

# Minnesota's Multimodal Freight Network (MFN)

Working Group Meeting #3 - February 26, 2015

## Potential MFN Applications (Highway)

The designated MFN will have several potential applications ranging from performance monitoring to design to maintenance considerations. While all of the following applications are potentially feasible, some may be more easily deployed than others. Each of the potential applications has been grouped into one of three categories:

- Tier 1 includes applications using existing resources with minimal administrative coordination
- Tier 2 includes applications that require moderate administrative coordination
- Tier 3 includes applications that require additional funding and/or significantly more administrative coordination.

The assessment of each application also assumes that the MAP-21 Enhanced National Highway System (NHS) will be used to designate the Minnesota MFN.

Tier 1 Applications	
Track Freight System	A significant amount of data regarding the movement of freight is already being
Activity	collected and monitored by MnDOT and the Federal Highway Administration
	(FHWA). No additional administrative coordination will be required to incorporate
	this data into MnDOT freight planning efforts. MnDOT currently collects average
	daily traffic volumes (ADT) on each NHS segment for total traffic as well as heavy
	commercial traffic. This data is supplemented with freight planning efforts and
	outreach.
	In addition, the FHWA currently produces data for freight tonnage, value, domestic
	ton-miles by state of origin and destination, and commodity type on the NHS.
Monitor Freight System	Data is currently being tracked related to traffic safety and congestion on the
Performance	highway network. This data is readily available for use in the evaluations of freight
	system performance and can be readily tracked specific to the MFN.
Marketing and Economic	The MFN can be used as a promotional tool to attract and retain businesses, and
Development	focus development on freight routes. This would be used by both MnDOT and
	external stakeholders. These efforts could draw from the freight system activity and
	performances measures noted above.

Tier 2 Applications	
Prioritize System Needs	A system of MFN routes can be used as a prioritization tool when assessing systemwide needs in other highway/statewide investment plans; especially when considering other types of systems (i.e., super-load corridors, OSOW, etc.).
Receive Prioritization During Project Selection and Funding	MnDOT may use the MFN as one factor in the process for selecting and funding roadway projects. This will help to ensure that the MFN is maintained at a high standard. This application may require significant agency coordination in order to be implemented. It also may result in higher maintenance and operations standard as a result of this designation.
Align with Freight-Specific Funding Source	Very few funding sources are dedicated solely to the improvement of freight infrastructure. However, the designation of the MFN will streamline the allocation of these funds when they do become available.
Bicycle and Pedestrian Infrastructure Considerations (Complete Streets)	<ul> <li>Freight on the MFN must coexist with many other users including passenger vehicles and non-motorized users. Consider how freight users on various types of roadways will impact and interact with people on bicycles and pedestrians.</li> <li>Consider the implementation of design standards that would improve safety for all users while maintaining a sufficient level of access.</li> </ul>
Provide Access to Intermodal Facilities	The MFN should provide adequate access and connectivity to key intermodal facilities, including pipeline terminals. The NHS's intermodal connecter designation will allow MnDOT some flexibility in providing enhanced access to key intermodal facilities throughout the state. The addition of new intermodal connecters would require significant administrative coordination.

Tier 3 Applications	
Apply Different Design	Many design criteria such as pavement thickness, passing lanes, and increased
Standards	shoulder widths are desirable for roadways that experience high levels of freight
	activity. However, the implementation of these criteria can often be costly if
	additional right-of-way is required or if other site-specific characteristics make implementation difficult.
	The implementation of these standards on the MFN roadways would also be time- consuming as individual roadway segments may not be scheduled for reconstruction for many years.
Apply Higher Maintenance	The MFN could be prioritized with higher maintenance standards for snow-plowing
Standards	and repairs (i.e., the MFN would be plowed before non-MFN roadways). This
	application would require additional study and agency coordination. This
	prioritization may be difficult to incorporate into existing MnDOT practices and
	protocols. This would also require increased levels of funding to meet the
	proposed higher maintenance standards.



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	NHS - Primary Criteria	NHS - Secondar	y Criteria					
Rail Facilities	100 Trucks/Day or 50,000 TEUs/Year	20 percent or more of passenger or freight volumes by mode within Minnesota	Identified in Minnesota and metropolitan transportation plans as a major facility	Significant investment in, or expansion of, an intermodal terminal	Connecting routes targeted by for investment to address an existing, or anticipated, deficiency.	Identified under the secondary criteria but may lower traffic levels. Direct connection or proximity (2 to 3 miles) to an NHS route?	Businesses within 5-Mile Radius	Sales Volume within 5-Mile Radius
Dilworth (BNSF)	HCAADT on adjacent highways is 830 (US10)- 1150(MN336)[1]					US10 and MN336 are both NHS Routes	34	\$ 1,085,766,000
Glenwood Yard (CP)	HCAADT on adjacent roadway is 445 (MN28)					Bulk transload facility is on north end of yard	10	\$ 159,656,000
Midway Yard (BNSF)	HCAADT on access roads not available. Midway handles container traffic					According to FHWA's Interactive Map, MN280 is a MAP- 21 intermodal connector	601	\$ 31,623,028,000
Northtown Yards (BNSF)	According to FHWA's Interactive Map, University Ave is a MAP-21 intermodal connector					Adjacent to Shoreham Yard	558	\$ 24,729,654,000
Rice's Point Yard (BNSF/CP)	According to FHWA's Interactive Map, Port Terminal Drive a MAP-21 intermodal connector					135, I535, and US53 are all on the NHS System	120	\$ 2,644,995,000
Shoreham Yard (CP)	According to FHWA's Interactive Map, University Ave is a MAP-21 intermodal connector		Investment from City of Minneapolis Economic Development Dept				623	\$ 25,457,957,000
Twin Ports Yard (CP)	HCAADT on Oneota St not available. On I35, HCAADT is 1,950					I35 and US2 are NHS Routes	122	\$ 2,723,470,000

### MFN Designation Criteria Analysis - Rail Facilities

FHWA Interactive NHS Mapping Tool: http://hepgis.fhwa.dot.gov/hepgismaps11/# [1] 2012 count data, http://www.dot.state.mn.us/traffic/data/

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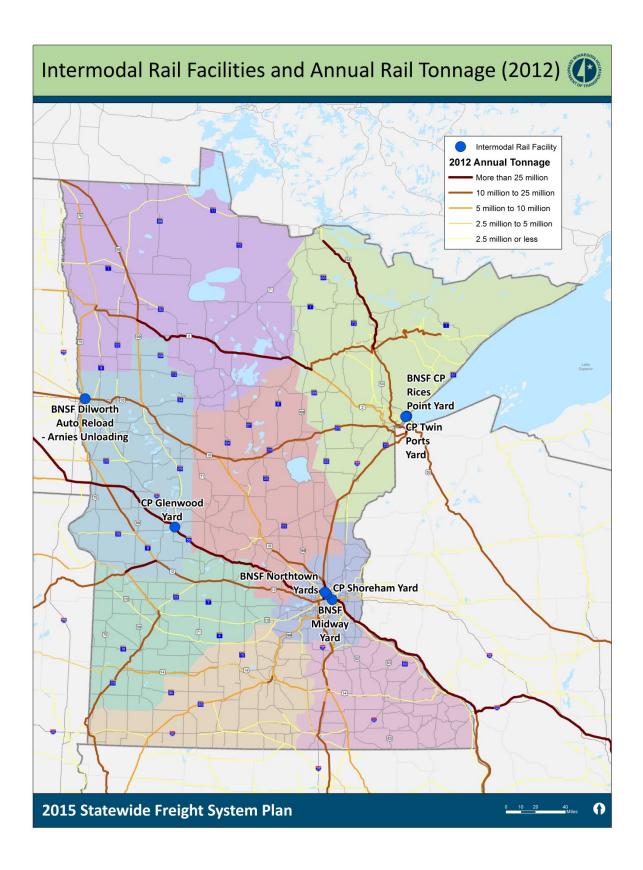
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Meets NHS Intermodal Connector Primary Criteria Meets NHS Intermodal Connector Secondary Criteria Meets MFN Criteria #1 or #2



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# **MFN Designation Criteria Analysis – Airports**

Meets NHS Intermodal Connector Secondary Criteria Meets MFN Criteria #1 or #2

	NHS - Primary Criteria	iteria	7	NHS - Secondary Criteria	/ Criteria			MF
Airport Facilities	Passengers more than 250,000 annual enplanements.	Cargo—100 trucks per day (each direction) or 100,000 tons per year arriving or departing by highway mode.		20 percent or more of passenger or freight volumes by mode within Minnesota.	Identified in Minnesota and metropolitan transportation plans as a major facility.	Significant investment in, or expansion of, an intermodal terminal.	Connecting routes targeted by for investment b address an existing, or anticipated, deficiency.	<b>2</b> 0
Minneapolis-St Paul International/Wold- Chamberlain	16,280,835	732,663,072		%86	Yes			
Duluth International	155,496	N/A		1%	Yes			
Rochester International	109,870	N/A		1%	Yes			
Bemidji Regional	22,819	N/A		0%	No			
St. Cloud Regional	15,842	N/A		0%	No			
Falls International- Einarson Field	15,796	N/A		0%	No			
Brainerd Lakes Regional	15,654	N/A		0%	No			
Range Regional	11,669	N/A		0%	No			
Thief River Falls Regional	2,079	N/A		0%	No	Major feight investment in a 19,800 Sq. Ft feight facility in 2013; 1 million packages shipped annually		
	16,630,060		_					
	Source: FAA, CY2013 statsitcs, http://www.faa.gov/arports/planning_capacity/passenger_alicargo_stats/passenger/	13 statistics, http://ww	/w.faa	⊾gov/airports/plannir	ıg_capacity/passenge	r_allcargo_stats/pass	enger/	
Meets NHS Intermodal Connector Primary Criteria	Connector Primary Cri	teria						

TBD	No	No	No	No	No	Yes	Yes	Yes	Consider for MFN Designation?	MFN Criteria
High - 1 million packages (Expedited service, i.e. FedEx) shipped annually								High	Criteria 1: Regional significance (Volumes, commodities, etc.)	
									Criteria 2: High level of projected growth or anticipated needs	
									٤ س	

										Businesses within 5-Mile Radius
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∽	\$	⇔	ŝ	ŝ	69	Ş	\$	ŝ	Ś	Sal
20,363,477,000	621,750,000	150,621,000	368,871,000	2,115,918,000	580,991,000	672,541,000	1,072,010,000	1,491,786,000	13,288,989,000	Sales Volume within 5-Mile Radius

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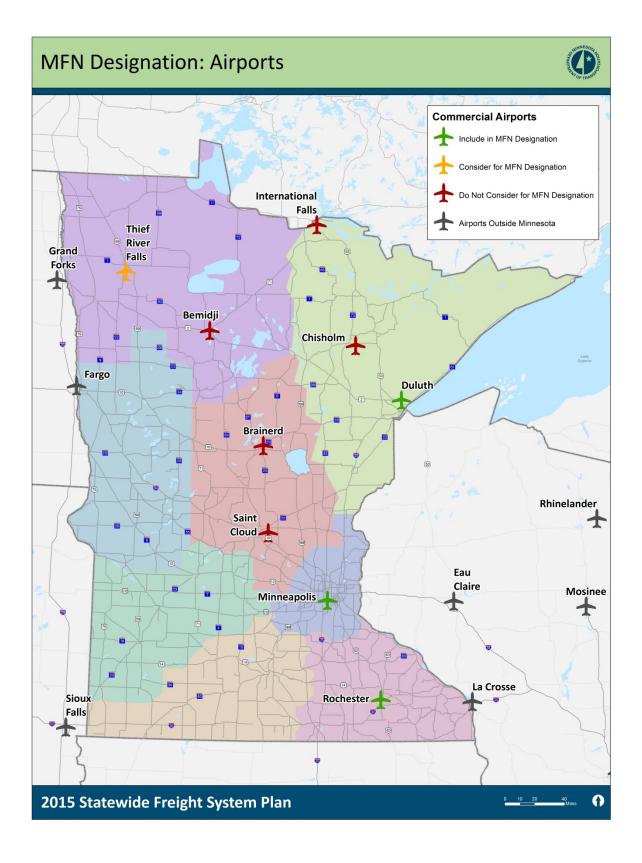
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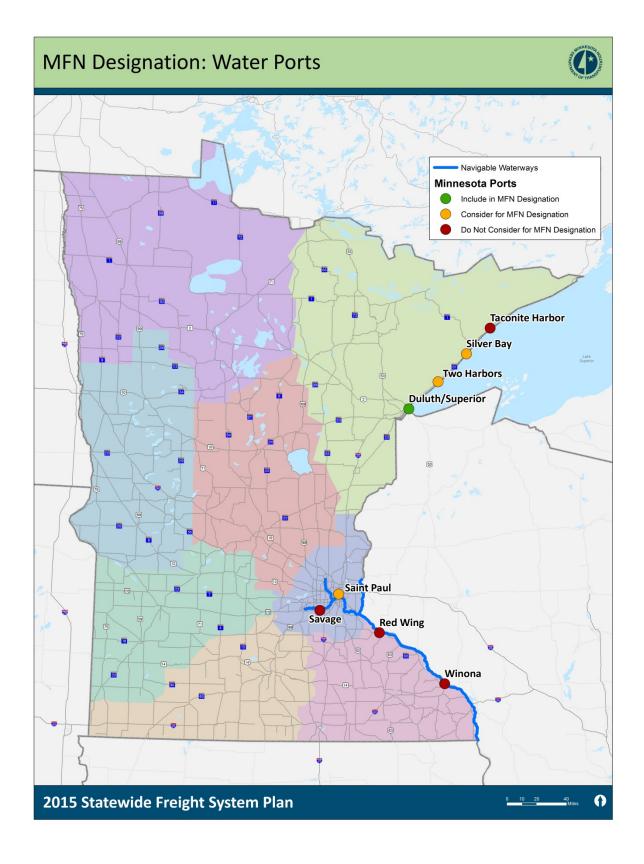
# **MFN Designation Criteria Analysis – Water Ports**

	gnatio	n (	Cr	Ite		a Analys	s –	Water Ports			
weets NHS Intermodal Connector Primary Criteria Meets NHS Intermodal Connector Secondary Criteria Meets MFN Criteria #1 or #2		Total	Red Wing	Winona	Savage	St. Paul	Taconite Harbor	Silver Bay	Two Harbors	Duluth / Superior	Water Port Facilities
Meets NHS Intermodal Connector Primary Criteria Meets NHS Intermodal Connector Secondary Crite Meets MFN Criteria #1 or #2	*note: designation c Source: Minnesota	68,357,700	<1,000,000	1,700,000	2,000,000	5,500,000	657,700	6,000,000	16,500,000	36,000,000	NHS - Primary Criteria         >50,000 TEUs or         > 500,000 tons         per year by         highway* or 100         trucks per day         frucks per day         (each direction)
oriteria ary Criteria	*note: designation cannot be determined fr Source: Minnesota Freight Plan, Task 2.3										<pre>&gt; 250,000 &gt; 250,000 passengers per year or 1,000 passengers per day.</pre>
	note: designation cannot be determined from primary criteria only, as tons reported here are total tons, including both rail and highway Source: Minnesota Freight Plan, Task 2.3										NHS - Secondary Criteria       20 percent or more of freight volumes     Identif Minnescript transpo by mode within plans as Minnesota.
	only, as tons report										ied in ota and solitan rrta <b>t</b> on a major ity.
	ed here are total tor										Signilicant investment in, or t expansion of, an intermodal terminal.
	ıs, including both rai										Connecting routes targeted by for investment to address an existing, or anticipated, deficiency.
	and highway		No	No	No	UBI	No	TBD	TBD	Yes	MFN Criteria Consider for MFN Designation?
			Primarily grain	Primarily grain	Primarily grain	High; large shipper of non- grain agricultural products. Largest state river port	Low - Taconite	High - Taconite	High - Taconite	High - Taconite and other products	Crileria 1: Regional significance (Volumes, commodilies, etc.)
								Two idled production lines reopening: regional iron ore projected to increase 20% to 24 million tons in 2014	Yes	Yes	Criteria 2: High level of projected growth or anticipated needs
		748	32	58	249	291				106	Businesses within 5-Mile Radius
		8 \$ 28,454,759,000	2 \$ 463,060,000	8 \$ 1,647,128,000	9 \$ 7,480,670,000	1 \$ 16,263,662,000	1 \$ 40,760,000	2 \$ 3,706,000	9 \$ 207,000,000	6 \$ 2,348,773,000	Sales Volume within 5-Mile Radius



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# MINNESOTA STATEWIDE FREIGHT SYSTEM PLAN MULTIMODAL FREIGHT NETWORK AD HOC WORKING GROUP MEETING #1

MEETING MINUTES December 3, 2014 1:30 PM

### **ATTENDEES:**

John Tompkins, MnDOT Bobbi Retzlaff, MnDOT Brad Utecht, MnDOT Jason Junge, MnDOT Philip Schaffner, MnDOT Tim Spencer, MnDOT Peter Dahlberg, MnDOT David Tomporowski, MnDOT Kathleen Mayell, MnDOT OTSM Erika Witzke, Cambridge Systematics Elaine Mckenzie, Cambridge Systematics Andy Mielke, SRF Chris Ryan, SRF

This meeting was the first of three that are scheduled for the Strategic Freight Network (SFN) Ad Hoc Working Group. The focus of this meeting was to discuss the goals and purpose of the SFN and start to identify the highway components of the network. The consultant team presented information about the Minnesota Statewide Freight System Plan and a general overview of Minnesota's existing freight systems.

The team then presented some of the currently identified "freight" systems that exist in Minnesota. These included the following:

- MAP-21 Primary Freight Network
- National Highway System (NHS)
- Interregional Corridor System (IRC)
- National Truck Network (NTN)
- Minnesota Twin Trailer Network (TTN)
- Minnesota conceptual 10-Ton Network
- Oversize/Overweight (OSOW) preferred routes

Minnesota Statewide Freight System Plan SFN Ad Hoc Working Group Meeting #1

The presentation also included a brief analysis of the overlap between some of the networks as well as many of the gaps.

Open discussion items posed at the end of the presentation included the intent of the SFN, the appropriate size and scale of the network, design and policy implications, and what additional information would be helpful in identifying the SFN. The following notes are a summary of the discussion items and comments collected during this conversation:

- The SFN should emphasize connections to major freight facilities and access points to and from Minnesota such as ports and border crossings.
- From the standpoint of managing the SFN, it could be easier if it followed an existing network rather than becoming its own distinct network.
  - The appropriate size of the network will be dictated by the purpose of the SFN. If project funding is the only purpose, a smaller network may be preferred. If other purposes exist, a larger network may be appropriate (e.g., if being on this network provided eligibility to funding, etc.).
  - The NTN/TTN is likely too extensive for the purposes of the SFN. The IRC plus Supplemental Freight Routes may be a better starting point, but it was questioned whether this was extensive enough. There were also comments about the current IRC mobility performance measures; as some within MnDOT are not comfortable with these measures. A freight-related performance measure could potentially be substituted for this measure.
    - A question was asked if the IRC connect to all airports, ports, and other facilities important to freight movement.
  - Some consensus was gained around pursuing the Enhanced NHS network as a starting point for the identification of the SFN. One advantage to using the NHS network is that required travel time data is already being collected for mobility measures. This data could be used to create a freight performance measure without requiring any additional data collection.
  - The Enhanced NHS is currently being reviewed by MnDOT to determine which Principal Arterials should be included in the network. This will be submitted to the FHWA in early 2015.
- The harmonization of truck size and weight restrictions between Minnesota and bordering states is a frequently cited issue by freight manufacturers and shippers.
- Does the Twin Cities Metro Area require special consideration for freight? Should it be a separate network entirely or should it be excluded from this analysis, similar to the IRC system? Should the Metro Area network simply reflect the "Principal Arterials" designation?
- A map of the major manufacturers would be helpful in guiding this discussion.

Minnesota Statewide Freight System Plan SFN Ad Hoc Working Group Meeting #1

Meeting #2 for the Ad Hoc Working Group will focus on the non-highway components of the SFN. This meeting will be held in January. It was noted that it will be important to include representatives from ports, railways, and other non-highway freight stakeholders in this next meeting.



# MINNESOTA STATEWIDE FREIGHT SYSTEM PLAN MULTIMODAL FREIGHT NETWORK AD HOC WORKING GROUP MEETING #2

MEETING MINUTES January 27, 2015 9:00 AM

### **ATTENDEES:**

John Tompkins, MnDOT Philip Schaffner, MnDOT Tim Spencer, MnDOT Peter Dahlberg, MnDOT David Tomporowski, MnDOT Steve Voss, MnDOT Steve Elmer, Metropolitan Council Erika Witzke, Cambridge Systematics Elaine Mckenzie, Cambridge Systematics Bob Golnik, Cambridge Systematics Andy Mielke, SRF Chris Ryan, SRF

This meeting was the second of three that are scheduled for the Multimodal Freight Network (MFN) Ad Hoc Working Group. The focus of this meeting was to continue the discussion of the goals and purpose of the MFN and to review the evaluation of the various Minnesota Freight Networks conducted after receiving feedback from the group during the first meeting.

#### **RECAP OF PREVIOUS MEETING**

The consultant team presented a recap of the information presented in the first meeting. This information included an overall review of freight infrastructure throughout Minnesota, and the extent and coverage of six freight-related highway networks. The six networks included the following:

- MAP-21 Primary Freight Network (PFN)
- National Highway System (NHS)
- Interregional Corridor System (IRC)
- National Truck Network (NTN)
- Minnesota Twin Trailer Network (TTN)
- Minnesota conceptual 10-Ton Network
- Oversize/Overweight (OSOW) preferred routes

Some of the takeaways from the first meeting are listed below:

- The MFN should emphasize connections to freight facilities and access points. Mapping the major manufacturers and freight facilities will help guide the discussion.
- Designating the MFN using an existing network will be easier to manage than a newly created network.
- The purpose of the MFN will guide the application in terms of funding, maintenance, etc.
- Preliminary discussions in Meeting #1 favored the Enhanced NHS system.

# **PROXIMITY ANALYSIS: FREIGHT-RELATED BUSINESSES**

The consultant team presented the results of an analysis reviewing the proximity of freightrelated facilities and freight intermodal facilities to each of the six networks. The first analysis assessed the percent of businesses and the percent of total sales volume within one-quarter, one, and five miles of each of the networks. The analysis used employer data from InfoUSA that included all freight-related businesses in Minnesota with 20 employees or more.

A summary of the findings from the analysis is provided below:

- Despite being limited to only 155 miles throughout the state, the PFN still captures 50 percent of the sales revenue within the five-mile buffer. This is largely due to the concentration of the Primary Freight Network within the metropolitan area.
- The NHS and NTN/TTN capture approximately the same number of businesses and sales volumes (within 2-3 percentage points). However, the NTN/TTN has roughly 1,500 miles of additional roadway compared to the NHS.
- While there is much overlap between the IRC and the NHS and NTN/TTN networks in greater Minnesota, the IRC does not extend within the I-494/694 ring road in the metropolitan area. This severely limits the proportion of the freight-related businesses that the IRC is able to capture. The percent of sales volume within one mile is only 40 percent for the IRC compared to 87 percent and 90 percent for the NHS and NTN/TTN systems respectively.
- The 10-ton network results in significantly higher proportions of businesses and sales volume due to its much more extensive coverage throughout the state. The one-mile buffer of the 10-Ton network captures 97 percent of the sales volumes while the five-mile buffer captures 100 percent.

The consultant team presented an additional analysis that showed the number of businesses and the sales volume within one mile in relation to the centerline miles of each network. The results of this analysis are summarized below:

- The PFN resulted in 8 businesses for every mile, significantly higher than the other networks. However, given the limited extent of the PFN, the group agreed that it would not be a likely choice for the MFN.
- The 10-Ton network resulted in 0.3 businesses per mile, the lowest of the six networks. The group agreed that the 10-Ton network would also be an unlikely choice for the MFN because of its large size.
- The OSOW network is close to the average at 0.7 businesses per mile. However, the group also agreed that the OSOW system would be an unlikely choice for the MFN due to its specialized purpose. The OSOW network is intended to divert over-dimensional loads away from heavily traveled roads. It also entirely avoids the metropolitan area.
- The IRC (0.9 businesses per mile), the NHS (1.1 businesses per mile), and the NTN/TTN (0.9 businesses per mile) are relatively close in terms of businesses served and the size of their networks. Between these three, the NHS provides the highest rate of businesses per mile.
- It is important to note that one reason the IRC does not perform as well as the other two networks is that it does not have any mileage within the I-494/694 urban core. If a similar analysis were conducted for only greater Minnesota, it is likely that the IRC system would perform at least as well—if not better—than the NHS system.

### **PROXIMITY ANALYSIS: INTERMODAL FACILITIES**

A similar proximity analysis was conducted using a MnDOT dataset of intermodal freight facilities. These included the following types of intermodal facilities: Truck/Rail Terminals, Container Terminals, Pipeline Terminals, Air Cargo Terminals, Grain Shuttle Terminals, Lake Terminals, and River Terminals.

The results of the intermodal facilities analysis mirrored the results from the previous analysis. The PFN captured the fewest number of facilities while the 10-Ton network captured the most. The NHS and the NTN/TTN were closely matched with approximately 80 percent of the intermodal facilities located within one mile of each. Due to the concentration of intermodal facilities within the metropolitan area, the IRC network captured roughly half as many facilities as the NHS and NTN/TTN for the ¼ and one mile buffers.

There was a general consensus from the group that the NHS continued to be the favored network for designation as the MFN based on the results of the previous analyses as well as other factors such as the availability of roadway data.

### LINKING THE HIGHWAY AND NON-HIGHWAY MODES

Minnesota Statewide Freight System Plan MFN Ad Hoc Working Group Meeting #2

The consultant team presented an overview of the NHS Intermodal Connectors. The purpose of these roadways is to "provide access between major intermodal facilities and the other four subsystems making up the National Highway System." Eligibility for inclusion in the NHS is determined by an evaluation of primary and secondary criteria. States may place requests with the FHWA to include additional roadways at Intermodal Connectors.

Minnesota has two freight intermodal connectors, including the recently added Shoreham Rail Yard intermodal connector in Minneapolis. Minnesota also has nine passenger intermodal connectors, but three of these are airports (MSP, Rochester, and Duluth) that also provide freight handling service. The consultant team presented aerial images displaying the location of the NHS mainlines and intermodal connecters in relation to the two freight facilities and the three airports. There was much discussion regarding whether the existing intermodal connecters are sufficient. In particular, the question was raised of whether the connectors at the Rochester and Duluth airports get close enough to the facilities they are serving. It was also noted that the intermodal connector at the MSP airport links Terminal 1 (Lindbergh), but does not link Terminal 2 (Humphrey) or Cargo Road, which is where the major shippers (FedEx, UPS, and DHL) are located.

### **NON-HIGHWAY MFN COMPONENTS**

The consultant team presented information on Minnesota's Freight Rail systems. Minnesota currently has four Class I railroads that handle 80 percent of the freight rail traffic statewide. There are also 15 shortline railways with key connections in the Twin Cities, Duluth, Fargo, and Tracy. There was some discussion regarding how much of the freight rail system should be included in the MFN (e.g., Only the Class I railways, the Class I railways and specific shortlines, all railways). A final determination on the extent of the MFN rail system was not made at this meeting.

There is one freight facility (Shoreham Rail Yard) that has a designated NHS intermodal connector. Additionally, there are six other rail intermodal facilities that meet the primary, secondary, or proximate connections criteria to be eligible for inclusion as an NHS intermodal connector.

The consultant team then presented information on airports throughout Minnesota, including the seven primary airports in the state. Three airports in Minnesota (MSP, Duluth, and Rochester) meet either the primary or secondary criteria for NHS intermodal connector eligibility. All three airport are currently served by intermodal connectors.

### Minnesota Statewide Freight System Plan MFN Ad Hoc Working Group Meeting #2

The team then presented information on water ports throughout Minnesota. These include four ports on Lake Superior and four on the Mississippi River System. Only the Port of Duluth is served by an NHS intermodal connector.

The consultant team presented a table with a list of potential applications for the MFN. The intent of the table was to generate discussion about how the MFN might be used. The potential applications included the following:

- Track freight system activity
- Monitor freight system performance
- Prioritize system needs
- Have different (higher) design standards (e.g., pavement)
- Have different (higher) maintenance standards (e.g., plowing)
- Receive priority consideration during project selection
- Receive priority consideration during project funding
- Align with dedication freight funding sources

Many in the group noted that nearly all of these applications could potentially be considered for the MFN. One additional application noted during the meeting was the relationship between the MFN and complete streets.

A question was also raised regarding whether MnDOT will choose the MFN based on these criteria, or if the appropriate criteria will be selected based on the network that is chosen.

A final question was raised about the status of Snelling Avenue on the NHS. Snelling Avenue experiences high levels of freight traffic and is a key connection to two intermodal facilities in the Midway. In researching this following the meeting, the consultant team found that Snelling Avenue is not included in the NHS. However, it is a part of the NTN/TTN.

The third and final meeting of the MFN Ad Hoc Working Group will summarize the findings from the previous two meetings and will provide a slate of strategic freight network components for the MFN. The meeting will also be used to discuss any other significant freight facilities or generators that have not yet been discussed in Meeting 1 and 2. The final meeting will be scheduled in March.