

# Eight County Freight Plan

*East Central Intergovernmental Association &  
Blackhawk Hills Regional Council*

CPCS Team  
May 9, 2017  
Dubuque, IA

# Project Objective

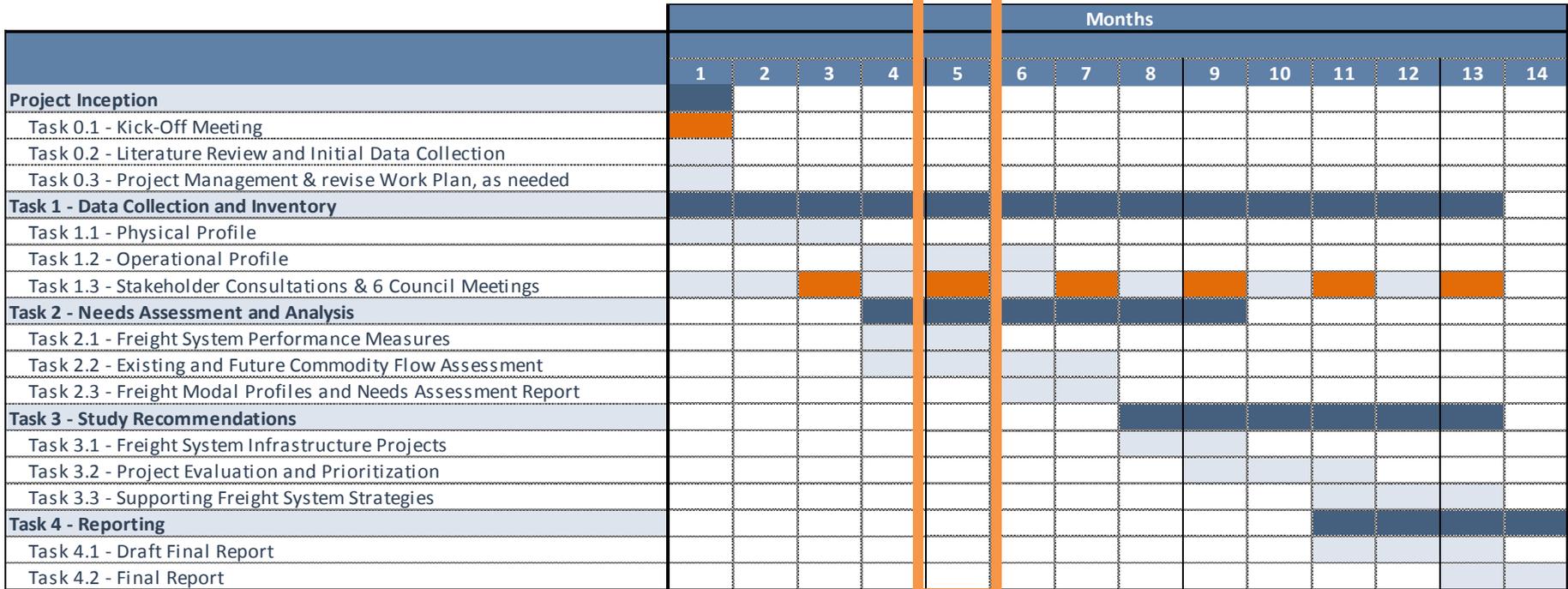
To develop a better understanding of the multimodal freight system in the bi-state region and to use this information to better inform policy and programming decisions.

## Open Discussion

- What information have you been missing in the past to make decisions?
- What information would you like this project to develop?

# Work Plan Overview

We are here



**Legend**



Major Task Duration



Work Activity



Meeting

# Presentation Map



## Visioning – Updates since March Meeting

Freight System Goals and Performance Measures

Existing and Future Commodity Flows

Stakeholder Perspectives

Questions & Discussion

# Developing the Vision

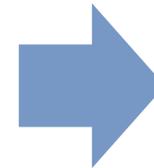
## Vision 1.0

The Eight County multimodal freight system enables economic growth by meeting the transportation needs of local businesses and providing efficient and reliable access to the region, nation, and globe



## Comments

- Integrate safety / quality of life
- Focus on business attraction & retention
- Include preparing for the future



## Vision 2.0

**The Eight County Multimodal Freight System supports quality of life and enables business attraction and retention, by providing safe, efficient, and reliable access to regional, national, and global markets today and in the future.**

## Open Discussion

- Does the Vision 2.0 address the comments and concerns discussed in the last meeting?
- Do you have additional comments on Vision 2.0 you would like to provide?

# Presentation Map

Visioning – Updates since March Meeting



**Freight System Goals and Performance Measures**

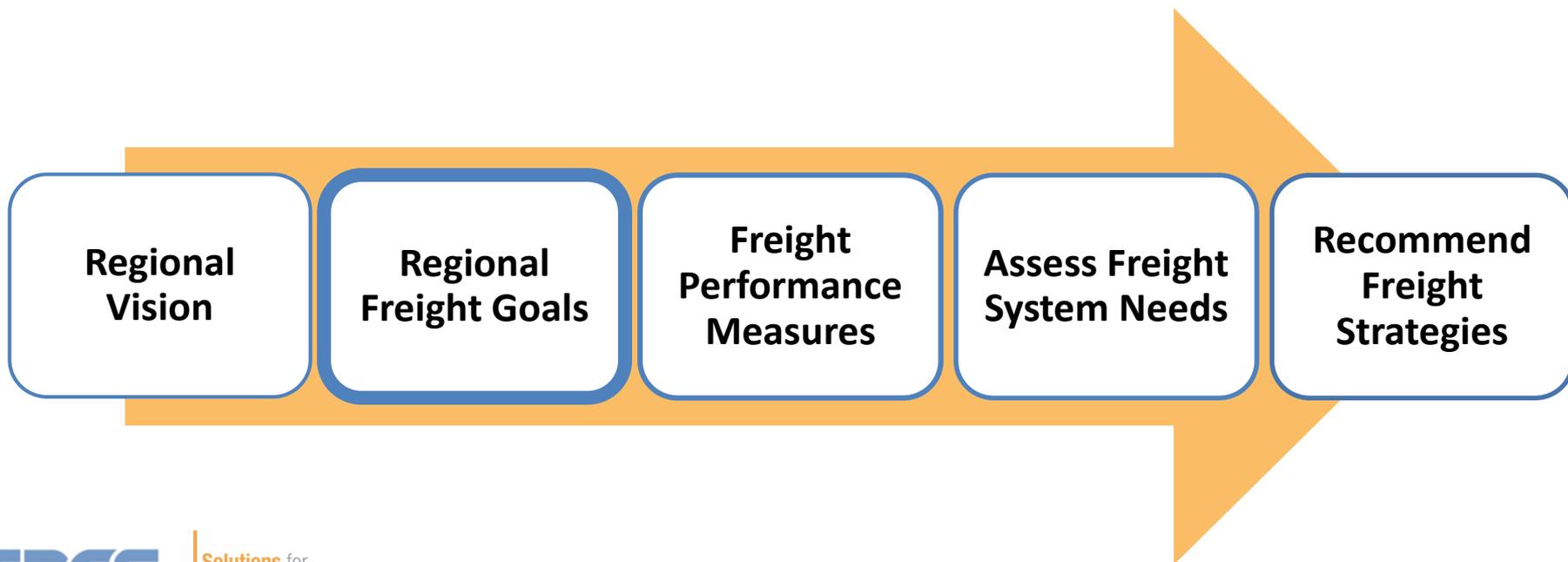
Existing and Future Commodity Flows

Stakeholder Perspectives

Questions & Discussion

## Implementing the Vision

- The goals flow from the vision reflecting key factors in the vision
- Goals define the performance measures



# Turning the Freight Vision into Goals

## Outcomes

## Impact Categories

The Eight County Multimodal Freight System supports **quality of life** and enables **business attraction** and **retention**, by providing **safe**, **efficient**, and **reliable access** to regional, national, and global markets today and in the future.

# Turning the Freight Vision into Goals

## The Desired Outcomes of Freight Plan Implementation

The Freight System Meets Business Needs

Business Retention

The Freight System Aids the Attraction of New Businesses

Business Attraction

Community Needs and Priorities are Met

Quality of Life

## The Factors the Freight Plan Can Affect

Reduce Accidents Involving Freight Vehicles

Safe

Reduce Freight Travel Times and/or Cost

Efficient

Reduce Disruptions to System Performance

Reliable

Improve Regional Access to Freight Modes and Markets

Access

# Freight Plan Goals

Where we  
want to Go  
(Long-Term)

**Vision**

What we want  
to Achieve  
(Medium-Term)

The Freight  
System Meets  
Business Needs

**Business  
Retention**

The Freight  
System Aids the  
Attraction of  
New Businesses

**Business  
Attraction**

Community  
Needs and  
Priorities are  
Met

**Quality of Life**

**Goals**  
What we Measure  
in the Freight Plan  
(Short-Term)

Reduce  
Accidents  
Involving  
Freight Vehicles

**Safe**

Reduce Freight  
Travel Times  
and/or Cost

**Efficient**

Reduce  
Disruptions to  
System  
Performance

**Reliable**

Improve  
Regional Access  
to Freight  
Modes and  
Markets

**Access**

## Do the goals make sense?

- Are the key elements captured?
- Are there concepts that deserve more or less emphases?
- Does this appropriately describe the key transportation factors impacting the Region's freight future?

# Presentation Map

Visioning – Updates since March Meeting

Freight System Goals and Performance Measures



**Existing and Future Commodity Flows**

Stakeholder Perspectives

Questions & Discussion

# Freight Data Analysis

1. Introduction to Freight Analysis Framework (FAF) Data
2. FAF Findings in the ECIA Study Area
3. Other Data Sources



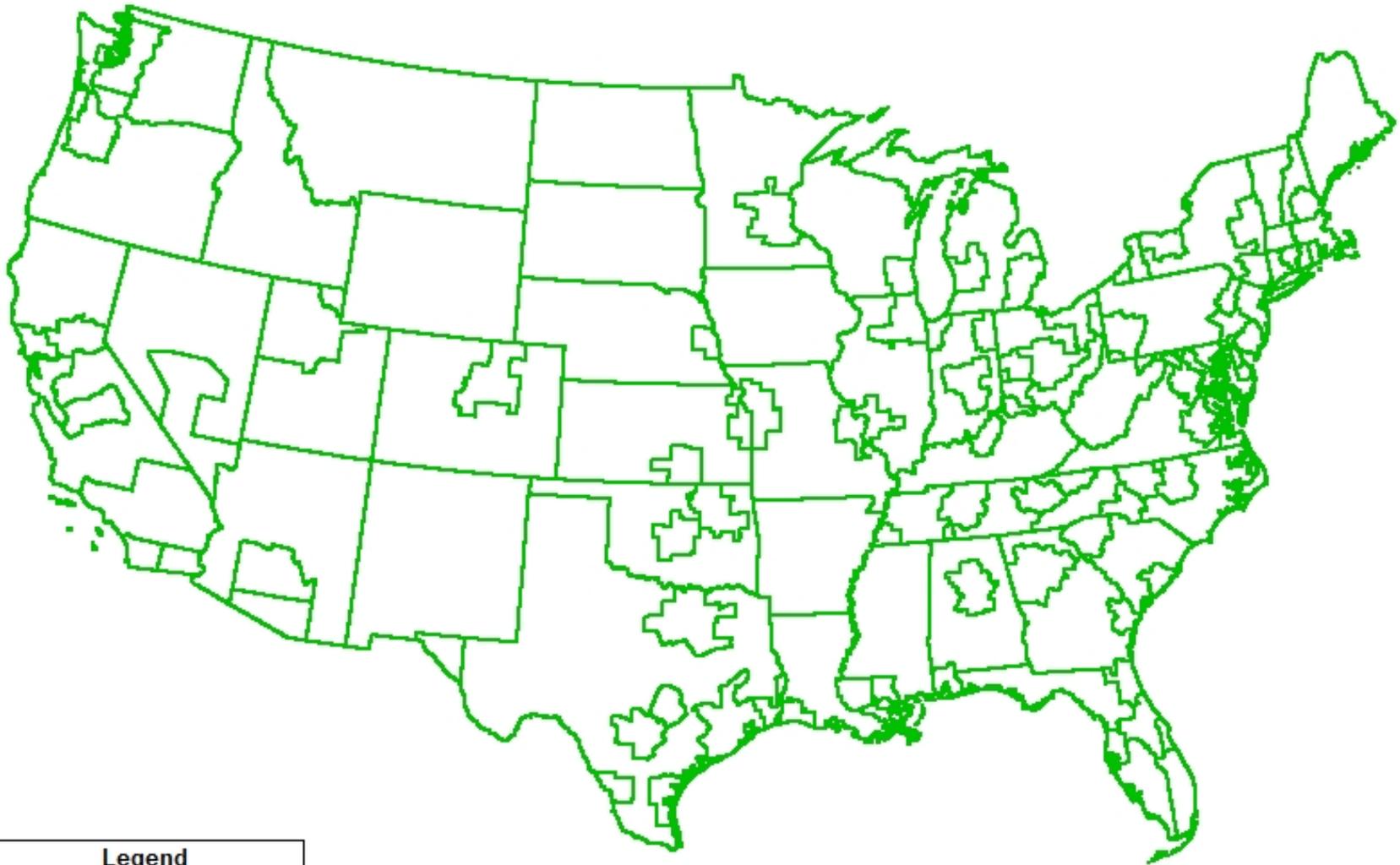
# About the Freight Analysis Framework

- FAF is a free public data model produced by the US Department of Transportation to assist freight planning
  - Used Census data (2012 Commodity Flow Survey, trade date) and other federal information
  - Current version has 2012 base year with forecasts to 2045
  - International and domestic flows, by mode
  - Tons, value, and vehicle miles of travel
  - Highway network assignments to major routes
  - Limited commodity specificity -- 43 broad groups
  - Limited geographic specificity -- 132 analysis zones

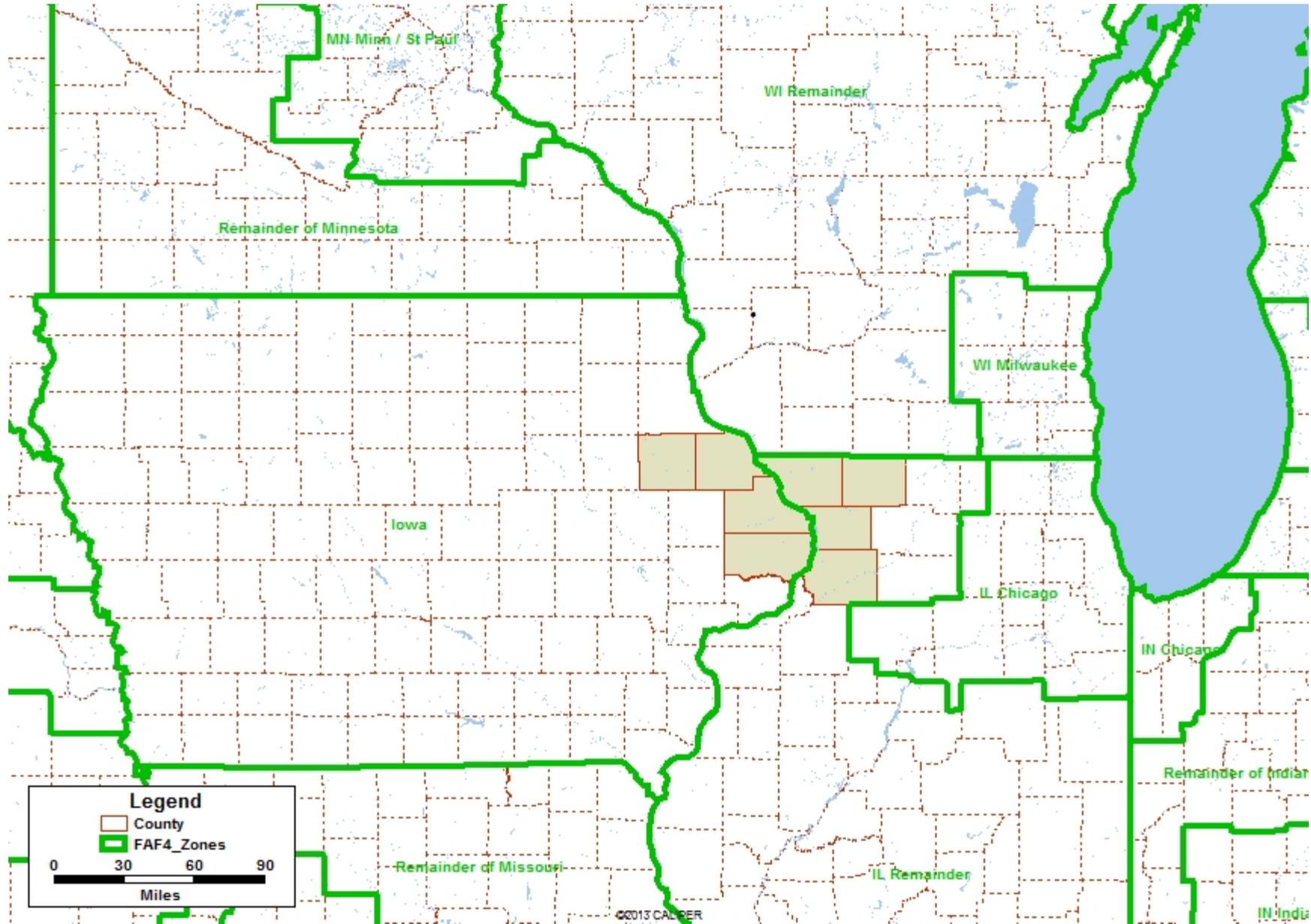


Source: <http://faf.ornl.gov/fafweb/>

# FAF Geography – 132 Analysis Zones



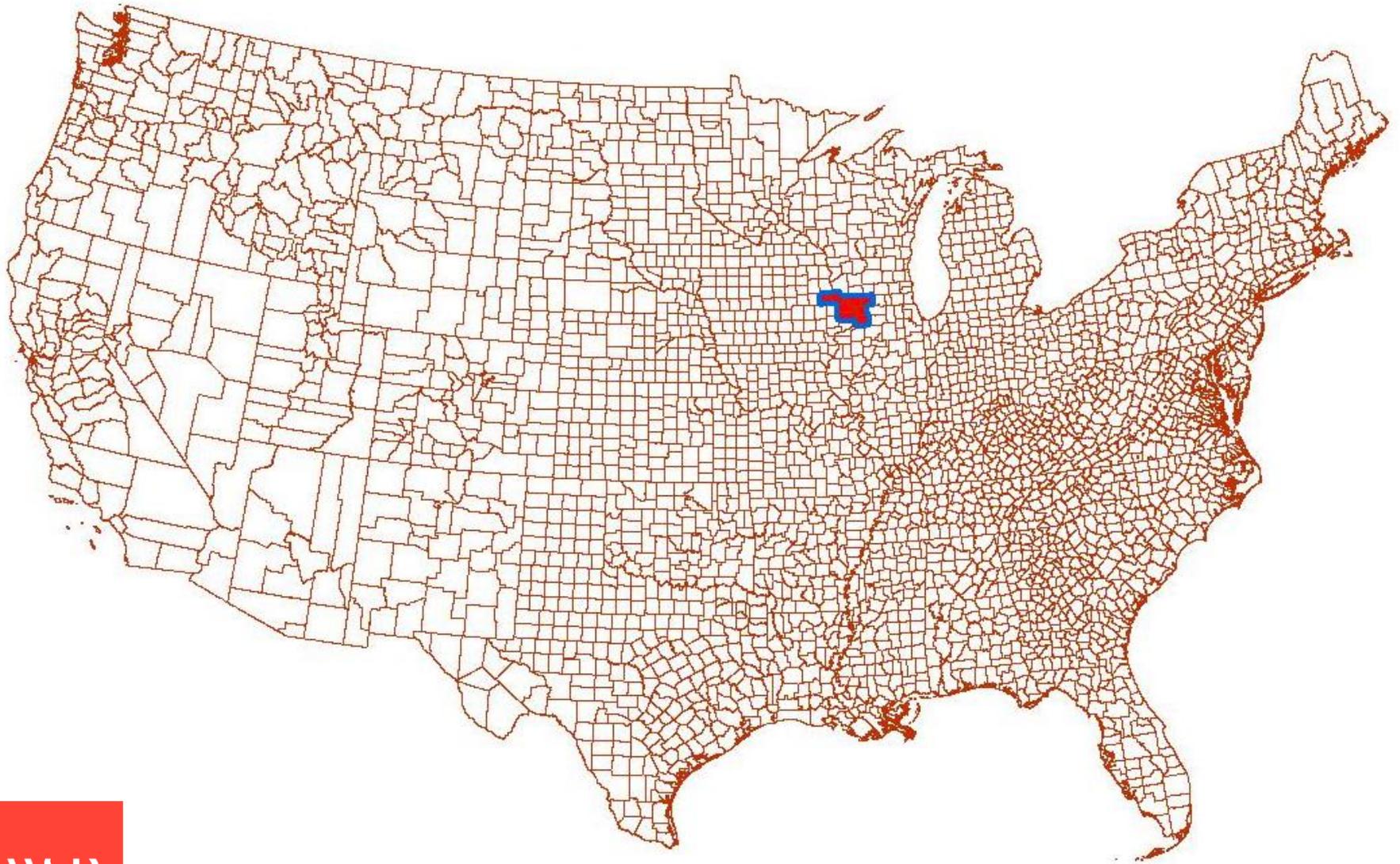
# ECIA Counties are in Different FAF Zones



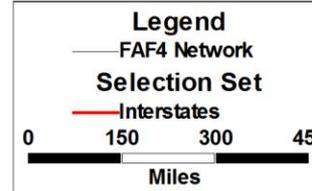
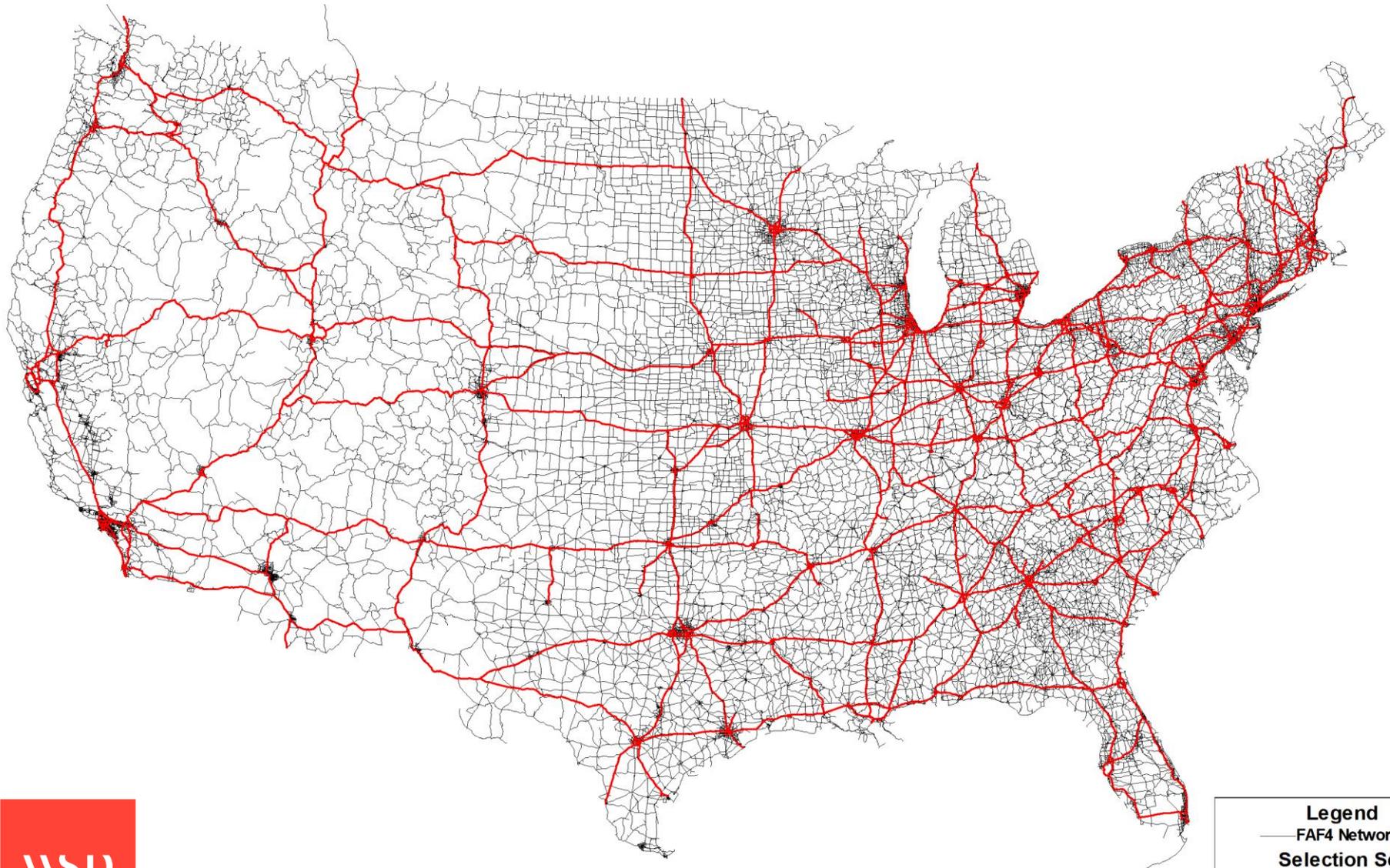
# FAF Disaggregation and this Study

- WSP developed a disaggregation of FAF data to the county level for Illinois DOT
  - Recently updated (to FAF 4.2) to support the state freight plan
  - From 132 FAF zones to 3,123 counties
  - Truck, rail, water and “multiple modes”
  - Base year updated to 2014
- Disaggregation allows us to isolate and analyze FAF data for the Eight County Study area
  - ECIA totals and individual counties
  - Truck tonnage on highway network
  - Commodity flow statistics

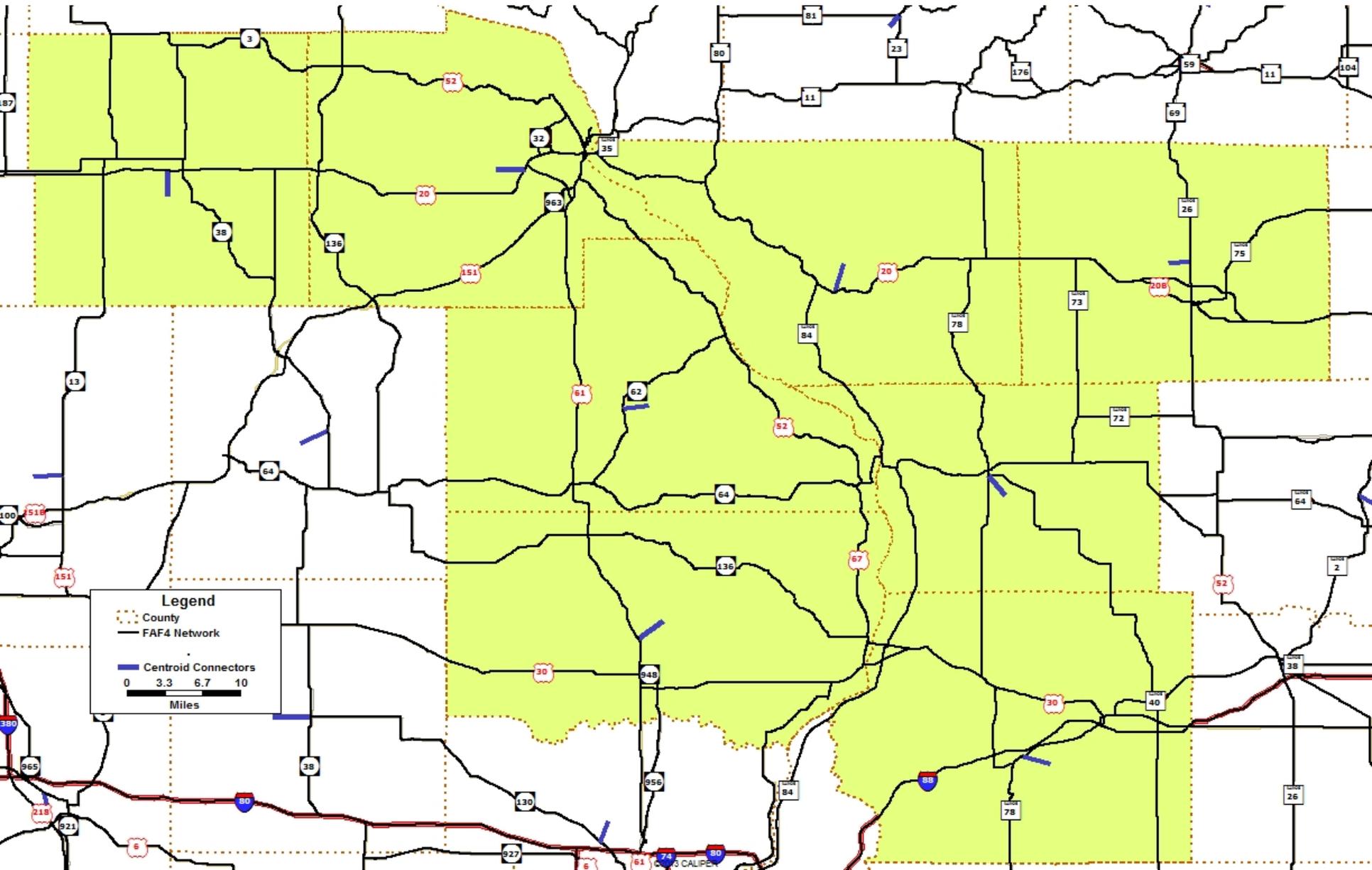
# Disaggregated FAF Geography



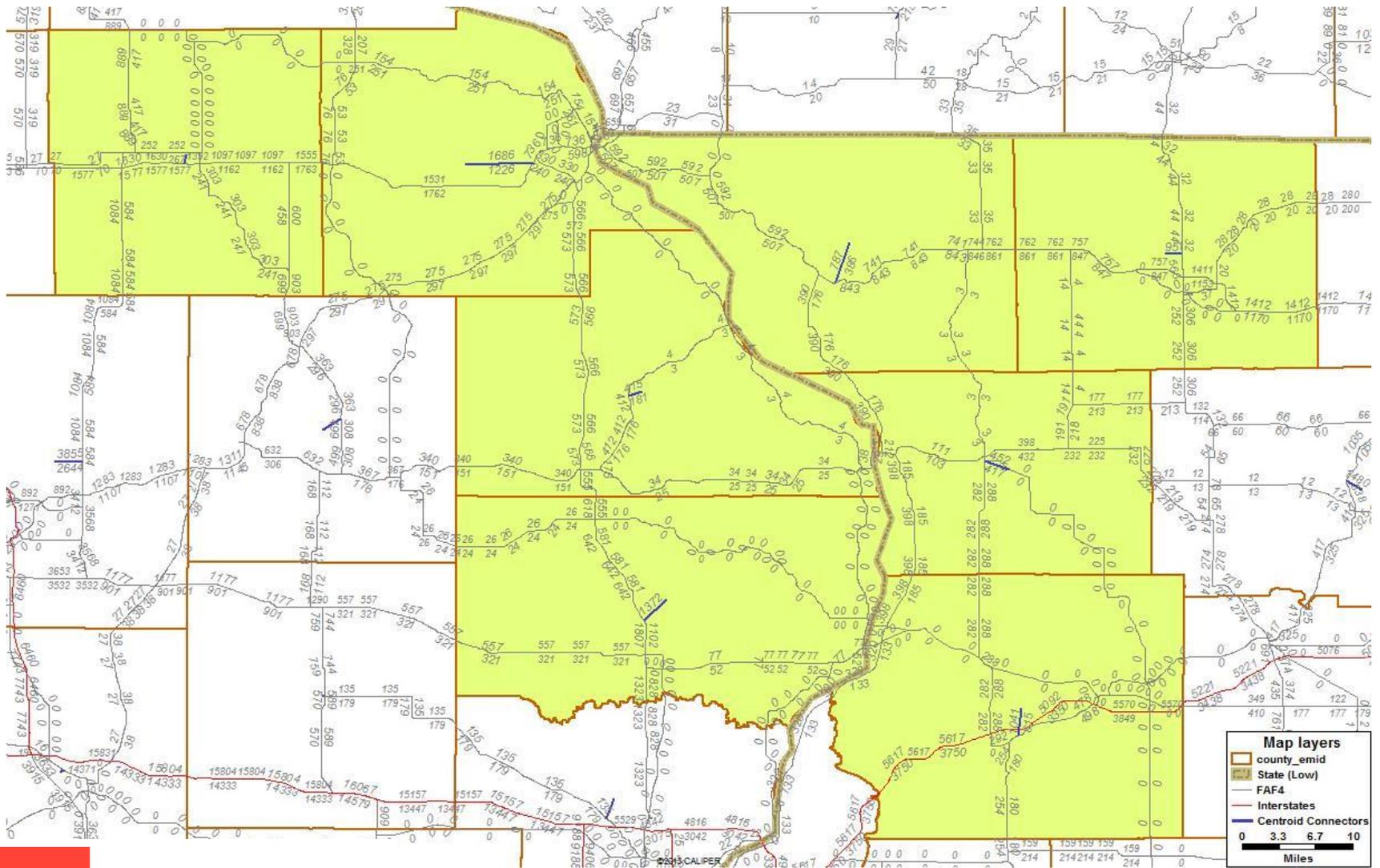
# Corresponding FAF Roadway Network



# FAF Network in the Study Area



# Initial Assignment of FAF Trucks in the Study Area



# FAF will inform our Supply Chain Analysis

- Document current and forecast system use
  - Link to Eight County industries and how they use the freight transportation system
- Articulate multimodal system needs
- Identify and provide justification (*by key industry*) for potential system improvements

# Open Discussion

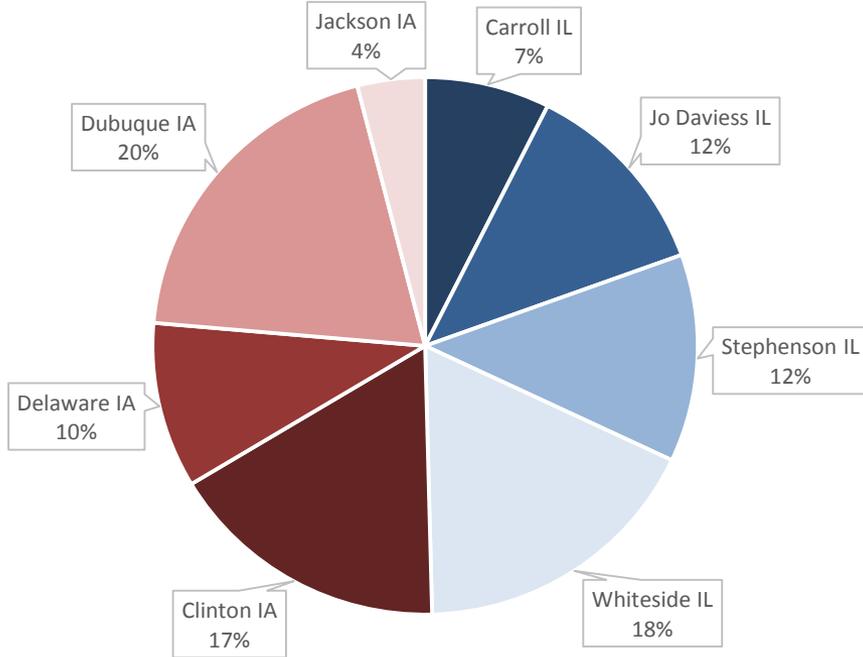
- Are there any questions on the data approach prior to presenting our results?

# FAF Commodity Flow Summaries

- Study Area tons and value in 2014 by:
  - County shares
  - Direction of trade (excluding pass-through)
  - Commodity
  - Mode (truck, rail, water, multiple)
- Modal profiles
- International trade
- Forecasts to 2045

# ECIA Tons and Value by County, 2014

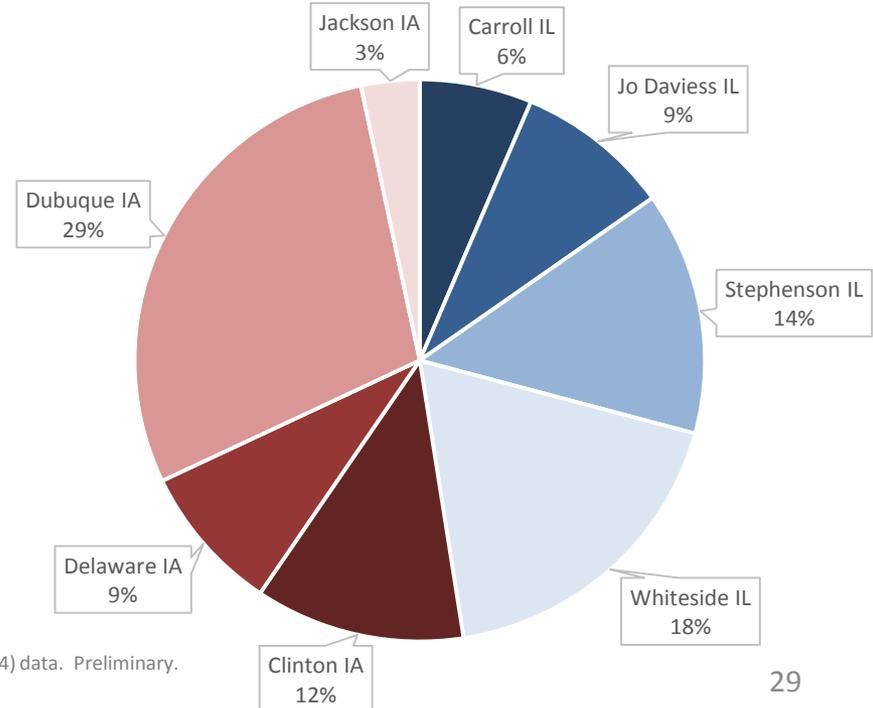
Tons (67.3 M) by County, 2014



- Tonnage evenly split between IL and IA counties, broad distribution across counties

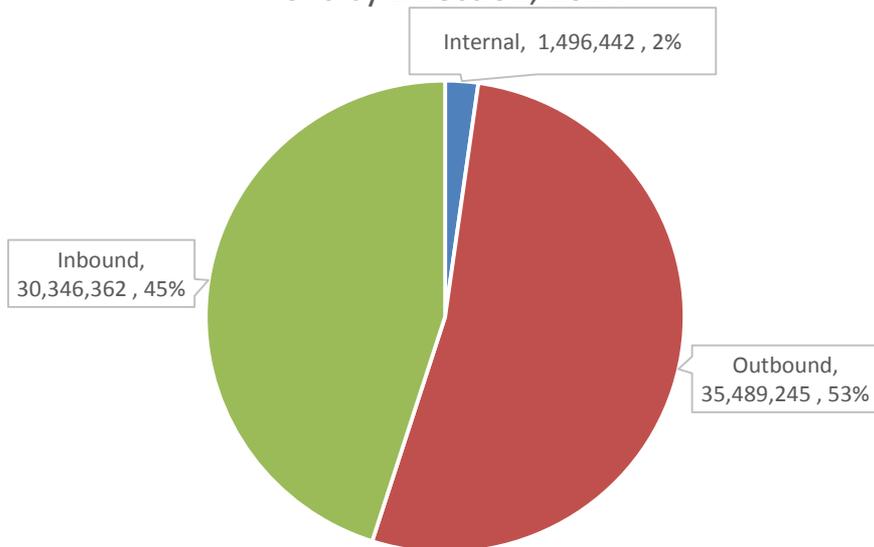
- Value evenly split between IL and IA counties, broad distribution across counties
- Higher-value goods in Dubuque, Stephenson; lower-value goods in Clinton, Jo Daviess

Value (\$50.4 B) by County, 2014



# ECIA Tons and Value by Direction of Trade, 2014

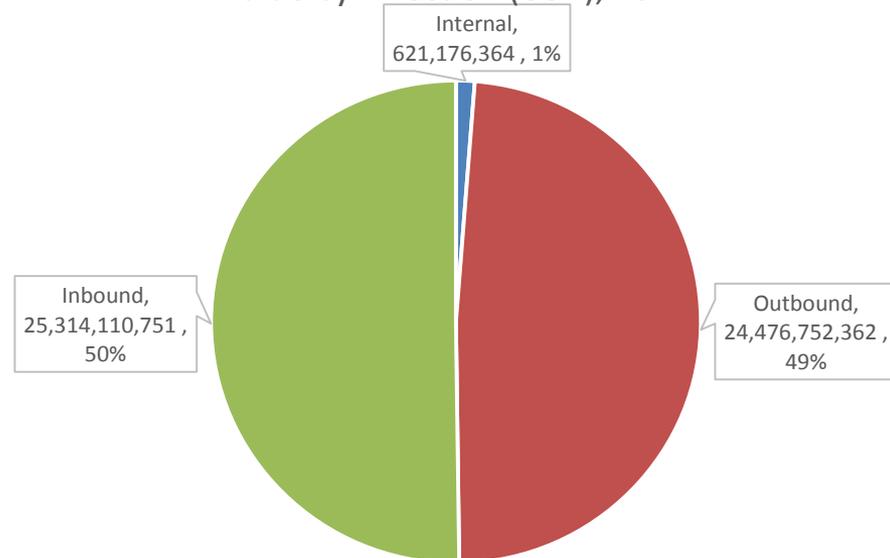
Tons by Direction, 2014



- Very balanced tonnage flows, with outbound slightly higher than inbound
- Internal tonnage (within/between ECIA counties) is low

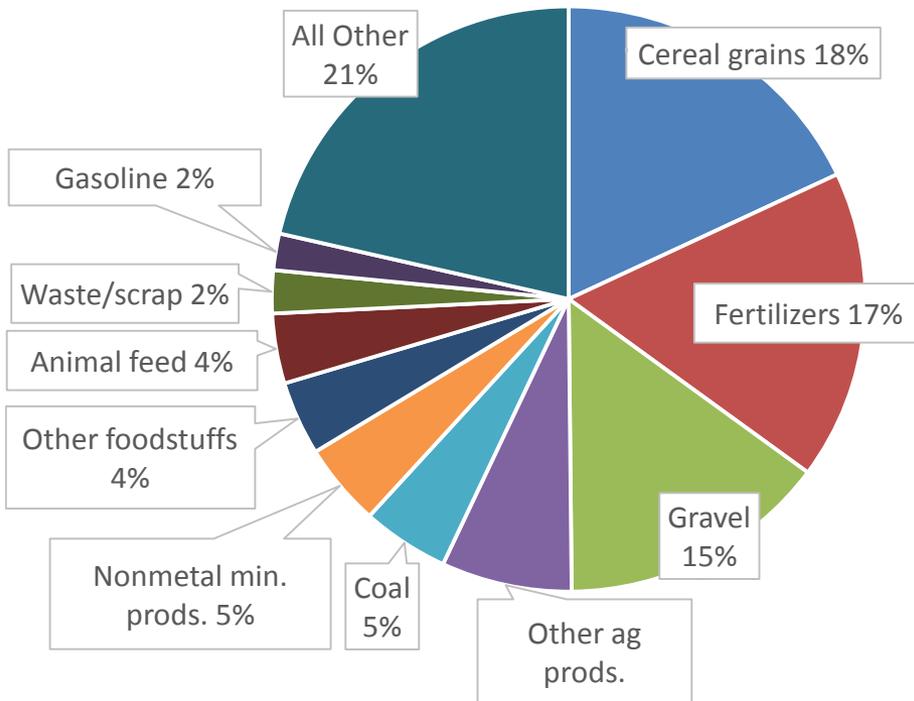
- Very balanced value flows, with inbound slightly higher than outbound
- Internal value (within/between ECIA counties) is low

Value by Direction (USD), 2014

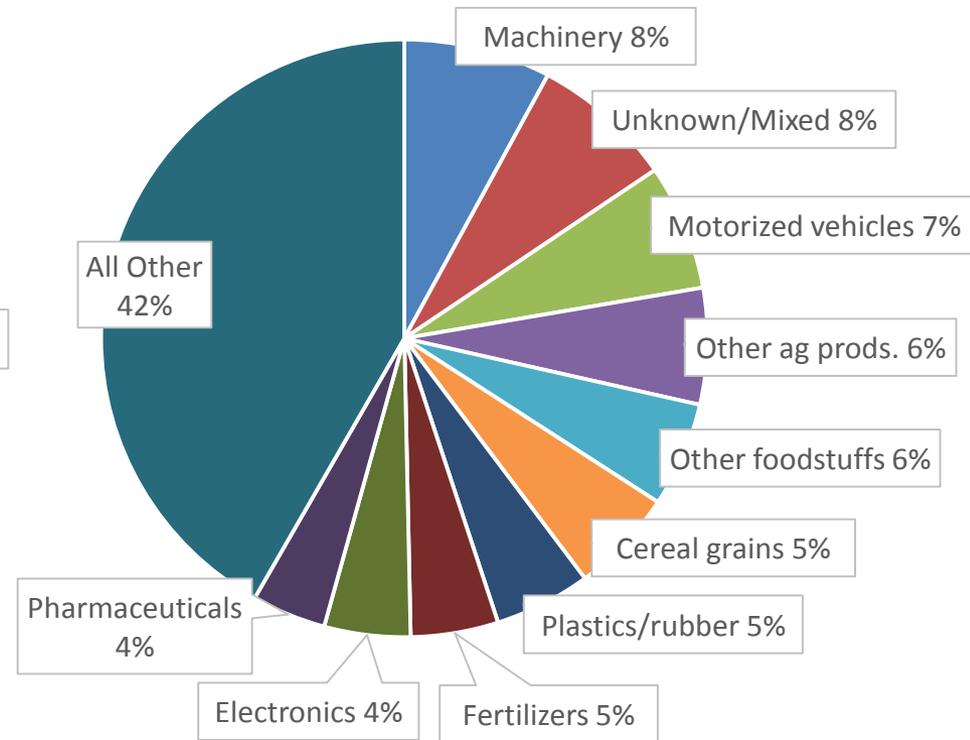


# ECIA Tons and Value by Commodity, 2014

Tons by Commodity (2014)  
Total = 67.3 Million tons

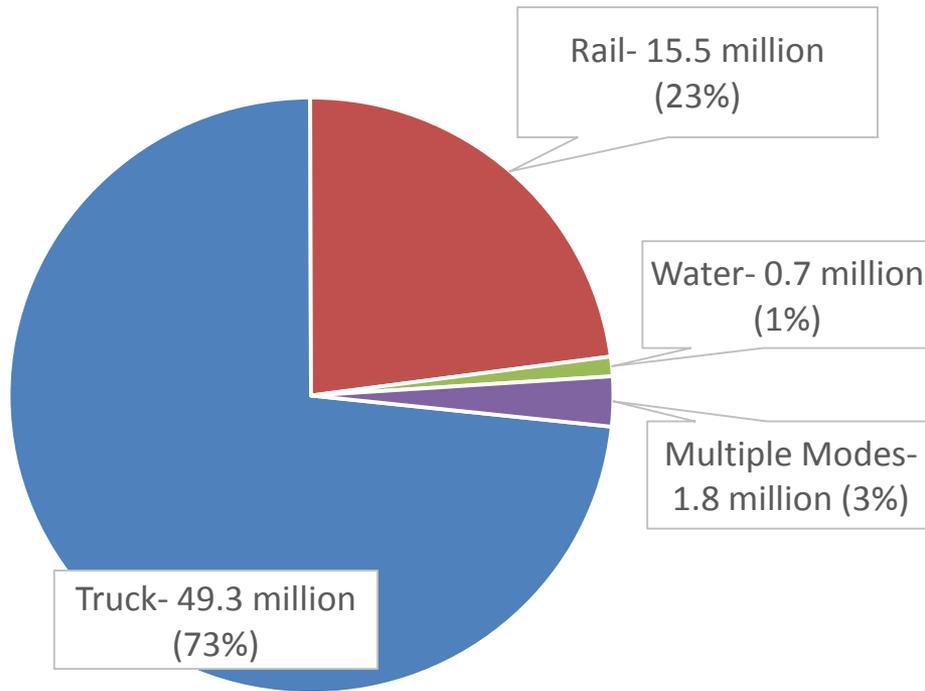


Value by Commodity (2014)  
Total = \$50.4 Billion

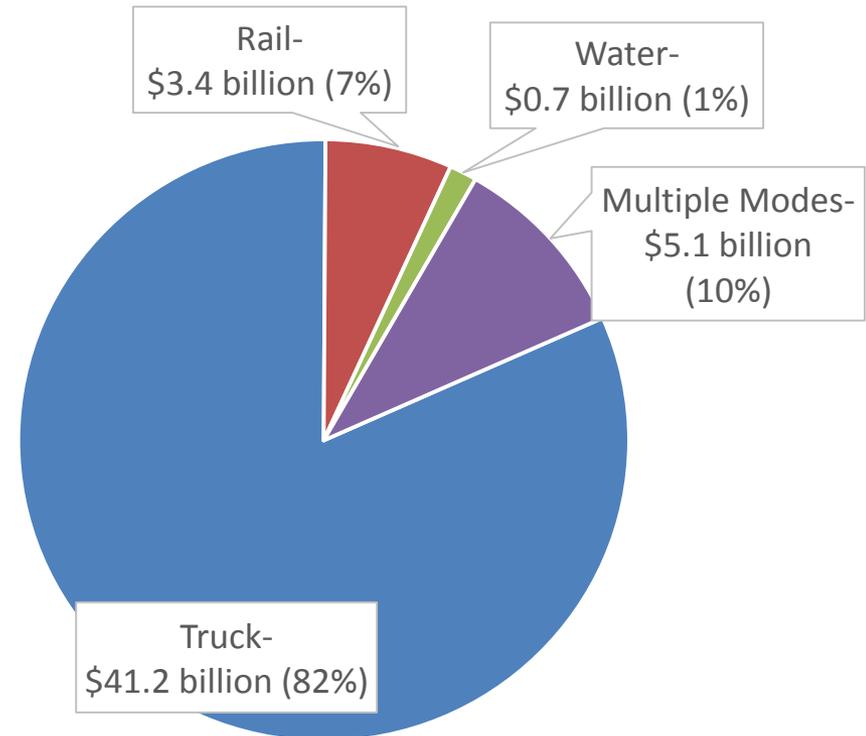


# ECIA Tons and Value by Mode, 2014

Tons by Mode (2014)  
Total = 67.3 Million tons

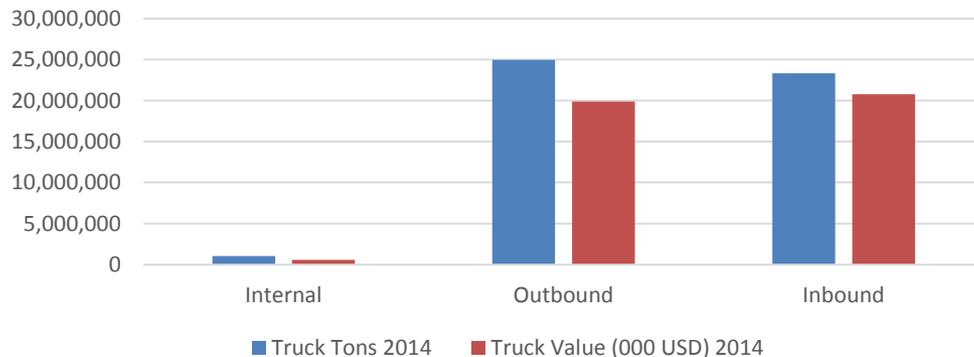


Value by Mode (2014)  
Total = \$50.4 Billion

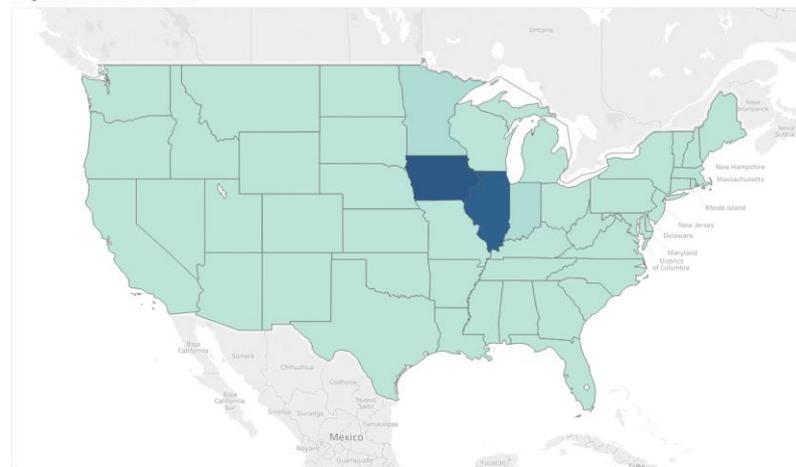


# ECIA Truck Tons and Value, 2014

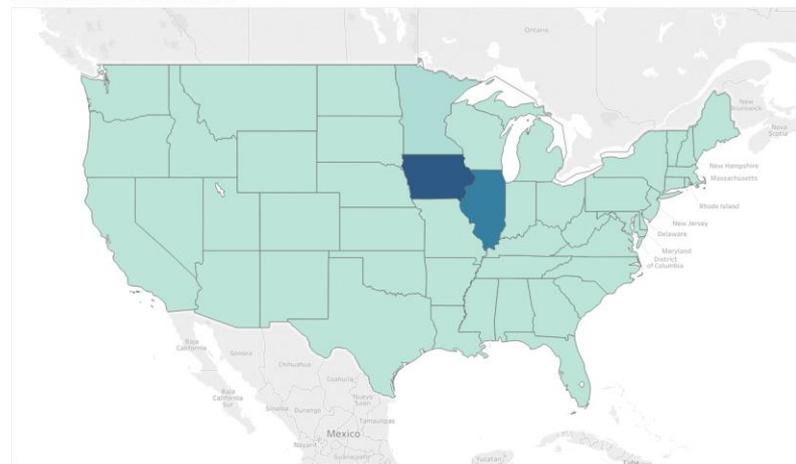
## Truck Tons and Value by Direction, 2014



### Origin States for Inbound Trucks



### Destination States for Outbound Trucks



Truck Commodities	Tons 2014
Cereal grains	10,076,986
Gravel	9,514,989
Fertilizers	4,206,544
Other ag prods.	3,418,598
Nonmetal min. prods.	2,916,398
Animal feed	2,285,944
Other foodstuffs	1,781,752
Waste/scrap	1,383,529
Gasoline	1,208,675
Fuel oils	1,159,313
All Other	11,394,844
<b>Grand Total</b>	<b>49,347,572</b>

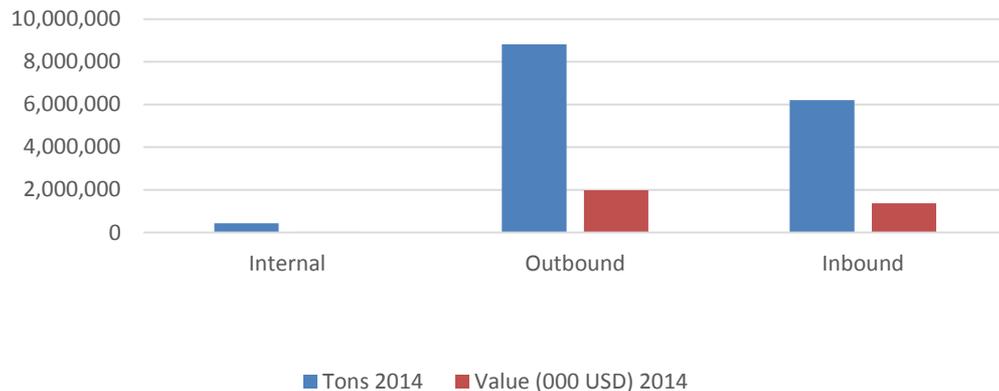
Truck Commodities	Value (USD) 2014
Unknown/Mixed	3,689,363,504
Machinery	3,433,067,624
Motorized vehicles	2,712,922,662
Other ag prods.	2,343,340,221
Cereal grains	2,294,635,986
Plastics/rubber	2,153,360,757
Other foodstuffs	2,133,921,989
Fertilizers	1,849,732,284
Electronics	1,784,076,277
Base metals	1,761,783,320
All Other	17,061,759,714
<b>Grand Total</b>	<b>41,217,964,338</b>



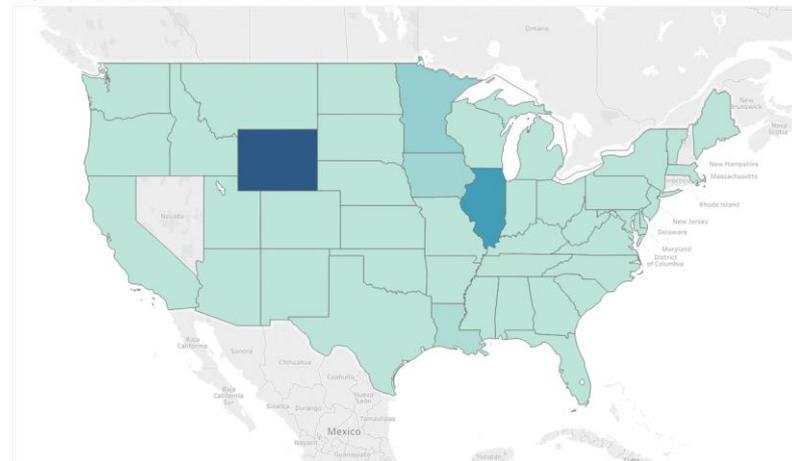
Source: WSP Analysis of FHWA Freight Analysis Framework version 4 (FAF4) data. Preliminary.

# ECIA Rail Tons and Value, 2014

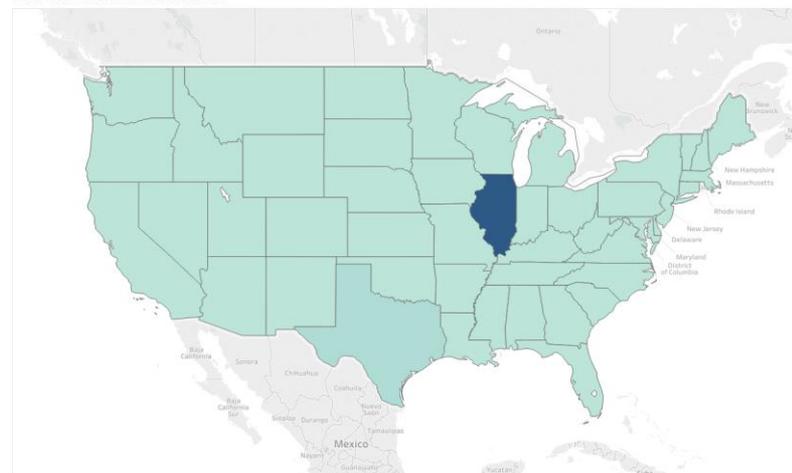
## Rail Tons and Value by Direction, 2014



### Origin States for Inbound Rail



### Destination States for Outbound Rail



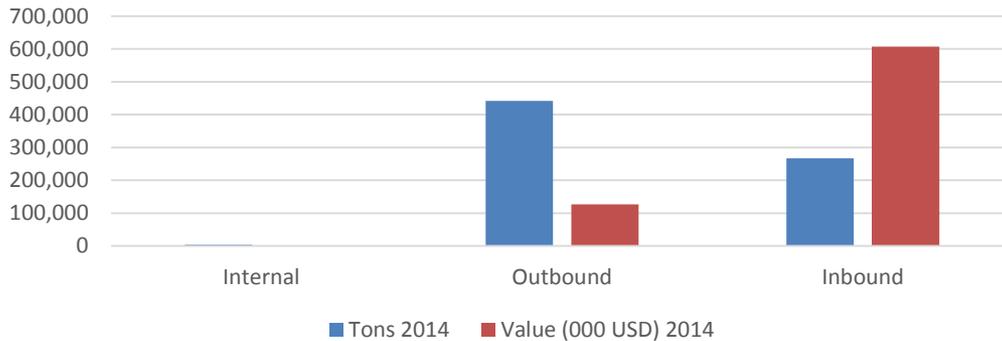
Rail Commodities	Tons 2014	Rail Commodities	Value (USD) 2014
Fertilizers	7,239,590	Cereal grains	475,946,628
Coal	2,972,828	Fertilizers	468,527,880
Cereal grains	1,825,846	Other foodstuffs	396,636,135
Other ag prods.	610,696	Other ag prods.	305,736,883
Other foodstuffs	594,835	Plastics/rubber	239,467,617
Basic chemicals	293,886	Basic chemicals	212,585,733
Alcoholic beverages	226,582	Alcoholic beverages	199,434,596
Animal feed	202,372	Chemical prods.	108,676,731
Waste/scrap	171,177	Coal	98,829,902
Plastics/rubber	163,420	Articles-base metal	93,891,633
All Other	1,153,413	All Other	792,701,684
<b>Grand Total</b>	<b>15,454,645</b>	<b>Grand Total</b>	<b>3,392,435,422</b>



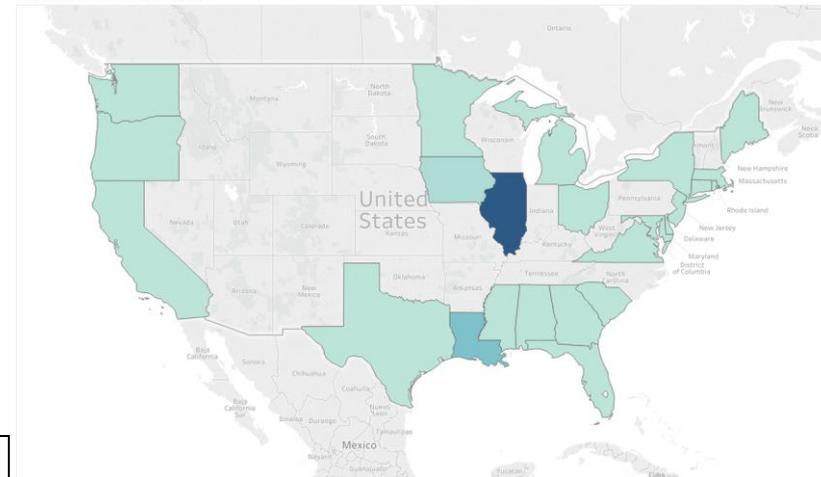
Source: WSP Analysis of FHWA Freight Analysis Framework version 4 (FAF4) data. Preliminary.

# ECIA Water Tons and Value, 2014

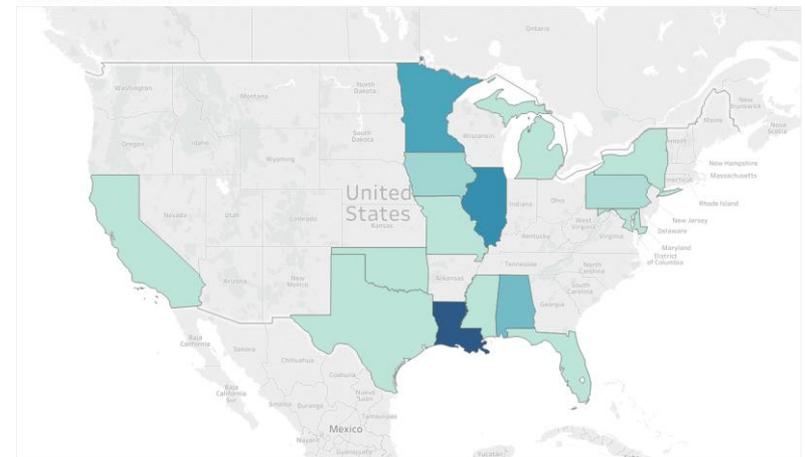
## Water Tons and Value by Direction, 2014



### Origin States for Inbound Water



### Destination States for Outbound Water

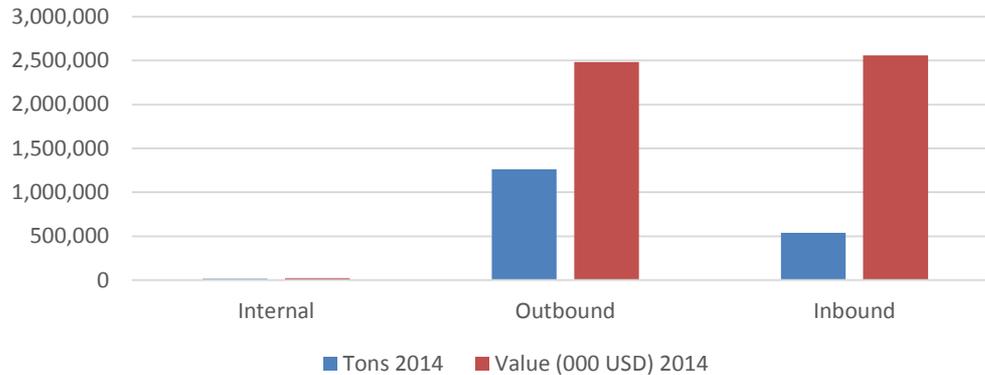


Water Commodities	Tons 2014	Water Commodities	Value (USD) 2014
Gravel	248,056	Electronics	219,883,214
Other ag prods.	147,323	Machinery	140,543,398
Cereal grains	146,054	Other ag prods.	95,270,782
Nonmetal min. prods.	29,504	Furniture	40,848,316
Nonmetallic minerals	25,822	Cereal grains	40,165,933
Fertilizers	22,794	Motorized vehicles	36,241,181
Electronics	13,617	Plastics/rubber	31,135,097
Natural sands	13,485	Chemical prods.	22,679,249
Machinery	10,142	Articles-base metal	19,831,907
Waste/scrap	8,082	Precision instruments	13,762,265
All Other	48,170	All Other	74,440,135
<b>Grand Total</b>	<b>713,049</b>	<b>Grand Total</b>	<b>734,801,477</b>

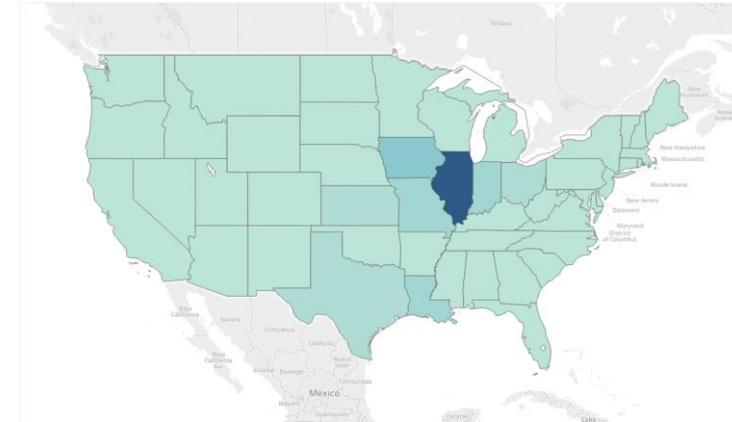


# ECIA Multiple Modes Tons and Value, 2014

Multiple Modes Tons and Value by Direction, 2014



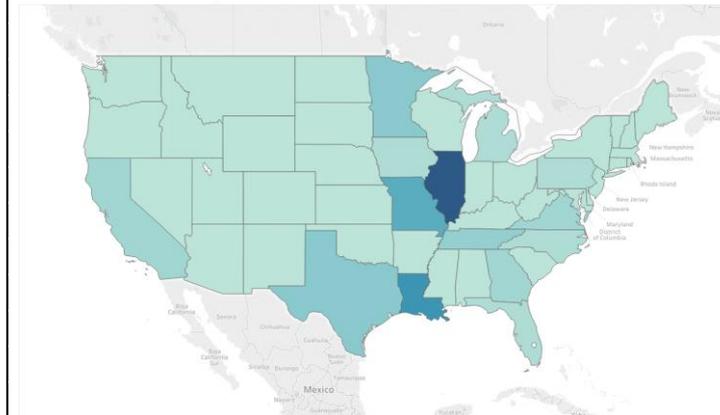
Origin States for Inbound Multiple Modes



Multiple Mode Commodities	Tons 2014
Other ag prods.	615,722
Other foodstuffs	371,026
Not specified	162,278
Animal feed	109,219
Cereal grains	65,715
Nonmetal min. prods.	59,117
Fertilizers	48,094
Motorized vehicles	42,907
Plastics/rubber	38,013
Base metals	36,363
All Other	268,330
<b>Grand Total</b>	<b>1,816,784</b>

Multiple Mode Commodities	Value (USD) 2014
Pharmaceuticals	1,228,197,189
Motorized vehicles	633,820,908
Other ag prods.	426,743,799
Other foodstuffs	318,238,964
Machinery	301,973,997
Electronics	292,687,479
Misc. mfg. prods.	234,443,036
Not specified	208,015,905
Articles-base metal	204,620,174
Textiles/leather	192,551,963
All Other	1,025,544,827
<b>Grand Total</b>	<b>5,066,838,241</b>

Destination States for Outbound Multiple Modes



# ECIA International Trade Tons and Value, 2014

<b>Export Tons 2014</b>	
Cereal grains	80,220
Other ag prods.	76,955
Animal feed	45,629
Machinery	30,521
Motorized vehicles	27,100
Other foodstuffs	22,943
Base metals	22,014
Plastics/rubber	19,635
Articles-base metal	18,355
Meat/seafood	16,883
All Other	92,795
<b>Grand Total</b>	<b>453,050</b>

<b>Export Value (USD) 2014</b>	
Machinery	321,207,495
Motorized vehicles	280,084,582
Plastics/rubber	71,087,596
Articles-base metal	62,035,527
Meat/seafood	58,967,793
Other ag prods.	48,262,381
Textiles/leather	42,653,730
Chemical prods.	34,110,451
Base metals	31,754,337
Pharmaceuticals	22,537,265
All Other	178,807,175
<b>Grand Total</b>	<b>1,151,508,332</b>

<b>Import Tons 2014</b>	
Fertilizers	100,945
Machinery	32,146
Basic chemicals	31,401
Articles-base metal	25,425
Plastics/rubber	23,602
Cereal grains	22,716
Base metals	19,583
Motorized vehicles	18,461
Other foodstuffs	17,585
Electronics	17,533
All Other	115,871
<b>Grand Total</b>	<b>425,268</b>

<b>Import Value (USD) 2014</b>	
Machinery	335,303,342
Electronics	293,727,833
Motorized vehicles	142,012,588
Articles-base metal	82,887,856
Plastics/rubber	70,002,927
Furniture	69,173,083
Textiles/leather	47,357,373
Fertilizers	45,227,502
Chemical prods.	36,556,564
Base metals	28,006,980
All Other	168,002,815
<b>Grand Total</b>	<b>1,318,258,863</b>



# ECIA Forecast Tons to 2045

Modal Growth	Tons 2014	Tons 2045	Tons Added	CAGR
Truck - FAF	49,347,572	71,095,638	21,748,066	1.3%
Rail - FAF	15,454,645	20,400,234	4,945,589	1.0%
Water - FAF	713,049	1,014,143	301,094	1.2%
Multiple - FAF	1,816,784	3,313,142	1,496,358	2.1%
Grand Total	67,332,050	95,823,157	28,491,107	1.2%

Commodity Tons	Tons 2014	CAGR
Cereal grains	12,114,601	1.3%
Fertilizers	11,517,022	1.2%
Gravel	9,926,427	1.3%
Other ag prods.	4,792,338	1.2%
Coal	3,198,349	-3.0%
Nonmetal min. prods.	3,064,298	2.2%
Other foodstuffs	2,750,001	1.7%
Animal feed	2,603,088	0.9%
Waste/scrap	1,597,567	2.0%
Gasoline	1,358,411	0.2%
Natural sands	1,275,564	0.9%
Fuel oils	1,183,082	-0.7%
Base metals	1,175,908	1.3%
Nonmetallic minerals	1,011,205	2.5%
Coal-n.e.c.	1,010,413	0.2%
Unknown/Mixed	963,238	1.2%
Basic chemicals	901,051	1.6%
Plastics/rubber	783,791	1.8%
Live animals/fish	675,904	1.0%
Wood prods.	587,711	1.3%
All Other	4,842,081	1.8%
Grand Total	67,332,050	1.2%



Source: WSP Analysis of FHWA Freight Analysis Framework version 4 (FAF4) data. Preliminary.

# ECIA Forecast Value to 2045

Modal Growth	Value 2014 (USD)	Value 2045 (USD)	Value Added	CAGR
Truck - FAF	41,217,964,337	63,794,940,850	22,576,976,513	1.5%
Rail - FAF	3,392,435,421	5,657,484,319	2,265,048,898	1.8%
Water - FAF	734,801,477	914,339,365	179,537,888	0.8%
Multiple - FAF	5,066,838,241	10,810,413,400	5,743,575,159	2.6%
Grand Total	50,412,039,477	81,177,177,934	30,765,138,457	1.7%

Commodity Value	Value 2014 (USD)	CAGR
Machinery	3,958,031,328	2.5%
Unknown/Mixed	3,844,393,817	1.2%
Motorized vehicles	3,429,676,018	1.2%
Other ag prods.	3,171,091,685	1.2%
Other foodstuffs	2,854,288,875	1.7%
Cereal grains	2,828,668,134	1.2%
Plastics/rubber	2,598,610,454	1.8%
Fertilizers	2,353,370,694	1.1%
Electronics	2,317,293,231	2.5%
Pharmaceuticals	1,993,475,649	3.2%
Base metals	1,920,788,667	1.2%
Articles-base metal	1,819,227,812	2.0%
Chemical prods.	1,433,021,568	2.3%
Misc. mfg. prods.	1,411,208,570	2.3%
Gasoline	1,293,048,303	0.1%
Meat/seafood	1,235,005,082	1.6%
Animal feed	1,195,068,581	1.0%
Coal-n.e.c.	1,108,316,582	0.4%
Live animals/fish	1,093,495,962	1.0%
Fuel oils	1,080,900,145	-0.7%
All Other	7,473,058,320	1.7%
Grand Total	50,412,039,477	1.7%



## Open Discussion

- Is a deeper analysis required?
- What question(s) would you like answered? Why?
- What industrial or commodity supply chains are you most interested in?
- What modal movements are you most interested in?

# Presentation Map

Visioning – Updates since March Meeting

Freight System Goals and Performance Measures

Existing and Future Commodity Flows



**Stakeholder Perspectives**

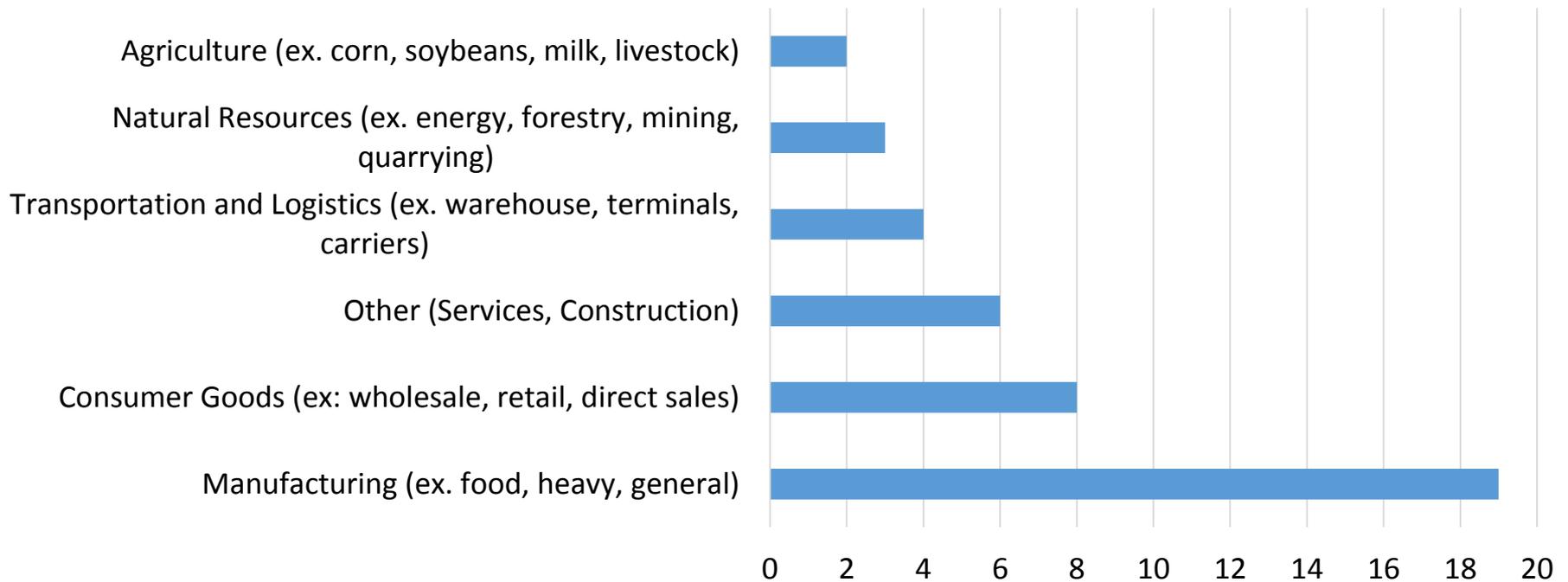
Questions & Discussion

# Industry Survey – Response Update

42 company responses

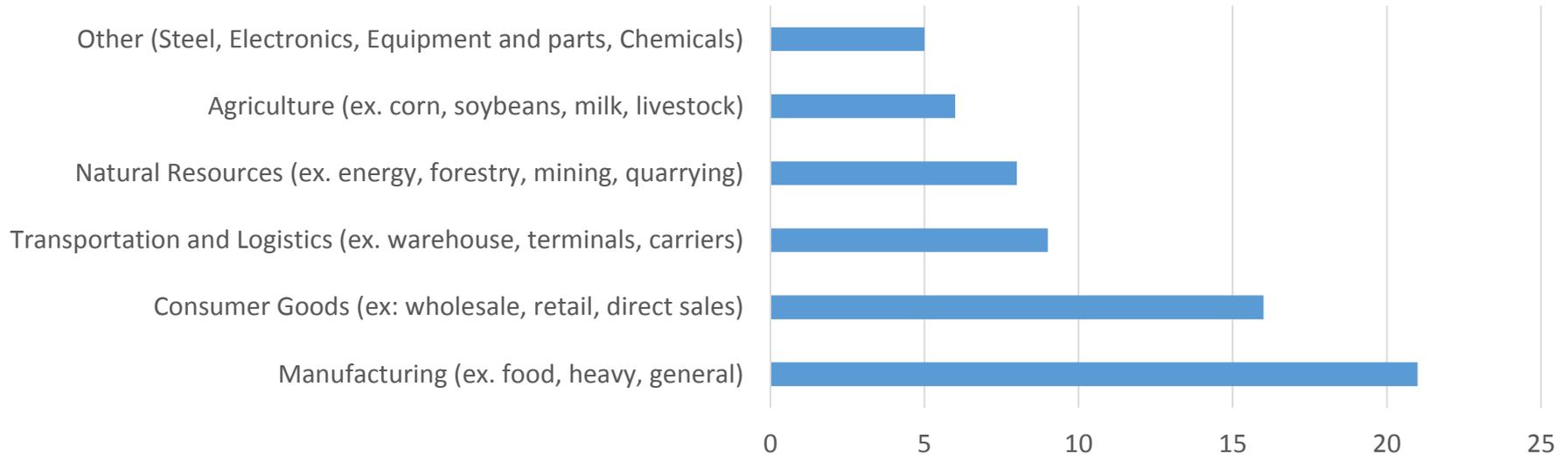


## Industries Represented



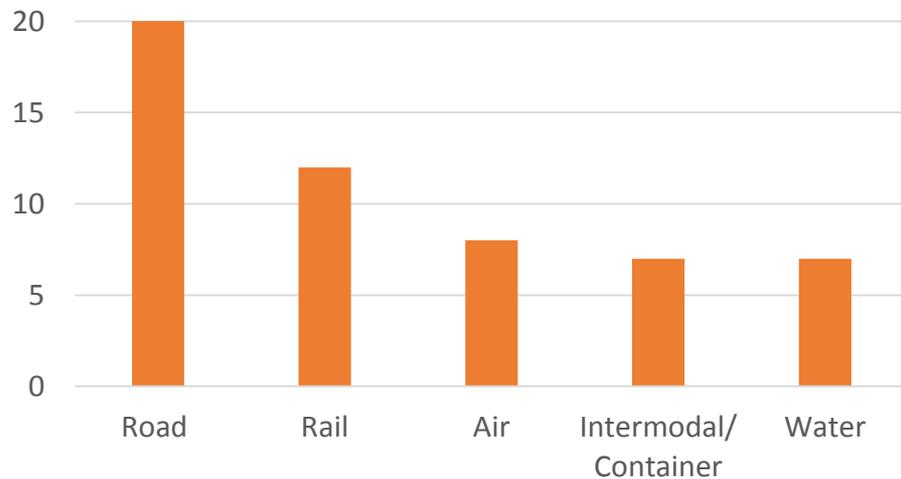
# Industry Survey – Profile of Inbound Flows

## Types of Inputs Used



## Inbound Modes of Transportation Used

*All industries use road; 23 use road exclusively*

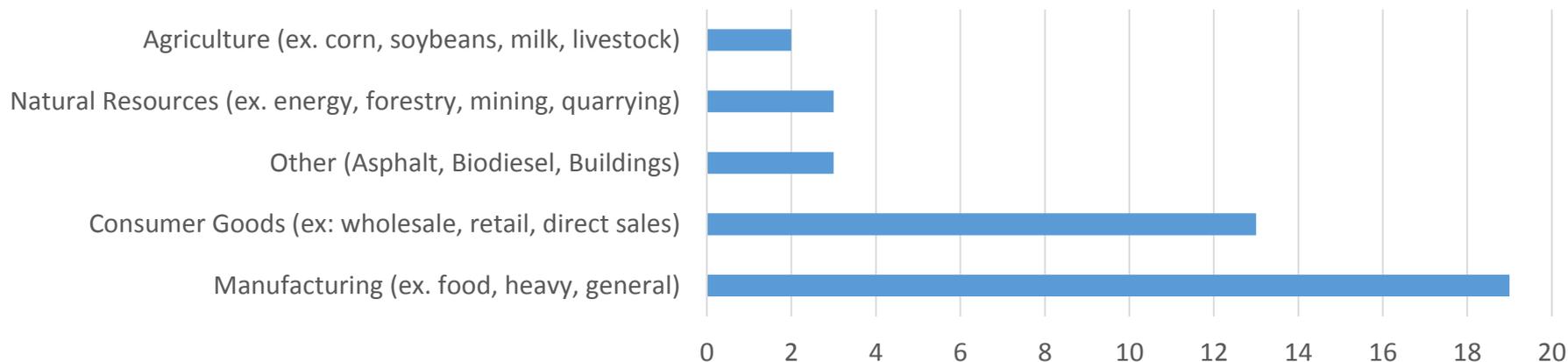


## Origins of Inbound Commodities

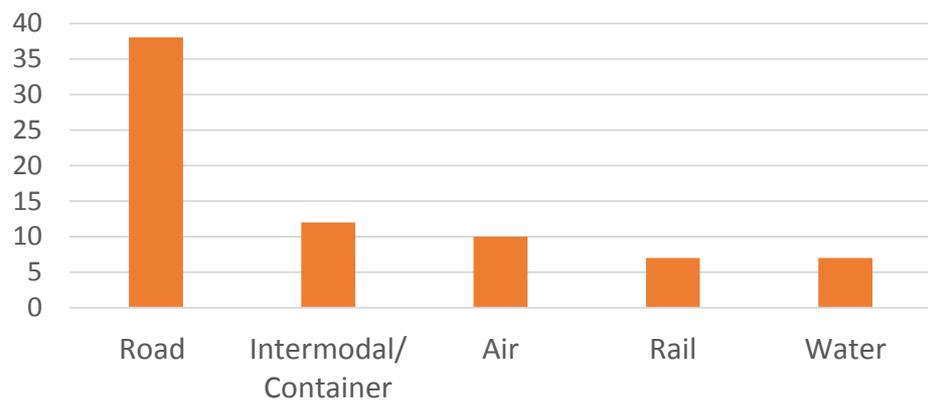


# Industry Survey – Profile of Outbound Flows

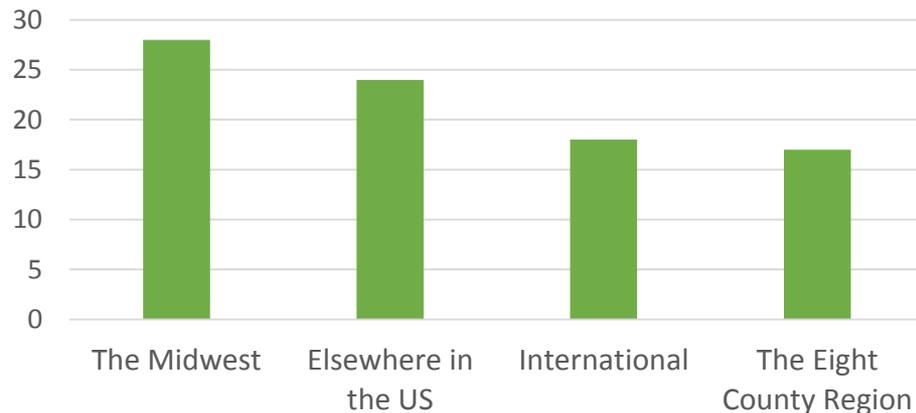
**Types of Goods Produced**  
*(Goods Producing Companies Only (38);  
Four companies produce more than one type of Good)*



**Outbound Modes of Transportation Used**  
*(For 38 Goods-producing Industries,  
all of whom use road)*

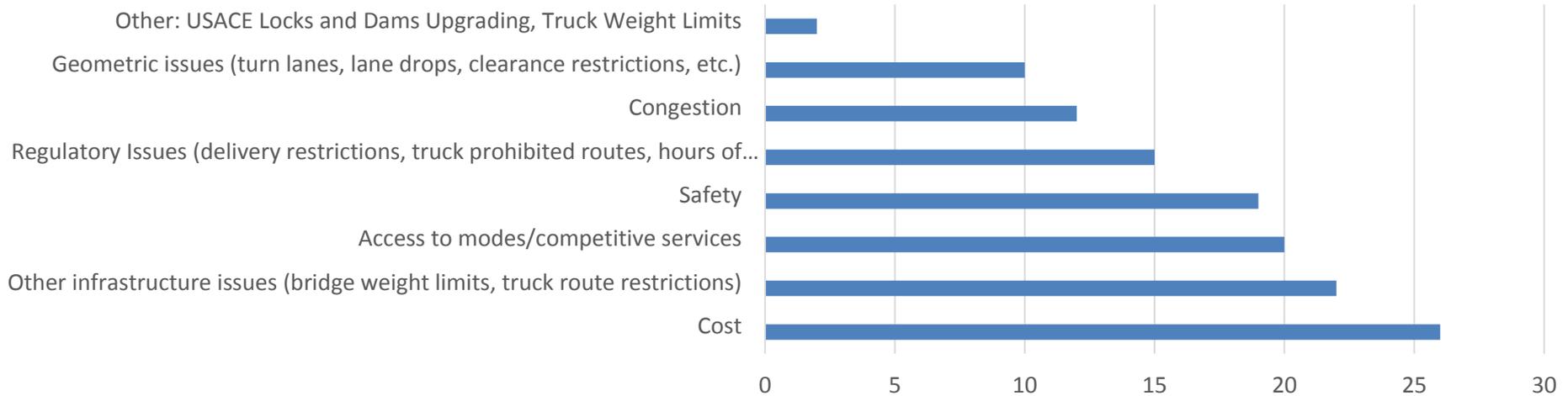


**Destination of Outbound Commodities**  
*(For 38 Goods-producing companies only)*

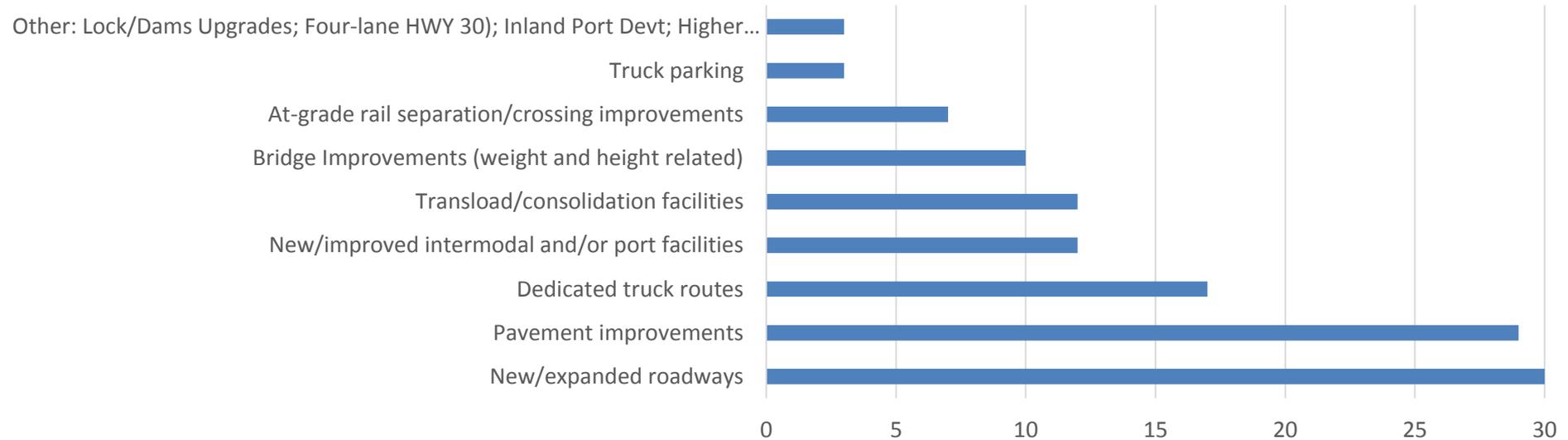


# Industry Survey – Transportation System Performance

## "Top 3" Transportation Issues in Eight County Region



## "Top 3" Transportation Improvements to Help Competitiveness



# What have you heard during your consultations?

- What are top industry issues/concerns?
- What transportation system improvements are most needed?
- What advice did they provide for us in developing the Eight County Freight Plan?

# Presentation Map

Visioning – Updates since March Meeting

Freight System Goals and Performance Measures

Existing and Future Commodity Flows

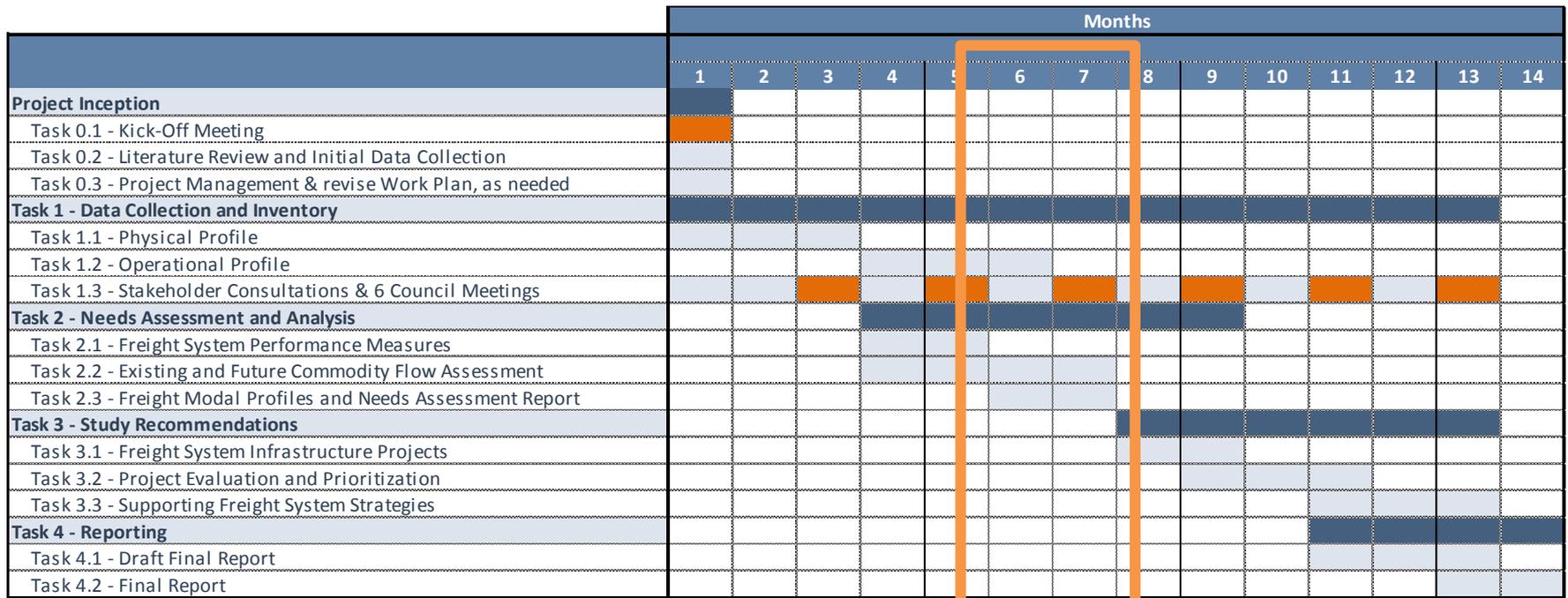
Stakeholder Perspectives



**Questions & Discussion**

# Our Next Steps...

- Complete freight system profile
- Refine goals and performance areas
- Begin assessing freight system needs



**Legend**

Major Task Duration

Work Activity

Meeting

# Thank You



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