

## North Carolina Multimodal Statewide Freight Plan Freight Advisory Committee Meeting 4

**NCDOT Aviation Division  
1050 Meridian Drive Room 212, Morrisville, NC 27560**

**February 14, 2017**

### **In Attendance**

<b>Name</b>	<b>Organization</b>
<b>Freight Advisory Committee Members/Representatives</b>	
Alan Smith	Advance Auto Parts
Allen Serkin <i>(on the phone)</i>	NCARPO (Cape Fear RPO)
Charles H. W. Edwards	NCDOT
Craig Palladino	Lowe's
Dan Danieley	Burlington – Alamance Airport Authority
Durwood Laughinghouse	Norfolk Southern
Frederick Haith	NCAMPO (Winston-Salem MPO)
Jann Moore <i>(on the phone)</i>	Caterpillar
Jerry Cook	Hanes Brands
John H. Sutton	Lenovo
Loretta Barren	FHWA
Tom Carroll	Vulcan Materials
William Lucas	Caterpillar
<b>NCDOT Project Management Staff</b>	
Terry Arellano, PE	NCDOT Transportation Planning Branch
Heather Hildebrandt	NCDOT Transportation Planning Branch
<b>Cambridge Systematics Team</b>	
Paula Dowell	Cambridge Systematics (CS)
Lisa Destro	Cambridge Systematics (CS)
William Walter	Cambridge Systematics (CS)
Alix Demers	AECOM
Jeff Weisner	AECOM
Eddie McFalls	AECOM / NCDOT Rail Division
John Steinauer	IEM
Jennifer Brandenburg	Volkert

Name	Organization
Mushtaq Rahman	Baseline Mobility (BM)

## Minutes

### ***Welcome and Introductions – NCDOT Division of Aviation***

Bobby Walston (NCDOT Aviation Director) welcomed the FAC members and provided an overview on the Division of Aviation function and responsibilities. There are 72 public airports in NC, including 10 with commercial aviation. The economic impact of these airports to the state is worth \$31 billion annually. The Division of Aviation operates and maintains NCDOT's two twin-engine aircraft, which provide services such as: aerial photography and spatial information products for transportation projects, passenger service for government staff, aviation safety, and statewide emergency response. The Division also is responsible for providing aviation safety and education support via various programs. As well as unmanned aircrafts (drones) testing, permitting and education. There are nearly 8,000 manned aircrafts registered in NC; and 14,000 drones registered with FAA in NC (700 commercial).

### ***Freight Plan Update***

Cambridge Systematics' Paula Dowell (Project Manager for the Statewide Freight Plan) welcomed everybody and introduced the meeting agenda. The members of the FAC, Statewide Freight Plan NCDOT staff and consultant team introduced themselves.

#### **1. Vision, Goals and Objectives**

Paula Dowell presented the State Freight Plan draft vision and goals (see slides 5-6 in the presentation), and shared with the FAC members a handout with the draft vision, goals and objectives (see Appendix A of these meeting minutes).

Homework: FAC members were asked to review the vision goals and objectives and forward comments by Monday, Feb 27, 2017 to Heather Hildebrandt at [hjhildebrandt@ncdot.gov](mailto:hjhildebrandt@ncdot.gov).

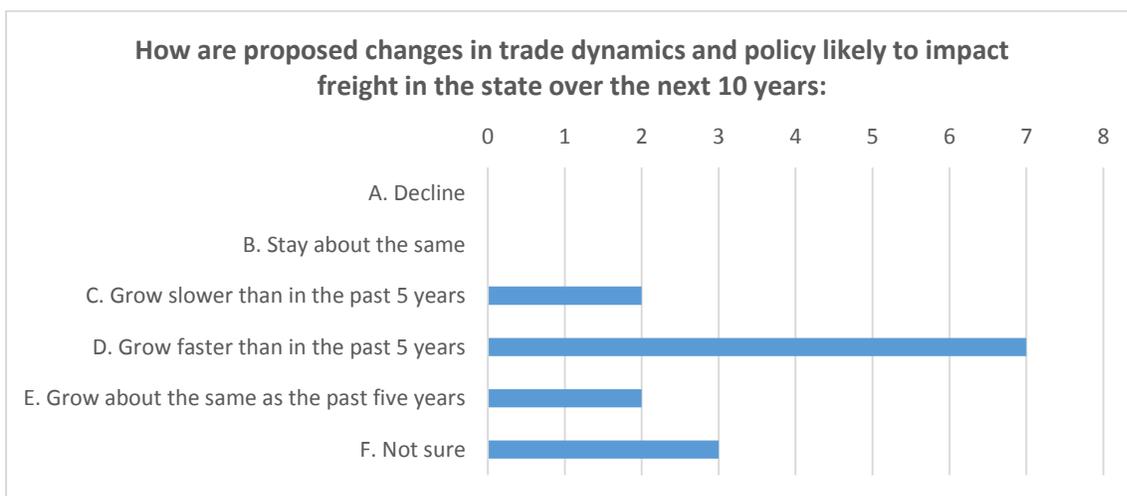
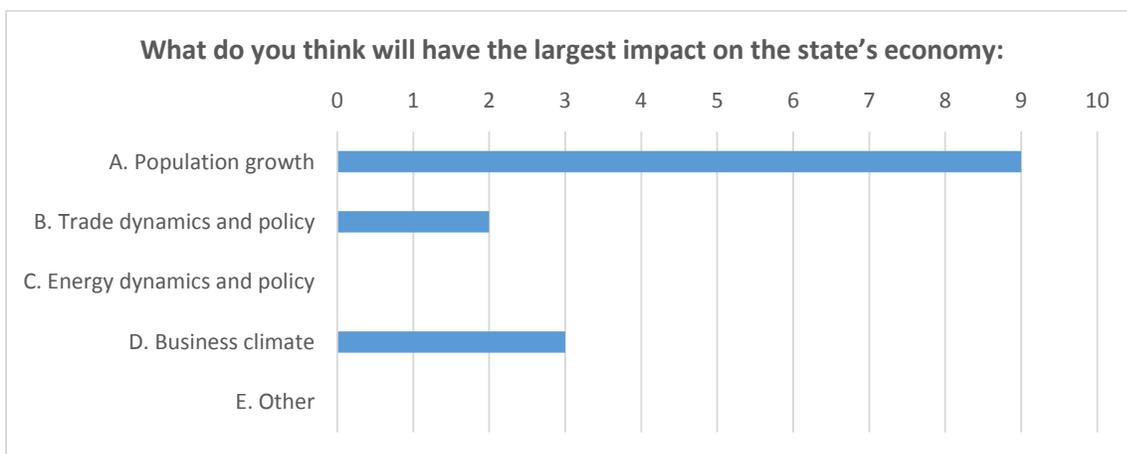
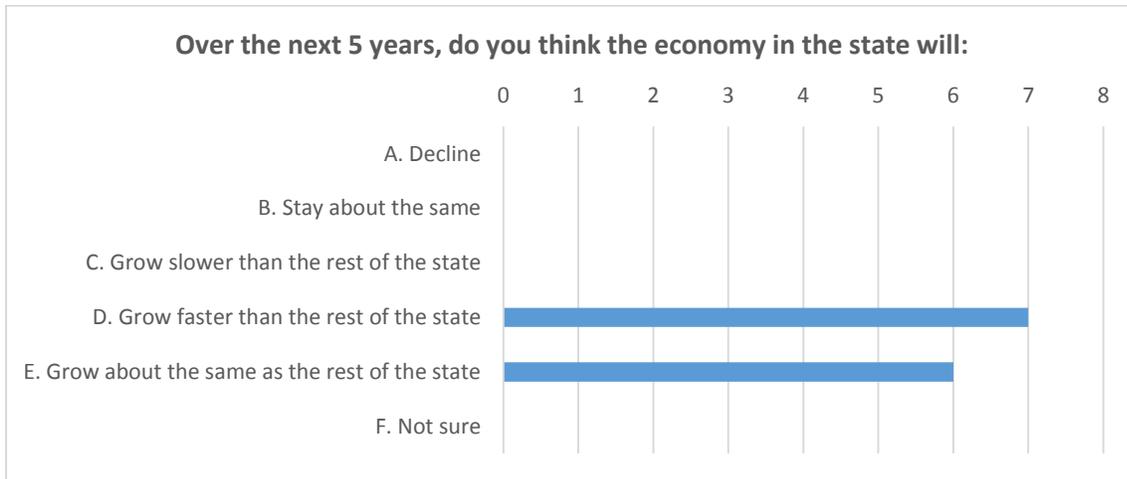
Allen Serkin (NCARPO): Suggested adding a statement to the vision on “meeting needs” or “achieve” to make it more action oriented.

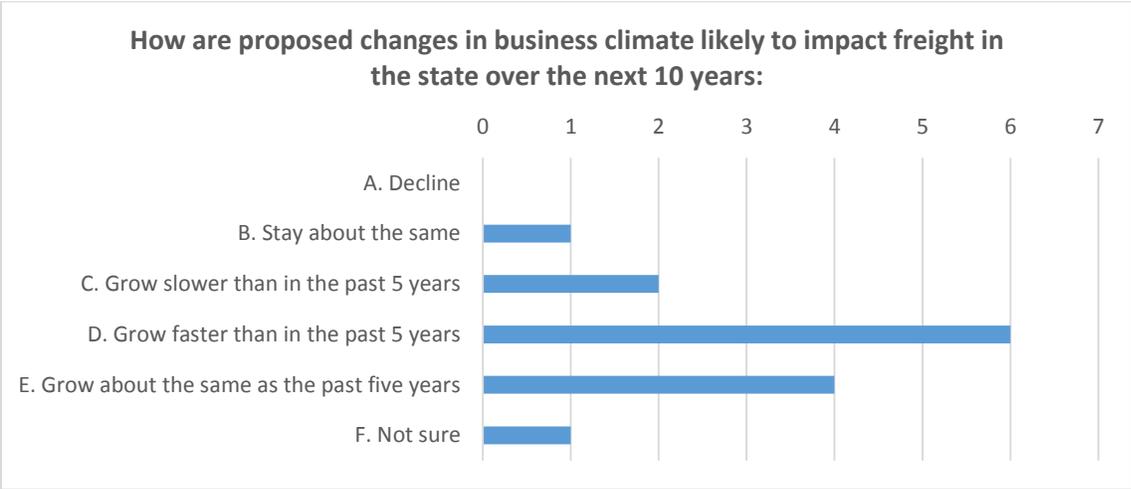
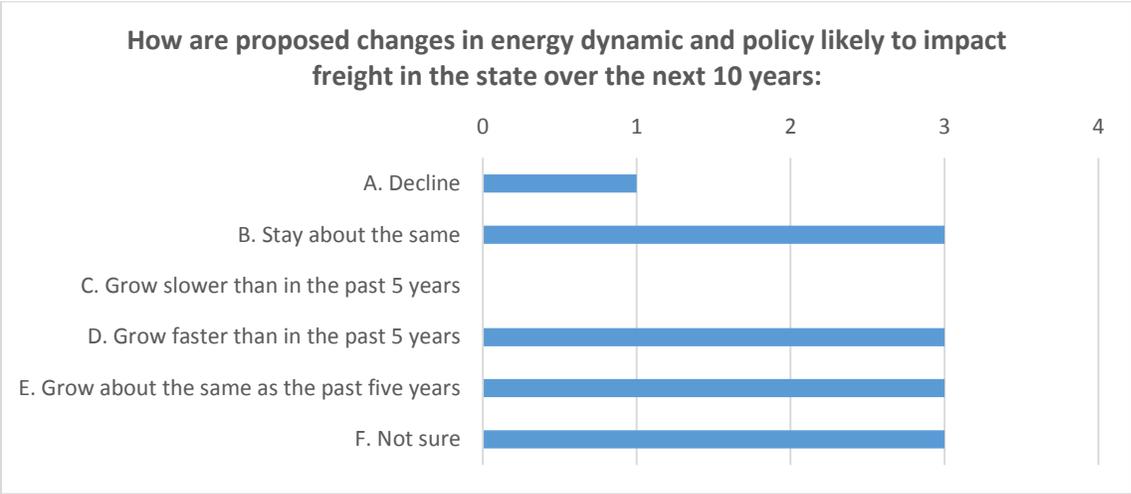
Tom Carroll (Vulcan Materials): agreed with Allen.

#### **2. Stakeholder Input – Interactive Polling**

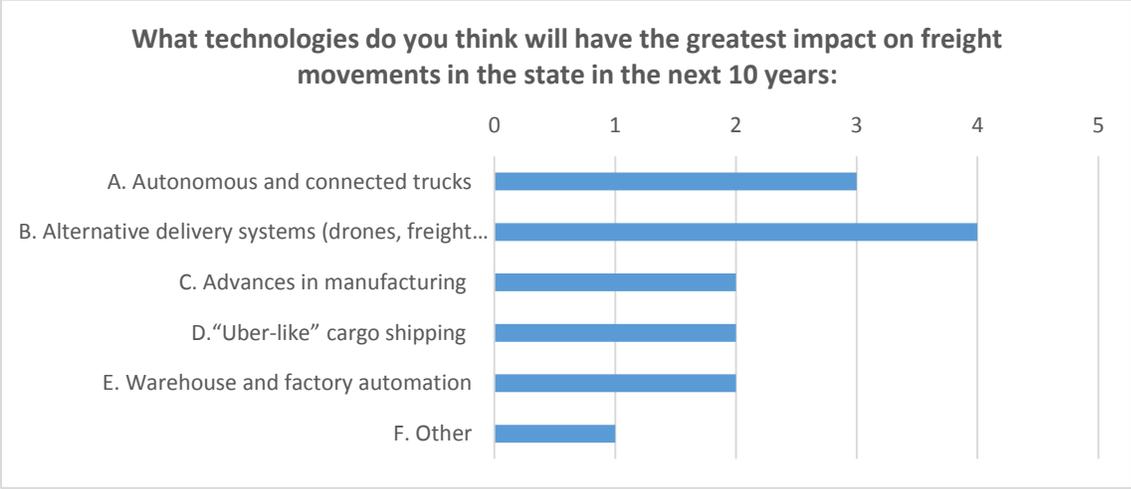
FAC members were polled on trends and policies affecting freight flows including economy and trade, technology, business and consumer practices, and regulations and institutional setting. Results of the polls are shown next.

Economic Trends

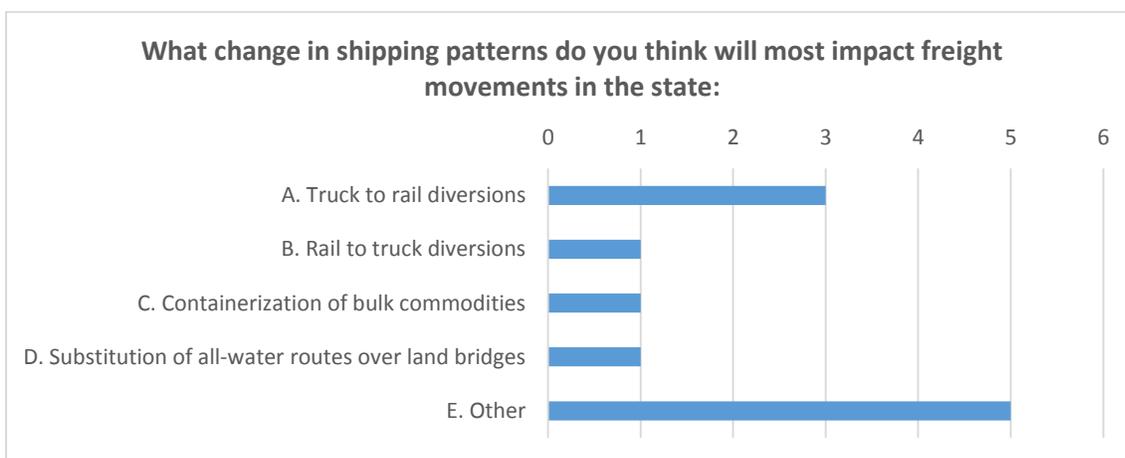
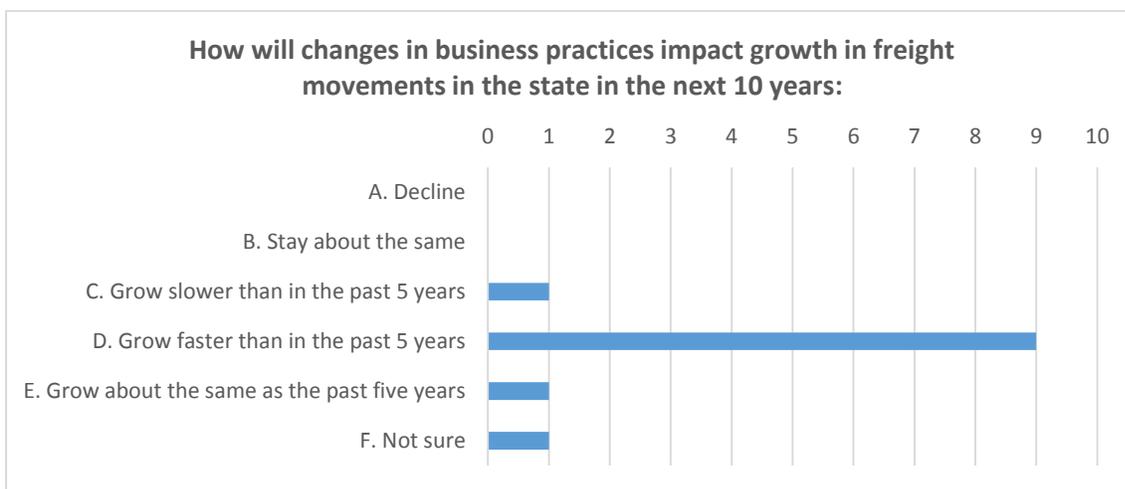
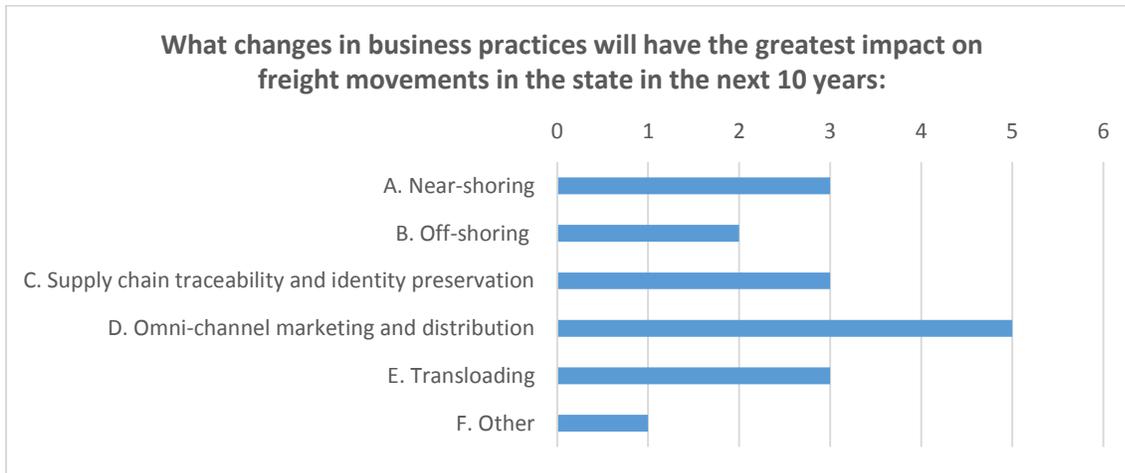


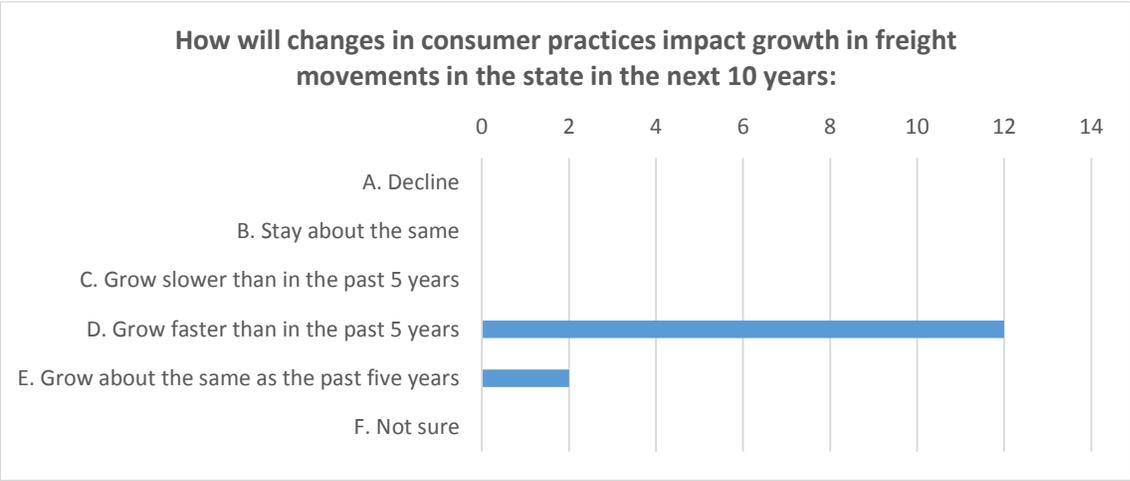
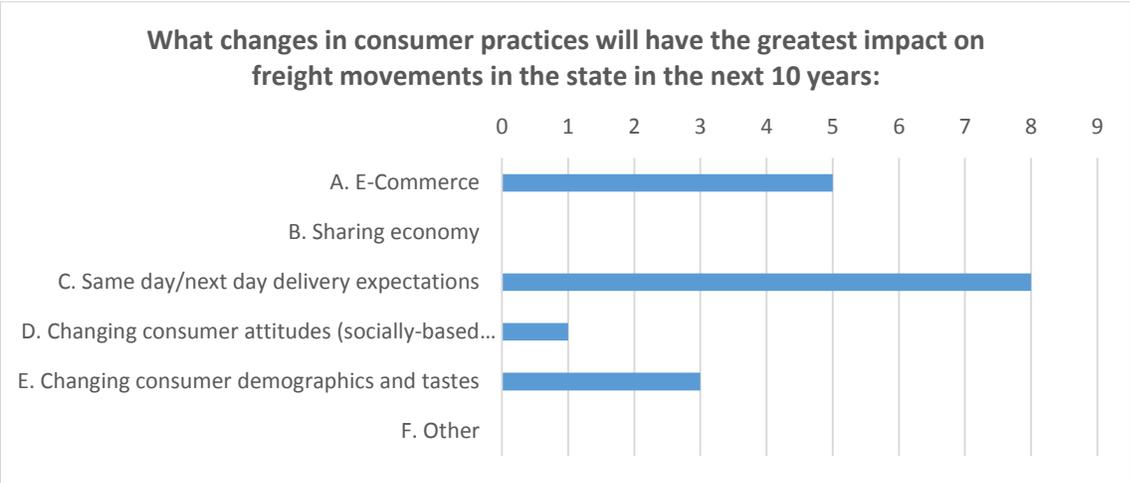


Technology



Business and Consumer Practices





**3. Modal Overviews**

An overview of the maritime, rail, hazardous materials, and air cargo modal profiles was provided (see slides 21-57 of the presentation deck). Comments from the FAC members are provided next.

Maritime Modal Profile

Tom Carroll (Vulcan Materials): commented on the issues of including inside the gate port needs in the STI – considering funds come from motor fuel taxes; and the need to look for alternative funding sources for in port investments.

Durwood Laughinghouse (NS): commented shared rail service will be very difficult.

Jerry Cook (Hanes): highlighted the importance to preserve/improve highway access to ports “no traffic lights into the ports is a must for trucks” or at grade crossings

### Rail Modal Profile

Allen Serkin (NCARPO): Proposed viewing the rail activity maps without through movements and questioned to what extent does the State want to invest in a rail mainline that does not serve the state's residents/businesses. Paula Dowell (CS): However, commented on the importance of the associated cost of through rail traffic quantifiable in the through truck traffic that is diverted to rail and being taken off roads.

### HazMat and Pipeline Modal Profile

Jerry Cook (Hanes): Railroads need to step in and open communication channels with the State.

Tom Carroll (Vulcan Materials): take a page out of the Military -they have a program to prevent community/residential encroachment.

### Air Cargo Profile

Jerry Cook (Hanes): US Customs and Border Protection (CBP) and Transportation Security Administration (TSA) rule to touch down on first airport for chartered airplanes has been a challenge for efficient and cost effective air cargo movements. Half of revenue of airline was belly cargo, after 9/11, and with consolidation of airlines this has changed dramatically.

Expected trend: Commercial cargo will continue to decline. Expecting air freighters to go out of business.

Dan Daniele (Burlington Alamance Airport): Burlington Alamance Airport air cargo activity includes 18 planes haul (54 vans six days a week) medical materials.

## **4. Identification of NC's Primary Freight Network**

Due to time constraints this part of the presentation was discussed in a future webinar scheduled for March 1, 2017 at 10 AM to cover the designation process, a GIS demo and the designation results.

As we were not able to go over the freight system scoring criteria in depth, FAC members were asked to review the following handouts before the webinar:

1. Freight Highway System Scoring Criteria tables (see Appendix B)
2. 5 maps with resulting scores - one for each analysis and one for total scores (see Appendix C)
3. Weighting of criteria worksheet (see Appendix D)

### Webinar – Primary Freight System Designation Process

A Doodle Poll was sent out to all FAC members to determine the date when most members were available for the webinar. The webinar took place on March 1 with attendance from FAC

members from NCDOT, NCARPO, NCSPA and minimal private sector attendance (Tom C. from Vulcan Materials).

Comments and action items from the input received includes:

*Economic Analysis:*

- Reduce score for technology centers and institutions of higher learning (from 2 to 1)
- Increase military scoring
- Address equity measure (take out income measures and whatever other changes you discussed)

*Goods movement analysis:*

- Add truck percentages measure

*Supply chain analysis:*

- Add employment measure/score for targeted industries
- Separate industry cluster into two targeted industries: Aerospace and Aviation, and Military and Defense. Make sure appropriate NAICS are included in each.
  - Aerospace and Aviation: take out 481 and 4881 (leave 3364)
  - Military and Defense: add 928110, 336992
- Distribution and Logistics industry: add NAICS 488320
- Add Forestry and Wood Products industry: include NAICS 113, 321, 322
- Add Furniture industry include NAICS 3371, 3372
- Add Agriculture to Food Processing industry and include NAICS crop/animal production (111 and 112).

*Documentation:*

Update all the changes to the methodology and tables.

*Weighting:*

- Equalize weighting to 25% for each analysis and produce maps.
- Apply 1st weighting scenario: 10% economic, 25% goods movement, 25% supply chain, 40% market access and produce maps.

**5. On-going Activities and Next Steps**

- Roll out NC Freight Data Tool – Jan 2017

- Finalize needs assessment and system designation – Feb 2017
- Complete supply chain and economic analysis – Feb 2017
- Performance measure development – March 2017
- Start developing and screening recommendations – April 2017
- MPO/RPO outreach
  - Update – Jan and Feb
  - Workshops – April – May 2017

The next FAC meeting will be held in conjunction with NC MPO conference (April 26 at 10 AM) in New Bern

### ***Additional Comments***

Tom C. (Vulcan Materials): Recommended looking into brown water tax (barge) for plan recommendations and referenced Virginia as an example.

Jerry C. (Hanes): Suggested including land use conflicts, compatibility buffers, preservation of freight assets, and State coordination with local communities and MPOs as recommendations.

Tom C. (Vulcan Materials): Reminded the team to get with legislation champions for easy lift legislation changes from Freight Plan before due date in 2017. Charles Edwards (NCDOT): There's already a team in place to do this.

Jerry C. (Hanes): Don't negotiate STI away at local level – "works well at State level". Frederick Haith (NCAMPO): MPOs are already working with local division offices for collaborating on STI.

### ***UPS Tour at RDU***

The FAC meeting members were invited to attend a tour of the UPS facility at RDU airport following the meeting.

## Appendix A Vision, Goals and Objectives Handout

The draft vision statement for the North Carolina Statewide Multimodal Freight Plan is:

- **North Carolina’s multimodal freight transportation network helps us compete globally for quality jobs, provide safe and efficient people and goods mobility and build quality communities for today and the future.**

The vision statement strives to describe a desired outcome, achievement or big-picture orientation from the perspective of transportation customers. It is meant to inspire the imagination of people and industries, and develop a momentum toward implementation of the Statewide Multimodal Freight Plan.

To achieve this vision, the North Carolina Statewide Multimodal Freight Plan will also need to define goals and objectives. The proposed goals and objectives for the statewide freight plan are summarized below. This table also provides an assessment of how the defined goals and objectives are aligned with the national freight policy goals, the 25-year vision for North Carolina, and the NCDOT’s 2040 Plan and the Strategic Transportation Corridors (STC) policy.

**Table 1 NC Statewide Multimodal Freight Plan Goals and Objectives**

Freight Plan Goal	Freight Plan Objectives	Support National Freight Goals?	Support 25-Year Vision?	Support 2040 Plan and STC Policy?
Enhance economic development opportunities and competitiveness	<ul style="list-style-type: none"> <li>• Support the state’s freight economy sectors to attract quality growth and high paying jobs</li> <li>• Improve the ports and the airports to increase exports to key trading partners and to fully participate in the global markets</li> <li>• Improve access to freight-related industries, and potential industrial or mega development sites</li> <li>• Improve mobility and access to intermodal operations and facilities</li> <li>• Expand access to competitive multimodal transportation options</li> <li>• Develop strategic highway and rail connections with regional trading partners</li> <li>• Collaborate with local government in improving the “last mile” freight operations and urban area logistics</li> </ul>	☑	☑	☑

Freight Plan Goal	Freight Plan Objectives	Support National Freight Goals?	Support 25-Year Vision?	Support 2040 Plan and STC Policy?
Improve system efficiency and reliability	<ul style="list-style-type: none"> <li>Enhance integration and connectivity across and between freight modes</li> <li>Strategically expand system capacity where existing infrastructure can longer be optimized</li> <li>Improve mobility and travel time reliability by managing traffic congestion</li> <li>Improve system productivity by lowering transportation costs</li> <li>Improve incident management system by partnering with Emergency Response and Law Enforcement agencies</li> <li>Reduce road closures during peak season and peak hours for construction and maintenance</li> <li>Coordinate traffic lights on US and NC routes</li> <li>Monitor and evaluate system performance to assess operational conditions and effectiveness of congestion management strategies</li> </ul>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Improve infrastructure conditions and preservation	<ul style="list-style-type: none"> <li>Maintain, preserve, and extend the service life of existing and future freight transportation infrastructure</li> <li>Monitor infrastructure conditions and prepare an annual freight state-of-the-system report</li> </ul>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Enhance safety, security and resilience	<ul style="list-style-type: none"> <li>Reduce fatality, injury and crash/incident rates on all modes to improve public health.</li> <li>Reduce economic losses due to transportation crashes and incidents</li> <li>Eliminate safety hazards by proactively working with stakeholders and agencies responsible for the freight transportation system</li> <li>Improve system security to protect people, cargo and critical infrastructure assets</li> <li>Expand multimodal access to Ports, airports and other intermodal and logistics hubs</li> <li>Maintain alternate access routes and redundancy in the system for rapid recovery from weather or other disaster events</li> </ul>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Protect and enhance the natural environment	<ul style="list-style-type: none"> <li>Reduce freight-induced negative impacts on natural, cultural and environmental resources</li> <li>Reduce mobile source emissions, GHG, and energy consumption</li> <li>Reduce noise, vibration and other freight-induced negative impacts on residential communities</li> <li>Improve quality of life for those communities most impacted by freight operations.</li> </ul>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Freight Plan Goal	Freight Plan Objectives	Support National Freight Goals?	Support 25-Year Vision?	Support 2040 Plan and STC Policy?
Support adoption and deployment of new technologies	<ul style="list-style-type: none"> <li>Promote the adoption of safety, fuel efficiency, telematics, alternative fuel, electronic logging device, fleet management and other technologies for the trucking industry</li> <li>Implement adaptive signal control and other ITS safety solutions on key freight transportation corridors and freight facilities</li> <li>Foster safe future use of autonomous vehicles &amp; drones in freight transportation</li> <li>Foster the adoption of Mobility-as-a-Service, UberRUSH or similar last mile freight delivery operations in urban population centers</li> </ul>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Foster public-private partnerships and collaboration	<ul style="list-style-type: none"> <li>Develop and nurture partnerships with private industries with significant role in the state's economy</li> <li>Provide a forum for public agencies, industry groups, US military, and local business chambers to coordinate and integrate freight movements</li> <li>Provide a forum for participation by freight shippers and carriers in metropolitan areas</li> </ul>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Improve access to data and information	<ul style="list-style-type: none"> <li>Expand access to traffic speed, incidents, and construction management information</li> <li>Expand external communication through social media and mobile apps</li> </ul>		<input checked="" type="checkbox"/>	
Ensure good fiscal management	<ul style="list-style-type: none"> <li>Secure funding for projects with long-term benefits or high benefit-cost ratio</li> <li>Leverage federal funding in freight projects</li> <li>Maintain high standards in management of public assets and resources</li> </ul>		<input checked="" type="checkbox"/>	

## Appendix B Freight Highway System Scoring Criteria Tables Handout

**Table 1 Economic Analysis Metrics and Scoring Methodology**

Factor	Metric	Data Source(s)	Measure	Scoring Method	Data Usage Methodology
<b>Demographic Preparedness</b>	Population Growth	US Census 2010 / 2014	Growth rate of tract compared to statewide growth rate	0 = 0 1 – 49 = 0.2 50 – 99 = 0.4 100 – 149 = 0.6 150 – 199 = 0.8 200 and above = 1.0	Population growth indicates opportunities for economic growth. All negative growth rates scored as 0.
	Workforce Size	US Census 2014	Census tract workforce size compared to tract population relative to state average	0 = 0 1 – 49 = 0.2 50 – 99 = 0.4 100 – 149 = 0.6 150 – 199 = 0.8 200 and above = 1.0	Higher density of workers indicates a competitive and efficient labor market.
	Educational Attainment	US Census 2014	Census tract relative to state average	0 = 0 1 – 49 = 0.2 50 – 99 = 0.4 100 – 149 = 0.6 150 – 199 = 0.8 200 and above = 1.0	Well trained workforce desirable for investment. Population 18 years of age or older with high school or higher education.
	Per Capita Income	US Census 2014	Tract PCI vs the statewide average	0 = 0 1 – 49 = 0.2 50 – 99 = 0.4 100 – 149 = 0.6 150 – 199 = 0.8 200 and above = 1.0	Higher PCI equates to more economic activity generated from a diverse market of goods and services.
<b>Freight Intensity and Supported Industries</b>	Freight Employment Intensity	US Census 2014	Employment in freight intensive sectors vs state average	0 = 0 1 – 49 = 0.2 50 – 99 = 0.4 100 – 149 = 0.6 150 – 199 = 0.8 200 and above = 1.0	Dependence on supporting freight infrastructure key to growth in these areas.
	Technology Centers	US Census 2014	Employment in technology sectors vs state average	0 = 0 1 – 99 = 0.4 100 – 199 = 0.8 200 – 299 = 1.2 300 – 399 = 1.6 400 and above = 2.0	High tech industries typically require highly mobile staff and rely on products being shipped rapidly. Improved infrastructure will promote growth.
	Medical Centers	US Census 2014	Employment in medical care sectors vs state average.	0 = 0 1 – 49 = 0.2 50 – 99 = 0.4 100 – 149 = 0.6 150 – 199 = 0.8 200 and above = 1.0	Connectivity to medical centers is important to the regional economy.
	Institutions of Higher Learning	US Census 2014	Students enrolled in public / private universities and colleges vs	0 = 0 1 – 99 = 0.4 100 – 199 = 0.8 200 – 299 = 1.2 300 – 399 = 1.6 400 and above = 2.0	Attract adjacent growth of industry and promote skilled workforce.

Factor	Metric	Data Source(s)	Measure	Scoring Method	Data Usage Methodology
			state average		
	Key Military Facilities		Census tracts that are comprised of key military facilities.	0 = None 1 = Facility	Fort Bragg; Seymour Johnson AFB; Sunny Point MOTSU; New River MCAS; Camp Lejeune; Cherry Point MCAS
	Property Tax	US Census 2014	Property tax values at tract level vs state average.	0 = 0 1 – 49 = 0.2 50 – 99 = 0.4 100 – 149 = 0.6 150 – 199 = 0.8 200 and above = 1.0	Measure serves as a proxy for economic activity and transportation dependence.

**Table 2 Goods Movement Analysis Metrics and Scoring Methodology**

Mode	Metric	Data Source(s)	Value Range	Proposed Scoring Method	Data Usage Methodology
Highway	Daily Truck Volumes	NCDOT	0 – 16,000 AADTT	0 = Less than 2,500 1 = 2,501 to 5,000 2 = 5,001 to 7,500 3 = 7,501 to 10,000 4 = 10,001 to 16,000	Measures daily truck volumes on NC roads. Identifies corridors with heavy truck traffic.
	Absolute Vehicle Miles Traveled (VMT)	NCDOT	0 – 50,000	0 = Less than 1,000 1 = 1,000 to 2,499 2 = 2,500 to 4,999 3 = 5,000 to 9,999 4 = More than 10,000	Use truck counts by link to derive truck VMT
	VMT by Lane Mile	NCDOT, Highway Performance Monitoring System (HPMS)	0 – 12,500	0 = Less than 500 1 = 500 to 999 2 = 1,000 to 2,499 3 = 2,500 to 4,999 4 = More than 5,000	Use truck counts by link to derive truck VMT. HPMS data provides number of lanes by link. These sources together will show truck VMT by lane mile.
	Total Tonnage	FAF4.1	0 – 200M+ tons	0 = Less than 5M tons 1 = 5M to 10M tons 2 = 10M to 20M tons 3 = 20M to 50M tons 4 = 50M to 100M tons 5 = 100M to 200M 6 = More than 200M	Assessment of annual tonnage by road segment for top commodities transported by truck in North Carolina.
	Total Value	FAF4.1	0 - \$500B+	0 = Less than \$10B 1 = \$10B to \$20B 2 = \$20B to \$50B 3 = \$50B to \$100B 4 = \$100B to \$200B 5 = \$200B to \$500B 6 = More than \$500B	Assessment of annual value by road segment for top commodities transported by truck in North Carolina.

Mode	Metric	Data Source(s)	Value Range	Proposed Scoring Method	Data Usage Methodology
	Tonnage Growth	FAF 4.1	Change in Tonnage (%)	0 = Less than 25% 1 = 25% - 50% 2 = 50% - 75% 3 = 75% - 100% 4 = 100%+	Assessment of percentage change in total tonnage between base (2015) and forecast (2045) years.
	Value Growth	FAF 4.1	Change in Value (%)	0 = Less than 25% 1 = 25% - 50% 2 = 50% - 75% 3 = 75% - 100% 4 = 100%+	Assessment of percentage change in total tonnage between base (2015) and forecast (2045) years.

**Table 3 Supply Chain Analysis Metrics and Scoring Methodology**

Mode	Metric	Data Source(s)	Value Range	Proposed Scoring Method	Data Usage Methodology
Highway	Support for Targeted Industries	InfoUSA	0 – 9	0 = No support 1 = Support for 1-4 targeted industries 2 = Support for ≥ 5 targeted industries	Assess level of support for targeted industries via highway. “Support” determined when industry is located within 2 miles of highway segment.
	Support for Targeted Industries Businesses	InfoUSA	0 – 71	0 = No support 1 = 1 to 2 TI businesses 2 = 3 to 5 TI businesses 3 = 6 to 10 TI businesses 4 = More than 11 TI businesses	Assess level of support for targeted industries via highway based on number of TI businesses within 2 miles of highway.
	Support for Commodities Associated with Targeted Industries (Tonnage)	InfoUSA / Loaded FAF Network	0 – 74M	0 = Less than 2M tons 1 = 2M to 5M tons 2 = 5M to 10M tons 3 = 10M to 20M tons 4 = More than 20M tons	Assessment of how much annual tonnage is supported via highway for each targeted industry. Evaluated for each roadway segment.
	Support for Commodities Associated with Targeted Industries (Value)	InfoUSA / Loaded FAF Network	0 – \$180M	0 = Less than \$2M 1 = \$2M to \$5M 2 = \$5M to \$10M 3 = \$10M to \$20M 4 = More than \$20M	Assessment of how much annual value is supported via highway for each targeted industry. Evaluated for each roadway segment.

**Table 4 Targeted Supply Chain Industries**

Industry Category	NAICS Codes	SCTG Commodity Code(s)
Aerospace, Aviation,	3364 – Aerospace Product and Parts Manufacturing 481 – Air Transportation	34 – Machinery 35 – Electronics

Industry Category	NAICS Codes	SCTG Commodity Code(s)
<b>and Military/Defense</b>	4881 – Support Activities for Air Transportation	36 – Motorized vehicles 37 – Transportation equip. 38 – Precision Instruments
<b>Information and Communications Technology</b>	334 – Computer and Electronic Product Manufacturing	35 – Electronics
<b>Food Processing and Distribution</b>	311 – Food Manufacturing 312 – Beverage and Tobacco Product Manufacturing 49312 – Refrigerated Warehousing Storage 49313 – Refrigerated Farm Products	01 – Animals and fish 02 – Cereal grains 03 – Other ag prods. 04 – Animal feed 05 – Meat/seafood 06 – Milled grain prods. 07 – Other food stuffs 08 – Alcoholic beverages
<b>Automotive, truck, and heavy equipment</b>	331 – Primary Metal Manufacturing 332 – Fabricated Metal Product Manufacturing 336 – Transportation Equipment and Manufacturing	33 – Articles of base metal 34 – Machinery 35 – Electronics 36 – Motorized vehicles 37 – Transportation equip. 38 – Precision instruments
<b>Chemicals, Plastics and Rubber</b>	324 – Petroleum and Coal Products Mfg 3251 – Basic Chemical Manufacturing 3252 – Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing 3253 – Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing 3255 – Paint, Coating, and Adhesive Manufacturing 3256 – Soap, Cleaning Compound, and Toilet Preparation Manufacturing 3259 – Other Chemical Product and Preparation Manufacturing 3261 – Plastics Product Manufacturing 3262 – Rubber Product Manufacturing	20 – Basic chemicals 22 – Fertilizers 23 – Chemical prods. 24 – Plastics/rubber
<b>Energy / Green Energy</b>	2111 – Oil and Gas Extraction 2121 – Coal Mining 2131 – Support Activities for Mining 2211 – Electric Power Generation, Transmission and Distribution 2212 – Natural Gas Distribution 4861 – Pipeline Transportation of Crude Oil 4862 – Pipeline Transportation of Natural Gas 4869 – Other Pipeline Transportation	15 – Coal 16 – Crude petroleum oil 17 – Gasoline and aviation turbine fuel 18 – Fuel oils 19 – Coal-n.e.c.
	221111 – Hydroelectric Power Generation 221114 – Solar Power Generation 221115 – Wind Power Generation 221116 – Geothermal Power Generation 221117 – Biomass Electric Power Generation 221118 – Other Electric Power Generation (except hydroelectric, fossil fuel, nuclear, solar, wind, geothermal, biomass)	34 – Machinery 35 – Electronics
<b>Biotechnology, Pharmaceuticals, and Life Sciences</b>	3254 – Pharmaceutical and Medicine Manufacturing 3391 – Medical Equipment and Supplies Manufacturing	20 – Basic chemicals 21 – Pharmaceuticals 38 – Precision instruments
<b>Distribution/ Logistics</b>	481112 Scheduled Freight Air Transportation 481212 Nonscheduled Chartered Freight Air Transportation 482 – Rail Transportation 483111 - Deep Sea Freight Transportation 483113 - Coastal and Great Lakes Freight Transportation 483211 - Inland Water Freight Transportation	33 – Articles of base metal 39 – Furniture 40 – Misc. mfg. prods 43 – Mixed freight

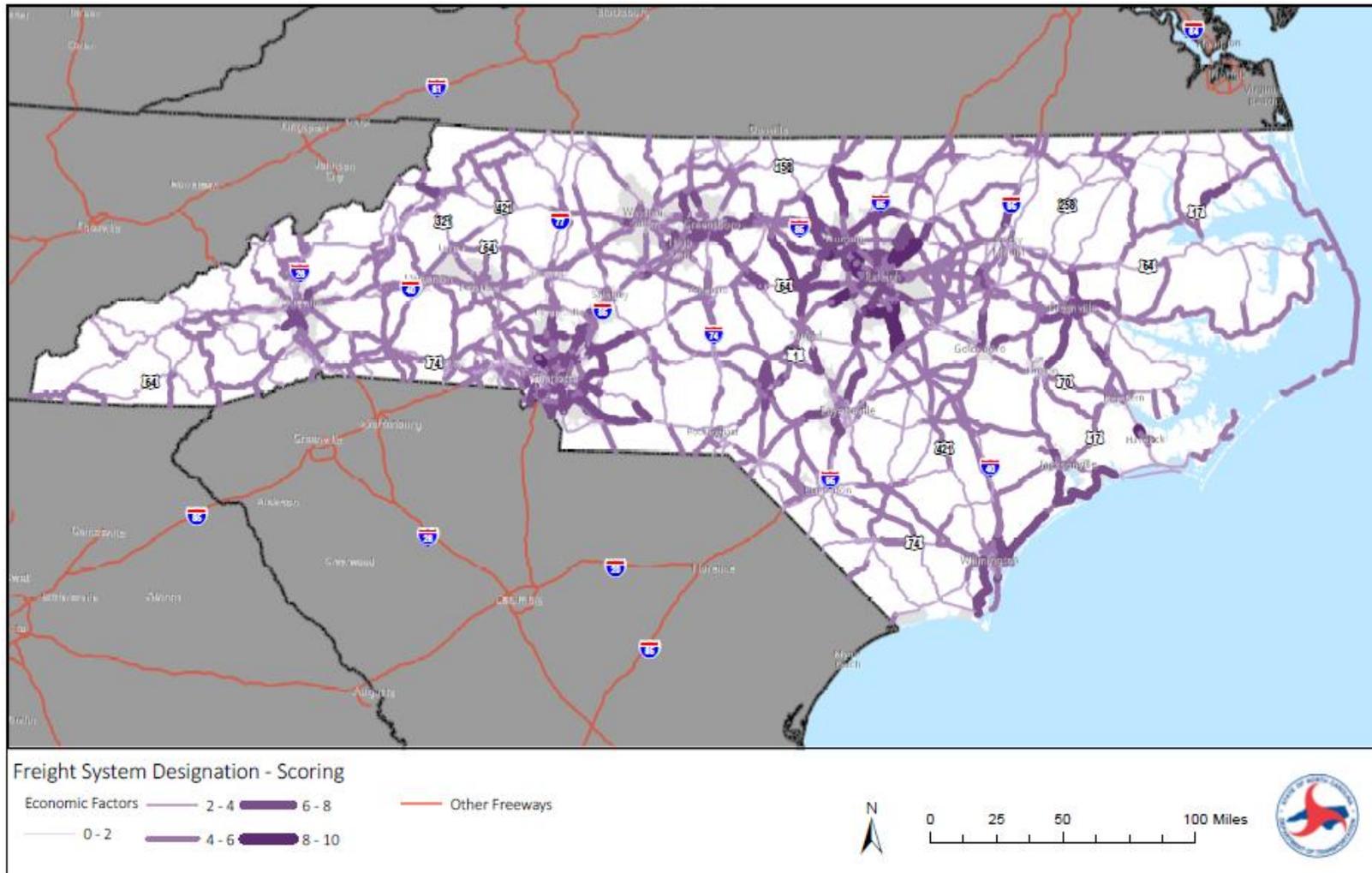
Industry Category	NAICS Codes	SCTG Commodity Code(s)
	484 – Truck Transportation 4921 - Couriers and Express Delivery Services 493 – Warehousing and Storage	
<b>Textiles, Apparel, and Textile Machinery</b>	313 – Textile Mills 314 – Textile Product Mills 315 – Apparel Manufacturing 316 – Leather and Allied Product Manufacturing	24 – Plastics/rubber 30 – Textiles/leather 34 – Machinery

**Table 5 Market Access and Geography Metrics and Scoring Methodology**

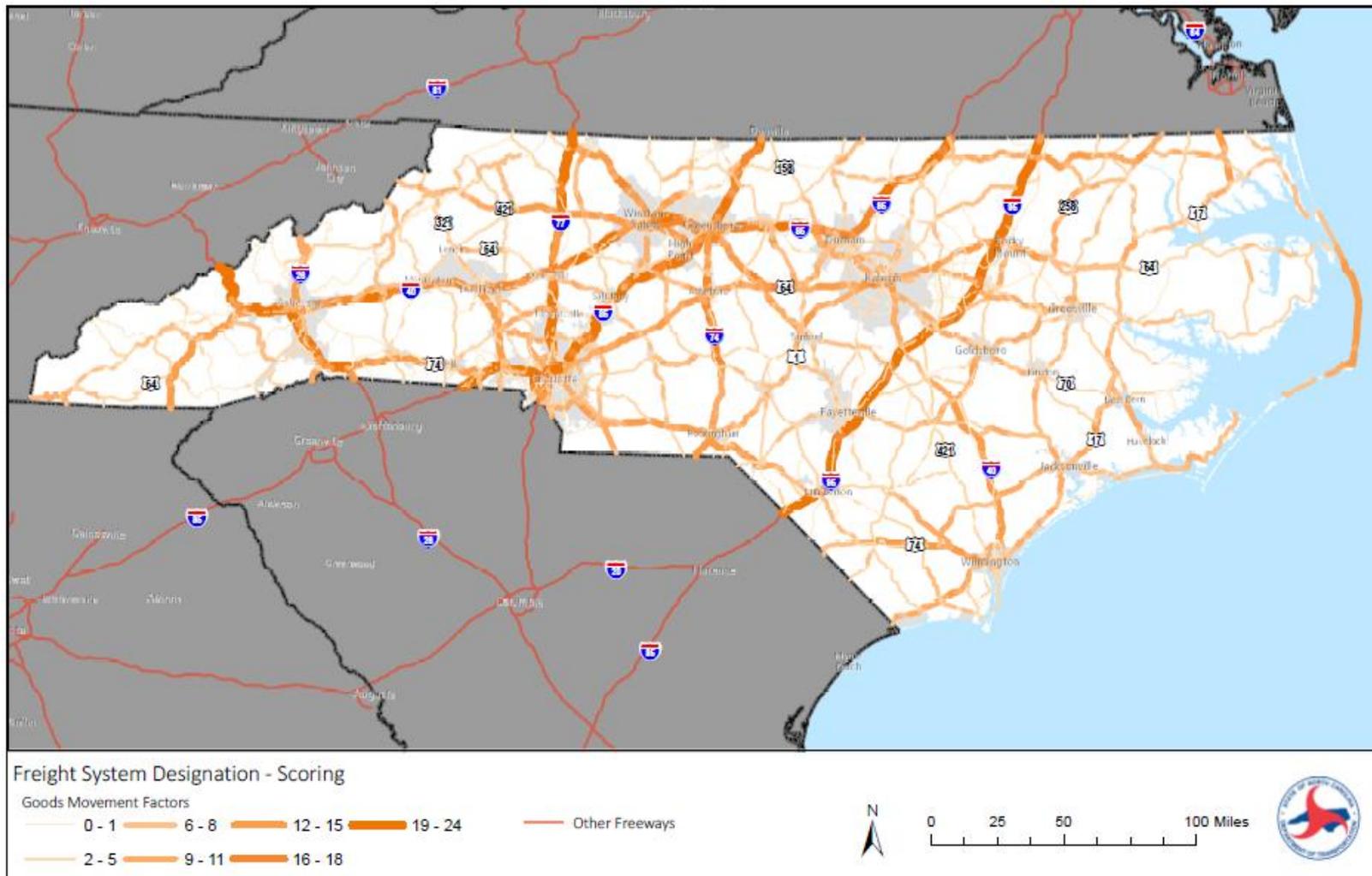
Mode	Metric	Data Source(s)	Value Range	Proposed Scoring Method	Data Usage Methodology
<b>Highway</b>	Intermodal Connectivity	Bureau of Transportation Statistics (BTS)	N/A	0 = No connection 2 = Connects Intermodal Terminal	Network segments that connect intermodal terminals (truck / rail / air / port) to Major highway defined as having functional class of Principal Arterial higher
	High-Diversity Market Gateway (HDMG) Access	Esri, HERE	N/A	0 = Outside 4 hour TTT 1 = Within 4 hour TTT 2 = Within 2 hour TTT 3 = Within 1 hour TTT	Measured using Truck Travel Times (TTT) from Marine Port Terminals. Includes Norfolk, VA and Charleston, SC.
	Market Gateway (MG) Access	Esri, HERE	N/A	0 = Outside 2 hour TTT 1 = Within 2 hour TTT 2 = Within 1 hour TTT 3 = Within Half hour TTT	Identifies road segments that facilitate access to inland port terminals (rail, airport) as measured using TTT. Includes Greer, SC

# Appendix C Scoring Results Handout

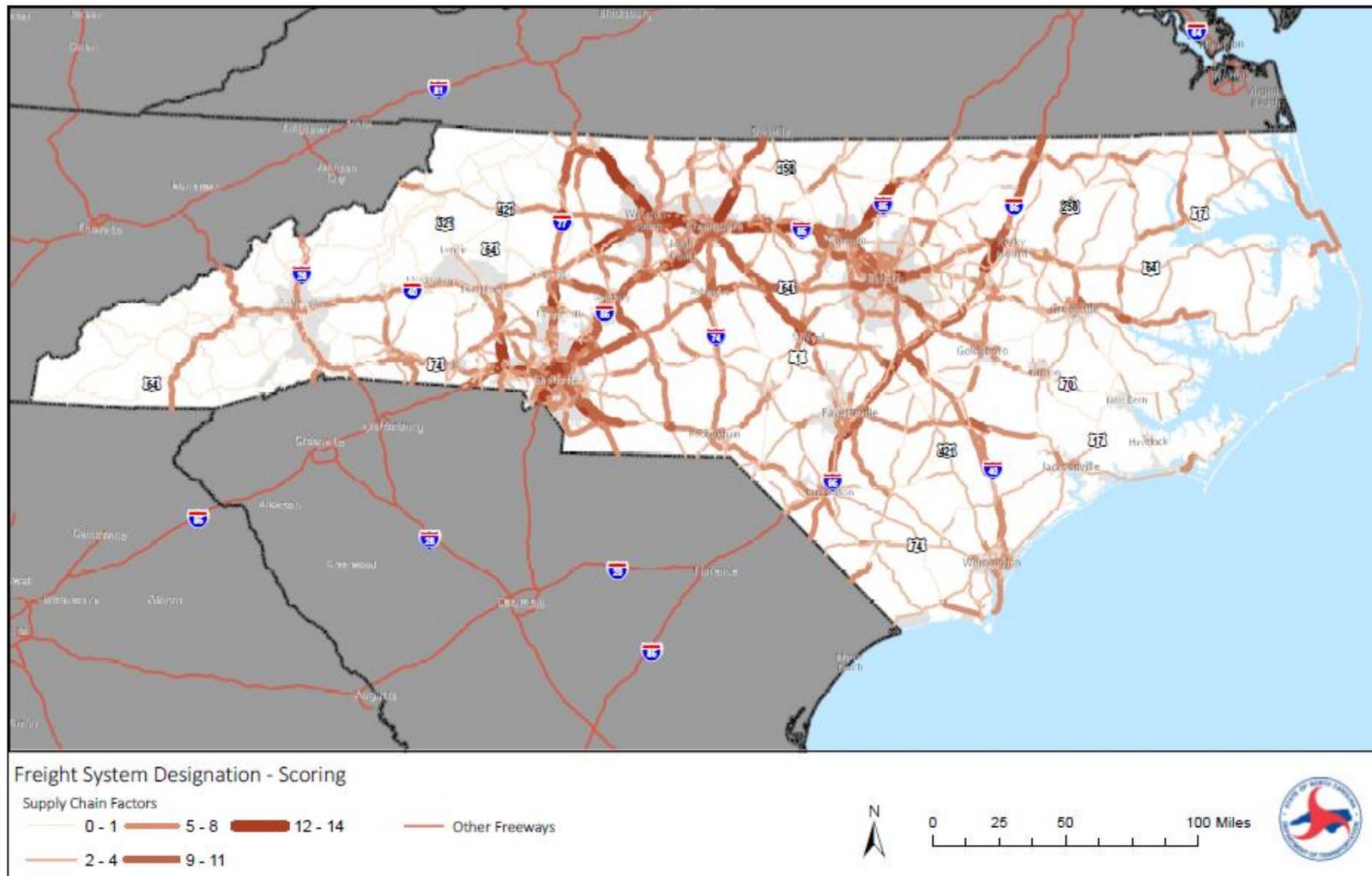
## Figure 1 General Economic Analysis Score



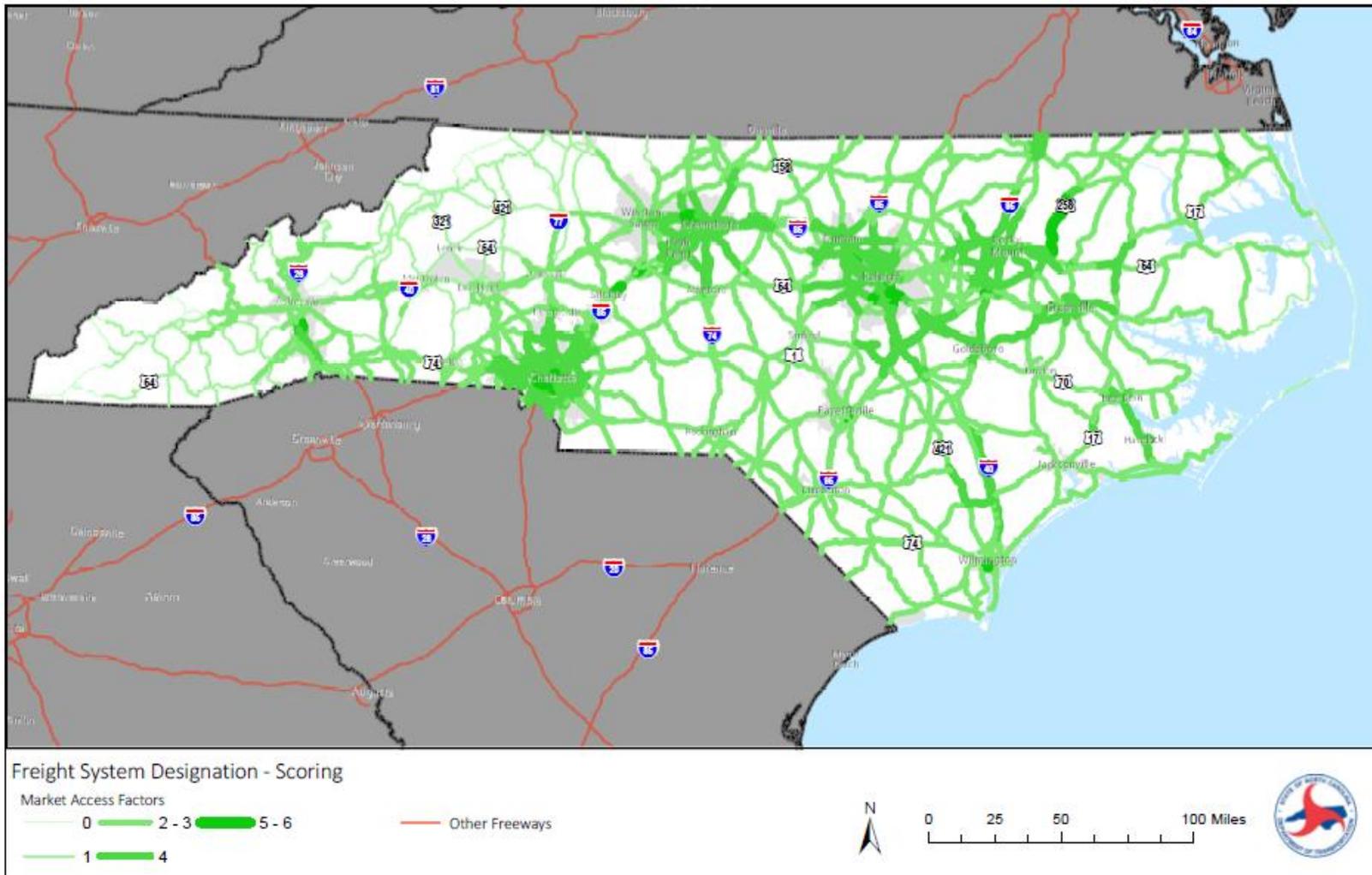
**Figure 2 Goods Movement Analysis Score**



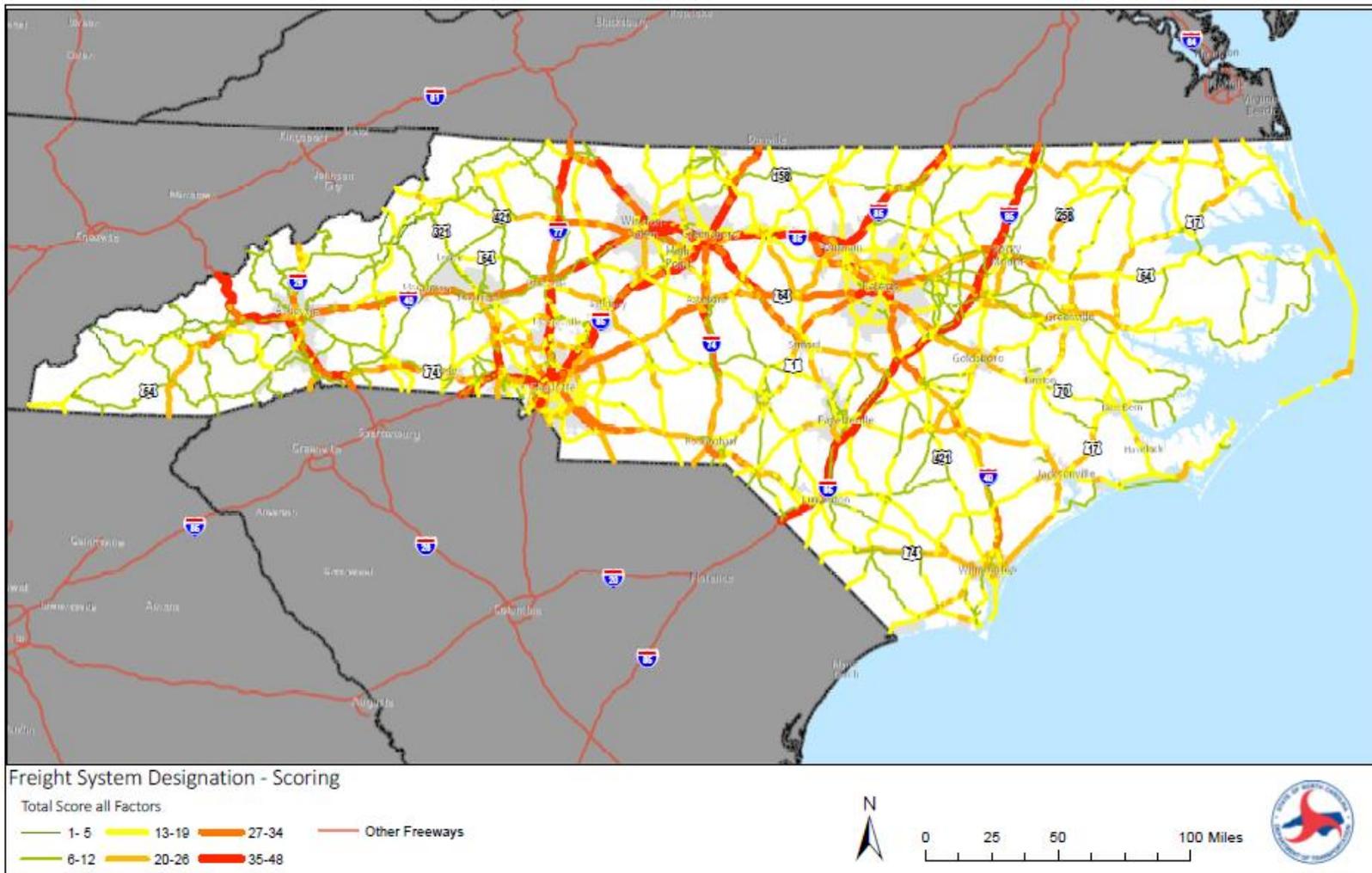
**Figure 3 Supply Chain Analysis Score**



**Figure 4 Market Access and Connectivity Analysis Score**



**Figure 5 Freight System Designation Total Score**



## Appendix D Weighting of Criteria Worksheet Handout

- Currently the analyses are equally weighted – 25% each
- Input – should some analyses/metrics be weighted more heavily?

Analysis	Proposed Weighting
General Economic	
Goods Movement	
Supply Chain	
Accessibility and Connectivity	
	100%