



NCAMPO Conference | May 11, 2016

*Freight, the FAST Act and State  
and Regional Planning Efforts  
in North Carolina*



# *Agenda*

- FAST Act freight provisions
- Overview of State and Regional freight planning efforts
  - NC Freight Plan  
Paula Dowell, Cambridge Systematics
  - Greater Charlotte Regional Freight Plan  
Jessica Hill, Centralina COG
  - Triad Regional Freight Plan  
Mark Kirstner, PART
  - Triangle Regional Freight Plan  
Joe Bryan, WSP|Parsons Brinckerhoff
- Roundtable discussion & questions



# *FAST Act Freight Provisions*

- Establishes the National Highway Freight Program (NHFP) to enhance efficient movement of goods on the National Highway Freight Network (NHFN)
- Requires establishment of the NHFN, consisting of the following components:
  - Primary Highway Freight System (PHFS)
  - Critical Rural and Urban Freight Corridors
  - Portions of the Interstate System that are not part of the PHFS
- National funding for the NHFP
  - Deducted from the States' base apportionments
  - Proportional to each State's share of total FY 2015 highway apportionments



# *NHFP Key Goals*

- Investing in improvements that strengthen economic competitiveness, reduce congestion, reduce the cost of freight transportation, improve reliability, and increase productivity
  - Rural and urban areas
  - Improving the state of good repair, efficiency and productivity of the NHFN
- Improving State flexibility to support multi-State corridor planning and address highway freight connectivity
- Reducing the environmental impacts of freight movement on the NHFN

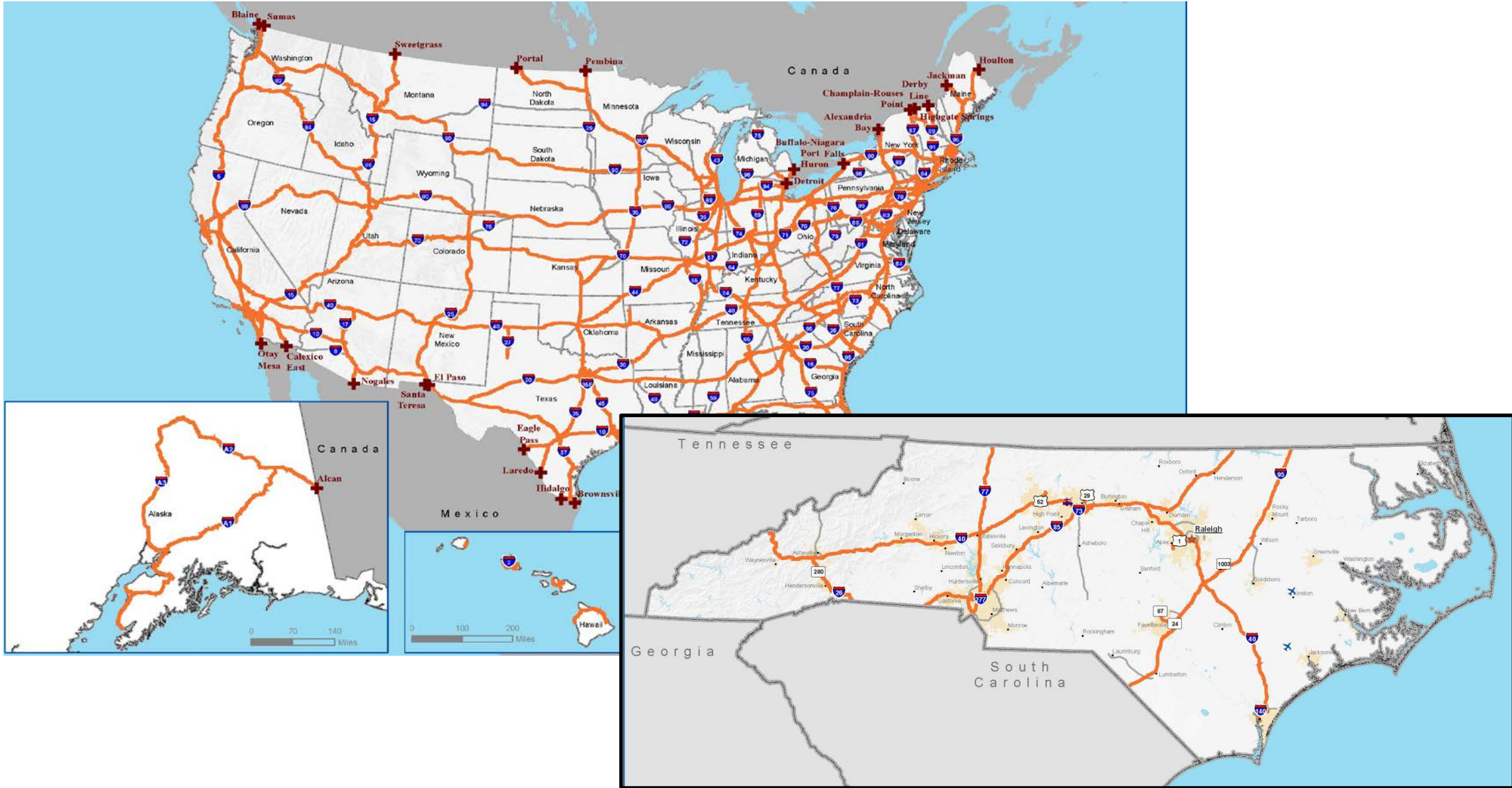


## *Specific to North Carolina...*

- \$167M in formula freight funds, averaging \$33M per year
- Formula funds useable on network with three components:
  - Primary highway freight system
    - 1,034 miles of interstates and intermodal connectors
  - Critical Rural Freight Corridors
    - 207 miles statewide, designated by NCDOT
  - Critical Urban Freight Corridors
    - 103 miles statewide generally designated by MPOs in consultation with NCDOT



# National Primary Freight Network



# *FASTLANE Program*

- Project requirements
  - Mostly shovel-ready projects
  - \$100M minimum project size requirement
  - Construction can start 18 months from obligation
  - Set asides - 25% for rural, 10% for small projects
  - \$25M minimum grant; \$5M minimum for small projects
- Eligible projects
  - Highway freight projects carried out on the NHFN
  - Highway or bridge projects carried out on the National Highway System
  - Rail-highway grade crossing or grade-separation projects
  - Freight intermodal, rail and port projects



# *State Freight Plan Requirements*

- Requires state freight plans in order to obligate NHFP funding
  - Must include 5-year investment plan with priority projects, approximating a 5-year adjustable freight STIP
  - Must identify use of formula freight funds
  - Project list may be updated more often than 5-year state plan cycle
- Establishment of a Freight Advisory Committee (FAC) encouraged **(NC has one!)**
- Complete by December 2017





# *FAST Act & Freight Planning in MPOs*

- Emphasizes coordination with State Freight Plan
- Core freight network to be defined in MPO plans will guide recommendations for Critical Urban Freight Corridors – and some Rural
- Projects on the state's portion of the NPFN will be eligible for inclusion in freight STIP
- Potential FASTLANE grant opportunities



# *Overview of State and Regional freight planning efforts*





# *NC State Freight Plan*

Presented by:

Paula Dowell, Ph.D.

NCAMPO Conference  
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# *NC Freight Planning Efforts*

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- 2008: Statewide Logistics Plan
- 2011: Seven Portals Study- Economic development focus
- 2012: NC Maritime Strategy
- 2012: Governor's Logistics Task Force report
- 2012: 2040 Statewide Transportation Plan
- 2015: Statewide Rail Plan
- 2016-2017: NC State Freight Plan



# *Key Work Tasks*

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Stakeholder  
Outreach

NC Freight  
Network  
Assessment

Supply Chain and  
Logistics Profile

Strategies and  
Recommendations

Final Plan and  
Training





# *Final Freight State Plan*

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- Sets specific multimodal transportation goals, strategies, and actions that will contribute to increased North Carolina jobs, improved economic competitiveness, and enhanced quality of life;
- Provides clear, compelling freight-specific recommendations that support the 25-year vision and addresses the criteria in the STI prioritization process;
- Offers strategies for helping elected officials, taxpayers and voters, and the general public better understand the value of freight transportation investments and their economic benefits; and
- Positions North Carolina to capitalize on FAST Act funding opportunities





# *Schedule*

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- Data Collection and Stakeholder Outreach – On-going
- Needs Assessment – Sept 2016
- Supply Chain and Economic Analysis – Nov 2016
- Recommendation and Performance Measure – April 2017
- Final Plan – July 2017



# *Challenges and Opportunities*

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## Reliable data

- Private sector freight billing data
- GPS data

## Uncertainty of freight futures

- Alternative forecasts
- Scenario analysis

## Making it relevant

- Business case for freight investments
- Outward facing document

## Transportation funding

- STI process and scoring
- FASTLANE grants







# *Stakeholder Outreach*

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- Freight Advisory Committee
- Board of Transportation
  - » Economic development and Intergovernmental relations committee
  - » State freight plan subcommittee
- Regional agencies
  - » MPOs
  - » RPOs
- Freight/Industry stakeholders



# *Freight Industry Stakeholders*

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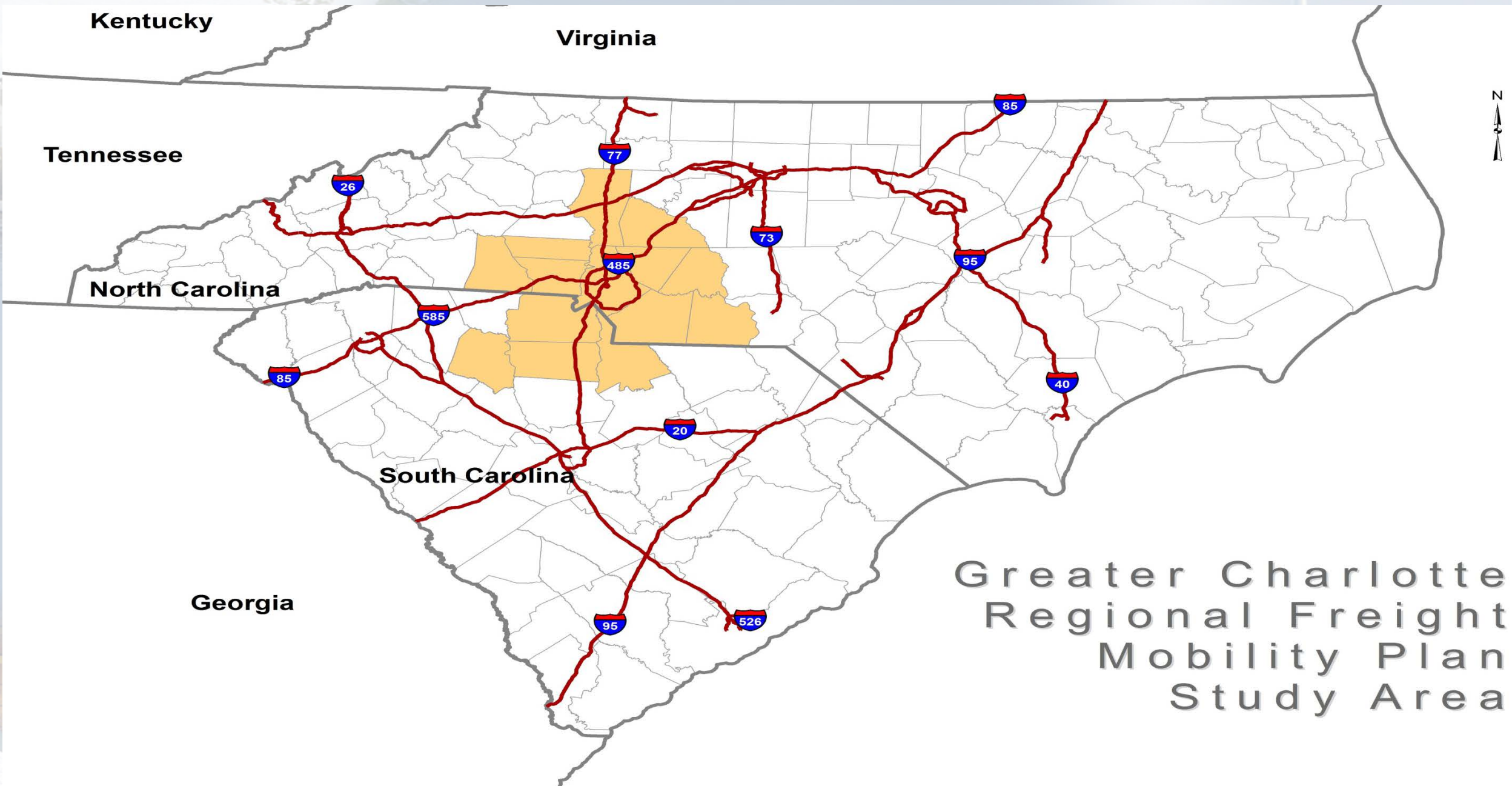
- Shippers – key industries across the state
- Carriers – multimodal
- Service providers – freight forwarders, 3PLs, brokers
- Developers – private and public sector
- Associations – representatives of private industries





# **GREATER CHARLOTTE REGIONAL FREIGHT MOBILITY PLAN OVERVIEW**

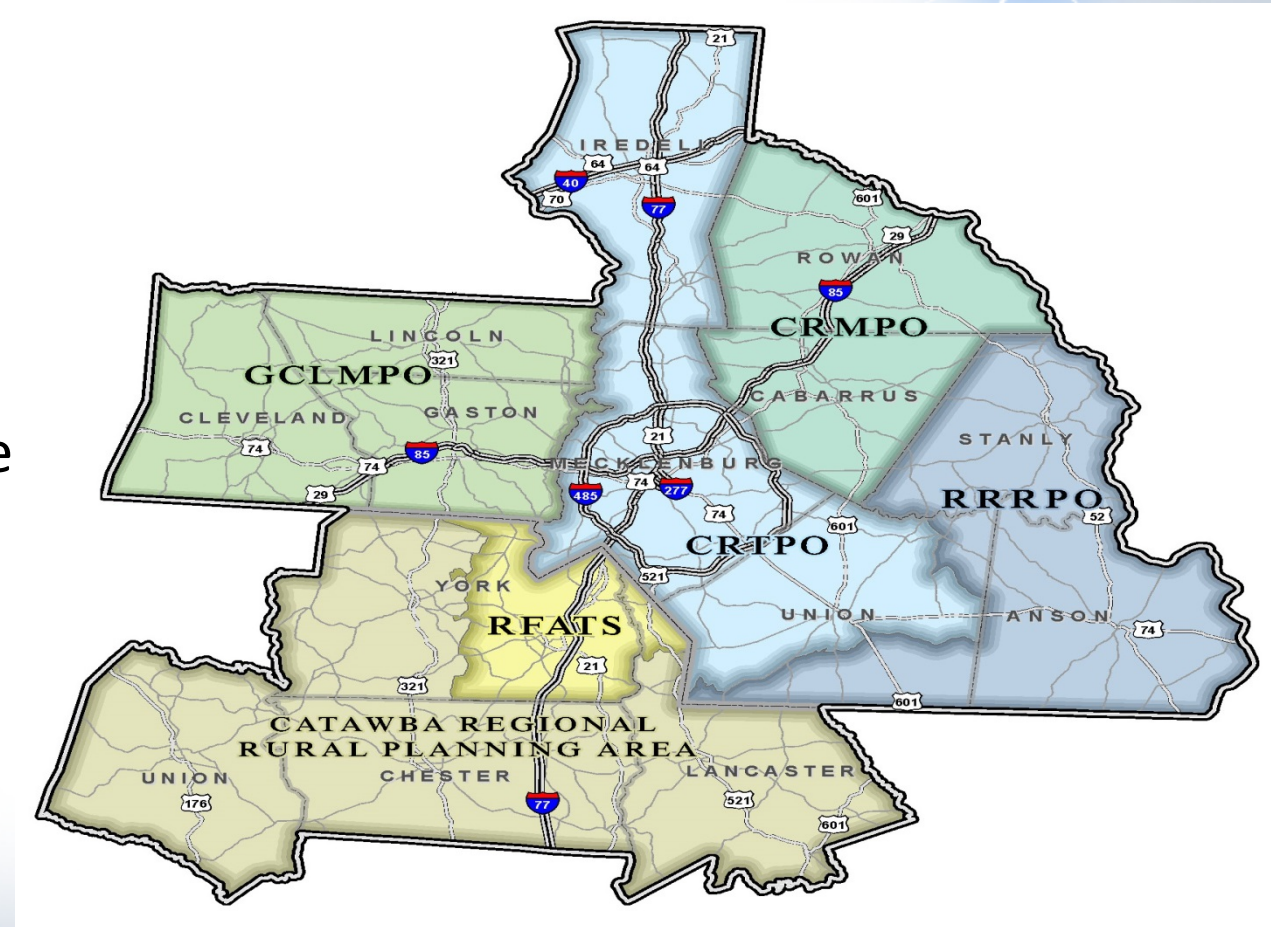
May 11, 2016



# Greater Charlotte Regional Freight Mobility Plan Study Area

# Project Partners

- 6 Transportation Planning Organizations
- NC & SC Department of Transportations
- Federal Highway Administration
- US Department of Commerce Economic Development Administration
- Local Governments & Economic Development Commissions
- NC State Ports Authority
- Private Sector



# Plan Development Approach & Activities

## Existing Conditions

Bottlenecks

Commodity Flows

O-D Analysis and Freight Corridors

Network Identification

Economic Impacts

Truck Parking

## Land Use, Facility, Infrastructure & Regulatory Gaps

Existing Land Uses

Regional Freight Land Use Policies and Regulations

Truck Parking Capacity and Needs

Road/Rail Network Corridor Demand

## Best Practices

Technology Trends

Safety and Security

Public Private Partnerships

## Prioritizing Regional Needs

Bottlenecks & LOS

Pavement/Bridge Conditions

High Crash Location

Economic Opportunity

Rail/Truck Grade Crossings

Intermodal Connections

## Performance Measures

Goals Addressed

Freight Impacted, Related or Focused

Quantifiable and Trackable

Stakeholder Engagement

Greater Charlotte Regional Freight Mobility Plan

# Major Challenges & Opportunities for the Project Region

- **Support Long-term Economic Development**
  - Attract new businesses & support existing businesses
- **Capitalize on Existing Assets & Strategic Advantages**
  - 3 Interstates, 6 rail lines, International Airport & Air Cargo Center
  - 164 Million US & Canadian Consumers, & 55 of the top 100 metro areas with 650 miles of Charlotte region\*
- **Collaboration & Coordination**
  - 2 DOTs, 6 MPOs/RPOs, 14 Counties, and city/town/businesses
  - Urban, suburban & rural communities issues & needs
  - Private Sector & Public Sector issues & needs

\* Greater Charlotte Biz

# Major Challenges & Opportunities of the Planning Process

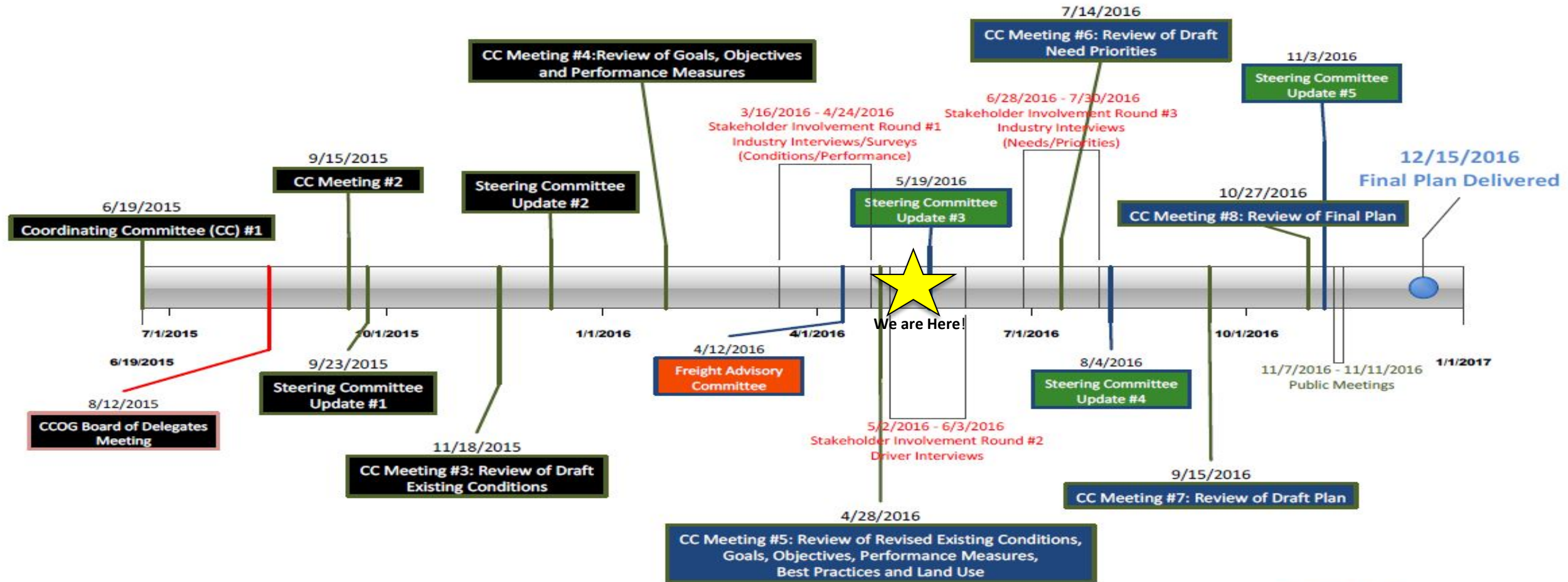
- **Engagement of the Private Sector**
  - Making the case & getting the foot in the door
- **Buy-in and Action from Implementing Agencies**
  - MPOs/RPOs and local governments
- **High quality, current data**
  - 2012 FAF Data and the Economic Recession
- **Fundraising to pay the bill**
  - Public sector, Private sector, and grants
- **Comprehensive, long-term, regional-scale plan**
  - Improve decision-making, efficiency of time and costs, and greater on-the-ground results



# Greater Charlotte Regional Freight Mobility Plan

## Committee and Stakeholder Engagement

DRAFT Revised Plan Moving Forward (as of March 28, 2016)



# Piedmont triad freight study

NCAMPO May 12, 2016



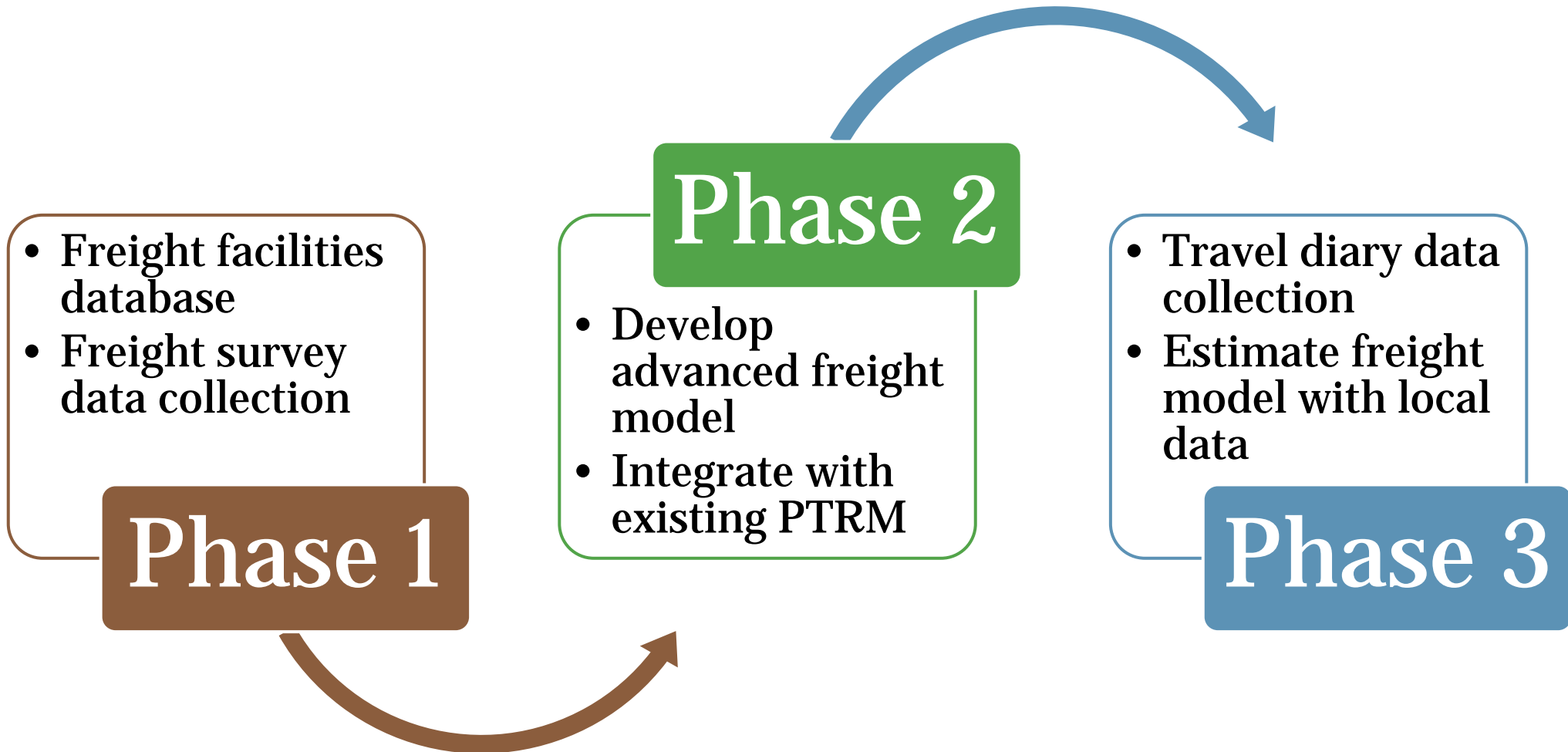
Burlington-Graham Metropolitan Planning Organization

BGMPO



North Carolina  
Center For Global Logistics

# Piedmont Triad Freight Study



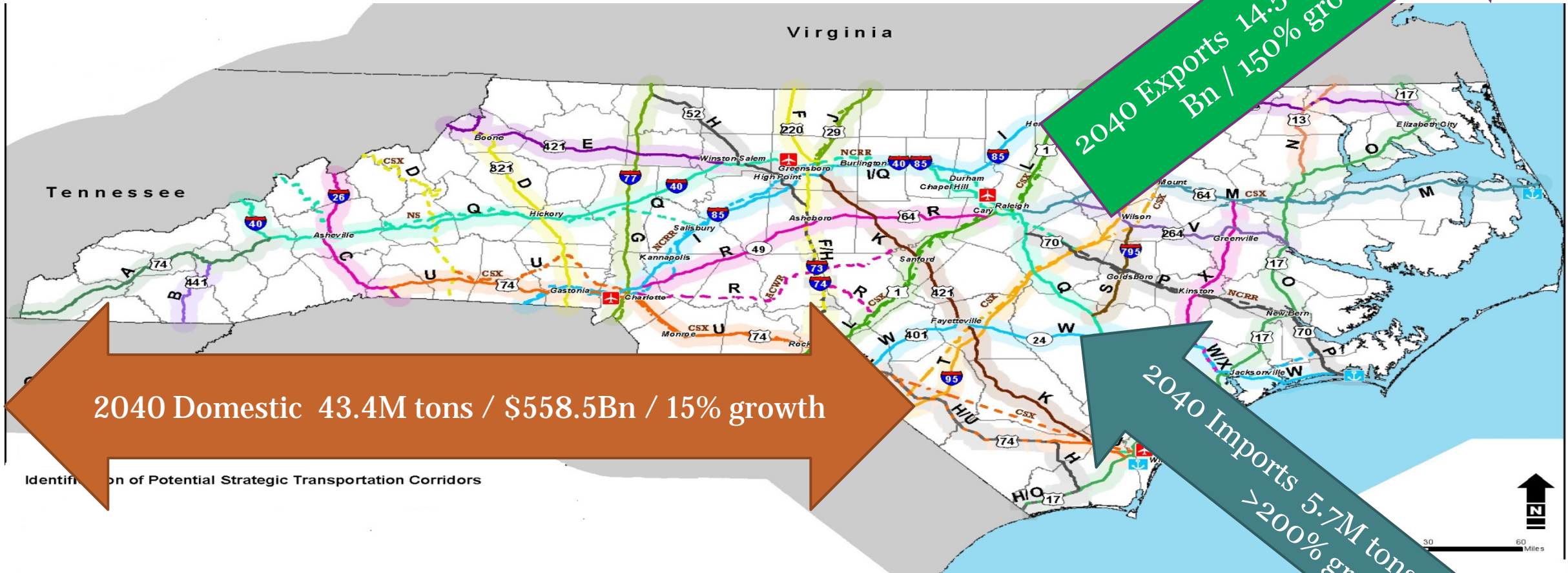
## SHRP2 C20

- Competitive grant process
- Freight Demand Modeling and Data Improvement
- Road map for improved freight data sets and freight modeling practices
- Triad will receive national recognition this effort and will lay the groundwork for helping others

# Freight and the Triad

- Goods movement and the economy
- Considering Freight in Transportation Planning
- Role of Freight in the Triad
  - One of the worlds largest transportation and logistics clusters
  - Region is growing through diversification
  - I-85/I-40 gateway to major hubs in the north and south
  - Some of the highest truck flows in North Carolina
- Region is taking bold steps to understand freight and logistics

# NC Freight Flows



2040 Domestic 43.4M tons / \$558.5Bn / 15% growth

2040 Exports 14.5M tons / \$49.2 Bn / 150% growth

2040 Imports 5.7M tons / \$20.4Bn / >200% growth

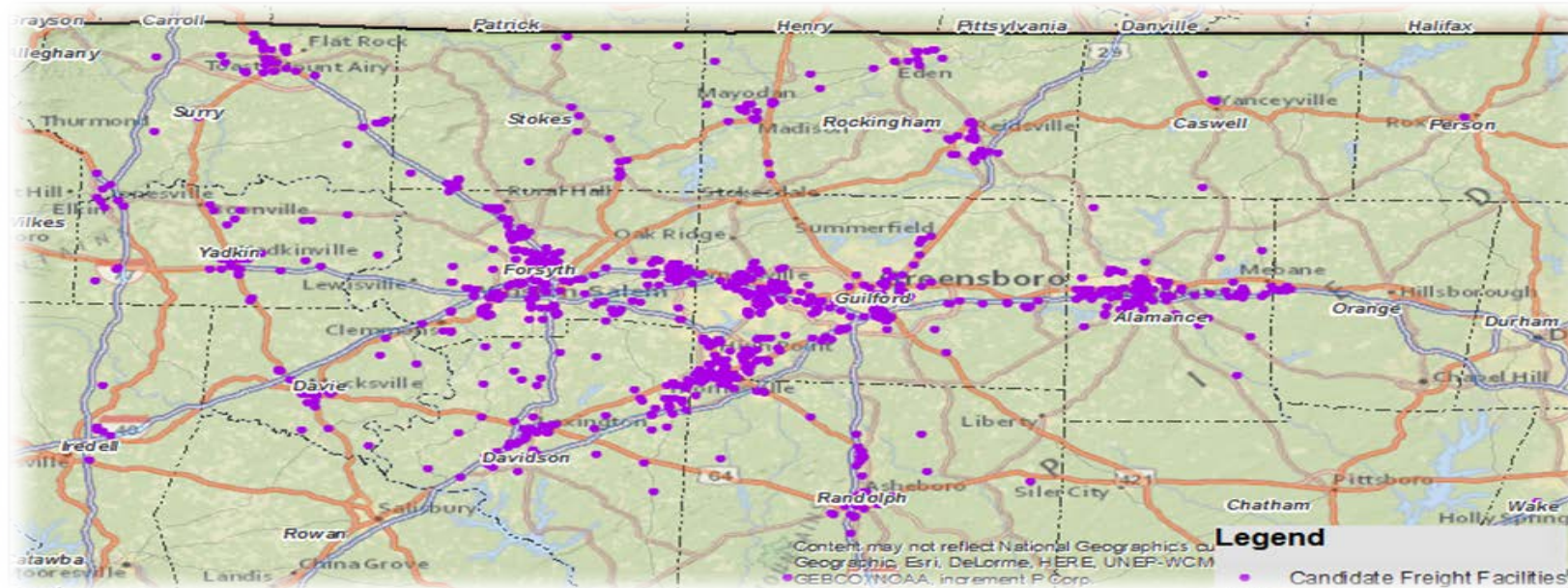
Identification of Potential Strategic Transportation Corridors

# Piedmont Together

- **Goal 1: More transportation choices through the development of safe, reliable and economical transportation infrastructure and services**
  - Objective 1 Establish an enhance a robust network of multimodal transportation choices at the statewide, regional, county and municipal
  - Objective 2 Conduct local research and education on the benefits of a multimodal regional network.
- **Goal 2: Maintain and enhance the region's competitive edge as a freight transportation and logistics hub on the Eastern Seaboard**
  - Objective 1 Develop a comprehensive vision for freight infrastructure in the region.
  - Objective 2 Develop a multimodal freight network strategy in the region designed to create, protect and maintain transport links, connecting intermodal facilities and appropriate modes, both public and private.
  - Objective 3 Maintain a low level of traffic congestion in the region along Unlimited Truck Routes.
  - Objective 4 Expand logistics education and career opportunities for the Piedmont Triad workforce.

# Freight Facilities Database

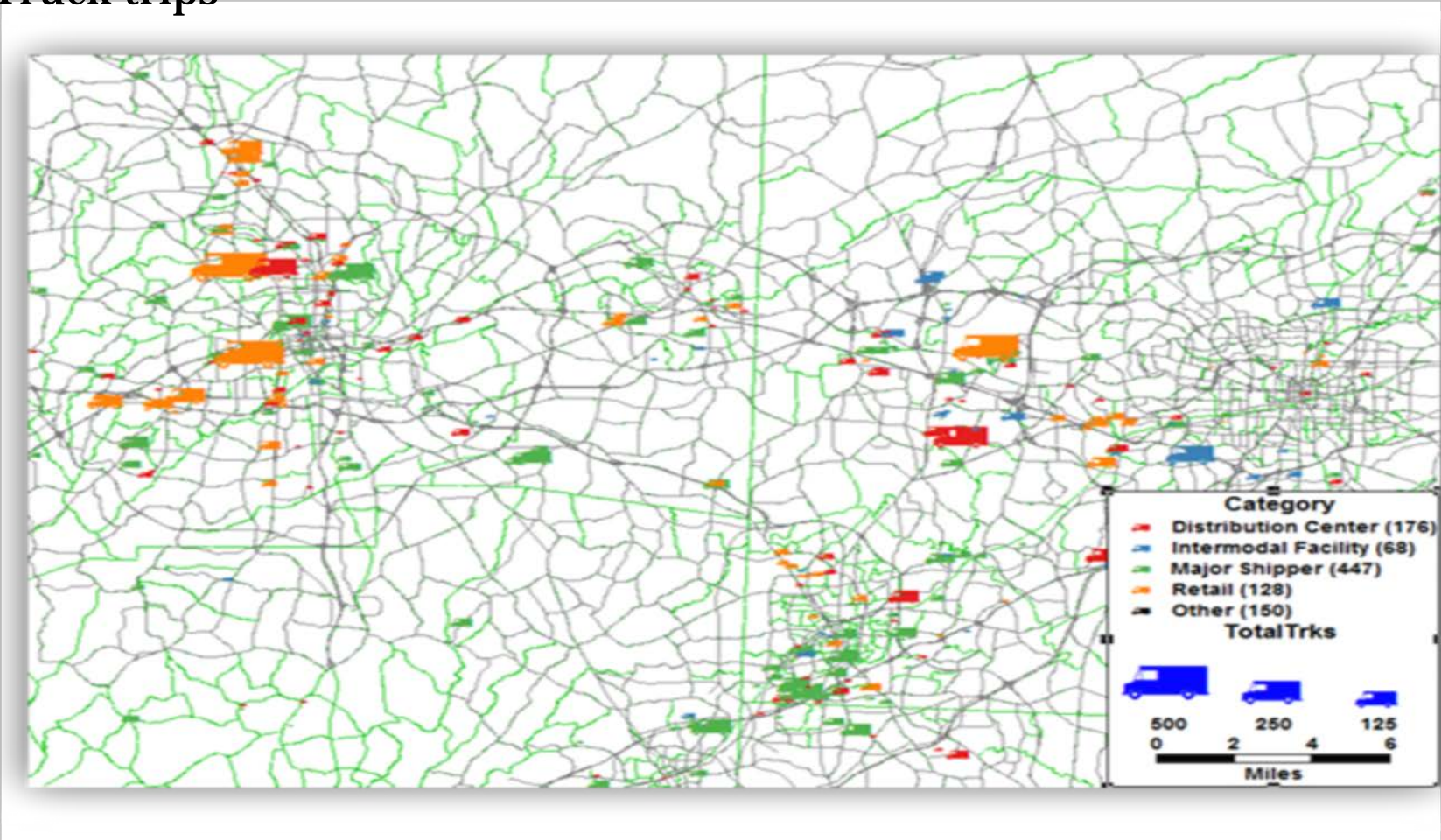
- 968 Facilities classified by type
  - Distribution center, intermodal facility, major shipper, retail
- Basic information available for most facilities
  - NAICS classification code, number of truck bays, primary commodity





# Database Benefits

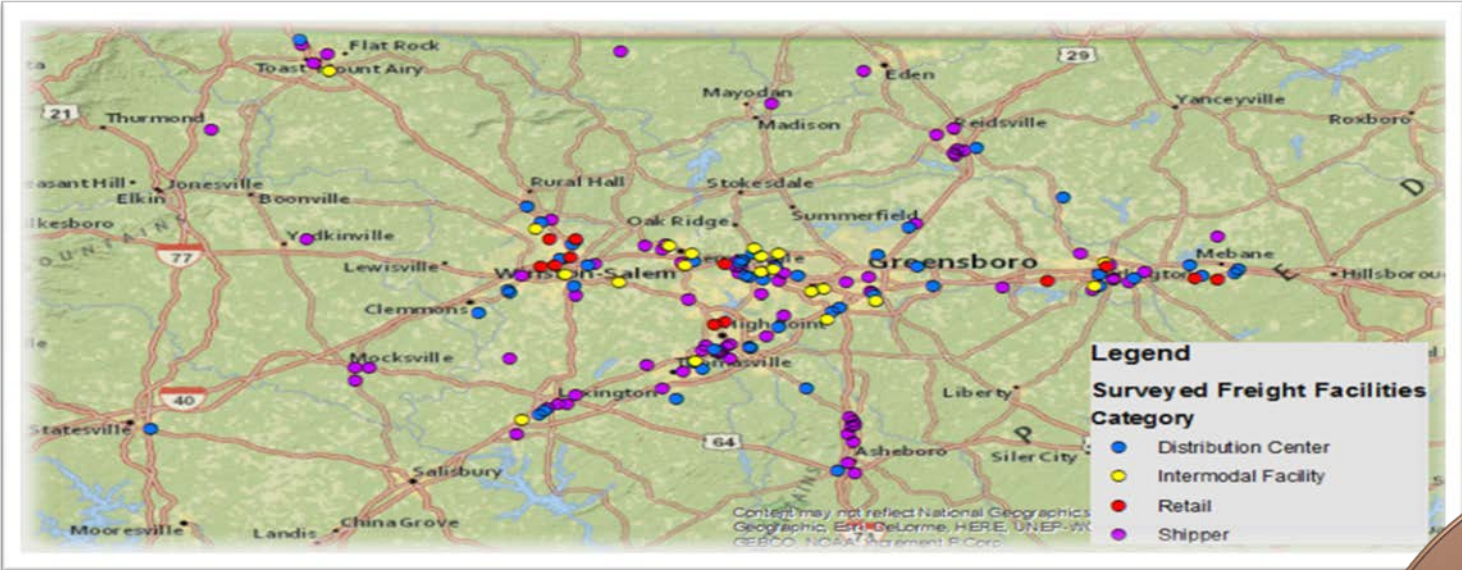
Freight facilities by category scaled by estimated Truck trips



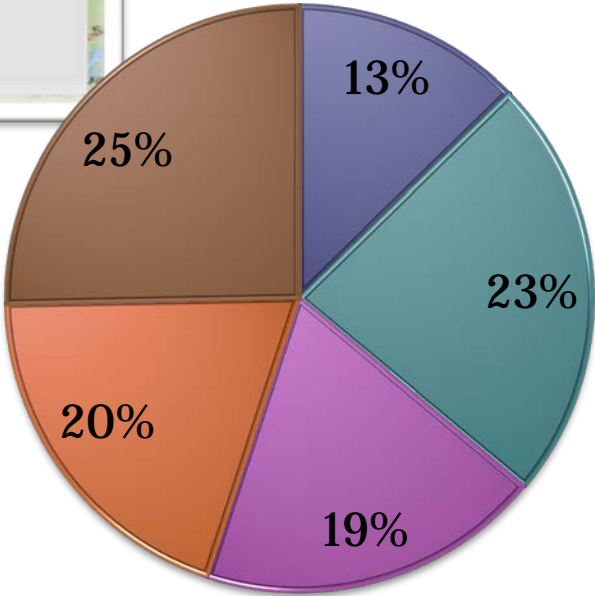
# Example Data Record

RecordID	2775
County	Iredell
Type	Warehouse
Category	Distribution Cen
PTRM_NAICS_Group	Retail
FT_Empl	75
Bldg_SF	24000
TrkBays	0
IB_Comm1	Scrap metal
IB_Comm2	
IB_Comm3	
OB_Comm	Prcessed scrap metal
DailyTrk	80
Cntainer	20.00%
Conv5axl	50.00%
SingUnit	5.00%
Del_Vans	20.00%
OtherTrk	5.00%

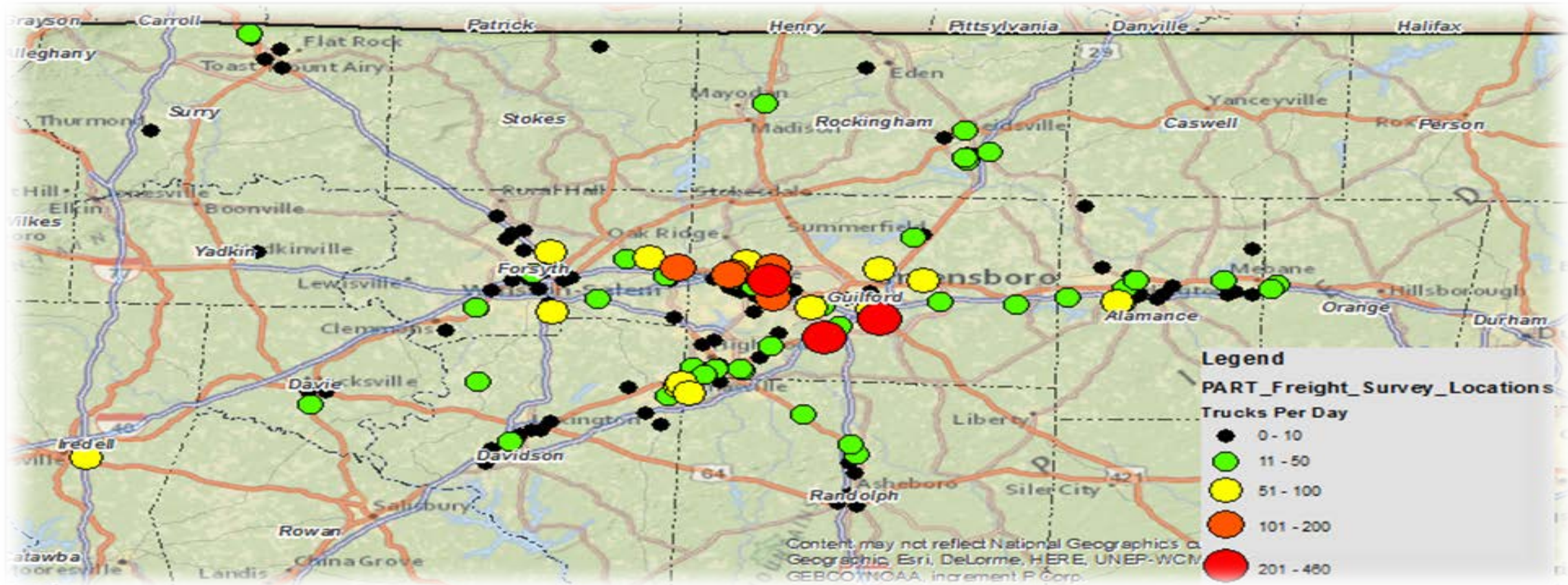
# Survey Results



Over 800 Facilities visited, survey data for 158



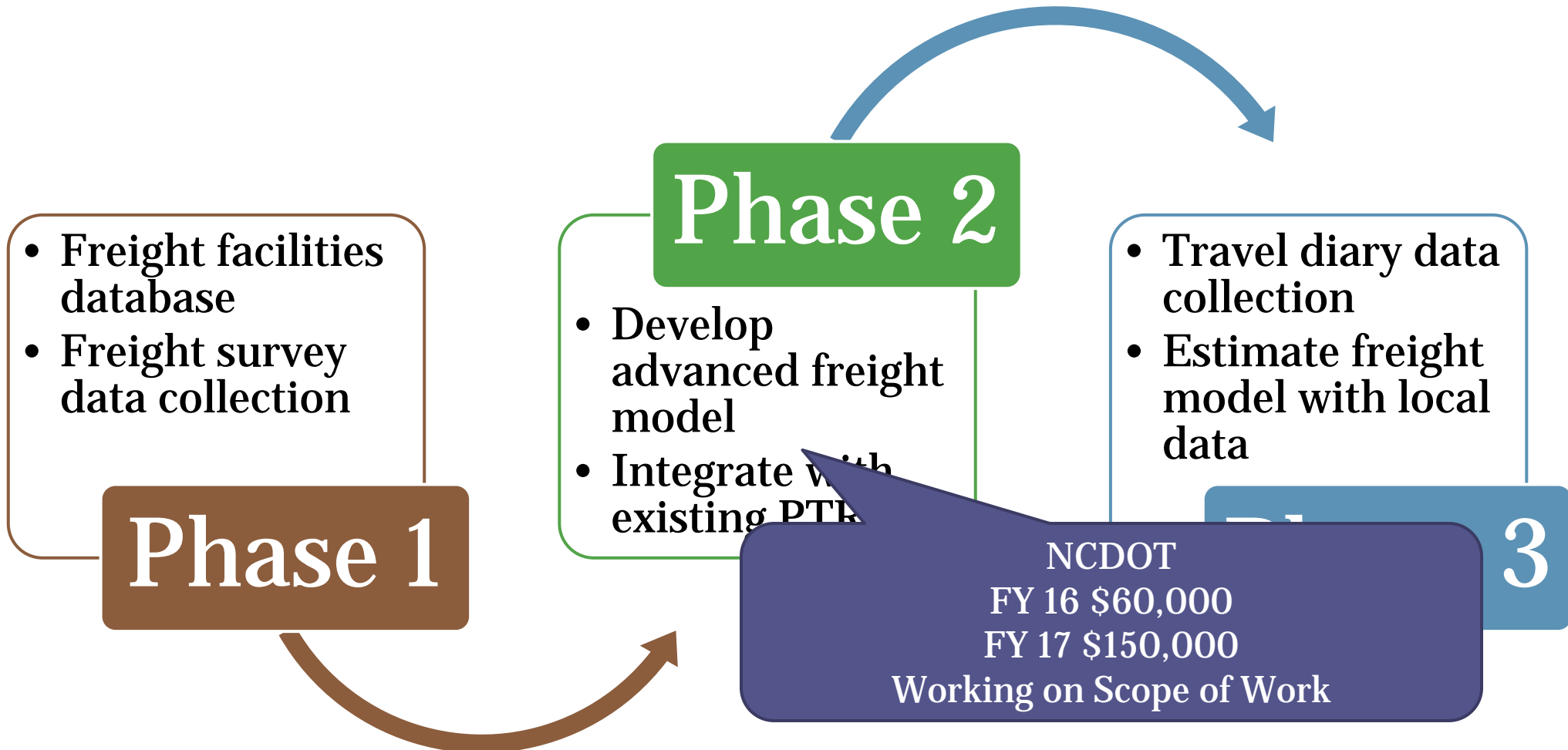
- BGMPO
- GMPO
- HPMPO
- WSMPO
- Other



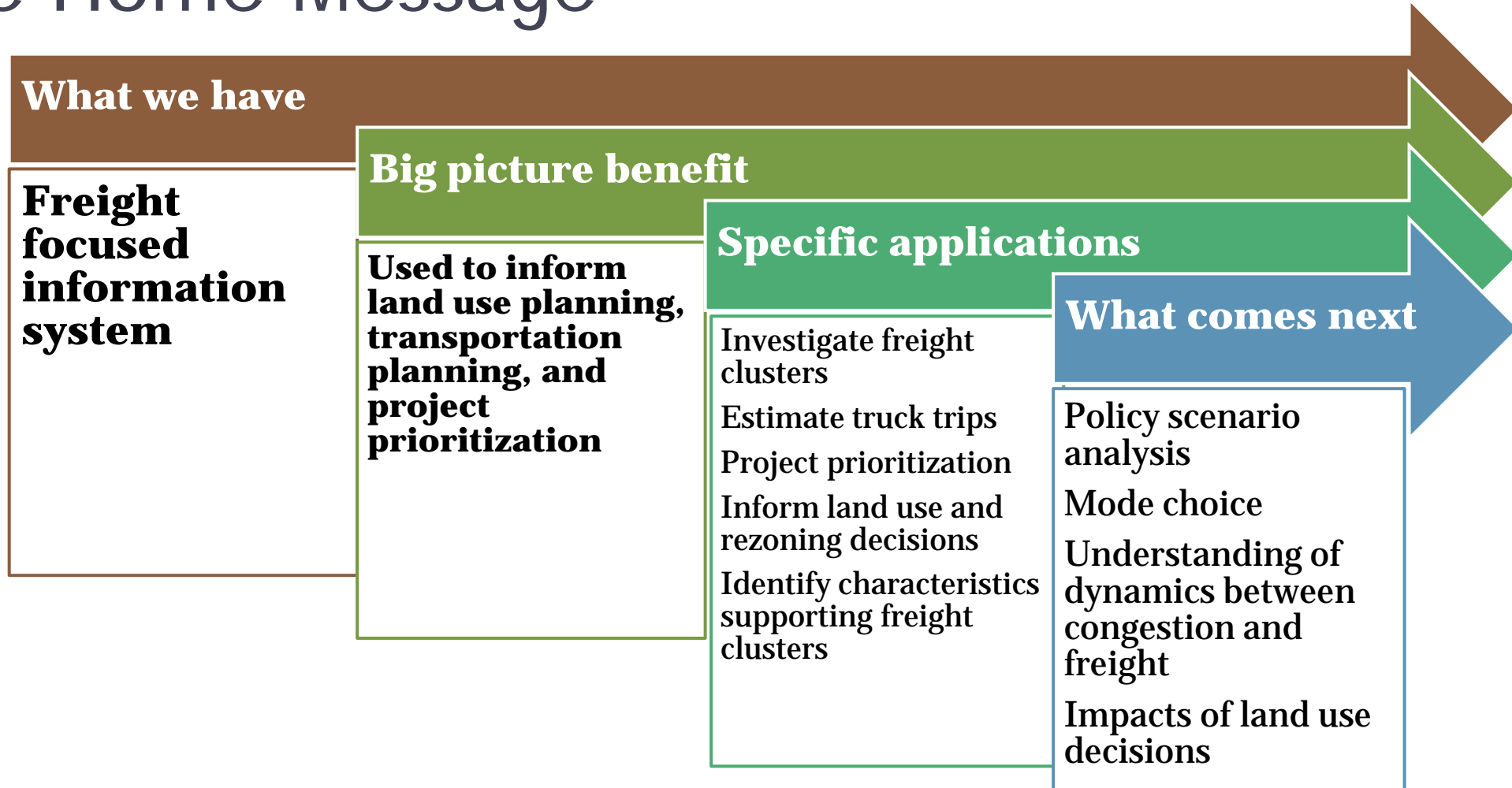
# Existing Patterns

- **Highest concentration of freight facilities in Guilford County followed by Forsyth and Alamance**
- **By Classification:**
  - **Major Shipper (~55%)**
  - **Distribution Centers (~21%)**
  - **Retail (~16%)**
  - **Intermodal (~8%) – highest average number of truck trips**
- **Strong relationships:**
  - **Building square footage and average truck trips**
  - **Number of truck bays and average truck trips**
- **Freight facilities tend to cluster**

# Piedmont Triad Freight Study



# Take Home Message



# Phase I Lessons Learned

- Google Earth is a great tool to verify company names, number of loading docks etc.
- The best to collect data is to go the company and request to speak with someone.



# Phase II Develop and Integrate Advanced Freight Model into PTRM

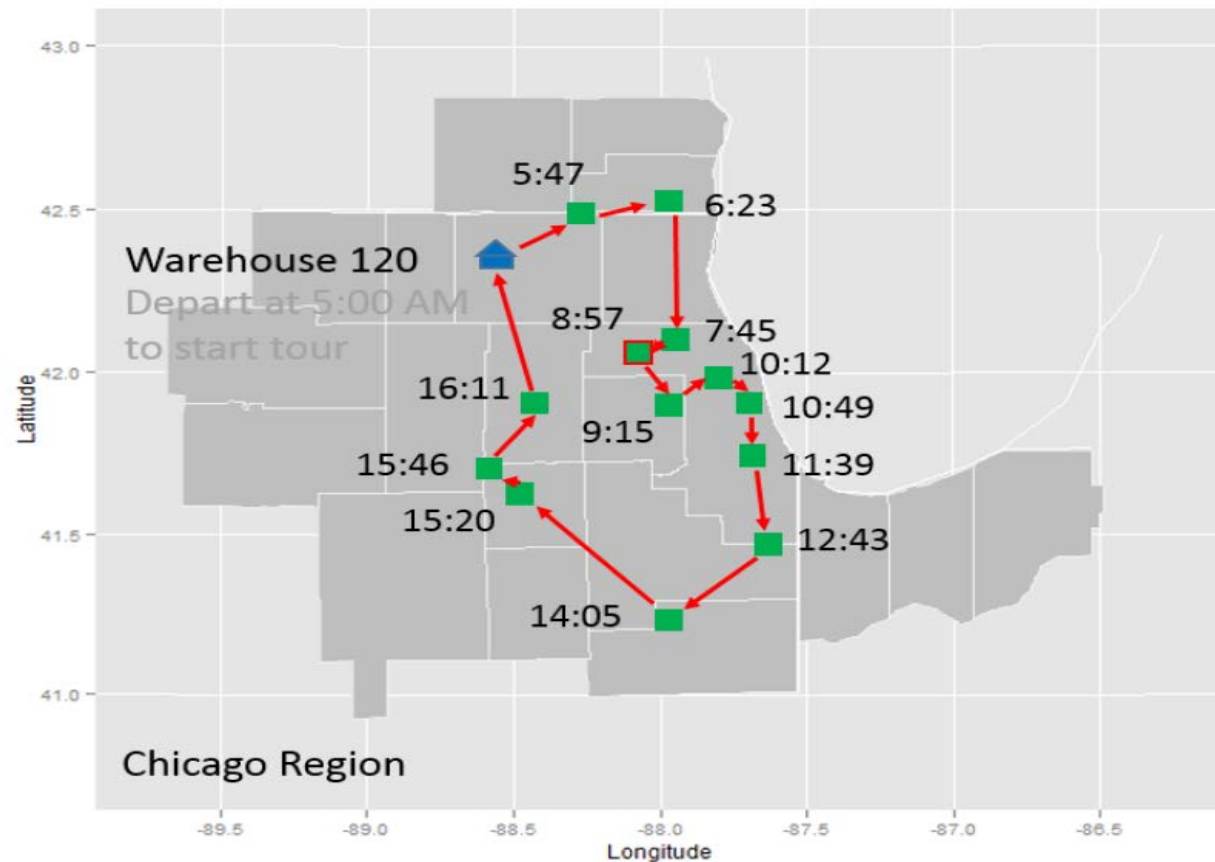
TASK	Task Name	Projected Start Time	Projected Finish Time
1.a	Project Management Plan	12/10/2015	1/26/2016
1.b	Input Data Assessment	12/10/2015	1/26/2016
1.c	Model Support Data Development	3/30/2016	5/24/2016
1.d	Update Model Network	3/30/2016	5/24/2016
2.a	Develop Detailed Freight Tour Framework	1/30/2016	2/2/2016
2.b	Develop Regional Freight Truck-Touring Model	2/3/2016	3/29/2016
2.c	Develop Regional Commercial Vehicle Touring Model	2/3/2016	3/29/2016
2.d	Develop Long Distance Freight Model	2/3/2016	3/29/2016
2.e	Freight Model Report	4/4/2016	5/24/2016
3.a	Update Model Skimming Procedure	4/27/2016	6/7/2016
3.b	Replace Existing Freight Components	6/8/2016	8/9/2016
4.a	Update Tour Model to Targets	6/8/2016	8/9/2016
4.b	Model Validation	8/10/2016	9/13/2016
5	Freight Model Forecasting/Guidelines	4/4/2016	6/7/2016
6	Future Model Sensitivity Tests	9/14/2016	10/04/2016
7a	Final Report	9/4/2016	11/08/2016
7b	Model Training and PTRMv5 delivery	11/9/2016	11/10/2016

# Freight Truck Touring Model Framework



- Model of local freight delivery to businesses
- Includes medium and heavy vehicles
- Estimated using Texas Commercial Vehicle Survey, and initially implemented in Chicago for FHWA and CMAP
- Transferred and currently being calibrated and validated for the Baltimore region by RSG, with the addition of intermediate stop models

# Freight Truck Touring Model Sequence



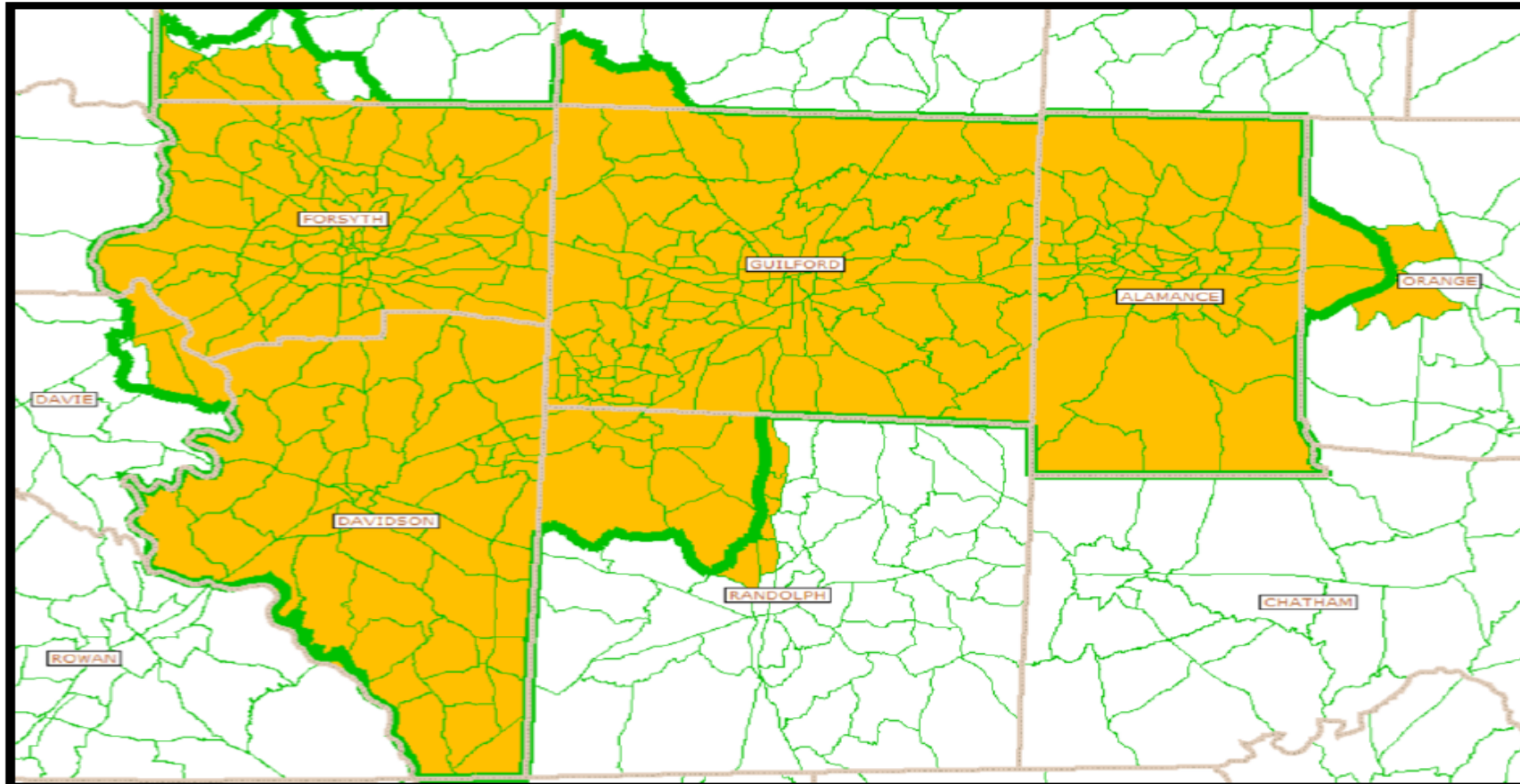
- Warehouse Selection
- Vehicle Choice & Tour Pattern
- All Shipments from a warehouse with the same vehicle type and tour type
- Number of Tours
- Stop Clustering
- Stop Sequencing
- Stop Duration
- Tour Start Time

# Commercial Vehicle Model Frame Work

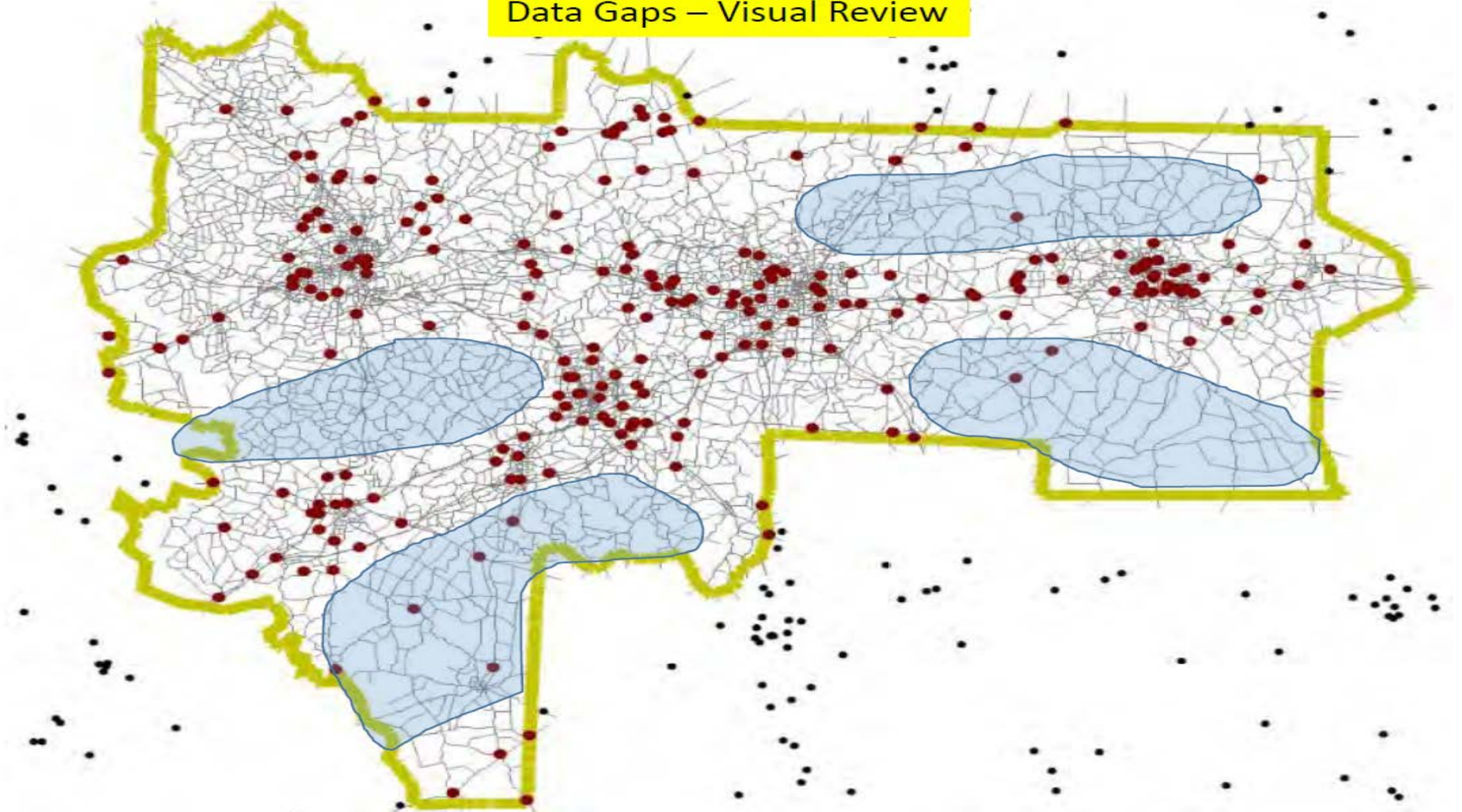


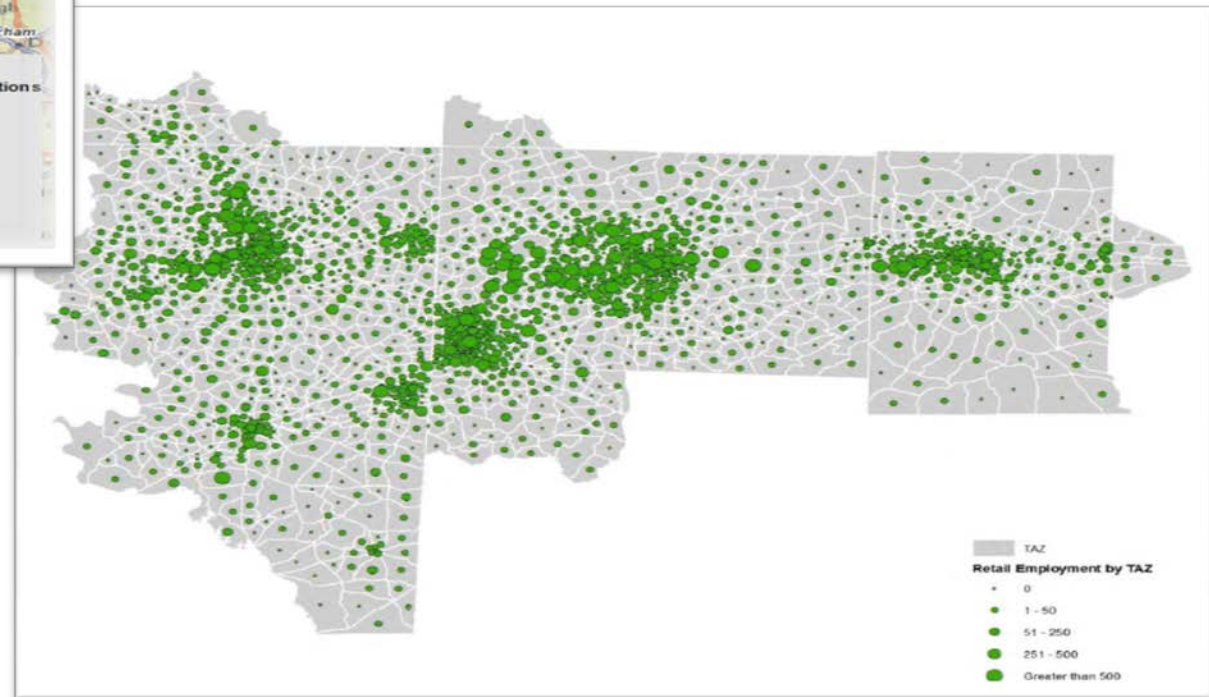
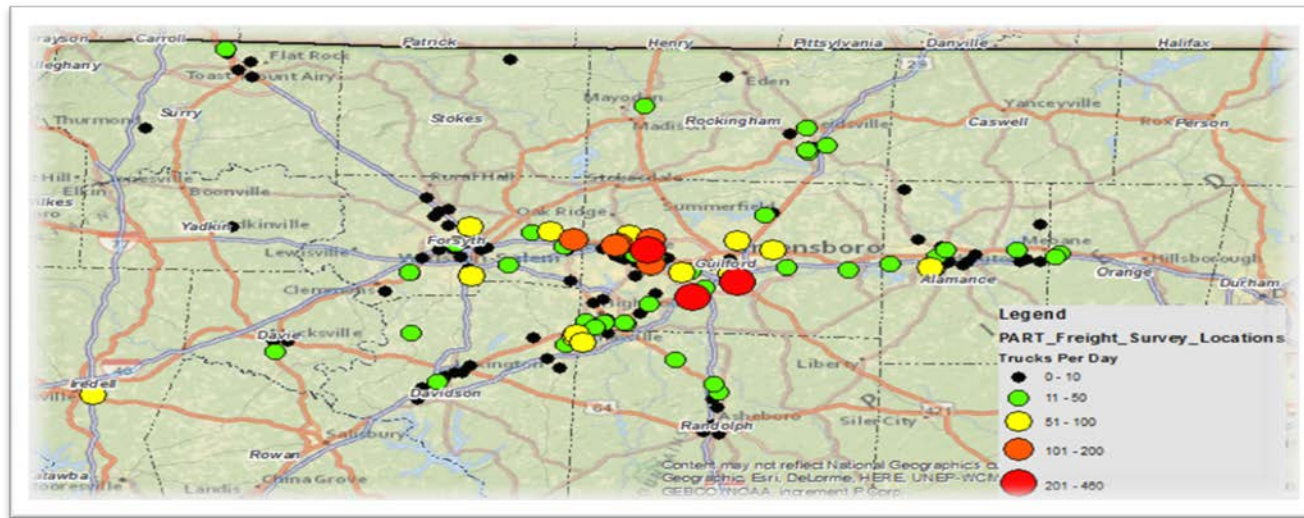
- Model of local commercial vehicle movement – all tours except for freight delivery to businesses
- Includes service calls and residential delivery by light, medium, and heavy vehicles
- Similar concept to tour building to the freight truck touring model
- Estimated using Ohio Establishment Survey data
- Currently being calibrated and validated for the Baltimore region by RSG

# Statewide Model vs. PTRM

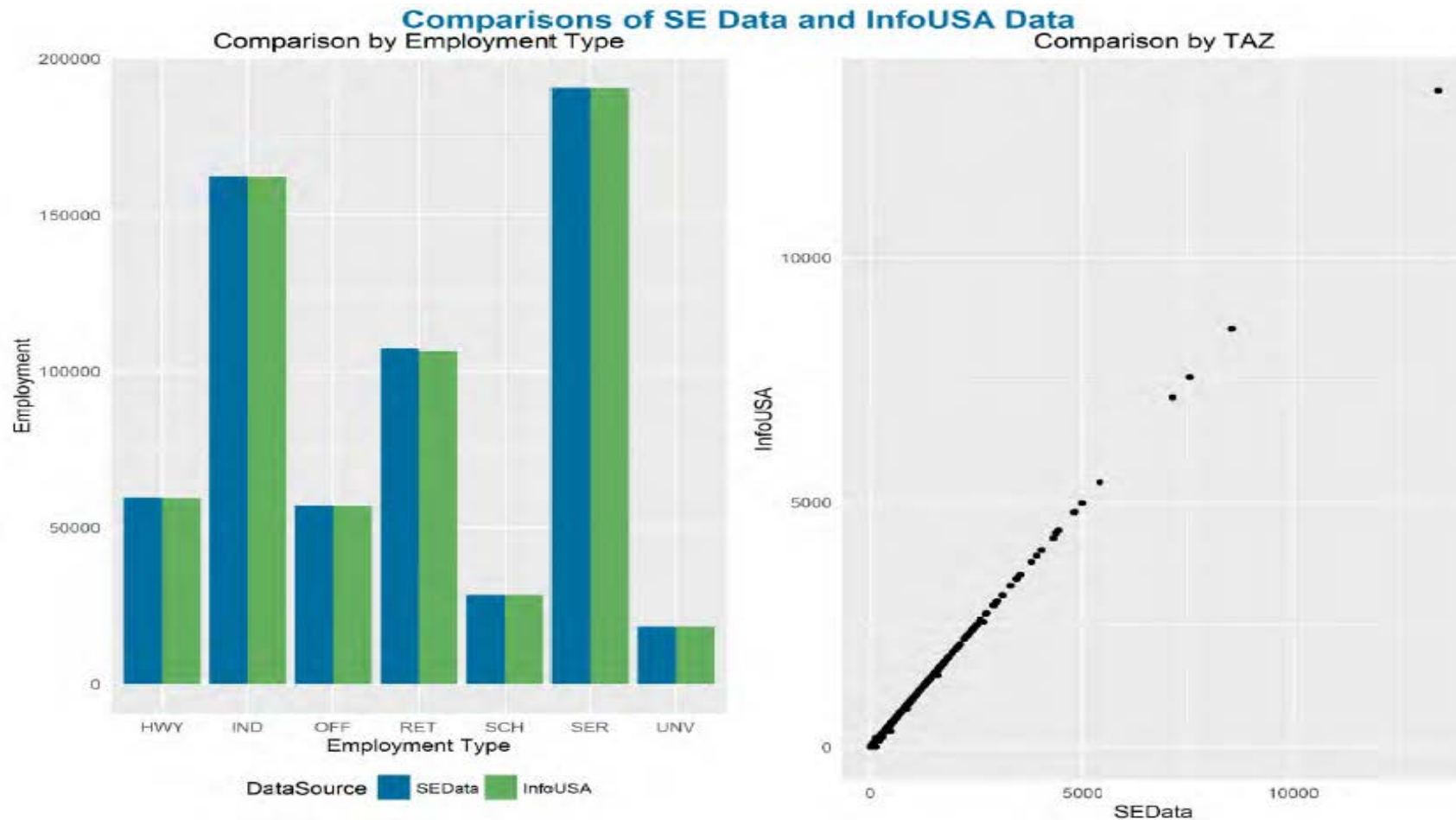


## Data Gaps – Visual Review





# Employment Comparison Results



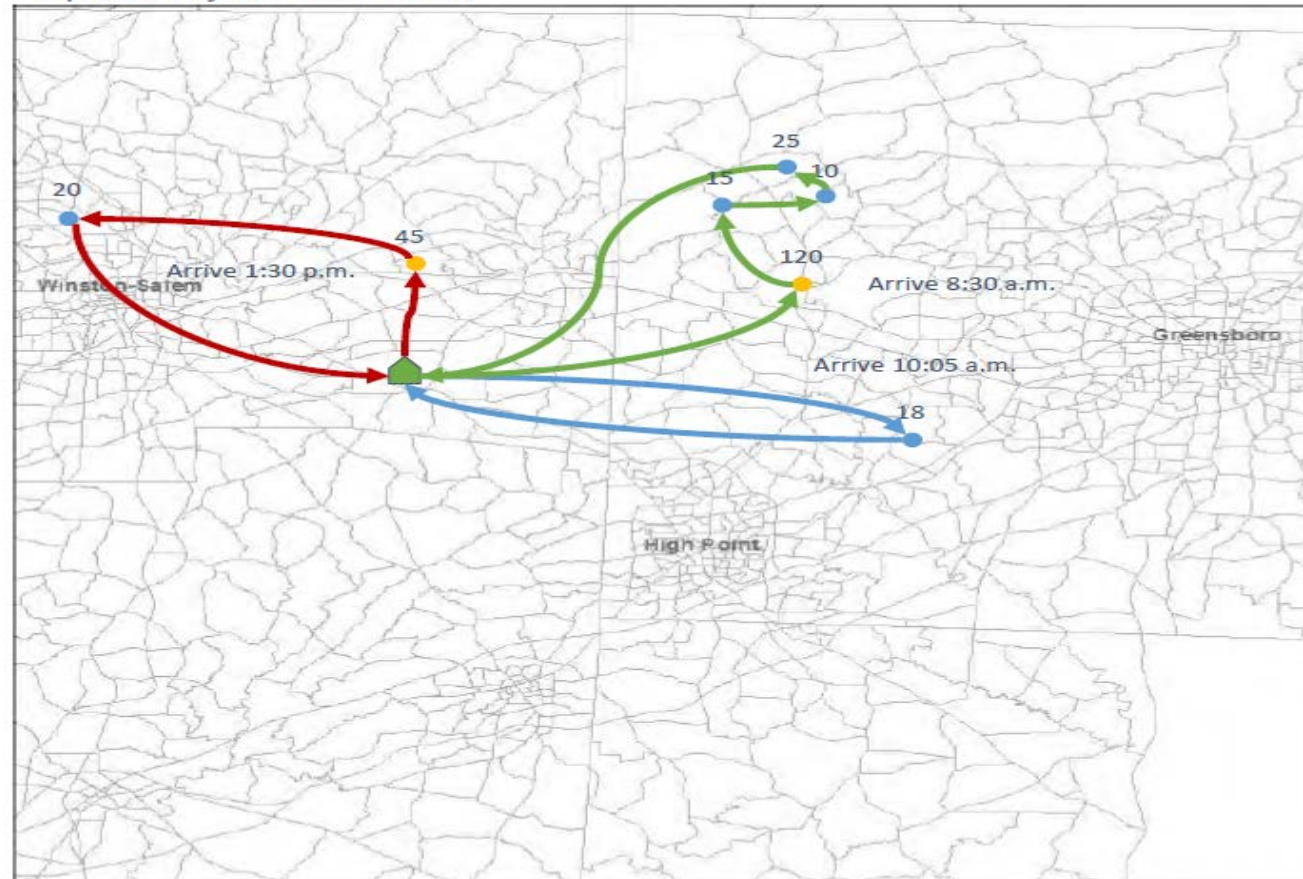


## Log(Number) of Goods Stops



# Stop Sequencing Arrival

*A portion of the model area*



## Phase II Lessons Learned (so far)

- NCDOT traffic survey is willing to work with us to pilot more comprehensive truck data.
- Third party data is scarce.



# TRIANGLE REGIONAL FREIGHT PLAN

## NCAMPO Meeting

May, 2016



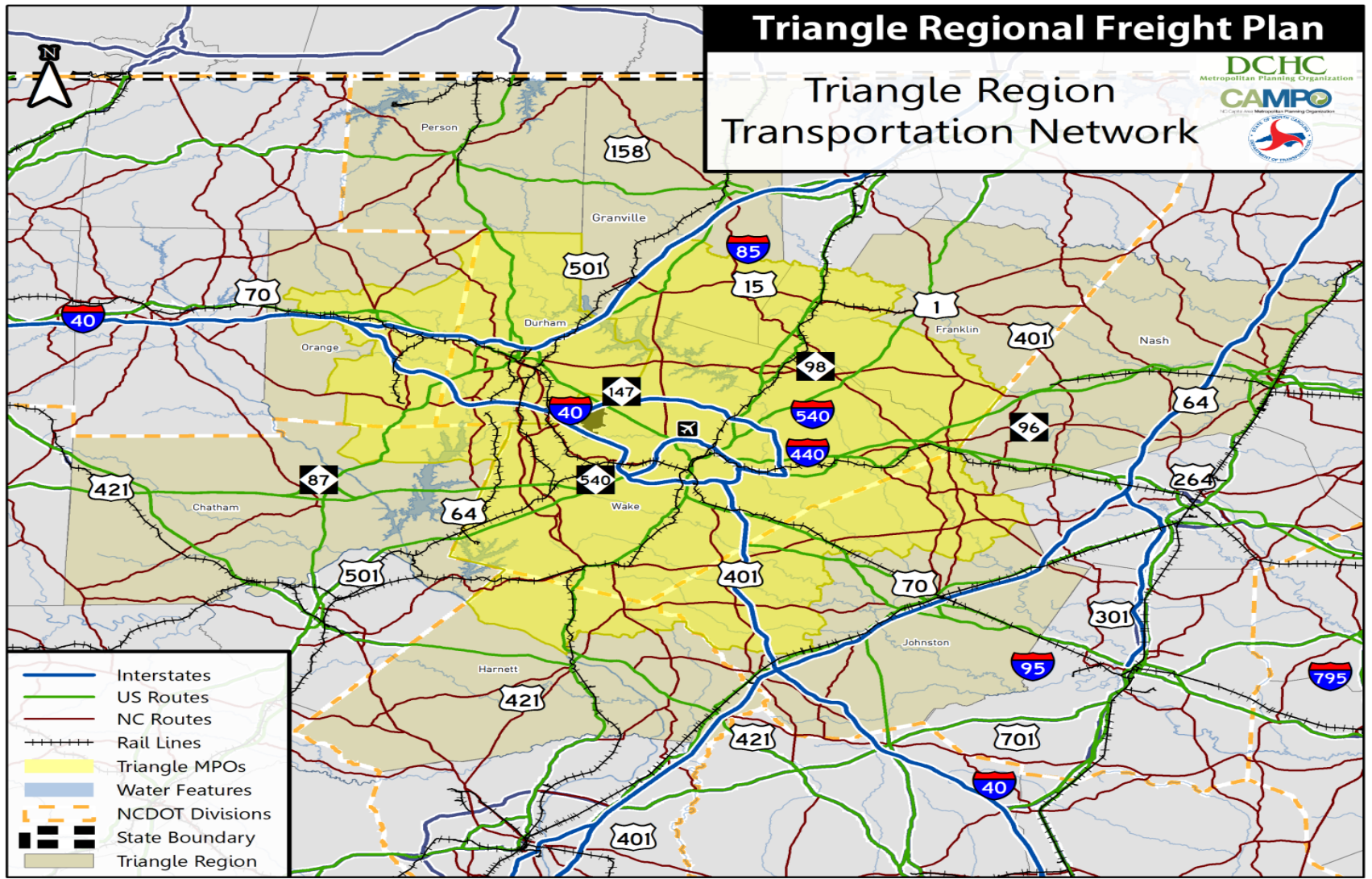
## TRIANGLE REGIONAL FREIGHT PLAN

# CURRENT FREIGHT PLANNING ACTIVITIES

- Preparing first comprehensive, multimodal freight study for the Triangle Region
- Completing Fall 2016, with recommendations for 2045 joint Metropolitan Transportation Plan
- Partnership of Capital Area MPO, Durham-Chapel Hill-Carrboro MPO, and NC DOT
- Steering Committee includes Triangle J COG, RDU Airport, NC Railroad, NC Trucking Association, Regional Transportation Alliance
- Overall purpose: guide policy and investment to address the needs of industry and people, within overarching regional goals for safety, equity, livability, sustainability, and economic productivity

# TRIANGLE REGIONAL FREIGHT PLAN

# TRIANGLE REGION



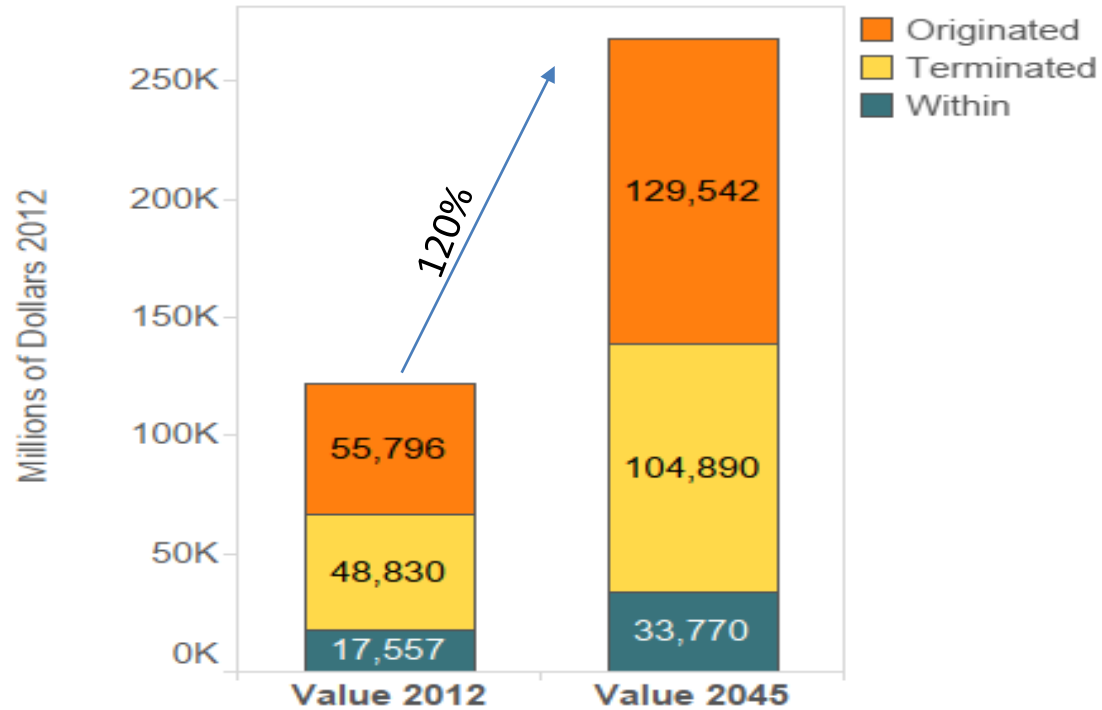
- 8 counties, in whole or part (10 in analysis)



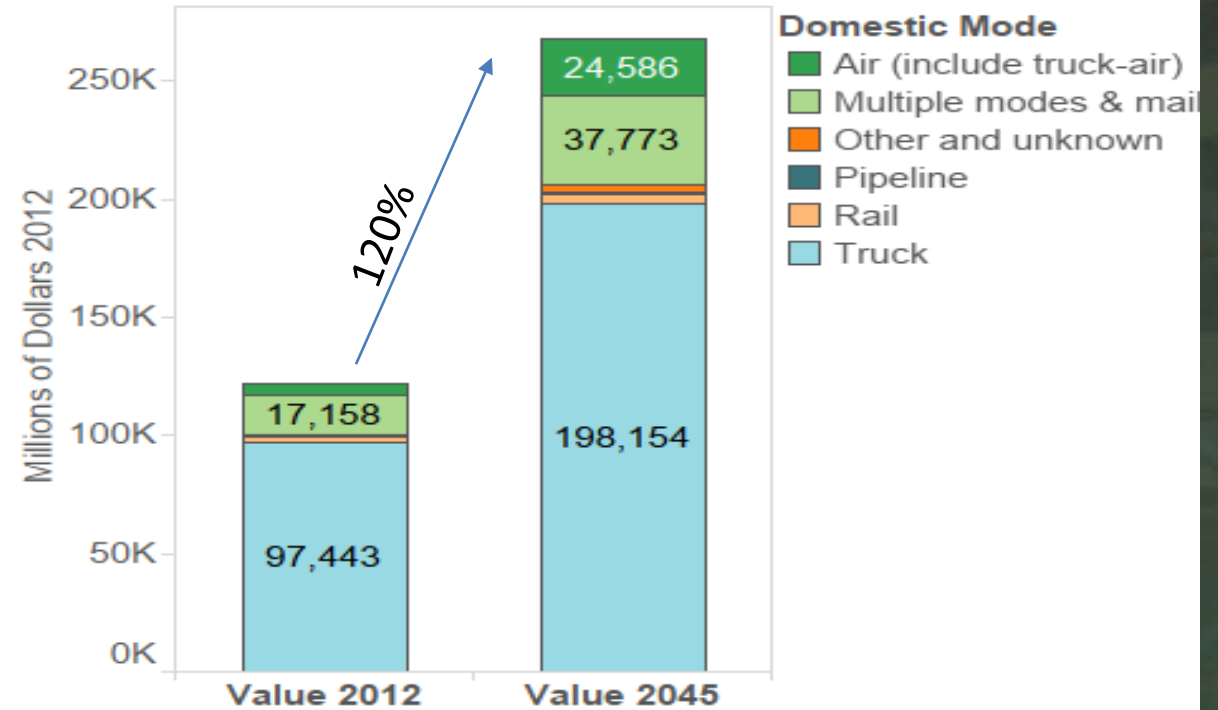
- Accommodate major population growth while retaining attractive qualities and livability of region
- Prepare for strongly positive economic outlook with distinct demands
- Address major freight reliability challenges in heart of region
- Anticipate major shifts: home delivery, CSX intermodal hub

# 2045 FORECAST NEW VALUE ( $\Delta$ ): 69% TRUCK, 14% AIR, 51% OUTBOUND

Millions of Dollars  
2012 - 2045 (nominal)



Millions of Dollars  
2012 - 2045 (nominal)



Freight Analysis Framework 4.1, in current dollars





## TRIANGLE REGIONAL FREIGHT PLAN

# STAKEHOLDER ENGAGEMENT

- Public workshops
- Regional Freight Stakeholders Advisory Committee: industry, modes, development
- Stakeholder interviews and forums
- Surveying via associations

# *Freight Planning Roundtable Discussion*



# *Freight Planning Roundtable Discussion*



- *What are your major challenges and opportunities related to your freight planning activities?*

# *Freight Planning Roundtable Discussion*

- *How are you engaging stakeholders in your freight planning activities?*



# *Freight Planning Roundtable Discussion*



- *What is your region's approach to identifying Critical Urban Freight Corridors and what data will you use?*

# *Freight Planning Roundtable Discussion*

- *Who is participating on your Freight Advisory Committee and what was your rationale for establishing the representation included on this committee?*



# *Freight Planning Roundtable Discussion*

- *Other questions?*



*THANK YOU!*

