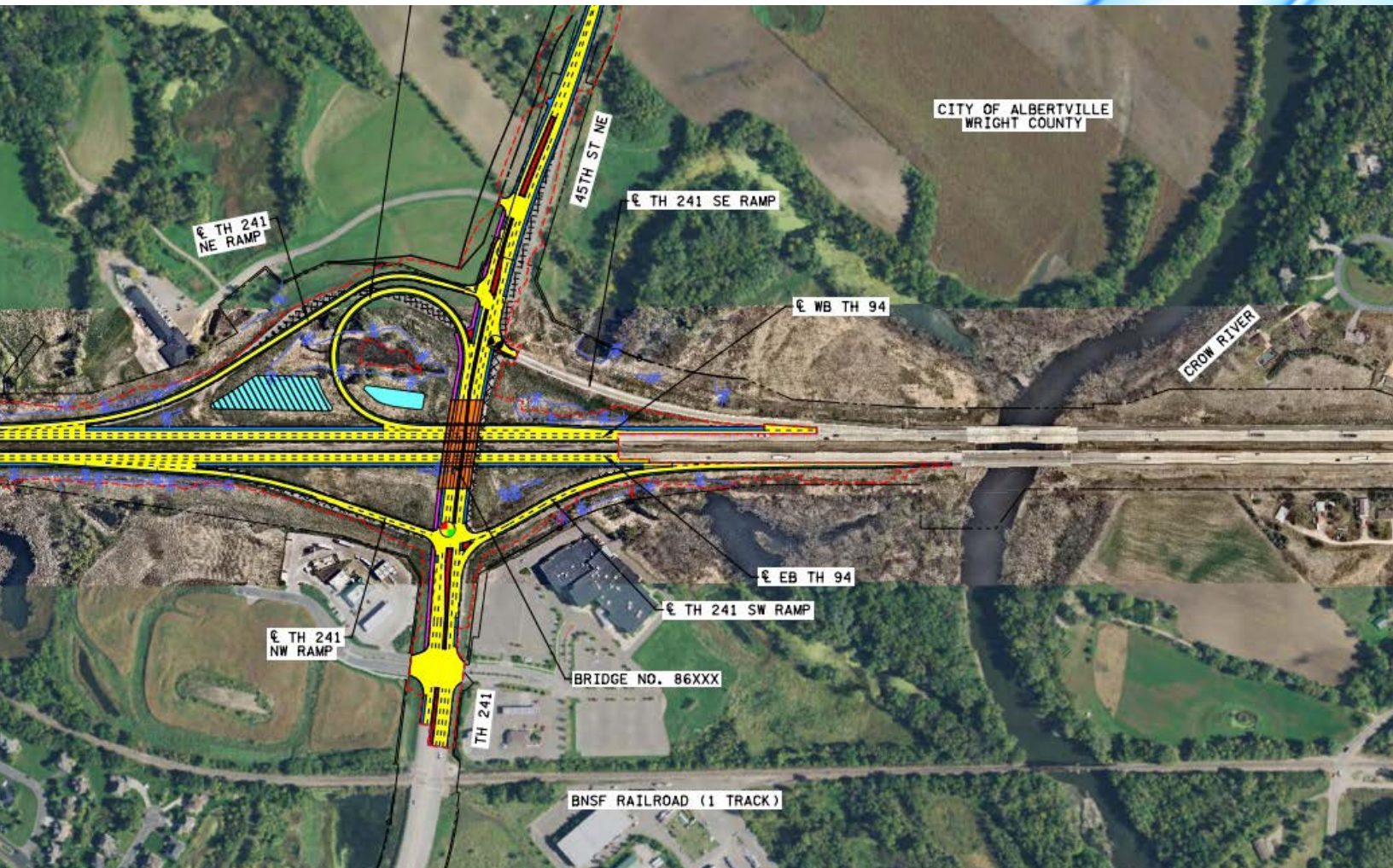


Annual Report

2019

Minnesota Freight Advisory Committee

STATE OF FREIGHT





About MFAC

Established in 1998 as the first state-level freight advisory committee in the country, the Minnesota Freight Advisory Committee (MFAC) serves as a model

for other states that now are forming similar committees.

A partnership between government and business, MFAC meets quarterly to exchange ideas and recommend policy and actions with the mission of developing and promoting safe, productive, and sustainable freight transportation in Minnesota.

More specifically, MFAC focuses on increasing awareness of freight transportation issues, facilitating a quick response to freight questions and issues for policymakers and others, and providing a focal point for freight transportation expertise in Minnesota.

MFAC plays a critical role in the continued development and implementation of the *Minnesota Statewide Freight System and Investment Plan* and its Freight Action Agenda. The Minnesota Department of Transportation (MnDOT) produced the plan in partnership with public and private sector freight stakeholders throughout the state.

The *Minnesota Statewide Freight System and Investment Plan* describes Minnesota's freight transportation system and its role in the state's economy, current and emerging industry trends, the performance of the freight transportation system, and current and future issues and needs. The Freight Action Agenda, which identifies actions needed to advance freight performance in Minnesota, is a guide for implementation that will be regularly updated, and it serves as a tool for monitoring progress and fostering continued collaboration.

District freight plans (*see page 4*), the next step in implementing the Freight Investment Plan, are being developed to help inform the MnDOT districts, local governments, and regional stakeholders on freight needs. MFAC members have played an integral role in shaping the development of these efforts. Key data and output from each of the district freight plans will help to form the basis of the next state freight plan.

MFAC's membership roster (*see page 12*) includes broad representation from the public and private sectors. The committee also serves as a conduit for other freight industry and business contacts.



Cover image: Detail of the St. Michael area on MnDOT construction plans to expand Interstate 94 through Central Minnesota. The route is critical for freight transportation.

Freight Relies on Transportation Infrastructure to Drive Minnesota Economy

Needed improvements essential to long-term viability

A recent Brookings Institution blog post pointed out that 75 percent of the time, typical business incentives don't affect where a business decides to locate. The blog post also mentions that job training, business advice to smaller businesses, and new transportation infrastructure can have job creation effects per dollar that are five to 10 times greater than tax or cash incentives.

That's right—investments in transportation infrastructure may offer a more robust economic return than traditional incentives in attracting businesses. The link between a healthy transportation infrastructure and a healthy economy is not a coincidental one. Without the ability to move goods efficiently, businesses suffer.

A significant funding gap for infrastructure projects

This annual report highlights the importance of freight and the freight infrastructure to the state's economic development. In May, MFAC hosted the Central Minnesota Freight Forum, where a panel of leaders shared their perspectives on freight's role in supporting that region's economic competitiveness (*see page 6*).

Minnesota businesses rely on freight to stay competitive and grow, and freight relies on a solid infrastructure to meet the transportation needs of those businesses. MnDOT has identified a significant funding gap for infrastructure projects, and recent funding packages do not come close to shrinking that gap (*see page 2*).

MFAC shares the concerns of many that—without the necessary improvements to the state's infrastructure—Minnesota's economic development will be hindered. It is extremely important for the long-term viability of the state that our infrastructure functions well.

MFAC offers forward-thinking expertise in all modes

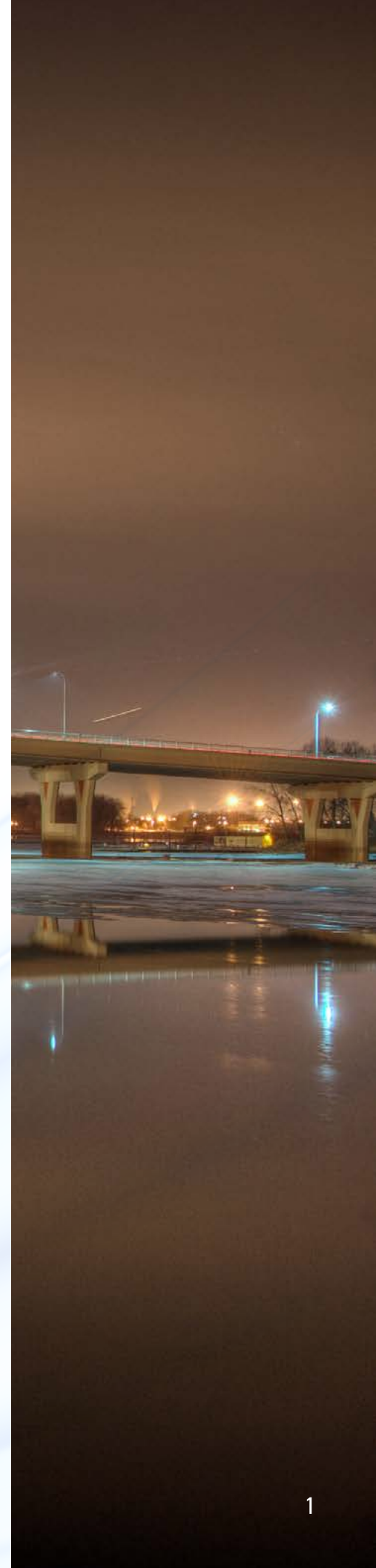
As an advisory committee, MFAC fills a forward-thinking role. We offer expertise in all modes (*see page 8 for updates on ports and rail*) and understand the realities of infrastructure challenges because we experience them. To help share that knowledge, this year MFAC formed an ad hoc group to develop ideas for increasing awareness about the importance of freight and infrastructure to Minnesota's economy.

MFAC already enjoys a strong partnership with MnDOT and supports the development of district freight plans (*see page 4*), which help ensure that funding, when it comes, goes to priorities with the biggest reach.

Our relationships are at the heart of MFAC's strong foundation. On behalf of MFAC, I want to thank Commissioner Margaret Anderson Kelliher for her support of MFAC; MnDOT's freight planning staff for their commitment; and the Center for Transportation Studies staff for their assistance.

And my thanks to MFAC members, who volunteer their time and talents to help us prepare now for what's down the road. You help keep Minnesota moving in the right direction.

— **Ron Dvorak**, Chair (2018–2019), Minnesota Freight Advisory Committee





Freight Industry Burdened by Infrastructure Concerns

Improvements needed to keep Minnesota businesses competitive

In 1935, Todd Gilbert's grandfather started what is now known as Valley Companies with a handful of trucks. Since then, the business significantly expanded to include cartage, transportation logistics, dedicated shipping, and warehousing services for nine Midwest states.

"There are extra costs to doing what we do now due to infrastructure restraints," said Gilbert, president of Valley Cartage. Congestion in the metro area significantly increases the time Valley's fleet spends in traffic, and deteriorating roads are causing wear and tear on new trucks, he added. "We are hurting companies and the ability to be profitable."

Similarly, Koch Logistics, founded by a trucking company, arose from a need to help the business move its products as efficiently as possible. The company also flourished and today offers global shipping through a private fleet and use of all modes, as well as supply-chain management, retail partnerships, distribution, and warehousing.

"We will not make progress as a state unless we make this general investment in roads, bridges, and transit."

– State Rep. Frank Hornstein

Koch Logistics wants to avoid excess costs because its ability to thrive depends on staying competitive in markets. "The infrastructure is very, very important to us," said Meg Duncan, director of operations for Koch Logistics.

The success of companies like Valley and Koch helps fuel Minnesota's economy and spur the growth of the businesses they serve. In fact, businesses in many industries depend on freight for their survival and success.

Minnesota's freight industry—and the many businesses that must move product or supplies—face challenges that threaten to derail their contributions to the state's economy. At the heart of concerns about congestion and crumbling infrastructure lies a familiar dilemma. "How do we get additional funding to meet the needs and wants instead of running behind?" Gilbert asked.

MnDOT has identified a funding gap of \$6 billion in the next 10 years and \$18 billion over the next 20 years, according to MnDOT commissioner Margaret Anderson Kelliher, who met with MFAC members in March. MnDOT plans look at the entire system, including roads and bridges, ports, rail, and air.

"Fifty percent of our roadways are 50 years or older," Kelliher explained. "There is no wonder why you are seeing more potholes today than we did in the past."

Aging bridges also require attention: 40 percent of state bridges are more than 40 years old.

In the 2018–2019 legislative session, Governor Tim Walz proposed increases in the gas tax (\$0.20/gallon), the metro area transit-dedicated sales tax, and vehicle registration fees to raise an additional \$1.5 billion over the biennium for road, bridge, and transit projects. The final bill did not include those proposals or a marked increase in infrastructure investment.

“We will not make progress as a state unless we make this general investment in roads, bridges, and transit,” added state Rep. Frank Hornstein, also at the MFAC meeting. And the price of inaction is rising.

“You know you lose money when FedEx or UPS is stuck in traffic,” said Hornstein, chair of the House Transportation Finance and Policy Division. “You lose money when vehicles have to be repaired because they are dealing with the wear-and-tear on our roadways. You lose money when employees are late to work because they are stuck in traffic, and those employees lose money because they are wasting gasoline when they are stuck in traffic.”

Pressures on freight movement continue to grow, with the increasing demands of e-commerce to deliver products in even tighter time frames, Gilbert said. In addition, competition among states appears to be growing. In 2019, 12 states, including Illinois, Indiana, and Michigan, raised gas taxes, diesel taxes, or both.

As other states make investments in their infrastructure, Minnesota runs the risk of being a costlier alternative for shippers, Duncan said. At some point, that may lead businesses to choose a location in another state where freight costs are less.

“We are located in the middle of the country,” Duncan said. “When you look at where our products are going to move, you can see it’s very important to have that infrastructure to stay competitive. You can’t grow the economy in Minnesota without paying attention to how you are going to serve its businesses.”



Transportation commissioner Margaret Anderson Kelliher and state Rep. Frank Horstein meet with MFAC members in March 2019.

MFAC Members Provide First-Hand View of Transportation Infrastructure

The knowledge and expertise of MFAC members can help policymakers as they weigh funding for infrastructure investments, state Rep. Frank Hornstein told MFAC members. “You, more than anyone else, understand that connection between the prosperity of the state and our investments in infrastructure.”

In fact, MFAC members have marshaled their significant expertise to increase public awareness about the connection between infrastructure improvements and economic prosperity by sharing information about the state of freight in Minnesota.

“MFAC has an opportunity to play a very valuable role in the future of our transportation and logistics in Minnesota,” Valley Cartage president Todd Gilbert said,

adding that the experience of MFAC members can help communicate the reality of infrastructure issues in the state.

During the past year, an MFAC working group on transportation infrastructure needs has explored ways to share member expertise with policymakers, including tours of freight facilities and development of informational materials to outline freight’s contributions to the economy and the need for infrastructure investments.

Work to increase awareness and understanding doesn’t end with these initial efforts, though. “This is not just a one-shot deal,” MFAC chair Ron Dvorak said. “This is going to be an ongoing issue.”



MnDOT District Freight Plans in Development

Plans inform stakeholders about regional freight needs

This past year has seen significant work to develop MnDOT district freight plans for each region of the state. These efforts are the next step in implementing the Freight Investment Plan section of the state freight plan that was adopted in 2017. MFAC members have played an integral role in shaping the development of these efforts. Feedback and leadership from MFAC members connect freight investments in Minnesota with key items in the Freight Action Agenda.

Efforts under way this year included planning in District 1 (Northeast), District 2 (Northwest), District 3 (Central), and District 8 (Southwest). A number of members have volunteered their time and expertise in support of these efforts. MFAC chair Ron Dvorak, for example, has participated and overseen progress on the plans, including the development of the draft District 1 Freight Plan, which is nearing completion. MFAC members also contributed to the District 8 Freight Plan, including Vicki Schwartz, Bruce Abbe, and Jon Huseby. In addition, members Mark Wegner and Jon Olsen are participating in the District 3

District freight plans are intended to inform the MnDOT Districts, local governments, and regional stakeholders about freight needs.

Freight Plan effort, which kicked off this past summer. Planning for Districts 4, 6, and 7 will begin in 2020.

These district freight plans are intended to inform the MnDOT districts, local governments, and regional stakeholders about freight needs. The needs identified through the planning process could be integrated into future transportation projects on the trunk highway, railroad, port and waterway, or air cargo systems. It is also possible that freight-specific projects could compete for funding in subsequent rounds of the Minnesota Highway Freight Program or other infrastructure programs. All of the planning efforts are using a consistent quantitative approach to evaluate freight issues.

Freight issues and needs are collected through a series of meetings with stakeholders, feedback from manufacturer perspectives studies, one-on-one check-ins, surveys, and outreach with MFAC itself. This information is then combined with more than 20 sources of data to determine where gaps exist in the transportation system.

In the long term, key data and output from each of the district freight plans will help to form the basis of the next state freight plan. In this way, MFAC member participation in the district plans already is helping to develop the next statewide plan.

CAV Update: Platooning

The last state legislative session gave truck platooning in Minnesota a boost—with some limitations.

Minnesota joins a growing number of states paving the way for truck platooning, which allows two or three trucks to travel in a convoy for increased safety and fuel efficiency. Wireless technology enables the lead driver to control braking and acceleration for all trucks in real time, while drivers in each truck control steering.

The legislation sets the following requirements for truck platooning in Minnesota:

- Trucks may follow a lead vehicle more closely than 500 feet, the previous state statute limit.
- Platoons may operate only on freeways and expressways on the trunk highway system.
- Companies must submit a plan for approval by MnDOT, which also must consult with the Department of Public Safety before approving the plan to identify any public safety concerns. Approved plans may include reasonable conditions and restrictions to ensure public



safety, minimize congestion, or prevent undue damage to roads or structures.

MnDOT is developing a map to clearly define the corridors where truck platoons can operate under an approved plan. The department will seek feedback from industry as it better defines the potential factors to evaluate plans, such as corridor length, traffic volumes, roadway geometry, and bridge and pavement capacity.

Truck platooning is one element of MnDOT's Connected and Automated Vehicle (CAV) Strategic Plan. The plan outlines recommendations to help the state prepare for a changing transportation system that increasingly incorporates technology. Download the plan at dot.state.mn.us/automated/docs/cav-strategic-plan.pdf.

Statewide Truck Parking Study Integrates MFAC Feedback

Amid a new national push by the Federal Highway Administration in 2018 to update a federal truck parking survey, known as the Jason's Law Survey, the need for an in-depth review of truck parking in Minnesota also became apparent. Truck parking has become a top issue for freight carriers and truck drivers in the state. For these reasons, MnDOT developed the 2019 Statewide Truck Parking Study, in collaboration with MFAC members.

MFAC members—including the Minnesota Trucking Association (MTA), the Minnesota State Patrol, and the American Transportation Research Institute (ATRI)—and others contributed extensive experience with the major issues of truck parking in the state to provide feedback through participation on the study steering committee.

For instance, MTA and ATRI helped MnDOT staff identify ways to broaden the department's reach in the trucking industry. Study researchers attended the Minnesota Trucking Championship held at Kenworth Rihm in Coon Rapids and received feedback from more than 50 truck drivers. In addition, representatives from major regional shippers, such as Walmart and Target, and carriers, such

as Anderson Trucking and Bay and Bay Transportation, participated in a focus group organized in partnership with the MTA to determine the impacts of truck parking on their businesses. As a result, researchers learned of needs for truck parking across the state. In addition, major strategies to address truck parking issues were identified during the MFAC quarterly meeting in March.

The study found that truck parking is a complex issue necessitating continued government collaboration with industry. There are only 4,846 parking spaces available for more than 26,000 long-haul truck trips in the state on any one day. Private truck stops and the private truck industry are key leaders in helping to address the truck parking gap because MnDOT, which is the largest truck-parking operator in the state, owns or operates only 15 percent of the total parking spaces statewide. Though no funding is dedicated specifically to truck parking today, MnDOT continues to rely on feedback from MFAC members to target key sites for truck parking in the future and look at new technologies such as the Truck Parking Information Management System.



I-94 Corridor Key to Central Minnesota Economy

MFAC forum displays essential role of freight in regional economic competitiveness

Coldspring Granite trucks haul more than a million pounds of granite each week. As the largest granite manufacturer in North America, the Central Minnesota-based Coldspring imports and exports hundreds of containers each year.

“Freight is just a huge expense for Coldspring Granite,” said Theresa Cervantez, director of purchasing and logistics for the company. “Anything that affects the corridor and increases the time increases our costs.”

Just how vital is the flow of freight to businesses in Central Minnesota?

Steve Bot calls I-94 the “lifeblood” of Minnesota

for commerce and the community.

Bot chairs the I-94 West Corridor Coalition, which brings together local officials and businesses to advocate for capacity expansion along the I-94 corridor. The coalition helped accelerate infrastructure projects along the corridor in collaboration with the private sector. For example, poultry producer Gold’n Plump shared with legislators that congestion in the corridor costs them an estimated quarter of a million dollars each year.

Bot and Cervantez joined Greater St. Cloud Development Corporation (GSDC) president Patti Gartland, AAM Casting shipping and receiving

Economic Impact of I-94 Corridor Freight

How much does freight in Central Minnesota contribute to the economy? As it turns out, the amount is considerable.

A recently completed study estimated that shippers spend \$1.16 billion annually on trucking services in the I-94 corridor between northwest Minneapolis and St. Cloud. Of the total, it was estimated that \$153.7 million is spent on drayage transport containers to and from the region’s intermodal ramps, according to the first-of-its-kind analysis.

MnDOT wanted to learn more about the potential impacts of upcoming construction projects

on businesses that rely on the I-94 corridor and better understand the corridor’s value to the private sector, said Mark Berndt, freight planning practice leader for Quetica, LLC, which conducted the study for MnDOT. The study used a variety of tools, including interviews with businesses and Quetica’s proprietary price-benchmarking database.

MFAC has helped pave the way for this kind of study, Berndt said. “Between MnDOT and the private sector and the business community, MFAC has played a pivotal role in improving the overall environment and exchange of information.”

supervisor Brian Johnson, and ATS Specialized Inc. flatbed permit manager Joanna Jungels on a panel at the MFAC Central Minnesota Freight Forum exploring the role of freight in the region's economic competitiveness. The panel examined the impact of freight on Central Minnesota, its relationship to business retention and growth, and geographical differences that drive regional freight needs.

This year, for instance, MnDOT began work on a trio of projects to add travel lanes, rebuild bridges, and resurface deteriorating pavement.

"Just five years ago, none of these projects we're talking about were on MnDOT's 20-year plan," Bot said. "There was essentially, at that point, no plan to do any of this expansion for at least 20 years and likely beyond. That's pretty incredible to think how far we have come."

The GSDC, which leads economic development efforts in the region, also recognizes the close ties between the success of industries and transportation. Strengthening all modes of freight remains an imperative for the GSDC, which understands the competitive advantage that a healthy freight system offers businesses.

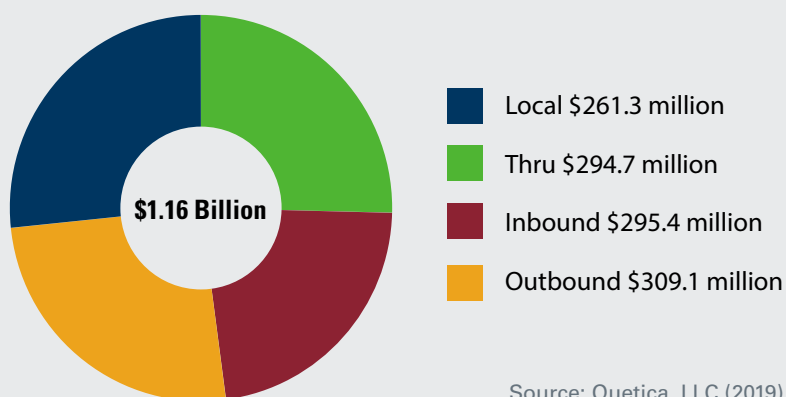
"It is key to our region's ability to thrive," Gartland said. "It always has and always will be one of those issues that is key to helping the businesses we have right now remain competitive and vibrant, so they want to stay here and grow."

It also makes a difference in recruiting businesses. "Any business that's looking to locate here wants to know how close they are to an international airport, what main corridors are available, what rail is available—that's important," added Larry Hosch, GSDC business development associate.

Collaboration between public and private sectors helps identify and prioritize freight infrastructure needs, Jungels noted. As a trucking company that specializes in oversized loads, ATS Specialized Inc. benefits from its infrastructure connections.

"The sustainability of our freight network is our economy," she said. "When we don't have the ability to move, it has that adverse effect.... Without that mobility, you become a ghost town."

Expenditures on Trucking Services in the I-94 Corridor



Source: Quetica, LLC (2019)

German Farm Implement Maker Geringhoff Chooses St. Cloud

In 2013, German farm implement maker Geringhoff invested \$20 million in a new manufacturing facility in St. Cloud, its first North American factory. The global company had investigated nine separate regions in North America and visited more than 40 factories before choosing St. Cloud.

"The quality of the local workforce and enthusiasm and support of the regional government agencies were the primary factors that contributed to our decision to open the facility here," said Joseph Jandrisch, president of Geringhoff in North America.

St. Cloud's proximity to agricultural producers as well as to local suppliers in fabricated metal, advanced plastics production, hydraulics, and electronic componentry also helped attract Geringhoff to the region. Since then, the region's transportation infrastructure has made it possible for the agricultural manufacturer to support time-critical customer needs, especially during harvest time.

"The connections between the transportation system, local agricultural markets, and the freight industry play a key role in attracting international businesses such as Geringhoff Manufacturing," said Andrew Andrusko, principal planner with the MnDOT freight office.

The operation, which initially created 100 new jobs, is located in St. Cloud's Airport Industrial Park. In 2017, Geringhoff hired 20 new workers with the addition of a second assembly line.



MFAC members toured the Geringhoff facility in May 2019 as part of the Central Minnesota Freight Forum.



Minnesota Ports and Waterways Critical to Intermodal Freight System

Aging infrastructure, flooding, congestion, and sustainability present challenges

When Duluth Cargo Connect opened the CN Duluth Intermodal Terminal two years ago, it almost immediately became a game-changer by providing direct access to East Coast, West Coast, and Gulf Coast ports.

"We see this as a real draw to our region," said Deb DeLuca, executive director of the Duluth Seaway Port Authority. The new terminal has helped reduce freight costs of customers by a third and surpassed all key performance indicators.

The state's ports, rivers, and waterways move tons of materials in and out of the state, making it possible for industries to turn the state's agricultural and natural resources into an engine for economic development.

"Our mission is to create quality job opportunities, expand the tax base, and advance sustainable development."

– Kathryn Sarnecki, St. Paul Port Authority

"I cannot stress enough the importance of Minnesota ports to the nation's steel-making supply chain," DeLuca said. "It's critical."

DeLuca, Kathryn Sarnecki, vice president of harbor management and redevelopment at the St. Paul Port Authority, and Lee Nelson, president of Upper River Services, LLC, discussed the contribution of Minnesota ports, rivers, and waterways with MFAC members in March.

As an economic development agency, the St. Paul Port Authority supports growth in a number of ways, including through its port system and the industries that depend on it. "Our mission is to create quality job opportunities, expand the tax base, and advance sustainable development," Sarnecki said.

In fact, a study showed that light industrial development in St. Paul helps drive tax revenue, with only 60 to 70 cents spent for every industrial tax dollar generated compared to \$1.08 to \$1.16 spent for every residential tax dollar generated.

As part of the larger transportation system, the St. Paul Harbor moves bulk goods, such as fertilizer, salt, cement, water treatment chemicals, and steel

products. "We provide capacity as freight demands increase, so we can help take the load off the rest of the system," Sarnecki said.

The Duluth Seaway Port Authority also works to bring business to the ports and expansion to the region. "We are located nearly 400 miles east of the midpoint of the North American continent, making us perfectly located to serve as a portal for raw materials and finished goods out of the American heartland," DeLuca said.

Another key intermodal player, the state's rivers and waterways also work in tandem with ports, trucks, and railroads to transport goods efficiently, safely, and cost-effectively.

"It's important to get these low-value, high-volume bulk commodities moving and get them to water—where we are saving energy, we are saving lives and injuries, and we're saving dollars," Nelson said. "That's the intermodal system that's set this nation apart from the rest of the world for so many decades."

Like other freight modes, ports and river operations are challenged to fund infrastructure updates and manage flooding, congestion, and sustainability issues. At the same time, Sarnecki, DeLuca, and Nelson see potential for even greater contributions to the economy.

Improvements can help expand the capacity and efficiency of rivers and waterways and take some pressure off the roads, Nelson said. "When we're moving more, there's less congestion out there."

Positive Train Control Technology Improves Rail Safety

Technology offers the potential to improve many aspects of freight. For the railroad industry, a combination of state-of-the-art technologies known as positive train control (PTC) just may be the ticket to help prevent train collisions.

"Unfortunately, when you are operating a locomotive or train and you make a mistake, it can be catastrophic," said Lance Staus, manager of positive train control field operations for BNSF.

PTC includes an onboard computer system that knows the length and weight of the train and monitors the train's position and speed. Other technology checks track signals, switches, and circuits. If the software detects that the train is speeding, entering a work zone with other employees without permission, or going somewhere where the train is not supposed to go, the system sends visual and audible alerts to take action, said Staus. In the event the crew doesn't act, PTC will stop the train.

"PTC doesn't run the train," Staus clarified. "Crews run the train." PTC serves as a reminder to the crew, and it also can act as an early alert system if a track is damaged.

"All industry stakeholders agree that positive train control is a very positive contribution to the safety overlay," said Philip Qualy, Minnesota state legislative director for UTU-SMART-TD and MFAC member.

Partnerships and collaboration are helping PTC move forward. Most BNSF routes in the state now incorporate PTC, and work continues to add PTC to other routes.

Minnesota

49 million tons
of freight moved per year
on the lake system

15 million tons
of freight moved per year
on the riverway system

Port of Duluth-Superior

Largest port
on the Great Lakes–St.
Lawrence Seaway System

19th largest
port in the nation

35 million tons
moved per year

900 vessel visits
per year

St. Paul Harbor

4 river
terminals

30
businesses

774
jobs

5 million tons
of commodities
moved per year



Automation Takes Aim at First- and Last-Mile Freight in Minnesota

Consumer demand for e-commerce brings change in freight movements

E-commerce has changed expectations dramatically. When shoppers make decisions, they often ask two questions: Is it available right now, and how soon can I get it? For the freight industry and supply-chain planners, this means finding a way to satisfy a market that seems to want it all.

University of Minnesota researcher Frank Douma studied these trends, their implications, and industry

response. His white paper, sponsored by MFAC, focuses on activities that most experts feel are likely to be of the highest impact: what it takes to get customers' orders the "last mile" to their doors.

"In the ongoing effort by MFAC to better understand freight movement, the committee chose this topic to explore how consumer demand, in this case e-commerce, is driving change in freight movements," said Ron Dvorak, MFAC chair. "The shifting market expectation is creating a new paradigm with major infrastructure implications, and this paper provides the committee a lens to better focus planning guidance."

The last mile is the final step of the delivery process and can actually range from several blocks to several miles, said Douma, director of the State and Local Policy Program at the Humphrey School. The "first mile," from the shipper to warehouses or distribution centers, can raise similar issues, especially in states like Minnesota where manufacturers can be spread widely in small towns or rural areas.

The exact nature of the issues and challenges can vary. "For example, while a transportation planner may be concerned about possible congestion impacts resulting from increases in delivery vehicle traffic, a small carrier may be concerned about its very existence: whether and how it should try to compete



TRENDS FOR FIRST- AND
LAST-MILE FREIGHT IN
MINNESOTA

White Paper

September 2019



Frank Douma, director of the State and Local Policy Program at the University of Minnesota Humphrey School of Public Affairs, authored the white paper. Douma's research for the paper included literature reviews and interviews with key transportation officials at Minnesota manufacturers. Download Trends for First- and Last-Mile Freight in Minnesota at dot.state.mn.us/ofrw/mfac.

against, or collaborate with, a company like Amazon as it moves toward the use of drones," Douma said.

A number of emerging innovations and technologies are driving this changing landscape, including vehicle automation. "Traditionally, humans have covered this last mile, whether they were professional delivery drivers or consumers bringing home the goods," he said. "Now, technology is emerging that can substitute for both methods."

This technology can come in many different forms: automated vehicles, small drones delivering individual packages from a larger vehicle, or smaller self-driving boxes that are able to safely maneuver in dense environments. Such advances are still five to ten years out, Douma said, and considerable opportunity remains for existing lower-tech solutions.

In the meantime, changes at distribution centers and warehouses are likely even more central to the greater and faster deliveries the market seeks, Douma said. New robotic and other technologies are making it possible for parcels to be sorted, shipped, and tracked to their destination faster and at lower cost.

A large share of these changes in freight transportation are taking place outside of Minnesota, but changes are happening in this state as well, offering significant opportunities.

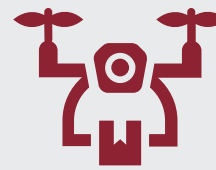
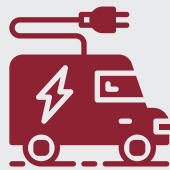
"A limitation, however, concerns our rural broadband and highways," he said. "The sensors, robots, and all of the other technologies will rely to some extent on the internet of things and other connectivity issues. To the extent that this connectivity does not exist, particularly in the smaller towns and rural areas, potential benefits and competitive advantages could be lost."

Last-Mile Delivery

25 percent
of customers
would be willing
to pay extra
for same-day and
instant delivery.

— McKinsey and Company

Maturity of key last-mile delivery technologies



Scaleable innovations

- EV
- Parcel box
- Parcel locker

Developing tech

- Droid
- Van/drone integrated system
- Smartlock door
- Trunk delivery
- Autonomous vans

Concepts

- Autonomous delivery vehicle
- Drones
- Robotics

Technology maturity

Source: McKinsey & Company, 2018



Freight Expertise

MFCAC Executive Committee (as of December 2019)



Ron Dvorak (Chair)
Marketing Director,
Duluth Cargo Connect



Jason Craig (Vice-Chair)
Director of
Governmental Affairs,
C.H. Robinson



Bill Goins (Past Chair)
Executive Director,
Access to Solutions



Bruce Abbe
Strategic Advisor for Trade
& Transportation, Specialty
Soya & Grains Alliance



Lydia Bjorge
Executive Director, State
Government Affairs MN/ND/
SD, BNSF Railway



Steve Elmer
Planning Analyst,
Metropolitan Council, Twin
Cities' Area Metropolitan
Planning Organization



Bill Gardner
Director, Office of
Freight and Commercial
Vehicle Operations,
Minnesota Department of
Transportation



Jon Huseby
District Engineer,
District 8,
Minnesota Department of
Transportation



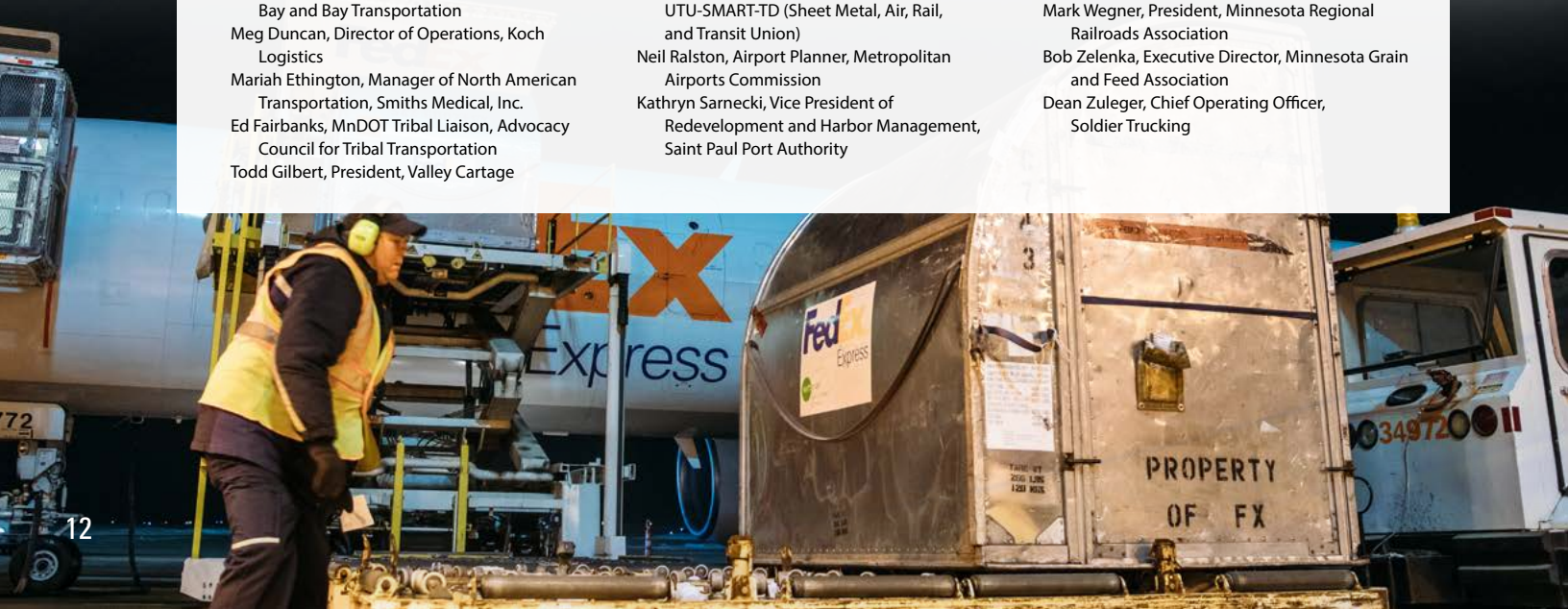
Neal Young
Economic Analysis Director,
Minnesota Department of
Employment and Economic
Development

MFCAC Members (as of December 2019)

John Brumbaugh, Transload Services Manager, Canadian Pacific Railway
 Kim Caron, President, Council of Supply Chain Management Professionals–Twin Cities Roundtable
 James Carver, Director of Logistics Planning, Land O'Lakes
 Ron Chicka, Director, Metropolitan Interstate Council, Greater Minnesota Metropolitan Planning Organizations
 Al Cornish, Director, Government Affairs, Target Corporation
 Deb DeLuca, Executive Director, Duluth Seaway Port Authority
 Travis Dietrich, Director of Truckload Operations, Bay and Bay Transportation
 Meg Duncan, Director of Operations, Koch Logistics
 Mariah Ethington, Manager of North American Transportation, Smiths Medical, Inc.
 Ed Fairbanks, MnDOT Tribal Liaison, Advocacy Council for Tribal Transportation
 Todd Gilbert, President, Valley Cartage

John Hausladen, President, Minnesota Trucking Association
 Wayne Knewton, President, Knewton Soy Products, LLP
 Shelley Latham, Business Development Manager, Perkins STC
 Michael Loney, Senior Logistics Manager, Global Supply Chain, Medtronic
 Wendell Meyer, Division Administrator, Federal Highway Administration
 Dan Murray, Senior Vice President, American Transportation Research Institute
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 Jon Olsen, Captain, Minnesota State Patrol
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