dakota Strategic Freight Analysis: The Role of Intermodal Container Transport in North Dakota*. November 2002.

³⁷ Wilbur Smith Associates, *Regional Intermodal Freight Project*. August, 2007.

A similar approach to what is proposed was undertaken in Iowa beginning in 2014. The Iowa DOT and Iowa Economic Development Authority (IEDA) undertook a ground-breaking freight study that began with the premise of identifying any solution that would reduce business transportation costs in the state. The approach used optimization modeling to identify infrastructure and economic constraints affecting multimodal freight network performance. This innovative study was featured in the June 2016 issue of American Shipper magazine, and resulted in a number of network enhancements that will reduce shipping costs. These enhancements included truck consolidation terminals, transload facilities, and rail intermodal facilities.³⁸

Recommendations HP-4: I-94/I-29 Beltway Route for Through Truck Traffic

During the Regional Freight Forum held in Fargo at the end of January 2017, several stakeholders discussed the need for Interstate beltway or by-pass to keep trucks passing through the region out of the urban core. Discussions concerning potential beltways in the Fargo Area have been ongoing since at least the 1990's. In 2011, Metro COG concluded the Traffic Operations Incident Management Study (TOIMS) that presented conceptual interim and long-term alignments with actual design parameters. That study put a 50-year time frame on completion of a beltway alignment, while focusing on short-term priorities such as ROW preservation and other roadway improvements (e.g. Sheyenne Street in West Fargo; 52nd Avenue South in Fargo).

The alignments identified in the TOIMS were again referenced as part of Metro COGs 2014 Long Range Transportation Plan (LRTP) in a discussion of corridor preservation (See **Exhibit 40** on the following page). Most of the public input received during the LRTP focused on 52nd Avenue South Fargo/60th Avenue South Moorhead as the best option for a future beltway alignment, however there are several issues with that alignment: 1) There is that there is no ROW to widen 52nd Avenue between University Drive and 25th Street without severely disrupting neighborhoods on either side of the roadway; 2) Federal funding for viaducts over the Fargo-Moorhead Diversion will only be granted to roads with a county road or state/federal designation. Currently, 52nd Avenue west of Sheyenne Street does not have a county road designation. Only 32nd Avenue, 76th Avenue, 100th Avenue, and 124th Avenue are county roads.

³⁸ Chris Gillis, *A State of Logistics*, American Shipper Magazine, June 2016.

that interchange planning would not be needed or considered until the Fargo-Moorhead Diversion Project is completed in 2024. Participants at the Regional Freight Forum expressed opinions that it would not be possible to construct a bridge over the Red River at 76th Avenue/80th Avenue because a large number of properties have been bought out in recent years using FEAM funding. Federal law prohibits building permanent structures on properties bought with FEMA funds. However, the Cass County Engineer has stated that the purchase of several properties at the end of 76th Avenue were made using non-FEMA funds just in case a future bridge/beltway were to be constructed. Discussions during Study Review Committee meetings for the Southwest Metro Plan are believed to be the closest the region has come to dedicating a bypass option. However, the City of Fargo has noted that recent subdivisions north of 76th Avenue between University Drive and 25th Street include additional access points than would be preferred for a high mobility bypass.

While this discussion has been taking place over a number of years, it appears that the region may be approaching a point of decision. It does not appear that the impacts to commercial vehicle trips, both through the region or from within the region to a bypass facility have been studied or considered as an element of previous plans. As the discussion for the future of a by-pass moves forward, it should include input and discussions with truck operators and businesses, both within the region, as well as companies that frequently route trucks through the region.

Chapter 7: Performance Measurement and Project Implementation

There are numerous actions that can be taken by the MPO to position the projects identified in this study. First, is to categorize the projects by potential funding source. Second, review the eligibility criteria for each funding source. Third, position the project for successfully funding by insuring all criteria are followed.

Project Categories

Projects / Investment Needs can be broken into the following categories:

- Locally Funded Projects including continued analysis provided through studies such as
- Project # 1: 7th Avenue North Freight Corridor Study
- Project #2: 9th Street NW Intersection Evaluation 1
- Project #3: 9th Street NE Intersection Evaluation 2
- Project #4: 9th Street NE Truck Route Extension
- Project #5: 11th Street North Intersection Review
- Project #6: Enforcement/Education Campaign
- Projects eligible to be funded through FAST Act Formula
 - Once the above projects have further studied, Metro COG should review the remaining priority projects against eligibility under formula funding distributed through the States. It will be important to ensure that the projects identified in the Metro COG freight plan are listed as well in the respective state freight plans.

- Projects eligible for funding under Discretionary (Competitive) Grant programs such as INFRA
 - Sponsors should be advised to consider the advice provided below in the *Positioning Projects to compete in competitive grant funding programs*.
 - The Moorhead Grade Separation, Safety and Mobility Project submitted as a FASTLANE Discretionary Grant Application should be reconfigured to align with the INFRA Notice of Funding Opportunity and resubmitted by Nov 2, 2017. The project has been enhanced with the State funding received toward the project in the last legislative session. This demonstration of partnership and increased funding should make this project more competitive than it was under FASTLANE FY17.

Positioning Projects to Compete in Competitive Grant Programs

Experience suggests that success in getting federal grant funds for a local or regional projects, takes more than a great project and a well written application. Successful grant applications do a good job of aligning anticipated project outcomes with the grant criteria in the Notice of Funding Opportunity (NOFO), and marketing the project based on these criteria. It is particularly important to look at the funding priorities (criteria) when deciding which projects to submit under a specific grant program. Many applicants have learned that local priorities do not often translate to a successful federal grant application, when project outcomes do not fully align with federal priorities. Many good projects go unfunded because the sought after funding source is a poor match for the project, or the project goals do not align with the goals of the funding program.

Most federal programs have multiple level review and a short-listing process, so understanding details about the evaluation and selection process can be a key to success; and, political aspects of final project selections cannot be taken too lightly. Keeping congressional representatives and staff apprised of grant activities is typically a good idea. Overall, USDOT is looking to ensure that grant awards meet program requirements and include geographical diversity, urban/rural diversity and modal diversity.

One of the best methods for demonstrating project alignment with federal funding goals is the application of Benefit Cost Analysis (BCA) methodology to express the project's long-term project outcomes as a subset of the funding selection criteria. The following discussion presents some *best practices* for achieving a federal funding award based upon the first eight rounds of Transportation Investment Generating Economic Recovery (TIGER) funding.

A good means of applying the BCA methodology is to cross walking the project's monetized outcomes against each grant application criteria. While not all selection criteria have had to fully met to be successful, think of the anticipated project benefits as the measures upon which the project will be evaluated. And, given the new era of performance based project selection, benefits should be described in terms of performance measures. In other words, think about describing benefits in terms of performance measures upon which the project will be deemed a success.

Under previous TIGER and FASTLANE grant applications, each project had to include in its analysis, estimates of expected benefits (anticipated performance) with respect to each of the five long-term outcomes specified in the *Selection Criteria*. Understanding that it may be unclear in which categories a particular outcome or benefit should be listed, as a rule it is less important in which category a benefit is listed, so long as it is listed and measured only once. **Exhibit 41** provides examples of benefits that might be listed under the primary outcome categories. (Note: this is not an exhaustive list.)

Exhibit 41: Long Term Project Outcomes

Long-Term Outcomes and Types of Societal Benefits	
Long-Term Outcome	Types of Societal Benefits
Quality of Life	<ul style="list-style-type: none"> • Land Use Changes that Reduce VMT • Increased Accessibility • Property Value Increases
Economic Competitiveness	<ul style="list-style-type: none"> • Travel Time Savings • Operating Cost Savings
Safety	<ul style="list-style-type: none"> • Prevented Accidents (Property Damage), Injuries, and Fatalities
State of Good Repair	<ul style="list-style-type: none"> • Deferral of Complete Replacement • Maintenance & Repair Savings • Reduced VMT from Not Closing Bridges.
Environmental Sustainability	<ul style="list-style-type: none"> • Environmental Benefits from Reduced Emissions

Source: Quetica, LLC

The INFRA program announced on June 29, 2017³⁹ will advance and replace the FASTLANE grant program established in the FAST Act of 2015. INFRA is expected to increase the impact of projects by leveraging capital through public-private partnerships and allowing more innovation in the project delivery and permitting processes. **Exhibit 42** provides a comparison between FASTLANE and INFRA grants. The Notice of Funding Opportunity for INFRA has only provided limited guidance to date on Benefit Cost Analysis. The USDOT website indicates that substantial changes will be made to its BCA Guidance for the TIGER and INFRA discretionary grants programs, which will be posted at:

<https://www.transportation.gov/buildamerica/infragrants/bca-and-project-readiness-guidance>

³⁹ www.transportation.gov/buildamerica/infragrants.

Exhibit 42: A Side-by-Side Comparison of the Merit Criteria Used in FASTLANE and INFRA

FASTLANE	INFRA
<p>Merit criteria</p> <ul style="list-style-type: none"> • Economic outcomes • Mobility outcomes • Safety outcomes • Community and environmental outcomes <p><i>Other review criteria</i></p> <ul style="list-style-type: none"> • Cost share • Partnership and innovation <p><i>Additional considerations</i></p> <ul style="list-style-type: none"> • Geographic diversity among recipients • Project readiness 	<p>Merit criteria</p> <ul style="list-style-type: none"> • National and regional economic vitality • Potential for innovation • Safety • Environmental review and permitting • Project delivery approach • Leveraging of federal funding • Performance and accountability <p><i>Additional considerations</i></p> <ul style="list-style-type: none"> • Geographic diversity among recipients • Project readiness

Source: The Beckett Group

State Funding Sources

While Congress has recognized the importance of freight in supporting the national economy by including specific funding programs for freight in the past two highway reauthorization bills, states too are increasingly looking to freight infrastructure as a means of supporting economic growth. The State of Minnesota has had two programs to support rail and port freight infrastructure for several decades. The Minnesota Rail Service Improvement Program (MRSI) is a no-interest revolving loan program to support railroad related capital improvement projects. The maximum MRSI loan is \$200,000. Recently, Minnesota began offering funding for freight related projects under several new programs.

Minnesota Highway Freight Program (MNHFP): The FAST Act created a new funding program that provides money to Minnesota to make improvements to our highway system that benefit freight movement. All public roads, including county and city roads, are eligible for this money. In order to select projects that will be funded with this money, the Minnesota Department of Transportation has created the Minnesota Highway Freight Program for the solicitation and selection of highway construction projects that support the movement of freight. A total of approximately \$90 million is anticipated for the program: State FY 2019 – \$20.8 million, state FY 2020 - \$23.1 million, state FY – 2021 \$24 million (projected) and state FY – 2022 \$25 million (projected).

Goals of the MHFP include infrastructure and operational improvements to US highways, and improving safety, security, efficiency and resiliency of freight transport. Much like the federal programs already discussed, the MHFP will be evaluated upon the following criteria:

- Truck Volume
- Safety
- Mobility
- Facility Access
- Cost Effectiveness
- Project Readiness

Applications under the program for state fiscal years 2019-2022 are due by August 31, 2017 for projects with discernable freight transportation benefits. More information on the program can be found at: <http://www.dot.state.mn.us/ofrw/mhfp/index.html>

Minnesota Highway Freight Program – Intermodal Program (MHFP-IP): Under the FAST Act up to 10 percent of National Highway Freight Program funds may be spent on intermodal projects. In Minnesota the MHFP-IP will provide approximately \$9 million across state fiscal years 2019-2022 for intermodal projects. Goals of MNFP-IP include improving surface transportation infrastructure necessary to facilitate direct intermodal interchange, transfer, and access into or out of a public or private freight rail or water facilities. Entities that own or maintain public or private freight rail or water facilities (including ports) that provide surface transportation infrastructure necessary to facilitate direct intermodal interchange, transfer, and access into or out of the facility are eligible. For new construction projects, the minimum award is \$500,000. The maximum award provided to any one project in this solicitation will be one fiscal year’s worth of the intermodal portion of NHFP funding. Up to 80 percent of the eligible project costs may be provided by federal funds. MHFP-IP evaluation criteria include:

- Increased container lifts
- Efficiency Improvement
- Shipping Cost Reduction
- Cost Effectiveness
- Project Readiness

Application procedures are similar to the MHFP, but the application deadline is August 18, 2017. More information on the program can be found at <http://www.dot.state.mn.us/ofrw/mhfp/intermodal.html>.

Transportation Economic Development (TED) Program: Established in 2010, the TED Program provides competitive grants to construction projects on state highways that provide measurable economic benefits. MnDOT, in partnership with the Minnesota Department of Employment and Economic Development (DEED), administers the program. DEED also administers a parallel Transportation Economic Development Infrastructure (TEDI) program that funds projects on local roads and for other types of transportation. Projects may combine funding from both programs. According to the program website, in 2017 \$18.4 million was available to the TED program from MnDOT and \$4.2 million is available through the TEDI program. The deadline for 2017 applications is September 15, 2017. For more information about the program visit: <http://www.dot.state.mn.us/funding/ted/>.

A search of the NDDOT website identified no comparable freight financing programs in North Dakota.

Recommendations on a Metro Freight Scorecard and Next Steps

Exhibit 43 presents a recommended framework for a comprehensive scorecard to monitor Metro 2040 Plan Goals from a freight perspective. The proposed framework builds upon the truck route scorecards presented earlier and provides additional performance objectives, data metrics and measures to highlight each of Metro COGs performance goals from a freight standpoint. The Minnesota Port Development Program is a grant program providing up to 80 percent of project funds to public port authorities.

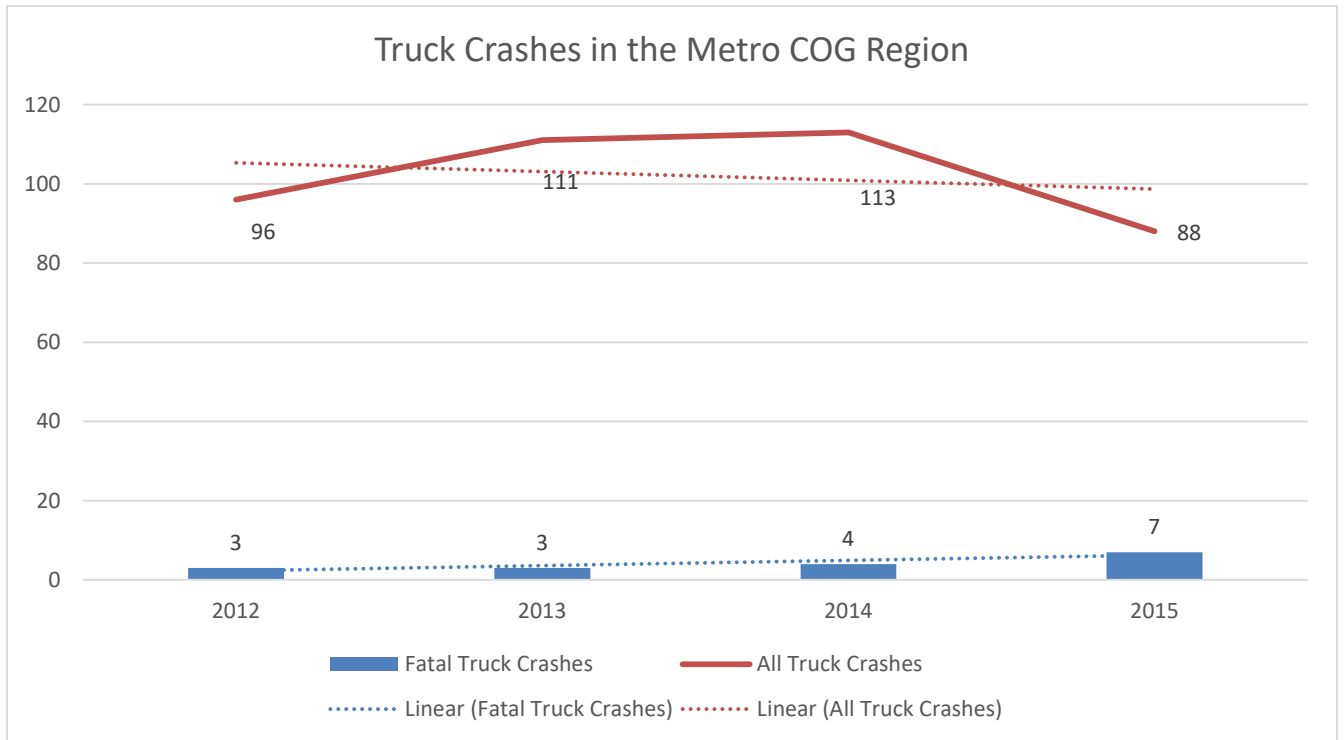
Exhibit 43: Recommendations for Metro COG Performance Objectives and Measures

MPO Planning Factors: Metro 2040 Plan Goals	Overall Measurement Objective	Data Metrics	Performance Measure / Scorecard Measure
Safety: Provide Safe and Secure Transportation	Reduce truck crashes in the Metro COG region (long term downward trend)	Federal Motor Carrier Safety Administration (FMCSA) safety data MCMIS & FARS ⁴⁰	Annual truck crashes in Cass and Clay County
			Fatal truck crashes in Cass and Clay County
System Preservation: Maintain Existing System	Maintain pavement and bridges on designated truck routes.	Pavement Condition Ratings	Truck route infrastructure condition score
		Bridge Condition Rating	
		Posted bridges on truck routes	
System Management and Operations: Improve the Efficiency, Performance and Connectivity of a Balanced Transp. System	Reduce bottlenecks / circuitry on truck routes	Low bridge clearance on truck routes	Truck route geometric design scorecard
		Inadequate intersections on truck routes	
Economic Vitality : Support Economic Vitality	Export trade to support business and job growth	Metropolitan Export Trade Value	Exports as a percent of regional GDP
Accessibility / Maximize Cost Effectiveness	Business access to rail transload / intermodal	GIS/location data on transload and intermodal facilities	Facilities within 50 mi., 100 mi 150 mi., 200 mi. and 250 mi.
Connectivity Across Modes	See Accessibility / Cost Effectiveness	See above	See above
Environment / Protect the environment and conserve resources	Reduce idling/emissions at grade crossings		

⁴⁰ Motor Carrier Management Information System (MCMIS) and Fatal Accident Records System (FARS)

Once Metro COG and its stakeholders review and agree on the best elements for a scorecard to track their performance in the future, the data can be charted and presented like the example shown in **Exhibit 44**. Freight related metrics can be developed for each approved measure, and included in the regional profile series.

Exhibit 44: Commercial Vehicle Safety in the Fargo-Moorhead Region



Once the final scorecard and performance measures are established, Metro COG and its stakeholders can also add the scorecard or specific elements to annual reports so the region’s stakeholders can monitor progress toward goals. Since performance measurement is an interactive process, it is important not only to measure the region’s performance annually but to also pause occasionally to ensure that the scorecard continues to reflect stakeholder concerns in the region, changes to the regional economy and the Fargo-Moorhead freight environment.

Conclusions

The Fargo-Moorhead Metropolitan Area began as a railroad town where the predecessor to the BNSF Great Northern Corridor crosses over the Red River. And, while the railroad continues to operate in and through the region, Fargo-Moorhead is today a multimodal regional freight hub that relies heavily on trucking and the crossroads of I-29 and I-94 to support the regional economy.

The reasons for undertaking the FMRFP include helping Metro COG understand the transportation infrastructure and operational needs of area companies that rely on freight transportation for their success and prosperity. The peer analysis found that the Fargo-Moorhead Area compares well with cities of similar size in the Midwest in terms of economic growth, export commerce and modal infrastructure; however, the peer analysis also found several concerns such as a slow-down in export growth coming out of the Great Recession.

Overall, freight stakeholders value the region's high quality, uncongested highways but have concerns over the rate of growth in recent years and the impact of more commuters and more commerce on the regions highways. During a regional freight forum in January 2017, stakeholders raised long-term planning and coordination with state freight plans as an important need in the region; but, most of the attention was directed to improving first/last mile routes in the region. *"Freight friendly"* street designs, better north/south access through Fargo, better traffic and weather information for drivers and addressing driver safety concerns were among the priority issues identified by stakeholders.



Join Us for the Fargo-Moorhead Regional Freight Forum

Fargo-Moorhead Regional Freight Forum

When:
Friday
January 27, 2017
7:45-Noon

Where:
Fargo City Commission
Chambers
200 3rd Street N
Fargo, ND 58102

On January 27th from 7:45 to Noon at the Fargo City Commission Chambers, Share Your Opinions About the Movement of Freight and its Impact On:

- The region's competitive advantages relative to transportation and warehousing services;
- Ideas and perspectives about potential opportunities and challenges that could enhance the economic health of the region specifically related to transportation/freight/trade/economic development; and
- Focus attention toward the "next steps" required to achieve success.

Many of the recommendations resulting from the freight planning effort are focused on helping Metro COG work with its partner jurisdictions improve and monitor truck mobility in the area, while also adding a greater freight influence in future planning activities.

In undertaking the FMRFP, Metro COG sought to develop a plan that would support infrastructure investment goals for safety, social equity, economic productivity, and sustainable and livable communities. Unlike many comparable planning efforts, stakeholders do not view the regional infrastructure as broken, and for the most part identified mostly operational issues as top priorities. The performance framework and project recommendations have been designed to address these issues, and the identified Horizon Projects are intended to help position to deal with the freight transportation needs of a more diverse and growing economy.

The consultant team would like to thank the Metro COG Steering Committee for their help and support during the project.

Freight Plan Steering Committee Member

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Organization Represented

Metro COG
City of Moorhead
United Sugars
Metro COG
NDDOT
FHWA
Magnum Logistics
NDDOT
MnDOT District 4
MnDOT
Greater Fargo Moorhead EDC
BNSF
City of West Fargo
Midnight Express

