



# Minnesota Statewide Freight System Plan

Technical Team Meeting #1  
September 4, 2014

We all have a stake in **A**  **B**



# Opening Remarks

**Bill Gardner**

Minnesota DOT

*Director, Office of Freight and  
Commercial Vehicle  
Operations*



# Why is Minnesota Developing a Freight Plan?

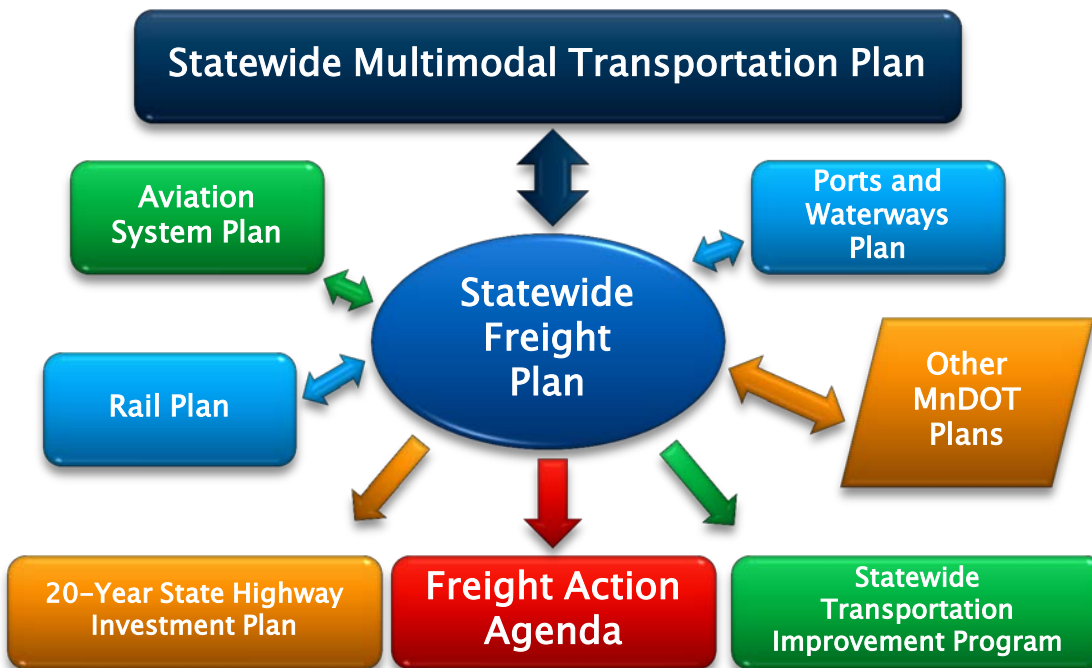
- ▶ Align with MAP-21 recommendations and other Federal and State guidelines (*including other statewide plans*)
- ▶ To integrate previous, independent MnDOT freight planning efforts
- ▶ Engage freight decision-makers/stakeholders during development, and beyond
- ▶ Enable MnDOT to evaluate and prioritize freight system investments
- ▶ Facilitate better integration of “freight” throughout MnDOT



# The Minnesota Family of Plans



- ▶ The Statewide Freight System Plan
  - A key component of MnDOT’s “Family of Plans”
  - Builds upon freight-related elements and findings
  - Feeds recommendations into MnDOT short- and long-range funding programs



# State Freight Plan Project Team



- ▶ Minnesota DOT
  - John Tompkins, Project Manager
- ▶ Cambridge Systematics
  - Erika Witzke, Project Manager
- ▶ SRF Consulting Group, Inc.
- ▶ Kimley-Horn and Associates, Inc.
- ▶ Leo Penne Consulting



# Welcome and Introductions

Leo Penne  
Leo Penne Consulting



# Agenda

- 8:30 am Opening Remarks
- 8:45 am Welcome and Introductions
- 9:20 am Project Work Plan and Schedule
- 9:50 am Minnesota Freight Plan Building Blocks
- 10:30 am Implementing the Minnesota Freight System Plan: Facilitated Discussion
- 11:00 am Data Applications in Minnesota
- 11:20 am Next Steps
- 11:30 am Adjourn



# Project Work Plan and Schedule

Erika Witzke

Cambridge Systematics







## Economic Structure

*Type of Businesses, Number of Households...*

- *What drives Minnesota's economy?*
- *How competitive is Minnesota with neighboring states?*



## Industry Logistics Patterns

*Supply Chain, Distribution Networks...*

- *What are Minnesota's key industries*
- *What are key industry supply chains?*



## Commodity/Vehicle Traffic Flows

*Trucks, Planes, Rail Cars...*

- *What commodities, in what quantities use the freight system?*
- *What modes are best suited for these movements?*



## Freight Infrastructure

*Highway, Rail Lanes, Ports, Access Roads...*

- *What are Minnesota's key multimodal freight corridors?*
- *What is the condition and performance of these corridors?*

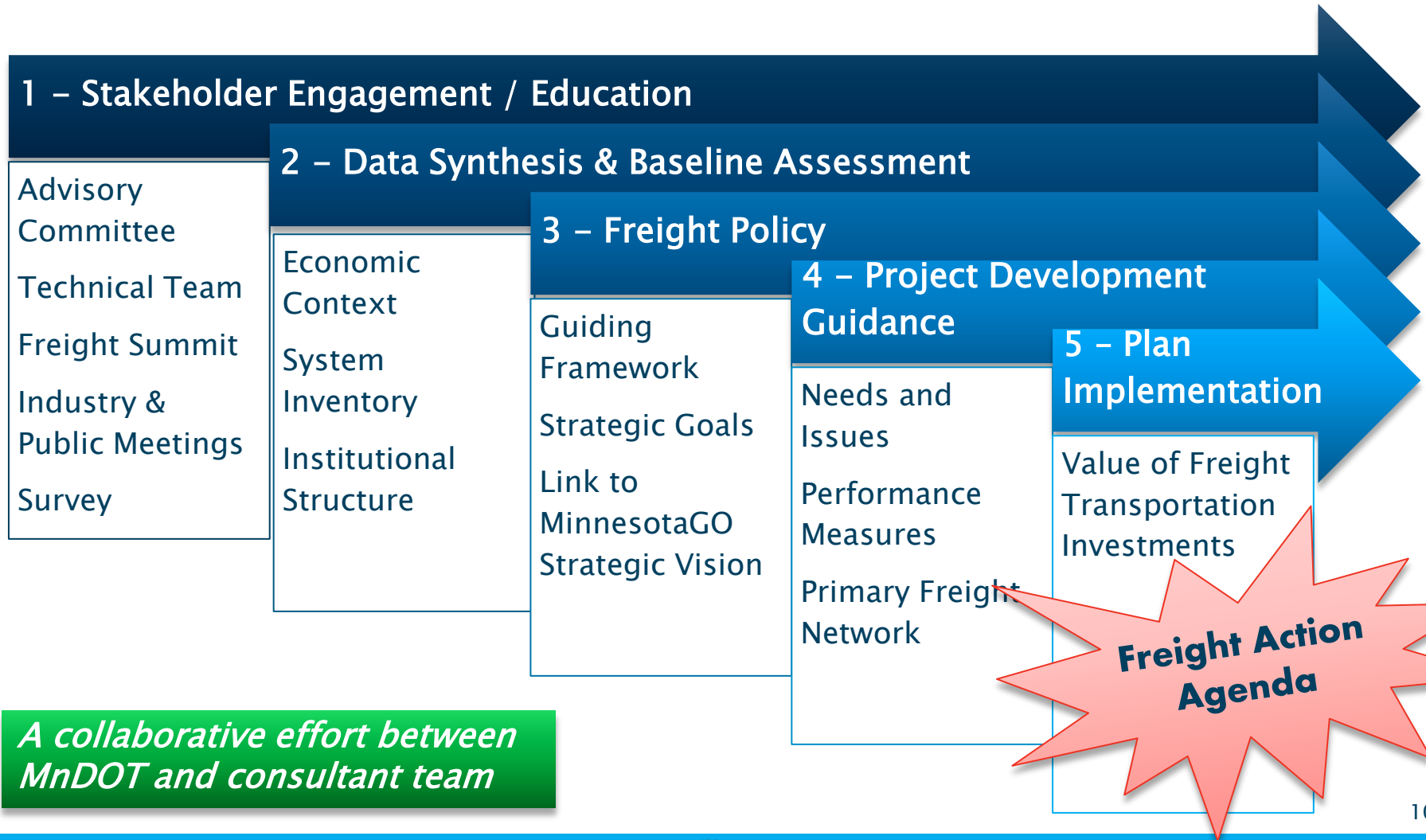
## Organization/Public Policy

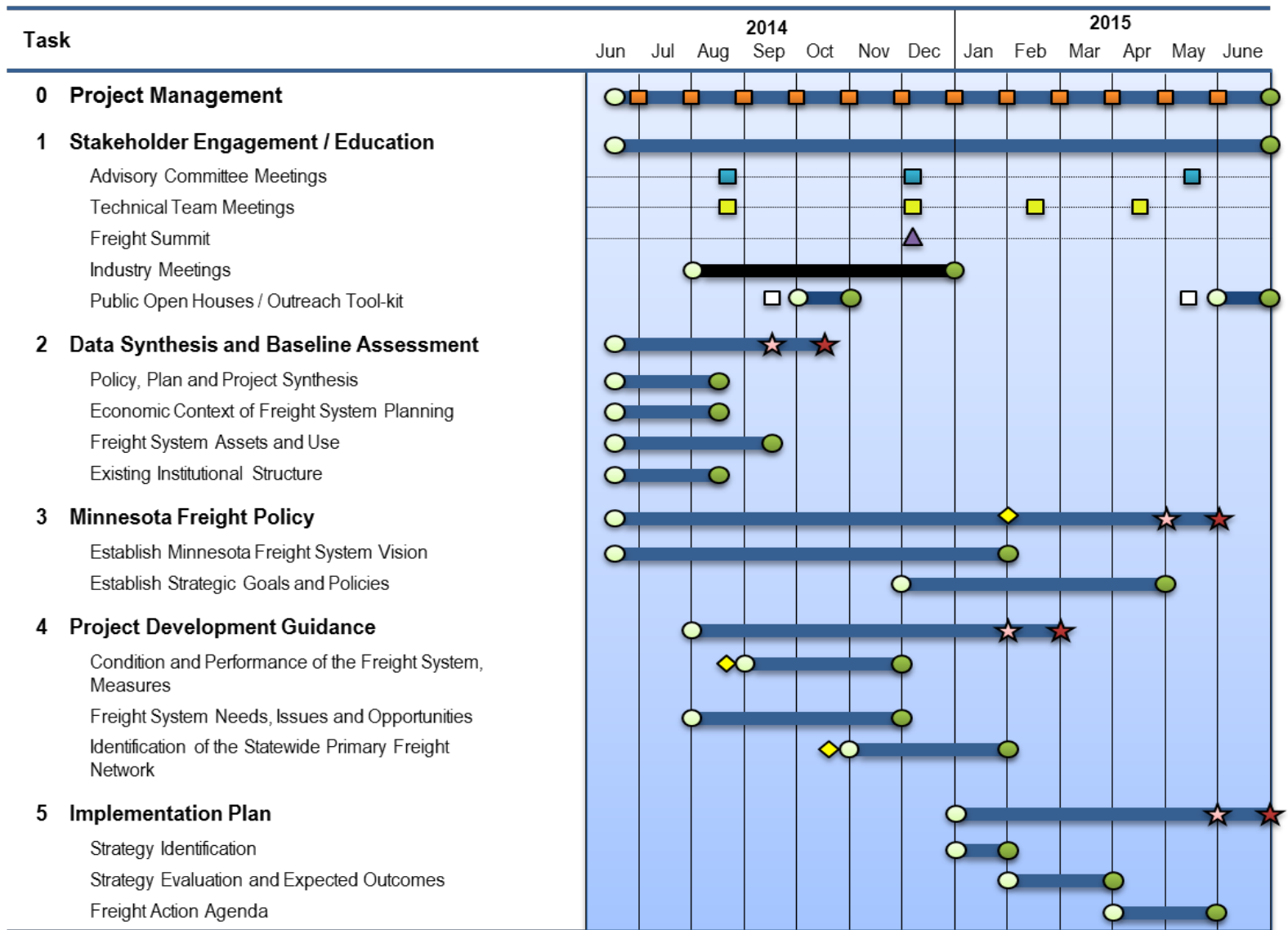
*Ownership, Regulation, Price...*

- *How is MnDOT organized for freight planning/projects?*
- *How is the private sector engaged?*



# Schedule and Major Milestones





- Start Task
- Draft Deliverable
- Activity
- Project Management Meeting
- Initiate Ad Hoc Group
- End Task
- Final Deliverable
- Industry Meetings
- Advisory Committee Meeting
- Freight Summit
- Outreach Tool-kit
- Technical Team Meeting

August 27, 2014





# Stakeholder Engagement/ Education

- ▶ **Advisory Committee and Technical Team**
  - Public– and private sector collaboration
  - Meet regularly through project development
- ▶ **Freight Summit**
  - Held in conjunction with CTS conference
  - December 2014
- ▶ **MetroQuest Survey**
  - 2 rounds to survey public– and private sectors
  - Round 1 – what are key issues and needs?
  - Round 2 – provide feedback on plan recommendations
- ▶ **Industry & public meetings**
  - On–going throughout Plan development



# Technical Team (TT) Role

- ▶ Meet four times during project
  - September 4, 2014
  - December 2014
  - February 2015
  - April 2015
- ▶ Review advance materials, come prepared
- ▶ Share your perspectives
- ▶ Suggest data sources and information
- ▶ Provide input and guidance for Minnesota DOT consideration and decision-making



# Ad Hoc Working Groups

- ▶ Assembled to focus on specific topics
  - Performance Measurement
  - Minnesota's Priority Freight Network
  - Institutionalizing Freight within MnDOT
- ▶ Types of tasks
  - Review current research and relevant reports
  - Identify and discuss data sources, availability and use
  - Identify and discuss gaps, deficiencies, opportunities
  - Develop Plan recommendations
  - Serve as a point of contact and resource during implementation
- ▶ In person meetings and online collaboration



# Minnesota Freight Plan Building Blocks

Erika Witzke and Elaine McKenzie  
Cambridge Systematics



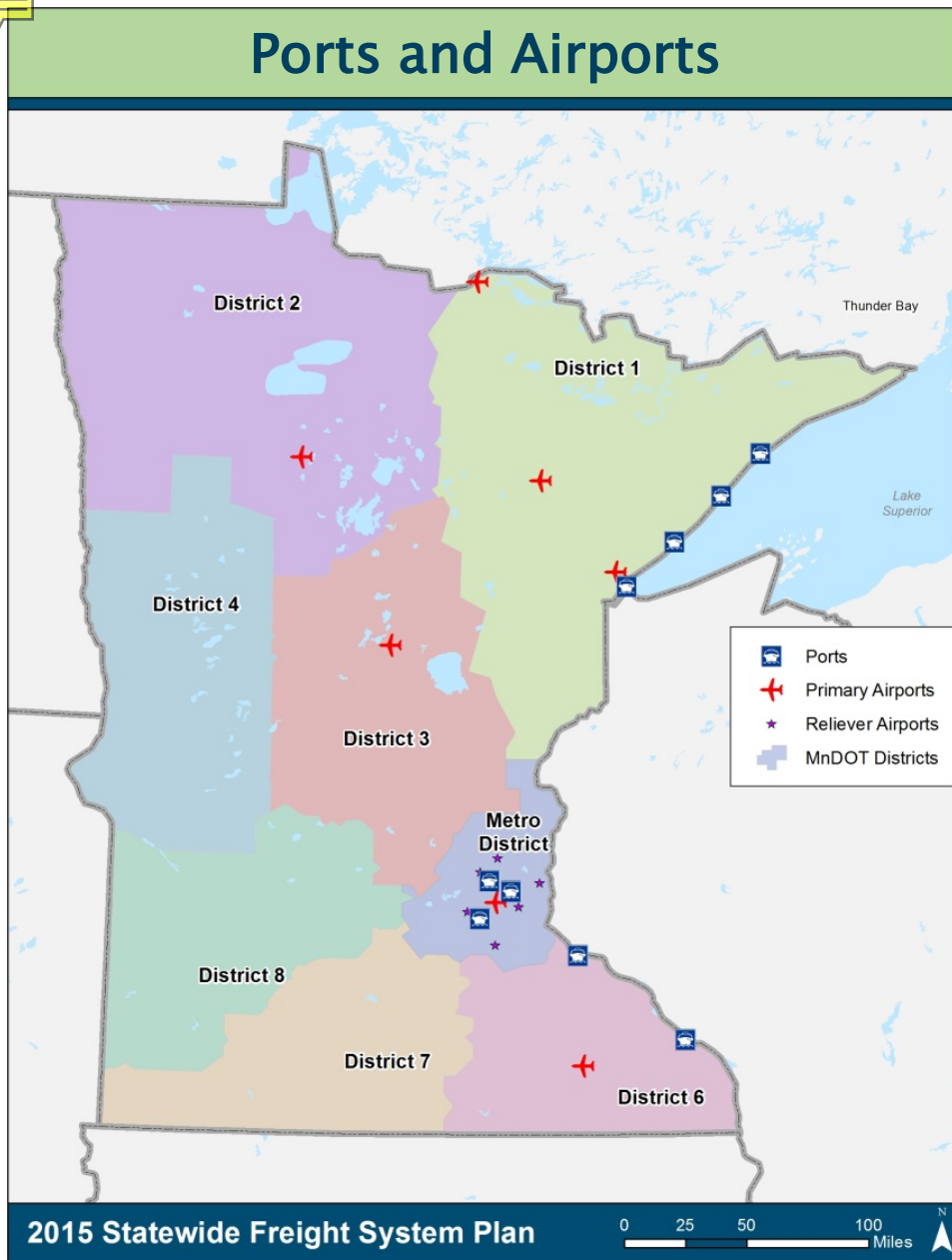
# Building Block #1

## Freight Infrastructure





## Ports and Airports



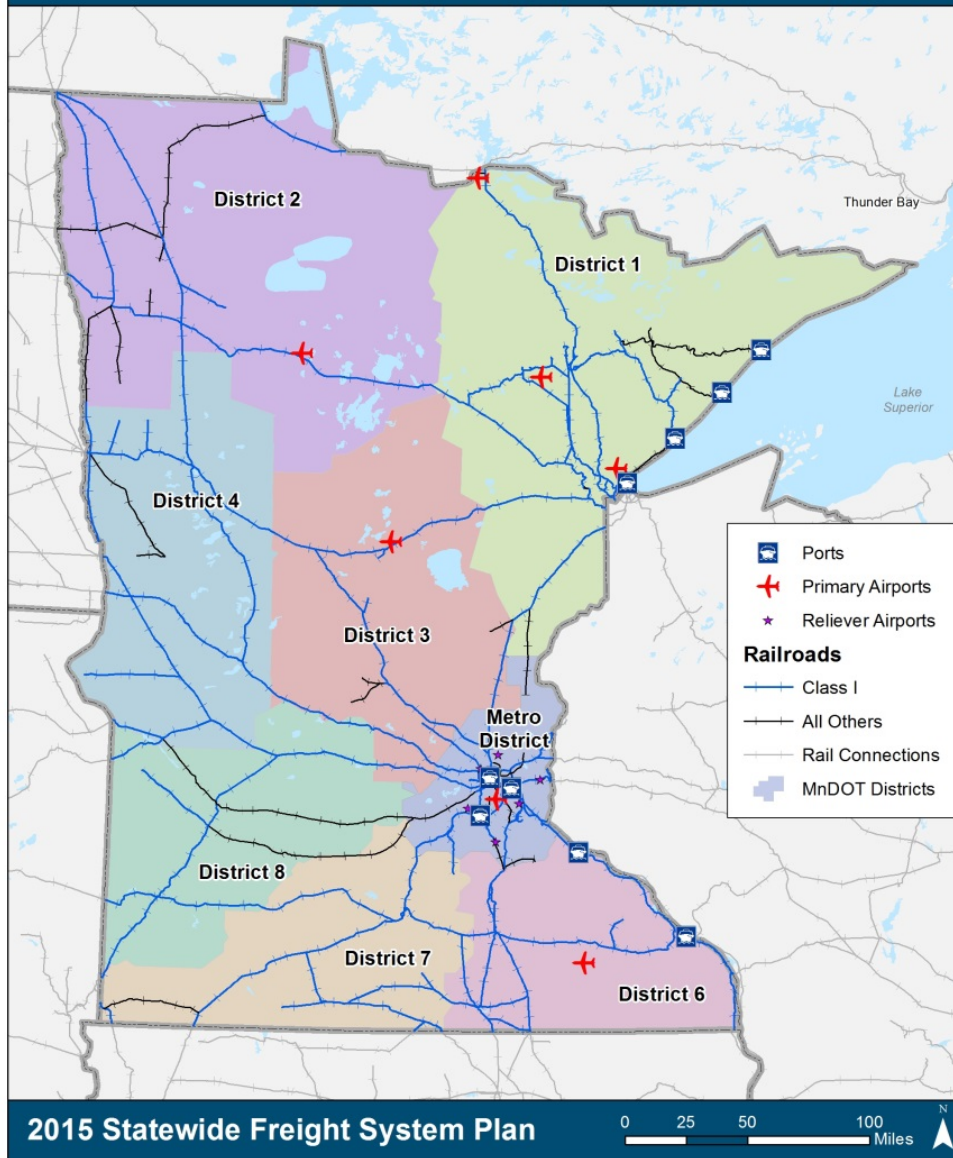
2015 Statewide Freight System Plan

# Minnesota's Freight System

- ▶ Water ports:
  - 5 on the Mississippi River System (MRS)
  - 4 on the Great Lakes
- ▶ MRS navigable miles: 324
- ▶ Airports:
  - 7 with commercial service
  - 135 total



## Railroads

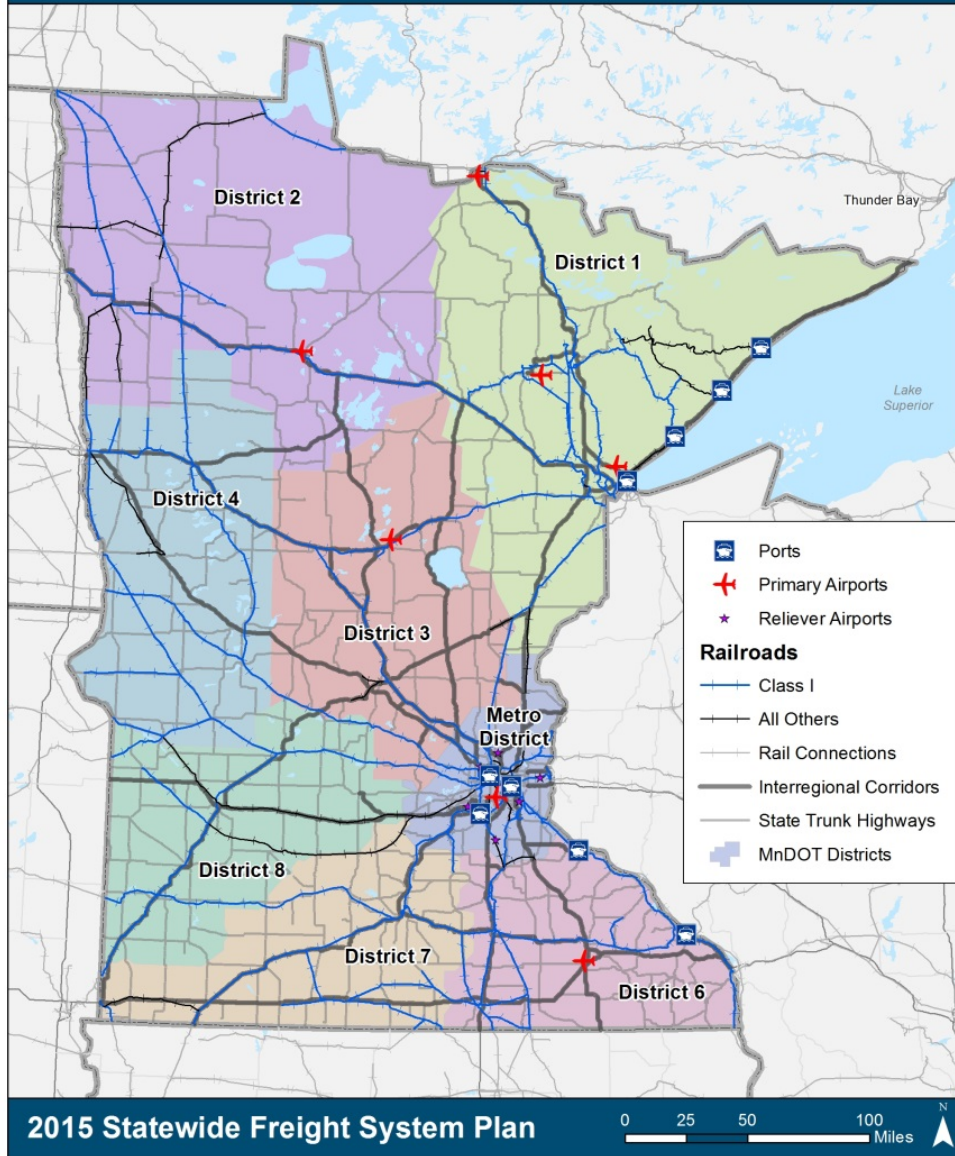


# Minnesota's Freight System

- ▶ Railroad miles: 4,623
- ▶ 20 freight rail operators



## Highways



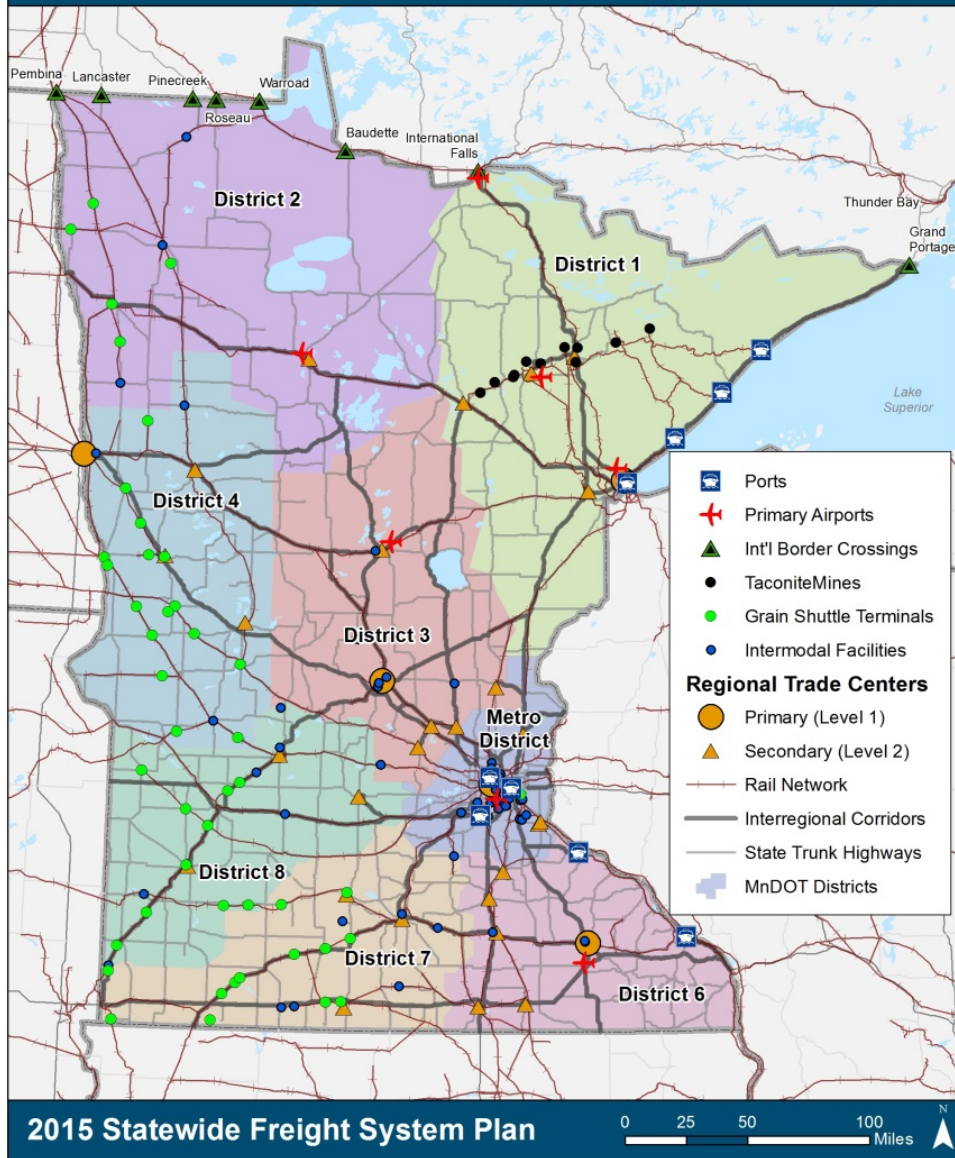
2015 Statewide Freight System Plan

# Minnesota's Freight System

- ▶ Highway System Miles: 14,341
- ▶ Minnesota's overlapping networks
  - Twin Trailer Network
  - Interregional Corridors
  - Corridors of Commerce



# Freight Hubs & Facilities



2015 Statewide Freight System Plan

# Minnesota's Freight System

- ▶ Intermodal / multimodal connectivity
- ▶ Hubs & Facilities
  - Intermodal facilities
  - Grain Shuttle Terminals
  - Taconite Mines
  - International Border Crossings



# Building Block #2

## Commodity/Vehicle Traffic Flows

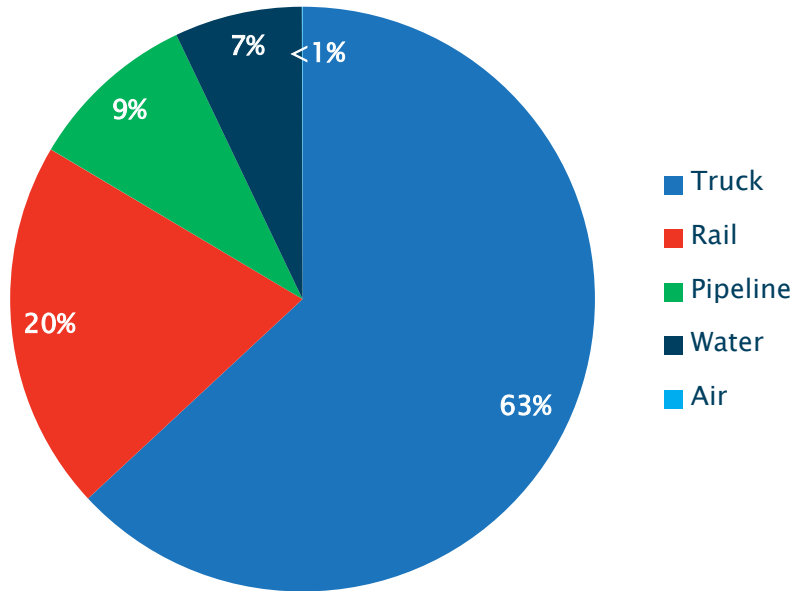


# Tonnage by Mode

## *In/Outbound and Intra-State Movements*

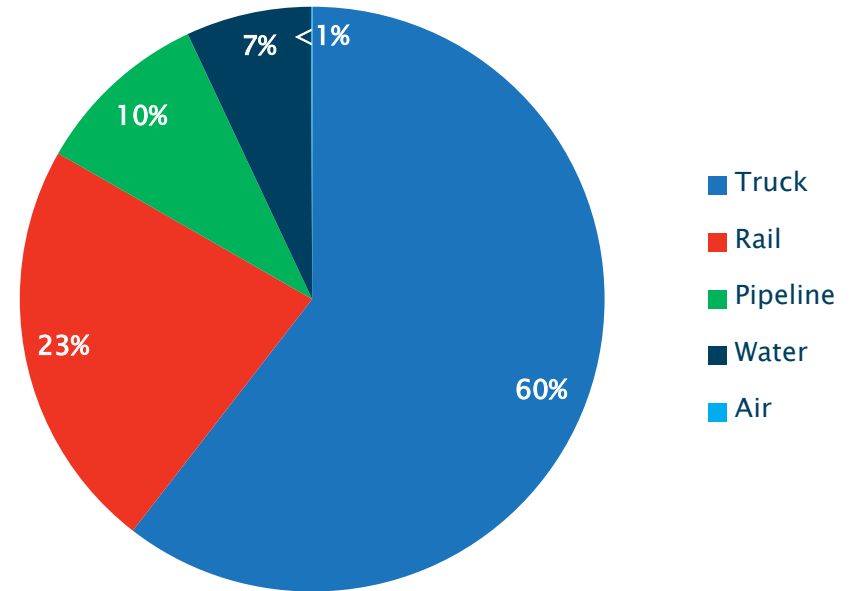
2012

Total Tonnage = 646 Million



2040

Total Tonnage = 1.1 Billion



Source: FHWA Freight Analysis Framework, USACE Waterborne Commerce Statistics, Minneapolis - St. Paul International Airport Year End Operations Reports

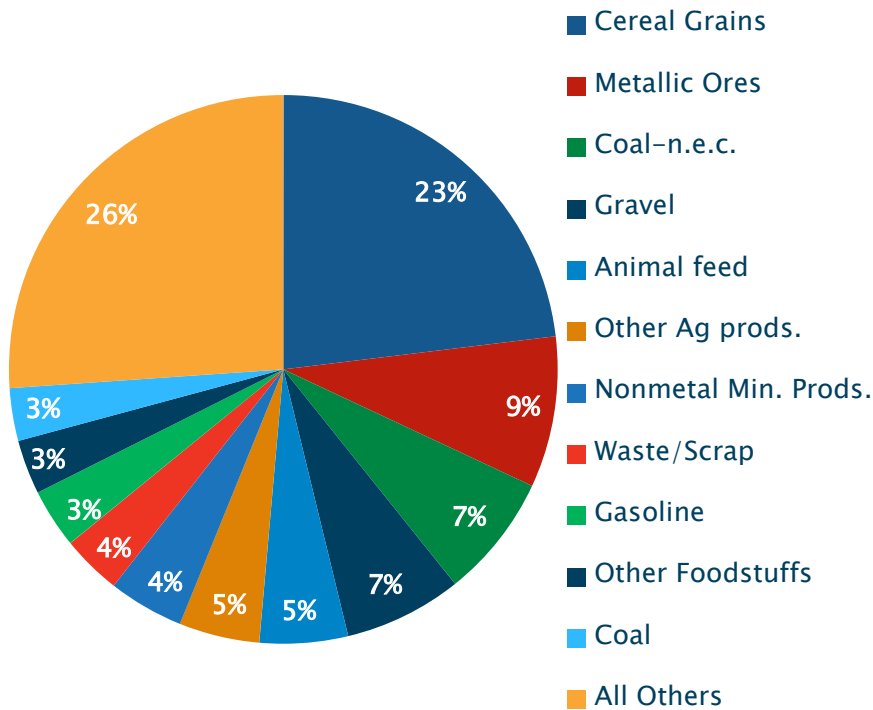


# Top Commodities by Tonnage

## *In/Outbound and Intra-State Movements*

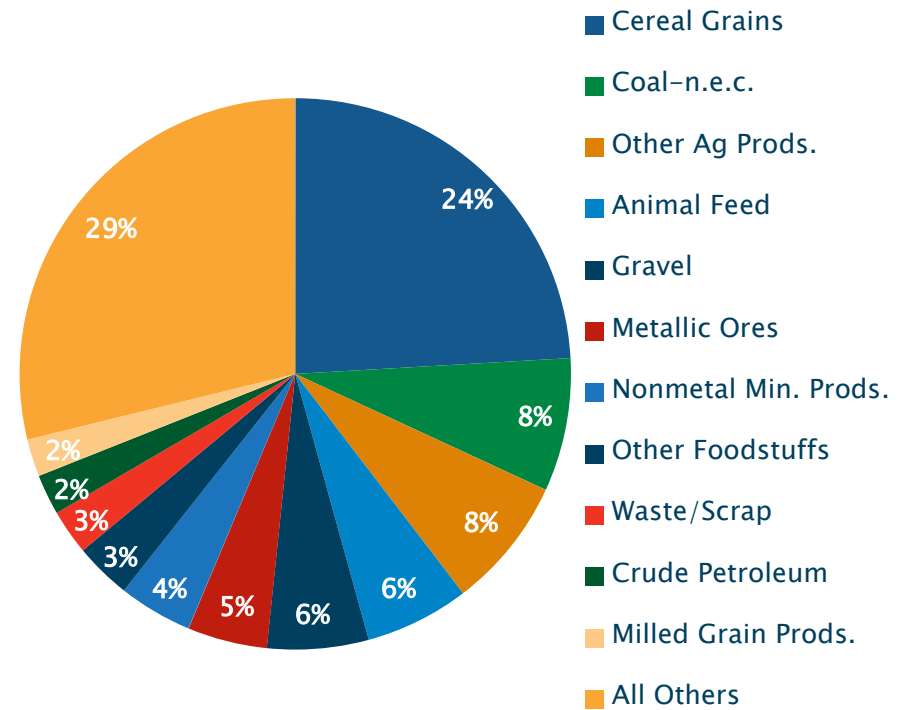
2012

Total Tonnage = 646 Million



2040

Total Tonnage = 1.1 Billion



Source: FHWA Freight Analysis Framework, USACE Waterborne Commerce Statistics, Minneapolis - St. Paul International Airport Year End Operations Reports



# Minnesota's Top Freight-related Commodities *(by tonnage)*



## Top Commodities Statewide\*

1. Cereal Grains
2. Metallic Ores
3. Coal and Petroleum Products
4. Gravel
5. Animal Feed

Source: FHWA Freight Analysis Framework, USACE Waterborne Commerce Statistics, Minneapolis – St. Paul International Airport Year End Operations Reports

\* *In/Outbound and Intra-State Movements*



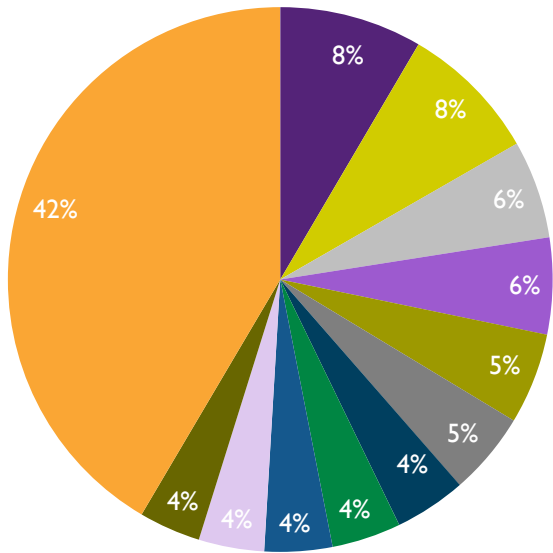


# Top Commodities by Value

## *In/Outbound and Intra-State Movements*

2012

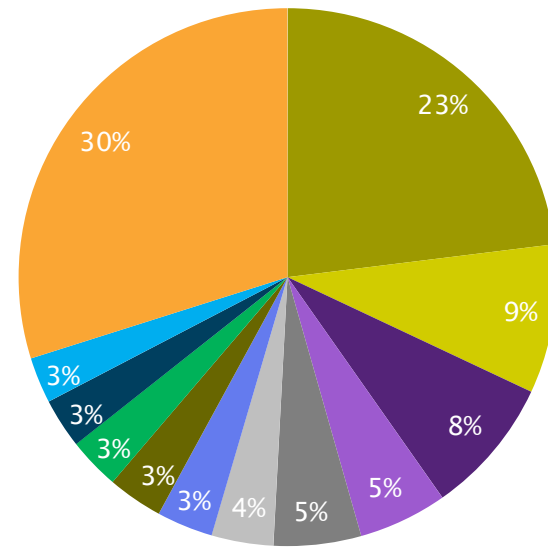
Total Value = \$451 Billion



- Electronics
- Machinery
- Motorized Vehicles
- Mixed Freight
- Precision Instruments
- Misc. Mfg. Prods.
- Other Foodstuffs
- Coal-n.e.c.
- Cereal Grains
- Articles-Base Metal
- Plastics/Rubber
- All Others

2040

Total Value = \$1.1 Trillion

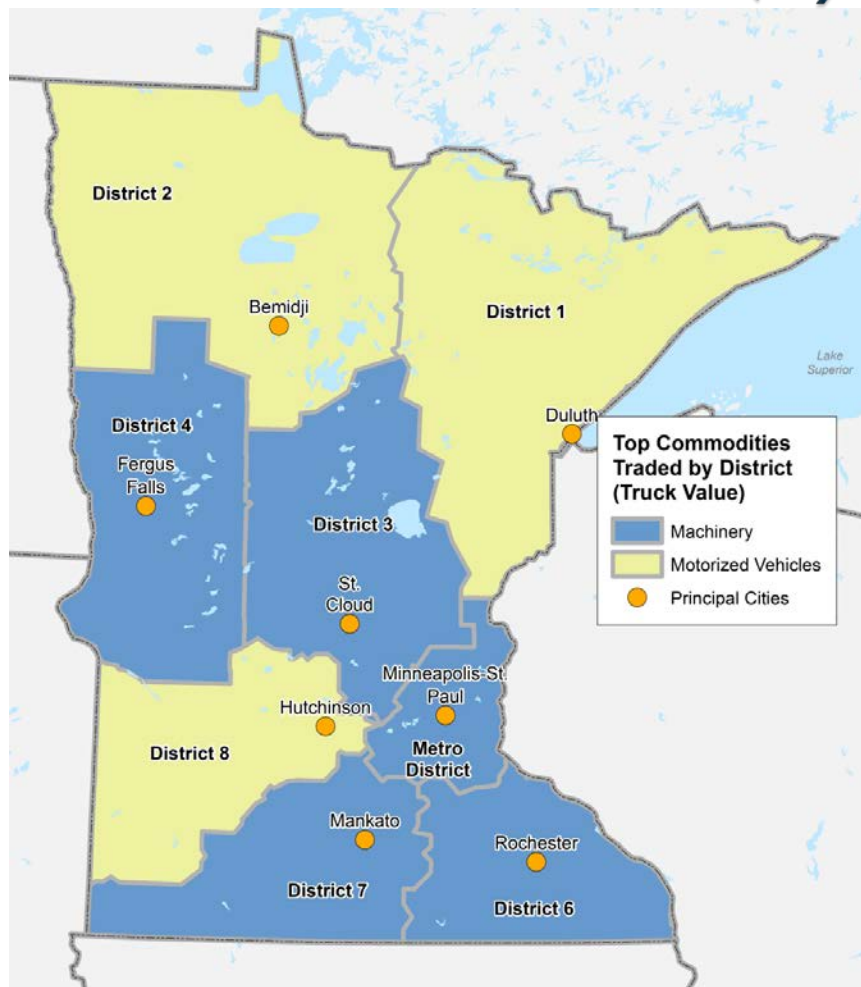


- Precision Instruments
- Machinery
- Electronics
- Mixed Freight
- Misc. Mfg. Prods.
- Motorized Vehicles
- Pharmaceuticals
- Plastics/Rubber
- Cereal Grains
- Other Foodstuffs
- Coal-n.e.c.
- All Others

Source: FHWA Freight Analysis Framework, USACE Waterborne Commerce Statistics, Minneapolis - St. Paul International Airport Year End Operations Reports



# Minnesota's Top Freight-related Commodities *(by value)*



## Top Commodities Statewide\*

1. Electronics
2. Machinery
3. Motorized Vehicles
4. Mixed Freight
5. Precision Instruments

Source: FHWA Freight Analysis Framework, USACE Waterborne Commerce Statistics, Minneapolis – St. Paul International Airport Year End Operations Reports

\* *In/Outbound and Intra-State Movements*

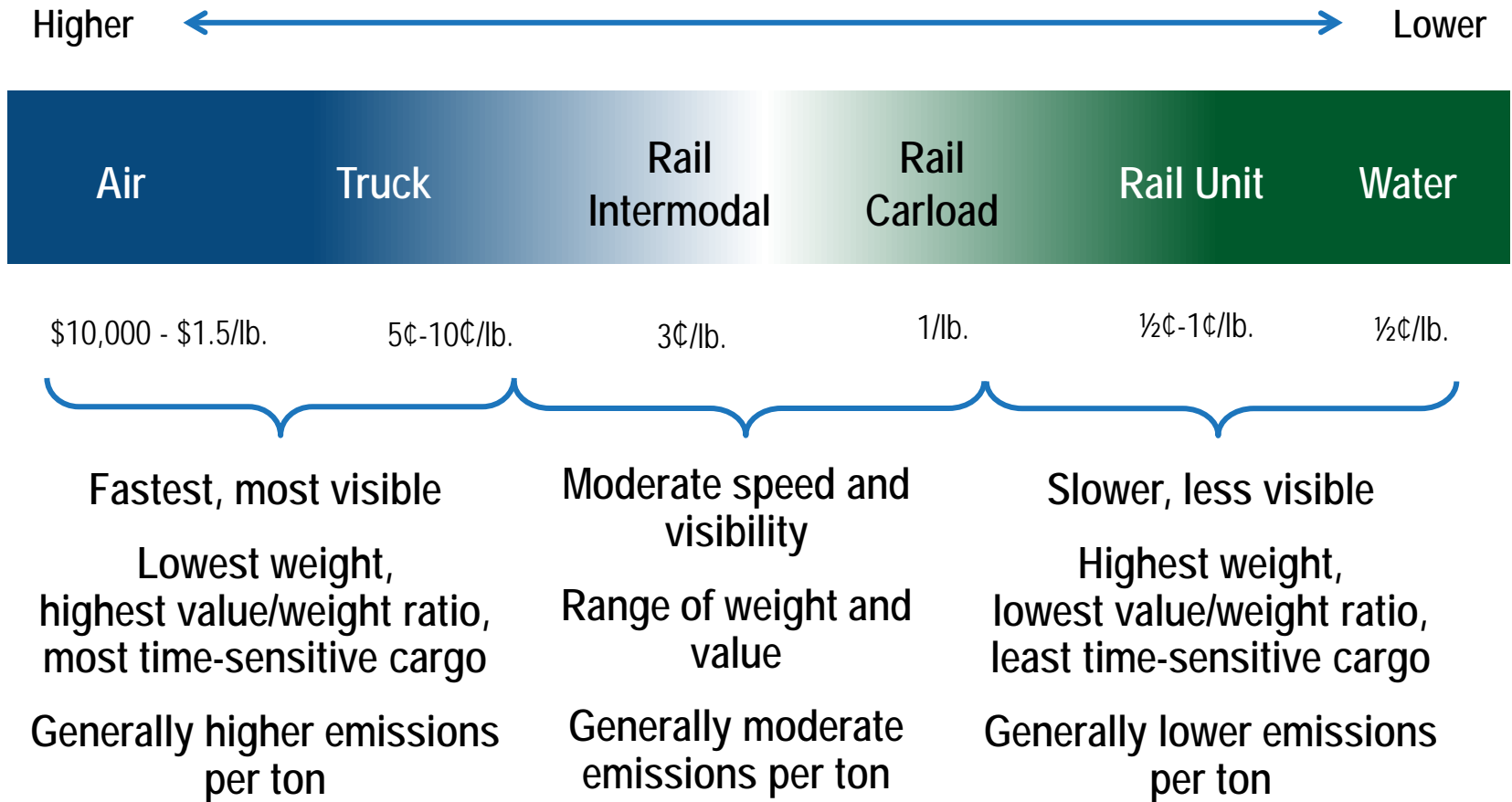


# Building Block #3

## Industry Logistics Patterns



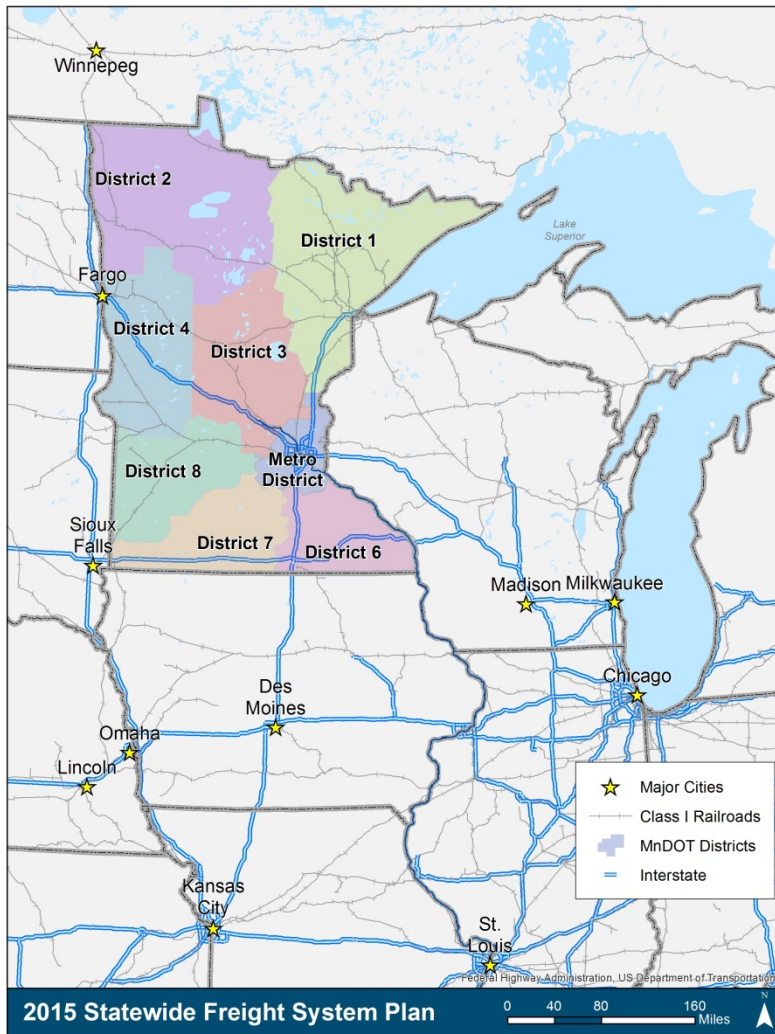
# The Freight Service Spectrum



Source: Cambridge Systematics



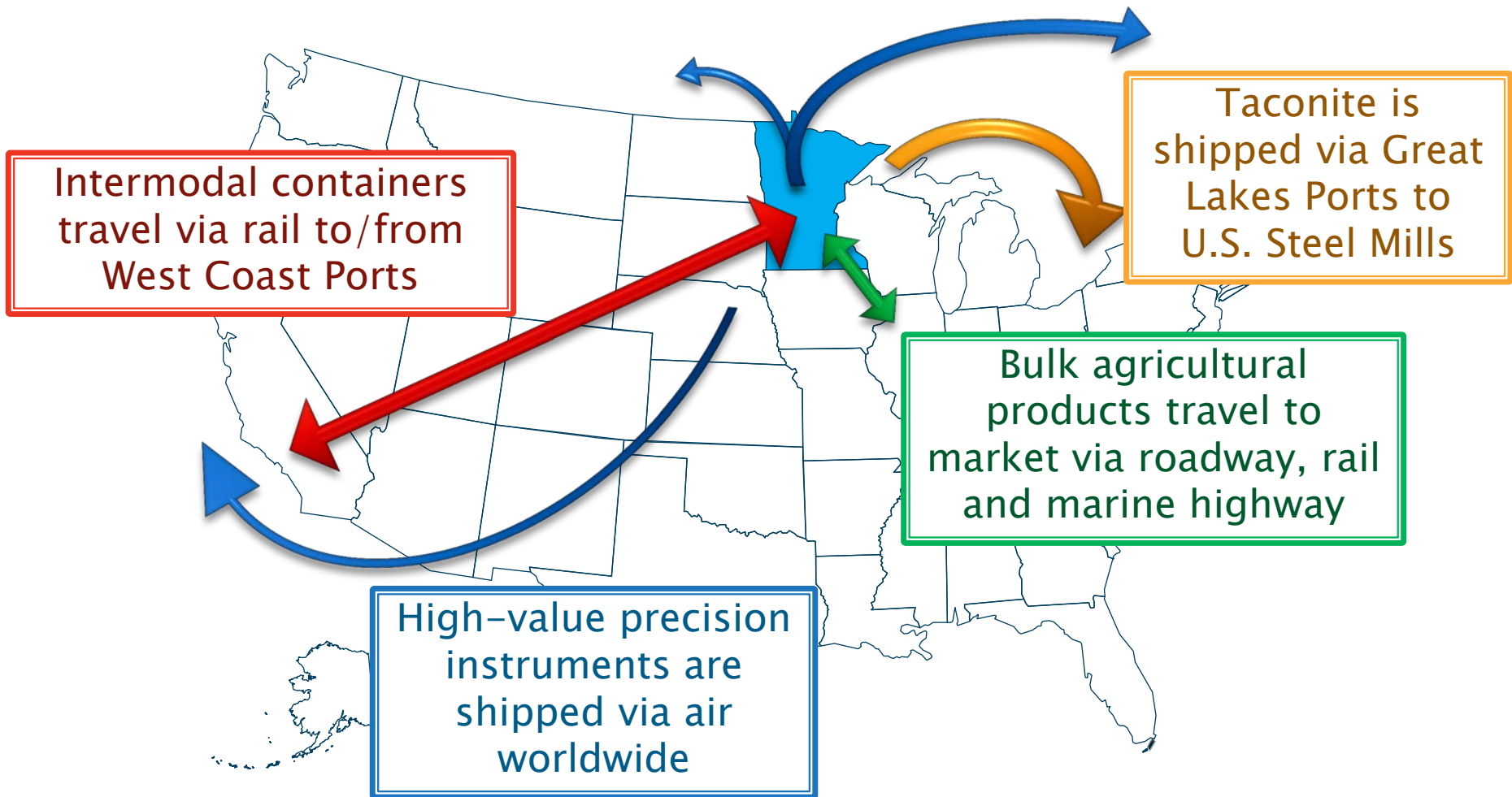
# Regional Connections



- ▶ Minnesota's freight system connects industry to markets outside the state
- ▶ Highways and rails connect Minnesota to broader markets via Chicago and other hubs



# Connections to Domestic and International Markets



Note: Schematic flows, only



# Building Block #4

## Economic Impact



# Freight-related Industries

(NAICS) Industry	# Firms 20-49 Employees	# Firms 50-99 Employees	# Firms >100 Employees
(11) Agriculture, Forestry, Fishing and Hunting	62	12	6
(21) Mining	7	4	6
(22) Utilities	12	4	13
(23) Construction	602	159	72
(31-33) Manufacturing	773	332	435
(42) Wholesale Trade	569	178	128
(44-45) Retail Trade	1,649	487	692
(48-49) Transportation and Warehousing	293	106	85

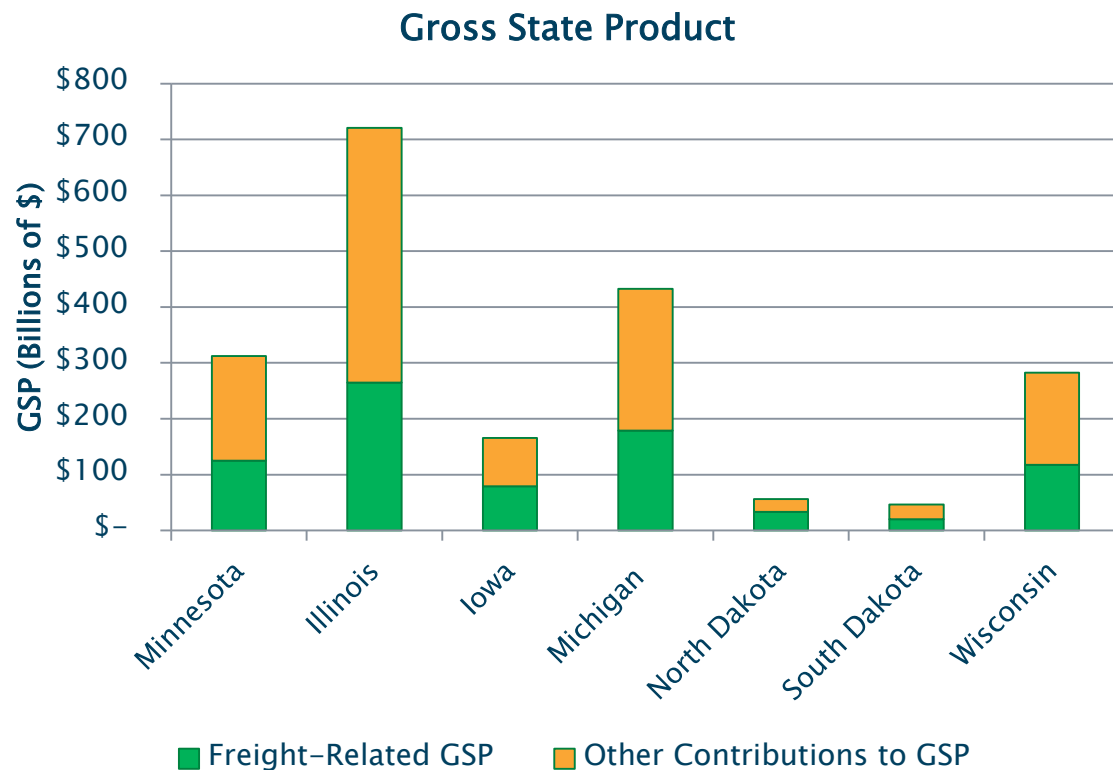
Source: InfoUSA, 2014. Note: Data are for firms greater than 20 employees.





# Minnesota's Freight-related Industries

- ▶ Freight-related industries
  - Agriculture & Forestry
  - Mining, Utilities, Construction
  - Manufacturing
  - Retail & Wholesale Trade
  - Transportation & Warehousing
- ▶ Comprise about 40% of the Gross State Product (GSP)



# Minnesota's Freight-related Industry Concentrations

	Minnesota	Illinois	Iowa	Michigan	N. Dakota	S. Dakota	Wisconsin
Agriculture, Forestry & Fishing	0.82	0.33	1.4	0.75	1.11	1.36	0.98
Mining, Oil & Gas	0.37	0.27	0.25	0.26	10.13	0.35	0.18
Utilities	1.15	1	1.05	1.15	2.06	1.21	0.94
Construction	0.84	0.76	1.04	0.75	1.74	1.19	0.81
Manufacturing	1.25	1.11	1.6	1.51	0.67	1.17	1.83
Wholesale Trade	1.11	1.2	1.08	0.93	1.45	1.17	1
Retail Trade	0.92	0.92	1.06	0.98	1.02	1.15	0.95
Transportation & Warehousing	0.86	1.23	1.13	0.79	1.51	0.76	0.98

Source: Bureau of Labor Statistics Location Quotient Data, 2013



# Industry Concentrations

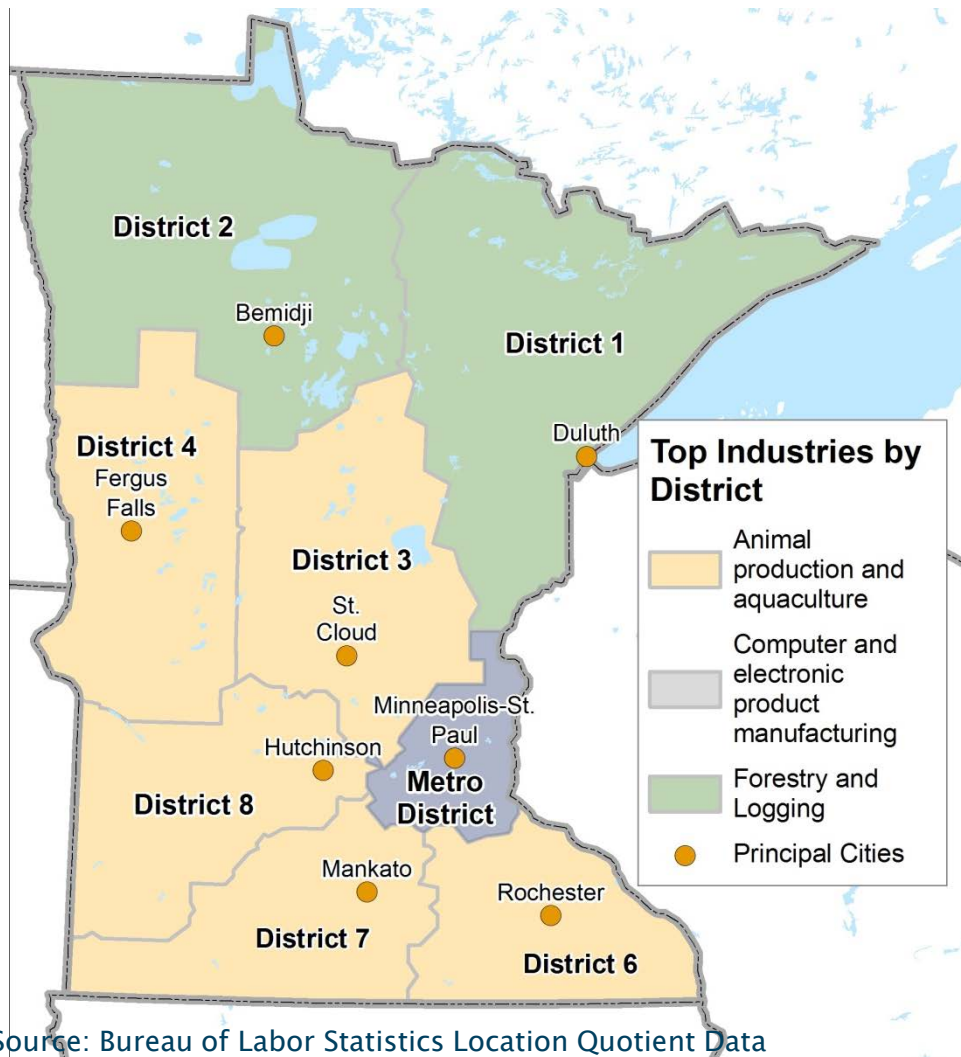
## *Select Key MN Industries*

	Minnesota	Illinois	Iowa	Michigan	N. Dakota	S. Dakota	Wisconsin
Animal production and aquaculture	2.12	0.41	3.76	1.01	0.8	4.02	2.88
Computer and electronic product manufacturing	2.05	0.7	1.04	0.55	0.43	0.71	0.85
Transit and ground passenger transportation	1.51	1.35	0.55	0.56	0.93	0.96	1.51
Machinery manufacturing	1.42	1.69	3.37	2.02	1.69	1.95	2.93
Health care and social assistance	1.17	0.94	0.93	1.03	0.99	1.14	1.01

Source: Bureau of Labor Statistics Location Quotient Data, 2013



# Minnesota's Top Freight-related Industries *(by employment concentration)*



## Top Industries Statewide

1. Printing and related support activities
2. Animal production and aquaculture
3. Computer and electronic product manufacturing
4. Miscellaneous manufacturing
5. Leather and allied product manufacturing

Source: Bureau of Labor Statistics Location Quotient Data



# Minnesota's Freight-related Companies

Fortune 1,000 Companies Headquartered in MN

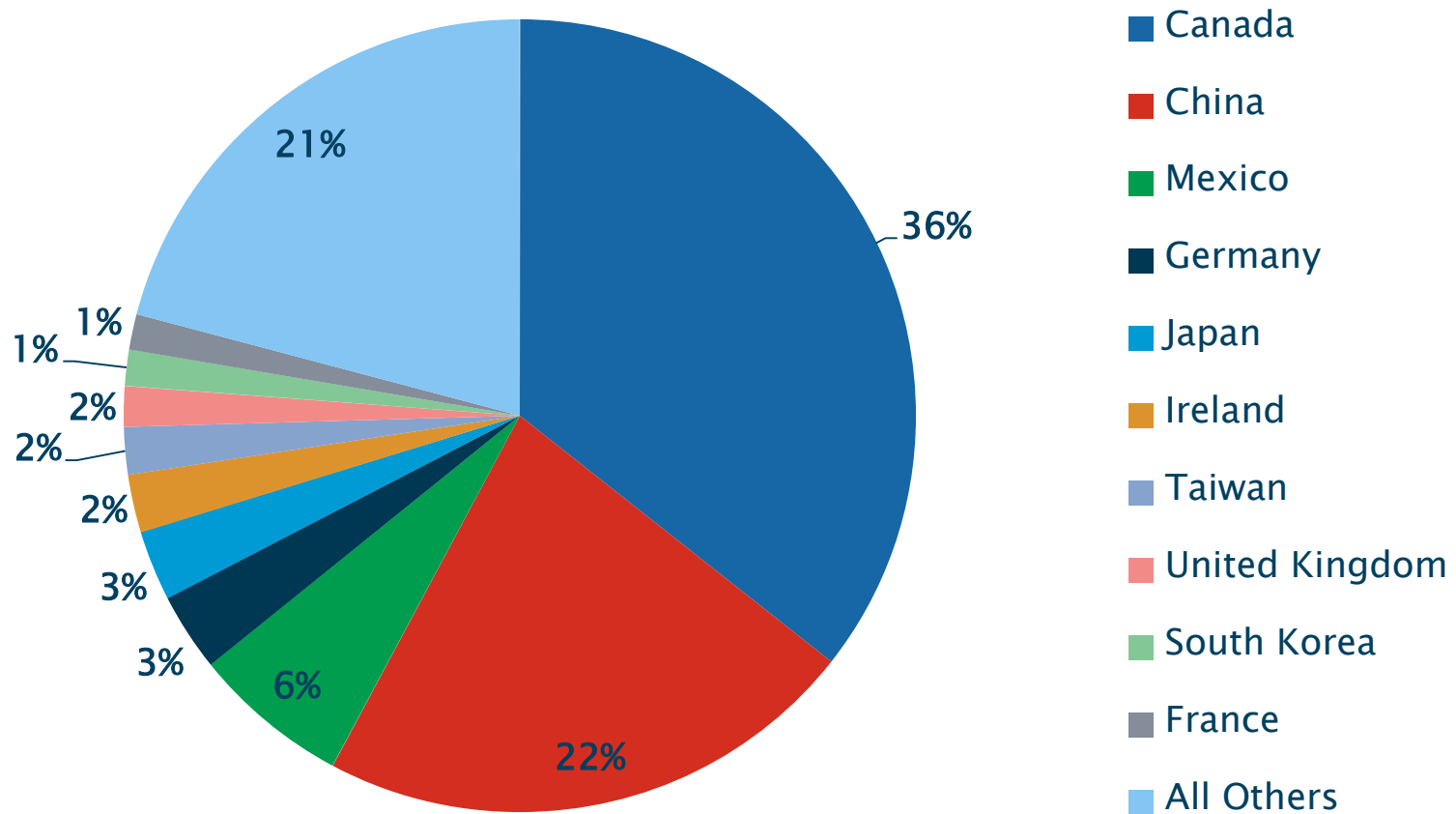
1. **Target** (Metro District)
2. **Best Buy** (Metro District)
3. **CHS** (Metro District)
4. **Supervalu** (Metro District)
5. **3M** (Metro District)
6. **General Mills** (Metro District)
7. **Medtronic** (Metro District)
8. **Land O' Lakes** (Metro District)
9. **Ecolab** (Metro District)
10. **CH Robinson** (Metro District)
11. **Xcel Energy** (Metro District)
12. **The Mosaic Company** (Metro District)
13. **Hormel Foods** (District 6)
14. **St. Jude Medical** (Metro District)
15. **Valspar** (Metro District)
16. **Polaris** (Metro District)
17. **Patterson** (Metro District)
18. **Fastenal** (District 6)
19. **Donaldson** (Metro District)
20. **HB Fuller** (Metro District)
21. **Toro** (Metro District)
22. **Michael Foods Group** (Metro District)

Source: Forbes; InfoUSA, 2014

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# Minnesota's Top Trading Partners *(by value)*



Source: US Census Bureau, 2014



# 10–15 Minute Break



# Quiz Answers

▶ And the winner is???





# Implementing the Minnesota Freight System Plan

Facilitated Discussion

Leo Penne  
Leo Penne Consulting



# Data Applications in Minnesota

Dan Murray

American Transportation  
Research Institute (ATRI)



# Next Steps



# Questions?

