PIEDMONT TRIAD FREIGHT STUDY
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**Phase 1**
- Freight facilities database
- Freight survey data collection

**Phase 2**
- Develop advanced freight model
- Integrate with existing PTRM

**Phase 3**
- Travel diary data collection
- Estimate freight model with local data
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
TAKE HOME MESSAGE

What we have

Freight focused information system

Big picture benefit

Used to inform land use planning, transportation planning, and project prioritization

Specific applications

Investigate freight clusters
Estimate truck trips
Project prioritization
Inform land use and rezoning decisions
Identify characteristics supporting freight clusters

What comes next

Policy scenario analysis
Mode choice
Understanding of dynamics between congestion and freight
Impacts of land use decisions
BACKGROUND
FREIGHT AND THE TRIAD

- Goods movement and the economy
- Considering Freight in Transportation Planning
- Role of Freight in the Triad
  - One of the world’s 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 / $49.2Bn / 150% growth

2040 Imports 5.7M tons / $20.4Bn / >200% growth
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 level.
  - **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.
DATA COLLECTION
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
SURVEY RESULTS

OVER 800 FACILITIES VISITED, SURVEY DATA FOR 158
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Survey Results

Distribution of Surveys by County

- Guilford: 38%
- Forsyth: 19%
- Alamance: 11%
- Davidson: 9%
- Randolph: 7%
- Rockingham: 5%
- Surry: 4%
- Orange: 2%
- Davie: 2%
- Iredell: 2%
- Stokes: 1%
- Yadkin: 1%
DISTRIBUTION OF SURVEYS BY MPO

SURVEY RESULTS

DISTRIBUTION OF SURVEYS BY MPO
DISTRIBUTION BY TYPE AND TRUCKS PER DAY

SURVEY RESULTS – TRIAD REGION

DISTRIBUTION BY TYPE AND TRUCKS PER DAY
DISTRIBUTION BY TYPE AND TRUCKS PER DAY

SURVEY RESULTS – BGMPO

DISTRIBUTION BY TYPE AND TRUCKS PER DAY
SURVEY RESULTS - GMPO

DISTRIBUTION BY TYPE AND TRUCKS PER DAY
SURVEY RESULTS - WSMPO

DISTRIBUTION BY TYPE AND TRUCKS PER DAY
DISTRIBUTION BY TYPE AND TRUCKS PER DAY

SURVEY RESULTS - HPMPO

DISTRIBUTION BY TYPE AND TRUCKS PER DAY
SURVEY ANALYSIS – TRIAD REGION

AVERAGE TRUCKS/DAY BY TYPE AND # OF EMPLOYEES
AVERAGE TRUCKS/DAY BY TYPE AND # OF EMPLOYEES

SURVEY ANALYSIS – BGMPO

Average Trucks per Day by Number of Employees

Industry
Retail
Office
Service
AVERAGE TRUCKS/DAY BY TYPE AND # OF EMPLOYEES

SURVEY ANALYSIS – GMPO

AVERAGE TRUCKS/DAY BY TYPE AND # OF EMPLOYEES
SURVEY ANALYSIS - WSMPO

AVERAGE TRUCKS/DAY BY TYPE AND # OF EMPLOYEES
SURVEY ANALYSIS – HPMPD

AVERAGE TRUCKS/DAY BY TYPE AND # OF EMPLOYEES
AVERAGE TRUCKS/DAY BY CLASSIFICATION AND TRUCK TYPE

SURVEY ANALYSIS - TRIAD REGION

AVERAGE TRUCKS/DAY BY CLASSIFICATION AND TRUCK TYPE
AVERAGE TRUCKS/DAY BY CLASSIFICATION AND TRUCK TYPE

SURVEY ANALYSIS – BGMPO

AVERAGE TRUCKS/DAY BY CLASSIFICATION AND TRUCK TYPE
SURVEY ANALYSIS - GMPO

AVERAGE TRUCKS/DAY BY CLASSIFICATION AND TRUCK TYPE
AVERAGE TRUCKS/DAY BY CLASSIFICATION AND TRUCK TYPE

SURVEY ANALYSIS - WSMPO

SURVEY ANALYSIS – HPMPO

AVERAGE TRUCKS/DAY BY CLASSIFICATION AND TRUCK TYPE
PROJECT FINDINGS
EXISTING PATTERNS

- Highest concentration of freight facilities in Guildford 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
LONG TERM FREIGHT PLANNING

• Increased freight flows as population increases:
  • NC population to increase by 3 million in next 25 years
  • NC freight traffic in 2040 will be 120 million tons higher

• Economic competitiveness:
  • Freight supporting policies
  • Investments in infrastructure

• Triad Freight Study helps address critical freight related questions:
  • Where are the highest concentrations of freight generators
  • What types of vehicles do they use
  • How many trucks visit the site on an average day
TAKE HOME MESSAGE

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QUESTIONS