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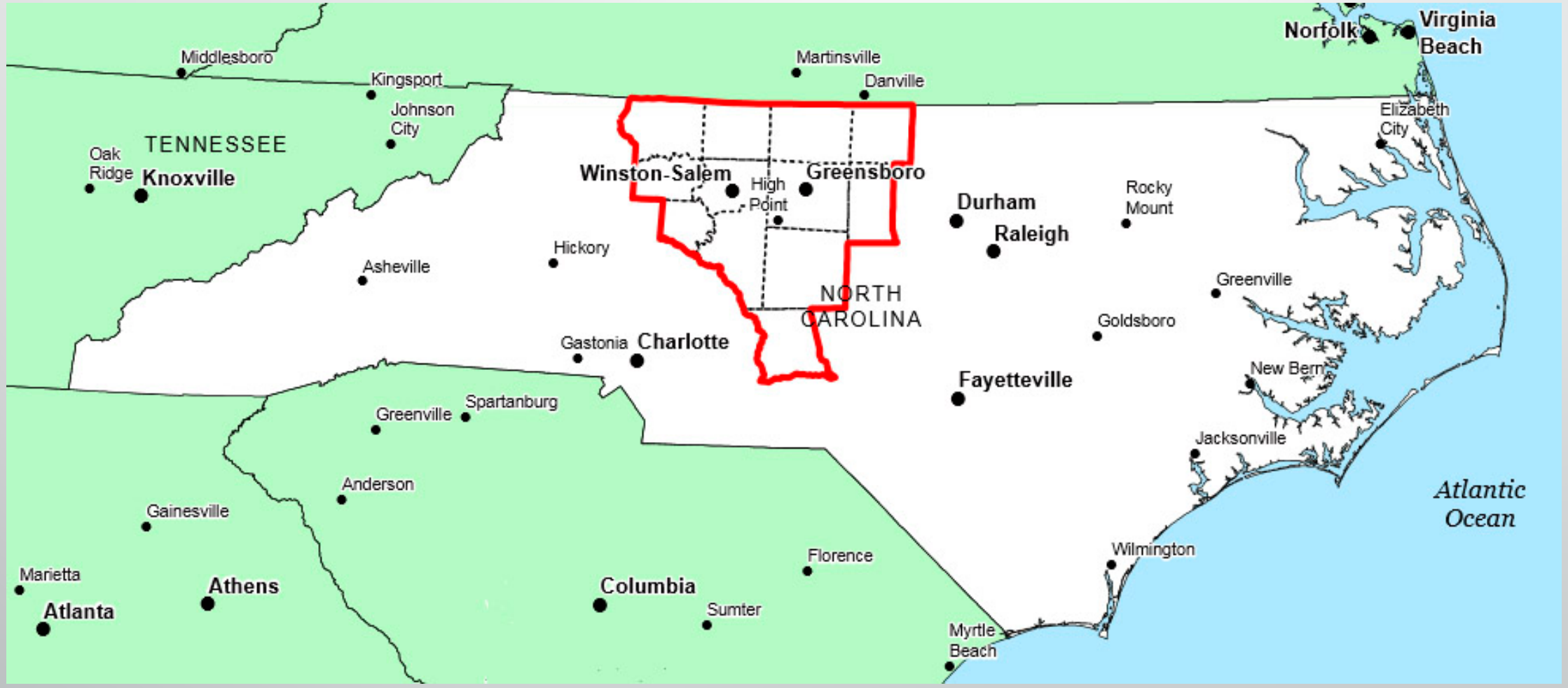
Regional Freight Model Coordination Between State and Regional Transportation Organizations

Piedmont Triad Region



Regional Travel Demand Model

The Regional Travel Demand Model (RTDM) was developed cooperatively by United States Department of Transportation (USDOT), North Carolina Department of Transportation (NCDOT), Piedmont Authority for Regional Transportation (PART) and four regional Metropolitan Planning Organizations (Greensboro, Winston-Salem, High Point, and Burlington-Graham MPOs).

The RTDM is a multi-modal four-step regional travel demand model, designed to support long range transportation planning and programming decisions. More detailed analyses are Air quality conformity, Travel forecasts, Long range transportation plan development, Multimodal alternative analysis, Comprehensive transportation plan analysis, Regional analysis, and Framework for sub-area analysis.

Advanced Freight Model

The Piedmont Authority for Regional Transportation (PART), the North Carolina Department of Transportation (NCDOT), and the Triad Metropolitan Planning Organizations (Burlington-Graham, Greensboro, High Point, and Winston-Salem) embarked on a three-phased approach to develop an enhanced freight component for the Piedmont Triad Regional Travel Demand Model (RTDM).

- Phase I: Identify existing freight nodes, characteristics and commodities.
- Phase II: Development of an Advanced Freight Model and Integration with RTDM
- Phase III: Conduct travel diary survey to update the freight sub-model developed in the previous phase.

The Second Strategic Highway Research Program

The second Strategic Highway Research Program (SHRP2) has undertaken more than 100 research projects designed to address critical state and local challenges, such as aging infrastructure, congestion, and safety. The research results are available in a series of effective solutions that will improve the way transportation professionals plan, operate, maintain, and ensure safety on America's roadways.

Authorized in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), SHRP2 builds on the success of the first SHRP, which produced, among other innovations, Superpave – a process for creating more durable roads – and new technology for addressing snow and ice. The Moving Ahead for Progress in the 21st Century Act (MAP-21) authorized additional funding to support implementation activities.

The Second Strategic Highway Research Program

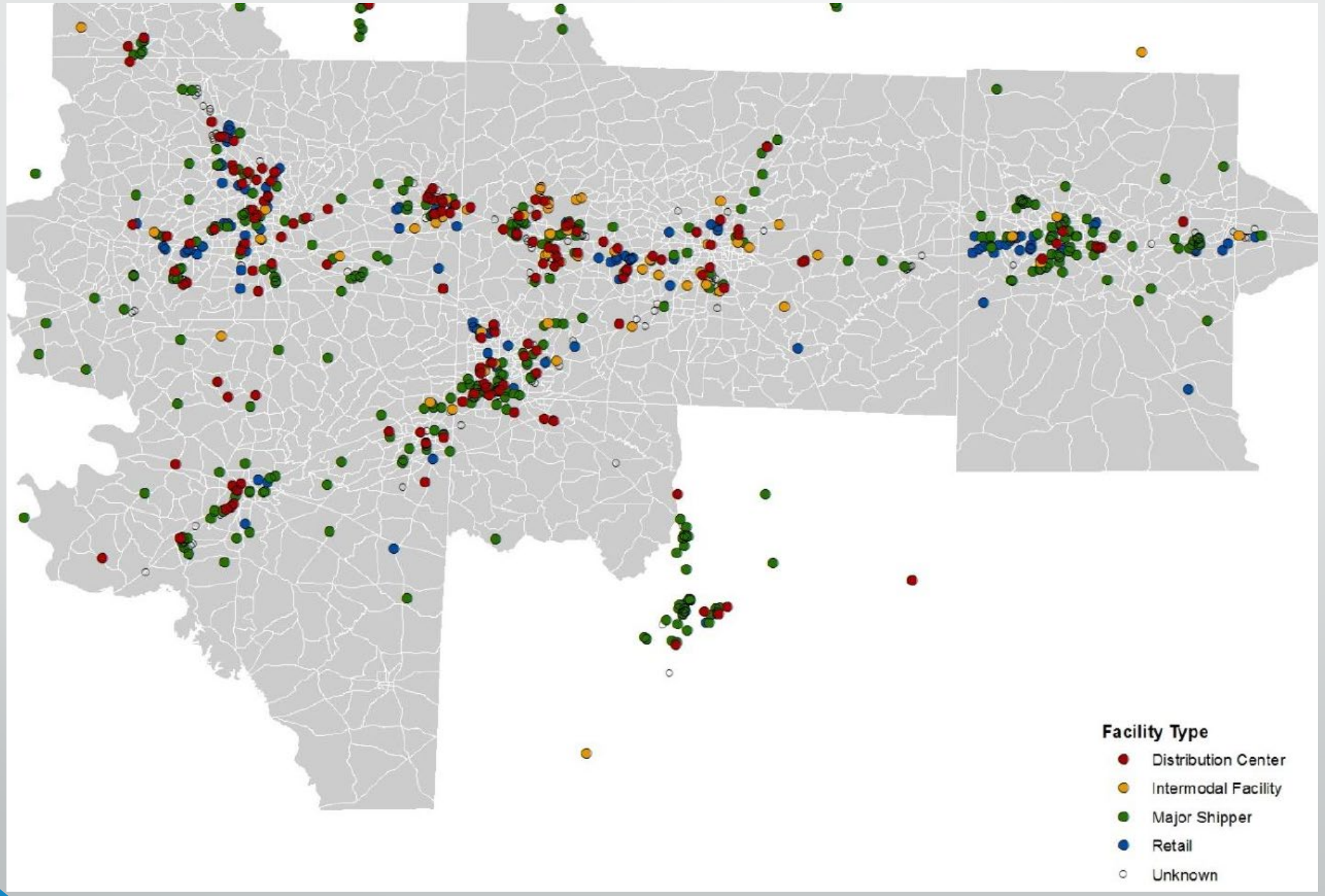
Phase I of the Advanced Freight Model was one of seven projects selected to develop and pilot innovations in local freight data under the SHRP2 Implementation Assistance Program.

The project identified freight model design and future data collection needs for the region as well as identified, tabulated, and surveyed freight facilities to support development of a tour-based truck model.

Key Objectives and Work Approach

Objective	Work Approach	Outcomes
Understand the data needs for a tourbased truck model	Conduct a workshop, literature review, and complete interviews with peer agencies	Model design recommendations and Phase III data collection recommendations
Identify freight facilities in the region	Complete an extensive review of commonly available data sources to locate freight facilities	Freight node database
Document characteristics of the region's freight facilities	Survey freight facilities	Detailed information on freight nodes in the region

Freight Nodes



Freight Nodes Database Fields

Field Name	Description
ID	TransCAD unique ID
Longitude	Record longitude
Latitude	Record latitude
RecordID	Unique record ID (matches RecordID in survey database)
Source	Source of the Freight Node data
SurveyComp	Survey completed by
Status	Type of survey administered
Name	Name of the Freight Node
Address	Address for the Freight Node
City	City for the Freight Node
County	County for the Freight Node
FacType	Facility Type
Category	Facility Category (Distribution Center, Intermodal Facility, Major Shipper, Retailer)
Commod	Freight Node primary commodity
Bays	Number of truck bays (per aerial image)
BldgSF	Building square footage (per aerial image)
MapLink	Web link for Freight Node location
IndustrySector	NAICS Industry Sector
InfoUSA_ID	ID from InfoUSA database
InfoUSA_Name	Freight Node name from InfoUSA database
InfoUSA_NAICS	Full NAICS code from InfoUSA database
3-digit_NAICS	Derived from 8-digit InfoUSA code
PTRM_NAICS_Group	NAICS code grouping used for PTRM
InfoUSA_Emp	Employment as reported in the InfoUSA database

Project Data Sources

Activity	Data Sources	Data Description
Model Design	Stakeholder input	The project team held a workshop to capture the model needs from a wide range of stakeholders
	Literature review	A review of the state of the practice of freight modeling and data collection
Freight Data Collection Recommendations	Stakeholders interviews	The project team conducted interviews with three MPOs well known for their advanced efforts in freight modeling
Freight Node Identification	County chamber of commerce data	Business listings were investigated for the presence of freight facilities
	InfoUSA Database	Information on NAICS codes and total number of employees were captured from this database
	NC Statewide Transportation Model (NCSTM) Data	The NCSTM contained geo-referenced warehouse and distribution facilities specific to the Triad region that were further investigated to determine if the location was appropriate to capture as a freight facility
Surveys	Aerial imagery	Publicly available aerial images of the freight facility
	Internet searches	Information on the freight facility's website
	Freight facility personnel	Data collected through the survey

Project Team

Project Partner	Role
Winston-Salem MPO	Co-coordinator on the project, lead agency on the SHRP2 C20 Implementation Assistance Program, led all project management activities.
Piedmont Authority for Regional Transportation (PART)	Co-coordinated the project with the Winston-Salem MPO, served as the model custodian, and provided technical and administrative assistance across the entire domain of the project.
Greensboro MPO/High Point MPO/Burlington-Graham MPO	Members of the PART Model Team, provided substantial support during the project development process and technical assistance across the entire domain of the project.
North Carolina Department of Transportation (NCDOT)	As a member of the PART Model Team, the NCDOT provided similar support as the MPO partners. In addition, the NCDOT's Model Team acted as a sounding board to support model development and provide technical support. The NCDOT also provided administrative support with agreements and contract management.
Federal Highway Administration	Provided coordination support as well as technical and administrative guidance.

☺ Thank You ☺

Source Material

Advanced Freight Model:
https://www.partnc.org/226/Advanced-Freight-Model
Regional Travel Demand Model:
https://www.partnc.org/228/Regional-Travel-Demand-Model
SHRP2 Case Study:
https://www.fhwa.dot.gov/goshrp2/Content/Documents/Factsheets/c20_wnstnslm_case_study.pdf
SHRP2 Website:
https://www.fhwa.dot.gov/goshrp2
Winston-Salem MPO 2040 Metro Transportation Plan
https://www.cityofws.org/1118/2040-Metro-Transportation-Plan

FHWA Contact

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