

APPALACHIAN REGIONAL FREIGHT MOBILITY PLAN

FINAL PLAN – DRAFT FOR REVIEW



Prepared for:

APPALACHIAN COUNCIL OF GOVERNMENTS

Prepared by:



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Appendix E Freight and Economics TM

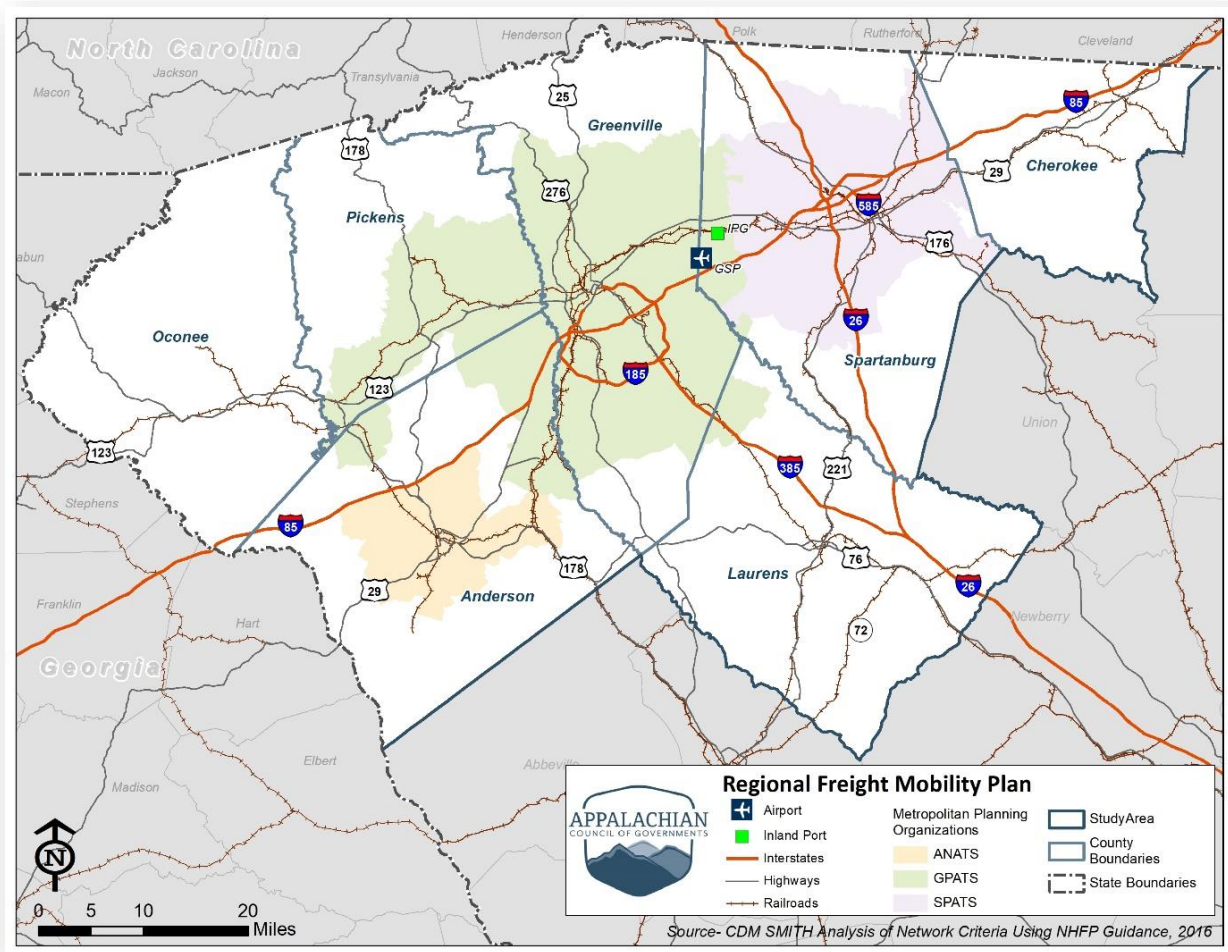
Appendix F Briefing Decks

I. Introduction



The Appalachian Council of Governments' (ACOG) Regional Freight Mobility Plan (Freight Plan) focuses on providing multimodal freight transportation strategies for the Appalachian Region of South Carolina (**Figure I-1**). Millions of tons and billions of dollars in freight traverse ACOG's multimodal freight transportation network every year. The purpose of the Freight Plan is to serve as a strategic planning tool for the ACOG. The need for a comprehensive strategy to address goods movement in the region results from significant growth in both population and industry that has put pressure on existing infrastructure.

Figure I-1: The ACOG's Regional Freight Mobility Plan Study Area



Together, this multimodal freight transportation network generates just over half of the ACOG's economy, based on the averaged direct, indirect, and induced impacts of the freight industry on the region's sales output, gross regional product, income, and jobs created (**Figure I-2**).

Figure I-2: Economic Impacts of the ACOG's Freight



Accommodated
364,200 jobs



Produced **\$34.5 billion** in
gross regional product (GRP)



Earned **\$19.4 billion**
in income

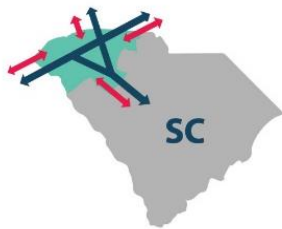


Sold **\$88.2 billion** worth of
goods and services

This means that freight contributes 60 percent of the region's economic output, 51 percent of the gross regional product, 48 percent of the region's income, and 46 percent of the region's jobs. All sectors of the region's economy depend on freight to deliver goods and services, either directly or indirectly.

Considering that the region comprises nearly one-third of the state's economy (29 percent), it is clear that the region's freight movement plays a pivotal role in both the regional and South Carolina economies. Not only that, but the region's infrastructure helps facilitate interstate freight movement. The majority of freight moving along the region's multimodal network is through-freight, meaning it both originates and terminates outside of the ACOG (**Figure I-3**). The through-freight moving on the ACOG's infrastructure mainly represents interstate trade, predominantly with Georgia, North Carolina, and Florida. Ensuring that the region's freight infrastructure can continue to accommodate the safe, efficient movement of freight now and into the future is critical for the local, state, and national economies.

Figure I-3: The ACOG's Freight by Movement Type



59% Moved through the region

41% Originated and/or
Terminated in the region

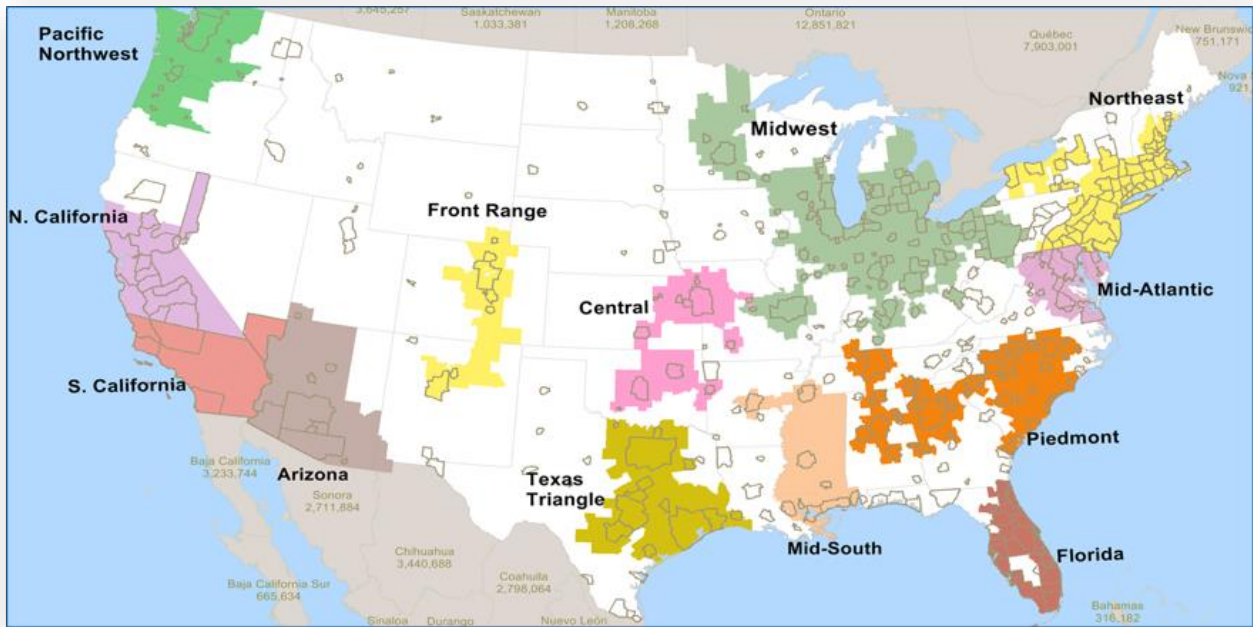
Regional Freight Mobility Planning Objectives

The Freight Plan is an integrated planning effort between the ACOG and the three metropolitan planning organizations (MPOs) in the region: the Anderson Area



Transportation Study (ANATS), Greenville-Pickens Area Transportation Study (GPATS), and Spartanburg Area Transportation Study (SPATS). The region includes the six member counties of the ACOG plus Laurens County. Laurens County was included in the freight plan because I-385 emerged as a future freight-related economic growth corridor. In addition, the ACOG worked in close partnership with the South Carolina Department of Transportation (SCDOT), the Federal Highway Administration (FHWA), and other local stakeholders. It was also conducted in close coordination with the Berkeley, Charleston, Dorchester Council of Governments (BCDCOG), which is connected to the ACOG via the interstate highway I-26 and is part of the same megaregion (Piedmont). Megaregional coordination recognizes that transportation planning must go beyond traditional planning boundaries to understand the patterns of goods movement and the movement of people to access jobs related to freight (**Figure I-4**). The Freight Plan enhances and expands on relevant plans in the region, which were used to develop the goals and objectives of this plan.

Figure I-4: U.S. Megaregions



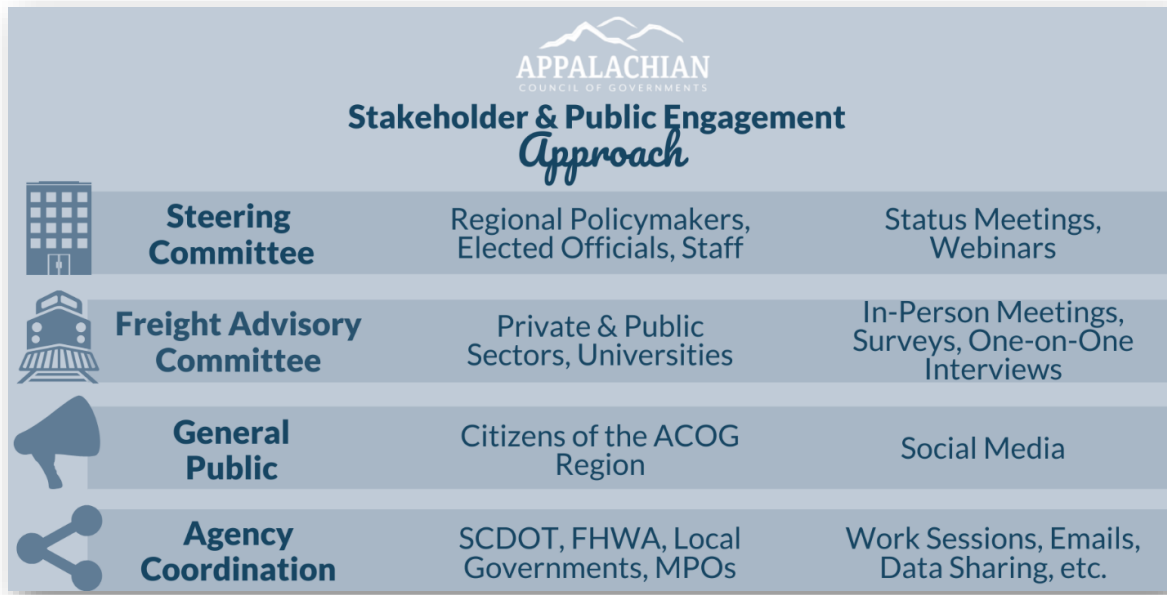
Source: FHWA

Population growth, congestion issues, land use challenges, logistics issues, and the COVID-19 pandemic have all had significant impacts on freight movement, resulting in increased delivery times and transportation costs. Given the economic importance of freight to both the region and the state, it is important to address the capacity, safety, and technology needs of the region’s transportation system. The Freight Plan develops programs and policies to integrate freight into land use and transportation planning in an equitable way that supports quality of life.

Agency Coordination and Public Engagement Process

The original intent of the agency coordination and public engagement program for this Plan was to focus on the needs of stakeholders and regional alignment in goal setting and plan implementation strategies that benefit the region in its entirety. In March 2020, however, the original approach to this engagement effort was disrupted by the COVID-19 pandemic. With school and government office closures, the engagement approach was revised to meet the intent of the engagement program while following public health protocols and keeping the plan development on schedule under these unusual circumstances. The overall stakeholder and public engagement approach is outlined in **Figure I-5**.

Figure I-5: Stakeholder and Public Engagement Approach



Committee meetings were held virtually using Adobe Connect throughout the duration of the project because of COVID-19 public health concerns and social distancing needs (**Figure I-6**). In-person meetings and activities were not scheduled, following the guidance from the Centers for Disease Control and Prevention and South Carolina Department of Health and Environmental Control to ensure the safety of the committee members and project team. All meetings were recorded and published to the ACOG Regional Freight Mobility Plan webpage following the meeting.

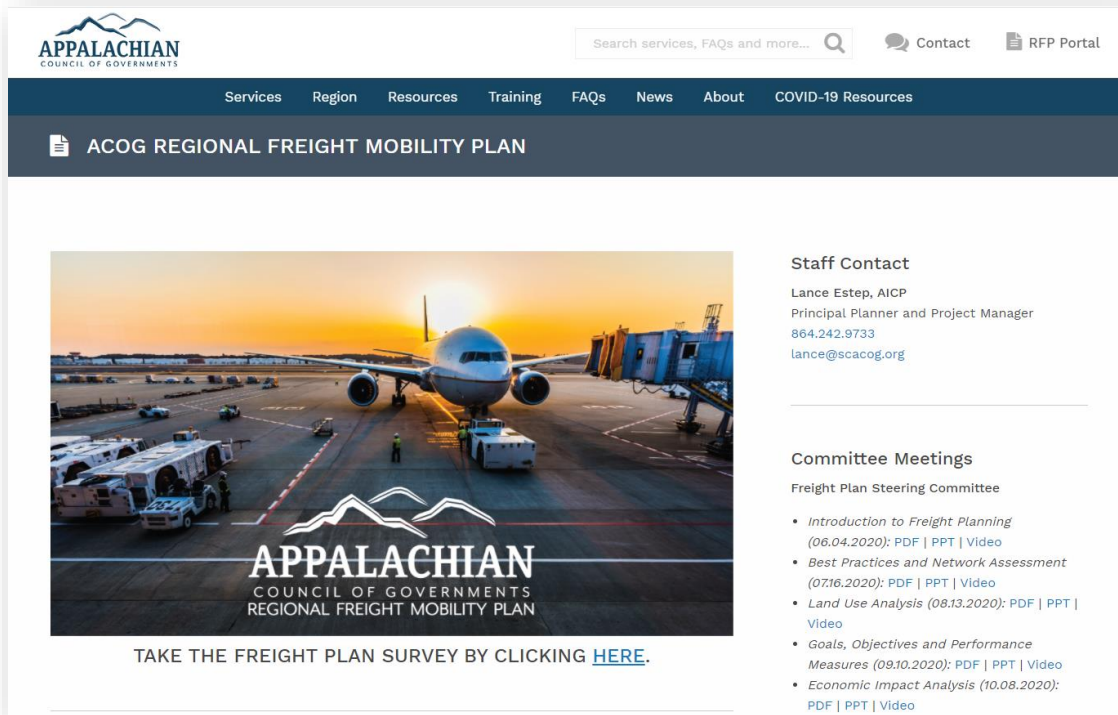
Figure I-6: Screen Capture of Adobe Connect Meeting



While industry and agency stakeholders were the primary outreach targets for the Plan, the ACOG recognized the importance of being transparent with the public about its planning processes and the study’s findings. Therefore, the ACOG used a regularly updated project webpage and a strategic social media campaign to communicate this information to the public.

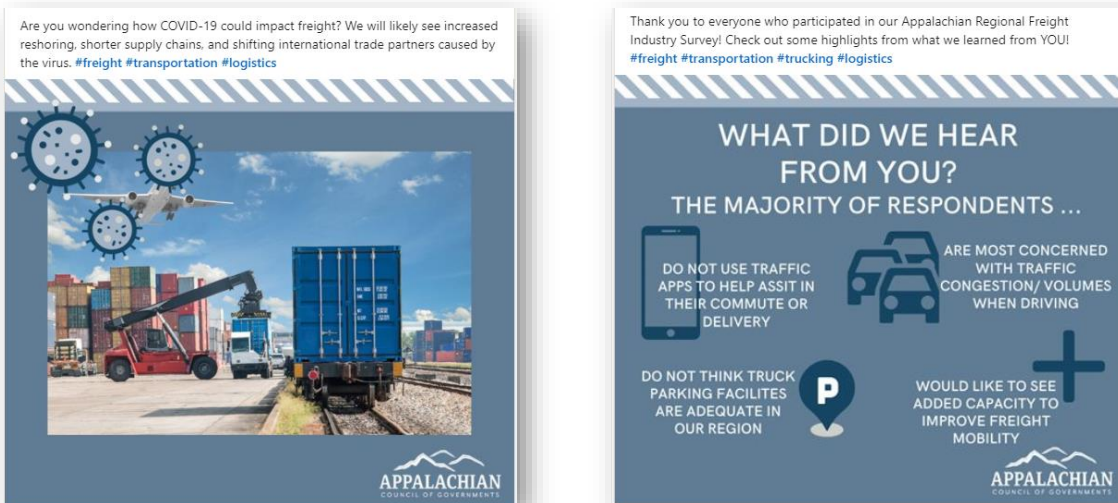
Presentation materials and other documents were posted regularly on the ACOG Regional Freight Mobility Plan webpage accessible to the public, www.scacog.org/acog-freight-plan (Figure I-7). The website also includes an FAQ section, a link to the public survey, contact information, and all meeting materials and recordings.

Figure I-7: Webpage for the ACOG Regional Freight Mobility Plan



Social media posts with suggested text, graphics, and hashtags were developed monthly for the ACOG, which included a series of educational components and highlights from the monthly steering committee meetings (Figure I-8). These posts were provided to the ACOG to be published through the already-established ACOG social media channels. Project Manager, Lance Estep, also published posts directly to his LinkedIn profile for further engagement.

Figure I-8: Graphic Examples of Social Media Campaign



The Steering Committee is responsible for the policy-level elements of the Freight Plan. Members of the Steering Committee are listed in **Table I-1**. The Steering Committee met monthly during the development of the Freight Plan to discuss different plan elements, including the development of the plan's goals, objectives, and performance measures; the network assessment; the land use analysis, the economic impact analysis; and the draft plan recommendations.

Table I-1: Agency Partners and Technical Steering Committee

Agency	Representative
Anderson County Economic Development	Burriss Nelson
Cherokee County Development Board	Jim Cook, Ken Moon
Greenville Area Development Corporation	Mark Ferris
Laurens County Development Corporation	Jonathan Coleman
Oconee Economic Alliance	Annie Caggiano
Alliance Pickens	Jeromy Arnett
Spartanburg Economic Futures Group	Kyle Sox
Cherokee County	Steve Bratton
Greenville County	Kurt Walters
Laurens County	Jon Caime
Oconee County	Adam Chapman
Pickens County	Chris Brink
Spartanburg County	Billy Martin
SCDOT - Intermodal	Diane Lackey
SCDOT - Planning	Christina Lewis
SCDOT - Production	Jim Walden
FHWA Community Planning	Mark Pleasant
Ten at the Top - Upstate Mobility Alliance	Michael Hildebrand
Greenville-Spartanburg International Airport	Mike Forman
South Carolina Ports Authority	Barbara Melvin, Steve Kemp, Hampton Lee
City of Gaffney	James Taylor
City of Greenville	Valerie Holmes, Allen Reid
City of Greer	Ashley Kaade
City of Spartanburg	Chris Story
City of Woodruff	Lee Bailey
GPATS MPO	Keith Brockington
SPATS MPO	Lisa Bollinger
ANATS MPO and City of Anderson	Mike Gay
Upper Savannah Council of Governments	Rick Green
ACOG	Lance Estep

In addition to the Steering Committee, a Freight Advisory Committee (FAC) was formed and composed of members of the private sector, including firms related to trucking, shipping, rail, and aviation as well as economic development partners such as research universities, South Carolina Logistics Council, the South Carolina Ports Authority, county economic development organizations, and the South Carolina Department of Commerce. Members of the FAC are listed in **Table I-2**. The purpose of the FAC is to participate in freight planning activities on an ongoing basis and provide the region with a more detailed

understanding of freight issues that the ACOG and private industry will face in the coming years. The FAC met virtually two times around key plan development milestones.

Table I-2: Freight Advisory Committee

Agency	Representative
BMW Manufacturing	Alfred Haas
South Carolina Ports Authority	Hampton Lee, Mike Hoffman
Carolina Piedmont Shortline Railroad	Billy Tucker
C.H. Robinson	Brandon Huell
Norfolk Southern	Brian Gwin
Michelin	Leesa Owens
G&P Trucking	Clifton Parker
Maritime Association of South Carolina	Heather Holmquest
Continental Tires	Corey Mabry
SCDOT	Doug Frate, Diane Lackey, David Gray
Sunland Logistics	Elijah Ray
NAI Earle Furman	Hal Johnson
Clemson University, International Center for Automotive Research	Jack Ellenberg
CSX Railroad	John Dillard
University of South Carolina, Operations and Supply Chain Center at the Darla Moore School of Business	Linda Oldham
South Carolina Trucking Association	Rick Todd
Greenville-Spartanburg International Airport	Scott Carr
South Carolina Council on Competitiveness	Taylor Jackson

Input was received from both committees in a variety of ways throughout the meetings. Open discussion, virtual polling, and interactive exercises were used to gather feedback. Detailed notes on the questions and conversation were taken during the meetings. A summary of each meeting engagement can be found in **Appendix A**.

Additionally, one-on-one interviews were conducted with individual members of the FAC and others in the region to identify freight issues that are not captured through the data analysis and to provide more detail on those that are. The companies interviewed for the Freight Plan represent two significant industry sectors in the region: multimodal transportation and freight and automotive. As a result of these interviews, common themes related to freight movement concerns were identified. Common themes identified from the stakeholder interviews included traffic challenges and opportunities, COVID-19 impacts, multimodal transportation, land use challenges, and truck and logistics issues. All these considerations were used to develop the final plan recommendations.

Organization of the ACOG Regional Freight Mobility Plan

The intent of this document is to provide an overview of the Freight Plan development process, high-level summaries of the existing conditions for the freight mobility system in the region, and recommendations for maintaining and improving that system to support freight mobility in the Appalachian Region for the next several decades.

The plan is organized into the following chapters:

1. **Introduction** – Introduces the ACOG Regional Freight Mobility Plan, providing the objectives of this plan and the agency coordination and public engagement process used to develop the final plan.
2. **Freight Planning Context** – Provides the ACOG regional population, employment, and economic context as well as an overview of freight movement by mode.
3. **Goals, Objectives, and Performance Measures** – Describes how the goals, objectives, and performance measures were developed and how they align with federal, state, and regional plans and policies.
4. **Identification and Existing Conditions of Appalachian Freight Assets** – Identifies the existing freight assets by mode (e.g., highway, rail, air, port) and the current conditions of these assets.
5. **Forecasting Mobility Needs on the Appalachian Freight Network** – Forecasts the future levels of demand for the identified freight assets.
6. **Project Recommendations** – Identifies transportation projects that would improve the efficiency and effectiveness of certain locations on the freight transportation network and outlines the process through which these recommendations were developed.
7. **Project Prioritization** – Outlines the framework used to prioritize the recommendations, which includes a list of prioritization criteria questions for each freight plan goal area. Provides the prioritized projects.
8. **Policy and Programmatic Recommendations** – Details the six programmatic and 17 policy recommendations identified during the development of this regional freight plan.
9. **How to Use This Freight Plan** – Provides a guide for agencies at all levels of government as well as the private sector on how to implement this plan.

Throughout the development of this freight mobility plan, a series of meetings were held to present initial findings and greater detail on the analyses conducted. This additional information is available as a series of briefing decks, which can be found in **Appendix F – Briefing Decks**. Technical memoranda were also produced to provide a greater level of detail into the analyses conducted. These are provided as appendices to this plan document. This goal of this organization is to provide a succinct summary of this plan and its recommendations to provide a productive, efficient planning tool to incorporate freight mobility policies, programs, and projects into the overall planning program in the Appalachian Region, and to maintain separate analytical documentation for additional reference.

II. Freight Planning Context



Population, Employment, and Economic Context

The Freight Plan study area covers the six member counties of the ACOG (Anderson, Cherokee, Greenville, Oconee, Pickens, and Spartanburg) plus Laurens County. Together, the study area covers the entire northwest corner of the state of South Carolina and includes the sixth, twelfth, and sixteenth most populous cities in the state (Greenville, Spartanburg, and Anderson, respectively). Given that population growth results in an increased demand for freight and the major role freight plays in the local economy, understanding the regional population and employment context helps identify where freight needs exist or will exist in the future.

Population Growth

In 2015, 1.29 million people resided in the ACOG region, with more than a third of the population residing in Greenville County. Spartanburg County was the next most populous county in the region, with about a quarter of the population and economic activity, followed by Anderson, Pickens, Oconee, Laurens, and Cherokee Counties. As seen in **Figure II-2** on the next page, population density largely falls along the I-85 corridor and I-385 heading south.

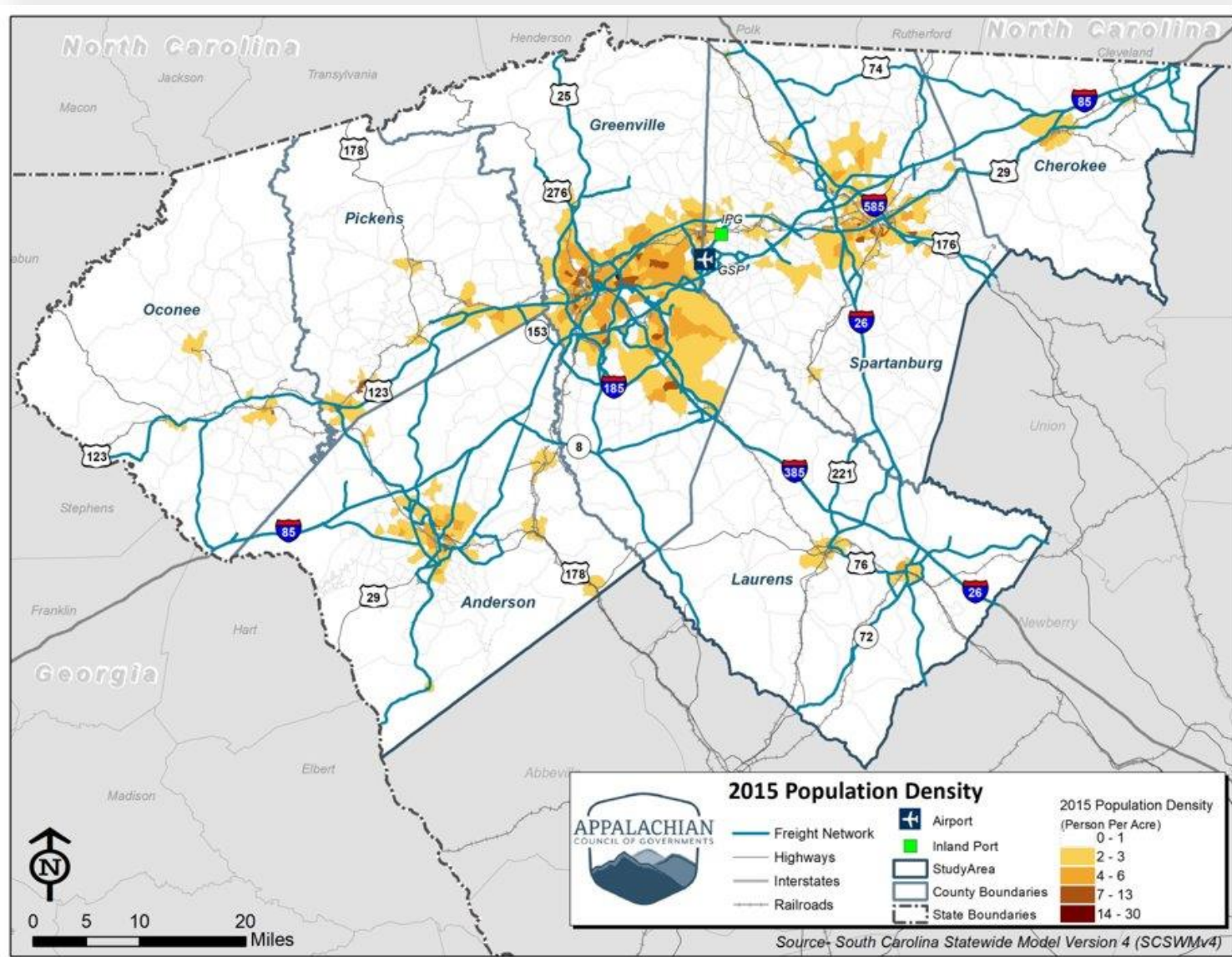
Employment Trends

In 2018, over 790,000 people were employed in the ACOG region, earning \$40.7 billion in the production of \$67.8 billion in gross regional product. The ACOG represented more than a quarter of South Carolina's population and economic activity, and almost a third of the state's sales output (**Figure II-1**). Within the ACOG, almost half of the employment and production value occurred in Greenville County, followed by Spartanburg County with about a quarter of the economic activity.

Figure II-1: Impact on the South Carolina Economy

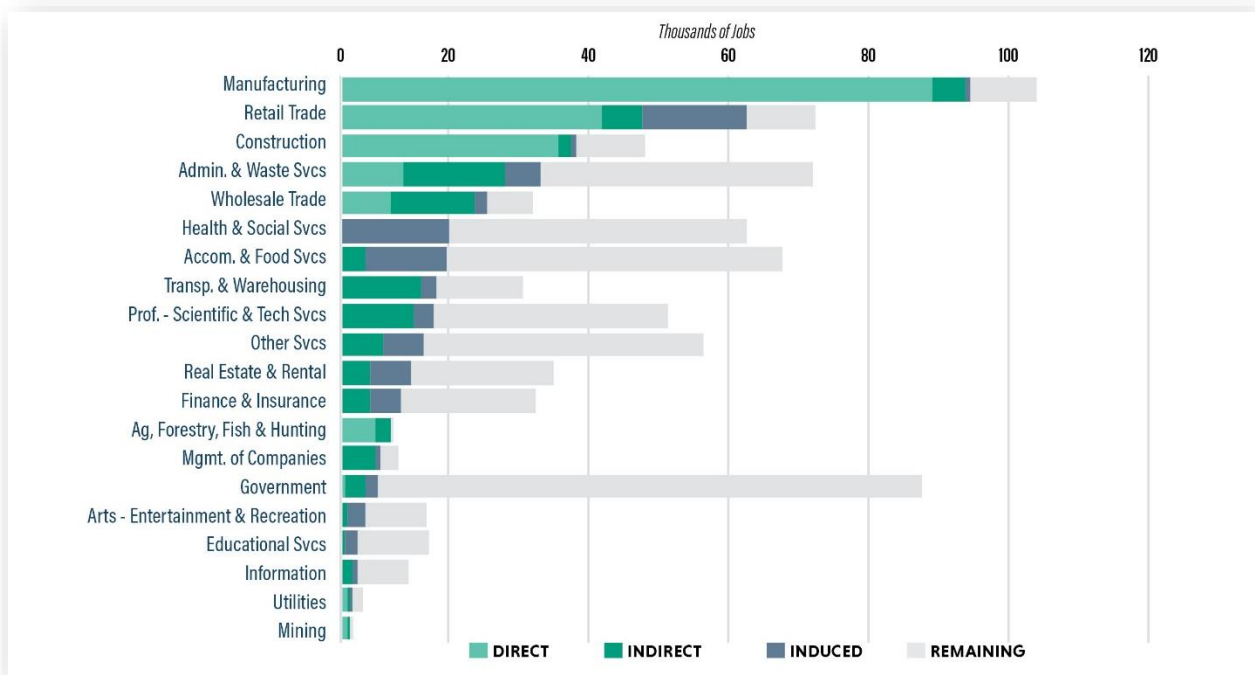


Figure II-2: The ACOG Region's 2015 Population Density



Economic analysis of the region shows that goods-related industries employ about a third of the region, while the services sector employs almost two-thirds of the region. Within the goods sector, the ACOG's industry employment is relatively concentrated in manufacturing and wholesale trade, and within the services sector it is relatively concentrated in management, administrative/waste, and education for services-related industries. Manufacturing is especially concentrated in Cherokee, Laurens, and Spartanburg counties. Comparatively, Greenville manufacturing is on par with the state given the relatively higher concentrations of services-related jobs (e.g., information, management, education), which offset manufacturing jobs as a concentrated proportion. The manufacturing sector alone is responsible for over 100,000 jobs in the region (nearly a third of the total jobs created by the freight industry), as shown in **Figure II-3**.

Figure II-3: The ACOG's Freight Employment Impacts by Industry, 2018



Source: TRANSEARCH and IMPLAN, 2018

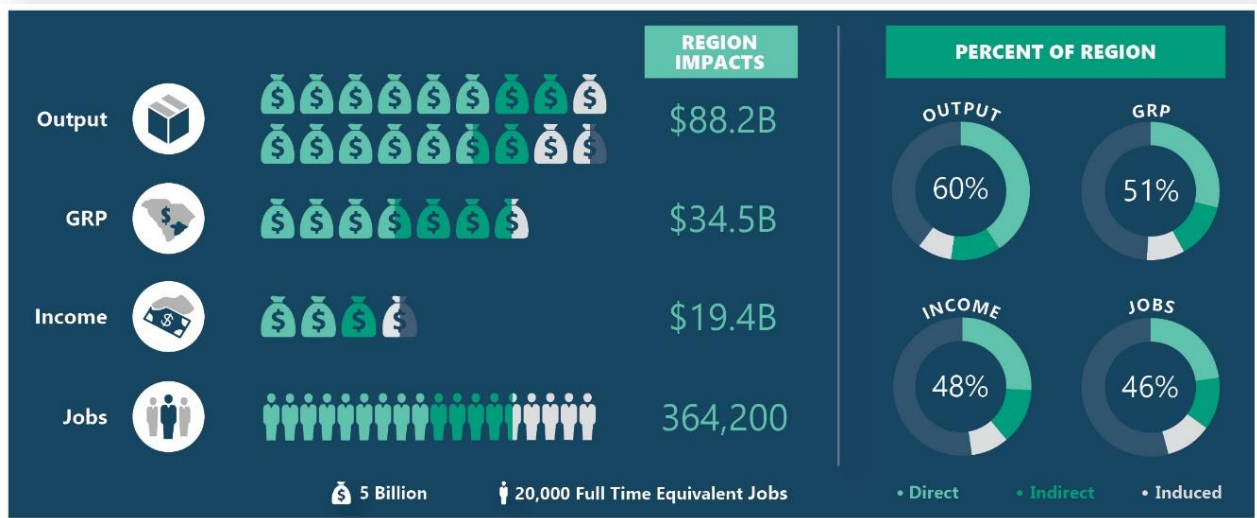
Economic Context

The ACOG region is an economic powerhouse for the state, producing almost a third of the state's total sales output (31.1 percent) while only having just over a quarter of the population (26.7 percent) and 28.1 percent of the region's employment. This is primarily due to the presence of freight industries in the region. Approximately 51.8 percent of the statewide economic impact associated with the South Carolina State Ports Authority (SCSPA) is concentrated within the Upstate Region of South Carolina. This is largely because the primary users of SCSPA port facilities are manufacturers, which are also disproportionately concentrated within the Upstate Region. As mentioned previously, the most concentrated industry in the region is manufacturing, which accounts for 13.4 percent of total regional employment. This is due to the presence of many large manufacturing companies in the Upstate region of South Carolina, such as BMW,

Michelin, Fuji, GE Power, and others. Freight is directly responsible for 90 percent of the employment in the manufacturing industry.

To quantify how freight has impacted the regional economy as well as how the regional economy impacts the state economy, regional freight data (TRANSEARCH) were compared with economic data (IMPLAN). The total freight-related impacts are estimated at 364,249 jobs, earning \$19.4 billion in income, producing \$34.5 billion in gross regional product, and sales of \$88.2 billion. In total, such employment, income, value added, and final sales represent 46, 48, 51, and 60 percent of the regional economy, respectively (**Figure II-4**). For more details about the economic analysis, refer to the Freight and Economics Technical Memorandum (**Appendix E**).

Figure II-4: Economic Impacts of the ACOG's Freight Movement



Freight demand is directly related to the amount of economic activity in a region and businesses and customers depend on all modes to connect them to markets and grow the regional economy. Ensuring that freight-generating development has access to the region's existing freight infrastructure is critical for the region's future economic vitality.

Freight by Mode

Nearly 140 million tons and over \$255 billion worth of freight moved on the ACOG's roads and railroads in 2016. By 2040, the freight tonnage traversing the ACOG's roads is expected to increase by 49 percent while rail freight tonnage is expected to increase by 69 percent during this same period. Identifying what kind of freight is moving through the region and what modes this freight depends on is important for planning for future freight growth. This section identifies the regional commodity flows by mode that make up the freight moving into, out of, and through the region.

To identify regional commodity flows and forecast future flows, this study analyzed data from the major multimodal freight database: the IHS Markit TRANSEARCH. The TRANSEARCH database was the main data source for the analysis and forecasting because it is the most comprehensive database for truck and rail surface modes (which are the most used modes in the region). TRANSEARCH freight data was

supplemented with the Surface Transportation Board Waybill Sample rail data to quantify the freight flows and dimensions. Freight is typically measured by weight (e.g., tons) and/or monetary value and freight movements categorized as through, outbound, inbound, or intraregional.

Truck and rail are the major modes for all freight movement in the ACOG region, with most freight tonnage in the Upstate region moving by truck (75 percent). Most truck freight traverses as through traffic (50 percent of freight tonnage), which is typical of regions situated on a major interstate. For inbound/outbound freight, there is slightly more outbound truck movement than inbound, meaning the region is a net producer of truck borne freight. Truck freight moves primarily along I-85, connecting to interstate trade, and to a lesser extent on I-26, connecting the region to the rest of South Carolina.



75%
Truck



25%
Rail

The remaining 25 percent of freight tonnage moving through the region moves by rail. Rail freight in the ACOG region mostly serves long distance interstate trade not pertaining to South Carolina, with 85 percent of rail freight tonnage classified as through-freight. Rail freight tonnage is projected to grow at a higher rate than truck freight (69 percent versus truck freight's 49 percent growth) by 2040. This is likely because of the opening of Inland Port Greer. Since Inland Port Greer opened in 2013, the ACOG has received direct rail transfers from Port of Charleston, South Carolina. Despite the Greenville-Spartanburg International Airport's new cargo facility, compared to truck and rail freight, freight tonnage through airports and/or other foreign trade zones comprise less than 1 percent of total tonnage.

In total, only 41 percent of all freight tonnage moving within the ACOG region originates or terminates there, regardless of mode. The breakdown of through-freight versus inbound/outbound freight by mode is shown in **Figure II-5**.

What kind of commodities make up this inbound/outbound freight? By tonnage, bulk commodities dominated tonnage movements, especially nonmetallic minerals (making up 30 percent of the total by tonnage), petrol/coal, stone, waste, and farm products (**Figure II-6**). Such traffic reflects low value per ton (\$330/ton). Secondary traffic reflects warehouse repositioning, especially with Inland Port Greer movements. By value, the leading commodities are transportation equipment (26 percent of the total by value), machinery, and electrical equipment—all with high values per ton (\$11,200/ton). Despite only making up 41 percent of freight tonnage, the inbound/outbound freight represents 46 to 60 percent of the region's economy, demonstrating the value that the freight sector plays in the regional, state, and national economy.

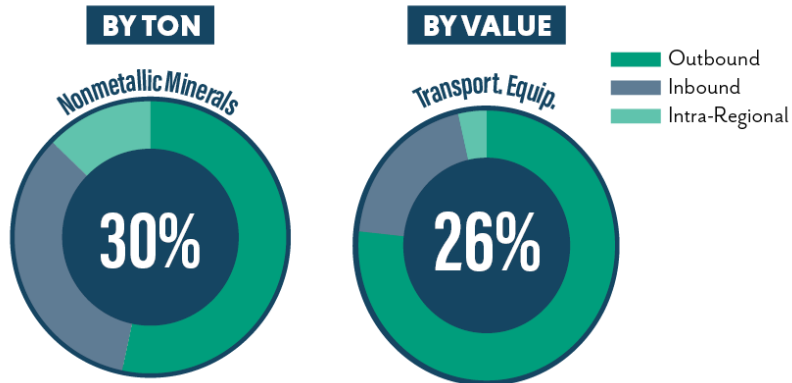
Figure II-5: Freight Movement by Mode



Note: Freight originating or terminating in the ACOG region is highlighted in red.

Figure II-6: Top Commodities by Tonnage and Value, 2015

Top Commodities Originated/Terminated in Region

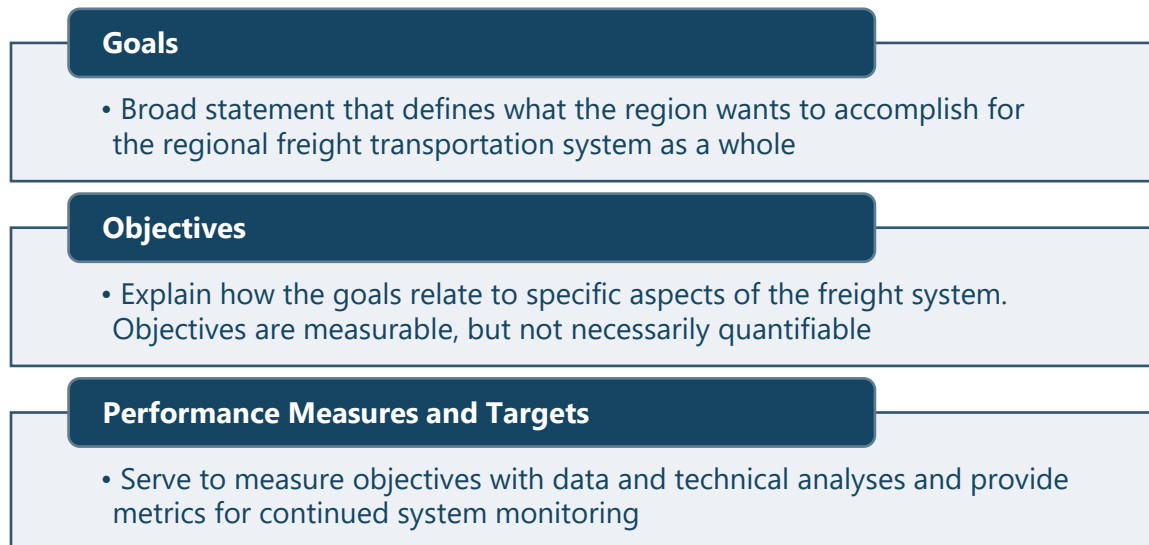


III. Goals, Objectives, and Performance Measures



Coordinated strategic goals, objectives, and performance measures provide the performance-based planning framework for implementing the Freight Plan in a way that is consistent with federal, state, regional, and local planning efforts. These goals and objectives are, together, the cornerstone upon which all Freight Plan performance measures and final recommendations are based. These also provide a transparent framework to illustrate the purpose and performance of recommendations for improvements to the regional transportation network and other initiatives of this planning effort to the public. **Figure III-1** defines goals, objectives, and performance measures and illustrates how they differ from each other.

Figure III-1: Definition of Goals, Objectives, and Performance Measures



Development of Goals and Objectives

The Freight Plan goals were established after reviewing the Fixing America’s Surface Transportation (FAST) Act federal freight policy goals, South Carolina Statewide Freight Plan Update goals, the ACOG Rural Long Range Transportation Plan (LRTP) goals, and MPO partner plans. A list of each of the plans reviewed is below. **Table III-1** illustrates a comparison of the plans’ goals.

- FAST Act federal freight policy¹
- South Carolina Statewide Freight Plan Update (2020) (draft)²
- ACOG 2016–2040 LRTP³
- SPATS 2040 LRTP⁴
- ANATS 2040 LRTP⁵
- GPATS Horizon2040 LRTP⁶



Table III-1: Alignment Across FAST Act and SCDOT

South Carolina Freight Plan Update (2020) Goals	FAST Act Federal Freight Goals	ACOG 2040 Rural LRTP Goals	SPATS LRTP 2040 Goals	ANATS 2040 LRTP Goals	GPATS Horizon2040 LRTP Goals
Mobility and System Reliability	Yes	No	Yes	Yes	Yes
Safety	Yes	No	No	Yes	Yes
Infrastructure Condition	Yes	Yes	No	No	Yes
Economic and Community Vitality	Yes	No	No	No	Yes
Environmental	Yes	No	No	Yes	Yes
Equity (new)	No	No	No	No	No

¹ www.fhwa.dot.gov/fastact/factsheets/nhfpfs.cfm

² www.scdot.org/inside/pdf/Combined-Notebook-for-July-16-2020.pdf [page 203 of PDF]

³ www.scacog.org/files/files/ACOG%202016-2040%20LRTP%20with%20PPM.pdf

⁴ <https://spatsmpo.com/219/2015-Long-Range-Transportation-Plan>

⁵ www.cityofandersonsc.com/wp-content/uploads/2017/09/ANATS-2040-Long-Range-Plan_9_17_FINAL.pdf

⁶ www.gpats.org/documents/Horizon2040_Full%20Document_2020.pdf

As shown in **Table III-1**, the goals across the plans vary in compatibility. To align with the federal and state freight goals, it is recommended to adopt the South Carolina Statewide Freight Plan Update goals to reinforce local and federal goals while also introducing a new equity goal. The six Freight Plan goal areas, around which the recommendations are framed, include: **Mobility and System Reliability, Safety, Infrastructure Condition, Economic and Community Vitality, Environmental, and Equity.**

Similar to the Freight Plan goal development, objectives included in the federal, state, and regional plans were also compared. The objectives were developed to articulate the Freight Plan goals, help define freight transportation system needs, and identify the desired future performance of the freight network.

ACOG Freight Plan Goals:

- ✓ Alignment with FAST Act, South Carolina Statewide Freight Plan Update
- ✓ Compatible with MPO partner goals
- ✓ Enhances ACOG Rural LRTP goals
- ✓ Guides freight objectives and performance measure development

ACOG Freight Plan Objectives:

- ✓ Alignment with SC Statewide Freight Plan Update objectives
- ✓ Compatible with similar MPO partner objectives
- ✓ Enhances ACOG Rural LRTP objectives
- ✓ Related to draft regional freight goals
- ✓ Measurable but not necessarily quantifiable

Development of Performance Measures

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:

1. **During Freight 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.
2. **During Freight Plan Implementation** – Support plan implementation by emphasizing agency goals and objectives and integrating them into budgeting, program structure, project selection, and project/program implementation policies.
3. **Accountability and Monitoring** – Facilitate tracking and reporting on system performance relative to plan goals and objectives to support accountability for plan implementation and results.

As part of the federal planning requirements, state departments of transportation and MPOs are required to set performance targets consistent with the established national performance measures for freight,

integrate those targets within their planning processes, and report to the United States Department of Transportation on their progress.

Beyond federal requirements, freight performance measures will provide the ACOG and MPO partners with the ability to monitor how well the transportation system is accommodating safe and effective freight movements. These measures will help identify trends or challenges before they become problems and the project partners can be better prepared and responsive to private sector needs.

In addition to the comparison of regional, state, and federal plans, the development of the performance measures included a peer review of three similar regional freight plans (**Appendix B**).

The recommended performance measures listed below include the federally required freight performance measures included in South Carolina Statewide Freight Plan Update for mobility/reliability, safety, infrastructure condition, economic/community vitality, environmental, and equity goals. Adopting these performance measures will streamline data collection and analysis by aligning with SCDOT performance measurement efforts. In addition, region-specific measures, such as truck parking and at-grade crossing incidents, are also proposed.

The ACOG’s Freight Goals, Objectives, and Performance Measures

Goal 1: Mobility and System Reliability		
Objectives	Reduce congestion on the freight transportation system	
	Improve average speed on congested corridors	
Performance Measures	Truck travel time reliability index	Data: SCDOT
	Proportion of the ACOG’s regional interstate mileage that operates at less than a Level of Service (LOS) E for urban areas and LOS C for rural areas	Data: SCDOT
Goal 2: Safety and Security		
Objectives	Reduce the number of high crash locations that involve trucks and at-grade rail crossings	
	Improve the incident response rate to crashes on the freight system and hazardous materials incidents	
	Implement enhanced intelligent transportation system improvements	
Goal 2: Safety and Security (continued)		
Performance Measures	Number of large trucks reported in crashes (fatal, nonfatal, injury reported, hazardous materials) 5-year trends	Data: SCDOT
	Number of public/private truck parking spaces available	Data: SCDOT
	Number of at-grade crossing crashes	Data: Federal Railroad Administration

Goal 3: Infrastructure Condition		
Objective	Maintain regional freight network roadways and bridges in a state of good repair	
Performance Measures	Percent of miles of interstate and National Highway System rated at “good” or higher condition	Data: SCDOT
	Percent of miles of non-interstate on regional freight network rated at “good” or higher condition	Data: SCDOT
	Percent of deficient bridge deck area	Data: SCDOT
Goal 4: Economic and Community Vitality		
Objectives	Improve access and interconnectivity of the freight transportation system to major intermodal facilities	
	Maintain or improve truck travel speed and time reliability	
	Improve the freight transportation system to accommodate supply chain immunity	
	Participate in statewide and regional freight coordination efforts	
Performance Measures	Truck travel time reliability index	Data: SCDOT
	Annual hours of truck delay on freight corridors	Data: SCDOT
Goal 5: Environmental		
Objective	Encourage land use planning that supports and promotes the efficient movement of freight	
Performance Measure	Annual hours of truck delay on freight corridors	Data: SCDOT
Goal 6: Equity		
Objectives	Improve or maintain broad based public participation into all planning and project development processes	
	Incorporate freight mobility needs of all modes into prioritization processes	
Performance Measure	Number of freight-beneficial projects programmed into MPO’s Transportation Improvement Program	

IV. Identification and Existing Conditions of Freight Assets



The ACOG region is a multimodal hub home to a significant amount of freight activity utilizing access to the region's two major interstates (I-85 and I-26), Inland Port Greer, two Class I railroads, or international airport (Greenville-Spartanburg International Airport).

A key first step in evaluating freight operations is to define the regional freight network. This provides a baseline surface transportation infrastructure network to identify needs and monitor performance over time. This network is a subset of the regional publicly maintained roadways upon which freight is currently or anticipated to be carried by truck or train. A subset allows planners to provide a more focused analysis of the more heavily used roadways without wasted effort on corridors not serving freight movements. The regional freight network should incorporate existing state and national designations as well as important local freight corridors and first/last mile connections. Reference the Freight Network Assessment Technical Memorandum (**Appendix C**) for additional information regarding the identification of the ACOG's freight network.

The ACOG regional freight highway and rail network includes major trade corridors such as I-85 and I-26, as well as SCDOT freight network corridors (e.g., U.S. 123) and local/regional routes that provide last-mile connections to the inland port and other freight generators. In addition to the two Class 1 railroads in the ACOG region (Norfolk Southern and CSX), several shortline railroads serve this region. Those include Carolina Piedmont Railroad, Greenville and Western Railway, and Pickens Railroad, Honea Path Division. All freight railroads are included in the regional freight network given their importance in moving cargo within the region and throughout the state. **Figure IV-1** shows the final ACOG Regional Freight Network.

Highways

The identified freight road network was further sorted and tiered as follows:

- **Tier 1 – Interstate Highways.** These routes are nationally significant and are designed for long-distance travel and trade. An exception was made for I-385/North Street in downtown Greenville, which connects I-385 with Church Street near downtown. This location is near a pedestrian-oriented area and was thus deemed less appropriate for truck traffic.
- **Tier 2 – Non-Interstate South Carolina Freight Network.**⁷ These facilities include routes like U.S. 123 and U.S. 25 that are strategically important to the state of South Carolina but are not part of the interstate highway system.
- **Tier 3 – Local Freight Routes.** These roads provide critical last-mile connections to freight-generating land uses and the other segments of the state/national highway network.

⁷ 2020 South Carolina Statewide Freight Plan Update (draft), www.scdot.org/inside/pdf/Combined-Notebook-for-July-16-2020.pdf [page 203 of PDF], accessed August 2020

Figure IV-1: ACOG Regional Freight Network

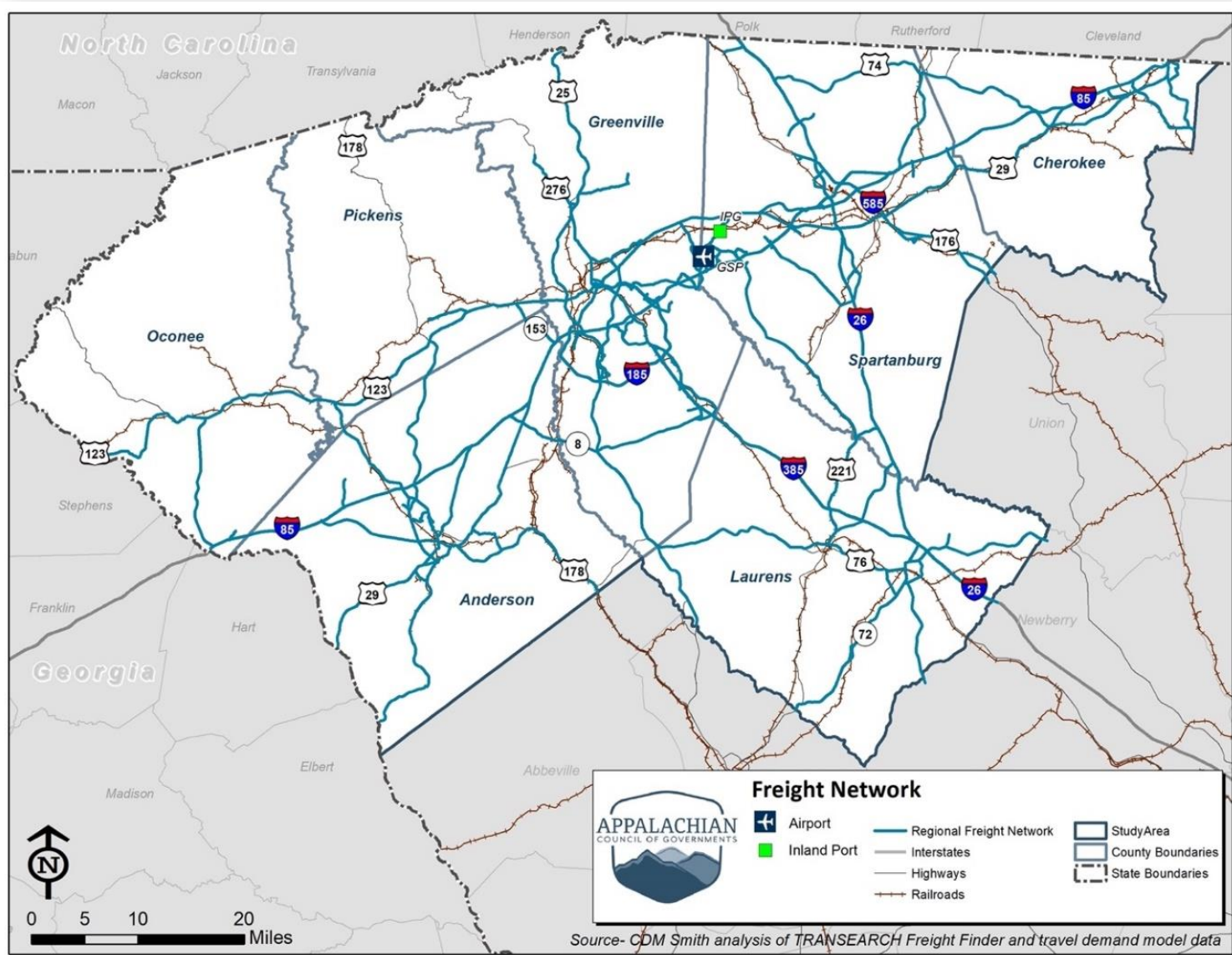


Figure IV-2 shows the tiered freight highway network.

Figure IV-3 shows the the region’s average daily traffic on the freight road network and the percentage of that traffic that consists of trucks. Once the freight network was identified, a series of available data were inventoried to evaluate the mobility performance and infrastructure condition of the highway network. The following series of maps illustrate the existing conditions of the highway network, including truck planning time index, the location of truck bottlenecks, crash data, and bridges of concern. Additional detail on this data is presented in **Appendix C**.

Congestion

Highway congestion impacts shippers’ ability to deliver cargo to destinations within time window commitments. Unreliable travel conditions create inefficiencies and increase costs that are often passed on to the customer and ultimately to consumers. Highway bottlenecks therefore impact not only area traffic conditions and quality of life, but also regional economic competitiveness.

The 2015 South Carolina statewide travel demand model was used to assess freight congestion by calculating truck vehicle hours of delay (VHD) and roadway LOS.⁸ In addition, data from the National Performance Management Research Data Set were used to identify truck bottlenecks and calculate truck travel time reliability.

Figure IV-4 shows the model results for truck VHD in 2015. The greatest truck delays are shown to the east of the I-85/I-385 interchange, near the Greenville-Spartanburg International Airport, BMW plant, and other major manufacturing companies. The other section of interest where VHD are high is along I-85, east of Spartanburg.

The LOS map shown in **Figure IV-5** paints a similar picture to the vehicle hours of delay in the region. The segments showing poor LOS are east of the I-85/I-385 interchange and east of Spartanburg along I-85. Although this metric is not specific to trucks, these slowdowns occur on the regional freight network (which has generally higher truck volumes), which implies they are freight bottlenecks. Outside of the areas already mentioned, local routes like U.S. 29 show as LOS E.

The delay on I-85 is strongly felt by regional stakeholders, along with delays on I-385 and I-26. Addressing this congestion is important for future freight movement. I-85 was described by stakeholders as the “backbone of commercial activity” affecting many existing businesses in the region. Currently, SCDOT is working on a resurfacing and widening project for I-85 in the same area where delay is high for trucks, potentially mitigating this traffic congestion.

⁸ LOS is a qualitative measure describing operational conditions in a traffic stream based on measures such as speed and travel time. LOS is categorized into letter grades with A being free-flow conditions and F being gridlock.

Figure IV-2: The ACOG Region's Tiered Freight Network

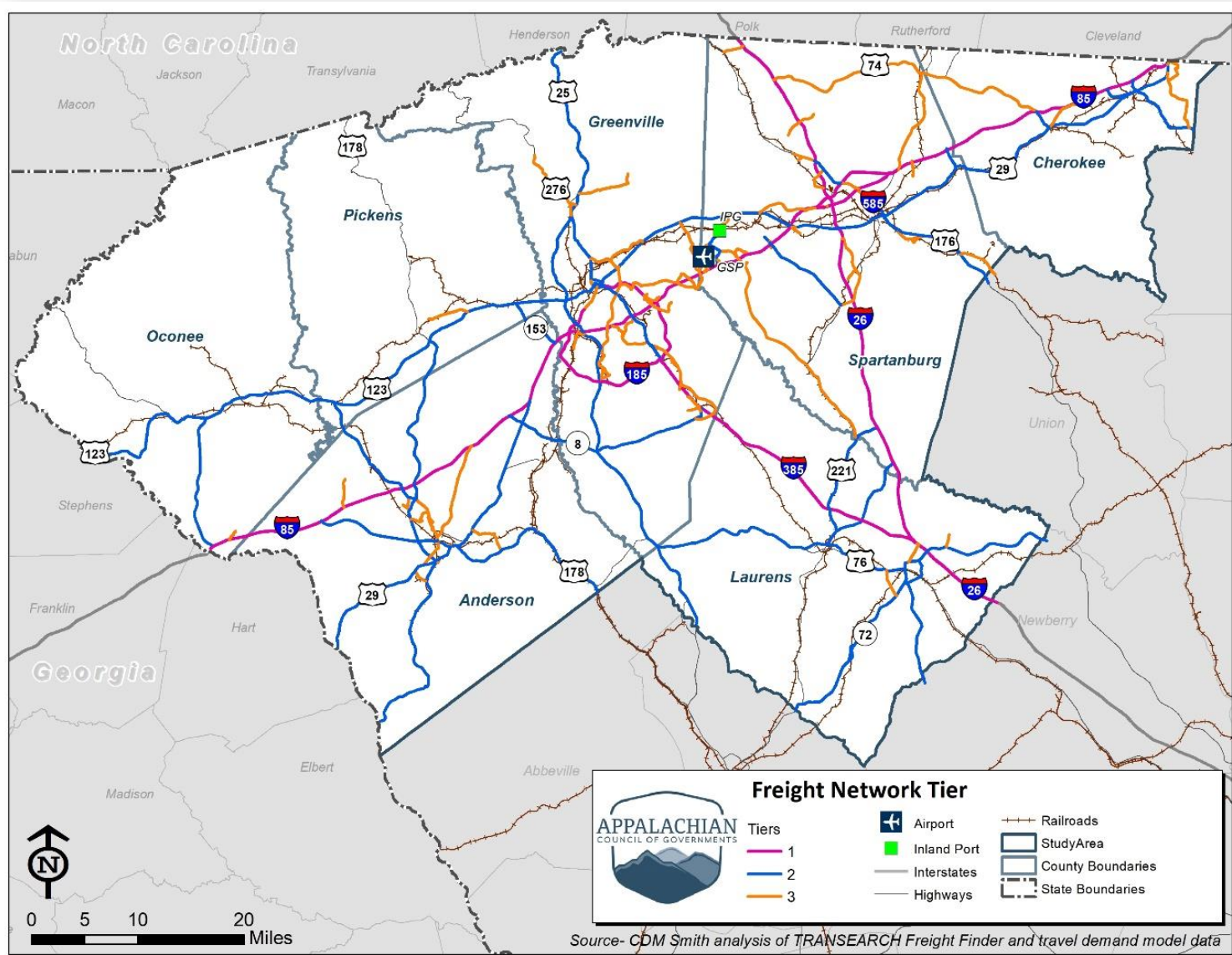


Figure IV-3: The ACOG Region's Average Daily Traffic and Percent Trucks, 2015

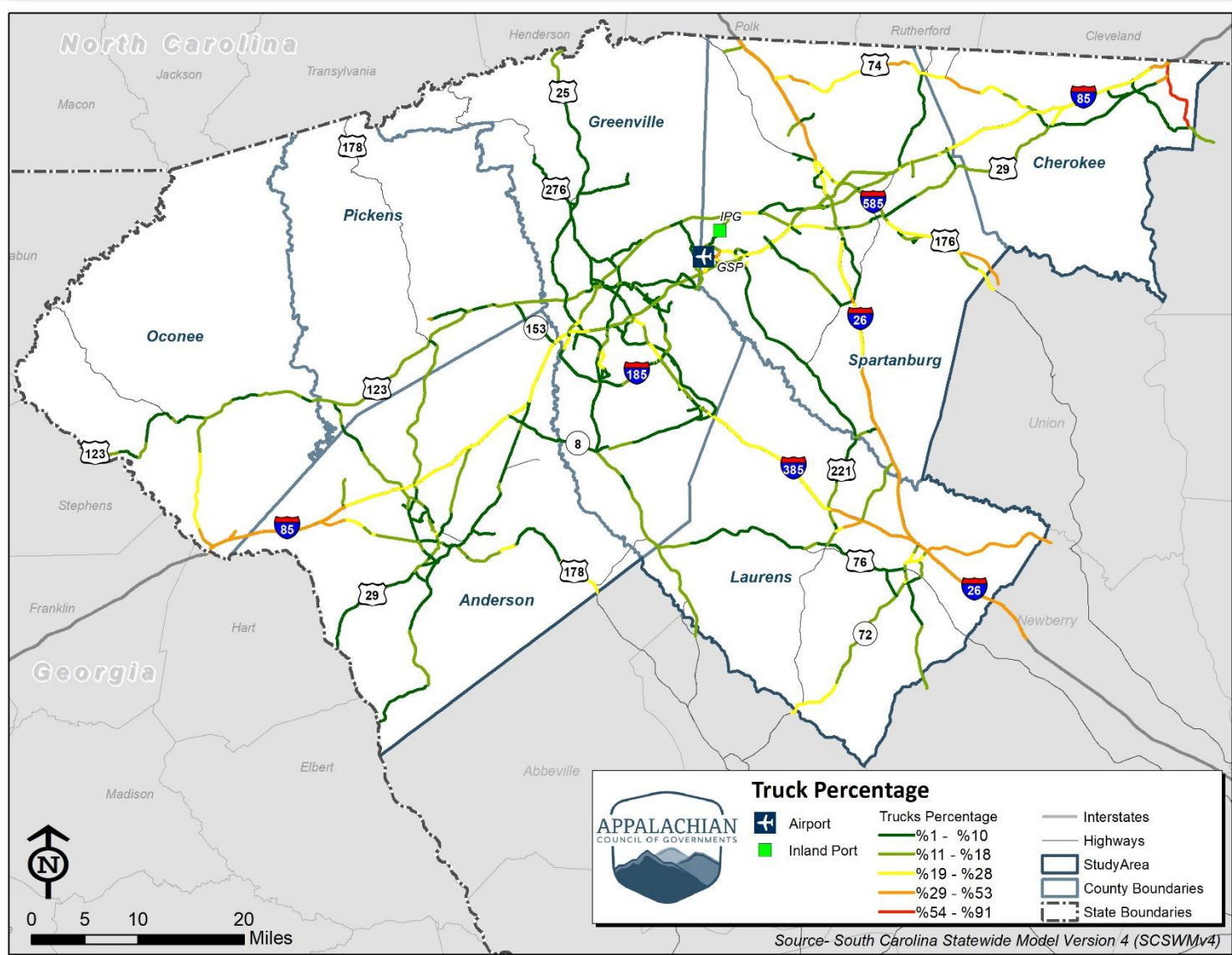


Figure IV-4: Daily Truck Vehicle Hours of Delay, 2015

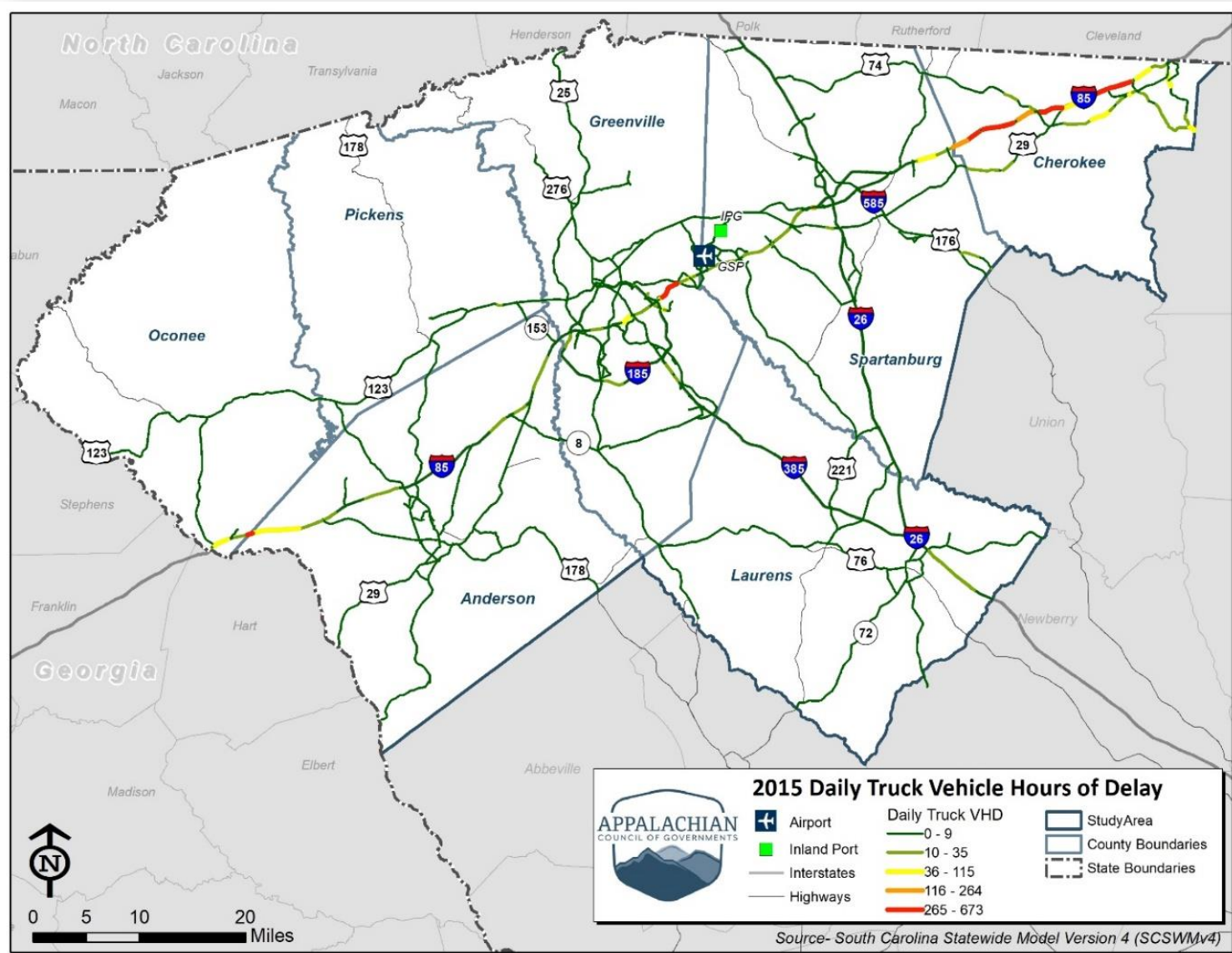
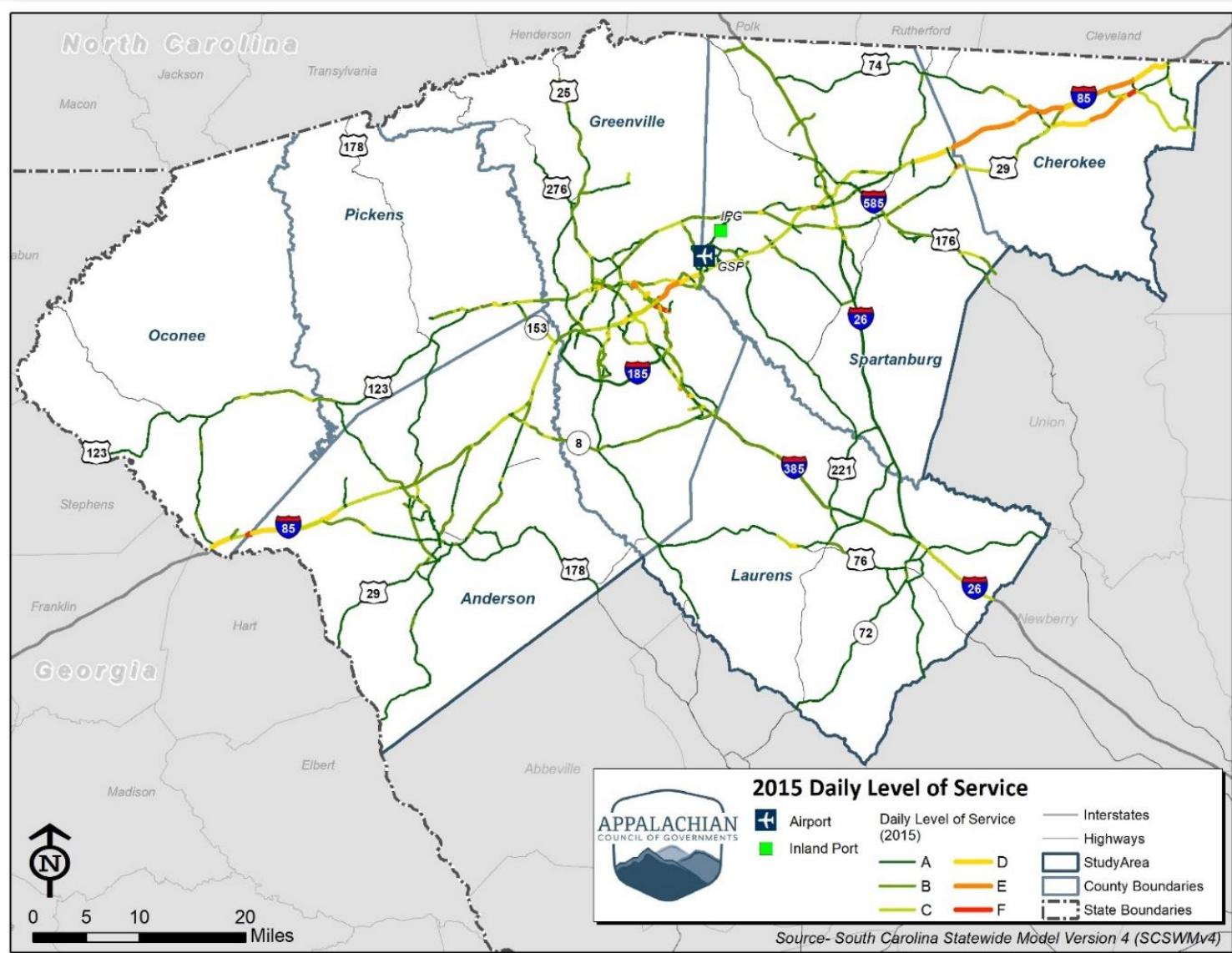


Figure IV-5: The ACOG Region's Daily Level of Service, 2015



In addition, truck bottleneck areas were identified using a combination of planning time index 95th percentile (calculated using free-flow speed and 95th percentile travel time) and frequency of congestion. Interstates 26 and 185, U.S. 123, U.S. 29, U.S. 276, U.S. 178, SC 81, SC 14, and several streets in downtown Greenville all appear to present significant bottlenecks for trucks (**Figure IV-6**). Some of the off-interstate bottlenecks may result from signal timing or other local delays related to ingress/egress near freight generating businesses. For example, SC 81 in Anderson County is near a large Bosch manufacturing facility, so the slowdown may represent trucks turning into the plant.

Safety

Freight-related crashes occur less frequently than many other types of crashes but can be more severe because of the size and weight of the vehicles. It's therefore important to understand where such crashes tend to occur as well as the infrastructure conditions that may contribute to them. **Figure IV-7** is a heat map of the seven-county study area showing the density of severe truck-involved crashes from 2015 to 2019. Any crash that includes one or more fatalities or incapacitating injuries is considered severe.

Commercial vehicle-involved crash hotspots are found at the I-85/I-385 interchange and near the I-26/I-85 interchange. The I-85 corridor segment from Greenville to Spartanburg is also the location of a higher number of crashes. This is likely partly due to the amount of congestion along I-85. In a congested highway environment, it is almost impossible for truck drivers to maintain safe driver distances with passenger vehicles primarily because of the speeds and rapid lane changes of some automobile drivers. Stakeholders in the region have suggested that additional lighting on the interstate, better reflecting striping, identified safe zones, and more speed enforcement would help address some of the corridor's safety issues.

Pavement and Bridge Conditions

Poor pavement condition reduces freight efficiency and contributes to increased wear and tear on trucks. Bridges in poor condition may require increased maintenance in the future, especially if truck traffic increases. Bridges that are restricted to less than the standard legal weight limit and those with low vertical clearance can impede commerce by forcing trucks to use alternate, less efficient routes. Some of these routings may be circuitous, adding cost and time to shipments.

Based on the technical analyses conducted, there are many roadways that are in poor condition, including some on interstate routes (**Figure IV-8**). Regional freight network corridors with poor pavement condition should be prioritized for routine maintenance and resurfacing projects. Primary focus in the region will be on interstates because of the volume of truck traffic carried on these facilities. Other facilities on the freight network that require attention include U.S. 29, U.S. 123, and U.S. 25.

Table IV-1: The ACOG Region's Pavement Condition, 2018

Tier	Good	Fair	Poor	Total
1	313.5 miles (68%)	60.7 miles (13.2%)	87 miles (18.9%)	461.2 miles (100%)
2	180.8 miles (32%)	57 miles (10.1%)	326.9 miles (57.9%)	564.7 miles (100%)
3	63.8 miles (26.9%)	43.4 miles (18.3%)	130.1 miles (54.8%)	237.3 miles (100%)

Figure IV-6: Truck Bottlenecks, 2018–2020

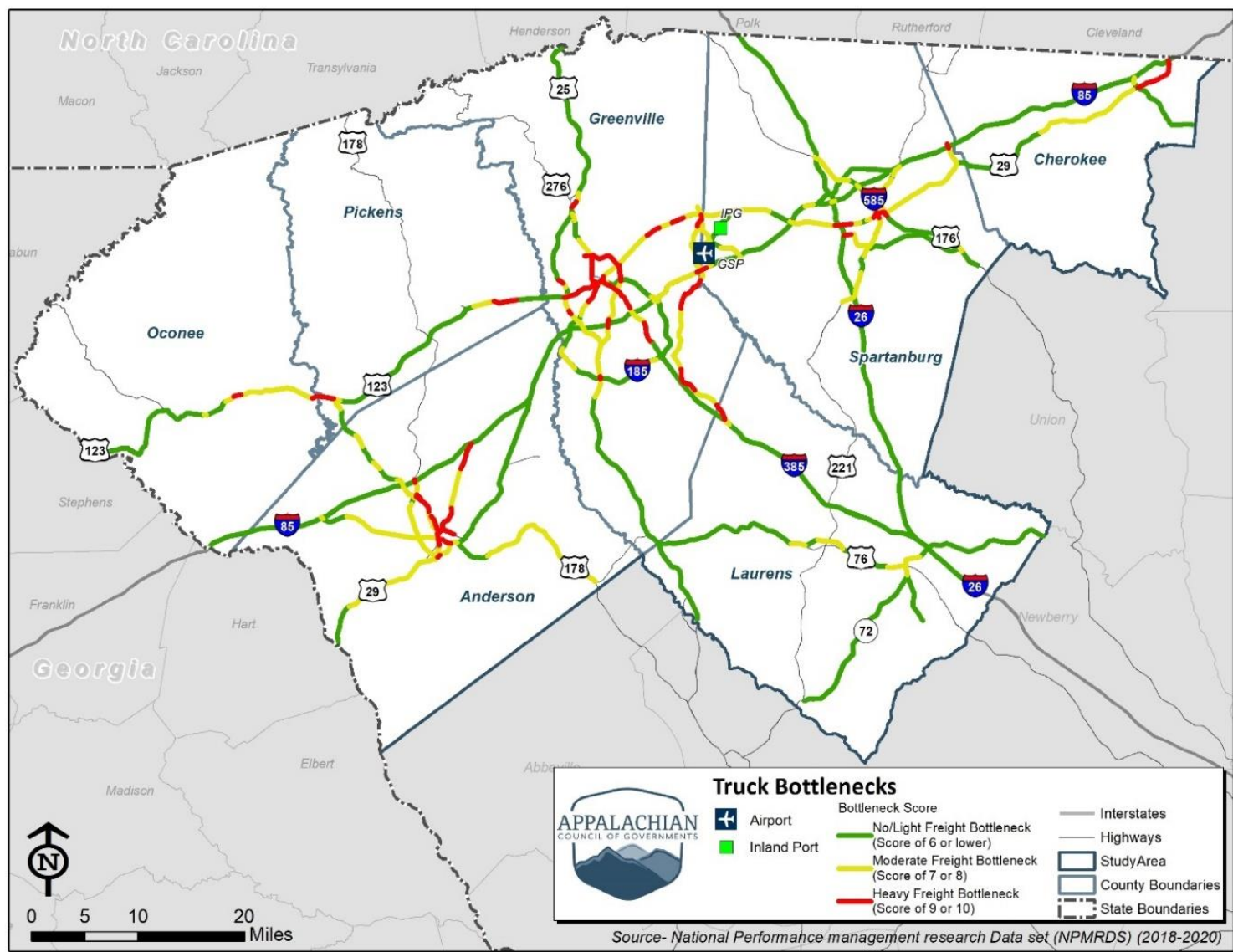


Figure IV-7: The ACOG Region's Severe Truck Crash Density, 2015–2019

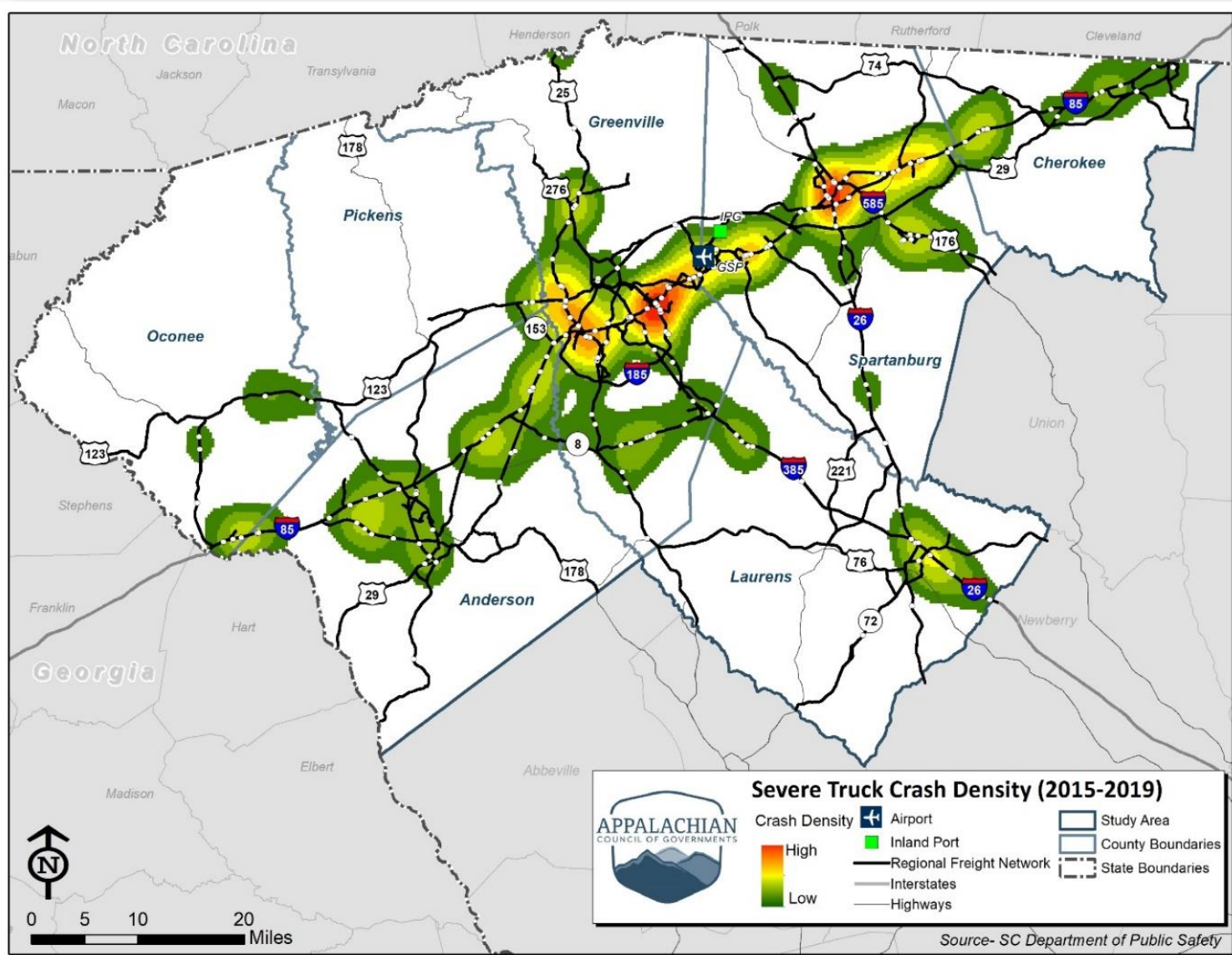
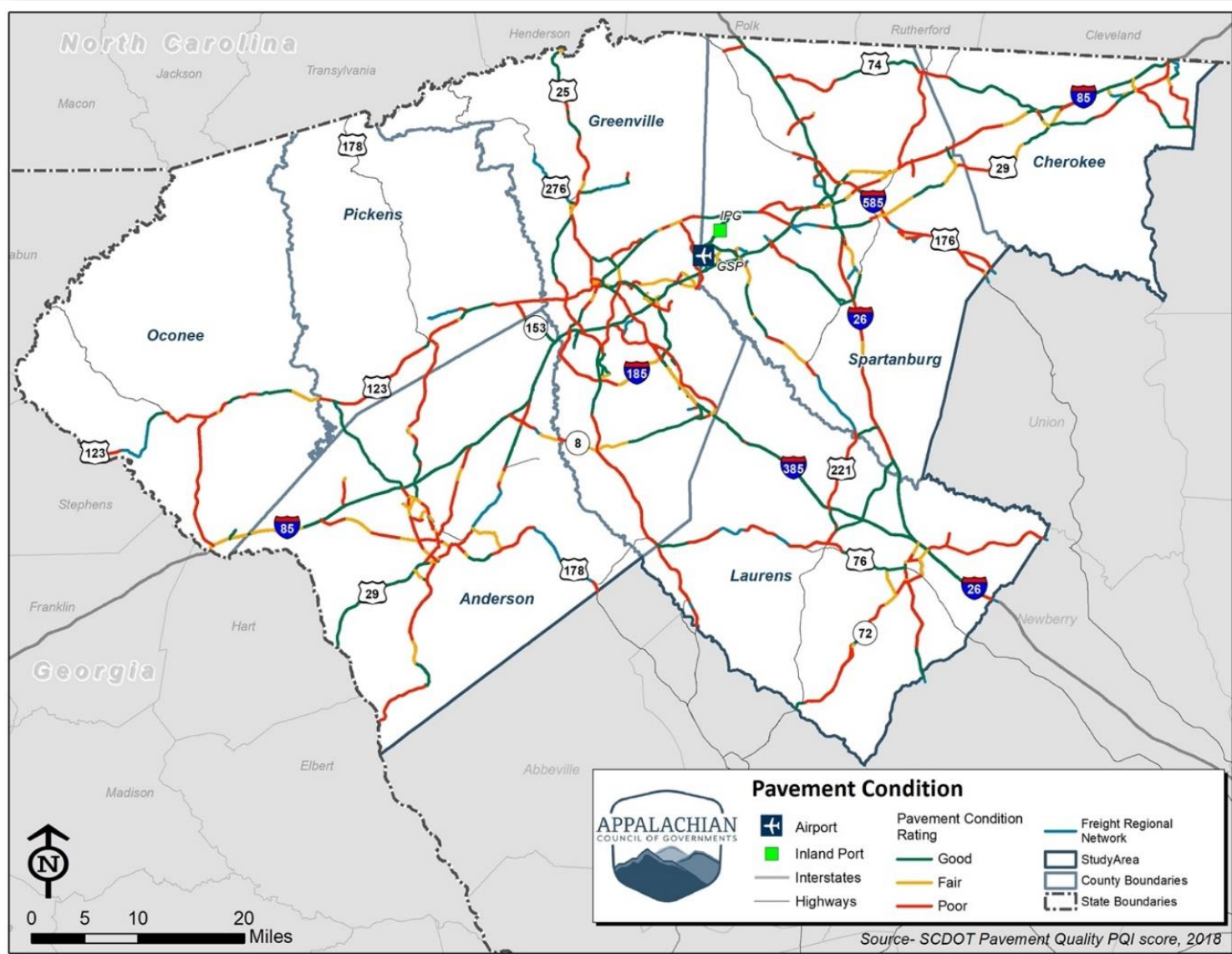


Figure IV-8: The ACOG Region's Pavement Condition, 2018



Bridges in poor condition were identified and mapped using the 2018 SCDOT bridge database. There are 60 bridges in the ACOG region that are on the regional freight network and rated in poor condition, as shown in **Figure IV-9**, including several located on major interstates like I-85 and I-26. Such bridges are more likely to require costly repairs in the future to continue in service. If they must be posted for load, trucks may have to detour around them, adding cost and time to shipments. While any poor condition bridge is noteworthy, those on the interstates and other primary freight corridors are critical for efficient goods movement.

Truck Parking

The I-85 and I-26 corridors carry a significant amount of the states' trucks and tonnage. **Figure IV-10** shows the truck parking supply in the ACOG region. As shown, most of the locations are along the corridors mentioned. According to the I-85 truck parking study completed in July 2017, 21 exits were identified where trucks were parking illegally. Illegal parking occurred most on exits where the larger truck stops were located, suggesting that this occurred because drivers were familiar with the truck stop brands and the amenities offered, but there was still an insufficient supply of available parking spaces.⁹

The issue of truck parking was a theme in regional stakeholder feedback as well. Although some new private truck parking facilities have been constructed in the region, available trucking parking is still not adequate. The American Transportation Research Institute's 2020 *Critical Issues in the Trucking Industry* report¹⁰ identified truck parking as the third highest ranking issue of concern, climbing two spots from the 2019 study. Although this is generally seen as a state issue, it affects local and regional businesses and contributes to driver turnover and stress. As freight-related industries continue to grow, more truck parking supply will be needed to keep up with the anticipated demand in the ACOG region.

Railroads

The CSX and Norfolk Southern railroads are the major Class 1 freight railroads that serve the ACOG region and handle most of the regional rail freight. Norfolk Southern has an intermodal yard near Spartanburg and CSX has an intermodal yard near Laurens. Norfolk Southern is also the primary provider for Inland Port Greer. Other railroads include Carolina Piedmont Railroad, Greenville and Western Railway, and Pickens Railway (**Figure IV-11**).

As with the highway mode, through movements make up a considerable share of rail traffic. There is significant rail intermodal (i.e., containerized) traffic moving between the Charleston port terminals and the Upstate. According to South Carolina Ports Authority representatives who attended the July 2020 FAC meeting, approximately 25 percent of inbound marine freight at Charleston leaves the Charleston region by rail. Much of it is then transferred to truck in Inland Port Greer or Inland Port Dillon.

⁹ SCDOT, I-85 Truck Parking Analysis, July 2017

¹⁰ <https://truckingresearch.org/2020/10/27/critical-issues-in-the-trucking-industry-2020/>

Figure IV-9: The ACOG Region's Bridge Conditions, 2018

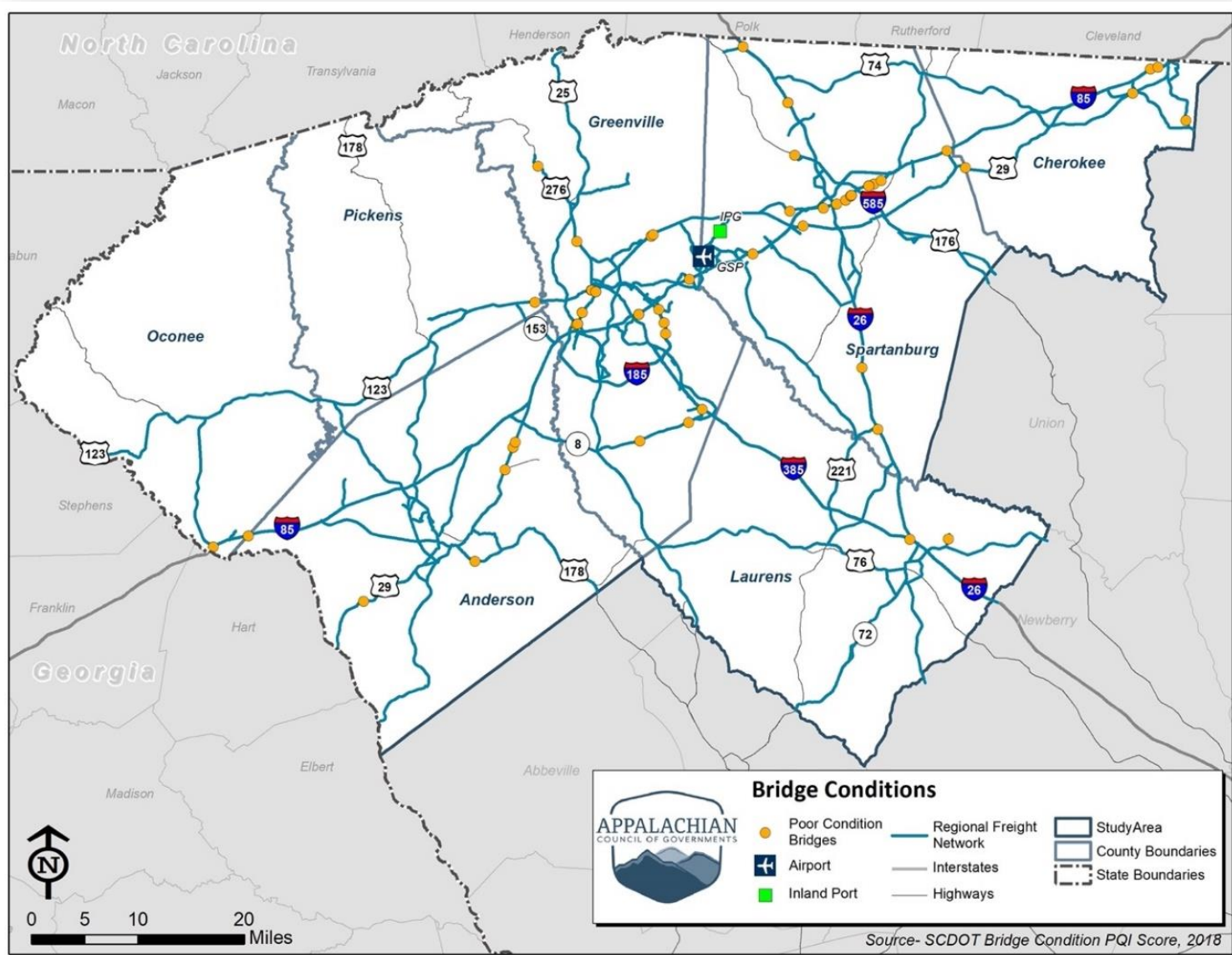


Figure IV-10: Truck Parking Locations in the ACOG Region

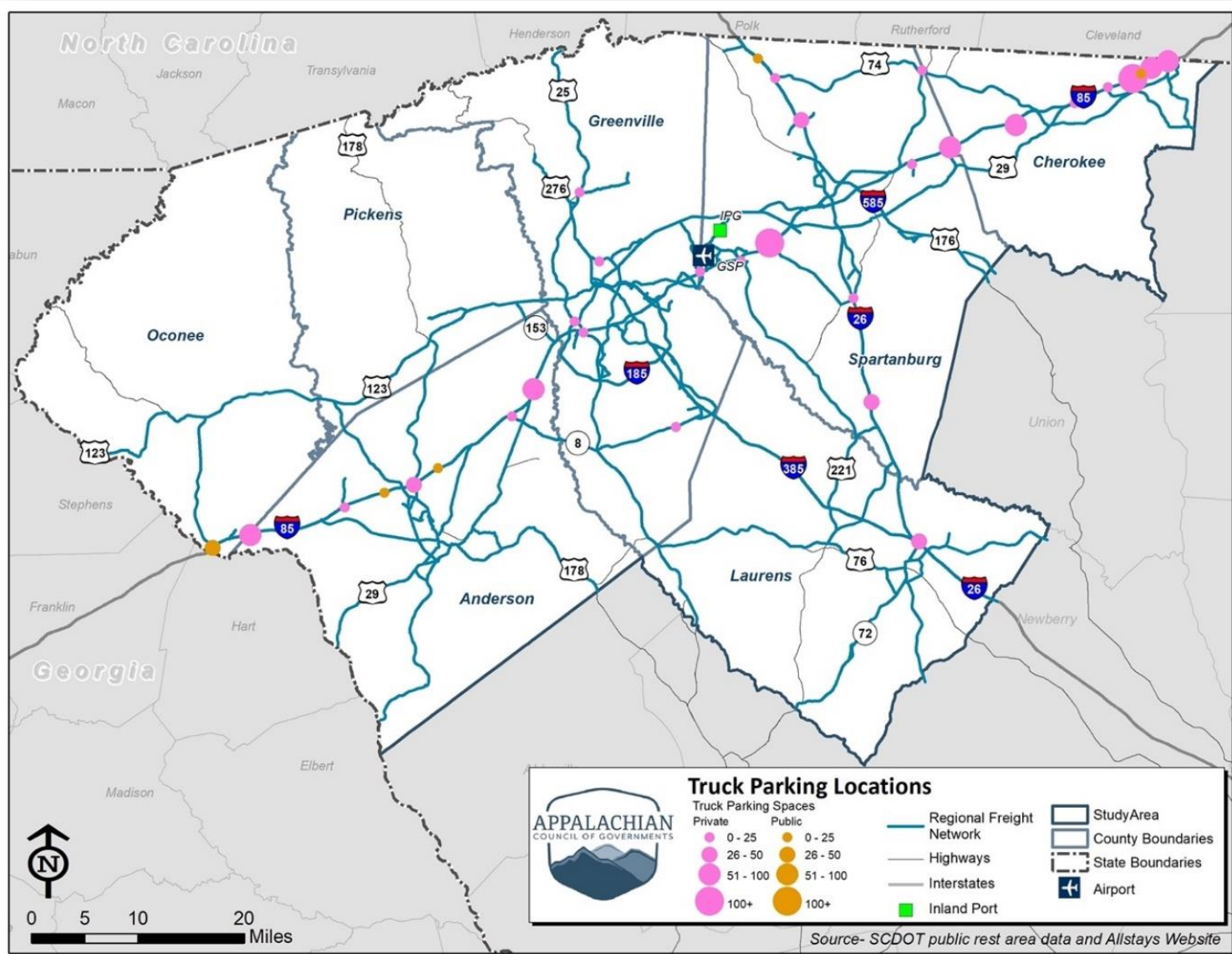
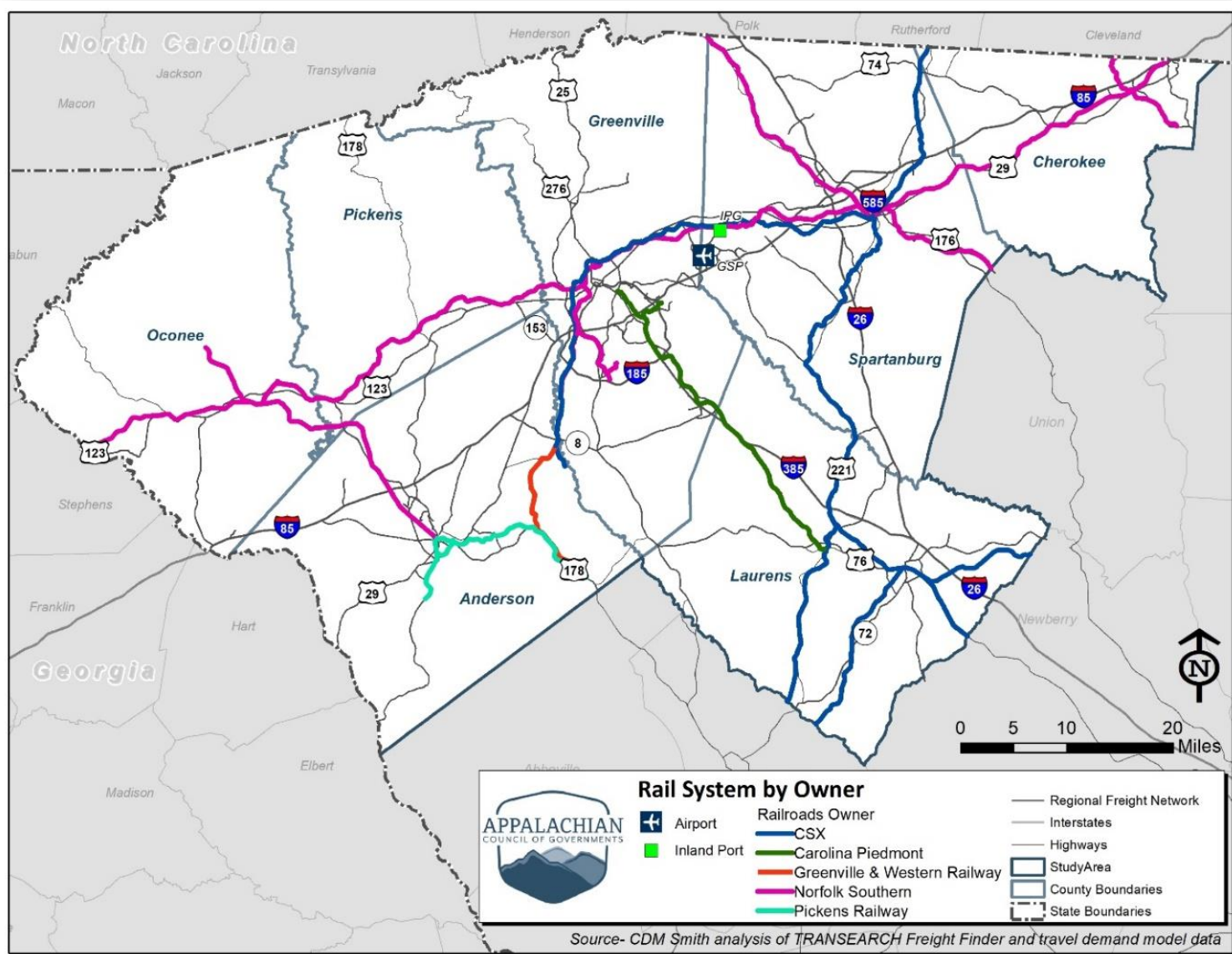


Figure IV-11: Rail System by Owner in the ACOG Region



Seventy-five percent of businesses in the ACOG region that use rail to move some of their freight can move that rail freight via a rail siding or spur directly to their facility. Some of these companies may not have rail freight volumes that are large enough to justify the costs of a rail-served site or siding spur; however, they can consolidate a load in a container at the port, which can then be moved to Inland Port Greer and moved to its final location by truck.

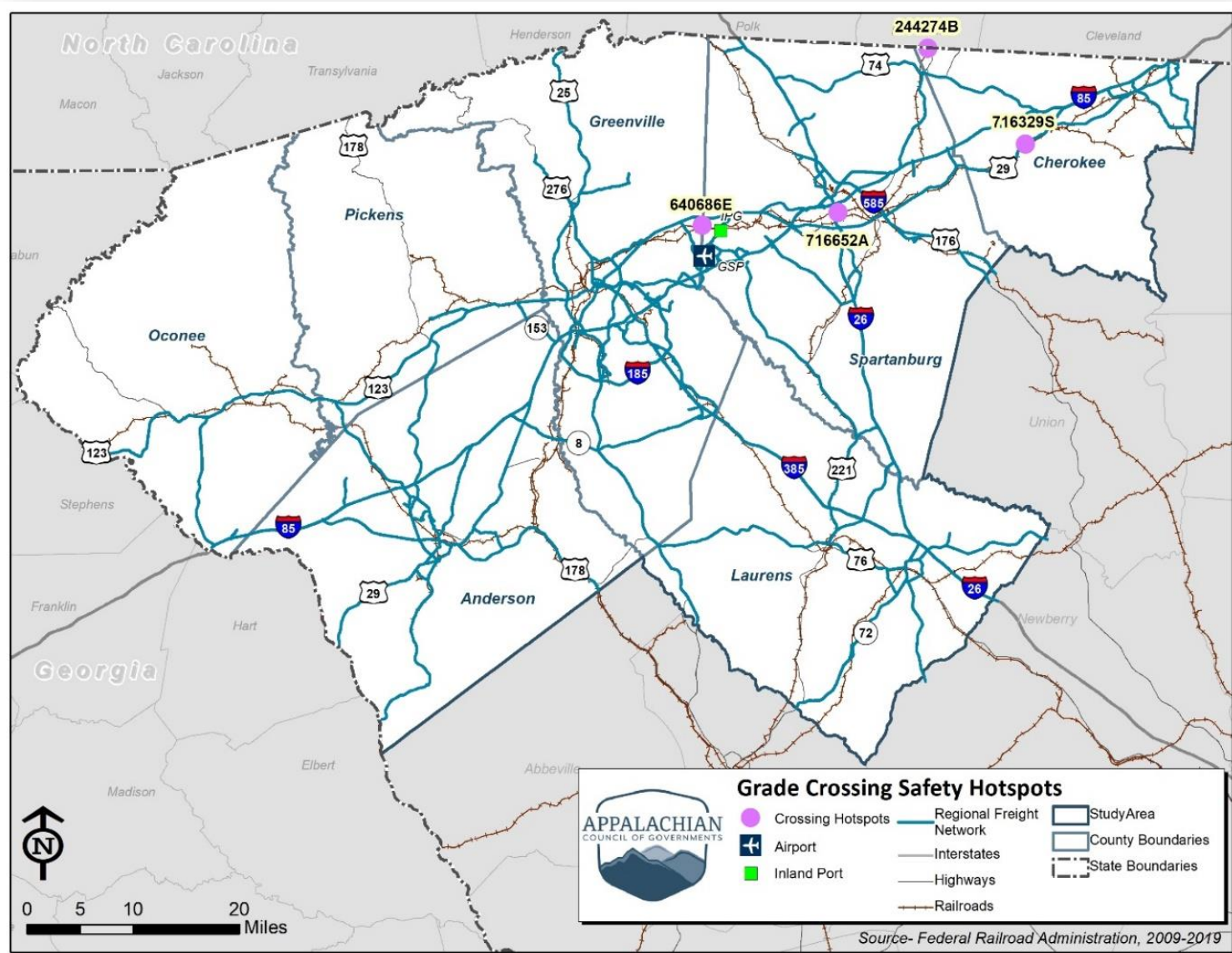
There are many large companies in the region that use rail to move a variety of products. BMW is the largest rail customer in the region, receiving 80 to 100 rail cars per day. First Quality Tissue receives wood pulp by rail. Other businesses receive plastic pellets, bulk flour, finished lumber, wood pellets, coil steel, and polyester fibers via rail. Other major rail users in the region include TBT, Michelin, Honeywell, Mitsubishi Polyester Film, BASF, Siskin Steel, CSM Bakery Solutions, 3M, PL Development, and 84 Lumber.

At-Grade Crossing Safety

Safety is always a concern at rail-highway grade crossings. To assess grade crossing safety, the project team collected Federal Railroad Administration grade crossing crash statistics from 2009 to 2019 for each crossing in the seven-county study area, totaling over 500 crossings. There were 133 grade crossing crashes at 104 crossings during this period, an average of 12 crashes per year. However, injury and fatal crashes were comparatively rare.

Given the infrequency of severe crashes, any grade crossing location with an existing crash history was identified, including those that only resulted in property damage. The locations of these grade crossing safety hotspots are shown in **Figure IV-12**. The Norfolk Southern crossing at West Cleveland Street in Spartanburg County had the most crashes with six, followed by the CSX crossing at North Line Street near SR 718 with four crashes.

Figure IV-12: The ACOG Region's At-Grade Rail Crossing Safety Hotspots, 2009–2019



Inland Port Greer

Inland Port Greer opened in 2013 and is located 212 miles inland from the Port of Charleston. Norfolk Southern provides overnight rail service six days per week from the Port of Charleston to the terminal, which operates 24 hours per day, 7 days per week (**Figure IV-13**).

South Carolina was awarded a \$25 million Better Utilizing Investments to Leverage Development (BUILD) grant to support the expansion at South Carolina Ports Authority's Inland Port Greer and the extension of Norfolk Southern's Carlisle Passing Siding.

Figure IV-13. Inland Port Greer



Source: Craig Lee, South Carolina Ports Authority

Air Cargo

Greenville-Spartanburg International Airport (GSP) was the sixty-second busiest cargo airport in the United States in 2018, handling roughly 224,500 tons of freight (**Figure IV-14**).¹¹ The average air commodity is valued at \$107,661 per ton¹⁰, significantly higher than all other modes.

Figure IV-14: Cargo Being Loaded at Greenville-Spartanburg International Airport



Source: Greenville-Spartanburg Airport District

¹¹ <https://www.ttnews.com/top100/airports/2019>

A new 110,000-square foot, \$33 million cargo facility at GSP was opened in 2019.¹² The new facility can handle three Boeing 747-8F aircrafts at the same time with the addition of the 17-acre apron in front of the facility. With the addition of this new facility, the airport will triple the previous handling capacity.

In the ACOG region, some businesses used air cargo services to ensure on-time delivery of critical components manufactured internationally to maintain production schedules for customers and retain workers. The higher transportation costs will impact profit margins; however, the importance of meeting customer's requirements and keeping their workforce intact outweighed the short-term costs.

As the demand for air cargo exceeded the supply, the price of this service increased, and all cargo aircraft expanded their operations at GSP. The airport reports a diversification of the types of cargo and an increase in the number of businesses that are shipping and receiving goods through the airport. In terms of both value and volumes, the ranking of GSP compared to all airports in the country has risen during the pandemic.

GSP air cargo volumes for July, August, and September 2020 increased 26 percent in July; 6.5 percent in August; and 87 percent in September, compared to the same months in 2019. Top export products by value in October 2020 were medical instruments, motor vehicle parts, and passenger vehicles. Top imports by value in October were motor vehicle parts, returned exports without change, and medical instruments.

Generally, GSP has excellent highway connectivity; however, there are continuing freight mobility challenges at I-85 and I-385.

Land Use

The freight network provides a starting point for the ACOG and its member governments to encourage freight-related land use growth. One of the major points of feedback from regional stakeholders was that companies want the assurance of consistent land use policies and well-planned areas for economic development with the transportation and utility infrastructure in place. Some companies will only evaluate sites within planned business parks or certified sites because these locations reduce the time to complete facility construction and provide detailed information on utility and transportation infrastructure, subsurface and geotechnical conditions, and other information important to the site evaluation process.

Parcels and tracts of land surrounding the freight network are prime locations where freight-related industry should be located and targeted to accommodate future freight growth. A comprehensive land use analysis was conducted to identify both current and future freight corridors in the ACOG region (**Figure IV-15**).

The corridor inventory should be used for future transportation planning and design efforts to align mobility needs by land use types, and vice versa. The existing and future corridors are also identified in **Table IV-2** and **Table IV-3**. For additional information, reference the Land Use Technical Memorandum (**Appendix D**).

¹² <https://www.aircargonews.net/cargo-airport/greenville-spartanburg-international-triples-cargo-capacity-with-new-facility/>

Figure IV-15: Freight Generating Land Use Corridors

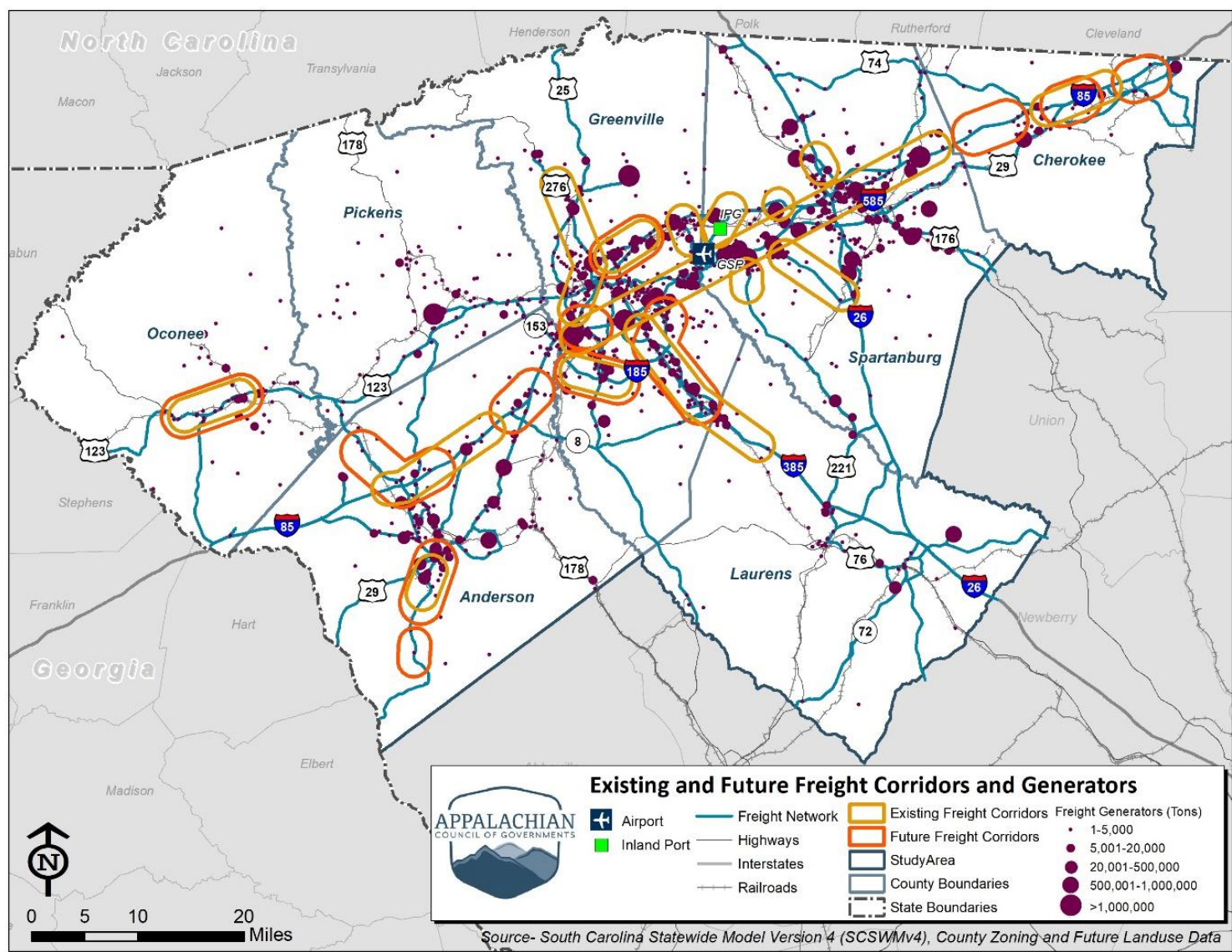


Table IV-2: Existing Freight Generating Land Uses by Corridor in the ACOG Region

Corridor Description	Freight Development Sites
I-85 & U.S. 29 from Gaffney to Blacksburg	UPS distribution and ~1,600 acres of undeveloped industrial sites
I-85 from Anderson/Greenville County Line to Spartanburg/Cherokee County Line	BMW plant, Proterra and ~1,300 acres of undeveloped industrial sites
I-26 & U.S. 176 near Willow Wood	Bass Pro Hotel Development Company and ~200 acres of undeveloped industrial sites
SC 129 near Lyman	~825 acres of undeveloped industrial sites
SC 290 from I-85 to U.S. 221	Toray Composite Materials and ~1,400 acres of undeveloped industrial sites
SC 80 GSP to Inland Port Greer	Inland Port Greer
SC 101 from I-85 to Brockman Road	SSS Management Corporation and ~475 acres of undeveloped industrial sites
U.S. 29 & S Buncombe Road near Greer	Mitsubishi plant, Honeywell Aerospace, Associated Packaging Inc
U.S. 29 & Rutherford Road near Wade Hampton	Green Beverage Co, House of Raeford Farms, Gossett Concrete Pipe
U.S. 276 & U.S. 29 from I-185/I-85 Interchange to North of Travelers Rest	Kohler, Metromont Corporation, Sunland Distribution, Precision North America
I-185 from Golden Grove to SC 146	Michelin, Magna Manufacturing, and ~1,150 acres of undeveloped industrial sites
I-385 from Mauldin to Gray Court	ZF Transmissions, Yanfeng Automotive Interiors, Grainger Distribution, and ~1500 acres of undeveloped industrial sites
I-85 from South I-85/US 76 Interchange to White Plains	TTI Ryobi Distribution Center and ~2,400 acres of undeveloped industrial sites
SC 81 from SC 28 bypass to Roy Arnold Road	~730 acres of undeveloped industrial sites
U.S. 123 from Westminster to Seneca	Schneider Electric Manufacturing and ~50 acres of undeveloped industrial sites

Table IV-3: Future Freight Generating Land Uses by Corridor in the ACOG Region

Corridor Description	Freight Development Sites
I-85 & U.S. 29 from Blacksburg to Cherokee County Line/NC	Vulcan Materials, The Recon Group, and ~725 acres of undeveloped industrial sites
I-85 near Gaffney	UPS distribution and ~1,400 acres of undeveloped industrial sites
I-85 from Spartanburg/Cherokee County Line to south of SC 11	Dollar Tree distribution center and ~1,200 acres of undeveloped industrial sites
U.S. 29 & Rutherford Road near Wade Hampton	Green Beverage Co, House of Raeford Farms, Gossett Concrete Piping
I-385 from I-85/I-385 Interchange to Fountain Inn	Grainger Distribution, Milliken Autovation, and ~300 acres of undeveloped industrial sites
I-85 from I-185/I-85 Interchange to I-85/SC 291 Interchange	YRC Freight, Thomas Sand Co, and ~55 acres of undeveloped industrial sites
I-185 from Golden Grove to SC 146	Michelin, Magna Manufacturing, and ~1,150 acres of undeveloped industrial sites
I-85 from north of SC 86 to White Plains	Coca-Cola, Budweiser, Century Concrete, and ~900 acres of undeveloped industrial sites
U.S. 123 from Westminster to Seneca	Schneider Electric Manufacturing and ~50 acres of undeveloped industrial sites
U.S. 76 from Pendleton to I-85/U.S. 76 Interchange and I-85 from I-85/U.S. 76 Interchange to south of SC 81	Anderson Industries, Glen Raven Custom Fabrics, and ~600 acres of undeveloped industrial sites
SC 81 near Anderson	Owens Corning, Electrolux, First Quality Tissue, and ~725 acres of undeveloped industrial sites
SC 81 from SC 412 to Good Hope Church Road	Taylor Pallets & Recycling

V. Future Freight Mobility Needs



Continued efficient freight movement in the ACOG region depends on keeping up with the growing demand from businesses and consumers as well as adapting to changing conditions. To better plan for the future needs of the freight infrastructure network, population, employment, and freight growth were forecast and analyzed. Qualitative feedback from regional stakeholders about regional freight trends and needs were used to confirm the forecasts and provide additional context where the data might be incomplete.

This section provides an overview of the region’s future freight demand. Additionally, land use considerations and the impact of the COVID-19 pandemic on the future of the freight industry are discussed.

Population and Employment

Population growth is an important contributor to freight growth because a larger population means increased productions and consumption of goods. In 2045, the regional population is expected to reach around 1.7 million people, which is an increase of 31 percent from the 2015 population total. Population forecasts indicate that each of the counties in the ACOG region will experience growth during this time, with Laurens County expected to experience the largest percent change (43.3 percent) and Anderson County experiencing the smallest percent change (25.9 percent) from 2015 (**Table V-1**). In terms of actual population numbers, Greenville County will continue to have the largest population, with nearly 650,000 residents in 2045.

Table V-1: The ACOG’s Population Growth by County, 2015–2045

County in South Carolina	2015 Population	2045 Population	Percent Change
Anderson	192,065	241,866	25.9%
Cherokee	55,863	73,811	32.1%
Greenville	494,800	649,440	31.3%
Laurens	66,288	95,013	43.3%
Oconee	74,949	100,971	34.7%
Pickens	116,464	163,559	40.4%
Spartanburg	292,602	374,584	28.0%
Total	1,293,032	1,699,244	31.4%

Source: South Carolina Statewide Model Version 4 (SCSWMv4)

This future population growth is expected in areas that already have some level of population density along the main interstate highways as the urban areas of Greenville, Spartanburg, and Anderson continue to expand (**Figure V-1**).

Freight generating employment growth through 2045 was forecast using the South Carolina Statewide Model Version 4 (SCSWM4v4). Employment growth was forecast for key sectors in the freight industry: manufacturing, wholesale distribution, warehousing, and mining. This freight employment forecast is shown in **Figure V-2**.

Industrial development related to meeting the increased freight demands of a growing population is likely to be concentrated on the fringe of these densely populated areas, which is evident in the employment forecast map. Gray areas of the map indicate where freight employment job losses are expected. These areas are mainly in Greenville County in areas that are more densely populated, indicating that the land use in this area will continue to be more residential than industrial.

Some of the areas with the highest expected employment growth lie along I-85, including the BMW plant (Exit 58, Brockman McClimon Road), with 7,500 jobs. In total, the ACOG region is expected to have an additional 17,231 jobs in freight-related sectors.

Using the population and employment forecasts and building on the identified freight generating land use corridors identified in **Chapter IV**, areas of future intensive industrial development and employment growth along the identified freight network and within the existing and future freight corridors, were identified as shown in **Figure V-3** (development clusters). Areas of industrial land use outside of both the existing or future freight corridors and existing current and long range planning efforts are also indicated (planning gap). Areas with 2045 freight sector job growth of more than 100 jobs located off the identified freight network and outside of existing and future freight corridors are also shown (employment growth gap).

This future land use analysis validates that freight-intensive land use growth is occurring along the identified freight network. Summary statistics about the clusters indicate that eight out of the 11 development clusters have rail access, while five of the seven employment growth gap clusters have rail access. Ten of the 11 development clusters are located on the interstate system, and one of the seven gap clusters is located on the interstate system.

This look at the future land use impacts of expected freight growth provides a starting point for the ACOG and its member governments to encourage freight-related land use growth. Parcels and tracts of land surrounding the freight network are locations where freight-related industry may be located and targeted to accommodate future freight-related growth and development.

Figure V-1: 2045 Population Density in the ACOG Region

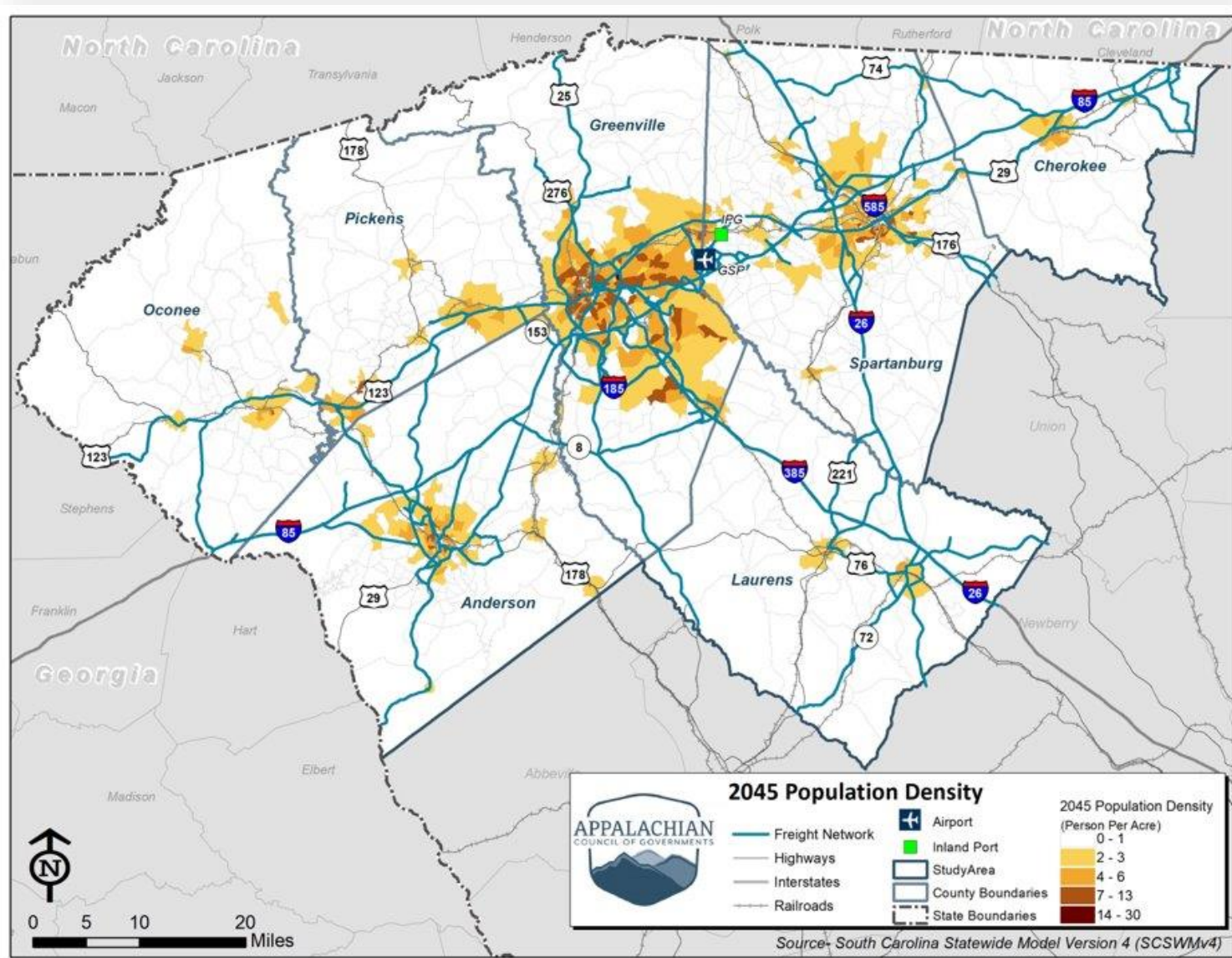


Figure V-2: Freight Generating Employment, 2015–2045

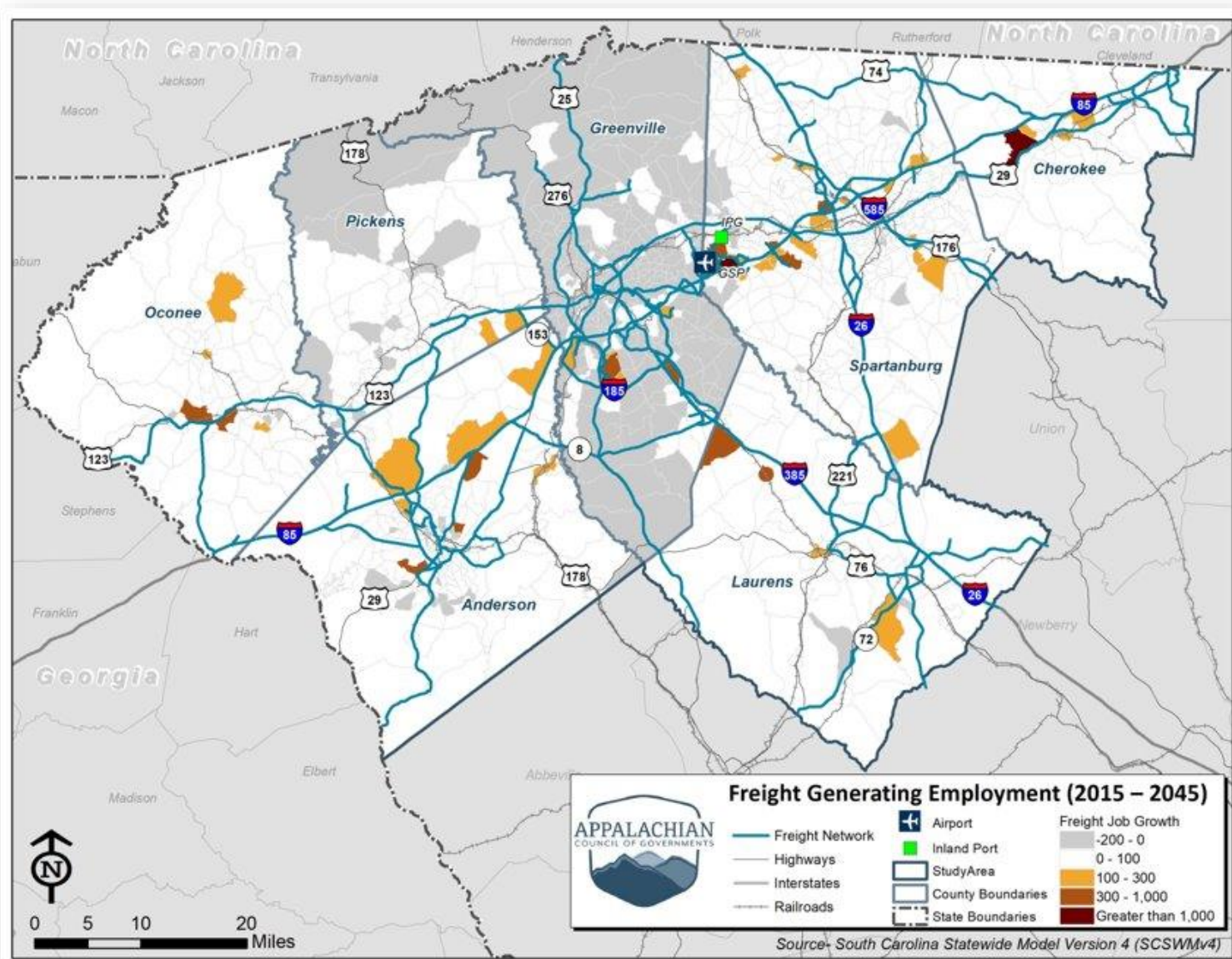
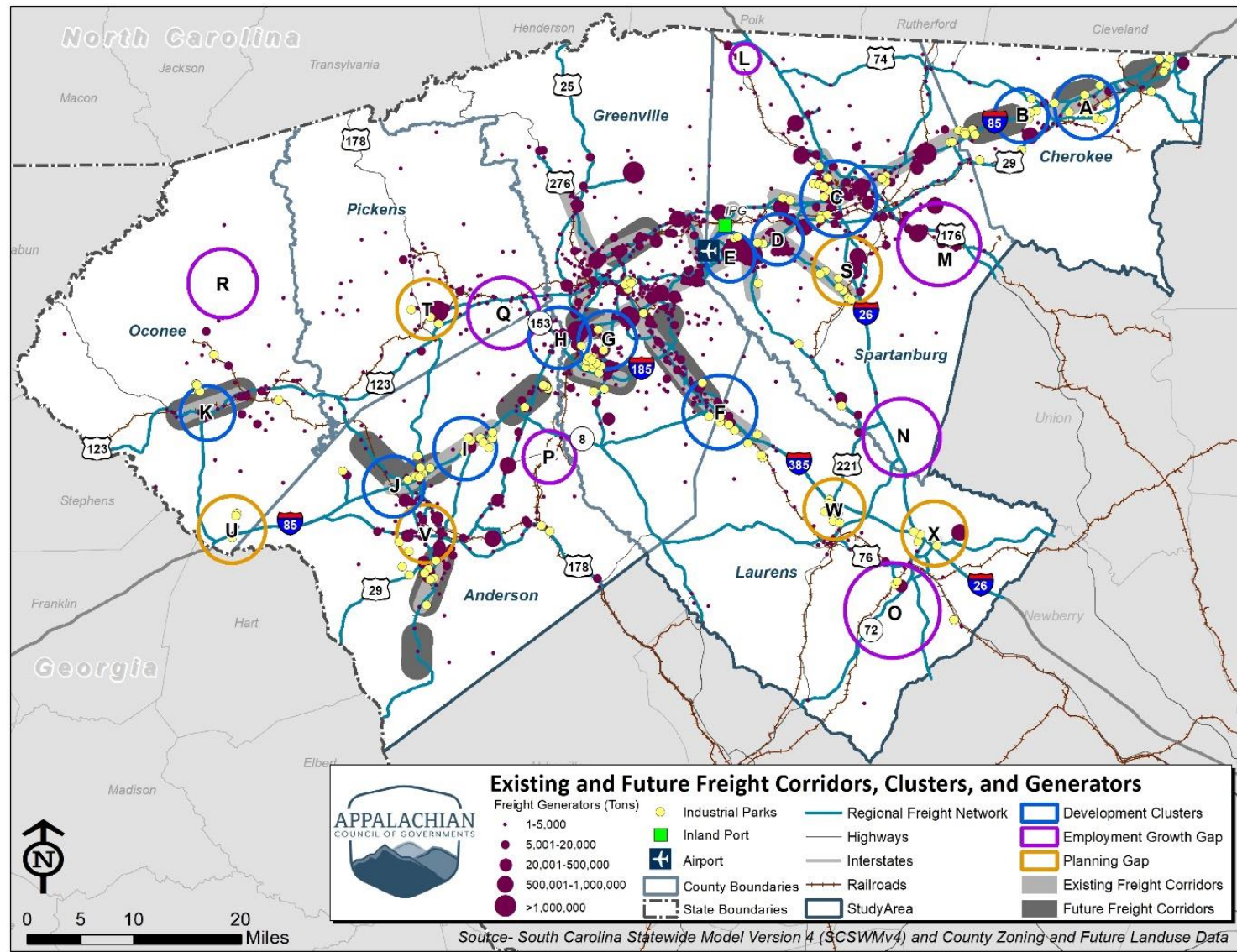


Figure V-3: Existing and Future Freight Corridors, Clusters, and Generators



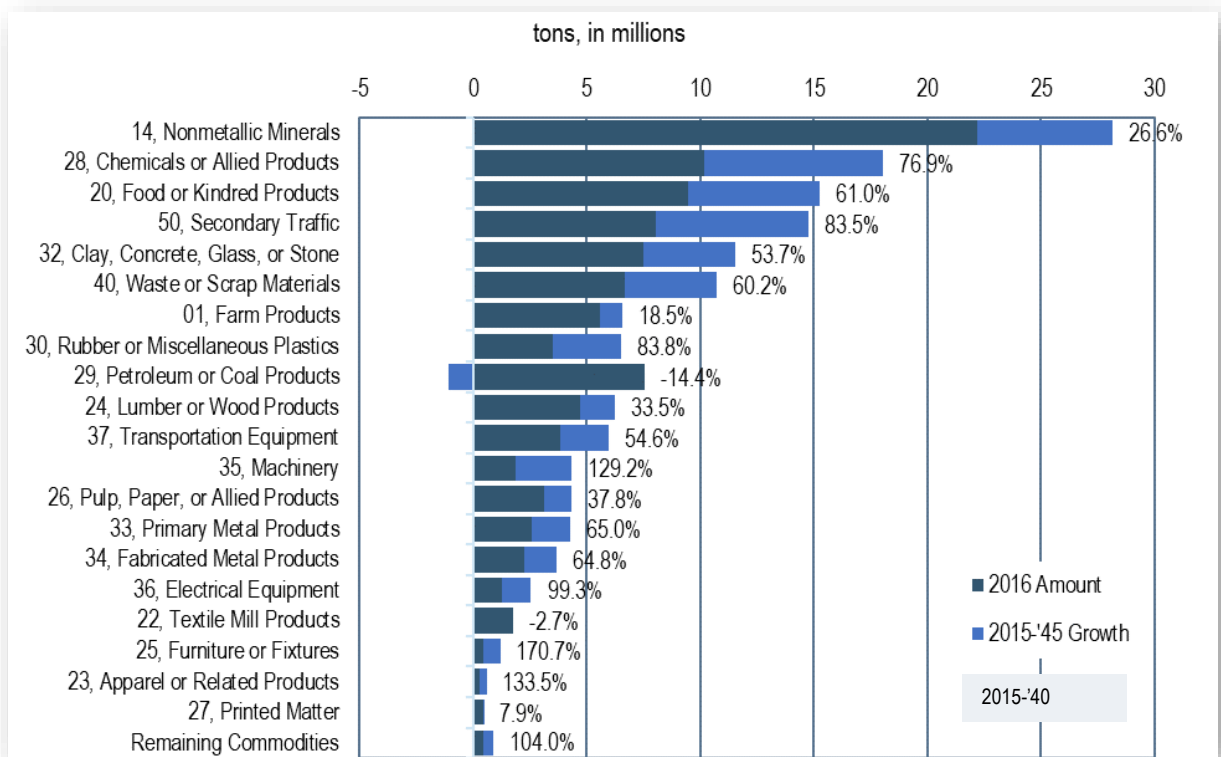
Freight Growth

Understanding future freight demand also helps identify the future freight mobility needs of the Appalachian freight network. Future regional freight demand was forecast for the year 2040 for both highway and rail freight. Overall, the region should see total freight tonnage moving through the region to increase to nearly 213 million tons in 2040, a 53 percent increase from the 2016 value of 139 million.

Truck Freight Growth

This growth in freight tonnage in the ACOG region will be impacted by both truck and rail freight movement. Truck freight will remain the dominant mode for freight movement, which is to be expected. By 2040, the horizon year in TRANSEARCH, truck freight on the seven-county network is projected to increase to over 154 million tons, a 49 percent total increase, or 1.7 percent annually, as shown in **Figure V-4**. Inbound and through volumes grow slightly faster than the other directions. More than half the absolute volume growth is in chemicals or allied products, secondary traffic, nonmetallic minerals, and food and kindred products.

Figure V-4: Truck Tonnage Growth by Commodity, 2015–2040



Source: TRANSEARCH and IMPLAN, 2018

To understand how this increased truck freight movement will impact the ACOG's highway freight network, future-year (2040) LOS measures were derived using the South Carolina statewide travel demand model. Just as in the 2015 base year, I-85 and I-385 are forecast to have a failing LOS in 2040. The rest of the Tier 1 routes are expected to continue operating at an acceptable LOS (defined as D or better) in

2040. 2040 LOS measures on Tier 2 and Tier 3 routes are largely the same as their 2015 counterparts, with most routes operating at an acceptable LOS.

Some recent and ongoing projects that will address highway freight mobility needs include:

- **I-85 Corridor Improvements** – SCDOT is widening I-85 from mile marker 77 in Spartanburg County to mile marker 106 in Cherokee County near the North Carolina border. The reconstruction of this corridor should be completed in 2021 and will improve travel lanes, interchanges and two railroad bridges. The project will help alleviate congestion throughout the corridor and increase capacity on this section of the interstate.¹³
- **I-85/I-385 Gateway Interchange** – Improvement to this interchange started in 2016 and was opened to traffic in late 2019. This project entails a new interchange with 10 new bridges, including several intersections. This project is designed to alleviate traffic congestion through the entire corridor, provide a financial boost to the local economy, and increase capacity of this interchange for many years to come.¹⁴

Rail Freight Growth

Rail freight tonnage is expected to grow at an increased rate compared to highway freight tonnage. **Figure V-5** graphs rail tonnage growth between 2016 and 2040 by leading commodities. By 2040, the horizon year in TRANSEARCH, rail freight on the seven-county railroads is projected to increase to almost 59 million tons, a 69 percent total increase, or 2.2 percent annually, with inbound volumes growing slightly faster than the other directions. More than half the absolute volume growth is in miscellaneous mixed shipments and chemicals. Coal imports from Kentucky, Indiana, and Pennsylvania are not expected to grow. Continued investment in rail infrastructure to reduce emissions and reduce costs while maintaining efficiency are helping drive rail freight growth nationwide.¹⁵

Proximity to multimodal transportation infrastructure and services is a critical factor for economic development activity. Rail-served industrial sites continue to attract large freight-dependent industries to South Carolina; however, the inventory of potential direct rail-served sites in the ACOG region is declining. Although there are other sites in the region that could potentially support the development of future rail-served sites, this type of development requires extensive planning to secure community backing, ensure adequate utility and transportation infrastructure, and secure the necessary funding support.

There are several potential rail opportunities in the ACOG region that could impact rail freight demand. There is a growing market for domestic intermodal rail; however, the challenge is where to site such a facility and how to advance an intermodal rail project of this magnitude. Another significant rail opportunity in the ACOG region is the potential to create dual rail service by creating a partnership between a privately held shortline railroad and Norfolk Southern. It would not be an easy project, but could be a valuable analysis for this region and would create significant economic development and

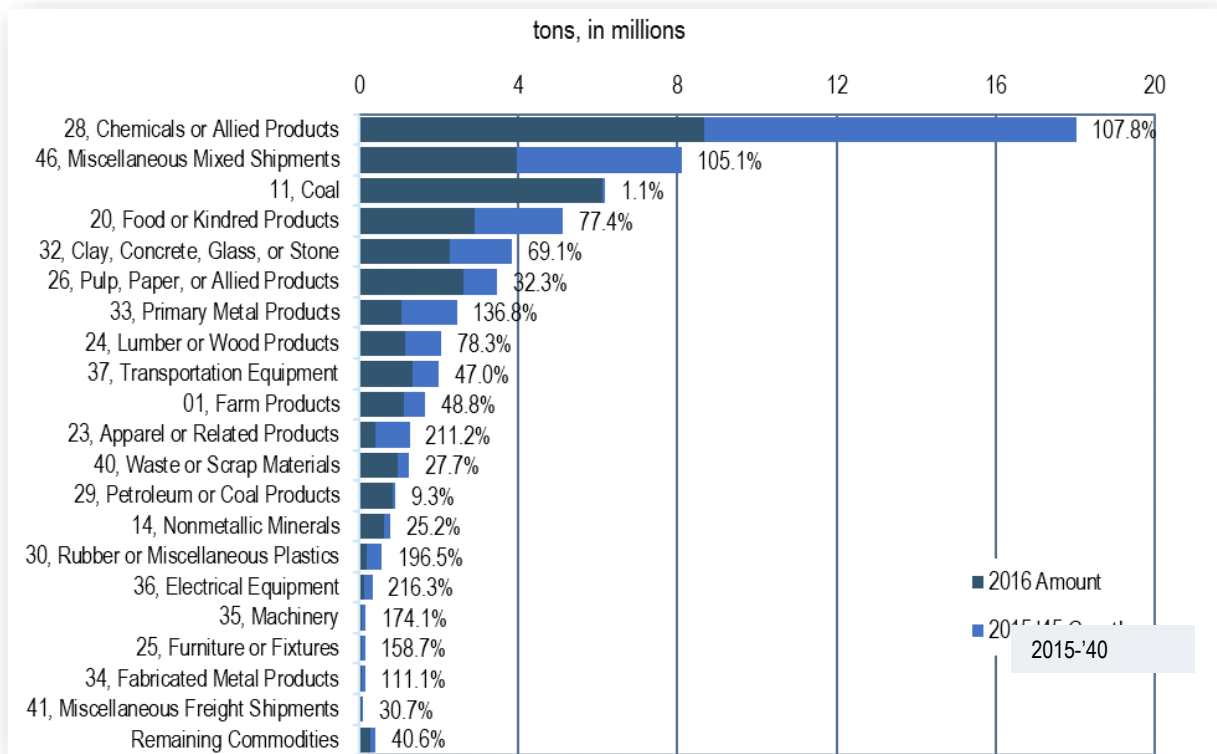
¹³ <http://www.85widening.com/default.html#about-section>

¹⁴ <http://www.85385gateway.com/>

¹⁵ <https://www.progressiverailroading.com/intermodal/article/Sustainable-growth-Railroads-aim-to-pull-more-freight-off-the-highway--48412>

resilience benefits. This type of project could benefit from the Palmetto Railroad as a vehicle to research the benefits and costs of such a project.

Figure V-5: Rail Ton Growth by Commodity, 2016–2040



Source: TRANSEARCH and IMPLAN, 2018

COVID-19 Impacts

Any discussion of the future freight mobility needs must now account for the impacts caused by the COVID-19 pandemic. COVID-19 continues to disrupt the domestic and global economy. Long-term economic and transportation impacts from this pandemic are difficult to predict; however, near-term impacts have been catastrophic for some business sectors and travel modes. It may take years for these impacts to subside and the future may be dramatically different in many industries as a result. COVID-19 affected businesses in the ACOG region—some continued to operate but incurred higher transportation costs to maintain production, trucking companies lost driver resources because of illness and stress, some businesses hired more workers, and others were forced to permanently lay off their employees. The strong multimodal freight transportation assets within this region played a significant role in keeping companies in operation and workers employed during the pandemic.

COVID-19 disruptions have revealed weaknesses in some supply chains. Companies are evaluating their supply chain vulnerabilities and making decisions to nearshore more of their supply chain back to the

United States. These changes could create additional stress on the region's freight networks and services but also creates new economic development opportunities for the region.

Trends put in motion or exacerbated by the pandemic will likely affect freight demand and mode in the future. For example, last mile parcel home delivery services quickly increased during the pandemic and

major e-business retailers like Amazon and Walmart repositioned goods inventories and moved more freight to less-than-truckload services throughout the country, including the ACOG region (**Figure V-6**). As the demand for home delivery continues and companies try to reduce delivery and return times, these freight firms are working longer hours and prices for shipping are expected to increase in the region. Also, the pandemic has affected the transportation industry's ability to retain drivers because of health concerns and the stresses of the job further exacerbating truck driver shortages. Industry experts anticipate a tightening in trucking capacity that will increase transportation costs, which could impact future freight demand and mode choice.

Figure V-6: Urban Delivery Truck for Last Mile Parcel Home Delivery



Source: Gorodenkoff, Adobe Stock

VI. Project Recommendations

ACOG REGIONAL FREIGHT MOBILITY PLAN



Freight project recommendations for the Appalachian Region are transportation projects that would improve the efficiency and effectiveness of certain locations on the freight transportation network. A two-part process was used to identify the project recommendations described in this chapter. The first step included identifying existing freight-beneficial transportation project needs previously documented in the *SC Freight Plan Update (2020)*, *ACOG 2040 Rural LRTP*, *SPATS LRTP 2040*, *ANATS 2040 LRTP*, and *GPATS Horizon2040 LRTP*. The second step included identifying potential new freight-beneficial projects for the remaining needs and deficiencies. To do this, a gap analysis was conducted by comparing the freight transportation needs and deficiencies determined in the land use analysis and network assessment and comparing to the existing freight-beneficial programmed projects. **Figure VI-1** and **Table VI-1** detail the projects located within the Appalachian Region. The ID numbers shown in **Figure VI-1** correspond to the numbers in the Map ID column in **Table VI-1**.

Cost estimates provided reflect the next step for project implementation. In most cases, an additional planning study or engineering analysis should be conducted to quantify the needed infrastructure updates, estimate impacts, and prepare engineering level cost estimates.

Table VI-1: Project Recommendations

Project ID	Project Category	Project Name	Recommendation	Notes	Cost Level	Schedule	Implementation Partners
1	Corridor Study	U.S. 29 (Southwest of Anderson) Corridor Study for New Weigh in Motion Station	Identify a specific location and construction of a new weigh in motion station along U.S. 29 southwest of Anderson.	Field observations and feedback from stakeholders indicate this has become a bypass route around the weigh station on I-85 inside the SC state line. This provides an additional location for collecting data inside the SC state line and may prevent the use of U.S. 29 as a bypass route.	\$\$	Mid Term	ACOG, ANATS, Anderson County, SCDOT
2	Corridor Study	Anderson Area Corridor Study for Mobility Improvements (N Murray Avenue, E North Ave, N Main Street to U.S. 28)	Conduct a corridor-level access management study to maintain safe and efficient local deliveries in this portion of downtown Anderson. This supports the diversion of commercial vehicles in the North Murray, North Avenue, and North Main Street connection between I-85 and the more industrial area of Southwest Anderson.	Operational Improvements for Intersections. The ACOG has an Intersection Improvement Funding Program, which would enable a corridor study to determine intersections that should be added. Access Management for Suburban Section on Consolidating Driveways for New/Re-Developed Properties.	\$\$	Near Term	ACOG, ANATS, Anderson County, SCDOT, Local businesses/Freight generators
3	Bridge Rehabilitation	Downtown Greenville bridge rehabilitation projects: Camperdown Way/Church Street and Academy Street/Broad Street	Two bridges on the regional freight network are listed in "poor condition" but are not currently in the SCDOT bridge rehabilitation program. Rehabilitate bridges.	Not included in the SCDOT Programmed Project List.	\$\$\$\$	Mid Term	ACOG, GPATS, City of Greenville, SCDOT
4	Corridor Study	Greenville Signal timing improvements on U.S. 276 from I-85 to SC 253	Implement a freight signal priority/adaptive traffic control system on U.S. 276, northbound from I-85 into Greenville.	This corridor experiences intersection bottlenecks, safety concerns, and heavy freight traffic. This study should aim to improve efficiency and safety through the corridor, connecting I-85 with downtown Greenville.	\$\$	Mid Term	ACOG, GPATS, City of Greenville, SCDOT
5	Smart Corridor Study/ Transportation System Management and Operations (TSMO)	Smart Corridor, TSMO of I-85 Corridor from Georgia state line to North Carolina state line	Implement a Smart freight corridor along I-85 from Georgia to North Carolina. This corridor will continue to experience growing demand in commuter and freight-related travel. This study should be focused upon mitigation of this growth by incorporating alternative modes of transportation and intelligent transportation system technologies to better manage traffic operations, prolonging the ability of the new capacity to manage efficient mobility. This includes linking the corridor to the Incident Management Program in Anderson County.	This should be leveraged across potential discussions regarding the I-85 Smart Corridor for Dedicated Short Range Communications (DSRC)	\$\$\$	Mid Term	ACOG, GPATS, ANATS, SPATS, SCDOT, Anderson County, Oconee County, Greenville County, Spartanburg County, Cherokee County, City of Greenville
6	Smart Corridor Study/TSMO	Dynamic Messaging System Installation along I-85 from Georgia state line to North Carolina state line	This corridor analysis will explore the potential to integrate dynamic messaging and other technologies to inform drivers of incidents, hazards, and possibly access to available parking or bypass routes.	This should be leveraged across other planning efforts, including the SCDOT Statewide Truck Parking Study and other similar initiatives, as appropriate.	\$	Near Term	ACOG, GPATS, ANATS, SPATS, SCDOT, Anderson County, Oconee County, Greenville County, Spartanburg County, Cherokee County, City of Greenville

Project ID	Project Category	Project Name	Recommendation	Notes	Cost Level	Schedule	Implementation Partners
7	Smart Corridor Study/TSMO	Blinders installed on Jersey Barriers of I-85 (Gossett Road to E Cherokee Street)	Install blinders on jersey barriers where crash rates are higher.	Blinders at areas deemed necessary because of safety issues.	\$\$\$\$	Near Term	ACOG, SPATS, SCDOT, Spartanburg County
8	Interchange Improvements	I-85 Interchange Improvements Study at Exits 58 (Brockman McClimon Road) and 60 (SC 101)	Perform an interchange improvements study at exits 58 and 60 (SC Route 101) as these are critical connectors to intermodal facilities and industrial sites in the proximity of Greenville-Spartanburg Airport and Inland Port Greer.	SPATS 2040 LRTP is reinforced by incorporating this freight network needs analysis.	\$\$	Near Term	ACOG, GPATS, SPATS, SCDOT, Spartanburg County
9	Corridor Study	Safety Study of I-85 Business (N Blackstock Road to Sun N Sand Road)	Conduct a safety analysis of this corridor, as it presents a safety challenge. Improvements will support intermodal and local deliveries in this portion of the freight network.	Recommend reevaluating metrics for crash incidences and congestion once a full year of data is collected with opening of interchange.	\$\$	Near Term	ACOG, SPATS, SCDOT, Spartanburg County, City of Spartanburg
10	Signal Optimization	Signal Optimization at I-85 Interchange at Pelham Road Interchange to I-385	Based upon freight bottleneck and safety data in this location, a signal optimization study at Pelham Road/I-85 Interchange should be conducted.	Evaluate incident management performance in this area. Recommended to stay away from major reconstruction, explore technology applications, and evaluate signal optimization.	\$	Near Term	ACOG, GPATS, SCDOT, Greenville County
11	Signal Optimization	Signal Optimization at I-85 Interchange at SC 14	Perform signal optimization at SC 14/I-85 interchange to improve current bottleneck in SC 14 corridor, connecting I-85 to freight related land uses south of I-85.	Signal improvements to enhance traffic operations at this interchange. Identify access management or other safety improvements to support this freight mobility connector.	\$	Near Term	ACOG, GPATS, SCDOT, Greenville County, Spartanburg County
12	Corridor Study	Access Management and Safety Subarea Study for Tiger Boulevard	Conduct an access management subarea study for Tiger Boulevard (U.S. 76 and Pendleton Road).	Moratoriums being placed on construction. Goals of this study are to manage safe vehicles interactions with other users in the corridor. This may include a routing analysis with SC-93.	\$\$	Near Term	ACOG, GPATS, Pickens County, SCDOT
13	Corridor Study	Corridor Study of U.S. 29	Conduct a corridor/access management/land use subarea study for U.S. 29.	Includes intersection study, access management, and land use policy.	\$\$	Near Term	ACOG, ANATS, GPATS, SPATS, SCDOT, Anderson County, Greenville County, Spartanburg County, Cherokee County
14	Corridor Study	Corridor Study for Pine Street Alternatives	Perform a corridor study to understand the nature of through and local trip making in the Pine Street corridor.	Freight focus group from the SPATS 2040 LRTP found that an alternative to Pine Street was needed. There appears to be a connection between U.S. 29 and SC 101, which may be freight traffic cutting through here. This does not serve local freight land uses but is being used as a freight corridor. Evaluation should be made for appropriate routing to connect land uses.	\$\$	Near Term	ACOG, GPATS, Greenville County
15	Corridor Study	U.S. 29 Corridor Study from East Gaffney to Blacksburg	Perform a corridor study for capacity improvements between North Limestone Street and York Highway.	This study goal is to address safety, congestion needs, and to support the freight related land uses in this corridor.	\$\$	Near Term	ACOG, Cherokee County, SCDOT
16	Corridor Study	U.S. 29 Wayfinding Analysis from East Gaffney to Blacksburg	Wayfinding to discourage U.S. 29 as a bypass to I-85	Seeks to discourage truckers from using this route as a bypass.	\$	Near Term	ACOG, Cherokee County, SCDOT

Project ID	Project Category	Project Name	Recommendation	Notes	Cost Level	Schedule	Implementation Partners
17	Corridor Study	U.S. 29 Subarea Study for Downtown Spartanburg from Blackstock Road to U.S. 176	Perform a corridor subarea study for downtown Spartanburg to improve safety and freight bottleneck conditions.	Intersection improvements and design at downtown Spartanburg supports local delivery freight efficiency and safe interaction with non-freight users.	\$\$	Near Term	ACOG, SPATS, Spartanburg County, City of Spartanburg
18	Corridor Study	Analysis of Traffic Operations in the Woodruff Road Corridor within the I-85/I-385 Interchange Area	Conduct a feasibility study for freight movement within I-85/I-385 Interchange and surrounding area. Follow up with a corridor subarea study for Woodruff Road.	Collect data and evaluate the performance of the I-85/I-385 interchange is functioning. Collect data and conduct a study for signal optimization and access management. This may include a ramp metering pilot.	\$\$	Near Term	ACOG, GPATS, Greenville County, SCDOT, City of Greenville
19	Corridor Study	Access Management Study SC 101 south of I-85 East of Greenville	Perform an access management study to evaluate increase in freight related vehicles resulting from service and retail industry growth in the SC 101 corridor south of I-85.	Freight focus group (10-15-15) for SPATS 2040 LRTP found that the new retail development on SC 101 was a concern because of conflicts with freight vehicles.	\$\$	Near Term	ACOG, GPATS, SPATS, SCDOT, Spartanburg County
20	Truck Parking Site	Truck Parking Site Selection Study of I-85 Corridor from Georgia State Line to Clemson Highway interchange	Conduct a truck parking site selection study. Build upon findings of the I-85 truck parking study and input from stakeholders and seek site and potential private partners for development of an additional truck parking facility between Clemson and Georgia state line.	Continue to explore public-private-partnership opportunities to expand truck parking combined with other functionalities, especially within the development cluster.	\$\$	Near Term	ACOG, ANATS, Oconee County, Anderson County, SCDOT, Private Partners
21	Bridge Rehabilitation	Bridge Rehabilitation for Andrews Pickens Scenic Highway and Whitfield Road	Rehabilitate the bridge at Andrew Pickens Scenic Parkway and Whitfield Road.	Bridges on the freight network were rated in poor conditions but are not currently included in the SCDOT programmed project list.	\$\$\$\$	Mid Term	ACOG, Oconee County, SCDOT
22	Interchange Improvements	I-85 at Whitfield Road Interchange Area Improvements	Reevaluate the interchange configuration at Whitfield Road.	Potential for dual roundabouts with Whitfield Road and Old Dobbins Bridge Road to mitigate LOS issues. Rural enough in nature and poses safety improvements.	\$\$	Near Term	ACOG, Oconee County, SCDOT
23	Corridor Study	SC 24 Corridor from I-85 Southeast to Westgate	Incorporate context-sensitive design guidelines for freight along this corridor. Review crash and truck volume data to evaluate appropriate design improvements to provide safer mobility for all users of the corridor, including bicyclists and pedestrians.	Bike route is part of SCDOT Parks, Recreation, and Tourism touring route.	\$\$	Near Term	ACOG, ANATS, Anderson County, SCDOT
24	Corridor Study	Corridor Study for SC 8 from I-85 to Pelzer	Add the route into the SCDOT Rural Road Safety Program and conduct analysis of crash rates.	Study to determine cause of fatalities along this route and make the appropriate recommendations for mitigation. This corridor connects freight generating land use corridors and presents safety challenge for through trips on this I-85 alternative route.	\$	Near Term	ACOG, GPATS, SCDOT, Anderson County
25	Corridor Study	U.S. 123 Corridor Study	Conduct a corridor-level access management study for U.S. 123, connecting Easley with U.S. 25. This should address crash data on this portion of the freight network.	Examine intersection improvements and access management improvements along this corridor.	\$\$	Near Term	ACOG, GPATS, SCDOT, Pickens County, Greenville County

Project ID	Project Category	Project Name	Recommendation	Notes	Cost Level	Schedule	Implementation Partners
26	Intersection Improvement	U.S. 123 at SC 93 in Easley Intersection Improvement	Evaluate for potential intersection reconfiguration and signal optimization at the intersection of U.S. 123 and SC 93.	LOS and bottleneck data at this intersection is approaching E in the future analysis.	\$\$	Near Term	ACOG, GPATS, SCDOT, Pickens County
27	At-Grade Crossing	Cleveland Street (Spartanburg) Rail Crossing Improvement	Perform West Cleveland Street at-grade crossing improvements near Hayne Street	Grade crossing safety hotspot. Recommendations include integrate grade crossing signals with traffic signals, install new railroad crossing pavement markings at all approaches, and install new stop bar markings at crossing.	\$\$\$	Mid Term	ACOG, SPATS, Spartanburg County, City of Spartanburg
28	At-Grade Crossing	North Line Street (Greer) Rail Crossing Improvement	Perform N Line Street at-grade crossing improvements near Greer City Park.	Grade crossing safety hotspot. Recommendations include replace sidewalks through crossing surface on both sides, install detectable warning pads at crossing, install channelizing medians, install pedestrian gates in unprotected quadrants, improve existing signal system for additional gates, and install pavement marking and advance warning on Highland Ave.	\$\$\$	Mid Term	ACOG, GPATS, Greenville County, City of Greer
29	At-Grade Crossing	Hamrick Street (Gaffney) Rail Crossing Improvement	Perform Hamrick Street at-grade crossing improvements to address increase in traffic volumes related to industrial expansion in land uses and safety data.	Grade crossing safety hotspot. Recommendations include install gates in unprotected quadrants,	\$\$\$	Mid Term	ACOG, Cherokee County, City of Gaffney
30	At-Grade Crossing	Island Ford Street Rail Crossing Improvement	Perform at-grade crossing improvements at rail crossing on Island Ford Road near Hicks Grove Road	Grade crossing safety hotspot. Recommendations include replace missing stop sign at crossing, install advance warning signs on all approaches, and install crossing pavement marking on Hicks Grove Road. Special Consideration: Due to the close proximity to the SR 1113 grade separated crossing located less than one mile away, it is recommended to close the Island Ford Road at-grade crossing. A planning level estimate for closing the at-grade crossing is \$10,000.	\$	Mid Term	ACOG, Cherokee County
31	Corridor Study	U.S. 29 in Anderson County Corridor Study	Conduct a corridor study of US 29 to serve as an alternate route for I-85 to Georgia state line	Trucks experience some vehicle hours of delay near Georgia state line.	\$\$	Mid Term	ACOG, SCDOT, Anderson County
32	Corridor Study	U.S. 25 Corridor Study	Identify areas along US 25 from SC 11 to the North Carolina State Line where drainage must be replaced/improved and jersey barriers replaced	Pavement and jersey barriers are in poor condition for much of this segment. Corridor is a Critical Rural Freight Network.	\$\$	Mid Term	ACOG, SCDOT, Greenville County

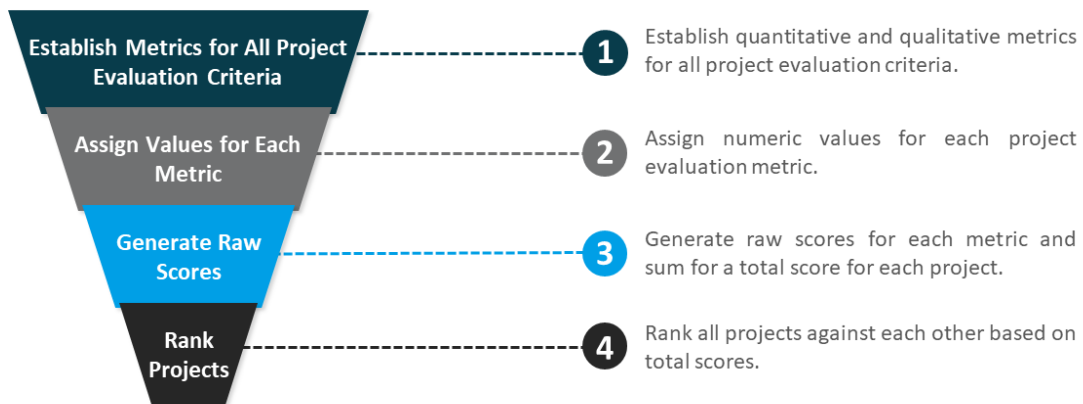
VII. Project Prioritization



Freight project prioritization is used to assist the ACOG and MPO partners with planning and programming decisions for freight projects in the region. Since the recommended projects vary widely in terms of scope and the goal areas they address, applying a prioritization scoring system can help even the playing field so projects can be easily compared against each other.

The prioritization framework, which is illustrated in **Figure VII-1**, identified several criteria that determine how well each project addressed the different freight plan goal areas. These criteria are listed in **Table VII-1**, along with information about whether the evaluation was qualitative, quantitative, or both, and the data source used to make this determination. This framework aligns with the overarching goal areas, supporting objectives, and performance measures identified in **Chapter III**. The criteria used either a “yes/no” or “high/medium/low” scoring system intended to provide higher-level qualifiable criteria at the regional level upon which planners can promote project recommendations into further evaluation and consideration in a more quantifiable analysis.

Figure VII-1: Project Evaluation and Prioritization Process



Each project then received a score for each metric, resulting in a total project score. The final scores help the ACOG’s staff and stakeholders understand how the proposed projects may perform under each criterion and how to prioritize these projects so that the projects that best address the freight plan goals are prioritized higher. These scores do not represent the funding, political, or other factors that may factor into each project when considered for implementation.

Table VII-1: Freight Project Prioritization Framework

Goal Area	Evaluation Criteria	Qualitative or Quantitative Evaluation	Data Source
Mobility and System Reliability	Address a High Congestion Location	Quantitative	ACOG Freight Plan GIS LOS Layer
	Addresses a Freight Bottleneck	Qualitative	ACOG Freight Plan GIS Truck Bottleneck Layer
	Is Project Located on a critical urban freight corridor (CUFC) or critical rural freight corridor(CRFC)?	Qualitative	SCDOT Statewide Freight Plan
	If Project Located on Designated Truck Route?	Qualitative	SCDOT Statewide Freight Plan
	Is Project Located on Tier 1, 2, or 3 Freight Network?	Qualitative	SCDOT Statewide Freight Plan
Safety and Security	Addresses a Hot Spot Crash Location	Qualitative	SCDOT Highway Safety Statistical Services
	Separates a Highway At-Grade Rail Crossing	Quantitative	ACOG Freight Plan GIS Crossing Hotspots Layer
	Incorporates Intelligent Transportation Systems (ITS)	Qualitative	Project Description
	Supports Truck Parking within a Freight Corridor/Cluster	Qualitative	Project Description and ACOG Freight Plan GIS Industrial Sites and Freight Generators Layer
Infrastructure Condition	Improves Roadway Condition on the State Freight Network (SFN)	Quantitative and Qualitative	SCDOT Statewide Freight Plan
	Improves Roadway on the Regional Freight Network (RFN)	Quantitative and Qualitative	SCDOT Statewide Freight Plan
	Addresses Poor Bridge Condition	Quantitative and Qualitative	SCDOT Statewide Freight Plan
Economic and Community Vitality	Supports an Existing or Future Freight Cluster	Quantitative	ACOG Freight Plan GIS Industrial Sites and Freight Generators Layer
	Supports an Existing or Future Freight Corridor	Quantitative	SCDOT Statewide Freight Plan
	Provides Access to a Freight Generator, Industrial Park, or Intermodal Facility	Quantitative	ACOG Freight Plan GIS Industrial Sites and Freight Generators Layer

Goal Area	Evaluation Criteria	Qualitative or Quantitative Evaluation	Data Source
Environmental	Project Avoids Sensitive Land Uses such as Agricultural and Preservation Areas	Quantitative	U.S Environmental Protection Agency Geospatial Resources
	Is Compatible with Surrounding Land Uses	Quantitative	ACOG Land Use Geospatial Resources
Equity	Project Avoids Environmental Justice (EJ) Populations	Quantitative	U.S Environmental Protection Agency Geospatial Resources
	Improves Public and/or Stakeholder Participation	Qualitative	Project Description

In addition to the freight prioritization framework, an Act 114¹⁶ prioritization freight filter is proposed to assist with prioritizing regional freight projects within the Act 114 prioritization process for the ACOG and MPO partners. The freight prioritization filter provides an additional point for projects located on the state and proposed regional freight networks. **Table VII-2** lists the criteria for the Act 114 freight filter. All the roadway projects provided in this plan would qualify for this additional freight prioritization criteria.

Table VII-2: Act 114 Freight Filter Criteria

Act 114 Freight Filter Criteria
Is project located on a critical rural freight corridor or critical urban freight corridor as defined in the South Carolina Freight Plan Update?
Is project located on state designated freight network as defined in the South Carolina Freight Plan Update?
Is project located on the tiered regional freight network as defined in the ACOG Regional Freight Mobility Plan?

All of the project recommendations are shown in **Table VII-3** with the different total weighted scores for the different plan goal areas and the final overall ranking.

¹⁶ Act 114 is the South Carolina state law that considers criteria such as pavement conditions, traffic, safety as well as engineering review for prioritization of transportation projects that support the SCDOT’s strategic and 10-year plans.

Table VII-3: Prioritized Freight Projects

PROJECT INFORMATION			TOTAL WEIGHTED SCORE							
Project ID	Project Type	Project Name	Mobility and System Reliability	Safety and Security	Infrastructure Conditions	Economic and Community Vitality	Environmental	Equity	Total Score - Weighted	Final Ranking
8	Interchange Improvements	I-85 Interchange Improvements Study at Exits 58 (Brockman McClimon Road) and 60 (SC 101)	6.67	2.08	11.11	16.67	16.67	12.50	65.69	1
6	Smart Corridor Study/TSMO	Dynamic Messaging System Installation along I-85 from Georgia state line to North Carolina state line	5.00	10.42	0.00	16.67	16.67	4.17	52.92	2
13	Corridor Study	Corridor Study of U.S. 29	10.00	0.00	0.00	11.11	16.67	12.50	50.28	3
5	Smart Corridor Study/ Transportation System Management and Operations (TSMO)	Smart Corridor, TSMO of I-85 Corridor from Georgia state line to North Carolina state line	5.00	6.25	0.00	16.67	16.67	4.17	48.75	4
18	Corridor Study	Analysis of Traffic Operations in the Woodruff Road Corridor within the I-85/I-385 Interchange Area	10.00	8.33	0.00	0.00	16.67	12.50	47.50	5
14	Corridor Study	Corridor Study for Pine Street Alternatives	10.00	0.00	0.00	5.56	16.67	12.50	44.72	6
7	Smart Corridor Study/TSMO	Blinders installed on Jersey Barriers of I-85 (Gossett Road to E Cherokee Street)	5.00	2.08	0.00	16.67	16.67	4.17	44.58	7
9	Corridor Study	Safety Study of I-85 Business (N Blackstock Road to Sun N Sand Road)	3.33	2.08	0.00	13.89	8.33	16.67	44.31	8
15	Corridor Study	U.S. 29 Corridor Study from East Gaffney to Blacksburg	11.67	0.00	0.00	2.78	16.67	12.50	43.61	9
17	Corridor Study	U.S. 29 Subarea Study for Downtown Spartanburg from Blackstock Road to U.S. 176	3.33	0.00	0.00	11.11	16.67	12.50	43.61	10
11	Signal Optimization	Signal Optimization at I-85 Interchange at SC 14	6.67	6.25	0.00	8.33	16.67	4.17	42.08	11
3	Bridge Rehabilitation	Downtown Greenville bridge rehabilitation projects: Camperdown Way/Church Street and Academy Street/Broad Street	10.00	0.00	16.67	5.56	0.00	8.33	40.56	12
10	Signal Optimization	Signal Optimization at I-85 Interchange at Pelham Road Interchange to I-385	5.00	8.33	0.00	5.56	16.67	4.17	39.72	13
4	Corridor Study	Greenville Signal timing improvements on U.S. 276 from I-85 to SC 253	6.67	4.17	0.00	11.11	8.33	8.33	38.61	14
26	Intersection Improvement	U.S. 123 at SC 93 in Easley Intersection Improvement	10.00	0.00	0.00	5.56	8.33	12.50	36.39	15
16	Corridor Study	U.S. 29 Wayfinding Analysis from East Gaffney to Blacksburg	11.67	0.00	0.00	2.78	16.67	4.17	35.28	16
28	At-Grade Crossing	North Line Street (Greer) Rail Crossing Improvement	0.00	4.17	5.56	0.00	16.67	8.33	34.72	17
19	Corridor Study	Access Management Study SC 101 south of I-85 East of Greenville	6.67	0.00	0.00	11.11	8.33	8.33	34.44	18
2	Corridor Study	Anderson Area Corridor Study for Mobility Improvements (N Murray Avenue, E North Ave, N Main Street to U.S. 28)	10.00	0.00	0.00	5.56	0.00	16.67	32.22	19
24	Corridor Study	Corridor Study for SC 8 from I-85 to Pelzer	6.67	6.25	0.00	16.67	0.00	0.00	29.58	20
31	Corridor Study	U.S. 29 in Anderson County Corridor Study	6.67	6.25	0.00	16.67	0.00	0.00	29.58	20
25	Corridor Study	U.S. 123 Corridor Study	6.67	4.17	0.00	5.56	8.33	4.17	28.89	22
32	Corridor Study	U.S. 25 Corridor Study	6.67	4.17	0.00	5.56	8.33	4.17	28.89	22
29	At-Grade Crossing	Hamrick Street (Gaffney) Rail Crossing Improvement	0.00	4.17	11.11	0.00	8.33	4.17	27.78	24
1	Corridor Study	U.S. 29 (Southwest of Anderson) Corridor Study for New Weigh in Motion Station	0.00	4.17	0.00	5.56	8.33	8.33	26.39	25
21	Bridge Rehabilitation	Bridge Rehabilitation for Andrews Pickens Scenic Highway and Whitfield Road	3.33	6.25	16.67	0.00	0.00	0.00	26.25	26
30	At-Grade Crossing	Island Ford Street Rail Crossing Improvement	3.33	8.33	5.56	0.00	8.33	0.00	25.56	27
20	Truck Parking Site	Truck Parking Site Selection Study of I-85 Corridor from Georgia State Line to Clemson Highway interchange	5.00	6.25	0.00	5.56	0.00	8.33	25.14	28
27	At-Grade Crossing	Cleveland Street (Spartanburg) Rail Crossing Improvement	6.67	0.00	0.00	5.56	8.33	4.17	24.72	29
22	Interchange Improvements	I-85 at Whitfield Road Interchange Area Improvements	6.67	2.08	0.00	0.00	8.33	0.00	17.08	30
12	Corridor Study	Access Management and Safety Subarea Study for Tiger Boulevard	3.33	0.00	0.00	0.00	0.00	8.33	11.67	31
23	Corridor Study	SC 24 Corridor from I-85 Southeast to Westgate	6.67	4.17	0.00	0.00	0.00	0.00	10.83	32

VIII. Policy and Programmatic Recommendations



Policies and programs are different than projects because they are not one-time infrastructure improvements, but rather address broader, systemic issues. Policies are recommendations that provide guidance in the maintenance and investment of the freight infrastructure and movement of goods. Programs are recommendations for short-term interventions to improve the regional freight mobility system.

Similar to freight project recommendations, the freight policy and programmatic recommendations also provide guidance to the ACOG, MPO partners, and freight stakeholders for maintaining and improving the regional freight network. The recommended freight policies and programs were identified during the development of this regional freight plan from multiple sources, including local and regional transportation plan reviews, freight best practices, regional freight land use analysis, freight transportation needs analysis, and stakeholder involvement. The 20 policy recommendations and six programmatic recommendations are summarized below in **Table VIII-1**. Each policy recommendation includes a short description, the plan goals addressed through the recommendation, the estimated time frame, the applicable roadways or areas within the study region, and the entities associated with implementation of the recommendation. Short-term recommendations are those that can be implemented within 5 years. Mid-term recommendations require more coordination, planning, and/or funding and can be implemented within 5 to 10 years. Long-term recommendations require 10 or more years for implementation.

Table VIII-1: Freight Policy and Programmatic Recommendations

ID	Type	Name	Recommendation	Plan Goals Addressed (in bold)	Potential Implementation Ownership	Location	Time Frame
POL-1	Policy	Retirement or Retrofit of Aging Heavy-Duty Vehicles and Rail Equipment	Support the accelerated retirement of older model year heavy duty vehicles and rail equipment focusing on idle reduction and low emissions technology. The ACOG can partner with federal and state funding sources to promote participation in grant programs to improve fuel efficiency of vehicles or other related efforts to improve the freight fleet. Possible funding sources: <ul style="list-style-type: none"> Federal – the Environmental Protection Agency’s (EPA) Diesel Emissions Reduction Act (DERA) Program.¹⁷ State - South Carolina Diesel Emissions Reduction Act (DERA) Grants¹⁸ Consider for FHWA’s Alternative Fuel Corridors Designation. ¹⁹	<ol style="list-style-type: none"> Mobility & Reliability Safety & Security Infrastructure Condition Economic Vitality Environmental Equity 	<ul style="list-style-type: none"> ✓ ACOG ✓ Inland Port Greer ✓ Study Area Counties ✓ Municipal Partners ✓ SCDOT ✓ Truck Owners ✓ Rail Operators 	Regionwide	Short-Term
POL-2	Policy	Inspection and Maintenance of Vehicles	Support improved inspection and maintenance of vehicles to minimize emissions.	<ol style="list-style-type: none"> Mobility & Reliability Safety & Security Infrastructure Condition Economic Vitality Environmental Equity 	<ul style="list-style-type: none"> ✓ SCDOT ✓ SCDPS ✓ SCDMV ✓ SCDHEC ✓ Truck Owners 	Regionwide	Short-Term
POL-3	Policy	Actively Seek and Grow Public-Private Partnerships	Leverage public-private partnerships for funding non-highway improvements. This may include partnerships for the development of parking facilities with private travel centers, manufacturing or distribution focused facilities, or alternative fuels distribution centers. It also includes public-private partnerships between railroad and governmental entities to address institutional and infrastructure issues.	<ol style="list-style-type: none"> Mobility & Reliability Safety & Security Infrastructure Condition Economic Vitality Environmental Equity 	<ul style="list-style-type: none"> ✓ ACOG ✓ SCDOT ✓ Study Area Counties ✓ Municipal Partners ✓ Truck Owners ✓ Rail Operators ✓ Freight Businesses 	Regionwide	Long-Term
POL-4	Policy	Integration of Truck Parking into Land Use Plans	Incorporate truck parking needs into land use planning activities. Regional planning agencies may consider incentivizing or requiring truck parking if proposed land uses are expected to generate truck traffic. Using the freight corridors in the ACOG Freight Mobility Plan, locations are identified for site evaluations for additional truck parking resources within those corridors. Upon completion of the SCDOT Truck Parking Study, further truck parking recommendations can be made	<ol style="list-style-type: none"> Mobility & Reliability Safety & Security Infrastructure Condition Economic Vitality Environmental Equity 	<ul style="list-style-type: none"> ✓ ACOG ✓ Study Area Counties ✓ Municipal Partners ✓ SCDOT 	Regionwide	Short-Term
POL-5	Policy	Increase Interagency Coordination at the State Level	The SCDOT Statewide Freight Plan identifies I-85, which traverses the Upstate, and I-385, located near Greenville, as priority corridors for future freight improvements. Regional partners should continue to coordinate with the state as these improvements become necessary and opportunities for these projects become available, and include freight stakeholders in the public engagement process to support design elements, safety, and maintenance of traffic issues. This is reinforced in the GPATS Horizon 2040 LRTP	<ol style="list-style-type: none"> Mobility & Reliability Safety & Security Infrastructure Condition Economic Vitality Environmental Equity 	<ul style="list-style-type: none"> ✓ ACOG ✓ SCDOT ✓ GPATS ✓ Study Area Counties ✓ Municipal Partners 	I-85 (Gossett Road to E Cherokee Street)	Short-Term
POL-6	Policy	Subarea and Neighborhood Freight Plan Program	Develop strategies and design standards to reduce conflicts between freight, auto, transit, bicycles, and pedestrians for small towns and neighborhoods. This includes establishing “logistics villages” based on the development clusters identified in the land use analysis to help increase economic activity and transportation efficiency at these sites, such as access between intermodal and private distribution centers, rest and parking areas for drivers, and fixing choke points and bottlenecks. This is particularly viable in areas of highly concentrated rural freight generators.	<ol style="list-style-type: none"> Mobility & Reliability Safety & Security Infrastructure Condition Economic Vitality Environmental Equity 	<ul style="list-style-type: none"> ✓ ACOG ✓ Study Area Counties ✓ Municipal Partners 	Regionwide	Mid-Term

¹⁷ <https://www.epa.gov/dera>¹⁸ <https://scdhec.gov/environment/businesses-communities-go-green/environmental-loans-grants-businesses-communities/south>¹⁹ https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/

ID	Type	Name	Recommendation	Plan Goals Addressed (in bold)	Potential Implementation Ownership	Location	Time Frame
POL-7	Policy	Develop Context-Sensitive Design Guidelines	Develop detailed, context-sensitive design guidelines for freight movement along the U.S. 29 corridor. This should include considerations of the SCDOT Roadway Design Guidelines and incorporate local land uses as part of the planning and conceptual design process. In addition to observed traffic and safety issues, adjacent land uses should be used to identify preferred typical sections to design or redesign roadways safety for freight vehicles. Refer to the BCDCOG Neck Area Master Plan for detailed design guidelines.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ ACOG ✓ SCDOT ✓ Study Area Counties ✓ Municipal Partners	Regionwide	Short-Term
POL-8	Policy	Mauldin/Clemson University International Center for Automotive Research (CU-ICAR) Subarea Plan	Mauldin/CU-ICAR Subarea Plan to incorporate the development at ICAR and the industrial land uses and determine how this will impact freight movement within the subarea. CU-ICAR expansion can be rolled into a subarea plan to evaluate how freight fits into this area.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ Mauldin ✓ CU-ICAR ✓ Greenville County ✓ ACOG	Mauldin/CU-ICAR area	Short-Term
POL-9	Policy	Automotive and Transportation Industry Collaborations	Collaborations with the automotive and transportation industry in the area to develop ITS strategies to address freight movement issues and the safety issues. Opportunity to showcase SC's automotive industry knowledge with a smart corridor/city area that uses enhanced ITS and other technological measures - CU-ICAR has received \$2 Million in funds for another building development that incorporates V2I (Vehicle to Infrastructure) technology, which may include antennas, sensors, and cameras to amplify the smart development.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ ACOG ✓ Automotive and Transportation Industry Representatives ✓ CU-ICAR ✓ SCDOT	Mauldin/CU-ICAR area	Short-Term
POL-10	Policy	Regional Freight-Related Economic Development Study	Build upon the data collection effort of the ACOG Regional Freight Mobility Plan to determine freight-related planned acreage and future industry cluster recruitment and marketing strategies. This effort should include a review of available utilities and transportation infrastructure as well as ways to provide workforce transportation to these locations. Opportunities to expand freight related industry within the region through marketing and recruiting of new industries the region may want to expand into.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ ACOG ✓ SC Department of Commerce ✓ Economic Development Partners ✓ Truck Owners ✓ Rail Operators ✓ Other Freight Businesses	Regionwide	Long-Term
POL-11	Policy	Regional Supply Chain Resiliency Strategy	Develop a strategy to create immunity to local and global impacts to the network supply chain. From the impacts of COVID-19, examine ways to ensure the supply chain can be resilient to multiple effects.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ ACOG ✓ SC Department of Commerce ✓ Economic Development Partners ✓ Truck Owners ✓ Rail Operators ✓ Freight Businesses	Regionwide	Long-Term
POL-12	Policy	Develop Interstate Megaregional Freight Plan	Building upon the efforts of the ACOG Regional Freight Mobility Plan and the Berkeley, Charleston, Dorchester Regional Freight Mobility Plan, a megaregional freight plan focusing on the I-85 corridor through the ACOG, connecting with the Charlotte, North Carolina and Atlanta, Georgia regions would provide a multistate element to larger mobility and development concepts. This should focus on an enhanced Smart I-85 Corridor that connects regional freight traffic.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ ACOG ✓ BCDCOG ✓ Cherokee, Spartanburg, Greenville, Anderson, Oconee Counties ✓ SCDOT ✓ GDOT ✓ NCDOT ✓ Municipal Partners	Regionwide	Short-Term

ID	Type	Name	Recommendation	Plan Goals Addressed (in bold)	Potential Implementation Ownership	Location	Time Frame
POL-13	Policy	Regional Freight Security Program	Continue to support the development of an effective working relationship with planning officials, law enforcement, emergency response personnel, and freight providers to improve freight security. Communication with agencies and stakeholders is essential to a proactive approach to security issues. This is reinforced in the GPATS Horizon 2040 LRTP.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ GPATS ✓ Study Area Counties ✓ Municipal Partners ✓ SCDOT ✓ Law enforcement and emergency response departments ✓ Freight Businesses	Regionwide	Long-Term
POL-14	Policy	Comprehensive Inventory and Assessment of Rail Crossings	Continue to identify and fund improvements, such as highway-rail grade separations, at rail crossings throughout the region to reduce risks associated with these locations. The region's numerous active rail lines make railroad crossings more frequent and increases the potential for conflicts. This is reinforced in the GPATS Horizon 2040 LRTP.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ Class I Railroads ✓ Other Railroad Owners ✓ SC Department of Commerce ✓ Municipal Partners ✓ SCDOT ✓ GPATS	Regionwide	Short-Term
POL-15	Policy	Highway Rail Crossing Closures	Continue to monitor highway-rail at-grade crossings and explore opportunities to close these crossings in close coordination with stakeholders and the community. A strategy aimed at increasing public safety and promoting economic development through selective closure of identified rail crossings. Crossing consolidation can help reduce traffic congestion, noise, and other effects of railroad crossings.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ Class I Railroads ✓ Other Railroad Owners ✓ SC Department of Commerce ✓ Municipal Partners ✓ SCDOT	Regionwide	Long-Term
POL-16	Policy	Quiet Zone Designations	Assess areas disproportionately impacted by train horn noise for potential quiet zone designation. A section of track at least one-half mile long, comprised of one or more consecutive crossings where train horns are not routinely sounded. Quiet zones are established to reduce noise and promote/improve quality of life for residents and businesses.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ Class I Railroads ✓ Other Railroad Owners ✓ Municipal Partners ✓ SCDOT	Regionwide	Short-Term
POL-17	Policy	Identify Trespassing Hot Spots	Identify trespassing "hot spots" and implement technology to aid in the monitoring of these areas in coordination with local law enforcement. Rail right-of-way trespassing often stems from a lack of education/knowledge about the dangers of trespassing, lack of enforcement, and poor community planning decisions. Technology is improving the ability of enforcement agencies to monitor right-of-way and dispatch personnel.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ Law enforcement departments ✓ Freight Businesses ✓ SCDOT ✓ Municipal Partners	Regionwide	Mid-Term
POL-18	Policy	Noise and Vibration Impacts	Assess areas disproportionately impacted by the effects of noise and vibration resulting from nearby rail operations. Noise and vibration from passing trains can be extremely detrimental to the public health and economic development of a community. The impacts range from lower land values, creating resident complaints, deteriorating structures, limitations on the type of development that can occur in the vicinity of a rail line.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ Class I Railroads ✓ Other Railroad Owners ✓ Municipal Partners ✓ SCDOT	Regionwide	Short-Term
POL-19	Policy	Regional ITS Master Plan	Develop a Regional ITS Master Plan. Coordinate with state, regional, and local agencies for ITS improvements throughout the region. Based on the Best Practices review, it is suggested that this include applications for Dynamic Truck Parking Signage System, providing information on available parking for drivers.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ ACOG ✓ SCDOT ✓ GPATS ✓ ANATS ✓ SPATS	Regionwide	Mid-Term

ID	Type	Name	Recommendation	Plan Goals Addressed (in bold)	Potential Implementation Ownership	Location	Time Frame
POL-20	Policy	Rail Inland Port Study	Conduct a Inland Port Greer Study. A freight focus group for SPATS 2040 LRTP held on 10-15-15 found that growth at the inland port is constrained, and longer train sets and more trains will become increasingly noticeable in more communities. Study needed to determine how to grow inland ports and accommodate train traffic. This should include existing and forecast land uses in the subarea to guide decision making for transportation and mobility needs for continued growth.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	<ul style="list-style-type: none"> ✓ Inland Port Greer ✓ Class I Railroads ✓ SPATS 	Inland Port Greer	Short-Term
POL-21	Policy	Transportation Delivery and Logistics Workforce Action Plan	Based on the Best Practices review, the benefit of a TDL Workforce Action Plan would be realized by the various needs for employees and TDL related training in the region. This should include a review of available workers in the region, available training for TDL jobs in the region, and ways to reduce the gap between demand and available skilled workers.	1. Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	<ul style="list-style-type: none"> ✓ ACOG ✓ Technical Colleges ✓ Freight Advisory Committee ✓ Economic Development Partners 	Regionwide	Short-Term
PRG-1	Program	Urban Delivery Pilot Program/Wayfinding	Limit deliveries to Anderson subarea between specified hours. Truck prohibition for the downtown corridor. Urban delivery hours for the area. No through trucks signage where appropriate.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	<ul style="list-style-type: none"> ✓ ACOG ✓ Anderson County ✓ Municipal Partners ✓ Urban Delivery Businesses 	Anderson Roadways	Short-Term
PRG-2	Program	Incident Management Performance Measure	Reduce the average time to clear travel lanes for traffic incidents along Incident Management Zone is 20 minutes or less. Incident management program in urbanized areas should match SCDOT performance measure.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	<ul style="list-style-type: none"> ✓ SCDOT ✓ ACOG ✓ GPATS ✓ ANATS ✓ SPATS 	Greenville Roadways	Long-Term
PRG-3	Program	Greenville Regional Traffic Operations Program	Develop the Greenville Regional Traffic Operations Program. This program would integrate ITS tools for improving driver information, vehicle technology integration, and other multimodal improvements to inform and manage traffic operations.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	<ul style="list-style-type: none"> ✓ Greenville County ✓ City of Greenville ✓ SCDOT 	Greenville Roadways	Short-Term
PRG-4	Program	Ramp Metering Pilot Program	Conduct the Ramp Metering Pilot for I-85/I-385 for the urban areas of Anderson, Greenville, Spartanburg. Conduct a pilot for ramp metering Pleasantburg Drive/ I-385 on Eastbound Lane.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	<ul style="list-style-type: none"> ✓ Anderson, Greenville, and Spartanburg Counties ✓ Cities of Anderson, Greenville, Spartanburg ✓ SCDOT 	Greenville Roadways	Short-Term
PRG-5	Program	FAST ACT Alternative Fuel Corridors Program	Participate in the FAST Act Alternative Fuel Corridors program. This is a federal program for expanding alternative fuels.	1. Mobility & Reliability 2. Safety & Security 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	<ul style="list-style-type: none"> ✓ FHWA ✓ SCDOT ✓ ACOG ✓ Municipal Partners ✓ Study Area Counties 	I-85 (Gossett Road to E Cherokee Street)	Long-Term

IX. How to Use This Freight Plan



Implementation of the freight recommendations requires coordination from local, regional, state, and national partners, involving both public and private sectors. Because the ACOG is not directly responsible for land use planning, it is necessary that the freight plan is available to the local municipalities and governmental agencies to facilitate their efforts on comprehensive plan updates, mapping updates of the land use and zoning layers, and conduction of developmental services.

For infrastructure improvements, some of the recommended highway projects are already consistent with the regional MPOs' LRTPs and Transportation Improvement Program and will follow the project development process for implementation. Additional recommended highway projects may either be incorporated into each MPO's unfunded needs process and then moved into the LRTP (should additional funds become available), or be incorporated into SCDOT programs for implementation. Where rail, port, and airport projects are concerned, this freight plan will be made available to the various stakeholders for reference in their selection of improvement projects.

State and Federal Agencies

Statewide freight plans are used to guide the long range freight planning investments for each state with a focus on the state's entire freight network's needs and issues. While similar to the first/last mile trips, local and regional freight plans are freight planning documents that represent localized freight issues and needs for improving freight and goods movement on a local scale. These local and regional freight plans serve as puzzle pieces filling in these important pieces of the state's overall freight puzzle. Freight planning coordination with SCDOT needs to be a two-way dialogue. Just as the ACOG Regional Freight Mobility Plan will assist SCDOT with local freight needs and issues for inclusion in the overall state freight program, SCDOT must coordinate statewide freight issues and needs that may impact the Appalachian Region.

Similarly to how regional and MPO freight plans align with statewide freight plans, the statewide freight plans align with the national freight plan. Signed into law on December 4, 2015, the FAST Act provides updated federal guidance for transportation funding, including freight planning and investment. The FAST Act requires the development of a National Freight Strategic Plan, which includes mechanisms to monitor the conditions and performance of the national freight system.

The FAST Act provided a dedicated source of federal funding for freight projects, including multimodal projects, by establishing both formula and discretionary grant programs to fund projects that would benefit freight movements. Discretionary funding totaling \$4.5 billion was made available to states, MPOs, local governments, special purpose districts, and public authorities—including port authorities—from 2015 to 2020. A continuing resolution that extends the provisions of the FAST Act was passed when the bill was set to expire, providing funding through September 30, 2021.

Some opportunities to use discretionary federal funding include the RAISE (previously known as BUILD) and INFRA programs, congressional directed spending requests (earmarks), and U.S. Department of Transportation (USDOT) loan programs such as TIFIA and RRIF. A summary is provided below.

- **Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grant Program:** On April 13th the USDOT published a Notice of Funding Opportunity (NOFO) to apply for \$1 billion in Fiscal Year (FY) 2021 discretionary grant funding through the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grants (previously known as BUILD and TIGER grants). Projects for RAISE funding are evaluated based on merit criteria that include safety, environmental sustainability, quality of life, economic competitiveness, state of good repair, innovation, and partnership. Within these criteria, the Department will prioritize projects that can demonstrate improvements to racial equity, reduce impacts of climate change and create good-paying jobs. Because It is one of the few DOT discretionary programs for which regional and local governments can directly compete for multimodal transportation funding, the program is highly competitive.
- **Infrastructure for Rebuilding America (INFRA) Grant Program:** In March, the USDOT announced the FY 2021 round of the Infrastructure for Rebuilding America (INFRA) discretionary grant program to fund transportation projects of national and regional significance that are in line with the Biden Administration’s principles for national infrastructure projects that result in good-paying jobs, improve safety, apply transformative technology, and explicitly address climate change and racial equity. The funding available for this year’s grants totals approximately \$889 million. Eligible INFRA project costs may include reconstruction, rehabilitation, acquisition of property (including land related to the project and improvements to the land), environmental mitigation, construction contingencies, equipment acquisition, and operational improvements directly related to system performance. The INFRA NOFO also announced the creation of the “INFRA Extra” Program, which will identify competitive INFRA applicants who do not receive an INFRA award and authorize them to seek a Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) loan up to 49 percent of their project cost. While the FY’21 round for INFRA grants has passed, projects in this plan could be eligible for future rounds of this grant program.
- **Railroad Rehabilitation & Improvement Financing (RRIF) Loan Program:** Under this program the Department of Transportation is authorized to provide direct loans and loan guarantees up to \$35.0 billion to finance development of railroad infrastructure. Not less than \$7.0 billion is reserved for projects benefiting freight railroads other than Class I carriers. Direct loans can fund up to 100% of a railroad project with repayment periods of up to 35 years and interest rates equal to the cost of borrowing to the government. The funding may be used to:

 - Acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, components of track, bridges, yards, buildings and shops, and including the installation of positive train control systems;
 - Develop or establish new intermodal or railroad facilities;
 - Reimburse planning and design expenses relating to activities listed above;

- Refinance outstanding debt incurred for the purposes listed above; and
- Finance transit-oriented development (credit assistance only available until December 4, 2019)
- **Transportation Infrastructure Finance and Innovation Act (TIFIA) Grant Program:** provides Federal credit assistance to eligible surface transportation projects, including highway, transit, intercity passenger rail, some types of freight rail, intermodal freight transfer facilities, and some modifications inside a port terminal. The FAST Act continues the authority of the TIFIA program to provide to States (including D.C. and Puerto Rico), localities, or other public authorities, as well as private entities undertaking projects sponsored by public authorities, three distinct types of financial assistance:
 - Secured loans: direct Federal loans to project sponsors offering flexible repayment terms and providing combined construction and permanent financing of capital costs.
 - Loan guarantees: full-faith-and-credit guarantees by the Federal Government to institutional investors, such as pension funds, that make loans for projects.
 - Lines of credit: contingent sources of funding in the form of Federal loans that may be drawn upon to supplement project revenues, if needed, during the first 10 years of project operations. [23 U.S.C. 603 and 604].

Another opportunity for federal discretionary funding that could be used for projects identified in this plan are Congressional Member Directed Spending Projects, also known as earmarks. For the first time in 10 years Congress is accepting earmark requests for both the House T&I committee infrastructure bill and the regular transportation appropriations bills. Members in both House and Senate leadership have indicated they hope member directed projects (known as Community Project Funding (CPF) Requests) will be an ongoing and recurring process in future annual appropriations bills, opening a new line of funding possibilities for State and local governments. It is generally thought that the funding requested should not exceed \$1,500,000 (smaller dollar amounts will be more competitive). The total amount of funding in each appropriations bill reserved for CPF will not exceed 1% of the total spending in the bill.

Metropolitan Planning Organizations

The ACOG Regional Freight Mobility Plan is an integrated planning effort between the ACOG and the three MPOs in the region: ANATS, GPATS, and SPATS. Representatives from each of these MPOs were part of the Freight Plan's Steering Committee and the adoption of this plan will sustain the ongoing dialogue of supporting freight mobility in the region. By design, the recommendations of this Freight Plan are not given numeric scoring but rather relative prioritization on a regional level. Those recommendations should be considered for further analysis and inclusion in local prioritization processes.

Municipalities, Counties, and Economic Development Organizations

Moving goods and freight is critical to the Appalachian economy. The development of strategies to target land to preserve for future freight needs will be important as the ACOG region anticipates more freight to travel through in the upcoming decades. It is recommended that local governments review this Freight Plan and consider approval and/or adoption to take it into consideration and as a reference for future land use decision-making.

Prioritizing developing sites located in existing freight corridors and concentrations that are closest to major freight generators is crucial in preserving the most strategic areas of land for freight-related growth. Any new industrial development should be located adjacent to or in proximity of the freight transportation network. Locating developments close to the freight network will minimize freight impact on the community, while also providing direct access to the network. Once these strategic sites are developed for other uses, it will be difficult to convert them to freight uses in the future.

As highlighted in the Freight Plan, alignment of land use and transportation planning in the freight context provides for appropriate infrastructure design that supports both efficient and safe movement for all modes of transportation. This also prevents potential conflicts in modes and land uses. Regional freight land use planning needs to be coordinated with local municipalities and counties, and will need to be adopted into their local zoning and land use planning processes.

Private Sector Interests

As freight volumes in the Appalachian Region are projected to have continued growth, the discussion of regional freight needs and issues should be kept in the forefront of regional coordination. Several of this Freight Plan's recommendations involve key partnerships with and support from the private sector, such as leveraging public-private partnerships for funding non-highway improvements and developing collaborations between industries. Additionally, while land use designations are decided by local governments, it is also important that the private sector coordinate with local governments to identify the best locations for freight-intensive land development that can lead to the organic development of "freight villages" or "logistics clusters."

Building on the foundation of the regional freight plan, the continuation of FAC meetings is important to sustaining the discussion of freight with regional partners. It is recommended that this group continue to meet regularly to share information on freight and economic development-related needs and issues that exist within the Appalachian Region, and oversee the implementation of recommended policies and projects from this Freight Plan. As the regional freight program continues to evolve, this group can continue to provide important feedback and direction for future freight developments. Implementation of the Freight Plan's recommendations, championed by the ACOG, will support the critical role the public and private sector organizations play in the condition of the freight transportation infrastructure and network of relationships.