



Appendix A

SUMMARY OF EACH DOCUMENT REVIEWED

MARCH 2015

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This section provides a brief description of each document reviewed, and a summary of the issues, needs, opportunities, recommendations, and solutions for the rail system in each. A brief summary of findings determined to be relevant to the 2015 State Rail Plan Update are also included in each section.

Rail Planning Documents

MINNESOTA COMPREHENSIVE STATEWIDE FREIGHT AND PASSENGER RAIL PLAN (2010)

www.dot.state.mn.us/planning/railplan/finalreport/MNRailPlanFinalReportFeb2010.pdf

The 2015 Statewide Rail Plan is an update to the 2010 Minnesota Comprehensive Statewide Freight and Passenger Rail Plan. MnDOT completed the 2010 Plan in response to 2008 state legislative order, the US Passenger Rail and Improvement Act of 2008, and Governor's directives. It was required that Minnesota write the Plan in order to be eligible for federal funding. The Plan was written to provide guidance for the future of Minnesota's rail system and services. The nine-month planning process included extensive public outreach to incorporate stakeholder feedback into the final document.

Key Issues, Needs, and Opportunities

The 2010 Plan provided the opportunity to systematically plan the future rail system for the state of Minnesota. A number of system needs and opportunities were identified, most notably that a large number of primary rail lines were operating over capacity in 2009, and the number of capacity constraints was forecasted to increase substantially by 2030. Furthermore, a dedicated funding source for financing the repair and expansion of the state rail system was not available. The Plan documented that a combination of federal, state, regional, local, and private resources will be necessary to improve and expand the rail system and services throughout Minnesota.

Proposed Solutions or Recommendations

A priority program was developed to meet the needs identified for the state's rail system and services and achieve the state's rail vision for both the passenger and freight rail systems. The components of this program include:

- High-speed passenger rail service to Chicago, Duluth, and Rochester
- Enhanced conventional passenger rail to St. Cloud, Mankato, Fargo, Eau Claire and between the Twin Cities
- Positive Train Control on all shared corridors and freight-only corridor which may handle certain categories of hazardous material
- Grade crossing upgrades on all shared corridors
- Upgrade major junctions and bridges
- All mainline track upgraded to minimum 286,000 pound capacity and 25 mph condition
- Programmed upgrades of all active warning devices and signs
- Additional intermodal facilities
- Short line bridge upgrades

Impact to the Statewide Rail Plan

The 2015 Statewide Rail Plan will be an update of the 2010 Plan, documenting updates the passenger and freight rail systems, as well as changes to rail program funding at both the State and Federal levels.

NORTHERN LIGHTS EXPRESS TIER I ENVIRONMENTAL ASSESSMENT (2013)

www.northernlightsexpress.org/joomla/index.php

MnDOT completed the Northern Lights Express High Speed Rail Tier I Environmental Assessment (EA) in 2013 to investigate the potential environmental impacts of passenger rail between Minneapolis and Duluth. The EA considered 17 different alternatives and screened them based on population, route distance, presence of route defects, and other factors. Additional consideration was given to travel time, proximity to markets, conflicts with freight or future rail projects, conflicts with existing ownership, system connectivity, capital costs, and public support. The Federal Rail Administration approved the EA in April 2013 with a finding of No Significant Impact. MnDOT also issued a Negative Declaration. Therefore, an Environmental Impact Statement is not required at a state or federal level. Future phases of engineering will work to further minimize the project's footprint and impact on the environment.

Key Issues, Needs, and Opportunities

One of the needs identified for this project is congestion between Minneapolis and Duluth, including travel sensitivity due to poor weather conditions. Safety risks and environmental impacts are other reasons why the project is needed. The EA also identified demand for passenger rail service as a project need, with an estimated 938,000 annual riders in 2020 and 1,302,000 annual riders in 2040.

The EA identified the importance that the passenger rail project coexist with freight rail. Therefore, a route was selected to best achieve this functionality. Track and system improvements are necessary to support colocation operations on the selected route. There are currently 160 at-grade crossings along the selected corridor, 126 of which are public and 34 that are private. All of the public crossings would remain open with the implementation of this project, but 30 – 40 percent of the private crossings would be closed.

The proposed project is compatible with all of the plans completed by cities, counties, and the state that include this corridor. Most of the land needed for the high speed rail corridor is already owned by BNSF. One hundred twenty acres would need to be purchased from private land owners; most is currently undeveloped space or cropland, but developed property would be impacted in the city of Cambridge, Minnesota.

Proposed Solutions or Recommendations

The route recommended in the EA is a 152-mile route following the existing BNSF Railway right of way between downtown Minneapolis and Duluth, including shared and new dedicated track. The proposed route would operate eight round trips per day and stop at stations in Minneapolis, Coon Rapids, Cambridge, Hinckley, Superior, and Duluth.

Several infrastructure improvements are recommended for the corridor based on the results of the EA. Stations would need to be constructed in Minneapolis, Coon Rapids, Cambridge, Hinckley, Superior, and Duluth, and a layover and light maintenance facility would need to be constructed in Duluth. Other necessary infrastructure includes the construction or extensions of passing sidings and sections of double tracks; bridge and culvert construction, rehabilitation, or replacement; at-grade crossing upgrades; improved track configuration; and installation of new crossovers and signal upgrades.

Impact to the Statewide Rail Plan

The infrastructure improvements recommended in the EA should be incorporated into the Statewide Rail Plan so that they can be evaluated and prioritized with other rail-related infrastructure investments needed throughout Minnesota.

ROCHESTER – TWIN CITIES ZIP RAIL TIER I EIS (2015)

www.goziprail.org

The Rochester – Twin Cities Passenger Rail Corridor Investment Plan Tier 1 EIS will be completed by Olmsted County, MnDOT, and the Olmsted County Regional Railroad Authority in 2015. This study will analyze the potential environmental impacts of high speed rail between Rochester and the Twin Cities. The proposed 100-mile corridor travels through seven counties and aims to eventually provide a connection between the Twin Cities and Chicago. The proposed project would operate at speeds up to 140 – 220 mph on dedicated track along the corridor. A public-private partnership is being pursued to finance the project, ensure a high standard of operation, and limit the governmental risk and subsidy.

The Zip Rail Final Scoping Decision document was released in January 2015, but did not include any additional specific cost estimates for various alternatives. The Scoping Decision listed The Zip Rail Tier I Environmental Impact Statement will be completed later in 2015, and will include detailed cost estimates for the preferred corridor alternative identified. The results of the EIS will impact the State Rail Plan since it will provide further insight on the viability of high speed passenger rail service between Rochester and the Twin Cities and will highlight if infrastructure improvements are necessary along this corridor.

Key Issues, Needs, and Opportunities

A need has been identified for an additional mode of transportation between Rochester and the Twin Cities that is direct, convenient, and competitive with other modes of transport. Initial findings indicate that a high speed passenger rail system between Rochester and the Twin Cities is economically and technically viable. The system will shorten time of travel between the two termini, and will provide more travel options for the growing population in the Twin Cities and Southeastern Minnesota. The University of Minnesota and Mayo Clinic are predicted to attract travel demand, and would both benefit greatly from a multimodal transportation network.

Proposed Solutions or Recommendations

Initially, the project's "universe of alternatives" included 1,200 potential alignments. These alternatives were narrowed down to eight potential end-to-end using the criteria listed in the Scoping Decision document's Alternatives Screening Process. Currently, the corridor is split into a northern segment from the Twin Cities area to Coates, and a southern segment from Coates to Rochester. The preferred corridor alternative will be chosen and examined in the Tier I EIS, which will be available later in 2015.

Impacts to the Statewide Rail Plan

The results of the Study will impact the Statewide Rail Plan since it will provide further insight on the viability of high speed passenger rail service between Rochester and the Twin Cities and if infrastructure improvements are necessary along this corridor.

TWIN CITIES – MILWAUKEE HIGH SPEED RAIL TIER I EIS (2015)

www.dot.state.mn.us/passengerrail/mwrri/study.html

The Minneapolis/St. Paul – Milwaukee High-Speed Rail Draft EIS was originally slated to be completed by the Federal Railroad Administration and MnDOT in 2014, and finalized in 2015. This study was going to analyze different alternatives and the required improvements needed for high speed passenger rail between the Twin Cities and

Milwaukee. The EIS was also investigate the potential environmental impacts of developing high-speed passenger rail in this corridor. Due to cost restraints and political opposition in Wisconsin, this study was placed on hold for the time being. Corridor studies will restart at a currently unknown time.

Key Issues, Needs, and Opportunities

- Travel demand is projected to increase within the study area, increasing strains on the existing transportation infrastructure
- Competitive, attractive, and reliable transportation alternatives do not exist in the corridor
- Intermodal connectivity is limited between existing transportation systems

Proposed Solutions or Recommendations

Proposed solutions or recommendations are forthcoming.

Impacts to the Statewide Rail Plan

The results of the EIS will impact the Statewide Rail Plan since it will provide further insight on the viability of high-speed passenger rail service between the Twin Cities and Milwaukee and if infrastructure improvements are necessary along this corridor. Since the EIS is on hold, the State Rail Plan will utilize estimates and proposed improvements from previous studies.

COMMUTER RAIL TECH MEMO 10 (2011)

www.dot.state.mn.us/planning/railplan/files/TechMemo10.pdf

The Commuter Rail Tech Memo 10 was written as an amendment to the Minnesota Comprehensive Statewide Freight and Passenger Rail Plan. The Plan was adopted in February 2010 and included traffic forecasts and system impacts from growth in Minnesota's freight and passenger rail systems. The Memo provides a conceptual schedule for current and planned passenger rail since the Minnesota Comprehensive Statewide Freight and Passenger Rail Plan from 2010 did not include information regarding specific train operations.

Key Issues, Needs, and Opportunities

The fully built-out rail system planned for Minnesota includes a high speed intercity passenger rail route to Chicago with eight round trips per day. Regional passenger rail routes are also planned between the Twin Cities and trade centers in Rochester, Mankato, St. Cloud, Fargo/Moorhead, Duluth/Superior, and Eau Claire, Wisconsin. Most of these routes would operate between four and nine round trip daily. Commuter service from Big Lake to Minneapolis would continue, and long distance Amtrak service is projected to expand.

Based on the conceptual schedules that were created for the current and planned passenger rail services in Minnesota, the Saint Paul Union Depot could facilitate up to 68 passenger train revenue movements by 2035 and 74 movements by 2050. This activity would require infrastructure expansion since almost all movements would be through movements. Six through tracks are likely needed.

The Minneapolis Transportation Interchange, now called Target Field Station, could facilitate 86 revenue movements by 2035 and 90 by 2050. The majority of trips traveling through this station would be terminating and would also require reversals in the station. Eight tracks would likely be necessary to allow for fluid and flexible operation, as up to 20 freight train movements would go through the Interchange as well. Infrastructure expansion is likely needed since the Interchange is projected to store an average of eight regional and high speed intercity passenger rail trains each night.

Proposed Solutions or Recommendations

The Memo does not include specific recommendations. However, the Memo generally recommends that the Minneapolis Transportation Interchange, the Saint Paul Union Depot, and routes between the downtowns be set up as independent projects. This should be done with a lease or shared investment mechanism so all users can share project costs.

Impacts to the Statewide Rail Plan

This document includes conceptual schedules for current and planned passenger rail routes, which should be included as a consideration when determining statewide investment needs as part of the Rail Plan. The memo also demonstrates the integration of the various passenger rail lines at these facilities and outlines infrastructure that is needed.

EAST METRO CAPACITY STUDY (2012)

www.co.ramsey.mn.us/rail/docs/2012_FINAL_REPORT_East_Metro_Rail_Capacity_Study.pdf

The East Metro Rail Capacity Study was completed, as directed by the Ramsey County Regional Railroad Authority and the Red Rock Corridor Commission, to identify needs, constraints, and potential solutions for transforming the Union Depot in downtown St. Paul into a regional multimodal transit hub. The Study addressed existing rail capacity issues and the rail capacity improvements needed throughout the East Metro in order to implement commuter and high speed passenger rail. It investigated options for mitigating impacts to freight rail as commuter and high speed passenger rail projects are implemented. The options included scheduling/dispatching, train routing, low cost capital improvements, and higher cost capital improvements.

Key Issues, Needs, and Opportunities

Critical issues were identified by freight stakeholders in the beginning of this planning process. These surrounded the topics of on-time performance, capacity for growth (projected at 36 percent), and the anticipation of Future Rail Carrier Agreements. Key operational issues were highlighted by stakeholders, including facilities and track ownership, through movements, yard operations, and train volumes.

Physical constraints affecting rail in the study area were also analyzed. One issue highlighted is that a large portion of the existing BNSF and Canadian Pacific (CP) tracks directly east of St. Paul and in Hastings are located in or near the 100-year FEMA floodplain. There are approximately 900 previously identified cultural and historic resources, and possibly many more that are unknown. Most of these resources are historic structures, but there are also Native American mound sites, potential burial grounds, and Traditional Cultural Properties. There are also two areas with deep-seated compressible soils in the Study Area, which have the potential to cause structural problems due to settlement.

The stakeholders involved in this plan also agreed upon three fundamental requirements of future rail improvements. First, they agreed that additional infrastructure must accommodate both freight and passenger trains. Stakeholders also concurred that as rail traffic increases, train occupancy of the rail mainlines needs to be minimized to prevent congestion and interference. Finally, stakeholders found it essential that future infrastructure provide multiple rerouting opportunities to increase chances of successful operations despite the variety of potential obstacles.

Proposed Solutions or Recommendations

The Study recommends that railroad, RCRRA, and other stakeholders implement the alternative labeled in the study as Option 1.5, with the exception of the Depot flyover. This alternative focuses rail infrastructure improvements in the northernmost portions of the Study Area to accommodate for the forecasted increase in freight traffic and passenger service. These improvements include new mainline segments, flyover/jump tracks and “duck under” tracks, switch

upgrades, yard shifts, tail track, a siding, and various other minor improvements. The Study also recommends additional rail infrastructure if and when new passenger service is planned.

Impacts to the Statewide Rail Plan

The findings and recommendations from the Study impact the Statewide Rail Plan because they present current capacity challenges in this key area for freight and passenger rail movement through Minnesota's rail system.

TARGET FIELD STATION TO ST. PAUL UNION DEPOT ALTERNATIVES SCREENING REPORT (2014)

The screening report was conducted to analyze potential passenger rail connections between Target Field Station in Minneapolis and the St. Paul Union Depot. It will be used as an add-on to the Tier 1 NEPA analysis for the Twin Cities-Milwaukee High Speed Rail line. The goal of the document was to analyze several passenger routing options between Minneapolis and St. Paul that would be cost effective and time-competitive with downtown-to-downtown automobile travel. Developing a passenger rail line between the downtown areas is paramount for developing a statewide passenger rail network in the future.

Key Issues, Needs, and Opportunities

The alignment between Minneapolis and St. Paul is crucial for developing an intercity passenger rail network in Minnesota, as any travel between cities will likely go through the Twin Cities. As part of the analysis, various routings and a no-build option were evaluated to determine the best route. Three alignments – a North, Central, and South route – were selected for further analysis. All three alignments lack current dedicated passenger track. All alignments utilize old, historic bridges that will need to be rehabilitated, pass through lower income communities, and skirt edges of parkland and historic buildings that may need further study.

Proposed Solutions or Recommendations

It was determined that although the North and Central routes have less major curves and larger amounts of right of way for rail movements compared to the South route, they are much more congested with freight trains on a consistent basis and do not contain excess right of way for potential passenger mainline track development. The South route was chosen as the best passenger routing as it has a better potential to develop mainline track and would have a faster running time. Due to the configuration of arrival to Union Depot, trains on the South route would also experience a smaller dwell time, and therefore would be able to operate more frequent trains. The Screening Report recommended that the South route be the only option to move forward for further passenger rail consideration.

Impacts to the Statewide Rail Plan

The recommendation to move forward with the South route as the considered alignment impact the Statewide Rail Plan. Future studies and eventual implementation of the downtown-to-downtown passenger rail service will utilize the Rail Plan as a guiding document for planning purposes.

MNDOT GRADE CROSSING SAFETY STUDY FOR CRUDE-BY-RAIL (2014)

www.dot.state.mn.us/govrel/reports/2014/rrxingsreport.docx

This study was conducted by MnDOT in 2014 under state legislative direction to investigate highway-rail grade crossing improvements for oil and other hazardous materials transported by rail. From 2005 to 2014, rail traffic carrying Bakken shale oil originating in North Dakota increased from zero to nine fully loaded trains per day, of which 5 to 7 train loads crossed through Minnesota. Recent catastrophic rail incidents associated with Bakken crude oil outside the state of Minnesota demonstrate the potential safety risk of transporting hazardous materials by rail. At the

time of the study, more than 700 miles of rail in Minnesota actively carried Bakken crude oil. MnDOT investigated areas along this mileage where safety could be improved to reduce public exposure to derailments, spills, and fires.

Key Issues, Needs, and Opportunities

Three Minnesota rail corridors carried Bakken crude oil at the time of the study:

- BNSF mainline from the Twin Cities to Fargo/Moorhead via St. Cloud, Staples, and Detroit Lakes
- Canadian Pacific's mainline from La Crescent to the Twin Cities and then to North Dakota via Glenwood
- BNSF corridor from Fargo/Moorhead to Willmar to the South Dakota border via Marshall and Pipestone

The study noted 683 present day at-grade rail crossings where Bakken crude oil passes. To find the most at-risk crossings, an aggregate score was calculated using a combination of GIS population analysis near crossings, federal crossing safety standards, and frequency of crude traffic on the respected rail line. Of the 100 crossings, 40 were researched further. Improvement recommendations for these 40 were made based on the aggregate score and cost-benefit feasibility of each crossing.

Proposed Solutions or Recommendations

The study identified site needs—including grade crossing signal systems and alternative railroad grade crossing improvements—along the investigated routes. The Minnesota state legislature appropriated \$2 million in 2014 to make a first round of short-term initial improvements to crossings in Big Lake, Clear Lake, Elk River, Perham, St. Cloud, St. Paul Park, Wadena, and Winona.

In the long-term, it was determined that Minnesota needs to invest a total of \$244 million to improve at-grade crossings where Bakken oil passes. Depending on the importance and the aggregate score of each crossing, recommended improvements include closing non-essential at-grade crossings, upgrading passive warnings to active signals, improving active signal protection with more effective safety treatments, or constructing new grade separations along the lines.

Impacts to the Statewide Rail Plan

This report recommended action for each highway-rail grade crossing investigated. Given the limited amount of funding to make improvements, not all recommendations will be immediately implementable. The list of recommendations should be incorporated into the Minnesota Statewide Rail Plan.

SOUTHEASTERN MINNESOTA FREIGHT RAIL CAPACITY STUDY (2013)

www.dot.state.mn.us/planning/src/

This study was completed by MnDOT and the Olmsted County Regional Railroad Authority under a congressional appropriation to evaluate the need and feasibility to mitigate and/or relocate the existing Dakota, Minnesota and Eastern Railroad freight line in Rochester, Minnesota. This line was identified in 1998 as a portion of a proposed coal route that could experience an increase of up to 34 one-mile long loaded and empty unit coal trains per day should a new 281-mile rail line be built into the Powder River Basin in Wyoming. Since 1998, multiple studies evaluated impacts and proposed alternatives for the greater Rochester area should an increase in train traffic become reality. This 2013 report included a feasibility study and alternatives analysis to make technical recommendations through a community process. The feasibility study was conducted to determine whether or not the existing rail corridor could handle an increase in freight traffic. The alternatives analysis evaluated improvements to the existing alignment and proposed bypass alternatives for safety, environmental, and capacity benefits.

Key Issues, Needs, and Opportunities

Four different train scenarios were modeled along the existing route to determine the feasibility of existing track to accommodate rail traffic increases of up to 39 trains per day. Ten alternatives were evaluated: one no action alternative; four existing alignment alternatives with rail improvements, grade separations, and/or elevated rail; and five bypass alternatives.

At increased levels of train traffic, the study identified rail improvements that are needed to maintain operating feasibility on the existing route. These improvements include construction of sidings with power assisted switching, yard relocation, track improvements to continuous welded rail, and signal system installation. The study proposed a new siding between East Circle Drive and College View Road in Rochester, relocating the Rochester rail yard, upgrading jointed rail to continuously welded rail, and adding a centralized traffic control signal system.

Project stakeholder groups expressed concerns for safety, right of way, traffic, and environmental impacts of proposed alternatives. In December 2012, it was announced that plans for a rail extension into the Powder River Basin were deferred indefinitely—greatly reducing the likelihood of an increase in unit coal trains traveling through the study area

Proposed Solutions or Recommendations

The feasibility study found that it is operationally feasible for the existing rail corridor to accommodate traffic increases of up to 39 daily trains by implementing a series of improvements. However, the results of the alternatives analysis indicate that no one alternative emerged as a clearly preferred alternative, and the primary differentiator was cost.

A menu of recommendations for the existing alignment was proposed as safety or capacity benefits at various levels of train traffic. Improvements included yard relocation, continuously welded rail, automatic block signaling, centralized traffic control, grade separation at three different intersections, and elevated rail. It was recommended that the existing rail corridor be preserved for its multipurpose utility and transportation benefits to accessing the city of Rochester.

Impacts to the Statewide Rail Plan

Even though the likelihood of train increases associated with a Powder River Basin extension is now greatly reduced, this study included recommendations for improvements that would provide real safety and capacity benefits within the project area at various levels of train traffic. Those recommendations should be incorporated into the Statewide Rail Plan with their respective capacity benefit triggers to allow for future accommodation of train traffic increases onset by other sources.

FREIGHT RAIL ECONOMIC DEVELOPMENT STUDY (2013)

www.dot.state.mn.us/ofrw/fred/PDF/final.pdf

The Freight Rail Economic Development Study was completed by MnDOT and the Minnesota Department of Employment and Economic Development in 2013 as was mandated by the State legislature in 2012. The Study compared Minnesota's infrastructure, programs, and performance to those of surrounding states and those with strong rail programs. It investigated methods for expanding rail-related business growth in Minnesota.

Key Issues, Needs, and Opportunities

Railroads were found preferable for transporting large volume shippers of agricultural, industrial, manufacturing, mining, and consumer products. This is because rail helps achieve transportation efficiencies for bulk cargo. As a result, freight is essential to the economic competitiveness of Minnesota's industries. The importance of freight is

increasing within Minnesota's economy due to increased motor carrier regulations, increased fuel costs, and truck driver shortages.

The Study also stressed the importance of partnerships in Minnesota's freight industry. Minnesota's rail network is regional and international in scope, and therefore is critical in supporting exports. The partnership between Class I and short line railroads is essential for a well-functioning freight rail system. Communication between railroads and economic development agencies is also important. The Study found that many agencies are interested in collaborating with railroads but do not know who to contact or how to begin discussions. Due to freight's increasing importance, intermodal freight transportation policy will be an important topic for discussion among policymakers and industry professionals in the near term.

Feedback and insight on rail economic development was gleaned from stakeholders throughout the development of the Study. The stakeholders highlighted the importance of rail improvement projects amounting to \$43.4 million, which included bridge replacements, access points, rail siding, track replacement, new spurs, safety crossings and signal improvements, as well several others. While funding has been identified for some of these projects, many remain unfunded.

Funding was another important issue identified in the Study. The current funding mechanisms in Minnesota favor smaller projects, but rail infrastructure projects have economies of scale that benefit from larger funding sources. Economic development agencies in Minnesota have funding available for highway projects but very limited rail funds, which hinders their ability to collaborate on rail projects that would benefit their regions. Planning is vital to the implementation of rail projects and the vision for what will be needed in the future. Many rail programs currently lack the funding to support the planning that is necessary. There is also not a secured and dedicated funding source for rail infrastructure improvements in Minnesota. This is necessary for long range program and infrastructure planning and implementation.

While freight plays a critical role in the state's economy, current public perception underestimates its importance to the economy and the community it serves. Therefore, educational events and informational publications are necessary to provide a more accurate perception of freight's importance.

Proposed Solutions or Recommendations

The Study provided several strategies for enhancing the perception of freight throughout the state of Minnesota. Currently, many economic development administrations and regional development corporations have little knowledge about freight rail transportation. Therefore, collaborative efforts are necessary to inform these organizations on the importance of access to this mode. Since the infrastructure improvements needed for rail systems are often capital-intensive investments, funding programs need to be structured to support these projects. One change proposed by the Study is to alter the Minnesota Rail Service Program, which currently provides revolving loans for projects under \$200,000, to allow for larger projects. As businesses are investing in rail projects, Minnesota should invest in projects that leverage and complement the private sector's investment. Public-private partnerships have been used in many places throughout the United States and have been a successful method for leveraging private investment for rail projects. The Study recommended that Minnesota also pursue public-private partnerships for rail investments.

The Study also suggested other methods for increasing economic development related to freight rail. These included integrating with the Transportation Economic Development program, holding a semiannual forum to recommend and coordinate freight rail projects, hosting annual planning meetings with Class I railroads and the State Transportation Commissioner, and utilizing the statewide commercial property directory to market rail-related or rail-accessible properties.

Impact to the Statewide Rail Plan

The Study impacts the Statewide Rail Plan because it stresses the importance of educating the public and policymakers on the importance of freight rail and provides methodologies for starting these conversations and making necessary funding and programmatic change. The Statewide Rail Plan should incorporate study recommendations regarding funding—specifically, recommendations for increasing the maximum loan amount and introducing new funding mechanisms should be included.

Freight Plans

STATEWIDE FREIGHT PLAN (2005)

www.dot.state.mn.us/ofrw/PDF/MN_SFP_Final_Report_05.pdf

This plan represents the first-ever statewide transportation plan specifically for freight. It was developed under the impetus of federal legislation, including the Intermodal Surface Transportation Efficiency Act (ISTEA) and The Transportation Equity Act for the 21st Century (TEA-21). The plan summarizes the existing conditions of the statewide freight network in 2005 and identifies six policy recommendations to assist with the overall freight policy, which states:

“Provide an integrated system of freight transportation in Minnesota—highway, rail, water, air cargo, and intermodal terminals—that offers safe, reliable, and competitive access to statewide, national, and international markets.”

The Statewide Freight Plan is currently in the process of being updated, and is scheduled for release in 2015.

Key Issues, Needs, and Opportunities

Overall, the plan states that freight transportation needs should explicitly be considered in transportation investment decisions. The plan identifies that improvements are needed to the physical condition of the freight system in Minnesota due to age, wear, and inadequate design. Efficient connectors are needed between trade centers, to and from freight generating facilities, and to connect between modes in order to best meet current and future demand for goods movement.

As issues and needs identified in the 2005 plan were included in the 2010 Rail Plan, they are not explicitly identified here. The plan noted that freight planning is needed at the regional and local level to better capture local needs. Industries in specific geographic regions may have unique freight transportation requirements that should be separately identified and evaluated. Additionally, since the publication of this 2005 plan, several regional-level freight studies have been conducted in Minnesota (also reviewed in this document).

Proposed Solutions or Recommendations

Strategies identified included to enhance the operational performance and safety of statewide freight systems, such as improving highway-rail at-grade crossings. Recommendations were also made to enhance the integration of freight into state and regional transportation planning and investment decisions through developing freight system performance measures, strengthening consideration of freight during planning processes, providing assistance to transportation planning organizations, coordinating with FHWA and other federal agencies, and maintaining an effective freight research program. The plan also recommended strengthening public and public/private sector partnerships and seeking public-private investment opportunities to finance freight projects.

Impact to the Statewide Rail Plan

Although completed prior to the 2010 State Rail Plan, the 2005 State Freight Plan provided the context and background for subsequent freight, rail, and regional planning efforts in Minnesota.

SOUTHWEST MINNESOTA REGIONAL FREIGHT STUDY (2007)

www.dot.state.mn.us/ofrw/PDF/D7FinalReport101707.pdf

The Southwest Minnesota Regional Freight Study was conceived as a multimodal and industry oriented examination of freight movements specific to District 7. The study provides an understanding of current economic and freight transportation trends, issues, and needs as well as needed strategies and initiatives for improving freight at the regional and local level in south/southwestern Minnesota. Growth in the agricultural and renewable fuel industries suggest that significant growth, up to 200 percent, in freight traffic might occur in the region by 2030.

Key Issues, Needs, and Opportunities

The rail network provide competitive options for shippers in the region, particularly for the agricultural and ethanol industries. Rail service is particularly critical for agriculture and ethanol connections to national markets; at the time of the study about 60 percent of outbound ethanol traveled by rail. Furthermore, a trend that continues today, is that ethanol plants require increasingly long sidings to accommodate unit trains and other rail loading requirements imposed in recent years by Class I railroads.

Demand is also increasing for localized access to intermodal/ containerized freight. Identity Preserved (IP) food products and the need to trace grain and food through the supply chain to export markets now dictate the use of sealed intermodal containers.

Safety is another issue identified by the study. Predicted increases in truck or train traffic at highway/rail grade crossings may require enhancements to grade crossing safety, including active warning devices such as flashers and gates. Rail switching operations near plants, new rail crossings of roadways, and increased train speeds may also increase safety concerns.

Recent and upcoming trends in the trucking industry, such as truck size and weight regulations, truck parking availability and federal hours of service are projected to impact the balance between truck and rail competitiveness in Southwest Minnesota, as well as nationally. Additionally, regulations can be dramatically different from state to state. Some businesses and haulers in the area, with borders shared with Iowa and South Dakota, are practically limited from doing business in those states due to these differences.

Lack of data and performance measures related to all freight modes were cited as another issue by the study. Existing performance measures have been essentially directed at metro area congestion, statewide mobility, system preservation, safety, and operations. Freight data and information can be significantly enhanced to allow the district to better plan and program projects at the local level.

Proposed Solutions or Recommendations

The Study proposes that Minnesota should continue to develop performance measures applicable to regional and rural freight transportation issues. While a number of existing performance measures impact freight movements, additional measures or refinements should be developed.

Data on freight generators and system can and should be significantly enhanced, in part through improved cooperation with interdepartmental contacts in project planning regarding freight data and issues at the local level. Overall, there should be improved integration of freight planning activities into MnDOT planning, operations, and policies is needed to benefit responses to significant freight issues.

The study recommended a number of actions relating to truck freight, which will affect the competitiveness of the rail mode. In particular, Minnesota should pursue changes in truck size and weight to maximize safety and efficiency, as well as harmonize regulations with adjacent states and provinces. The Study notes that the State will need to identify and consider potential impacts of proposed truck size and weight changes on rail service.

MnDOT should take several actions at the State level that, working in conjunction with the district, would improve freight mobility in the region.

- The State Environmental Quality Board (EQB) development review process should be expanded to provide broader transportation impact review of all developments of regional significance, such as ethanol plants.
- More fully evaluate rail infrastructure and service needs in Southwest Minnesota.
- Identify public-private partnership opportunities for addressing rail issues and needs.
- Encourage greater coordination between transportation and economic development planners to encourage shipper use of rail, thereby reducing truck demand on roadways.
- Evaluate more fully the demand for and potential use of local intermodal container service.
- Evaluate the feasibility of implementing improved intermodal service with involvement by railroads, ocean shipping companies, third party providers, and state and local officials.

Impact to the Statewide Rail Plan

The study provides a number of recommendations for actions to be taken at the State or District level to improve MnDOT's ability to plan for and program freight projects, as well as improving mobility throughout the State. Many of these were considered during the 2010 rail planning process, and, as applicable, should be considered for inclusion in the 2015 Update.

WESTERN MINNESOTA REGIONAL FREIGHT STUDY (2009)

www.dot.state.mn.us/ofrw/PDF/westernmnfreightstudy.pdf

The Western Minnesota Freight Study is a multimodal transportation planning effort focusing on MnDOT Districts 2, 4, and 8 that includes highway (commercial vehicle operations), rail, air cargo, and intermodal transportation movements. The purpose of the study is to provide a better understanding of the demands from freight being placed on the regional transportation infrastructure and provide a framework to examine regional and local issues, document the existing freight transportation system, plan for improvements, and strengthen the role of freight in public planning and investment.

Key Issues, Needs, and Opportunities

The Dilworth, MN, BNSF "Intermodal Ramp" no longer has true intermodal service; instead, containers are trucked from the facility to St. Paul, adding additional costs. Issues identified by local shippers in Western Minnesota included concerns about the lack of a container pool at the BNSF Dilworth, MN intermodal terminal facility, the cost of repositioning empty containers to Dilworth, and the generally constrained footprint of the facility.

Access to freight generators and intermodal facilities was also cited as a concern in the Study. Specific routes from significant freight generators to transload facilities, production destinations, or border crossings onto higher capacity freight routes in neighboring jurisdictions would directly benefit the competitiveness and market viability of specific Minnesota businesses and employment sites. Another key issue, similar to Southwest Minnesota, was the lack of consistency between truck size and weight regulations between states, which effect the competitiveness of rail versus truck traffic.

Proposed Solutions or Recommendations

The study suggested that the District and MnDOT explore opportunities to reintegrate and expand intermodal service in Dilworth, MN. Similar to Southwest Minnesota, the region suggested that MnDOT consider policies to improve regional truck size and weight regulation uniformity between Minnesota and surrounding jurisdictions. The study also suggested that MnDOT undertake freight-related “quick start” projects (less than \$50,000) to gain and hold the interest of private sector carriers and shippers.

Impact to the Statewide Rail Plan

Like the previous Southwestern Minnesota Freight Study of 2007, the Western Minnesota Freight Study focused on examining issues with trucking, which indirectly affect rail as it shifts the competitiveness between the modes. Issues with intermodal service access and key intermodal facilities are critical to users of the rail system, and these considerations that impact rail service in the State should be included in the 2015 Plan Update.

NORTHERN MINNESOTA / NORTHWESTERN WISCONSIN REGIONAL FREIGHT PLAN (2009)

www.dot.state.mn.us/ofrw/PDF/Northern%20MN%20and%20Northwest%20WI%20Regional%20Freight%20Plan.pdf

The Northern Minnesota and Northwest Wisconsin Freight Plan is a multimodal transportation planning effort that includes highway (commercial vehicle operations), rail, waterway, air cargo, pipeline, and intermodal transportation in MnDOT District 1 and 2 and counties in Northwest Wisconsin. The study was sponsored by MnDOT, the Wisconsin Department of Transportation (WisDOT), and the Duluth-Superior Metropolitan Interstate Council (MIC).

Key Issues, Needs, and Opportunities

Much of the focus in Minnesota’s District 1 is on raw materials and commodity production. The largest commodity group exported out of the region is *Metallic Ores*, which accounts for 65 percent of all outbound tonnage. Taconite is transported by rail to Lake Superior ports, where taconite pellets are produced. At these locations, it is shipped by lake freighters to steelmaking plants on the Great Lakes. Economic opportunities in the region that may depend on future rail service include the large-scale mining of non-ferrous metals including platinum, palladium, and nickel, as well as gold, silver, and copper. The use of taconite tailings, or waste rock, as an alternative aggregate source is another opportunity being explored in the region. Lumber, wood, and paper products are key industries in the region that also use both the road and rail sectors.

The energy sector is also a key user of the rail system for transporting both equipment and energy producing materials. Bituminous coal mined in the Powder River Basin of Wyoming is transported by rail to Superior, where it is transloaded into Great Lakes bulk cargo ships and distributed to utility plants located all along the St. Lawrence Seaway. Wind turbines and other large energy sector equipment often are brought into the Port of Duluth, and sent by road or rail to the wind farms being developed in western Minnesota and the Dakotas.

Currently, there are no intermodal container terminals in the region, although demand exists. Therefore, access to national, international markets via intermodal containers is inefficient. In addition, constraints exist at the Duluth-Superior ports for existing and new commodities (e.g., slab steel, wind equipment, pulp), many of which are transported via rail from the Port.

Proposed Solutions or Recommendations

The plan proposes to develop an implementation plan for a new Truck/Rail/Water container terminal at the Port of Duluth. The plan also proposes to develop Garfield C and D docks to expand capacity at the Port.

This plan also discusses the opportunities for harmonization across state lines. MnDOT and WisDOT should examine legislation to create reciprocity across state lines for certain commodity exemptions or variations in truck size and weight laws.

MnDOT should also explore opportunities to improve coordinated planning efforts in Duluth-Superior regarding planning, port facilities, and access via road and rail. The State should facilitate a working agreement between the Duluth Seaway Port Authority and the Superior Harbor Commission, and encourage continued participation in planning activities by port stakeholders.

Impact to the Statewide Rail Plan

Rail provides a critical link between the industries in Northeast Minnesota and their supply chains, whether imports from Canada or connections to Great Lake Ports for commodity exports. The identified needs and recommendations for intermodal connections, and their importance to industry should be included in the Rail Plan Update.

CENTRAL MINNESOTA FREIGHT STUDY (2012)

www.dot.state.mn.us/planning/freightplan/central/files/CentralMinnesotaFreightStudy.pdf

The Central Minnesota Freight Study is a multimodal transportation planning effort that includes highway (commercial vehicle operations), rail, air cargo, and intermodal transportation movements, focusing on MnDOT's District 3, building upon freight planning effort by MnDOT's Office of Freight and Commercial Vehicle Operations (OFCVO) with assistance from MnDOT District 3. The purpose of the study is to provide a better understanding of the demands from freight being placed on the regional transportation infrastructure and provide a framework that addresses a number of regional goals.

Key Issues, Needs, and Opportunities

The Central Minnesota study area is on the western fringe of the expanding greater Minnesota-St. Paul Region. Population and economic growth are expected to lead to growth in the St. Cloud area's already sizable construction industries, as well as the large agricultural and retail industries. St. Cloud has a much larger manufacturing base than most of Minnesota, accounting for 14 percent of the jobs compared to 10 percent in the State. Manufacturing is more dependent on freight transportation than most other industry sectors and counts on the reliability and connectivity provided by the rail and road networks to produce and deliver products.

By 2030, the weight of freight moving into, out of and within Central Minnesota is projected to grow by 41 percent. A significant portion of this increase is expected to come from originating freight shipments, many of which travel by rail, such as agricultural products, non-metallic minerals, and food products.

Energy is a key component to the District 3 economy. Excel Energy's Sherburne County (Sherco) generating station, comprised of three power plants, consumes 30,000 tons or three unit trains of coal each day. Low-sulfur coal from Wyoming and Montana arrives daily by rail at the Sherco Station where it takes just three minutes to unload an entire coal car, and just six hours to unload an entire train. Coal has historically constituted the vast majority of commodities moving into the region by rail. Other products moving into the region by rail are raw materials such as clay, concrete, glass, and stone, paper, and chemical products. Chemicals are one of the region's fastest growing rail commodities. Pulp and paper products and waste/scrap are the highest tonnage outbound shipments in the region.

Notably, even with the manufacturing base and high use of rail for commodity shipments, there are no intermodal container terminals or waterway terminals within the study area. Nearest access to intermodal container service is at the CP Shoreham Yard in Minneapolis and at the BNSF Railway Midway Yard in Saint Paul. Nearest access to waterway terminals is located in the Twin Cities (Minneapolis, St. Paul, Savage), and in Duluth/Superior.

Proposed Solutions or Recommendations

The study suggested several ways in which the District and MnDOT should invest in rail related economic development in the region. The study suggested working with local businesses, public agencies, and users to determine whether improved rail service should be provided to industrial parks. Additionally the study suggested engaging the railroads to determine ways to improve service through design or operational improvements.

The study also suggests supporting and promoting rail improvement projects and programs, such as the Minnesota Rail Service Improvement Program (MRSI), which provides loans to shippers to improve the efficiency, condition, and capacity of rail operations. Rail and rail operators should be more explicitly included in economic development planning efforts at all levels.

Impact to the Statewide Rail Plan

The study suggested several ways in which MnDOT should address freight rail access in the region that should be considered for the Rail Plan Update. These include supporting rail improvement projects, promoting rail inclusion in economic development planning, and considering the need for intermodal service in the region.

SOUTHEAST MINNESOTA REGIONAL FREIGHT STUDY (2013)

www.dot.state.mn.us/ofrw/freight/semnfs.html

Southeast Minnesota (MnDOT District 6) consists of 11 counties roughly bounded by I-35 on the west, Iowa on the south, the Mississippi River on the east, and the Metro region on the north. The region is well served by the freight multimodal transportation network. The purpose of this plan was to build upon prior planning activities by Regional and MnDOT District Offices, WisDOT, and MnDOT's OFCVO to provide a better understanding of the demands of freight placed on the regional transportation infrastructure.

Key Issues, Needs, and Opportunities

The region is unique to Minnesota in several ways. The Mississippi River shaped the settlement and agricultural market conditions for this region and continues to be a major economic link for bulk products to a full range of domestic and international markets. The southeast region has enjoyed a steady increase in agricultural production from year to year, and produces a third of all Minnesota produce as well as being the state leader in dairy production. Food processing, consisting of every form of processed and pre-prepared food product on the market, is a key activity in virtually every major city in the area.

Freight infrastructure links are critical to this region's economy. Five major highway river crossings along the Mississippi are critical links to Wisconsin, carrying enough commercial and commuter traffic back and forth to create a highly inter-dependent economic zone. Extensive rail service is provided by two Class 1 railroads, Canadian Pacific and Union Pacific, and a short line, Progressive Rail. South East Minnesota has direct access to two of the five river ports in the state, Red Wing and Winona. Both Minnesota ports have good commercial access via State Trunk Highways, local arterials, and Class 1 railroads. However, while Class 1 rail mainlines parallel the Mississippi river on both banks (CP on the west, BNSF on the east), the only rail crossing is the Canadian Pacific bridge between La Crosse, Wisconsin, and La Crescent, Minnesota. This is a key interstate and international link between the Pacific Northwest and Chicago.

Unlike Central Minnesota, whose trade is tightly linked to the Twin Cities, Southeast Minnesota exhibits an unusually high profile in exporting goods internationally as well as to other US States. This activity is led by Rochester and includes a wide range of other producers and manufacturers across the region. Raw materials, including pure silica sand used as frac sand for oil production, has also been a high demand commodity. Beginning in 2010, the acceleration in shale drilling outstripped the frac sand supply, driving up prices, and created a boom in Wisconsin and Minnesota sand production that extended until the summer of 2012.

Rail intermodal traffic represent the fastest growing sector of rail traffic, in particular double-stacked international containers and domestic containers, which usually move in dedicated, high-priority trains. Minnesota has two major intermodal container terminals, both in the Twin Cities, sitting astride the Chicago-to-Pacific Northwest corridor. Many businesses in the region, in particular food processing and wholesale distribution, utilize containerized transport, but have to truck the container cargo to Chicago or Kansas City to access supplies or markets coming through the Ports of Long Beach/Los Angeles, the largest in North America, or the East Coast ports.

The region's stakeholders noted a consistent desire for better access to railroad container transportation. The issues revolved around congestion and a poor rate structure for import and export container shipments through the Twin Cities, no direct or expedited service to the Pacific southwest ports of Los Angeles/Long Beach, increasing trucking costs to reach Chicago or Kansas City, and poor equipment availability in terms of empty containers or refrigerated equipment. In spite of all these issues, virtually every interested shipper saw a great potential for better market access, especially foreign exports, if additional container terminal capacity or the start-up of a nearby facility could be arranged.

Several intermodal terminal proposals have been identified in the region. A private intermodal terminal in Winona has been built, but continues to face challenges of attracting major customers and having only limited support from the servicing railroad. Other proposals by business development agencies in logical 'crossroads' areas such as Albert Lea face the same challenges, as well as competitive terminal development interests nearby in Iowa and Minnesota.

Study interviews emphasized the need for uninterrupted and direct access between the Winona and Redwing regions, particularly across the region's bridges, which are used by both road and rail shipments to reach locations such as the Port of Winona, a major generator of cargo shipments for agricultural and industrial commodities.

Proposed Solutions or Recommendations

To develop railroad intermodal access, OFCVO and the District have been and will continue to work with client agencies such as the Albert Lea Development Agency, private shippers and transporters, developers, and the railroads to determine the business potential of several different terminal business models that may result in establishing rail intermodal service from South East Minnesota to a southern California gateway, and other domestic markets.

MnDOT along with the Port Authorities, may support a revised Ports Assistance Program, based on policy directions developed in the state's first Ports and Waterways Plan. Many commodities travel by rail to and from these ports. The private and public terminals in Winona report a consistent growth in Wisconsin agricultural production that moves via rail and water from the Port.

Impact to the Statewide Rail Plan

The study highlights a number of areas where improved rail access can leverage market growth, increase access to west coast markets, and improve competitiveness of Minnesota businesses.

TWIN CITIES METRO AREA REGIONAL FREIGHT INITIATIVE (2012)

www.dot.state.mn.us/planning/freightplan/metro/

The purpose of this document was to highlight the importance of the region's freight transportation system to businesses and residents, particularly in terms of its contributions to regional economic development and quality of life. The document includes an overview of the Twin Cities region, a description of the significant role the freight transportation system has played in developing the region over time, and an outline of the trends and challenges—both current and future—that affect the region's freight transportation infrastructure and goods movement. It also

highlights projects that demonstrate where agencies and organizations have taken action to improve goods movement.

Key Issues, Needs, and Opportunities

In 2007, about 282 million tons of freight valued at approximately \$280 billion was moved annually on the region's multimodal freight system. In 2008, the region was ranked 14th in the country for the value of its exports (about \$19 billion in total) with machinery being the region's single most valuable export. However, aging rail infrastructure and a growing shortage of capacity in the face of historic levels of rail traffic could limit the growth of rail freight and, in turn, cost competitive commodity movement in the region. Demand for intermodal (e.g., rail-to-truck movement) transportation is the fastest growing segment in rail transportation over the past 25 years. Intermodal traffic has grown from 3 million trailers and containers in 1980 to 11.7 million in 2005. At the same time, the increasing value and attractiveness of urban lands create a major impediment to expansion of freight facilities, because land is desired for uses (e.g., residences and commercial centers) that are incompatible with significant freight operations and industrial uses. Many regional policies already exist to help mitigate noise and other environmental impacts, but heightened environmental concerns may lead to increased regulations that will limit the expansion of the multimodal freight system and affect regional freight operations, project implementation, planning, and other activities.

Cost to both the public and private sector were cited as key issues in this study. With continuing uncertainties in transportation funding at the national level, it will become necessary for the State and region to implement lower-cost/high-benefit projects. Volatile fuel costs could affect national and regional distribution patterns as freight shippers seek alternative shipping routes that require less fuel, shorter supply chains, or modes that are comparatively more fuel efficient, such as rail.

Freight transportation safety is improving nationally and in Minnesota. In recent years there have been fewer accidents involving trains and fewer fatalities involving large trucks across the nation.

Proposed Solutions or Recommendations

One program discussed in this study, the Transportation Economic Development (TED) program is a collaborative effort between MnDOT and DEED that supports a number of projects which benefit goods movement. Through TED, funding is available to communities for highway improvement and infrastructure projects that create jobs and support economic development.

Impact to the Statewide Rail Plan

This study points out that rail is likely a lower cost freight alternative that could be leveraged to promote economic growth in the region. It is clear that the existing infrastructure will need to be upgraded in order to meet projected growth and this study highlights some of the challenges faced by those looking to invest in rail infrastructure.

Supplemental Plans and Studies

SUPPLEMENTAL INTERREGIONAL CORRIDOR STUDY (DRAFT, 2011)

www.dot.state.mn.us/planning/program/IRC.html

The IRC System was established in 2000 and is the backbone of the truck highway system. The 2,900+ mile system connects all major trade centers (level two and higher) in Minnesota, carries 30 percent of all vehicle miles traveled in the state and moves the majority of freight and freight value in the state. Since the designation of the interregional corridor (IRC) system over 10 years ago, the system has undergone various refinements along with a variety of policy changes that reflect the changing times. Given the recent changes in the economy and greater emphasis on sustainability and quality of life, officials wanted to revisit the IRC system and its measures and policies. As such, the

purpose of the 2010/2011 IRC System Review was to reassess the IRC System and determine its relevance with respect to Communicating information to the public and other stakeholders, managing and operating the system, and Guiding investment policy.

Key Issues, Needs, and Opportunities

Identification of intermodal freight facilities and their connections to the IRC system will help to ensure that good routes exist and that if inadequacies are found that they can be identified and prioritized in local transportation plans.

Key intermodal connections should be shown in MPO plans and coordinated with MnDOT to confirm/identify connectors from the IRC system to major freight and intermodal facilities.

The ability to safely and efficiently move over-sized, over-weight (OSOW) loads from ports and other intermodal facilities is important for overall economic vitality. MnDOT provides permitting of OSOW loads on Trunk Highways throughout the state.

Proposed Solutions or Recommendations

Identification of modal connectors will help visualize connectivity of the system; Through update of next MPO and Highway Investment plans, work with Districts and MPOs to further define intermodal connectors.

MnDOT should continue its performance-based approach to planning and design

Impact to the Statewide Rail Plan

Although the focus of this study is on the highway system, it notes that investment in rail infrastructure should leverage the IRC system where possible. These synergies should be noted in the Rail Plan Update, as they will allow for greater intermodal movement of goods through the region.

SCENARIO PLANNING AND THE IMPACTS ON TRENDS AND ISSUES AFFECTING FREIGHT TRANSPORTATION IN MINNESOTA (DRAFT, 2013)

A scenario planning workshop was undertaken at the University of Minnesota in 2013, based on four futures developed by NCHRP Report 750: Strategic Issues Facing Transportation, Volume 1: Scenario Planning for Freight Transportation Infrastructure Investment. This report documents that scenario planning process, and identifies and explores demographic and other broad trends and issues that may have impacts on the future of freight transportation in Minnesota. These trends and issues were examined from five perspectives (quality of life, economic competitiveness, environmental health, technology, and regulation), that previous research identified as key driving forces that influence transportation. Several of these driving forces also overlap with key drivers identified by *Minnesota GO*.

Key Issues, Needs, and Opportunities

The scenario planning exercise discussed key freight and rail related trends that will affect Minnesota's transportation future, including:

- Silica sand found along the Mississippi River Valley in Western Wisconsin and Southeastern Minnesota is considered perfect for hydraulic fracturing for oil production.
- The manufacturing and transportation of oversized wind energy components presents unique challenges to the transportation network, requiring specialized transport.

- Minnesota's global exports are rising, reaching \$20.5 in 2012, following a recent low of \$15.5 billion in 2009. Canada is consistently Minnesota's largest trading partner with more than \$6 billion in trade during 2012. Mexico and China are also key trading partners with the State.
- When the expanded Panama Canal opens in 2014, a new set of locks on both the Pacific and Atlantic sides of the canal will essentially double existing capacity. Minnesota farmers could favor use of the Canal route due to its increased capacity, but there are concerns about the Midwest's ability to handle the potential increase in traffic through the Mississippi system.
- The Northwest Passage connects the Pacific and Atlantic oceans along the northern coast of North America through the Arctic Ocean. This passage could be open for the entirety of the peak shipping season by 2050, likely making the passage the most desirable shipping route for cargo originating in eastern North America.
- Deregulation of the U.S. railroad industry has significantly impacted the shape and economic performance of this mode, as well as other modes experiencing deregulation.
- The Duluth Seaway Port Authority cites a lack of competitiveness among U.S. shipyards with foreign shipbuilders as one of the problems created for the Port by the Jones Act, which requires that all goods transported by water between U.S. ports be carried in U.S. ships constructed, owned, and crewed by U.S. citizens.
- As companies look for opportunities to increase the sustainability of their supply chains, a natural segment to examine is the environmental factors associated with the transportation and shipping of their goods and products. This may increase emphasis on the more energy efficient freight modes – water and rail, and away from air or less efficient trucking.
- Additionally, the study noted that in 2009, MnDOT estimated that the needed investment in state owned roads and bridges over the next 20 years to be approximately \$62 billion, while anticipated revenues during the same period would total just \$15 billion.
- The growing shortage of truck drivers is often cited as a looming capacity issue in the future as freight volumes continue to grow.

Proposed Solutions or Recommendations

The ability to employ a variety of modes in moving goods is essential to efficiency and minimizing environmental impacts. Stakeholders discussed the need for continued investment and support for highway and non-highway modes, even though in some futures the business models of non-highway modes will see significant changes from the current way of doing business.

The need to be cognizant of freight impacts on environmental health was a prevalent issue. In some scenarios, regulations to protect the environment were forced, however even in those scenarios where regulations over environmental issues were lax, participants viewed future policies and practices that minimize environmental impacts as a competitive lever.

Existing funding mechanisms are inadequate for making the levels of transportation investment needed in the future. While stakeholders discussed the need for new funding approaches that were more equitable, transparent, and applicable across the modes, none were able to offer definitive solutions

Impact to the Statewide Rail Plan

Many of the issues discussed as part of the scenario planning exercise have implications for freight and passenger rail use in the future. Issues such as truck driver shortages and increases in freight volumes, coupled with growing environmental concerns and lack of public funding, could lead to an increase in the demand for rail capacity across multiple industries.

MANUFACTURERS' PERSPECTIVES ON MINNESOTA'S TRANSPORTATION SYSTEM: A PILOT STUDY IN SOUTHWEST AND WEST CENTRAL MINNESOTA (2014)

www.dot.state.mn.us/d8/projects/manufacturersperspectives/Manufacturers'%20Perspective%20Pilot%20Study%20Final%20Report%20February%202014.pdf

In 2013, MnDOT initiated a project in District 8 (twelve counties in southwest and west central Minnesota) to better understand freight industries' transportation priorities and challenges, and to incorporate their input into MnDOT's planning and project development. The project's scope was intentionally focused on soliciting input that would inform low-cost/high-benefit projects, which can be accomplished in the next one to four years, assuming available resources. Discussions with manufacturers and carriers were focused on understanding their concerns, rather than offering potential solutions.

Key Issues, Needs, and Opportunities

Most of the issues identified by respondents focused on the truck sector, such as size and weight restrictions and changes to hours of service regulation. The respondents suggested that they would decrease business efficiency and increase the cost and decrease the reliability of the trucking mode.

Proposed Solutions or Recommendations

The study recommended that MnDOT continue to analyze manufacturers' and carriers' recommendations for potential implementation in freight projects and planning, and build upon the work of the District 8 pilot and adapt and refine it for use in other MnDOT districts for future planning efforts.

Impact to the Statewide Rail Plan

Existing and upcoming regulations in the trucking industry present challenges for the movement of freight via truck. The rail system, provided the infrastructure and capacity were available, could be leveraged to offset these difficulties.

STATEWIDE PORTS AND WATERWAYS PLAN DRAFT (2013)

www.dot.state.mn.us/ofrw/PDF/draftpwp.pdf

Similar in scope to the Minnesota Rail Plan, the purpose of this plan is to help achieve the goals set forth in Minnesota GO and the Statewide Multimodal Transportation Plan as they apply to the State's ports and waterways. The plan is the result of input from system users and partner organizations as well as a steering committee consisting of members from the Duluth Seaway Port Authority, Duluth-Superior Metropolitan Interstate Council, City of Minneapolis, Saint Paul Port Authority, Metropolitan Council, Red Wing Port Authority, and the Port Authority of Winona. Input was also received from MnDOT's Duluth, Metro, Rochester, and Policy Planning offices, as well as the Office of Freight and Commercial Vehicle Operations (OFCVO).

Key Issues, Needs, and Opportunities

A number of needs and issues were identified as part of this study. As many commodities using Minnesota's waterways are shipped to and from the State's ports via rail, these needs and issues may have impacts for the rail system in the future. In particular,

- The future success of the ports and waterways system is contingent on having a solid and reliable infrastructure base – docks, slips, locks and dams, shipping channels, etc. – that can respond to changing market conditions. However, there is currently a backlog of projects maintained by the U.S. Army Corps of Engineers (USACE) to improve the lock and dam system.
- Land in and near port areas that is considered ideal for freight shipping purposes is increasingly in competition with residential, commercial, and recreational land uses in the State.
- Existing intermodal links between the marine system and the road and rail freight systems are, in some cases, in poor condition and in need of repair. In other cases, new links are needed.
- Minnesota's ports and waterways need to adapt to new market opportunities since shipping tonnage for traditional commodities (e.g., coal, taconite, and grain) is trending downward.
- Currently, shipping container services available in Minnesota are limited in both geography and capacity. Port operators on both the Mississippi River system and the Lake Superior system see opportunities for the development of container shipping along the state's waterways.

Proposed Solutions or Recommendations

Similarly, a number of Port-related recommendations were made, some of which may have impacts on the future use of the rail system and intermodal connections. In particular,

- MnDOT can continue to work with ports and terminal operators to identify opportunities for expanding freight movement and can coordinate investments to support the development of port infrastructure.
- MnDOT and transportation partners will ensure that intermodal connectors are adequate for rail track condition and road pavement condition, travel lane width, turning radii, and vertical and horizontal bridge clearance.
- MnDOT can work with transportation partners to identify opportunities to improve logistics, including origin-destination pairs that allow for reverse hauling and potential lengthening of the shipping season.
- Transportation partners can investigate opportunities to establish and expand use of containers on the marine system.

Impact to the Statewide Rail Plan

The Ports and Waterways study highlights some issues and recommendations that will indirectly or directly affect the rail system, most notably opportunities for investment in intermodal facilities near the marine system and the development of new facilities to increase the interaction between marine and rail transportation.

INTEGRATING FREIGHT IN STATEWIDE PLANNING AND PROGRAMMING (2013)

www.dot.state.mn.us/ofrw/PDF/Integrating_Freight.pdf

The purpose of this study was to explore how freight issues and needs are currently being addressed by MnDOT in its highway planning, project scoping, programming, and delivery process. The study was completed to inform the 2015 Statewide Freight Plan update and to review MnDOT's planning efforts in relation to the new federal surface transportation bill, Moving Ahead for Progress in the 21st Century (MAP-21).

Key Issues, Needs, and Opportunities

Most of the issues, needs, and opportunities identified through this study were related to freight-related organization and policy within MnDOT; however a few do have specific implications for the rail sector:

- MnDOT has an effective and well-developed performance management system, and many of its current measures capture roadway conditions that are relevant to freight movement. However, freight planning efforts in Minnesota could be reinforced by the development of a new federal freight performance measures and the possibility of new state freight performance measures.
- Improved communication of these benefits within MnDOT and with its external stakeholders is also needed to improve the overall understanding of the importance of freight movement to the state's economy.

Proposed Solutions or Recommendations

The recommendations of this study were developed to inform the Statewide Freight Plan, and several are applicable to the rail sector:

- Reference freight specifically in future updates of Minnesota GO and the Statewide Multimodal Transportation Plan.
- Work with MnDOT staff, transportation partners, and other stakeholders to develop freight-specific performance measures. Vet these measures to determine data availability, cost, and usefulness. Encourage greater use of freight criteria and freight performance measures as a part of programming and funding decisions.
- Consider the following definition of a freight project: "A freight project is a surface transportation project that improves the safety and efficiency of freight movements."
- Consider giving special attention to freight-related project types that are difficult to fund with the normal project prioritization process (i.e., highway-rail grade separations, truck parking facilities/rest areas, and improvements to intermodal connectors).
- Identify the costs and impacts of quickly implementing smaller freight improvement projects that are more highly sought after by the private sector.
- Encourage the State Legislature to fund CIMS and TED with additional funding sources that could be used for projects beyond those on the trunk highway system.
- Complete or update regional freight plans, which capture information on freight challenges encountered by businesses and freight operators in Minnesota.

Impact to the Statewide Rail Plan

The study recommends several actions that MnDOT can take to increase the opportunity for funding freight-related projects, including freight-rail projects. As funding for previous rail programs have diminished at the Federal and State level, identifying funding sources for rail programs is a challenge that should be identified as part of the Rail Plan Update. Additionally, the report discusses the use of multimodal, freight-specific performance measures. These can be used to better understand the need for and benefits of proposed rail projects.