

GREATER CHARLOTTE REGIONAL FREIGHT MOBILITY PLAN

APPENDIX C

GOALS, OBJECTIVES AND PRIORITIZATION OF FREIGHT PROJECTS AND POLICIES

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1. INTRODUCTION

The purpose of this technical memorandum is to document the process in which performance measures for the Charlotte Regional Freight Mobility Plan can be applied into a project identification and project prioritization process for local agencies transportation planning. While CCOG is not a funding agency for major transportation improvement projects for the region, it is partnering with planning agencies across the region to develop this cohesive vision for freight mobility and alignment in freight planning direction for the Charlotte region. This document provides the guidance for local planners to implement goals, objectives, and performance measures into their own project identification, prioritization and programming process.

The FAST Act encourages the development of comprehensive freight plans to understand and improve the condition and performance of the freight network. The law provides a unique opportunity for states to identify freight projects that may qualify for an increased level of federal funding participation. South Carolina currently has a MAP-21 compliant state freight plan and North Carolina is currently developing a FAST Act compliant state freight plan, putting the Greater Charlotte Regional Freight Mobility Plan in a position to incorporate elements of one and inform the development of the other, providing the advantage of identifying a prioritized list of freight specific projects and policies. Working with CCOG staff and the Coordinating Committee, freight improvement projects, policies, and strategies have been identified. An implementation plan providing guidance on project timing, funding, policy initiatives, and regional coordination will also be developed.

This document will provide a summary of the finalized performance measures, summary of the approach to identify and classify freight needs of the region, and a recommended approach for identification and prioritization of freight related transportation projects and policies for the Charlotte Region.

1.1 PRIORITIZATION FRAMEWORK

The critical regional deliverable resulting from findings in previous tasks of the study is a prioritized list of freight infrastructure, process and policy needs for use by Greater Charlotte agencies. The list of recommendations for policies and projects (infrastructure, safety improvements, etc.) for inclusion within regional planning processes such as long range transportation plans and the NC/SC State Transportation Improvement Plans (STIP).

1.2 PRIORITIZE LIST OF REGIONAL NEEDS

This provides information about a specific set of prioritization framework to apply to regional needs to maintain and/or improve freight mobility in the region. This document is not intended to rank one recommendation over another, but rather, provide the framework for application and incorporation of regional needs into local transportation plans and more refined prioritized lists of projects.

Infrastructure projects were evaluated to determine their impact (relative to the performance measures identified) to the freight network given the current and expected future conditions. Prioritization filters that reflect the goals, infrastructure performance and condition, stakeholder feedback, population and employment data, commodities, and freight generator data were applied to the project list for future consideration by local planning partners. The filters provide a framework to identify a prioritized list of freight project for the region. Improvements are sorted by time frame, short and long.

In addition to infrastructure projects, policies are identified that assist in achieving the goals for the region. This document identifies agencies and organizations whose policies and programs impact the region's freight network and have the influence to implement programs and projects. After analyzing this information, the team identified several policy level strategies that could be employed to advance the region's multimodal freight system.

2. REGIONAL FREIGHT GOALS, OBJECTIVES AND PERFORMANCE MEASURES

Performance measures have become the cornerstone of transportation planning in the United States. While federal guidance has shifted slightly in the past years, the guiding principles behind the development and implementation of performance measures remain the same.

In the public sector, performance measures provide a means to assess how the transportation system and/or a transportation agency is functioning and operating. Performance measures help inform decision-making and create better accountability for efficient and effective program implementation. Performance measurements serve the following three functions:

- **Plan Development** – *Provide a means to quantify baseline system performance and impacts of plan options to support trade-off decisions and help communicate the anticipated impacts of different investment strategies.*
- **Plan Implementation** – *Support plan implementation by emphasizing agency goals/objectives and integrating them into budgeting, program structure, project selection, and project/program implementation policies.*
- **Accountability** – *Facilitate tracking and reporting on system performance relative to plan goals and objectives to support accountability for plan implementation and results.*

Some key considerations for the development of performance measures are most useful as they are appropriately tailored to the Greater Charlotte Region. Those considerations include the following:

- **Data Availability** – *the data and analysis tools needed for the measure should be readily available or easy to obtain. The data should be reliable, accurate, and timely.*
- **Strategic Alignment** – *the measures should align well with the goals and objectives of the MPO and RPO transportation plans, North Carolina’s Statewide Long Range Plan and freight plan, South Carolina’s Statewide Multimodal Transportation Plan and Statewide Freight Plan, and the National Freight Policy.*
- **Understandable and Explainable** – *the measures should be easy to understand and useful when communicating to external partners.*
- **Causality** – *the measures should focus on the items under the transportation planning organizations and local governments span of control.*
- **Decision-Making Value** – *the measures should provide predictive, diagnostic and reporting value to agency decision makers.*

Critical to understanding the remainder of the performance measures and prioritization framework, this summary presentation of the goals and objects provides the reader easy access to the overarching goals of the freight plan. This also serves as a presentation of performance measures supportive of each of the plan’s goals. **Table 2-1** lists the Freight Mobility Plan’s goals, objectives, and performance measures. At the request of the Coordinating Committee, the source of necessary data is included in parentheses.

Table 2-1: Freight Mobility Plan Goals, Objectives, and Performance Measures

Freight Mobility Plan Goals	Freight Mobility Plan Objectives	Proposed Performance Measures (source of data)
1. Economic Competitiveness and Efficiency	<ul style="list-style-type: none"> Develop, integrate, and support a freight transportation system that supports the region’s position as a major freight hub via a network of highways, railroads and airports Encourage regional efforts to maximize the region’s competitiveness in freight and logistics Formulate a relationship between the private and public sectors to leverage available public and private revenue resources 	<ul style="list-style-type: none"> Reduce congestion on intermodal connectors and roads leading to major energy/manufacturing centers (INRIX travel time data or AADT-based level of service)
2. Safety and Security	<ul style="list-style-type: none"> Assist regional emergency management agencies to be better prepared in the event of crashes on the freight system, and in response to hazardous material incidents Expand the use of technology to increase regional freight safety and security Reduce the number of high crash locations that involve trucks or at-grade rail crossings 	<ul style="list-style-type: none"> Hours of delay from incidents (NCDOT) Number of crashes and fatal crashes involving trucks (and rate) (NCDOT) Grade Crossing Crash/Incident Rate (NCDOT)
3. Infrastructure Preservation and Maintenance	<ul style="list-style-type: none"> Maintain regionally significant streets, highways and bridges to a state of good repair to minimize truck travel times and cargo damage 	<ul style="list-style-type: none"> Percent of structurally deficient bridges on freight network (NCDOT, NBIS) Percent of freight network meeting pavement condition targets (NCDOT) Number of weight-restricted bridges on the freight network (NCDOT, NBIS) Number of vertical restrictions on the freight network (NCDOT, NBIS)
4. Environmental Stewardship	<ul style="list-style-type: none"> Encourage land use planning that supports and promotes the efficient movement of freight Reduce the emissions resulting from freight congestion and excessive vehicle/train idling 	<ul style="list-style-type: none"> MPO and RPO Air Quality Design Values (MPO/RPO Data) Annual Hours of Excessive Delay Per Capita* 2- and 4-year Total Emission Reductions for each applicable criteria pollutant and precursor*

Freight Mobility Plan Goals	Freight Mobility Plan Objectives	Proposed Performance Measures (source of data)
5. Congestion and Reliability	<ul style="list-style-type: none"> Reduce the frequency of recurring and non-recurring congestion on the freight system 	<ul style="list-style-type: none"> Annual hours of truck delay (INRIX, NCDOT) Number of chokepoints reduced (INRIX, NCDOT)
6. Performance and Accountability	<ul style="list-style-type: none"> Decrease the costs of freight movement by reducing empty backhaul movements Improve freight system operations and information sharing to benefit regional planning and decision making through improvements in technology Increase freight knowledge and expertise by planners and elected officials throughout the region Implement a performance-based tracking process to determine how well the freight system is functioning relative to freight investments 	<ul style="list-style-type: none"> Annual hours of truck delay (INRIX, NCDOT) Number of empty backhaul movements (Source TBD)
7. Regional Coordination	<ul style="list-style-type: none"> Improve coordination among regional agencies responsible for freight transportation planning and implementation Engage private sector freight stakeholders to inform freight transportation planning and decision making 	<ul style="list-style-type: none"> Establishment of coordination policies to promote communications between regional agencies and private entities Number of multi-jurisdictional freight planning efforts and freight infrastructure improvements Number of participants in regional freight stakeholder meetings (Freight Advisory Committee, CCOG)

** Proposed performance measures in the Federal Notice of Proposed Rulemaking (NPRM) to propose national performance management measure regulations to assess the performance of the National Highway System, Freight Movement on the Interstate System, and the Congestion Mitigation and Air Quality Improvement Program, as required by the Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation Act ("FAST Act").*

3. POTENTIAL STRATEGIES

Understanding that all policy recommendations and project prioritization options must support defined goals and objectives for the Greater Charlotte Regional Freight Mobility Plan, the following strategies and ranking criteria are classified according to the most relevant plan goal. While some accomplish or support multiple goals, they are only listed once. This list is generated by transportation planners with experience in freight planning who understand potential strategies that *may* apply in the Charlotte region. These potential strategies are offered for consideration by, and in addition to those provided by, the plan's Steering Committee and other stakeholders for consideration. These strategies are neither mode nor agency specific and are incorporated, as deemed appropriate, in eventual plan recommendations.

3.1 ECONOMIC COMPETITIVENESS AND EFFICIENCY

Develop, integrate, and support a freight transportation system that supports the region's position as a major freight hub via a network of highways, railroads and airports. Encourage regional efforts to maximize the region's competitiveness in freight and logistics. Formulate a relationship between the private and public sectors to leverage available public and private revenue resources.

- Develop local transportation plans for areas adjacent to freight intermodal facilities.
- Continue to identify and close any first/last mile gaps near major intermodal centers and manufacturing hubs.
- Develop a process to leverage private and local investment to expedite transportation project delivery to be more responsive to private sector needs.
- Identify the key operating characteristics of each major modal connection hub to develop strategies to improve the public infrastructure supporting the facility.
- Working with the railroads, SCDOT and NCDOT rail offices should identify potential non-traditional funding sources for freight rail investment, such as state level grant programs or participating in additional federal grant programs.
- Prioritize intermodal connection projects, as these projects are more often the most conducive to reducing overall supply chain costs; similarly, this could reduce overall maintenance costs to the state or municipality for maintaining roads that are not built to handle heavy truck traffic.
- Incorporate valuation of economic impact into project prioritization by quantifying one or more of the following:
 - Economic Feasibility (BCA) – The effects of any freight improvements on mobility, livability, and connectivity will be evaluated. Of these, mobility is often the most easily

quantified in economic terms since it addresses the travel efficiency gains associated with user travel time; vehicle miles traveled (VMT), and accidents.

- Economic Impact – An additional economic impact analysis can then be done that builds upon the benefit perspective. The resultant personal and business transport cost savings can be assessed to ascertain the resultant job, income, and output related impacts that arise from improvements. Key to any impact analysis is to avoid, or at least identify, any transfer impacts; for example, business relocation from area to another because of an improvement (e.g., no “net” gain).
- Funding/Financial Analysis – Financial analyses usually refer to “revenue-generating” projects in which a financial analysis of a revenue stream (i.e., tolls) are compared to the project construction and operation costs over the project life (i.e., construction period plus 20 years of operation). Such financial analyses commonly referred to as “Return-on-Investment” in the private sector, can be pursued as either a privately- or publicly-funded project.

3.2 SAFETY AND SECURITY

Assist regional emergency management agencies to be better prepared in the event of crashes on the freight system, and in response to hazardous material incidents. Expand the use of technology to increase regional freight safety and security. Reduce the number of high crash locations that involve trucks or at-grade rail crossings. Need to improve response time and coordination for incident management in the region.

- Develop a freight network resiliency plan. This plan would help bring freight dependent industries back online after an emergency event and would assist with hurricane relief efforts. This plan should be developed with local or state homeland security partners.
- Create a commercial vehicle crash database. Extract commercial vehicle crash data from the statewide database to identify patterns or particular situations to address.
- Reduce risk to non-motorized transportation users. Clearly sign and mark bicycle and pedestrian facilities where the Strategic Freight Network and state/local bike routes overlap.
- Enter into a partnership with the railroads to prioritize grade crossing improvements.
- Improve efficiency in incident management response capability on the Regional Strategic Freight Network. Partner with NCDOT and local emergency responders to identify strategies to shorten impact times and delays.

3.3 INFRASTRUCTURE PRESERVATION AND MAINTENANCE

Maintain regionally significant streets, highways and bridges to a state of good repair to minimize truck travel times and cargo damage.

- Continuously monitor intermodal connectors for maintenance and operations issues.
- Explore opportunities where small public investments can be used to leverage the railroad's responsibility to maintain/improve crossings.
- Identify and prioritize substandard roadways on the Strategic Freight Network in local and state maintenance/construction programs.
- Identify and prioritize sub-standard bridges on the Strategic Freight Network to meet current and future fleet vehicle dimensional needs.
- Actively manage the condition of NHS Intermodal Connectors.
- Continue to work with state agency partners to identify opportunities to support freight movement by identifying potential efficiencies created by utilizing multiple modes or a complete mode shift.
- Particular attention must be paid to roadways that are subject to heavy vehicles (increased pavement depths, maintenance, etc.).
- Prioritize work to reinforce bridges on the Strategic Freight Network that are functionally/structurally obsolete.
- Track and analyze bridge inspection trends on the Strategic Freight Network to identify issues to alleviate future system disruptions.

3.4 ENVIRONMENTAL STEWARDSHIP

Encourage land use planning that supports and promotes the efficient movement of freight. Reduce the emissions resulting from freight congestion and excessive vehicle/train idling.

- Partner with local, state and federal agencies to expand programs that support fuel efficiency in the transportation industry.
- Partner with regional economic developers and NCDOT to explore potential for alternative fuel availability in freight corridors.
- Consider environmental impacts to proposed land use and transportation projects that are freight traffic generators.
- Consider land use clustering for zoning for freight generating land uses.

3.5 CONGESTION AND RELIABILITY

Reduce the frequency of recurring and non-recurring congestion on the freight system.

- Prioritize projects designed to improve freight mobility and eliminate freight bottlenecks.

- Identify opportunities with private sector stakeholders where operational-level decisions could be made to reduce recurring congestion (i.e. shifting delivery times, mode shift, etc.).
- Study the potential use (benefits and limitations) of time-of-day truck restrictions through major chokepoints.
- Prioritize improvements along major truck corridors.
- Ensure freight implications and benefits are included in regional project prioritization processes.

3.6 PERFORMANCE AND ACCOUNTABILITY

Decrease the costs of freight movement by reducing empty backhaul movements. Improve freight system operations and information sharing to benefit regional planning and decision making through improvements in technology. Increase freight knowledge and expertise by planners and elected officials throughout the region. Implement a performance-based tracking process to determine how well the freight system is functioning relative to freight investments.

- Identify corridors where non-traditional improvements may significantly reduce congestion (e.g. Intelligent Transportation Systems (ITS), Managed Lanes, Value Pricing, etc.).
- Continue to work with multi-state partners to make corridor-wide system decisions.
- Develop a common information technology solution/protocol to share real-time information with freight system users.
- Continuously monitor operational information to identify and rectify system issues before they become problems. Important to system improvements, but also better coordination of regulations like truck size and weight.

3.7 REGIONAL COORDINATION

Improve coordination among regional agencies responsible for freight transportation planning and implementation. Engage private sector freight stakeholders to inform freight transportation planning and decision making.

- Support the participation in regional multi-jurisdictional Freight Advisory Committee to prioritize and address freight issues as one group.
- Establish protocol for a functioning Freight Advisory Committee for the region.
- Undertake an effort to educate the public on the importance of freight to the Charlotte region, including elected officials, and the general public.
- Work with rail, marine, and air partners to create cross-functional relationships to help identify non-highway projects and key connectors on the strategic freight network.

- Work with other state agencies to ensure consistency of regulations that impact freight mobility.
- Coordinate freight plans and programs of municipalities, counties, MPOs, RPOs, COGs and state departments of transportation.

4. SUMMARY OF IDENTIFIED FREIGHT NEEDS AND ISSUES

In addition to the strategies listed above, the following freight transportation needs and issues have been identified through the development of the Charlotte Regional Freight Mobility Plan Existing Conditions Report, review of area transportation plans, input from freight stakeholders, and analysis of freight-related safety and traffic data. The needs and issues are summarized by mode. This list represents a combination of infrastructure improvement projects and policies, and are classified by mode: trucking, rail, air and general freight.

4.1 FREIGHT NEEDS EVALUATION

The needs and issues identified above, along with other needs proposed by the Coordinating Committee, Steering Committee, members of the public and the planning team, and were then categorized by policy, project or program. **Policy** needs are items that would result in a recommended policy change on the local, regional or state level and would require action by some governing body. **Projects** are infrastructure improvements that would require more specific improvement identification (widening, operational design, wayfinding, etc.). A need that is categorized as a **program** is one that suggests a planning effort and additional analysis would be required to further define the needed action. Examples of recommended programs are corridor analyses, regional coordination efforts, or other programmatic actions. Strategies from the previous section were also considered and incorporated into this list of final recommendations.

5. PRIORITIZATION OF PROJECTS AND POLICIES FRAMEWORK FOR THE CHARLOTTE REGIONAL FREIGHT MOBILITY PLAN

To combine the information presented in previous sections, this summary provides the framework for the synthesis of incorporating goals, needs, performance measures, along with a menu of potential strategies into a series of recommendations and prioritizations for regional planners to consider in ongoing and future transportation planning efforts.

5.1 CATEGORIES OF FREIGHT PROJECT RELEVANCE

There are three categories to define a project’s freight relevance.

- Freight focused –Addresses a specific freight transportation need.
- Freight related –Addresses multiple transportation concerns, of which freight is one element.
- Freight impacted –Addresses general transportation needs; however, freight mobility may be positively affected.

5.2 PROJECT PRIORITIZATION FRAMEWORK

5.2.1 GOAL 1: ECONOMIC COMPETITIVENESS AND EFFICIENCY

Project Prioritization	Criteria		Factors	
<ul style="list-style-type: none"> • Is on the Strategic Freight Network • Improves access to/from existing or developing freight hubs • Preserves freight reliant jobs • Improves freight network access • Improves access to freight generators • Improves access among two or more modes • Supports retention or expansion of business • Supports or expands freight related land use 		Freight Impacted		Does not improve
		Freight Related		Somewhat improves
		Freight Focused		Improves
				Significantly improves
				Greatly improves

5.2.2 GOAL 2: SAFETY AND SECURITY

Project Prioritization	Criteria		Factors	
<ul style="list-style-type: none"> Reduces number of weight restricted bridges Improves geometric conditions Improves high truck crash locations Improves at-grade crossings Improves truck parking availability Improves safety/security at facilities (parking, intermodal, etc.) Improves freight incident response times Educates the public about freight system safety and security issues 		Freight Impacted		Does not improve
		Freight Related		Somewhat improves
		Freight Focused		Improves
				Significantly improves
				Greatly improves

5.2.3 GOAL 3: INFRASTRUCTURE PRESERVATION & MAINTENANCE

Project Prioritization	Criteria		Factors	
<ul style="list-style-type: none"> Improves or maintains existing pavement to a state of good repair Improves structurally deficient bridges Improves rail lines to increase allowable speeds Maintains air cargo facilities 		Freight Impacted		Does not improve
		Freight Related		Somewhat improves
		Freight Focused		Improves
				Significantly improves
				Greatly improves

5.2.4 GOAL 4: ENVIRONMENTAL STEWARDSHIP

Project Prioritization	Criteria		Factors	
<ul style="list-style-type: none"> Reduces air emissions Reduces impact to wetlands and water quality Reduces energy consumption Reduces other adverse residential and community impacts Separates freight operations from community activities 		Freight Impacted		Does not improve
		Freight Related		Somewhat reduces
		Freight Focused		Reduces
				Significantly reduces
				Greatly reduces

5.2.5 GOAL 5: CONGESTION & RELIABILITY

Project Prioritization	Criteria		Factors	
<ul style="list-style-type: none"> Improves bridges with vertical clearance issues or weight restrictions Addresses freight bottlenecks Improves multimodal connections Improves system capacity and/or freight operations Establishes or improves access to intermodal, transload, and/or air cargo facilities Improves rail/truck at-grade crossing delays Improves air cargo facilities for increased throughput 		Freight Impacted		Does not improve
		Freight Related		Somewhat improves
		Freight Focused		Improves
				Significantly improves
				Greatly improves

5.2.6 GOAL 6: PERFORMANCE & ACCOUNTABILITY

Project Prioritization	Criteria		Factors	
<ul style="list-style-type: none"> Uses ITS technology to improve freight system operations and information sharing Assists in reducing the cost of freight movement 		Freight Impacted		Does not assist
		Freight Related		Somewhat assists
		Freight Focused		Assists
				Significantly assists
				Greatly assists

5.2.7 GOAL 7: REGIONAL COORDINATION

Project Prioritization	Criteria		Factors	
<ul style="list-style-type: none"> Improve coordination among regional agencies responsible for freight transportation planning and implementation Engage private sector freight stakeholders to inform freight transportation planning and decision making 		Freight Impacted		Does not assist
		Freight Related		Somewhat assists
		Freight Focused		Assists
				Significantly assists
				Greatly assists

6. PRIORITIZATION OF REGIONAL FREIGHT NEEDS

Upon finalization of the freight related needs evaluation criteria, the infrastructure improvements and prioritization criteria were evaluated to provide the regional summarization of freight related improvements. This was conducted based on both professional judgements of the planning team as well as the input from the Steering Committee.

The results of the needs and opportunities identification and prioritization effort are summarized in Section 9 of the Greater Charlotte Regional Freight Mobility Plan for general freight, trucking and rail respectively. The tables identify the source of the recommendation, provide the recommendation as written, and use the graphical pie charts to show the level to which the recommendation is related to the freight criteria and implements the freight factors discussed previously. It is important to reiterate that this Freight Plan should guide other local and state planning efforts in the identification of needs and prioritization as they relate to freight mobility. It is not suggested that this supersede locally established or state mandated prioritization processes.

