BCD REGIONAL FREIGHT MOBILITY PLAN

Regional Freight Mobility Plan
FINAL REPORT

Prepared by:

CDM Smith

MODERN MOBILITY partners

TranSystems
EXPERIENCE | Transportation

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BCDCOG
BERKELEY-CHARLESTON-DORCHESTER
COUNCIL OF GOVERNMENTS

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1. INTRODUCTION

The three-county Berkeley-Charleston-Dorchester (BCD) region, serves as a major trade gateway, linking the state and southeastern U.S. markets to the world. This region is also experiencing significant growth, with new industry and residents relocating to the area daily. This growth, however, has come with challenges, such as increased roadway congestion and safety issues, higher vehicle emissions, and inadequate truck parking capacity problems, all of which can have negative impacts on freight mobility.

Freight mobility is an important aspect of the area's transportation system performance and a major driving force for the tri-county economy. The BCD Regional Freight Mobility Plan (Freight Plan) provides the region, illustrated in **Figure 1-1**, with a blueprint for developing a transportation network that provides for the safe and efficient movement of goods and people, and support economic growth while simultaneously minimizing the negative impacts associated with increased freight movement. The Plan takes an integrated land use-transportation planning approach to identify the area's freight transportation needs, and provides a comprehensive, multimodal mix of infrastructure improvements, and policy and program recommendations to address these issues.

1.1 How Goods Movement and Deliveries Benefit the BCD Region

Charleston's economy has always been dependent on freight and trade, beginning with its founding as a colonial port city in 1670. The same holds true today as the BCD region's continued economic prosperity and competitiveness depends on the safe, efficient, and reliable movement of goods and people. An important element of this Freight Plan was an economic impact assessment, detailed in Appendix E. Based on this analysis, millions of tons of freight worth billions of dollars traverse the area's multimodal freight transportation infrastructure annually, generating just over a third of the region's economy (38 percent) and around one-fifth of the state's economy (18 percent), based on the average direct, indirect, and induced impacts of the freight industry on the region's sales output, gross regional product (GRP), income, and jobs created.

This economic impact translates into nearly 200,000 jobs and billions of dollars of income, GRP, and goods and services sold (**Figure 1-2**). This means that freight contributes 44 percent of the region's economic output, 36 percent of the GRP, 35 percent of the region's income, and 37 percent of the region's jobs. In addition to being a sizeable industry itself, the multimodal freight transportation network also supports other key industries throughout the BCD region, including professional services, accommodation and food services, transportation, and warehousing. The multimodal network provides BCD businesses with access to domestic and global supplies, facilities, and markets.

Figure 1-1 : Freight Plan Study Area

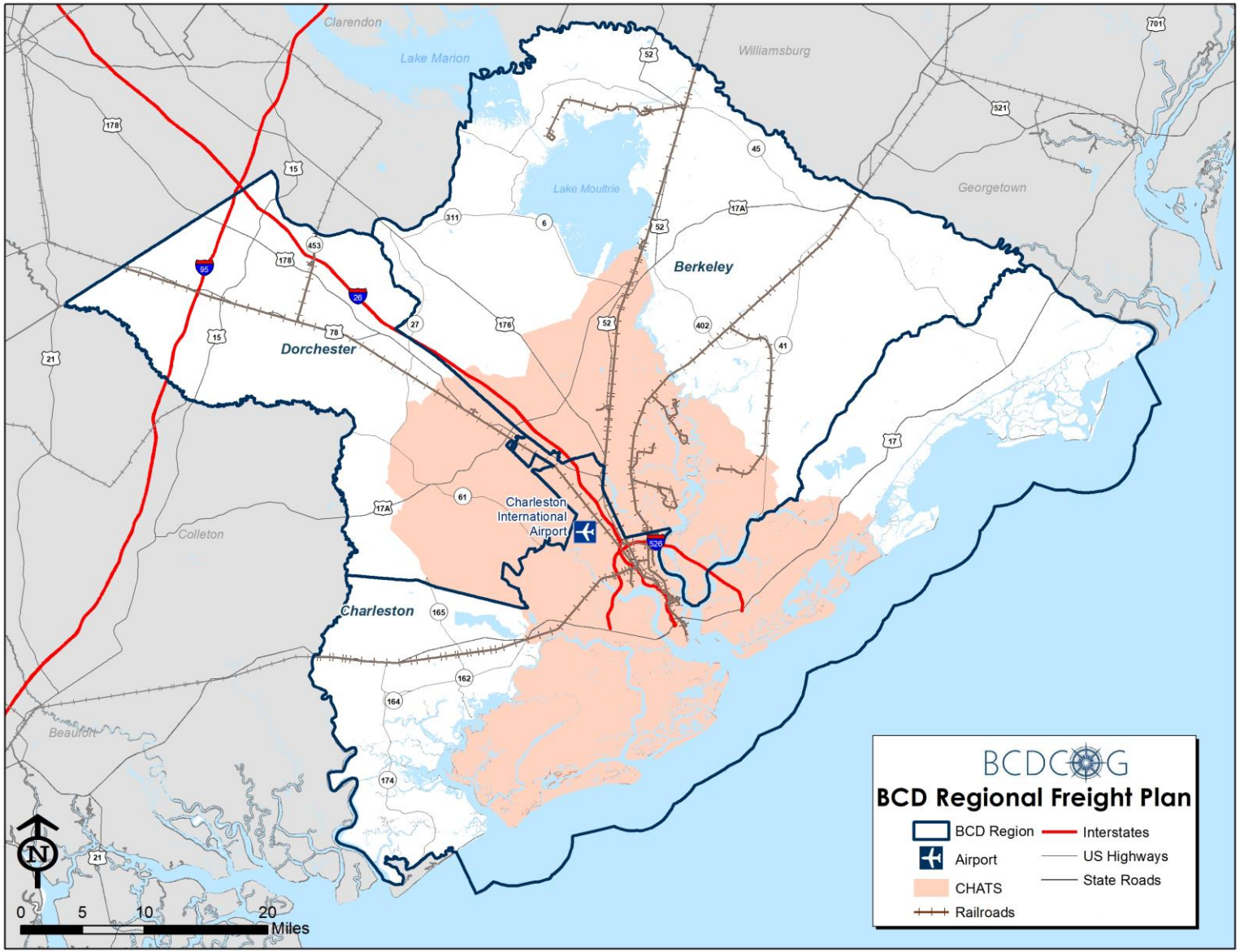


Figure 1-2: BCD Freight Economic Impacts

The region's freight infrastructure plays a pivotal role in both the local and state economies as it facilitates the movement of goods to and from many local industries and households, as well as national and international markets. The majority of freight moving along the region's multimodal network is through freight, meaning it both originates and terminates outside of the BCD area (**Figure 1-3**). This includes 23 million tons of freight moved via the Port of Charleston which were transferred to truck or rail. The through freight moving on BCD's transportation network mainly represents interstate trade among states along the eastern seaboard. 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 economy.

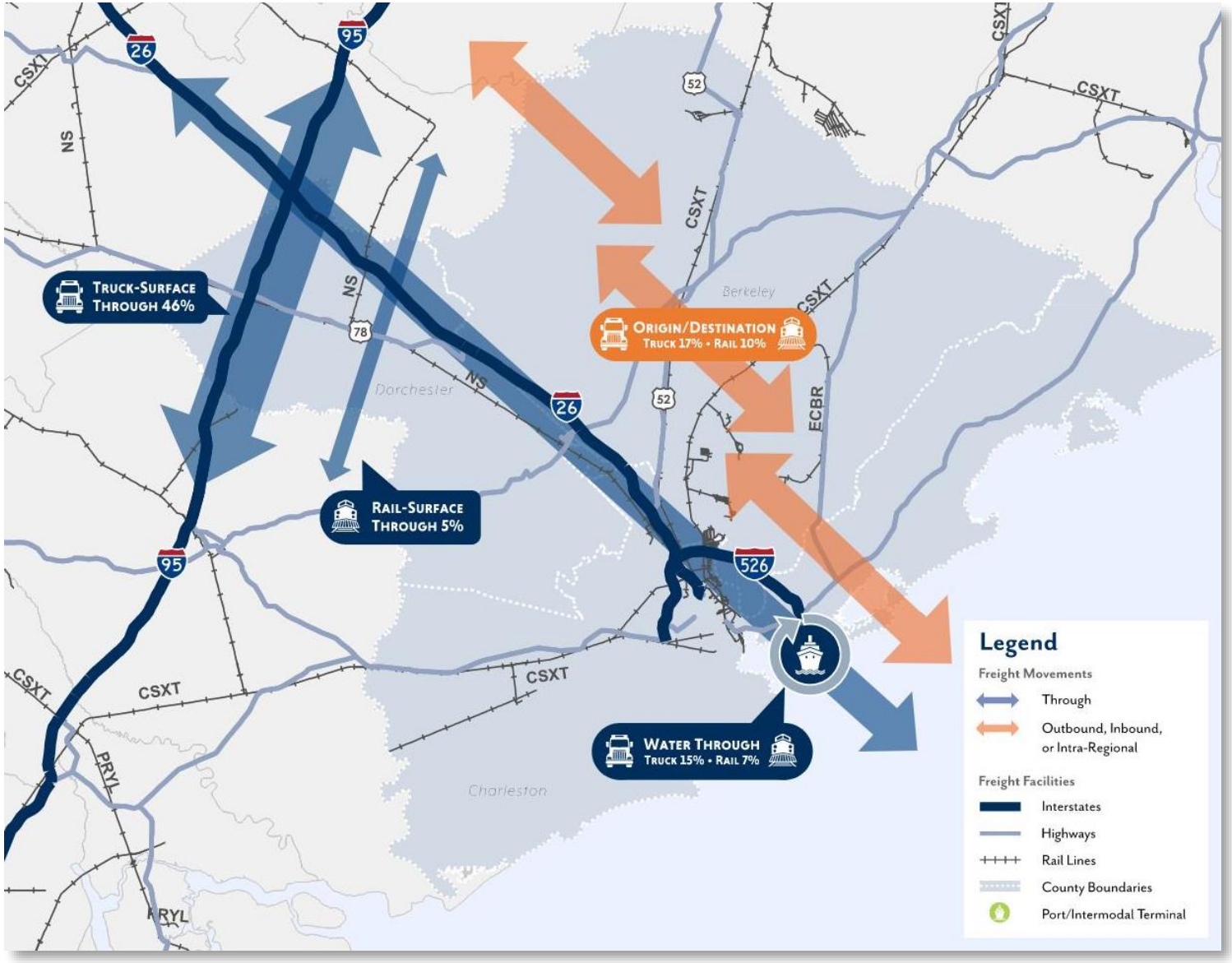
1.2 Regional Freight Mobility Planning Objectives

BCDCOG focuses on providing multimodal transportation solutions for the three-county area of Berkeley, Charleston, and Dorchester. The multimodal freight networks serving the region accommodate significant freight volumes moving by highway, rail, water, and air to meet the demands of a diverse range of freight dependent businesses as well as the consumption demands of a growing local population. This freight movement is the driving force behind the economy and local development. BCDCOG developed this Freight Plan to provide an in-depth evaluation of the area's freight conditions, identify trends, challenges and opportunities, and guide freight investment in the region.

The key objectives of the Freight Plan are to:

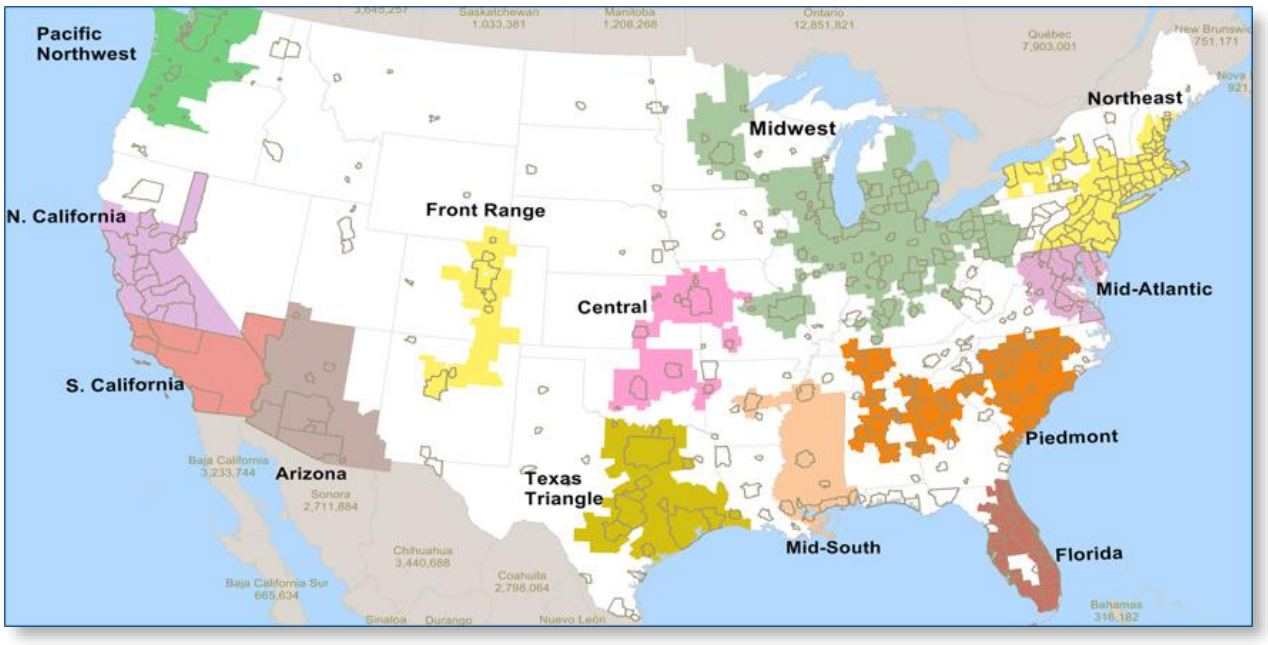
- Collect system freight data that supports ongoing regional freight planning
- Create a framework for analyzing freight performance measures and identifying freight-specific issues on the transportation network to inform a set of strategic recommendations
- Guide the prioritization and implementation of future investments, policies, and strategies in the short-, mid-, and long-term that improve the safety, security, mobility, operations, and reliability of the freight transportation system and support the economic development goals of the region
- Develop a baseline planning tool to help incorporate freight mobility into the broader range of planning efforts of the BCD region, reinforcing the regional significance of safe and efficient freight mobility

Figure 1-3: Freight Movement in the BCD Region



Successful freight planning requires a coordinated multijurisdictional approach, therefore BCDCOG worked in close partnership with the South Carolina Department of Transportation (SCDOT), the Federal Highway Administration (FHWA), and other local stakeholders to ensure that the BCD Regional Freight Mobility Plan aligns with other freight planning efforts at all levels of government. It was also conducted in close coordination with the Appalachian Council of Governments (ACOG), which facilitates the transportation planning process for the Upstate region of South Carolina including the six counties of Anderson, Cherokee, Greenville, Oconee, Pickens, and Spartanburg. Both regions are connected via the interstate highway I-26 and a major rail corridor, and are part of the same FHWA Piedmont megaregion. Megaregional coordination recognizes that transportation planning must go beyond traditional planning boundaries to better understand and accommodate the movement of goods and people. FHWA megaregions are illustrated in **Figure 1-4**. The Freight Plan enhances and expands on other relevant plans in the region, which were used to develop the goals and objectives of the plan.

Figure 1-4: FHWA Megaregions



Source: FHWA

Freight planning has also become a required element of the transportation planning conducted by states, metropolitan areas, and local governments. The Fixing America's Surface Transportation (FAST) Act emphasized sound freight planning at the state and regional levels to strengthen economic competitiveness, reduce congestion, improve safety, and reduce the environmental impact of freight movement. States and regions are also increasingly aware of the impact that efficient freight transportation can have on economic development outcomes.

The purpose of this Freight Plan is to serve as a strategic planning tool for BCDCOG. 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. Local governments are increasingly aware of the community impacts of freight growth, which include safety concerns, emissions, and unauthorized truck parking. Emerging technology applications—which are being increasingly adopted by the freight industry, sometimes in partnership with public agencies—can mitigate some of these issues. Others require innovative public-private partnerships to deliver infrastructure solutions that benefit both parties. A larger discussion of freight planning best practices and emerging technologies is presented in Appendix B.

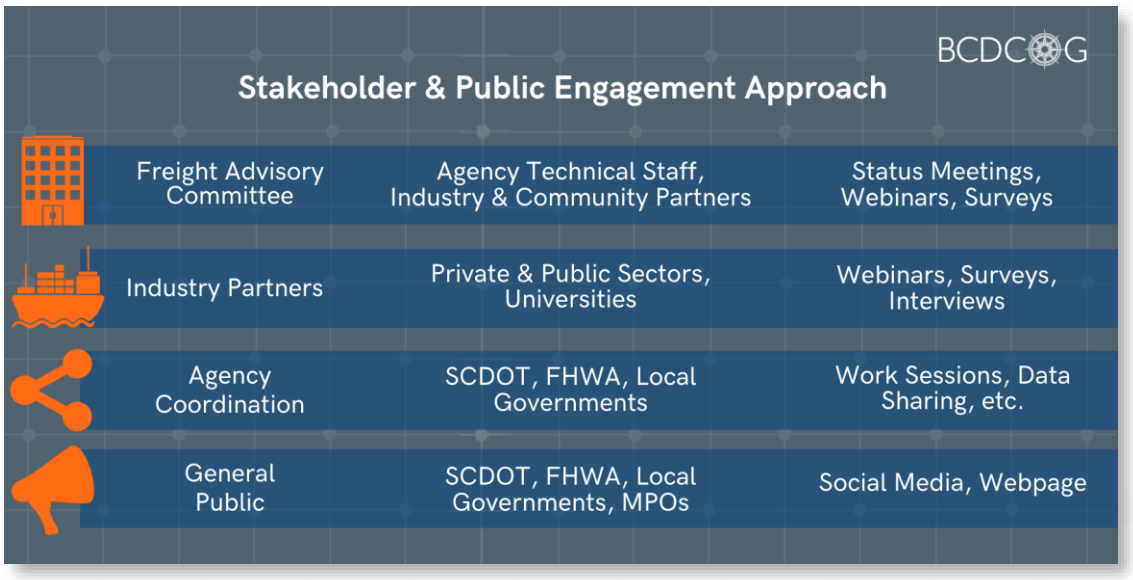
Population growth, congestion issues, land use challenges, logistics issues, and the COVID-19 pandemic have all had significant impacts on freight movement, resulting in increased delivery times and transportation costs. Given the economic importance of freight to both the region and the state, it is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

1.3 Agency Coordination and Public Engagement Process

Stakeholders play a critical role in identifying freight transportation system deficiencies and opportunities, prioritizing projects, and generating buy-in for public policy and future investment in freight infrastructure (**Figure 1-5**). The original intent of the agency coordination and public engagement program for this Freight Plan was to focus on the needs of stakeholders as well as align plan goals and strategies with regional needs and planning efforts. However, in March 2020, 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 1-6.**

Figure 1-5: Importance of Stakeholders in the Planning Process

Figure 1-6: Stakeholder and Public Engagement Approach

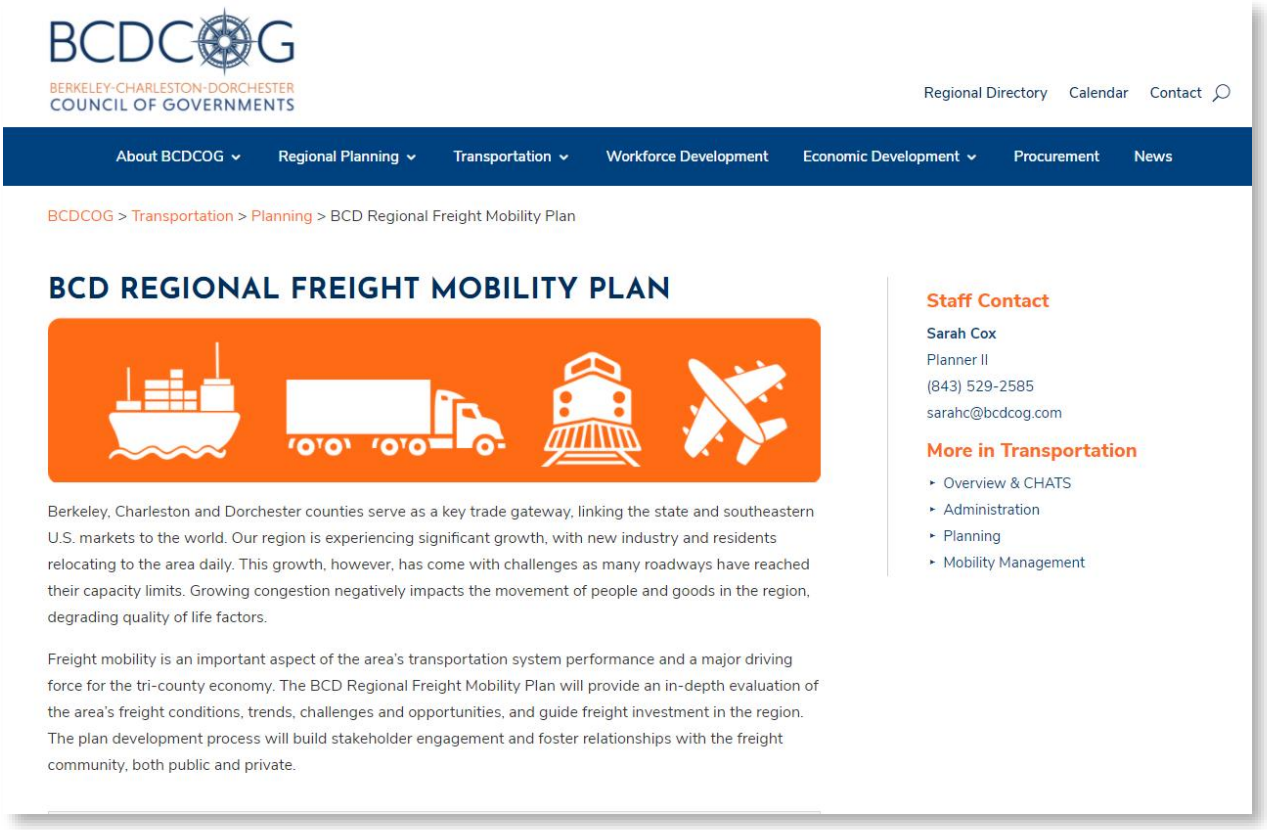


The study's advisory committee met virtually throughout the duration of the project and provided technical feedback on study analyses and guidance on the plan's development. All meetings were recorded and published to the BCD Regional Freight Mobility Plan webpage following the meeting.

While industry and agency stakeholders were the primary outreach targets for the Freight Plan, the BCDCOG also engaged the public in the planning process by providing access to study meetings, analyses, findings, and recommendations as well as providing opportunity for public feedback. BCDCOG 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 Freight Plan webpage which is accessible to the public at https://www.bcdcog.com/transportation/planning/regional-freight-plan/ (**Figure 1-7**). The website also included an FAQ section, a link to the public survey, contact information, and all meeting materials and recordings.

Figure 1-7: Webpage for BCD Regional Freight Mobility Plan



The FAST Act suggests that a regional Freight Advisory Committee (FAC) be empaneled and continue to function outside of the plan development process. As such, the established Charleston Area Transportation Study (CHATS) FAC served as the FAC responsible for championing the Freight Plan and its project, programmatic, and policy-level elements. Members of the FAC are listed in **Table 1-1**.

Table 1-1: Freight Advisory Committee

Name	Organization
Kenny Skipper	City of North Charleston
Christopher Morgan	City of Charleston
Charles Drayton	City of North Charleston
Steve Thigpen	Charleston County
Jason Ward	Dorchester County
Rick Todd	South Carolina Trucking Association
Hampton Lee	South Carolina Ports Authority
Tarek Ravenel	Palmetto Railways
Coleman Thompson	South Carolina Trucking Association
Keith Johnson	Charleston Motor Carriers Association
DJ Mayer	Charleston Motor Carriers Association
John Truluck	Dorchester County Economic Development
Brad Morrison	Town of Mount Pleasant
David Gray	South Carolina Department of Transportation
David Caimbeul	Joint Base Charleston

The FAC met monthly during the plan's development and is responsible for the policy-level elements of the Freight Plan. Meetings were structured to include an educational component which covered freight-related topics, called the Palmetto Freight Series, followed by study-specific updates and discussion. Open discussion, virtual polling, and interactive exercises were used to gather feedback from the FAC throughout the process. Detailed notes on the questions and conversation were taken during the meetings.

Additionally, one-on-one interviews were conducted with individual members of the FAC and other stakeholders in the region to identify freight issues that were not captured through the data analyses. The companies interviewed for the Freight Plan represent two significant industry sectors in the region: multimodal freight and automotive. Common themes related to freight movement concerns were identified as a result of these interviews. 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. A detailed summary of the engagement program can be found in **Appendix A - Public Engagement Summary.**

1.4 Organization of the Regional Freight Mobility Plan

This document provides an overview of the plan development process, high-level summaries of analyses conducted of the region's freight system, and recommendations for maintaining and improving that system to better support freight mobility in the BCD region for the next several decades.

The plan is organized into the following chapters:

1. **Introduction** – Introduces the BCD Regional Freight Mobility Plan, provides the objectives of the plan, and the agency coordination and public engagement process used to develop the final plan.
2. **Freight Planning Context in the BCD Region** – Provides the BCD 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 Freight Assets** – Identifies the existing freight assets by mode (highway, rail, air, port) as well as current conditions of these assets.
5. **Future Freight Mobility Needs** – Forecasts the future levels of demand for the identified freight assets, forecasts future volumes of truck and rail freight, and discusses the impact of COVID-19 on the freight landscape.
6. **Project Recommendations** – Identifies transportation projects that would improve the safety and efficiency 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 evaluate and prioritize project recommendations, which includes a list of prioritization criteria related to each of the freight plan's goal areas. It also provides the ranked list of projects along with their weighted scores across the prioritization criteria.
8. **Policy and Programmatic Recommendations** – Details the seven programmatic and 21 policy recommendations identified during the development of this regional freight plan.
9. **How to Use This 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 Plan, information was presented to the FAC, including initial findings and details of 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 and are provided as appendices to this plan document. The goal of this organization is to succinctly summarize this plan and its recommendations to provide an efficient planning tool to incorporate freight mobility policies, programs, and projects into the overall planning process in the BCD region and to maintain separate analytical documentation for additional reference.

2. FREIGHT PLANNING CONTEXT IN THE BCD REGION

2.1 POPULATION, EMPLOYMENT, AND ECONOMIC CONTEXT

Population growth is a significant factor that affects freight growth and movement in the BCD region because residents consume commodities that must be transported throughout the region and beyond, and they also utilize the same transportation network to satisfy their travel demand for various trip purposes, such as work, school, shopping, etc. In addition to being a sizeable employment industry, the multimodal freight transportation network also supports may companies in other key industries throughout the BCD region. Understanding where people and businesses are located now and where they are likely to be in the future is important to ensure that our transportation networks are providing safe and efficient access where needed.

2.1.1 Population Growth

According to the U.S. Census Bureau's American Community Survey 5-year estimates, nearly 775,000 people resided in the BCD region in 2019, which is a 20 percent increase from approximately 641,00 people reported in 2010. By comparison, the populations of South Carolina and the United States grew by roughly 11 and 6 percent, respectively, over the same period. This regional growth was approximately three times the national average from 2010-2019 and translates to roughly 30 new residents moving to the region every day. All three counties experienced similar rates of population growth, with Berkeley County experiencing the largest percent change in population during this period (nearly 27 percent).[1] This population growth has been coupled with strong freight and trade expansion driven by the Port of Charleston.

Within the BCD region, over half of the population resides in Charleston County, followed by Berkeley County, and then by Dorchester County. The CHATS Travel Demand Model was used to evaluate forecast population and employment levels in 2040 with a 2015 base year. The 2015 population density is shown in **Figure 2-1**, which illustrates that most of the region's population is within or along the major highways that connect to the Charleston peninsula, including the I-26, U.S. 52, U.S. 78, and U.S. 17 corridors. Forecast population and employment in 2040 are discussed in further detail in **Chapter 5 – Future Freight Mobility Needs**.

2.1.2 Employment Trends

Over 489,000 people were employed in the BCD region in 2018, earning $27.3 billion in the production of $44.2 billion in GRP which represents nearly one-fifth of South Carolina's economic activity (18 percent). Within the region, almost three quarters of the employment and production value was generated in Charleston County (**Figure 2-2**).

[1] https://www.crda.org/local-data/population-demographics/#:~:text=Charleston%20%7C%20SC%20%7C%20USA-,Population%20%26%20Demographics,helping%20to%20boost%20that%20number.

Figure 2-1: Population Density in the BCD Region, 2015

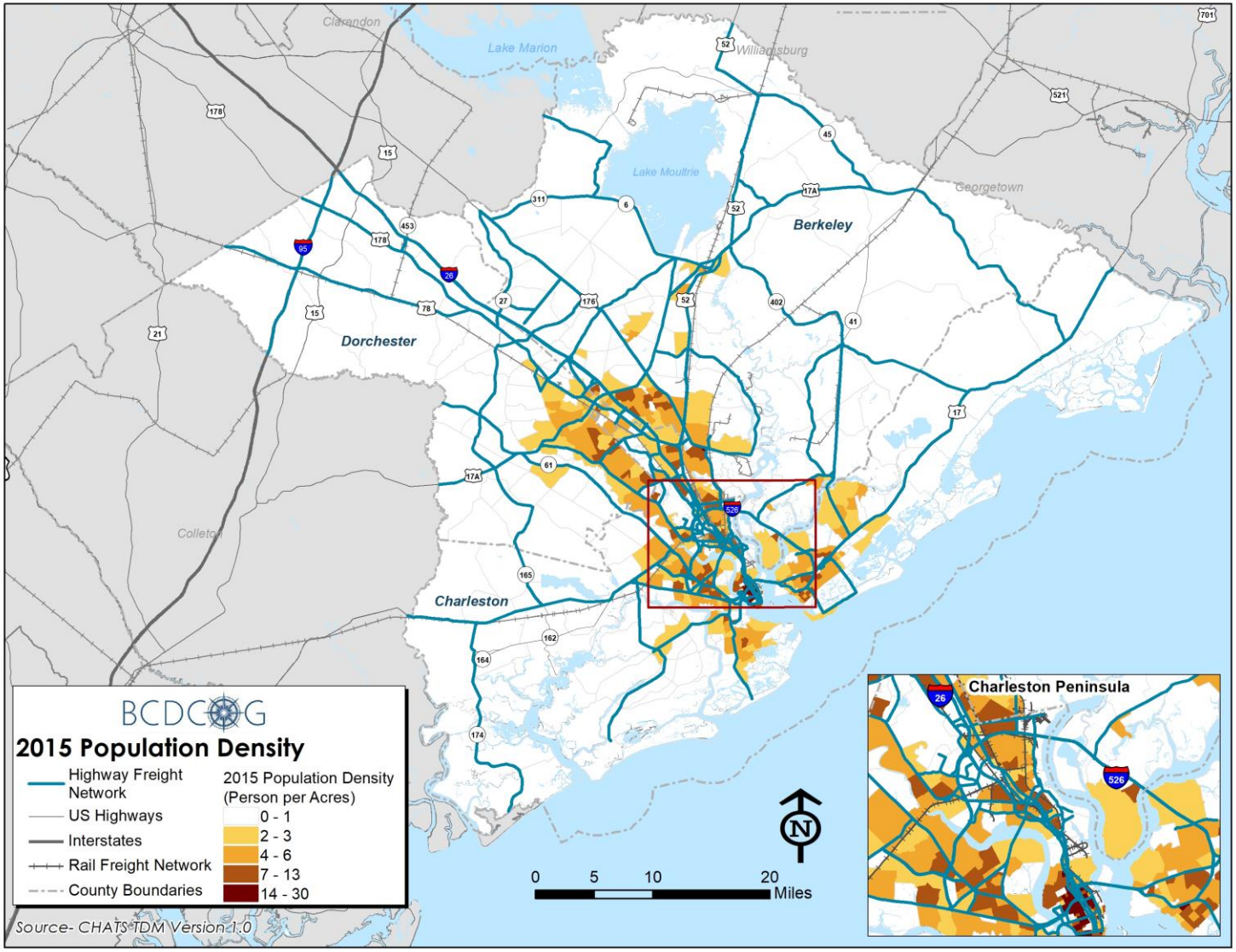
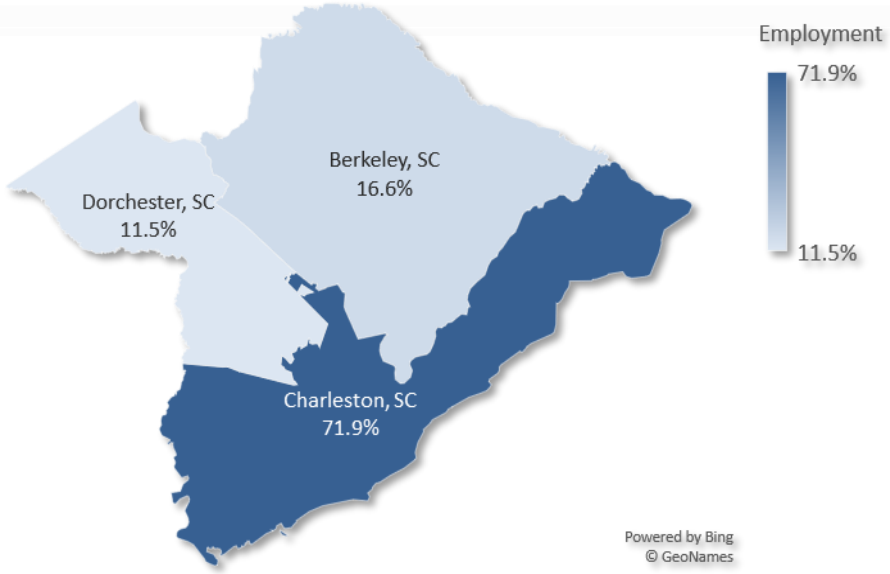
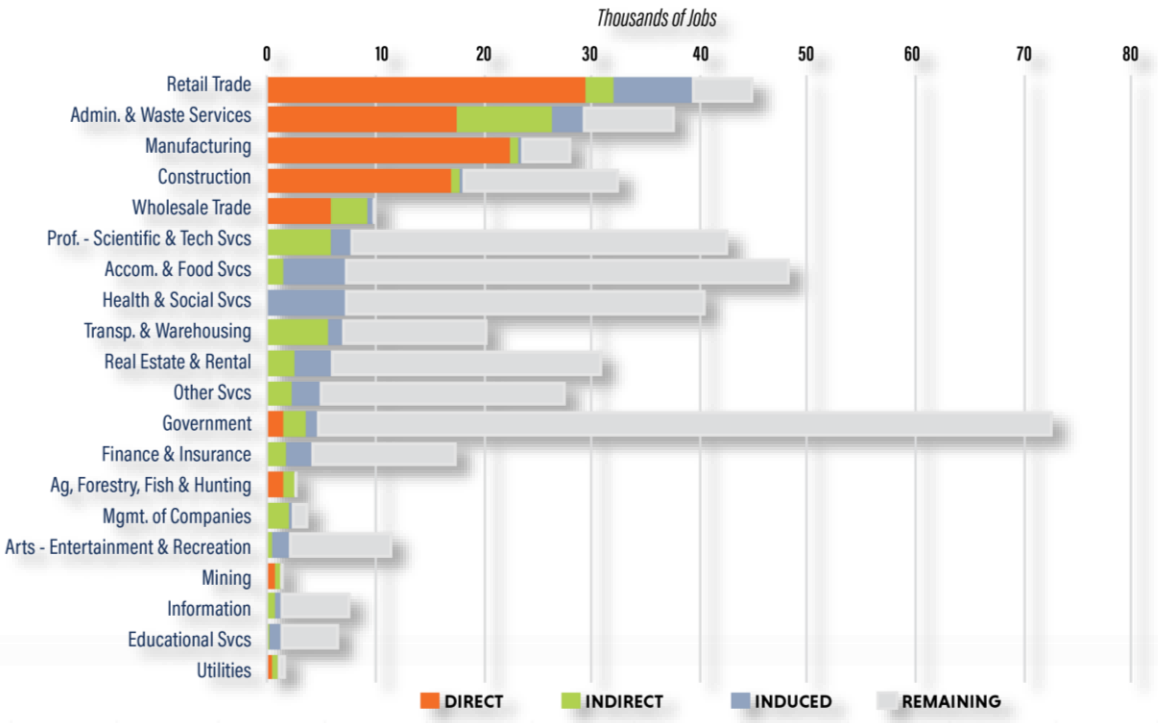


Figure 2-2: Percentage of Regional Employment by County



Compared to South Carolina as a whole, the area's industry employment is relatively concentrated in mining and construction for goods-related industries. Goods industries predominately produce, and thus move, physical goods, including goods associated with agriculture, mining, utilities, construction, manufacturing, and wholesale and retail trade. Goods industries are responsible for over 120,000 jobs in the region, with freight movement impacting 78 percent of these jobs (**Figure 2-3**). These industries also account for 25 percent of total employment, 26 percent of total income, 29 percent of total GRP, and 39 percent of total output for the region.

Figure 2-3: BCD Freight Employment Impacts by Industry, 2019

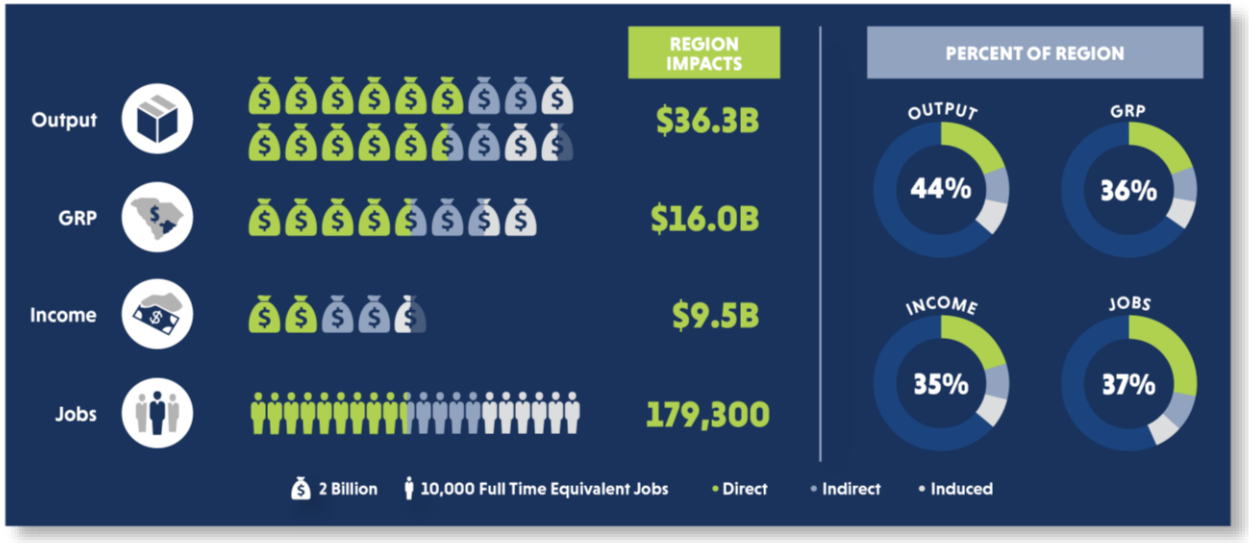


2.1.3 Economic Context

The region's economy benefits form a diverse economic base with industries ranging from hospitality and information technology to aeronautical and automotive manufacturing. Both multi-national corporations and fast-growing startup companies have taken advantage of the globally competitive business environment of the region. In fiscal year 2018–2019, the Charleston Regional Development Alliance announced corporate expansions and relocations to the area, resulting in a $392 million economic impact. The presence of a major seaport, international airport, freight rail connections, and interstate highway trade corridors has ensured that freight continues to be a major part of the regional and statewide economy.

To quantify how freight has impacted the regional economy, regional freight data (Transearch) are compared with economic data (IMPLAN). The direct, indirect, and induced impacts of freight affect all sectors. The total impacts of freight on four different economic dimensions (sales output, GRP, total income earned, and jobs created) are shown in **Figure 2-4**.

Figure 2-4: Economic Impacts of BCD Freight Movement



Trucks handle roughly 63 percent of all freight in North America[2] because of variable length truck trips, providing "last mile" connections, and connecting commodities carried by other modes from intermediate destinations, such as airports, rail terminals, and other freight generators, to their final destinations. The BCD region provides container transfers from the Port of Charleston using Class 1 railroads to Inland Port Dillon and to Inland Port Greer in the Upstate region. In 2019, the Port of Charleston handled approximately 2.44 million twenty-foot equivalent units (TEUs) of container freight, which was 9% higher than prior year reported volumes. Forecasts suggest total annual port container volumes could reach nearly 4 million twenty-foot equivalent units (TEUs) by 2038.[3] The Charleston International Airport (CHS) was the seventy-eighth busiest cargo[4] airport in the United States in 2018, moving highly perishable and high value goods.

The BCD region is also home to large manufacturing companies like Volvo, Boeing, Mercedes-Benz, and Nucor Corporation, all of which depend on an efficient transportation network to move raw

[2] https://www.bts.gov/newsroom/2017-north-american-freight-numbers#:~:text=Trucks%20carried%2057.7%20percent%20of,the%20value%20(Table%202)

[3] Palmetto Railways, *Final Environmental Impact Statement for the Proposed Navy Base Intermodal Container Transfer Facility*, retrieved July 31, 2020 from http://palmettorailways.com/intermodal/eis/

[4] https://www.ttnews.com/top100/airports/2019

materials for production and distribute finished goods to consumers. 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 dependent development has access to the region's existing freight infrastructure is critical for the region's future economic vitality.

2.2 FREIGHT BY MODE

Nearly 113 million tons of freight valued at $249 billion moved along the BCD region's freight infrastructure in 2016. The United States Army Corps of Engineers (USACE) Waterborne Commerce Statistics Center reports that 20 percent (23 million tons) of this freight funnels through the Port of Charleston. Identifying what kind of freight is moving through the region and what modes this freight depends on are both 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 predominant freight 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 are categorized as through, outbound, inbound, or intraregional.

Truck freight is the dominant mode in the region, with 79 percent of freight tonnage moving through the region via trucks along the roadway network. Most of this truck freight is through-freight (61 percent, including freight originating in ports and intermodal facilities). I-95 in Dorchester County is a bridge connecting interstate trade along the East Coast, but most volumes do not pertain directly to the BCD region. Aside from I-95, regional truck tonnage moves mostly along I-26, connecting with the rest of South Carolina, especially the Columbia capital area, the Pee Dee region, and the Upstate region. Much of the regional truck tonnage pertains to energy and warehousing supply chains. Intermodal petroleum products reflect water to truck transfer.

79%
Truck

21%
Rail

Rail freight makes up about 21 percent of freight movement in the BCD region. Unlike trucks, regional rail freight flows are not comprised mostly of through movements (about one-third), but instead originate/terminate in the region (including at the Port and intermodal transfer facilities). Rail in the BCD region mostly serves the City of Charleston, port connections with the Upstate region and out-of-state markets, inbound coal from the Midwest, container shipping, and the regional energy supply chain.

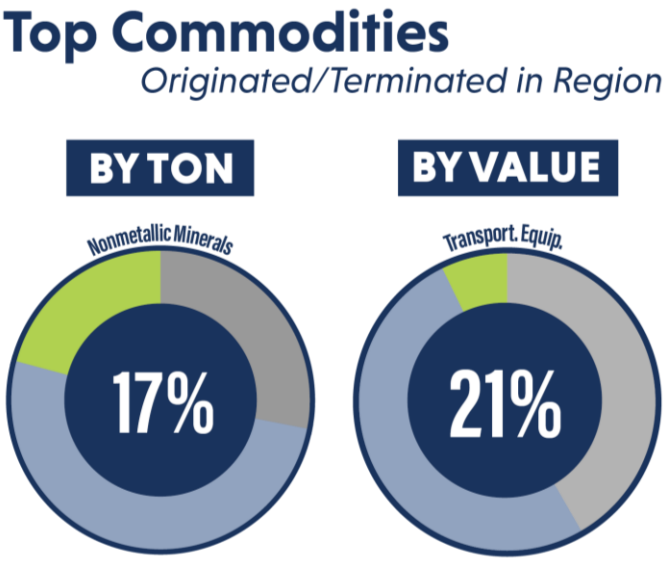
In total, 27 percent of freight from all modes originated or terminated in the region. The breakdown of through freight versus non-through freight by mode is shown in **Figure 2-5**. **Figure 2-6** shows the commodities breakdown by tonnage and by value. By tonnage, bulk commodities dominated tonnage movements, especially nonmetallic minerals (making up 17 percent of the total by tonnage) and inbound coal. Such traffic has a relatively low value per ton ($25). More valuable secondary traffic ($3,300/ton) reflects warehouse repositioning associated with Port of Charleston movements. By value, the leading commodities are transportation equipment (21 percent of the total by value), machinery, and electrical equipment—all with high values per ton ($11,200/ton). Despite only making up 27 percent of freight movement, the non-through freight represents 35 to 44

percent of the region's economy, demonstrating the value that the freight sector plays in the regional, state, and national economy.

Figure 2-5: BCD Freight Movement Tonnage by Mode

Note: Freight originating or terminating in the BCD Region is highlighted in orange

Figure 2-6: Top Commodities by Tonnage and Value, 2016



In addition to rail and truck freight, the Seaports in the region move a significant amount of freight. The Port of Charleston facilitates large volumes and values of waterborne freight that connects intermodally to truck and rail, mostly to origins and destinations beyond the BCD region. Significant volumes and value of transportation equipment, manufacturing machinery, textiles, and other heavy-weight/lower-value goods (scrap, iron ore, and nonmetallic minerals) move through the Port. Movement of such relatively large freight volumes and values, connecting via truck and rail, are accommodated by the local infrastructure and carriers, but are not produced or consumed regionally.

Regional airborne freight is a very small share of total freight tonnage compared to other modes. Transearch reported 26,559 tons of air cargo moved via the BCDCOG metropolitan statistical area in 2016. Major airborne commodities based on tonnage and/or value include high-end rubber/plastics and transportation equipment. The Charleston International Airport (CHS) freight data yielded similar volumes but lacked the directional detail and values. Freight tonnage through airports and/or other foreign-trade zones comprise less than 1 percent of total freight tonnage moving through this region.

Regardless of mode, the freight movement in the region shows the bridge-role played by the region's transportation infrastructure between the rest of South Carolina, the U.S., and international markets. This identifies for planners, the need to preserve mobility through the region to support those through movements. This also provides insight for land use and transportation planners into the significance of supporting local economic development efforts that provide opportunity for freight generating businesses to locate and grow in the region, boosting the local economic impact of freight and expanding economic opportunity for residents.

3. GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

Coordinated strategic goals, objectives, and performance measures provide the performance-based planning framework for implementing this Freight Plan consistently in coordination with state, regional, and local planning efforts. These goals and objectives are, together, the cornerstone upon which all 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 3-1** defines goals, objectives, and performance measures and helps illustrates how they differ from each other.

Figure 3-1: Definition of Goals, Objectives, and Performance Measures

3.1 DEVELOPMENT OF GOALS AND OBJECTIVES

The Freight Plan goals were established after reviewing the FAST Act federal freight policy goals, the South Carolina Statewide Freight Plan Update (2020) goals, the 2040 BCDCOG Rural Long Range Transportation Plan (LRTP) goals, and the CHATS 2040 LRTP goals. A list of each of the plans reviewed is below. **Table 3-1** illustrates a comparison of plans' goals.

- FAST Act Federal Freight Goals[5]
- South Carolina Statewide Freight Plan Update (draft)[6]
- 2040 BCDCOG Rural LRTP (adopted 2020)[7]
- CHATS 2040 LRTP[8]

Table 3-1: Comparison of Federal, State and Regional Planning Goal Areas

FAST Act Federal Freight Goals	South Carolina Freight Plan Update (2020) Goals	BCDCOG Rural LRTP Goals	CHATS 2040 LRTP Goals
Congestion Reduction/System Reliability	Mobility and System Reliability	Accessibility and Mobility	Mobility/Reliability
Safety	Safety	Enhance Transportation Safety	Safety
Infrastructure Condition	Infrastructure Condition	Maintain the Existing Transportation Network	System Preservation
Freight Movement and Economic Vitality	Economic and Community Vitality	Economic Vitality	Community
Environmental Sustainability	Environmental	Protect the Environment	Environment
N/A	Equity (new)	N/A	Community
N/A	N/A	N/A	Coordination/Best Practices

Source: United States Department of Transportation, SCDOT, BCDCOG, and CHATS

As shown in **Table 3-1,** the goals across the plans align easily and 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.

Similar to the Freight Plan goal development, objectives included in the federal, state, and local 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.

Freight Plan Goals:

- ✓ Alignment with FAST Act, South Carolina Statewide Freight Plan Update
- ✓ Complements CHATS goals
- ✓ Enhances BCDCOG Rural LRTP goals
- ✓ Guides freight objectives and performance measure development

Freight Plan Objectives:

- ✓ Complements South Carolina Statewide Freight Plan Update objectives
- ✓ Alignment with similar BCDCOG and CHATS plans' goals and objectives
- ✓ Related to draft regional freight goals
- ✓ Measurable but not necessarily quantifiable

[5] www.fhwa.dot.gov/fastact/factsheets/nhfpfs.cfm
[6] www.scdot.org/inside/pdf/Combined-Notebook-for-July-16-2020.pdf [page 203 of PDF]
[7] https://www.bcdcog.com/wp-content/uploads/2019/05/2035-BCDCOG-RLRTP_Final_as-amended-4-15-19_reduced.pdf
[8] https://bcdcog.com/long-range-transportation-plan/

3.2 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 and investment decisions. Performance measurements serve the following three functions:

1. **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. **Plan Implementation** – Support plan implementation by emphasizing agency goals and objectives and integrating them into budgeting, program structure, project selection, and project or 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 department of transportations and metropolitan planning organizations (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 BCDCOG and CHATS 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 - Freight Planning Best Practices and Emerging Technologies Technical Memorandum**).

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. Adopting these performance measures will streamline data collection and analysis by aligning with SCDOT's performance measurement efforts. In addition, region-specific measures, such as complete streets policy and at-grade crossing incidents, are also proposed.

3.3 BCD REGIONAL FREIGHT GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

Table 3-2 lists the recommended Freight Plan goals, objectives, and performance measures for the BCD Region.

Table 3-2: Regional Freight Mobility Plan Goals, Objectives, and Performance Measures

Goal 1: Mobility and System Reliability		
Objectives	Increase travel time reliability for highway and freight corridors	
	Encourage land development and travel patterns that support freight modes	
Performance Measures	Truck travel time reliability index	Data: SCDOT
	Proportion of South Carolina's 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 and rate of crashes, fatalities, and serious injuries across all modes of travel	
	Collaborate with SCDOT to improve roadway safety in the rural areas of Berkeley, Charleston, and Dorchester counties	
	Identify hazardous corridors and intersections in the rural areas of Berkeley, Charleston, and Dorchester counties	
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: SCDOT
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 NHS 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 on the regional freight network	Data: SCDOT
Goal 4: Economic and Community Vitality		
Objectives	Create a resilient network by encouraging improvements and access to redundant roadways on the network	
	Provide a regional transportation system that supports the efficient movement of people and freight by addressing freight specific bottlenecks	
	Adopt and apply Complete Streets policy that specifies steps to identify community context, needs, and recommended design criteria for each transportation project, potential user, and every mode of travel, including freight	
Performance Measures	Truck travel time reliability index	Data: SCDOT
	Annual hours of truck delay on freight corridors	Data: SCDOT
	Proportion of system miles on the regional freight network improved in accordance with Complete Streets policy	Data: BCDCOG

Goal 5: Environmental		
Objective	Encourage land use planning that supports and promotes the efficient movement of freight	
	Minimize or mitigate project impacts on natural resources	
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	
	Engage typically underrepresented groups, such as emergency response and freight movement stakeholders, during transportation planning processes	
Performance Measure	Number of freight-beneficial projects programmed into MPO's Transportation Improvement Program	

4. IDENTIFICATION AND EXISTING CONDITIONS OF FREIGHT ASSETS

The freight transportation network in the BCD Region consists of a major seaport, an international airport, freight rail connections, and highway trade corridors. Together, this multimodal network has ensured that freight continues to be a major part of the regional and statewide economy.

To ensure that the freight network continues to provide safe and efficient mobility for goods movement, it is important to identify current needs and opportunities along the regional freight network. The first step is to define the regional freight network. Designating a regional freight network is important because freight often does not observe the same travel patterns as passenger travel. For instance, freight frequently crosses jurisdictional boundaries and does not follow the same time of day distribution as passenger trips. Moreover, defining a freight network allows a region to develop strategic solutions that meet freight needs while preserving regional quality of life.

The freight network identified herein will be the focus of this Freight Plan and was used to measure infrastructure performance for freight, identify needs, and compare the needs against BCDCOG's planned projects to define gaps and new projects. The focus on the identified regional freight network does not suggest that excluded roadways should not carry freight, but rather raises the importance of those carrying most of the freight.

The resulting regional highway and rail network is shown in **Figure 4-1.** It includes major trade corridors of I-95 and I-26, as well as South Carolina Strategic Freight Network/Strategic Corridor Network routes (identified by SCDOT) and local/regional routes that provide last mile connections to the port terminals and other freight generators. All freight railroads are included, given their importance in moving cargo within the region and throughout the United States. Reference the Freight Network Assessment Technical Memorandum (**Appendix C**) for additional information regarding the identification of the BCD Regional Freight Network.

4.1 HIGHWAYS

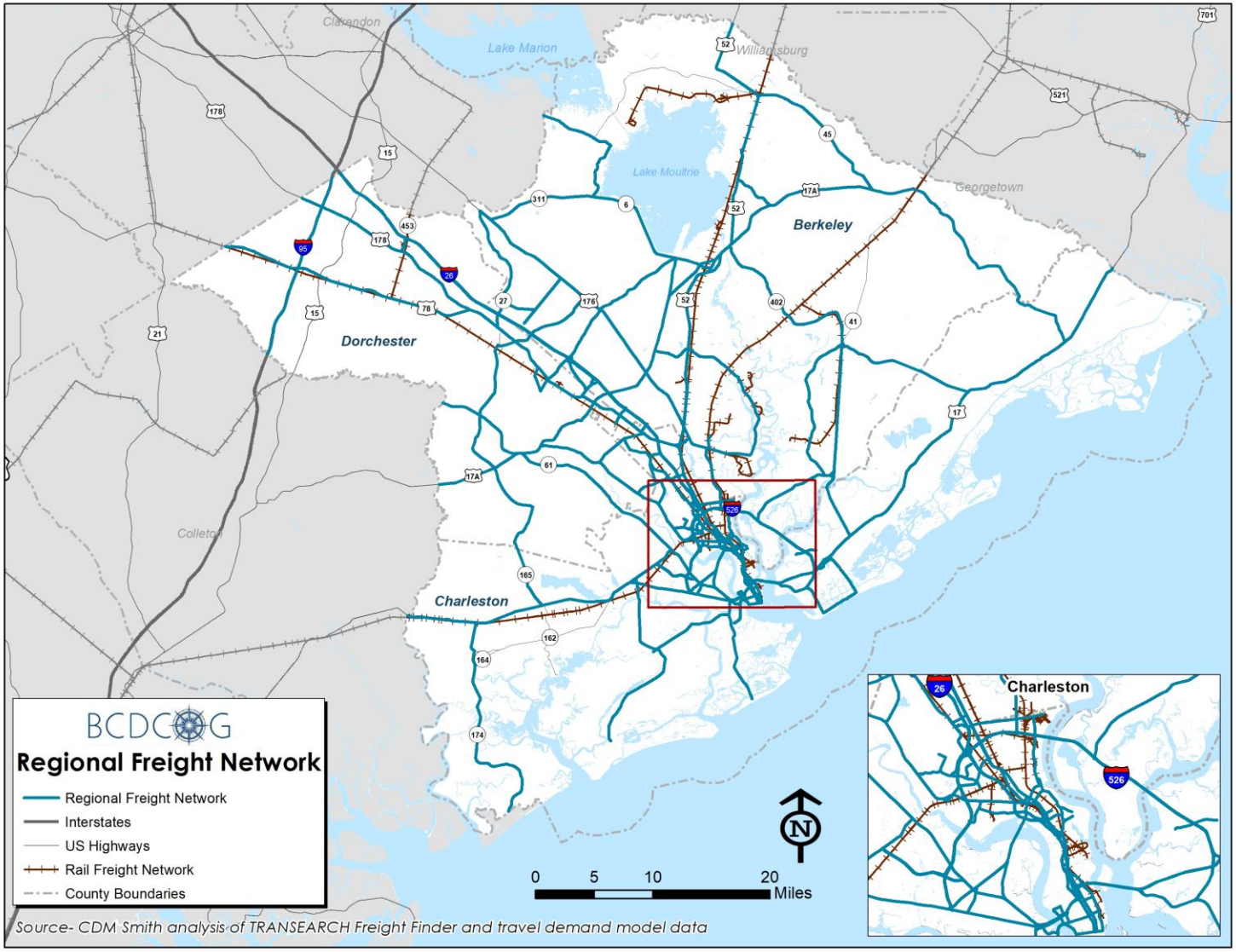
As discussed in **Chapter 2 – Freight Planning Context in the BCD Region**, most freight in this region travels by truck. Identification of the highway freight network relied on existing state and federal network designations (National Multimodal Freight Network, the South Carolina Strategic Freight Network,[9] the South Carolina Strategic Corridor Network,[10] designated Critical Urban and Critical Rural Freight Corridors in the region,[11] and National Highway System intermodal connectors serving freight facilities), Transearch truck flow data, truck volumes from the CHATS regional and SCDOT statewide travel demand models, and stakeholder feedback.

[9] The South Carolina Strategic Freight Network is defined in the South Carolina Statewide Freight Plan and consists of routes the state deems critical to goods movement to, from, within, and through South Carolina.

[10] The South Carolina Strategic Corridor Network was defined by SCDOT "to provide a connected, continuous network that serves the traveling public and movement of freight.'

[11] Because Critical Urban and Critical Rural Freight Connectors are periodically updated by SCDOT and MPOs, this freight network can be used to identify candidate routes for inclusion on those networks in the future.

Figure 4-1: BCD Regional Freight Network



Transearch data from 2016 shows that I-95 and I-26 are the major regional trade corridors for truck flows. I-95 handles the largest amount of truck freight, and most of it is through traffic. (**Figure 4-2**) I-26 and I-526 accommodate port-generated truck traffic, including significant flows between the Charleston and Upstate regions.

The identified freight road network was further sorted and tiered as follows (see **Figure 4-3**):

- **Tier 1 – Interstate Highways and Nationally Designated Routes.** These routes are nationally significant and are either designed for long-distance travel and trade (e.g., interstates) or are on another nationally designated freight network (e.g., National Highway System Intermodal Connectors).
- **Tier 2 – Non-Interstate South Carolina Freight Network and South Carolina Strategic Corridor Network.** These facilities include routes such as U.S. 78 and U.S. 52 that are strategically important to the state of South Carolina but are not part of the interstate highway system or other national networks.
- **Tier 3 – Local Freight Routes.** These roads provide critical last mile connections to key freight facilities or between freight-generating land uses and the rest of the state/national highway network.

Once the freight network was identified, it was evaluated across different dimensions related to safety and mobility. The following subsections discuss factors affecting safety and mobility along the highway network.

4.1.1 Congestion

The CHATS travel demand model and the SCDOT statewide model were used to evaluate truck delay and daily LOS on the freight network. The models do not allow for calculating truck LOS, so this measure is provided for all traffic.

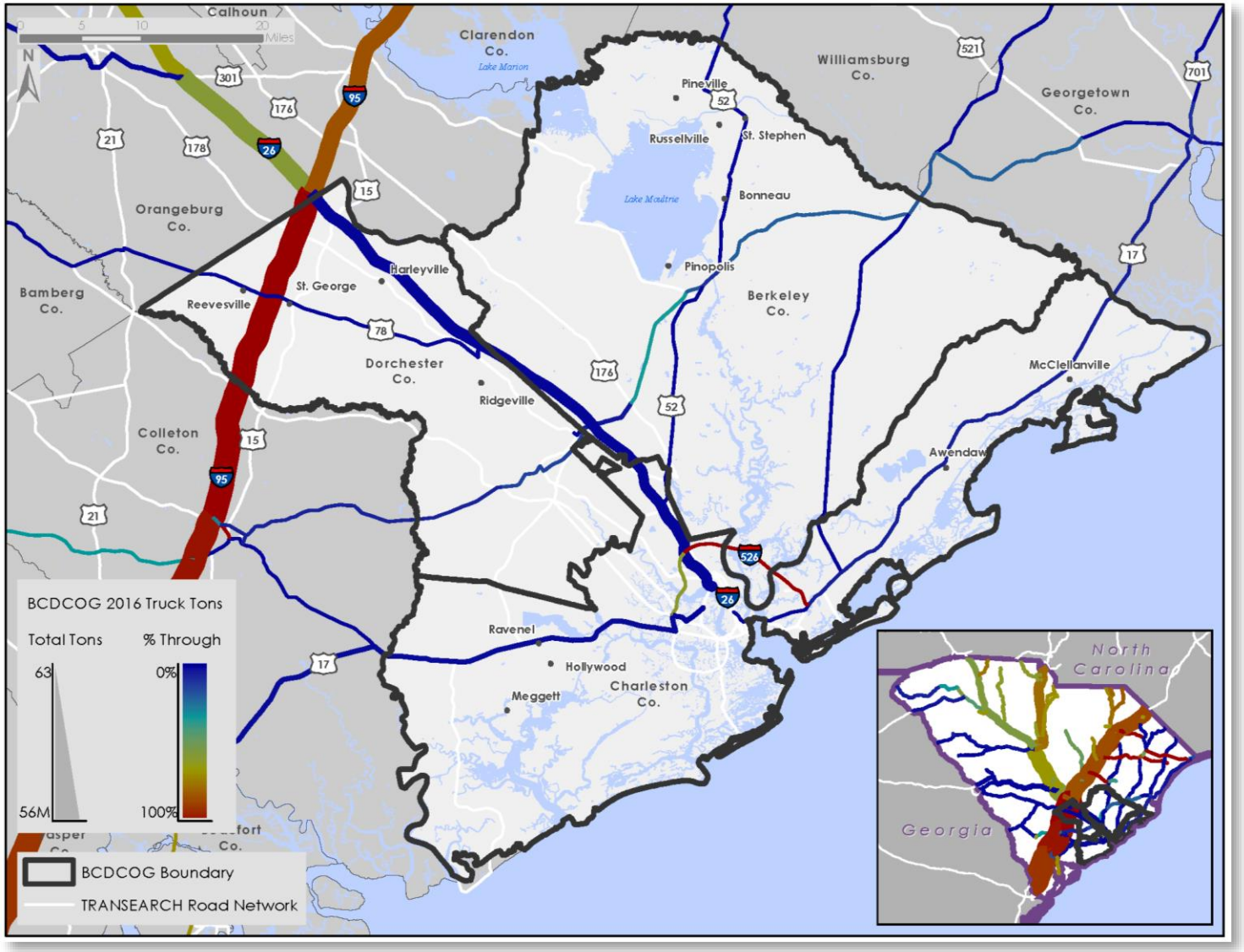
Figure 4-4 shows the model results for truck vehicle hours of delay in 2015. The model shows extensive truck delays in the I-526 and Clements Ferry Road corridors, which provide truck access to the Wando Welch Terminal and nearby freight-related businesses. The interchange area of I-526 and Clements Ferry Road experiences truck delays of up to nearly 1,300 hours per day. Other segments experiencing significant truck delay include I-526 west of Clements Ferry Road to the I-26 interchange, I-26 north of I-526, and Ashley Phosphate Road west of I-26.

There are many more segments of the freight network experiencing poor LOS, see **Figure 4-5**. In addition to I-526 and Clements Ferry Road, I-26, U.S. 78, SC 41, Septima Clark Parkway, SC 61 and SC 7 in West Ashley, SC 700, U.S. 17A, and SC 642/Dorchester Road all show daily LOS of E or F.

Freight bottlenecks were identified using the FHWA National Performance Management Research Data Set (NPMRDS) vehicle probe data. The NPMRDS is a national data set of average travel times for use in analyzing highway system performance. The data provided are actual travel times. Truck bottleneck areas were identified using a combination of Planning Time Index (PTI) 95th (calculated using free-flow speed and 95th percentile travel time) and frequency of congestion. The PTI is a measure of congestion intensity while the frequency of congestion is a measure of congestion recurrence. The portions of the congested roadway network, which had a combination of the highest PTI and frequency of congestion, were identified as freight bottlenecks.

The results of this process are illustrated in **Figure 4-6**. I-26, I-526, SC 642, U.S. 52, U.S. 78, U.S. 17, and several streets in downtown Charleston all appear to present significant bottlenecks for trucks. SC 41 data are not provided in the NPMRDS, so it is not included in the map.

Figure 4-2: BCD Truck Freight Density, 2016



Source: Transearch

Figure 4-3: BCD Highway Freight Network Tiers

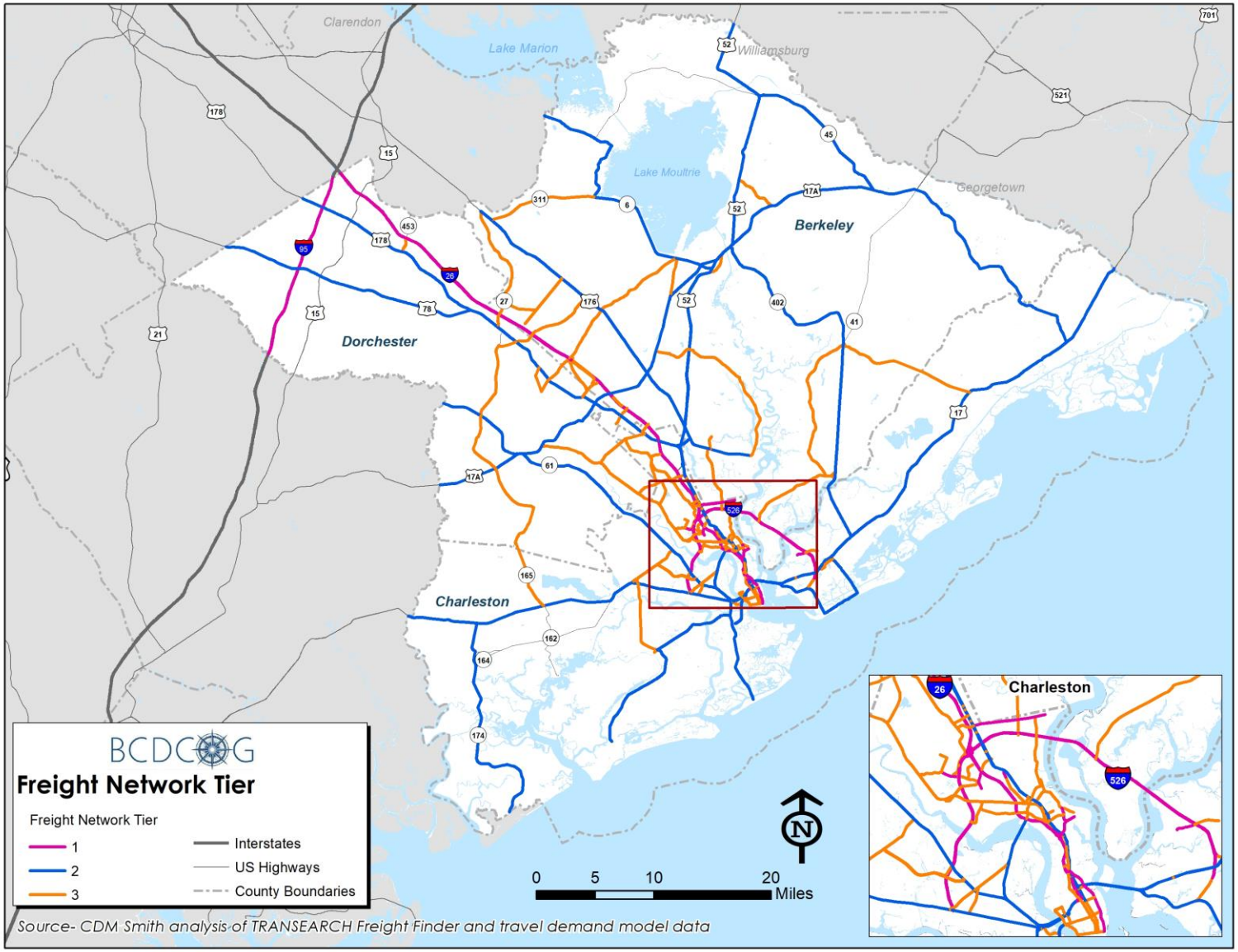


Figure 4-4: Daily Truck Vehicle Hours of Delay, 2015

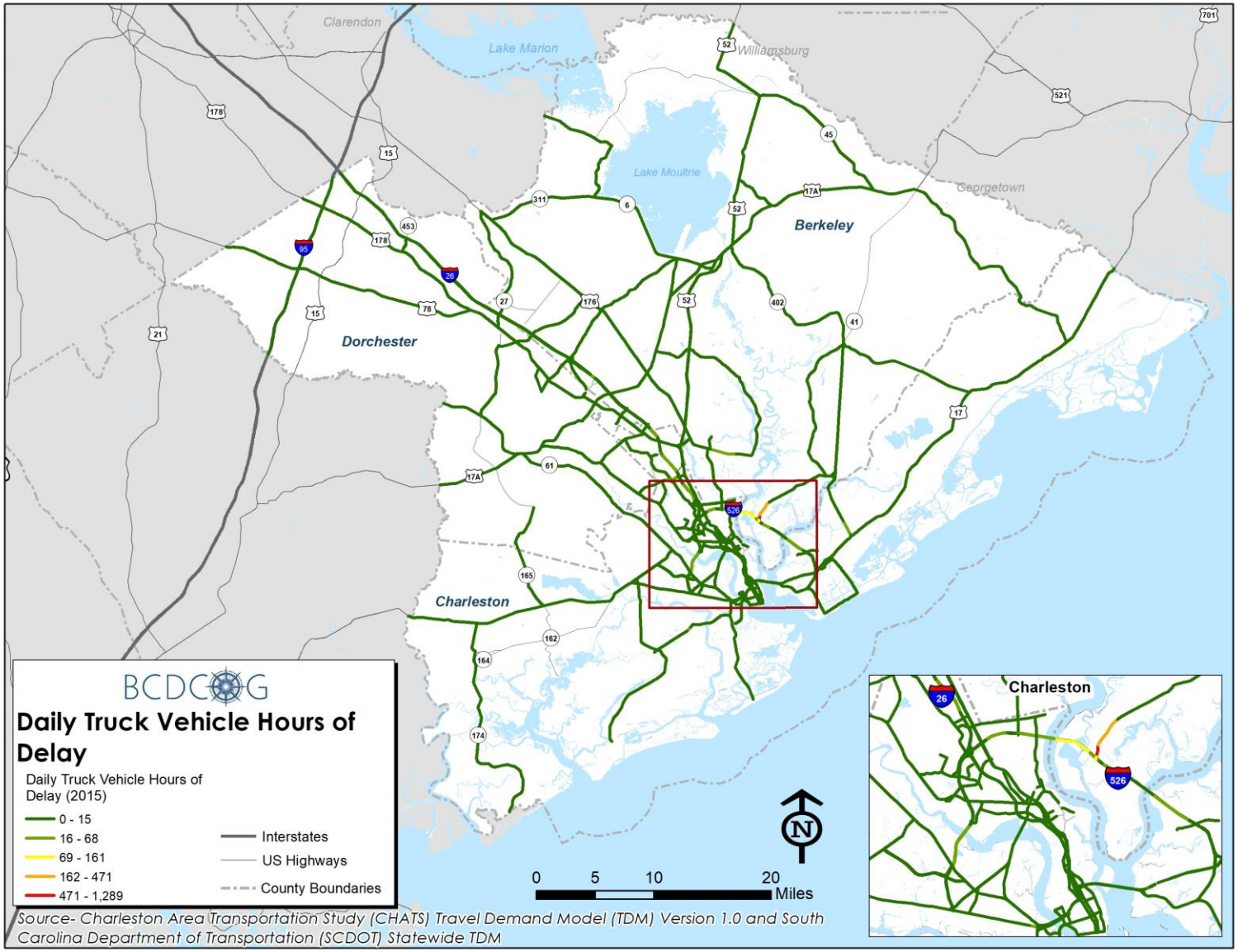


Figure 4-5: Regional Freight Network Daily Level of Service, 2015

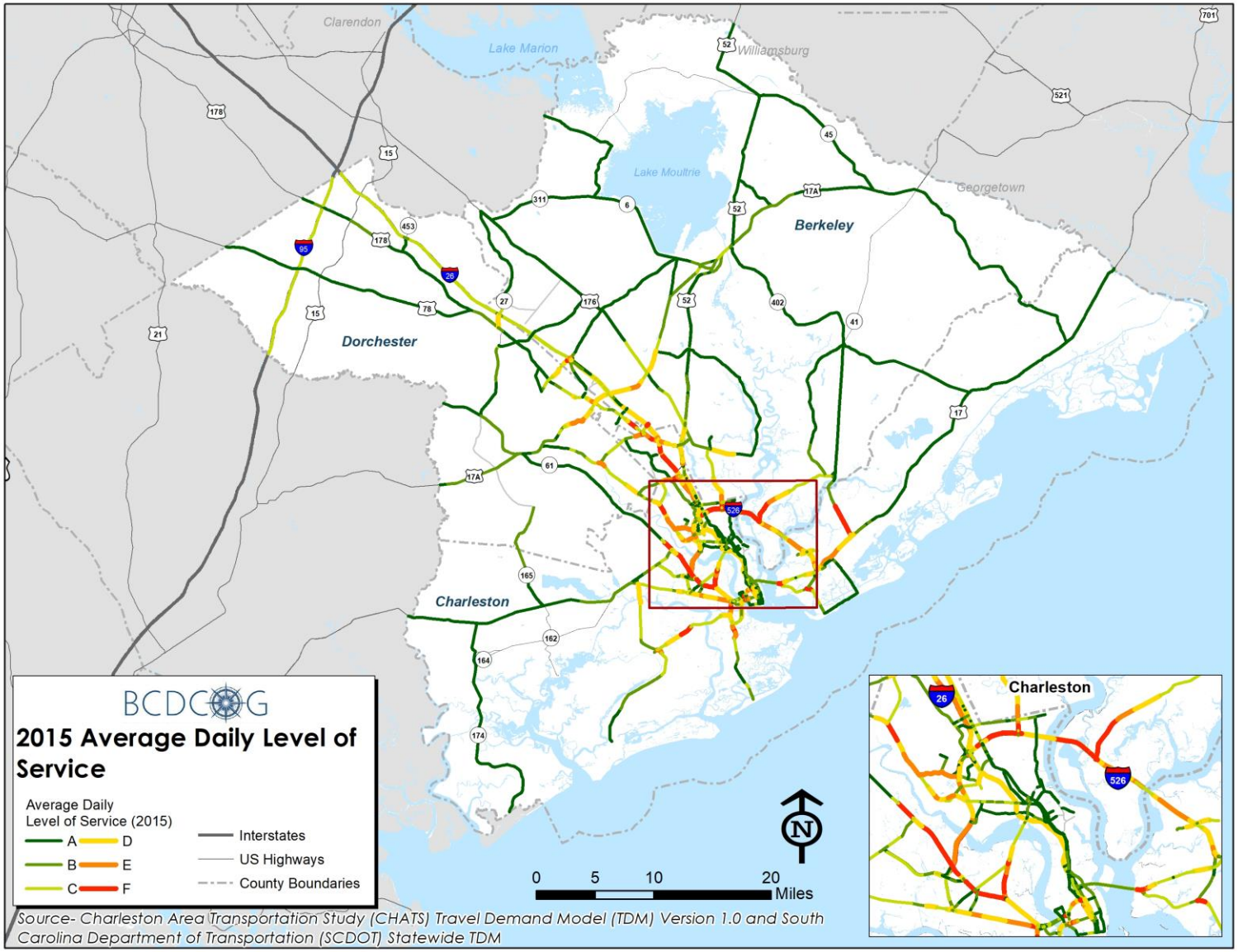
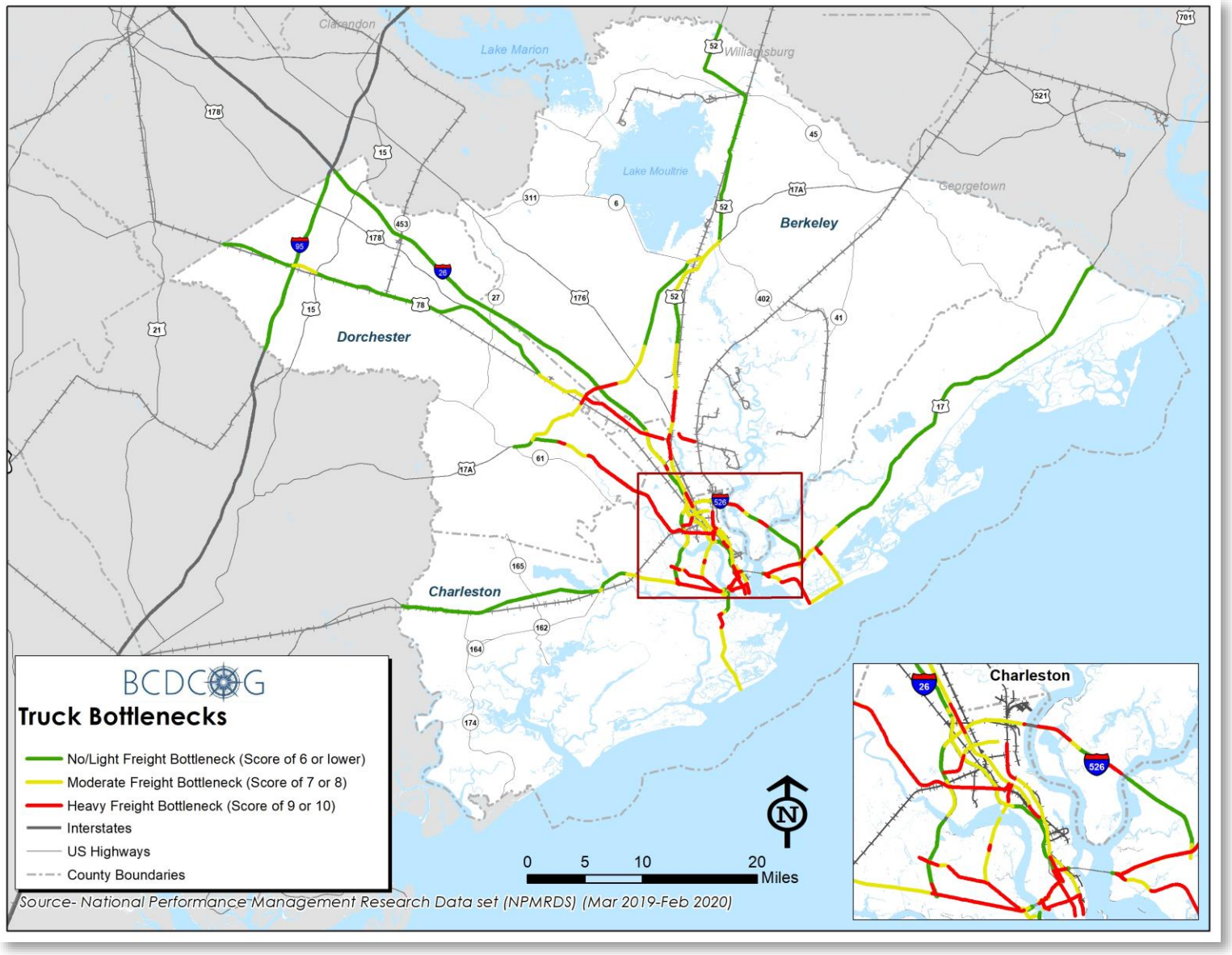


Figure 4-6: Truck Bottlenecks, 2019–2020



4.1.2 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 involved. It is therefore important to understand where such crashes tend to occur as well as the infrastructure conditions that may contribute to them. **Figure 4-7** is a heat map 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. High crash concentrations are represented in the red and yellow areas on the map. Commercial vehicle-involved crash hotspots are mostly found along I-26 and parallel routes, like U.S. 78, that serve industrial land uses. There are also localized clusters of crashes along U.S. 17 west of the Ashley, Palmetto Commerce Parkway, and U.S. 17 Alt.

4.1.3 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.

Figure 4-8 shows SCDOT pavement condition data for the freight network. The mileage and percentage shares by tier are detailed in **Table 4-1.** The pavement condition ratings are based on the SCDOT Pavement Quality Index (PQI), which is a combination of Pavement Serviceability Index (a roughness/rutting measure) and Pavement Distress Index (a measure of cracking or other distress). PQI scores are given on a five-point scale as:

- Poor – PQI (0.0 to 2.6)
- Fair – PQI (2.7 to 3.3)
- Good – PQI (3.4 to 5.0)

Pavement on Tier 1 routes (interstates) is generally performing well, which is expected because interstate highway maintenance is a key priority for SCDOT. Conditions deteriorate somewhat on the lower tier routes.

Table 4-1: BCD Freight Network Pavement Condition Summary, 2018

Tier	Good	Fair	Poor	Total
1	91.2 miles (82.9%)	16.1 miles (14.6%)	2.7 miles (2.5%)	110 miles
2	228.6 miles (42.1%)	131.9miles (24.3%)	182.3 miles (33.6%)	542.8 miles
3	27.7 miles (23.1%)	40.7 miles (34.0%)	51.3 miles (42.9%)	119.7 miles

Source: SCDOT, 2018
Note: Some freight network segments lack pavement condition data

Bridges in poor condition were identified and mapped using the 2018 SCDOT bridge condition database. In South Carolina, bridges are in poor condition if the deck, superstructure, or substructure are rated 4 or lower using the National Bridge Inventory rating scale of 0 to 9.[12] There are eight bridges on the regional freight network that are rated in poor condition (see **Figure 4-9**), including one on I-26 over the CSX Railroad in North Charleston. Others are located on U.S. 17, U.S. 17ALT, SC 174, and U.S. 78. Such bridges are more likely to require costly repairs in the future to continue in service.

[12] SCDOT, Final Transportation Asset Management Plan, August 2019.

Figure 4-7: Severe Truck Crash Density, 2015–2019

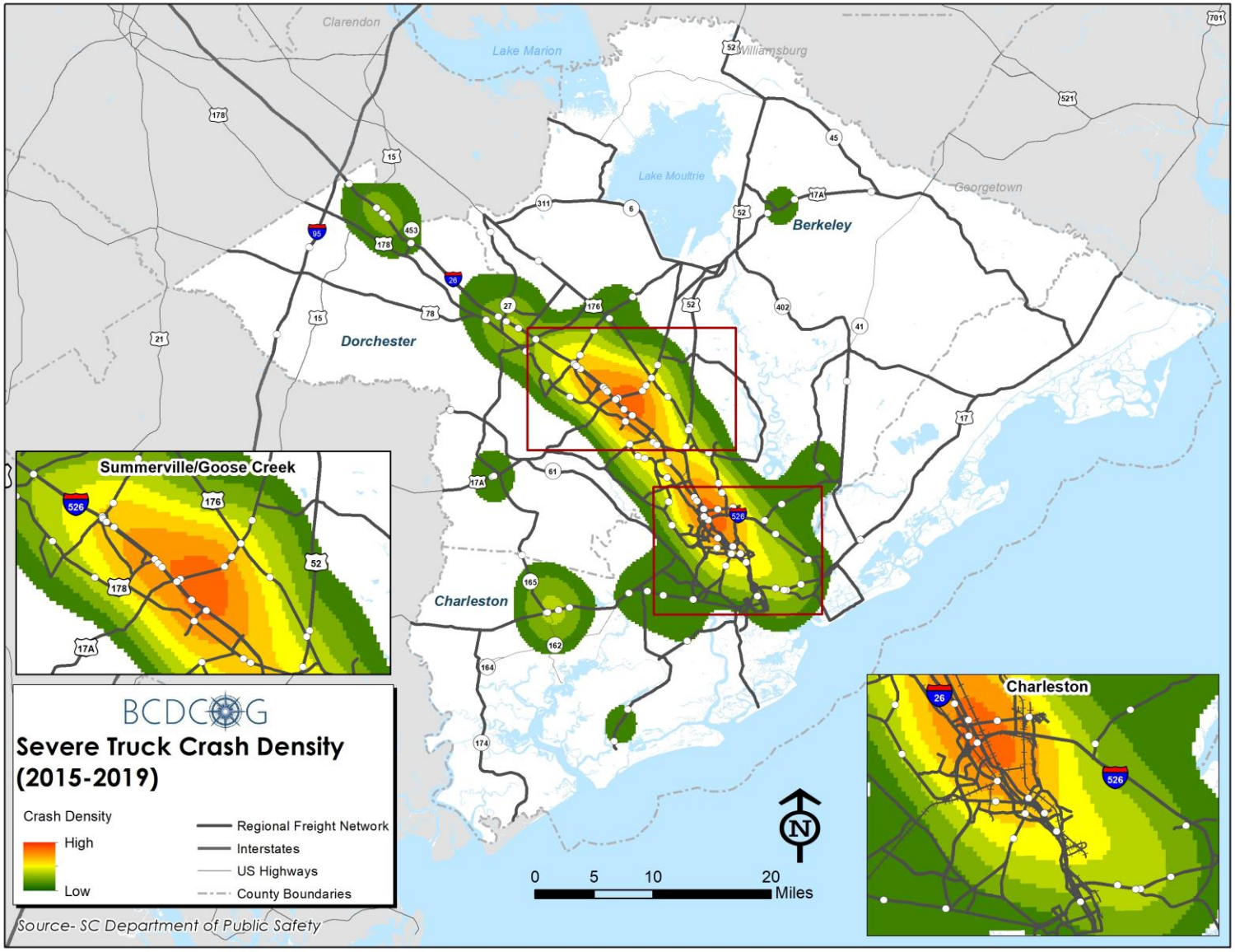


Figure 4-8: Pavement Condition Rating of the BCD Freight Network, 2018

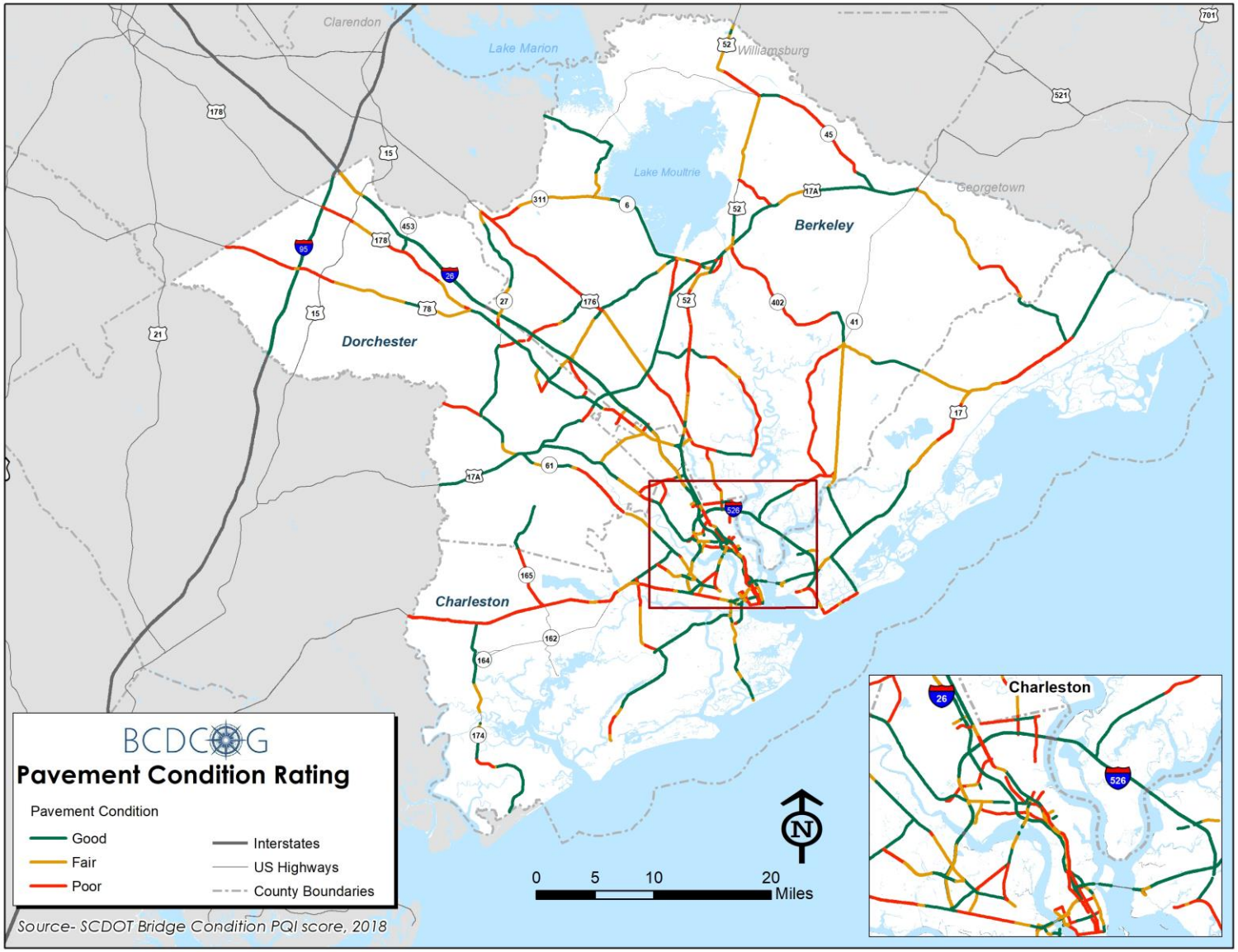
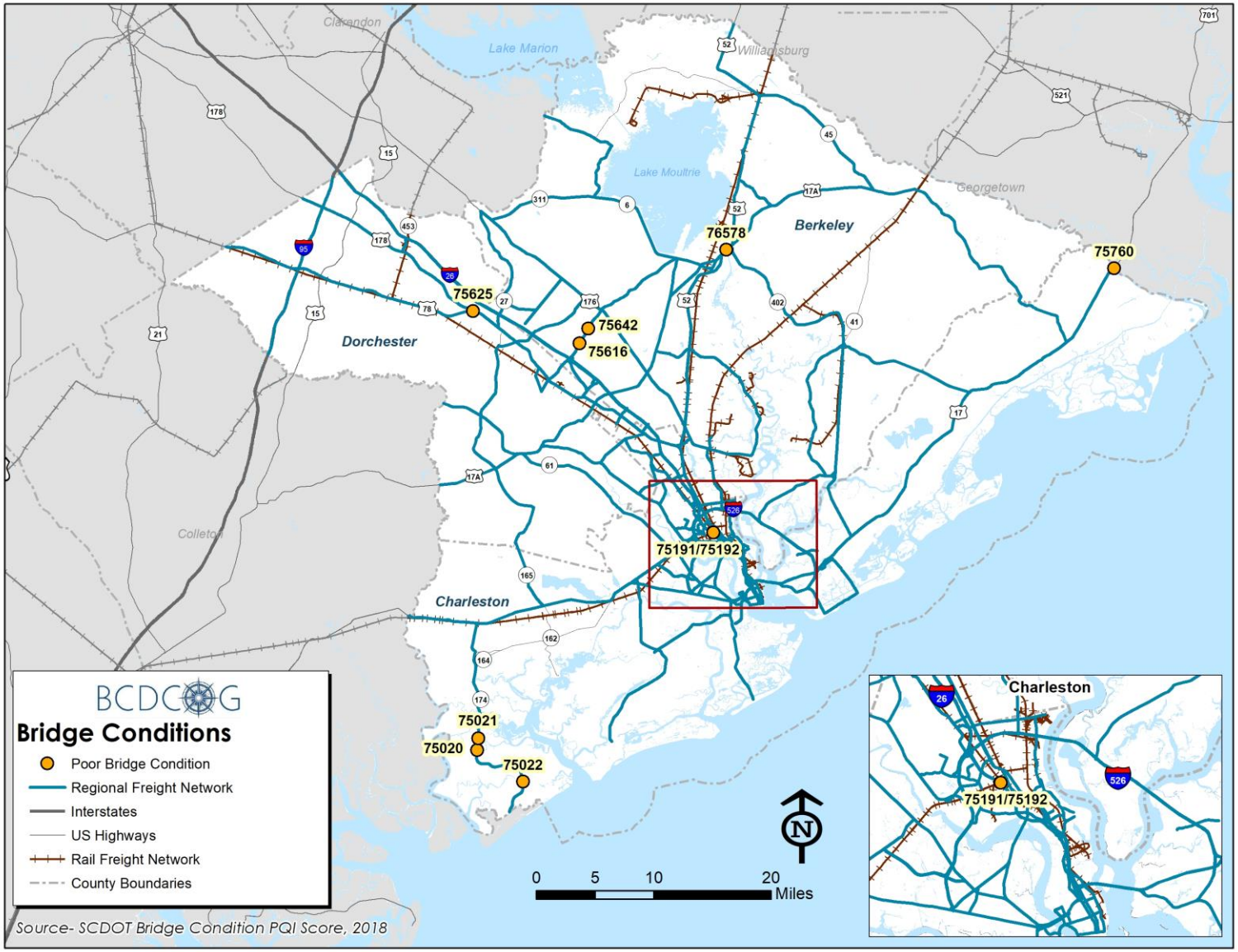


Figure 4-9: Bridge Condition Ratings on the BCD Freight Network, 2018



SCDOT, through implementation of its 10-year Transportation Asset Management Plan (TAMP), has targeted investments to improve the condition of the state's pavement and bridge infrastructure. Based on the state's priorities, through 2027 the agency plans to improve approximately 140-miles of existing highways under its Interstate Widening program, replace 465 bridges that are insufficient or load-restricted under its Bridge Replacement program, and improve pavement conditions on interstates and major roadways under the state's Road Resurfacing program. Many of the bridges and pavements identified as deficient or in poor condition on the region's freight network, stand to benefit from implementation of the state's asset management plan. The condition of other local first-last mile network connections not addressed by the state can also be addressed through coordination with local county paving programs.

Feedback gained from FAC input as well as other stakeholder discussions, highlighted concern for the impact of mining operations and related industries on rural roadways. SCDHEC maintains a database of active mines in the state. A map of the active mines in the BCD Region is shown in **Figure 4-10**.

The predominant type of mines in the region are sand only mines. These mines are located throughout the region but are in clusters in the following areas:

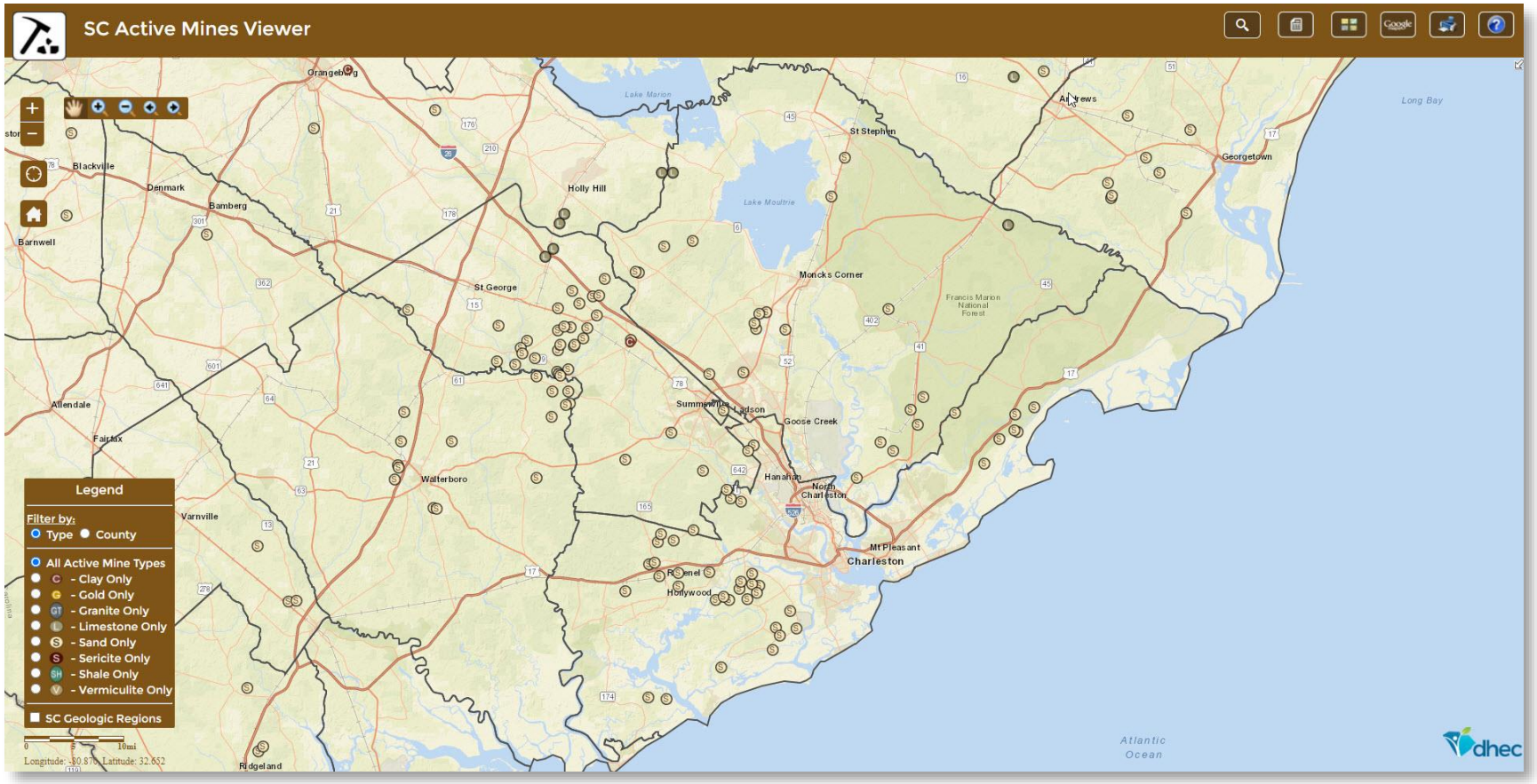
- Ravenel;
- Johns Island;
- Awendaw;
- Near SC 41;
- Near US 17 Alternate; and
- Dorchester

Continued use of these rural roadways to transport sand and other materials to construction sites can deteriorate the pavement and condition of the roadways on which they travel. **Table 4-2** shows the roadways adjacent to these mining operations that may put a disproportionate strain on the rural roadways in the area.

Table 4-2: Roadways Impacted by Mining Operations

Roads	Limits
SC 41	Hoover Road to Rubin Court
US 17 Alternate	Pinecrest Drive to Black Tom Road
Mudville Road	Highway 6 to Old Gilliard Road
Main Road	River Road to Maybank Highway
River Road	Maybank Highway to Edenvale Road
US 17	SC 174 to SC 162
Highway 165	US 17 to Hyde Park Road
US 17	Sewee Road to Doar Road
Wire Road	Hatteras Bluff to Old Dam Road
Sandridge Road	Wire Road to US 78
US 178	US 78 to Gable Farm Road

Figure 4-10: SCDHEC Active Mines in the BCD Region



Source: SCDHEC

4.1.4 Truck Parking

Truck drivers have two major options for parking legally—public or private facilities. Public facilities can be rest areas, truck weigh stations, or truck rest stops. Private facilities usually include truck stops/fueling stations (sometimes with amenities like showers and food), lodging establishments or shopping centers.

Truck drivers are subject to hours-of-service regulations that govern how long they may drive before stopping for rest. Legislation mandating the use of electronic hours of service logging devices prohibit drivers from exceeding their hours-of-service limits. Hence, when drivers run out of hours of service, they must pull over regardless of whether there is a safe place to park. Sometimes drivers are forced to park on highway shoulders or other unauthorized locations, resulting in potentially unsafe conditions for the driver, creating safety hazards for other drivers, infrastructure deterioration, and community quality of life issues.

Figure 4-11 and **Table 4-3** show the location of public and private truck parking in the BCD Region obtained from SCDOT and Allstays.com and sorted by lot capacity. Of the truck parking identified, about 81 percent is privately supplied and is located near I-95 in Dorchester County or along I-26 in Berkeley County. There is comparatively little supply near the Port of Charleston terminals or the major freight generators closer to the urban center of Charleston. Stakeholders indicated that this lack of truck parking near the Port of Charleston facilities is a major concern.

Table 4-3: BCD Regional Truck Parking Facilities

Name	Location	Number of Spaces	Public/ Private
Flying J	799 Jedburg Road, Summerville, SC	49	Private
Kangaroo Express	1571 N Main Street, Summerville, SC	49	Private
Pilot	1521 N Main Street, Summerville, SC	10	Private
Kangaroo Express	1968 Meeting Street Road, Charleston, SC	10	Private
En Market	2722 U.S. 15, Harleyville, SC	50	Private
Pilot	9587 Charleston Highway, St George, SC	100	Private
Shell	6131 W Jim Bilton Boulevard, St George, SC	5	Private
Flying J	113 Motel Drive, St George, SC	118	Private
Rest Area	I-26 Eastbound at Mile Marker 204	19	Public
Weigh Station	South Carolina WB Weigh Station	35	Public
Weigh Station	South Carolina EB Weigh Station	35	Public

Source: CDM Smith desktop review of data from SCDOT, Allstays.com, and Google Earth imagery, 2020

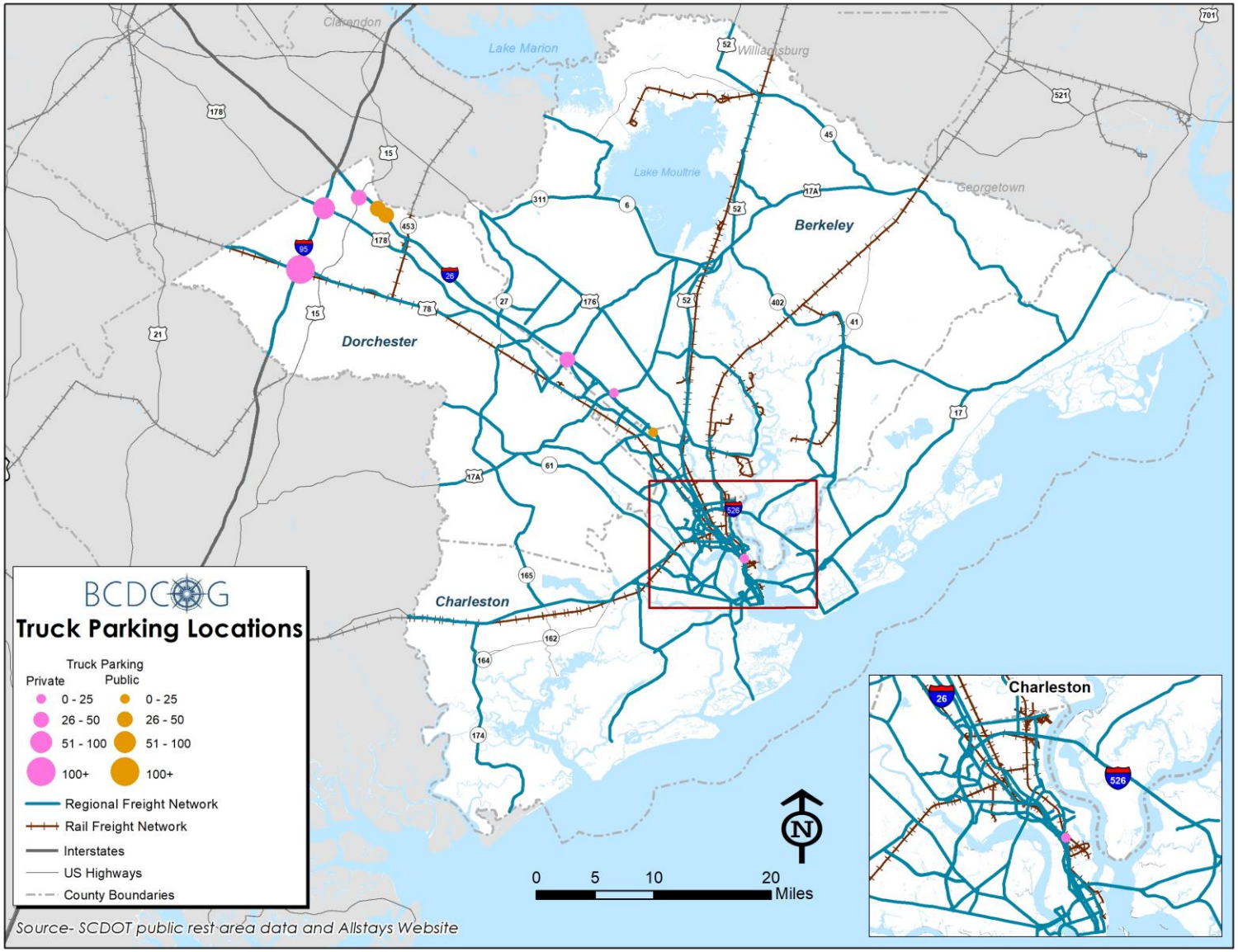
SCDOT sponsored the development of a Corridor Management Plan for I-26 in the Charleston region. The study evaluated strategies to better manage corridor traffic, including freight traffic. The study examined parking demand and capacity along I-26 close to Charleston. The study looked at existing conditions on I-26 between Exits 194 (Jedburg Rd) and 218 (Port Access Rd), and on I-526 at Exit 18 (Rivers Ave). Demand was evaluated by counting trucks during the overnight peak truck parking period (12:45 a.m. to 2:00 a.m.) at six locations—five private and one public. Most of the locations assessed were at or above capacity at the time of the survey:

- The Flying J on Jedburg Road in Summerville was at 200 percent capacity
- The Kangaroo Express on Main Street in Summerville was at 109 percent capacity
- The public rest area at I-26 mile 204 was at 100 percent capacity
- The Pilot Travel Center at I-26 exit 199 was at 210 percent capacity. [13]

These results suggest that the BCD Region is not immune to the nationwide truck parking shortage. Regional trends like a growing metro area, increasing land values, industrial expansions, and Port of Charleston cargo growth will contribute to ongoing truck parking shortages.

[13] I-26 Corridor Management Plan Freight Mobility Technical Memorandum (CDM Smith), 2018.

Figure 4-11: Truck Parking Locations



4.2 RAILROADS

CSX and Norfolk Southern (NS) railroads are two Class 1 freight railroads that serve the BCD Region. Each railroad operates an intermodal yard in Charleston. The CSX Ashley Junction terminal contains four tracks with trackside storage areas for grounded containers as well as storage for intermodal chassis and containers on chassis. The NS 7-mile intermodal yard includes a single loading track and storage for both grounded and wheeled containers and chassis. Palmetto Railways is a division of the South Carolina Department of Commerce. It provides rail switching services between the Port of Charleston and the CSX and NS railroads.

Given their importance in moving freight cargo in the region and the United States, all freight railroads are included in the regional freight network. Transearch flow data was used to analyze rail commodity flows in the region. These flows are presented in **Figure 4-12**, which shows that the NS and CSX lines handle most of the regional rail freight. As with the highway mode, through movements make up a considerable share of this traffic. There is significant rail intermodal traffic moving between the port terminals and the Upstate. According to South Carolina Port Authority (SCPA) representatives, approximately 25 percent of inbound marine freight at Charleston leaves the Charleston region by rail. This split has grown over time. In 2018, the Port of Charleston's rail share was just over 22 percent.[14] Much of this freight is transferred to truck at inland ports in Greer or Dillon.

4.2.1 At-Grade Crossing Safety

Safety is also a concern at rail-highway grade crossings. At-grade crossings present the greatest opportunity for people, automobiles, and trains to collide. Nationwide, 97 percent of all rail-related injuries and fatalities occur because of trespassing or other incidents at at-grade crossings. For BCDCOG, identifying all the at-grade crossings in the study area is the first step to target recommendations aimed at lowering these numbers.[15]

The BCD study area has 342 at-grade and 47 grade separated railroad crossings that are open and in use. **Figure 4-13** provides the location of these 389 total crossings. To determine which intersections, have the most crashes between vehicles and trains, a hotspot analysis was conducted for the region. Federal Railroad Administration grade crossing crash statistics from 2009 to 2019 for each crossing in the three-county region, were compiled and evaluated. For the 10-year period, there were a total of 53 at-grade crossings that had, which averages 7 crashes per year region-wide. For the three most recent years, 2017 to 2019, there was a slight uptick, with an average of 8 crashes per year.

Charleston County has the most at-grade crossing crashes with 42 over the 10-year period with six occur in in 2018 and eight in 2019. Berkeley County has 26 crashes while Dorchester County had 14 crashes over the same 10-year period.

The hotspot locations of these at-grade rail crossing crashes are shown in **Figure 4-14**. The top three crossing hotspots are shown in **Table 4-4**, with three locations tied for the third-highest location, based on the number of crashes experienced at each. Three hotspot crossings are in Charleston County, with one each occurring in both Dorchester and Berkeley Counties.

[14] Ashe, Ari, and Hugh R. Morley; 'US East Coast ports investing to capture more intermodal cargo,' Journal of Commerce, January 27, 2020.

[15] https://railroads.dot.gov/sites/fra.dot.gov/files/2020-02/Grade%20Crossing%20Business%20Plan.pdf

Figure 4-12: Rail Tonnage Density and Percent Through Traffic, 2016

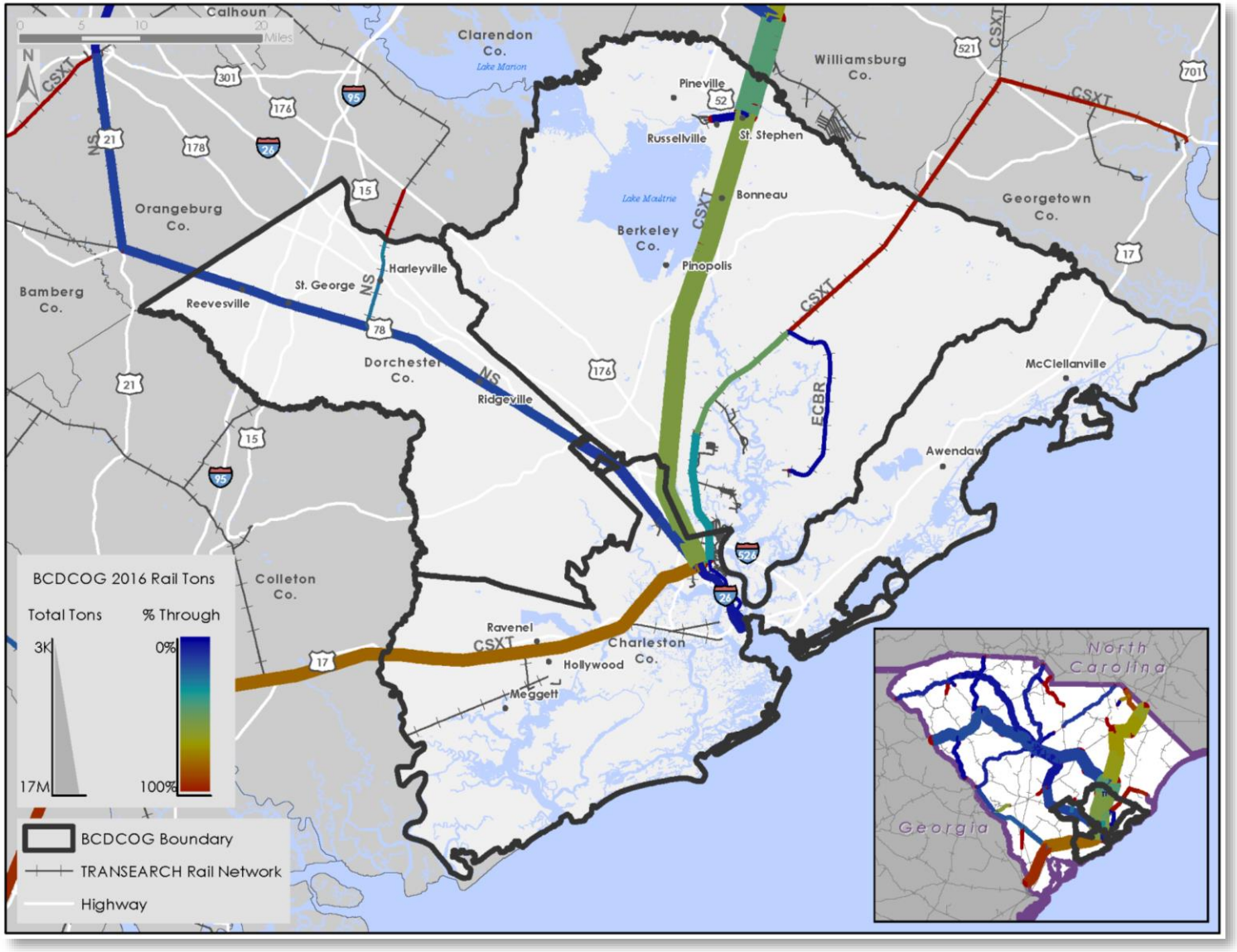


Figure 4-13: BCD Open Rail Crossings

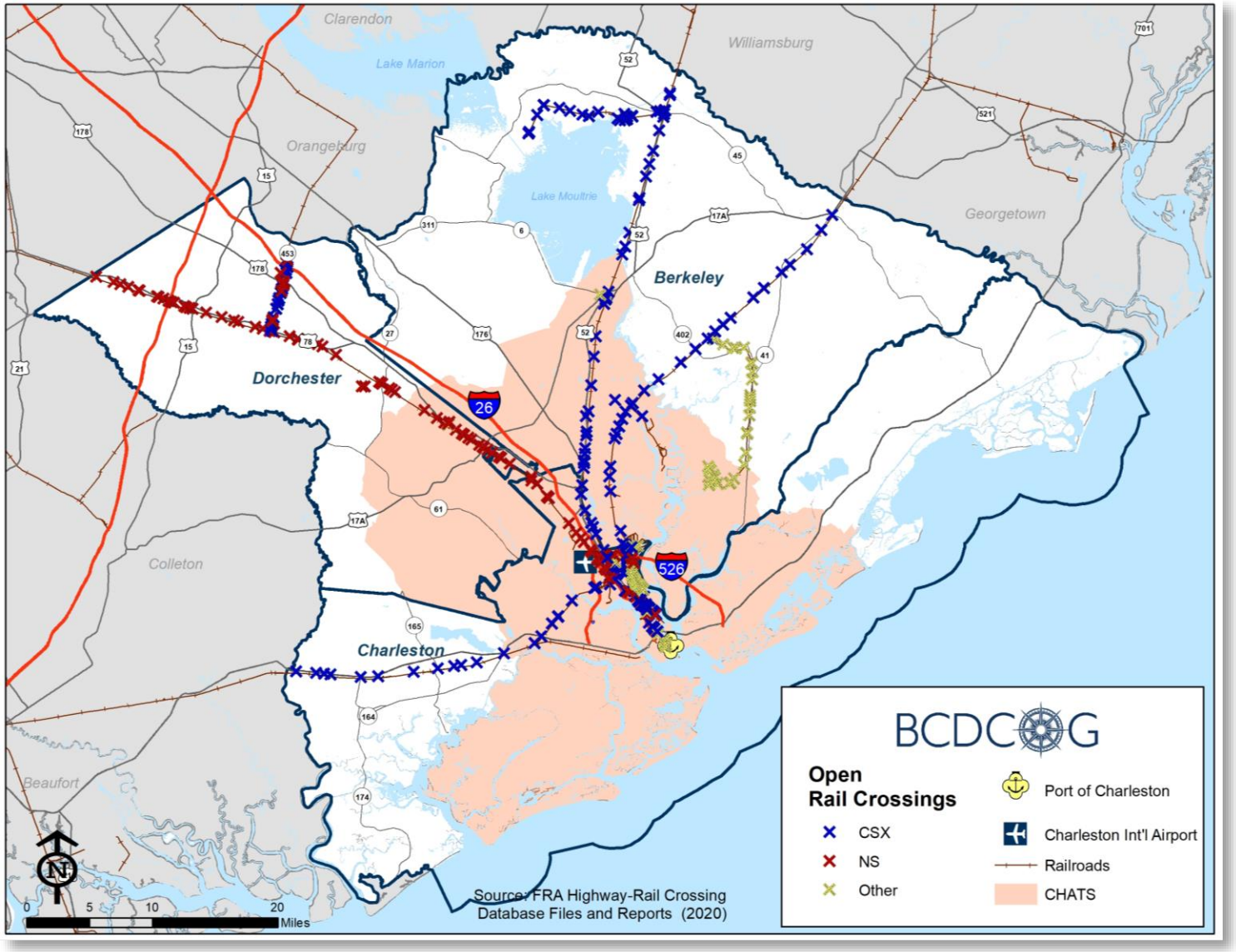


Figure 4-14: At-Grade Rail Crossing Safety Hotspots, 2009–2019

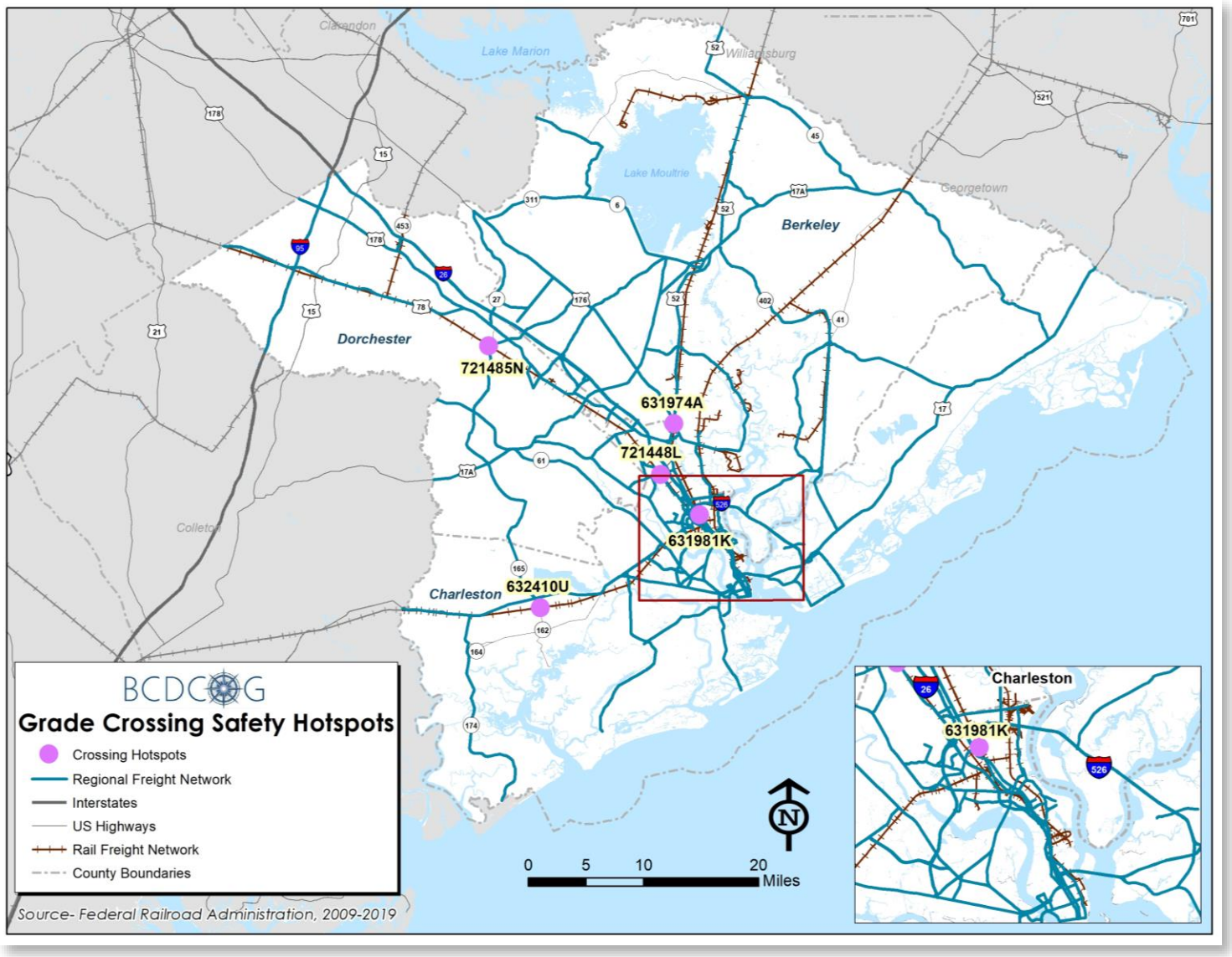


Table 4-4: BCD Top At-Grade Crossing Hotspots (2009-2019)

Rank	Railroad	Street Crossing	Near	County	Crossing ID	Total Crashes	Year of Last Crash
1	CSX	Red Bank Road	US 52	Berkeley	631974A	8	2019
2	NS	Ashley Phosphate	Southrail Road	Charleston	721448L	6	2019
3	CSX	East Montague Avenue	Gaynor Avenue	Charleston	631981K	3	2018
3	CSX	SC 165	Drayton Street	Charleston	632410U	3	2019
3	NS	North Main Street	South Railroad Avenue	Dorchester	721485N	3	2018

Source: FRA Accident/Incident Data (2020)

Based on the findings of the crash hotspot analysis, recommendations for both the specific at-grade crossings identified and general rail recommendations were developed. These recommendations can be found in **Chapter 6 – Project Recommendations** and **Chapter 8 – Policy Programmatic Recommendations**. More details about the hotspot analysis and the rail-related recommendations can be found in **Appendix G – Rail Recommendations**.

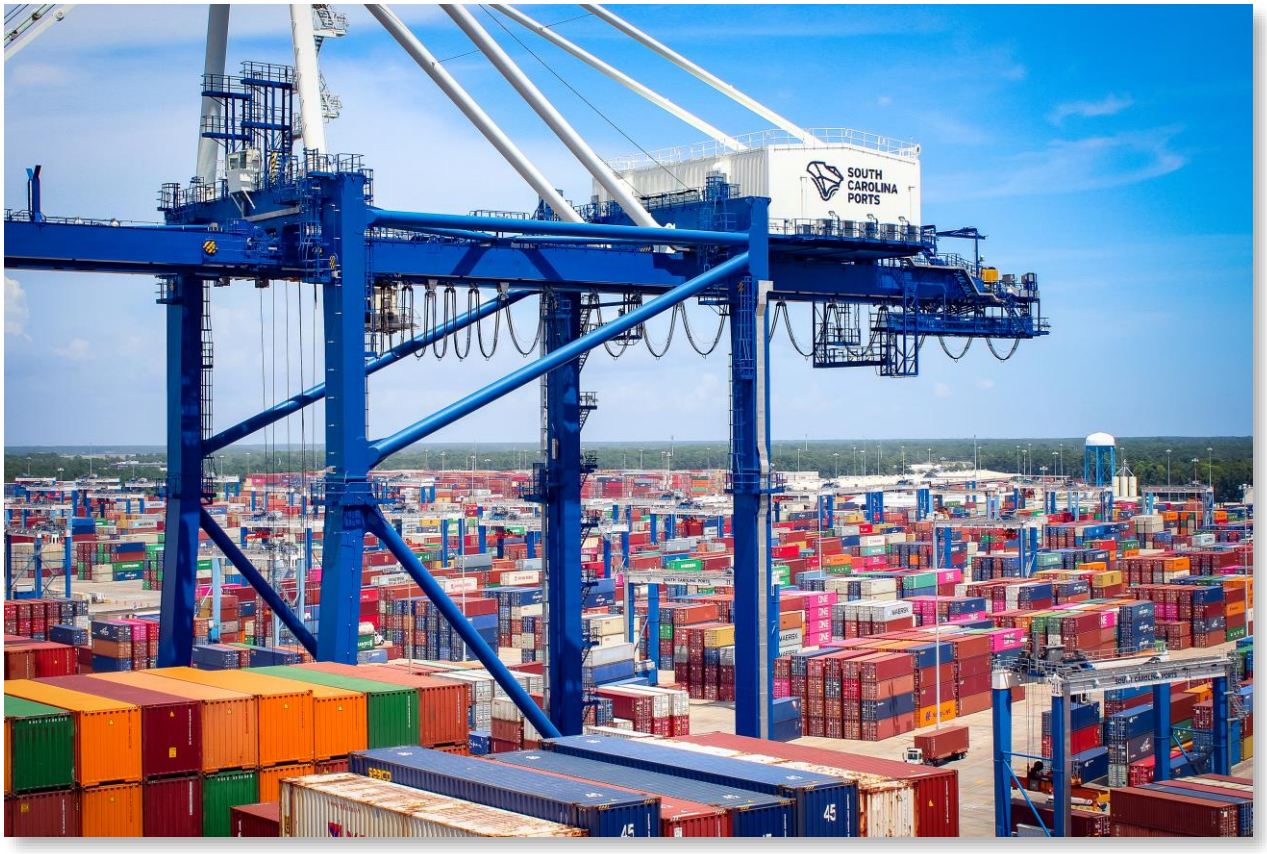
4.3 PORT OF CHARLESTON

The Port of Charleston currently operates five local marine terminals spanning three municipalities, supporting passenger cruise operations, and generating freight movements to and from these locations that are primarily supported by truck and rail. The Port of Charleston has recorded strong growth over the years, and the committed investments to enhance operation and expand port capacity will support future trade demands and maintain the economic competitiveness of the trade gateway.

The Port of Charleston is inexorably tied to the region's history and economic development, ensuring that it rose as a major center of trade for the state and the southeast region of the country. During stakeholder interviews, several of the companies identified the Port of Charleston as the most significant factor in their decision to locate in the BCD Region. The Port is also boosted by the South Carolina Port Ambassadors, which is a unique program that gives business and community leaders an opportunity to learn more about the Port of Charleston and the important role the port plays in the state's economy.

Once the first phase of the new Hugh Leatherman Terminal (HLT) is complete, the port will have five cargo terminals (HLT, Columbus Street Terminal, North Charleston Terminal, Veterans Terminal, and Wando Welch Terminal [**Figure 4-15**]) providing a combined 3.5 million TEU capacity. It is expected that the HLT, once fully built out by 2033, will increase the port's container capacity by 50 percent. The port is also modernizing its existing terminals to absorb the expected increase in container traffic. In addition to containerized and bulk cargo, the port handles shipments of automobile parts and finished cars, an industry sector that has contributed significantly to economic development in the BCD Region and statewide. The port also handles trade bound for Charlotte, Atlanta, and the rest of the southeast.

Figure 4-15: Wanda Welch Terminal, Port of Charleston



Source: SCPA, English Purcell

In fiscal year 2019, the port handled almost 2.4 million TEUs, up nearly 9 percent year over year.[16] Forecasts suggest total port container volumes could reach nearly 4 million TEUs by 2038.[17] Until the COVID-19 pandemic, container volumes had been consistently growing at the port since 2010. Early in the pandemic, marine freight volumes decreased internationally and wait times were below normal at several ports, indicting less traffic moving in the ports; however, the Port of Charleston began to see some traffic improvements in late April 2020.

The Port of Charleston has applied to USACE to make various improvements, including dredging and a wharf extension at the Wando Welch Container Terminal, to support a proposed container-on-barge service.[18] These improvements would allow barges to move about 200 containers at a time between Wando Welch and the new HLT. Intermodal containers could then be transferred to the planned Naval Base Intermodal Facility (NBIF) via the new Port Access Road and proposed drayage connector roads for further distribution by rail or truck. These loads currently must move across the Wando and Cooper Rivers via I-526, which has experienced worsening congestion over the years from continued regional population and economic growth. SCPA estimates the barge

[16] https://www.postandcourier.com/moultrie-news/news/business/sc-ports-reports-record-cargo-volumes-9-uptick-in-fy19/article_333202ee-60c4-5867-ae1e-68546f9a87b7.html

[17] Palmetto Railways, *Final Environmental Impact Statement for the Proposed Navy Base Intermodal Container Transfer Facility*, retrieved July 31, 2020 from http://palmettorailways.com/intermodal/eis/

[18] https://www.sac.usace.army.mil/Portals/43/docs/regulatory/publicnotices/Dec2018_PN/SAC-2018-00865_Charleston_%20SCPA_Wando_Welch_Terminal_Container_Barge_Operation.pdf?ver=2019-01-02-092543-470

service could move up to 200,000 containers per year, thus reducing truck demand on the road network.

The port is also making other improvements, such as deepening the harbor. Work began in February 2018 to deepen the main navigation channel to 52 feet and the entrance channel to 54 feet, as well as enlarge the turning basins. These improvements will allow the port to handle the larger post-Panamax container vessels which now traverse the Panama Canal from the Pacific Ocean without waiting for high tide. When completed, the harbor deepening will make the Charleston harbor the deepest on the East Coast.

4.3.1 Other Port Facilities

The South Carolina Ports Authority operates two inland ports that process port-related intermodal traffic. While not located in the BCD Region, these facilities support multimodal shipments of freight.

- **Inland Port Greer** opened in 2013 and is located 212 miles inland from the Port of Charleston. NS provides overnight rail service to and from the Port of Charleston 6-days per week to the terminal, which operates 24-hours per day, 7-days per week. The port recently received a $25 million United States Department of Transportation grant to expand the 50-acre port to accommodate additional storage and processing tracks.
- **Inland Port Dillon** opened in April 2018 and is located 162 miles inland from the Port of Charleston, off I-95 and U.S. 501 near the North Carolina line. The inland port operates 24-hours per day, 7-days per week with CSX providing overnight rail service from the Port of Charleston 6-days per week (Monday to Saturday) and export service to the port 5-days per week (Monday to Friday). Recent nearby industrial developments include a $200 million Harbor Freight distribution center and a manufacturing center for KB Biotech Solutions, indicating the inland port has been a catalyst for new investment.

As of January 2020, the two inland ports reported nearly 106,000 rail moves in the fiscal year to date, an 18 percent increase over the prior fiscal year. It is likely growth has slowed or even reversed since the COVID-19 pandemic, but longer term economic and trade growth suggests these facilities will continue to play an increasing role in container transshipment to/from the Port of Charleston.

4.4 Air Cargo

The Charleston International Airport (CHS) was the seventy-eighth busiest cargo airport in the United States in 2018, handling about 347 million pounds of freight. Air cargo is not a large share of total regional freight movements by weight, but shipments that do move by air are usually highly perishable or very valuable. High quality landside connections are critical to air freight efficiency. CHS is located near the interchange of I-26 and I-526 and is accessible from both interstates.

The demand for air freight is increasing as the region attracts more businesses. Freight by plane climbed nearly 36 percent from 2013 to 2018, according to Charleston County Aviation Authority, which oversees the airport. Much of the cargo boom is related to Boeing Co., the airport's neighbor, and top private-industry partner. FedEx has also seen substantial growth in the demand for air freight movement. As more manufacturing moves to the region, it is expected that air freight will continue to grow. CHS has also become an increasingly popular destination for air cargo shipments because of the state's growing automotive industry.[19]

[19] https://www.postandcourier.com/news/taking-off-air-cargo-soars-as-charleston-region-flourishes/article_f6429966-68f6-11e8-b353-d35d5b4e7721.html

It will be important moving forward to reassess air freight movement, given the impacts of the COVID-19 pandemic. Internationally, significant declines in global commerce and limited international passenger travel caused a major reduction in air freight capacity. The lead time for air cargo increased and some local businesses were forced to move parts and components that normally moved in ocean containers to air cargo to maintain their production requirements, which dramatically increased transportation costs. Shipping parts and components by air enabled these companies to keep their production lines in operation and their skilled workforce employed, a major focus of concern. However, there are increased costs associated with relying on air transportation which could result in shifts to other modes in the future.

4.5 LAND USE

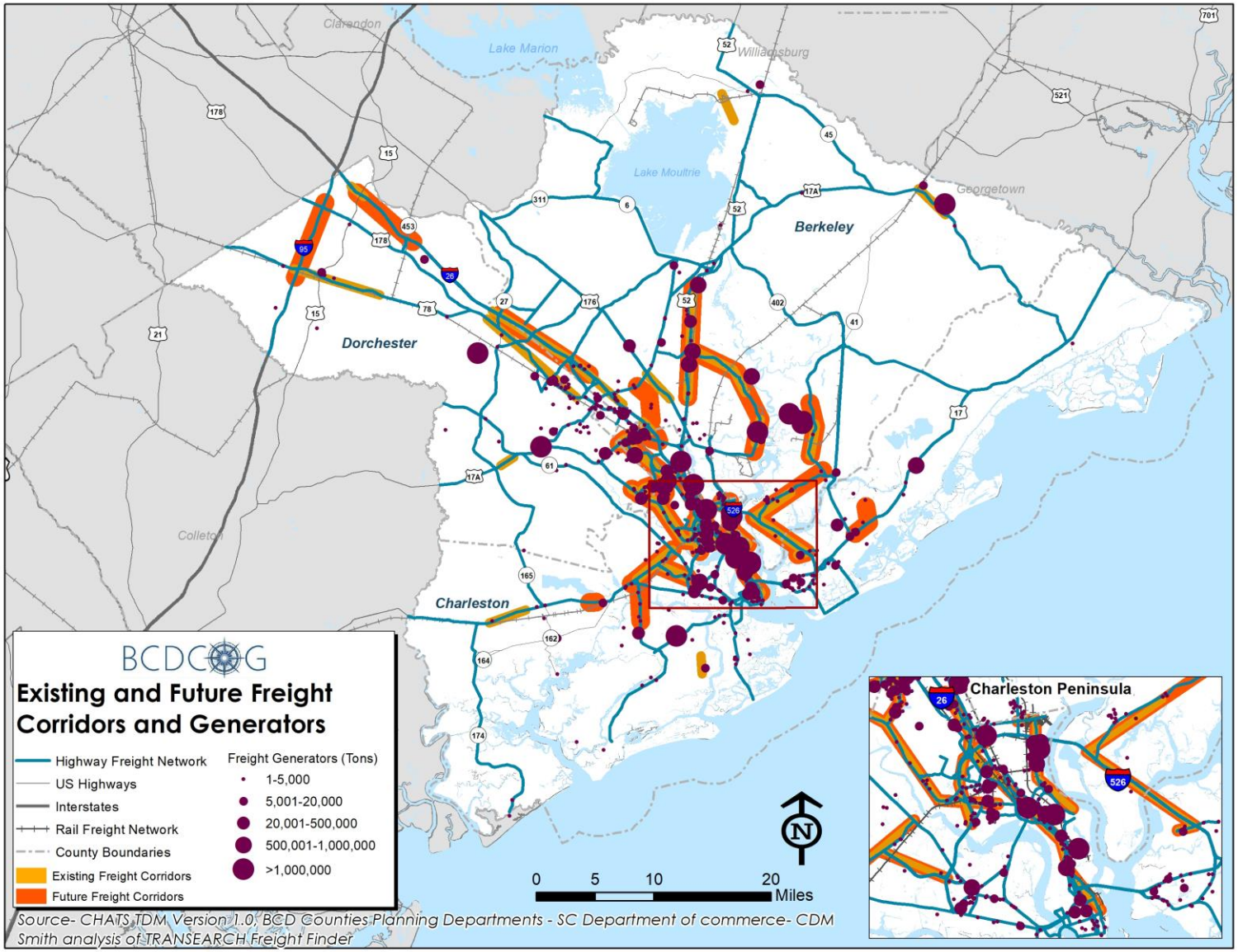
Current and long-range planning activities have impacts on freight mobility and freight dependent land use development patterns. Without integrated planning, the potential disbenefits of freight generating land uses may include air quality issues, greenhouse gas emissions, environmental justice impacts and congestion or other mobility challenges resulting from increased freight volume.[20]

Successful freight planning balances the needs of freight generating land uses with the sustainable development of freight corridors and clusters. Identifying the local freight network provides a starting point for the BCDCOG and its member governments to encourage freight related land use growth in designated areas that can benefit from the economies of agglomeration. Parcels and tracts of land surrounding the freight network are prime locations where freight related industries should be located and targeted to accommodate future freight growth.

A comprehensive land use analysis was conducted to identify the location of both current and future freight intensive land uses in the BCD Region as well as critical corridors or segments of the local freight network that provides direct access to these land uses. These corridors were then vetted by the FAC and adjusted based on the feedback received. 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 provided in **Figure 4-16** and described in **Table 4-1** and **Table 4-2.** Land use considerations were also incorporated into the final recommendations outlined in **Chapter 6 – Project Recommendations** and **Chapter 8 – Policy Programmatic Recommendations**. For additional information, reference the Land Use Technical Memorandum (**Appendix D**).

[20] https://ops.fhwa.dot.gov/publications/fhwahop12006/sec_1.htm

Figure 4-16: Existing and Future Freight Corridors and Generators



5. FUTURE FREIGHT MOBILITY NEEDS

To better plan infrastructure needs of the freight network, population, employment, and freight growth were forecast and analyzed. Qualitative feedback from 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.

5.1 POPULATION AND EMPLOYMENT

The CHATS Travel Demand Model was used to forecast population and employment levels in 2040 with a 2015 base year. Between 2015 and 2040, the BCD regional population is expected to grow 87 percent to nearly 1.4 million people.

Table 5-1: 2015–2040 Population Growth, BCD Region

County	2015 Population	2040 Population	Percent Change
Berkeley County	203,831	504,124	147.32%
Charleston County	392,013	651,420	66.17%
Dorchester County	149,034	242,019	62.39%
Total	**744,878**	**1,397,563**	**87.62%**

Source: CHATS TDM Version 1

Population forecasts for the year 2040 show the population expanding away from the urban core of Charleston in all directions along the major highway corridors (**Figure 5-1**). Areas along the U.S. 17 Alt also show increased population density, compared to 2015.

Employment growth was projected for key sectors in the freight industry: manufacturing, wholesale distribution, warehousing, and mining. Job growth of greater than 50 jobs in these industries was considered the threshold for significant growth for all sectors. This freight employment forecast is shown in **Figure 5-2.**

Figure 5-1: Forecast Population Density, 2040

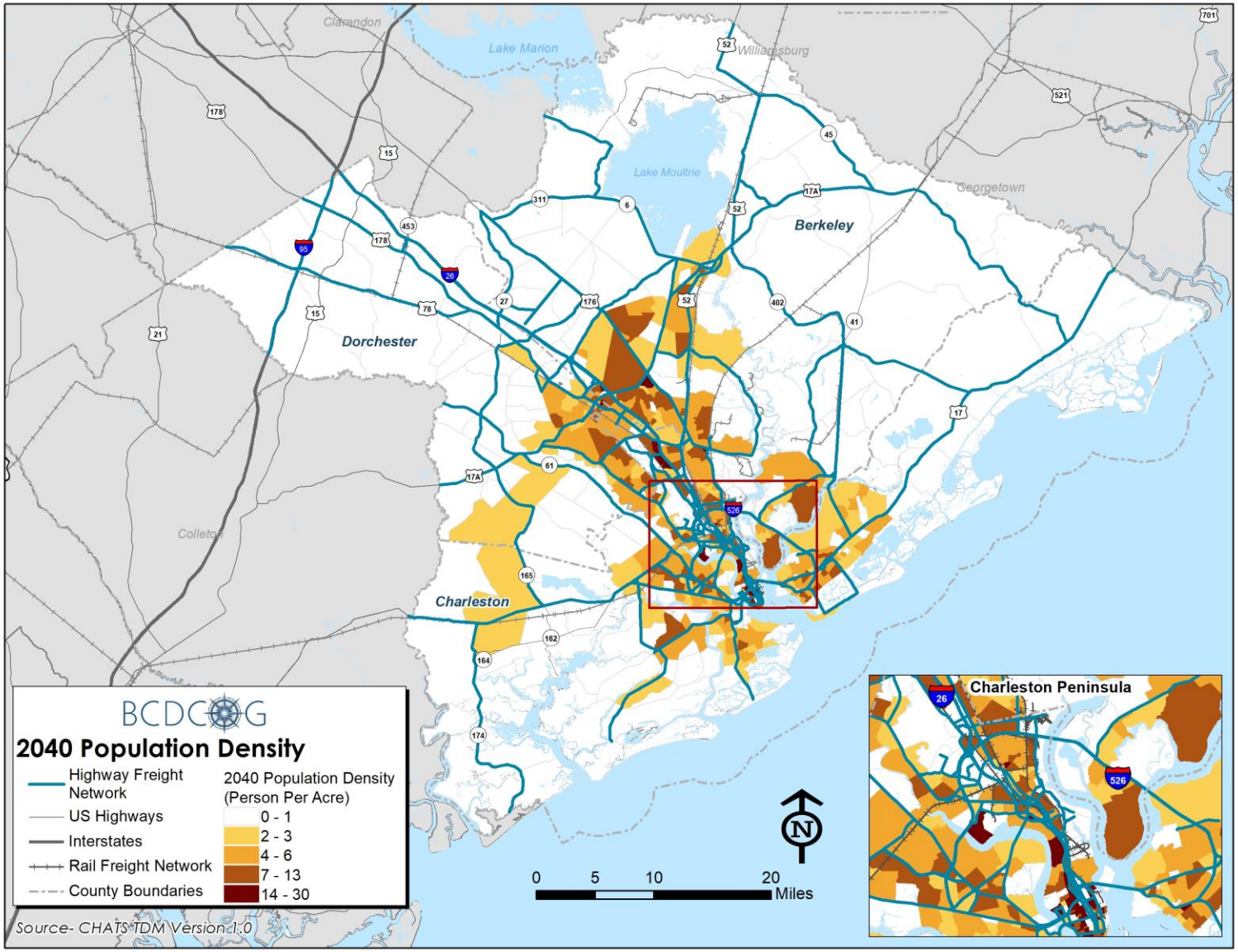
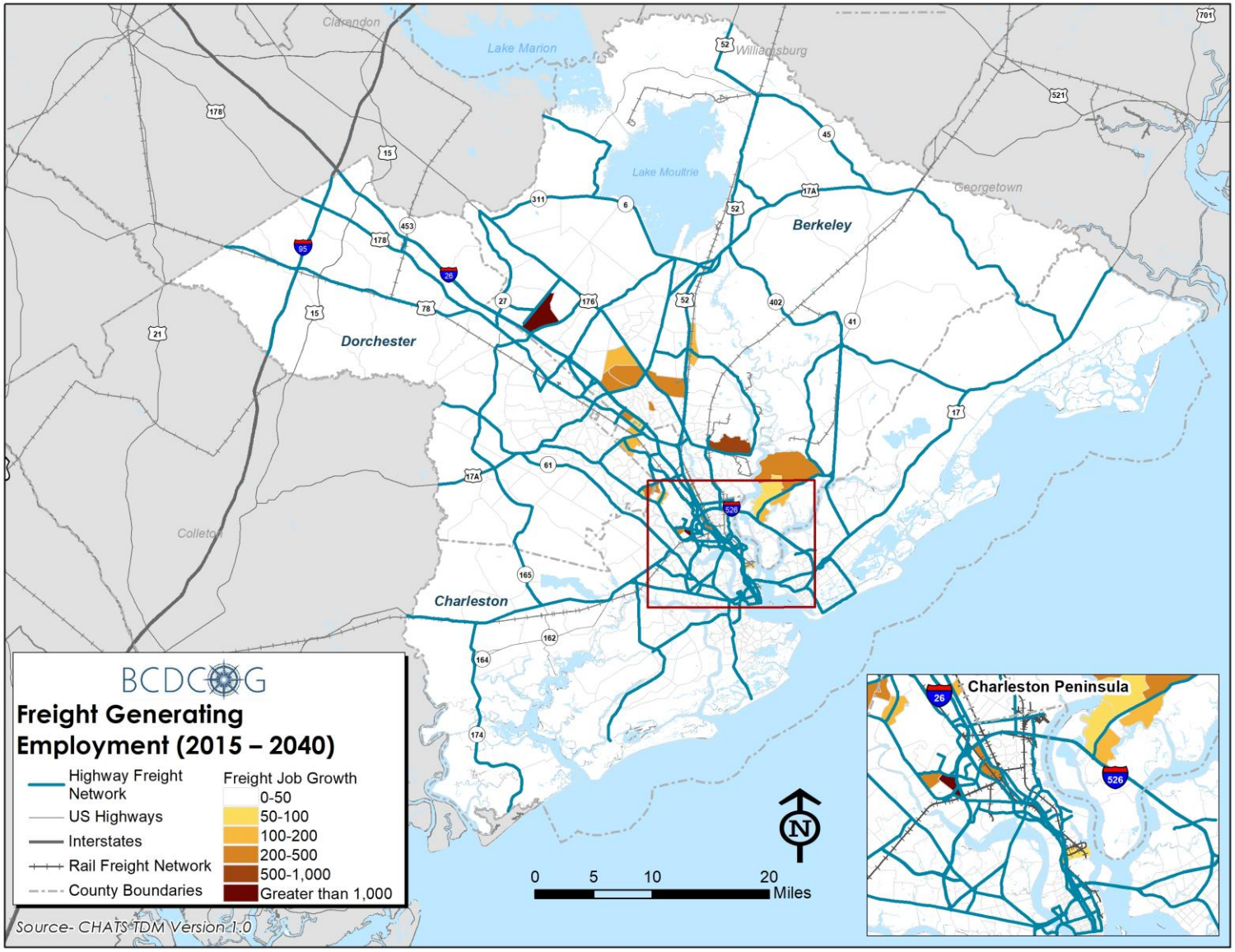


Figure 5-2: Freight Generating Employment Growth, 2015–2040



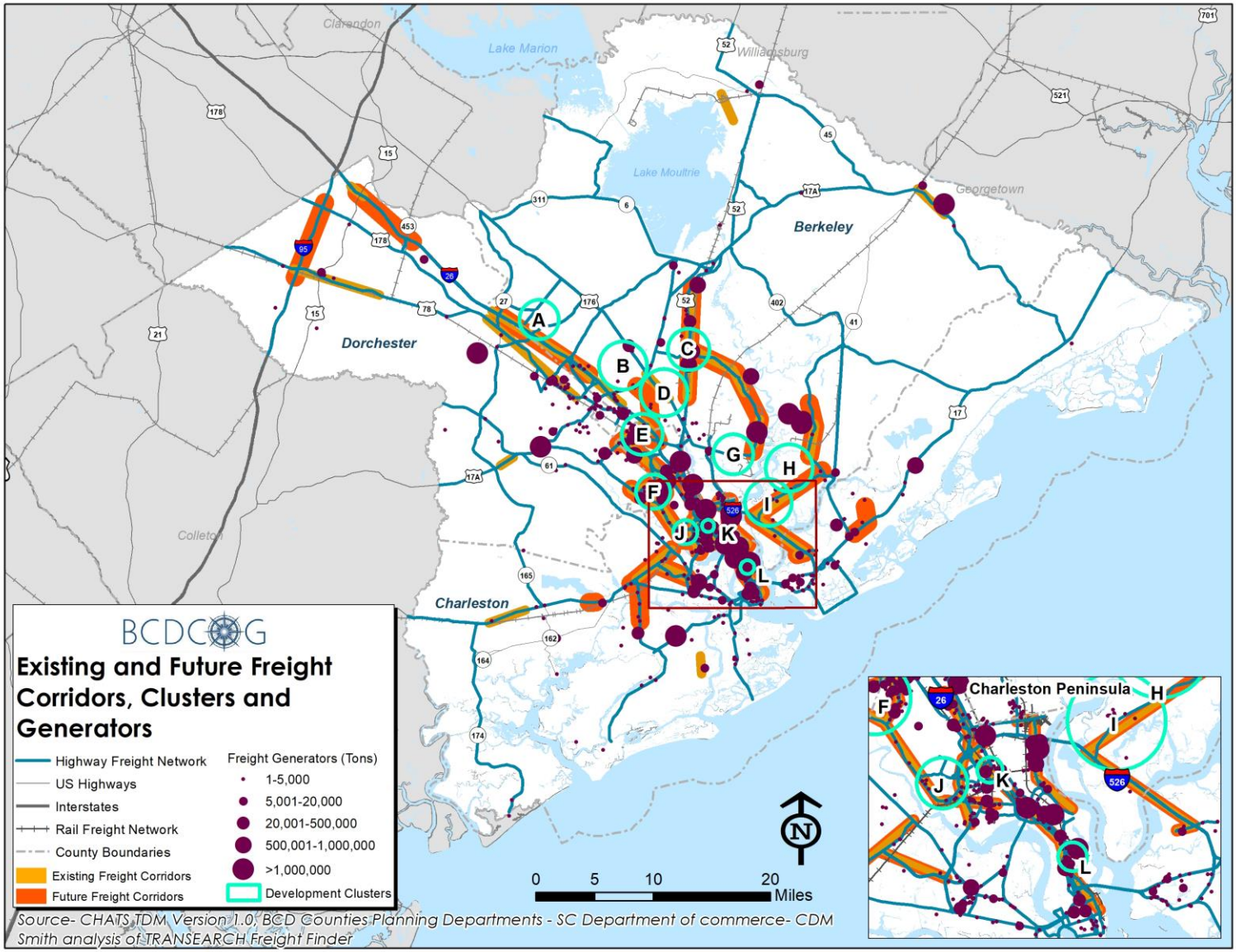
Industrial development related to meeting the increased freight demands of a growing population is likely to be concentrated on the fringe of these densely populated areas, which is evident in the employment forecast map. Intensive growth is projected along the existing network within existing freight land use planning constraints. The Volvo Camp Hall Industrial Campus, in Berkeley County along I-26, is expected to have the highest level of employment growth among the freight industries, with a forecast 5,000 new jobs by 2040. Boeing, in Charleston County strategically located near the Charleston Airport and key highway and rail corridors, will have the second highest job growth with 2,288 jobs. In total, the region should expect over 13,000 new jobs in key sectors within the freight industry. Not yet included in the forecast database, the Ridgeville Industrial Campus area in Dorchester County is also expected to be an area of significant employment expansion with the 2020 announcement of the Walmart Distribution Center and other similar businesses.

Using the population and employment forecasts and building on the identified freight generating land use corridors identified in **Chapter 4 – Identification and Existing Conditions of Freight Assets**, 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 5-3** ("Development Clusters").

This future land use analysis validates that freight-intensive land use growth is occurring or planned along the identified freight network. Summary statistics about the clusters indicate that seven out of the 12 Development Clusters have rail access and five of them are located on the interstate system.

This insight on the future land use impacts of expected freight growth provides a starting point for planners to continue to encourage freight-related land use growth in the identified areas to maximize the return on current and future investment in freight transportation infrastructure. Parcels and tracts of land surrounding the freight network are locations where freight-related industries may be located and targeted to accommodate future freight related growth and development.

Figure 5-3: Existing and Future Freight Corridors, Clusters, and Generators



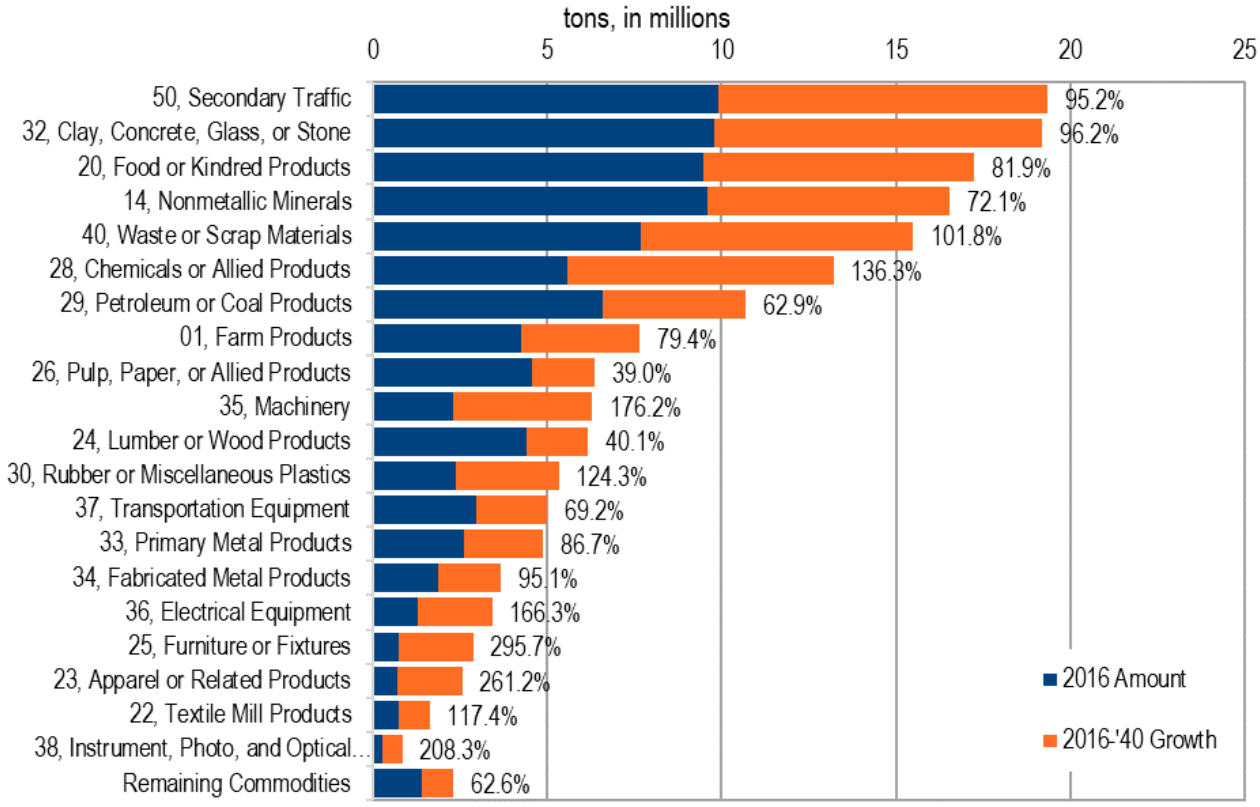
5.2 FREIGHT GROWTH

Understanding future freight demand also helps identify the future mobility needs of the regional freight network. Future regional freight demand was forecast for the year 2040 for both highway and rail freight. Overall, the region should see an increase in total freight tonnage moving through the region to over 210 million tons in 2040, an 86 percent increase from the 2016 value of 112 million tons. The value of the freight moving along the regional freight network is expected to grow by 128 percent, from $248 billion to $567 billion in 2040.

5.2.1 Truck Freight Growth

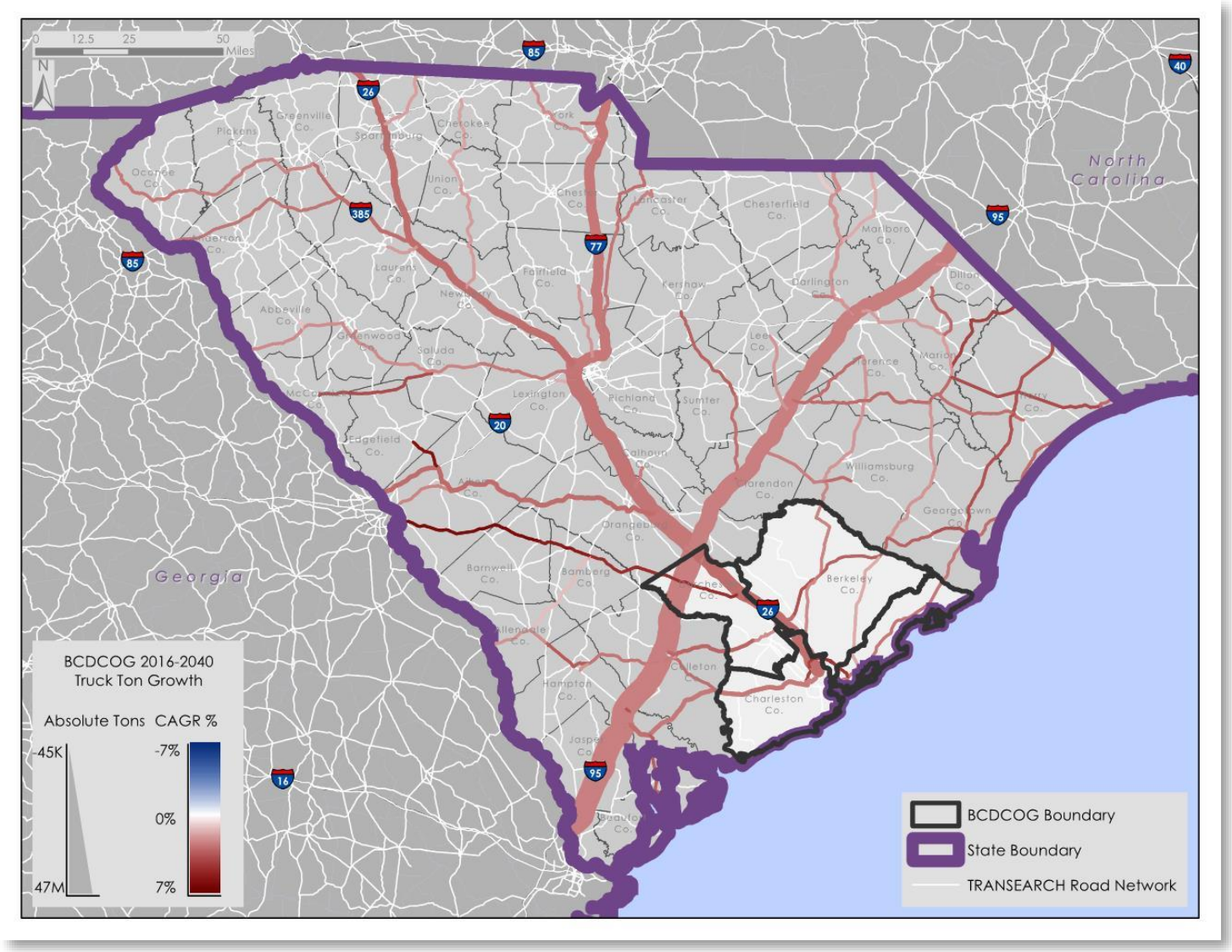
By 2040, truck freight on the tri-county network is projected to increase to over 170 million tons, a 92 percent total increase (2.7 percent annually). Over half of the growth is in the same top five commodity groups that currently comprise most tons, with outbound volume growing slightly faster than the other directions (inbound, intraregional, and through). **Figure 5-4** shows the expected 2040 truck tonnage growth by commodity, compared to the 2016 volumes and **Figure 5-5** shows the distribution of that tonnage growth along the highway freight network in South Carolina as well as the percentage of the highway tonnage that relates to the BCD Region. The value of the freight moving along the highway network is expected to grow 133 percent, from $211 billion to $494 billion.

Figure 5-4: Truck Ton Growth by Commodity, 2016–2040



Source: Transearch

Figure 5-5: South Carolina Truck Tonnage 2016–2040 and Statewide Distribution of BCD Region Freight

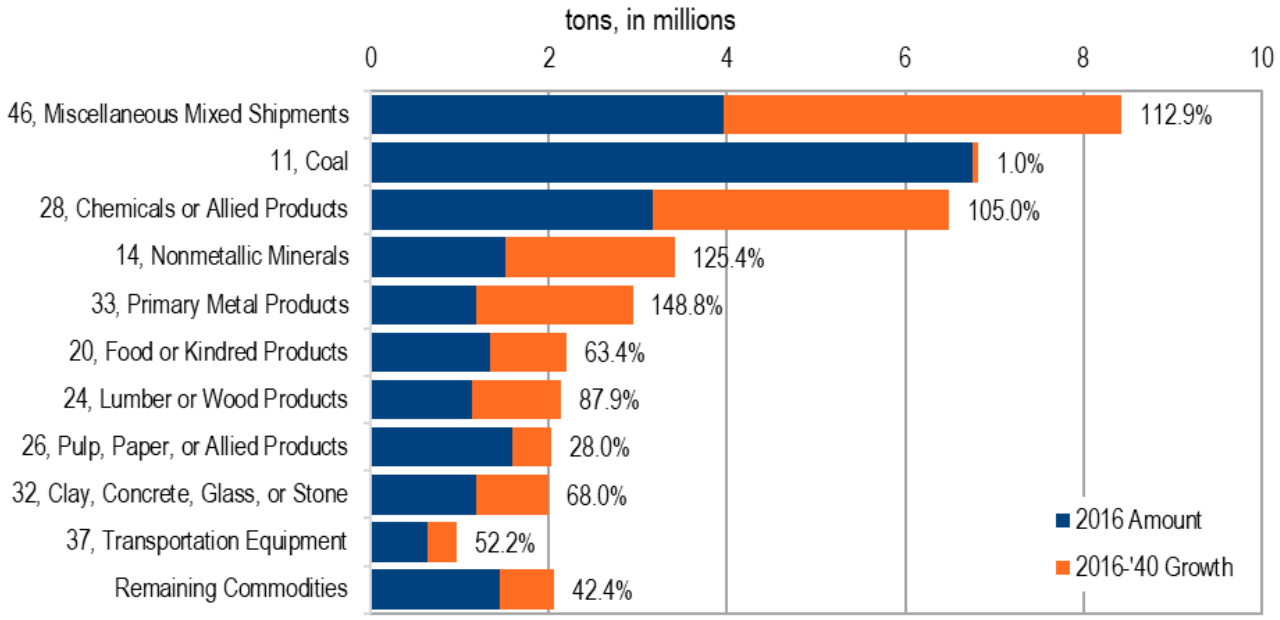


Source: Transearch

5.2.2 Rail Freight Growth

By 2040, the horizon year in Transearch, rail freight on the tri-county railroads is projected to increase to almost 40 million tons, a 65 percent total increase, or 2.1 percent annually, with outbound volumes growing slightly faster than the other directions. About half of the absolute volume growth is in miscellaneous mixed shipments and chemicals; coal imports (from Kentucky, Indiana, and Pennsylvania) are not expected to grow. This is likely due to increased focus on renewable energy sources. **Figure 5-6** shows the expected 2040 rail tonnage growth by commodity, compared to the 2016 volumes and **Figure 5-7** shows the rail tonnage growth on the rail network in South Carolina as well as the percentage of the rail tonnage that relates to the BCD Region. The value of the freight moving along the rail network is expected to grow 100 percent, from $37 billion to nearly $74 billion.

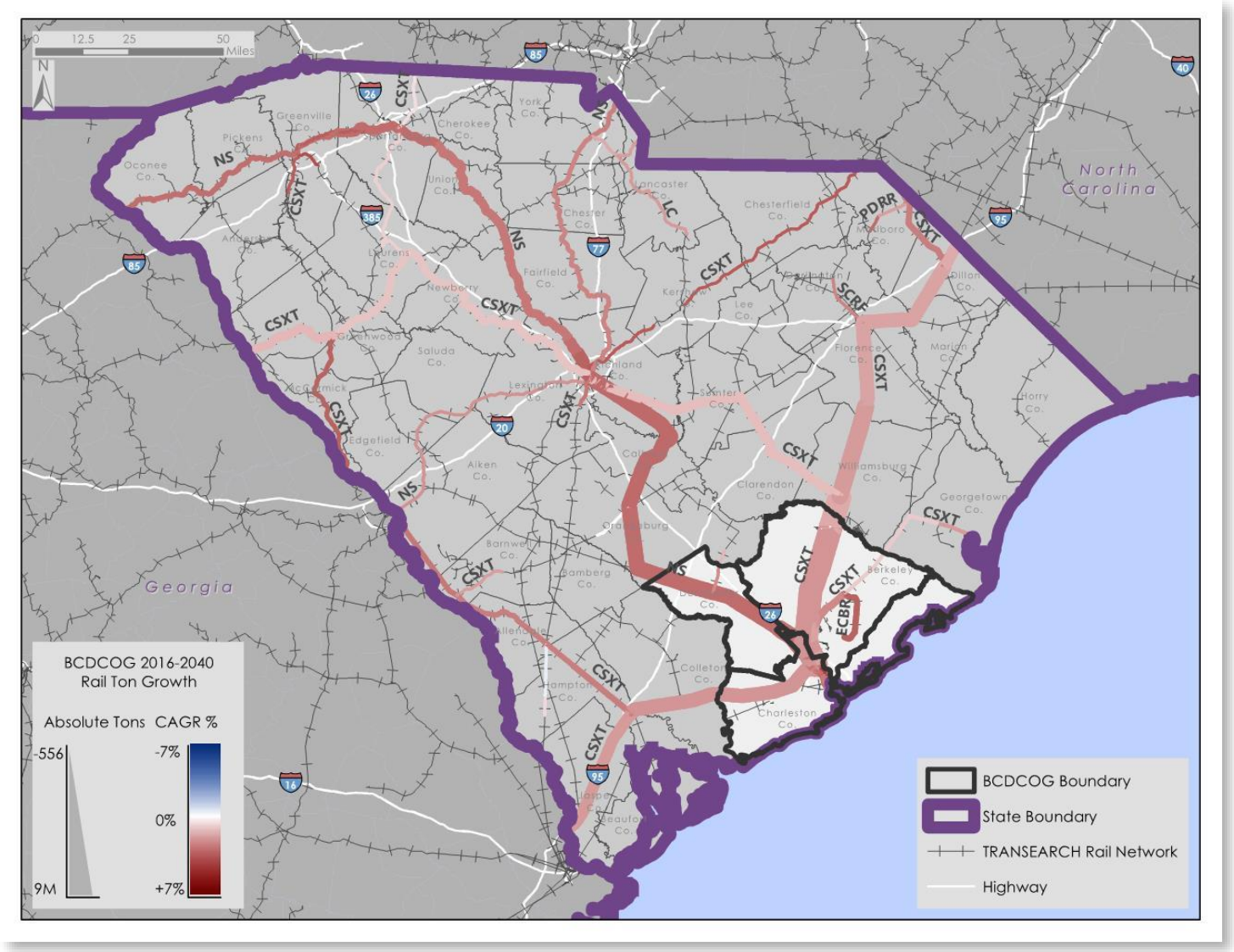
Figure 5-6: Rail Ton Growth by Commodity, 2016-2040



Source: Transearch

There is a growing demand for domestic intermodal rail. Palmetto Railways is developing a new intermodal rail terminal on 118 acres in the former Charleston Naval Complex, the Naval Base Intermodal Facility (NBIF). This terminal will also support the new HLT at the Port of Charleston via a private drayage road. The facility will allow for additional port-generated intermodal cargo to move via rail and provide an intermodal transfer hub in North Charleston. The design will provide equal access to both CSX and NS. The final Environmental Impact Statement was approved by USACE in June 2018. A sketch planning analysis for the SCDOT I-26 Corridor Management Plan found that the NBIF could reduce regional truck vehicle miles traveled and vehicle hours of delay by 2 and 2.6 percent, respectively, when the facility is fully built out.

Figure 5-7: South Carolina Rail Tons 2016–2040 and Statewide Distribution of BCD Region Freight



Source: Transearch

5.3 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 has disrupted domestic and global economies and trade alike. Near-term impacts have been catastrophic for several sectors in the BCD Region, including air travel, aviation and aerospace manufacturing, the automotive sector, tourism, and restaurants. Longer-term economic and transportation impacts from the pandemic are difficult to predict and it may take years for these impacts to subside. As a result, the future may be dramatically different, which affects jobs, commuting, and the businesses that drive the economy of this region.

COVID-19 disruptions have revealed weaknesses in some supply chains. Significant declines in international commerce affected many companies in the region, resulting in production declines and shifts to more expensive modes of transportation particularly for companies with supply chain linkages to global manufacturers. Companies are evaluating their supply chain vulnerabilities and making decisions to near shore 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.

The pandemic has also caused declines in production. By December 2020, several companies had seen their production decline by almost 50 percent compared to the prior year; however, these companies anticipate demand to improve once the economy stabilizes. This decline in production will affect regional employment, thus affecting future demand for goods beyond the immediate decline in freight moving throughout 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 BCD Region (**Figure 5-8**). 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.

Figure 5-8: Urban Delivery Truck for Last Mile Parcel Home Delivery

A major concern for businesses in the BCD Region is the truck driver shortage exacerbated by COVID-19. The pandemic has affected the transportation industry's ability to retain drivers because of health concerns and the stresses of the job. Some smaller firms and general freight haulers have shut down their operations,

laid off drivers and parked their equipment. Industry experts anticipate a tightening in trucking capacity that will increase transportation costs which could impact future freight demand and mode choice.

COVID-19 impacted all modes of transportation, indicating that a diverse, multimodal network is paramount for weathering the long-term impacts of the pandemic or any future disturbance. The strong multimodal freight transportation assets within this region played a significant role in keeping companies in operation and workers employed during the pandemic.

5.4 FREIGHT-FRIENDLY COMPLETE STREETS

Just as freight movement, and in particular urban deliveries, are increasing, urban communities are also implementing Complete Streets initiatives which could impact urban freight mobility. Complete Streets is a planning and design concept that states that streets should meet the travel needs of all users regardless of travel mode, including pedestrians, bicyclists, drivers, public transit users, and freight. However, solutions that benefit one type of mode can impact other modes and create potential conflict. For example, making intersections narrower helps pedestrians by decreasing the time it takes to cross the street, however it can make it difficult for freight vehicles to make turning movements due to the narrow turning radii.

SCDOT adopted a wide-ranging "Complete Streets" policy for the state-owned highway system in February of 2021.[21] The "Complete Streets" policy requires SCDOT to work with the state's regional transportation planning partners and regional transit providers to identify and include walking, bicycling and transit needs as part of their regional visioning plans. Part of this policy also involves updating and modernizing design manuals to include multimodal accommodation, though the new policy does not explicitly call out freight vehicles. It is important to incorporate freight movement in these updated design manuals since freight carriers must be able to safely share the road with other road users while still efficiently delivering the material goods that support the BCD Region's economy and quality of life. At the same time, it is important to ensure that other road users, particularly more vulnerable users such as pedestrians and bicyclists, are safe and comfortable when using the area's transportation networks.

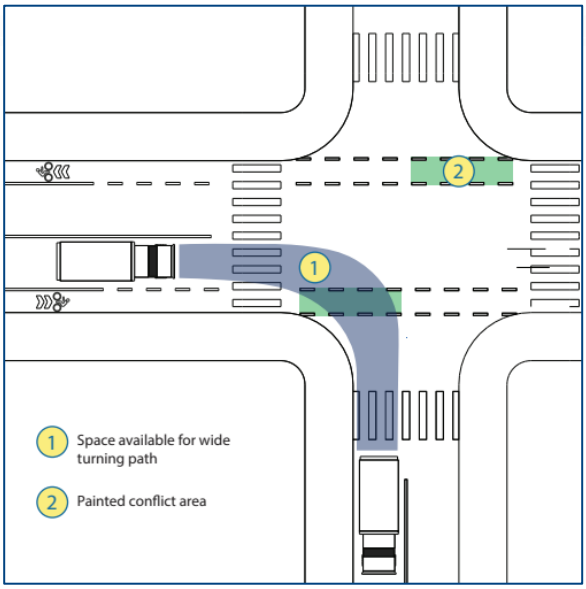
There are several ways that Complete Streets policies and designs can incorporate freight vehicle needs, which are outlined below. These strategies were incorporated into the final project and policy recommendations detailed in **Chapter 6** and **Chapter 8**, respectively.

5.4.1 Designing for Freight Vehicles

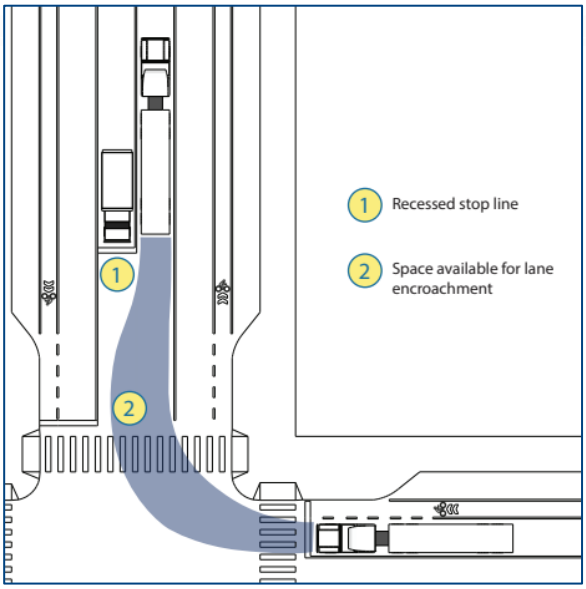
When designing Complete Streets that are freight-friendly, it is important to consider where conflict areas are likely to occur and how to reduce vehicle speeds without unintended detrimental impacts on operations and safety. **Figure 5-9** shows different design strategies that provide increased safety and comfort for pedestrians, bicyclists, and transit users, while still considering freight vehicle needs. This is not an exhaustive list, but merely a small sample of freight-friendly Complete Street design elements that should be incorporated into planning for and designing the region's transportation network.

[21] http://info2.scdot.org/SCDOTPress/Lists/Posts/Post.aspx?ID=3102

Figure 5-9: Examples of Complete Streets Design Elements That Accommodate Freight

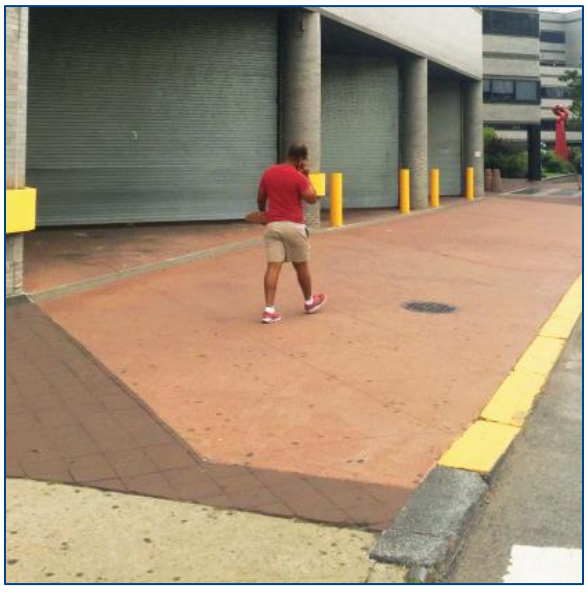


Wide turning movement and a designated bicycle lane with conflict area clearly marked

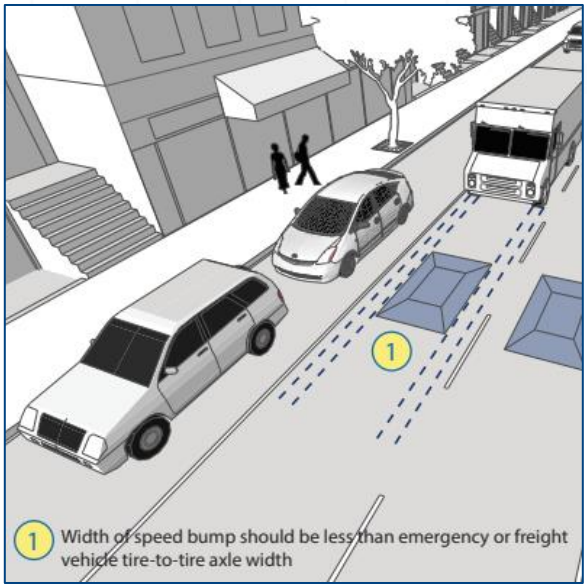


Recessed stop line for wide turning movement

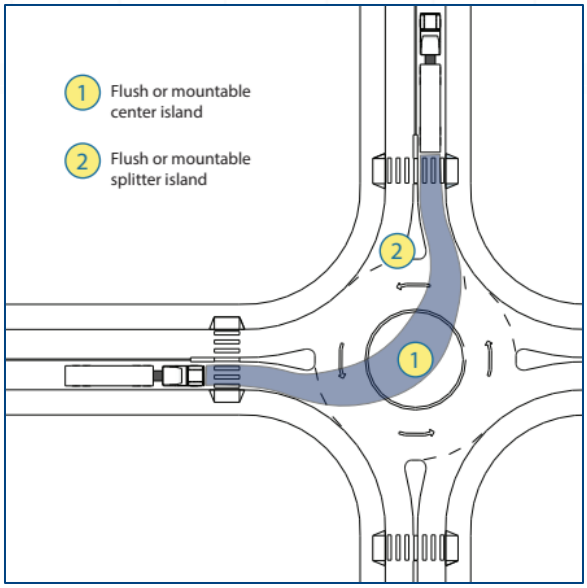
Mountable curb for large vehicles



Paint or pavement texturing to delineate conflict areas

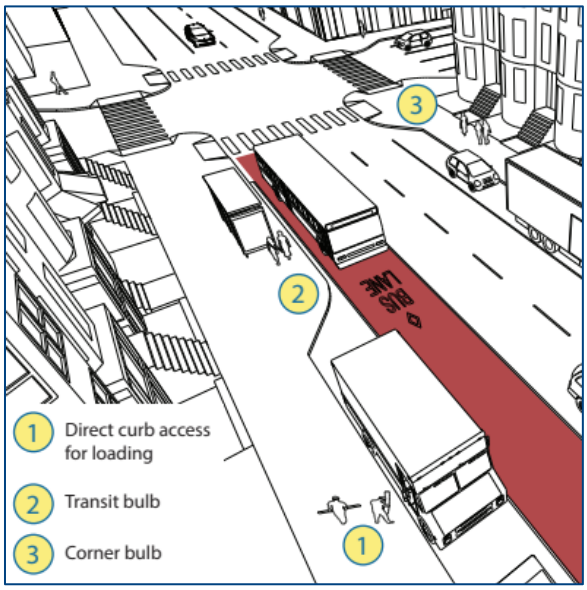


Narrow speed cushions for vehicles with wide axles



Flush or mountable mini-roundabout

Convex safety mirror for improved visbility of vulnerable users



Offset bus lane for direct loading/off-loading space at the curb

Source: New York State Energy Research and Development Authority (NYSERDA) Complete Streets Considerations for Freight and Emergency Vehicle Operations

5.4.2 "Complete Corridors"

While it is important that all transportation network users can travel safely, efficiently, and comfortably regardless of mode, it is not necessary for all modes to share the same street to accomplish this. While design and demand management strategies can reduce the inherent conflict present between different modes operating in shared spaces, sometimes there may be opportunity to improve the overall mobility, safety, and operation of a corridor if different modes or users are separated from one another.

Particularly in rural areas, it may not be feasible or practical to have a complete street that provides infrastructure for each mode option. Instead, it is better to employ a "Complete Corridors" approach which provides parallel or separated facilities for different system users based on travel demand and context. Therefore on-street facilities such as bike lanes, shared lane markings or shoulders, although lower-cost solutions, may not be desired. Instead, facilities such as separated bike lanes, shared use paths or side paths may be more appropriate since they provide vulnerable road users a greater sense of safety since they do not have to share the road with large vehicles traveling at higher speeds. While "Complete Streets" concepts are typically applied within the urban context, planning and design of our transportation network, including highways, should ensure that the needs of all users across all modes are considered.

5.4.3 Transportation Systems Management and Operations (TSMO) and Demand Management

As described by the FHWA, "TSMO is a set of strategies that focus on operational improvements that can maintain and even restore the performance of the existing transportation system before extra capacity is needed."[22] TSMO can be used to make a street a "Complete Street" without needing to add capacity and without needing infrastructure dedicated for each individual mode. Instead, different management strategies and new technology can be used to ensure to balance the needs of different modes.

TSMO strategies help manage how infrastructure is used and by whom to reduce congestion and better serve the needs of all road users. Some strategies that could help reduce congestion and lessen potential conflict for freight vehicles includes:

- Managed Lanes
- Active Transportation and Demand Management (ATDM)
- Smart Infrastructure and connected vehicles
- Smart intersections and signalization optimization
- Curb Access Management

BCDCOG should also work with local stakeholders to encourage the use of smaller freight delivery vehicles, particularly in urban settings.

Other ways that we can lessen the inherent conflicts between modes while still ensuring that all road users can move safely, efficiently, and comfortably include employing freight demand management strategies. In urban areas where intermodal conflict is more frequent, freight demand management strategies are focused on urban freight deliveries.

When freight vehicles stop to unload or load their vehicles, it often involves parking or blocking the travel lanes for other modes. This can be mitigated by employing one of a combination of the following strategies:

- Off-hour deliveries

[22] https://ops.fhwa.dot.gov/tsmo/#:~:text=Training-,TSMO,reliability%20of%20the%20transportation%20system.

- Urban Consolidation Centers
- Delivery Lockers

As technology progresses, the modes used by freight carriers may change and Complete Streets policies and designs should try to account for these advancements. In particular, freight carriers are experimenting with the use of delivery drones and sidewalk bots for last-mile deliveries. While delivery drones may reduce the need for freight vehicles on the streets, there may be an additional demand for public space to allow drones to land/take-off. While the FAA is responsible for all airspace in the U.S., NACTO Blueprint for Autonomous Urbanism suggests that "cities should take an active role in shaping drone policy to mitigate potential safety, noise pollution, and space allocation issues."[23] The use of sidewalk delivery bots (**Figure 5-10**) for urban deliveries may require wider sidewalks or some type of shared-use path so that bots do not impact the safety or mobility of pedestrians.

Figure 5-10: Sidewalk Delivery Bot

Source: Meg Kelly, NPR

[23] https://nacto.org/publication/bau2/

6. PROJECT RECOMMENDATIONS

Freight project recommendations for the BCD Region are transportation projects that would improve the safety and efficiency of the freight transportation network at specific locations. A two-part process was used to identify the project recommendations described in this chapter. The first step identified existing freight-beneficial transportation project needs previously documented in the South Carolina Freight Plan Update (2020), 2040 BCDCOG Rural LRTP goals, and the CHATS 2040 LRTP. The second step identified potential new freight-beneficial projects that address the needs and deficiencies identified as a result of the system assessments done in the development of this freight plan. **Figure 6-1** and **Table 6-1** detail the final recommended projects located within the BCD Region. The ID numbers shown in **Figure 6-1** correspond to the numbers in the Project ID column in **Table 6-1**.

Figure 6-1: Project Recommendations by Location

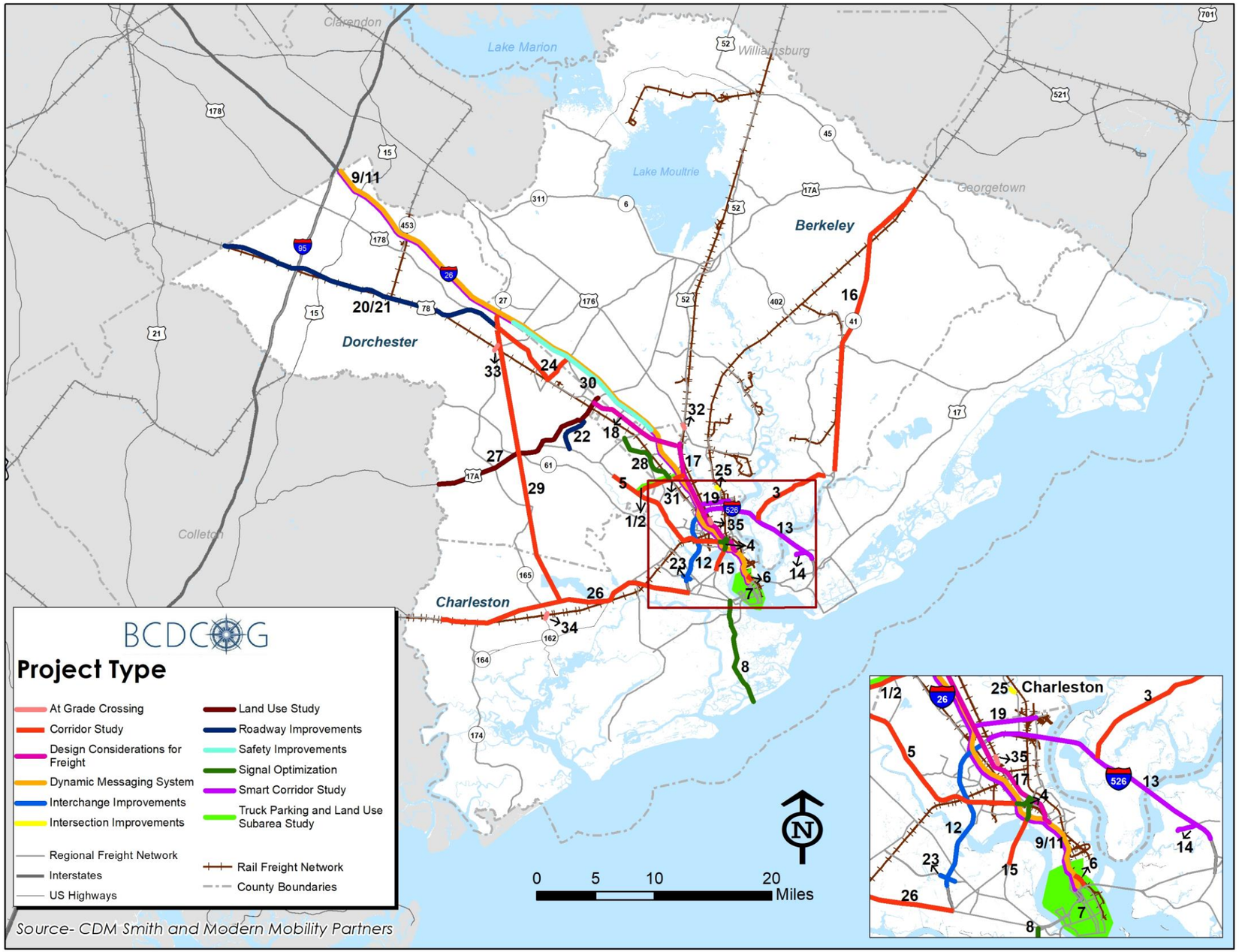


Table 6-1: Project Recommendations

Project ID	Project Name	Project Category	Recommendation	Notes	*Cost Level	**Estimated Time Frame	Implementation Partners
1	Airport District/Palmetto Commerce Parkway Freight Subarea Plan	Truck Parking and Land Use Subarea Study	Truck Parking and Land Use Subarea Study for Airport District/Palmetto Commerce Parkway	Heavy commercial/industrial use due to proximity to the airport and air cargo facilities. This is also in close proximity to intermodal rail facilities. Due to the heavy interstate congestion that can result in low travel time reliability, this could be a potential location for truck parking, a refuge for drivers to rest safely during peak traffic hours.	$$	Near Term	BCDCOG, CHATS, City of North Charleston, Charleston County, Development Community
2	Ashley Phosphate Road Corridor Improvements	Corridor Study	Corridor Study along Ashley Phosphate Road - Pepperidge Dr to Rivers Ave	Corridor Study along Ashley Phosphate Road to identify signal optimization, access management, and other safety improvements needed. Consideration for transit operations, including access to transit stops/shelters should be included.	$$	Near Term	BCDCOG, CHATS, City of North Charleston, Charleston County
3	Clements Ferry Road - Freight Subarea Plan	Corridor Study / Truck Parking and Land Use Subarea Study	Corridor Study / Truck Parking Study and Land Use Subarea Plan for Clements Ferry	This corridor is developing with a combination of heavy industrial, distribution, commercial, and residential land uses. Under this development pressure, LOS is projected to fail. Following the completion of the Clements Ferry Road (Phase I and Phase II) widening projects from I-526 interchange to SC-41, an integrated freight land use subarea and corridor plan should be conducted to improve the efficiency of this corridor. Consideration should be given to relevant access management and ITS strategies.	$$	Near Term	BCDCOG, CHATS, City of Charleston, Berkeley County
4	Dorchester Road and Cosgrove Avenue Signal Optimization	Signal Optimization	Signal Optimization and safety improvements on Dorchester Road and Cosgrove Avenue (I-26 to US 78) in North Charleston.	This section of the freight network experiences a poor LOS and high bottleneck scores. It is an urban section that would benefit from improved safety design for these intersections. This should include a safety audit for non-motorized vehicles.	$	Near Term	BCDCOG, CHATS, City of North Charleston, Charleston County
5	Dorchester Road Corridor Study (I-26 to Wescott Blvd)	Corridor Study	Corridor Study on Dorchester Road from I-26 to Wescott Boulevard	This section of the freight network experiences poor LOS, safety concerns, and development pressure. Serving the airport, Joint Base Charleston, and manufacturing in this corridor, considerations should be made for freight vehicle efficiencies. This may include signal optimization and access management strategies. Considerations for transit vehicles, and access to transit shelters, should be included.	$$	Near Term	BCDCOG, CHATS, City of North Charleston, Charleston County
6	Morrison Drive Corridor Improvements	Corridor Study	Corridor Study for Morrison Drive from E Bay St to I-26 (Evaluate Signals and Curb Radii)	This segment of the freight network serves the last mile connection between I-26 and Downtown Charleston terminals of the Port of Charleston and local deliveries. The adjacent land uses are changing, becoming increasingly high-density residential, adding to the demand for roadway capacity and transit access. This corridor analysis should review the design of roads, sidewalks, transit access, and crossings for all users of this corridor to preserve safe access for freight vehicles.	$$	Near Term	BCDCOG, CHATS, City of Charleston, Charleston County

Project ID	Project Name	Project Category	Recommendation	Notes	*Cost Level	**Estimated Time Frame	Implementation Partners
7	Downtown Charleston - Freight Subarea Plan	Truck Parking and Land Use Subarea Study	Identify and close any first/last mile gaps near major intermodal centers and manufacturing hubs, as well as identify and address urban freight needs.	Benefits the movement of freight between facilities and urban cargo delivery needs within the Downtown Charleston area.	$$	Near Term	BCDCOG, CHATS, City of Charleston, Charleston County
8	ReThink Folly Road Improvements	Signal Optimization and Access Management	ReThink Folly Road Plan - Includes consideration for Signal Coordination (with annual/bi-annual review), Access Management and Driveway Consolidation, Traffic Calming and Speed Limit Zones, Transit, Bike, and Ped Improvements - Does not recommend widening	This corridor serves local deliveries to residential and commercial properties. Due to the restrictive geography created by water bodies, Folly Road is the spine that connects most of James Island and Folly Beach. This corridor should be maintained to support safe and efficient movement of all users, including freight vehicles to support this connection in local delivery supply chain.	$$$	Mid Term (Up to 5 Years)	BCDCOG, CHATS, City of Charleston, Charleston County
9	I-26 Smart Corridor Study	Smart Corridor Study	Smart Freight Corridor along I-26 from Charleston to Greenville	This principal corridor of the regional freight network not only connects local origins and destinations by also supports the connection of the Port of Charleston and inland destinations, including the manufacturing centers of the I-26 and I-85 Corridors. As congestion increases beyond available widening funding, technologies should be incorporated into this corridor to maximize the efficiency of the available ROW. These studies and recommendations should follow the TSMO approach to planning and design for this corridor and be done in conjunction with SCDOT and local municipalities.	$$$$	Mid Term (Up to 5 Years)	CHATS, SCDOT, ACOG
10	Park and Ride Design Criteria Analysis	Design Considerations for Freight	Review of park and ride lot design criteria to accommodate overnight truck parking where feasible.	Design considerations can be integrated into Truck Parking Subarea Plans. Parking Subarea Plan.	$$	Near Term	BCDCOG, CHATS
11	I-26 Dynamic Messaging System Upgrades	Dynamic Messaging System	Dynamic Messaging System (DMS) Installation along I-26	N/A	$	Near Term	CHATS, SCDOT
12	Interchange Improvements in I-526 Lowcountry Corridor (LCC) WEST Study Area	Interchange Improvements	The I-526 Lowcountry Corridor West Study references improvements at the I-526/I-26 Interchange, the I-526/N. Rhett Avenue Interchange, and I-526/Paul Cantrell Blvd Interchange	Existing Project Corridor Study.	Funded	Mid Term (Up to 5 Years)	CHATS, SCDOT
13	I-526 Corridor EAST	Smart Corridor Study	Evaluate applications for smart technologies in the I-526 corridor to incorporate into the design and construction of planned improvements for the Lowcountry Corridor EAST project.	This is a critical link between the Town of Mount Pleasant, Wando Welch marine terminal and I-26. As SCDOT progresses plan for additional capacity, this project provides an opportunity to integrate TSMO strategies and smart vehicle technology, supporting the onboard technology in use or manage traffic more efficiently.	$$$	Mid Term (Up to 5 Years)	BCDCOG, CHATS, Charleston County, Berkeley County, SCDOT, SCPA

Project ID	Project Name	Project Category	Recommendation	Notes	*Cost Level	**Estimated Time Frame	Implementation Partners
14	I-526 Lowcountry Corridor East: Long Point Road Corridor Improvements	Smart Corridor Study	Long Point Road - The I-526 Lowcountry Corridor Study references a study along I-526 which intersects Long Point Road. Improvements at this location made be recommended pending the studies completion.	This is a critical link between the I-526 corridor and the Wando Welch marine terminal. While localized improvements are programmed for intersection efficiency and safety, this connection provides an opportunity to pilot smart vehicle technology, supporting the onboard technology in use or manage traffic more efficiently.	Programmed	Mid Term (Up to 5 Years)	CHATS, SCDOT, Town of Mount Pleasant
15	Sam Rittenberg Blvd Signal Optimization	Corridor Study and Signal Optimization	Corridor Study for Signal Optimization Along Sam Rittenberg Blvd	N/A	$$	Mid Term (Up to 5 Years)	BCDCOG, CHATS, City of Charleston, Charleston County
16	SC 41 Corridor Study	Corridor Study	SC 41 Corridor Safety Study from Jamestown to U.S. 17	Based on industrial land use and connection SC 41 provides this area with inland Berkeley County, an analysis is recommended to evaluate the safety needs to allow efficient movement of trucks through this corridor. This corridor also provides redundancy in the regional network, providing an alternative route to the congested I-26 Corridor.	$$	Mid Term (Up to 5 Years)	BCDCOG, CHATS, SCDOT, Berkeley County
17	Design Guidelines for U.S. 52 Corridor (Can be combined with U.S 78)	Design Considerations for Freight	Design Considerations for Freight in conjunction with the Lowcountry Rapid Transit (LCRT) Project	US 52 between Charleston and Summerville is a critical corridor within the regional freight network as it serves industrial land uses within the corridor and a regional alternative route to I-26. US 52 is also the preferred alignment for the LCRT. As the LCRT project develops, land use planning and transportation improvements will be prepared for this corridor. Freight movements should be included in the analysis and development of ITS, signal optimization, access management, bicycle and pedestrian facilities, and pavement types for the entirety of the corridor.	$$	Near Term	BCDCOG, CHATS, CARTA, SCDOT, Charleston County
18	Design Guidelines for U.S. 78 Corridor (Can be combined with U.S. 52)	Design Considerations for Freight	Design Considerations for Freight in conjunction with the Lowcountry Rapid Transit Project and other regional improvements; incorporation of freight in the U.S. 78/University Boulevard Widening	US 78 between Charleston and Summerville is a congested regional corridor and has been the subject of many transit proposals. This section is expecting to be improved for vehicular traffic, transit service, and should also include freight considerations in the design concepts. This segment of the freight network serves a growing manufacturing base and distribution centers in Dorchester County and provides a relief route for I-26.	$$	Near Term	BCDCOG, CHATS, CARTA, SCDOT, Charleston County
19	Remount Road Corridor Study	Smart Corridor Study	Evaluate recommended preferred alternative for the Lowcountry Corridor projects and conduct a follow up corridor study to understand and address impacts to the Remount Road Corridor.	Remount Road corridor serves as an intermodal connector to the Port's North Charleston Terminal. Proposed interstate and interchange improvements included in I-526 LLC West project when implemented may impact freight access and use of corridor. This study should evaluate a complete streets concept that uses technology applications to improve safety for transit vehicles, bicycles and pedestrians, and the freight movements through this corridor.	$$	Near Term	BCDCOG, CHATS, Charleston County, Berkeley County, SCDOT, SCPA
20	U.S. 78 Widening Project	Roadway Improvement	This corridor is under construction for improved mobility.	6 Miles to continue improvements from Orangeburg Road to U.S. 17 Alt	$$$	Mid Term (Up to 5 Years)	BCDCOG, CHATS, SCDOT Dorchester County

Project ID	Project Name	Project Category	Recommendation	Notes	*Cost Level	**Estimated Time Frame	Implementation Partners
21	U.S. 78 Design Guidelines and Restriping Plan	Design Considerations for Freight	Context sensitive design guidelines for freight along this corridor	Incorporate considerations between Orangeburg Rd to Berlin G. Myers. Making these improvements to this segment of the regional freight network improves safety for all users of the corridor. This should be aligned with routine resurfacing program.	$	Near Term	BCDCOG, CHATS, SCDOT Dorchester County
22	Berlin G Meyers Extension Project	Roadway Improvement	Berlin G Meyers Extension from Old Trolley Road/Beacons Bridge Rd to U.S. 17A	Berlin G Meyers Extension project, currently programmed, will support safe freight movement through this portion of the regional freight network.	Funded	Mid Term (Up to 5 Years)	BCDCOG, CHATS, SCDOT Dorchester County
23	I-526 at Paul Cantrell Boulevard Interchange Improvements	Interchange Improvements	I-526/Paul Cantrell Boulevard Interchange Improvements	As this interchange project progresses through the environmental review and conceptual design phases, considerations for freight volumes should be made in the final design and signalization at this interchange and adjacent intersections.	Funded	Mid Term (Up to 5 Years)	BCDCOG, CHATS, SCDOT, Charleston County
24	Ridgeville Industrial Subarea Corridor Study	Corridor Study	Conduct traffic analysis to provide intersection safety, signalization, and other traffic operational and capacity to connect the Ridgeville Industrial Campus with surrounding roadways.	Evaluate land use development plans and provide transportation solutions to support local connectivity between properties and connectivity to other regional routes for commuting and delivery trips.	$$	Near Term	BCDCOG, CHATS, Dorchester County, Economic Development Partners
25	N Rhett Ave and Yeamans Hall Road Intersection Area Improvements	Intersection Improvement	Lighting, signal, and wayfinding improvements to intersection area.	Wayfinding analysis may be appropriate to address truck movements where land uses conflict and routes are to be encouraged or discouraged. Henry Brown Phase I and II improvements, as well as I-526 Interchange Improvements. This is a critical intersection on the freight network, and improvements to signage will support truck driver safety and efficiency in this area.	$	Near Term	BCDCOG, CHATS, Berkeley County
26	U.S. 17 Corridor Improvements	Corridor/Access Management Study	Corridor/Access Management Safety Study for Urban Portion - Rural Safety Study for Rural Portion	Based on safety data (9 truck involved fatalities over 5 years), a safety audit should be conducted. This should identify areas where lighting, striping, shoulder and lane widths, accommodations for bicycles and pedestrian, and other geometric features of the corridor should be improved on this portion of the freight network.	$$	Near Term	BCDCOG, CHATS, SCDOT, Charleston County
27	Subarea Land Use Study - U.S. 17 A Corridor (Dorchester County)	Land Use Study	Land Use Study	Once Berlin G Meyers Extension is completed to SC 61, area may open to industrial development. Ensure Land Use Plan is updated to accommodate new freight usage.	$$	Mid Term (Up to 5 Years)	BCDCOG, Dorchester County, Economic Development Partners
28	Signal Warrant Analysis - Palmetto Commerce Pkwy	Signal Warrant Analysis	Signal Warrant Analysis at Daimler Plant/Palmetto Commerce Parkway	Based on truck volumes, adjacent land uses and crash data, this intersection should be evaluated to determine if volumes warrant a signal.	$	Near Term	BCDCOG, CHATS, City of North Charleston, Charleston County

Project ID	Project Name	Project Category	Recommendation	Notes	*Cost Level	**Estimated Time Frame	Implementation Partners
29	SC-165/Givhans Road Corridor Study	Corridor Study	Conduct regional traffic study and land use evaluation to use this corridor as a freight connection between U.S. 17 (Ravenel) to Ridgeville via SC 27/Givhans Road	This rural network connection could provide an alternative route for trucks originating or terminating at the Ridgeville Industrial Campus and destinations south of Charleston. This provides an alternative route to the already-congested I-26 Corridor and mitigates the potential increase in traffic using the I-26 Corridor. This corridor is forecast to perform at a failing LOS, so capacity improvements would be necessary to facilitate this freight route.	$$	Long Term (Greater than 5 Years)	BCDCOG, CHATS, SCDOT, Charleston County, Dorchester County, Economic Development Partners
30	I-26 (Berkeley County)	Safety Improvements	SCDOT has programmed safety improvements at the Jedburg Road/I-26 Interchange and a safety audit along N Main Street	Tie-in with I-26 Recommendations - Smart Corridor, Incident Management, Ramp Metering Pilot.	$$	Mid Term (Up to 5 Years)	
31	Rail Crossing Improvement - Ashley Phosphate Road	At Grade Crossing	Rail at-grade crossing safety improvements at Ashley Phosphate Road (see notes)	Location identified as regional rail safety hot spot. Improvements to safety gates, pedestrian facilities, approach signals (Queue cutter signal install), advance warning signs, and vegetation maintenance recommended. See Appendix G - Rail Recommendations for more detail.	$$	Mid Term (Up to 5 Years)	BCDCOG, CHATS, City of North Charleston, Charleston County
32	Rail Crossing Improvement - Red Bank Road	At Grade Crossing	Rail at-grade crossing safety improvements at Red Bank Road	Location identified as regional rail safety hot spot. Improvements to safety gates, pedestrian facilities, advance warning signs and signals, and vegetation maintenance recommended. See Appendix G - Rail Recommendations for more detail.	$$	Mid Term (Up to 5 Years)	BCDCOG, CHATS, City of Goose Creek, Berkeley County
33	Rail Crossing Improvement - N. Main Street (Summerville)	At Grade Crossing	Rail at-grade crossing safety improvements at N. Main Street	Location identified as regional rail safety hot spot. Improvements to safety gates, pedestrian facilities, advance warning signs and signals, and vegetation maintenance recommended. See Appendix G - Rail Recommendations for more detail.	$$	Mid Term (Up to 5 Years)	BCDCOG, CHATS, Town of Summerville, Dorchester County
34	Rail Crossing Improvement – SC 165 (Ravenel)	At-Grade Crossing	Rail at-grade crossing safety improvements at SC 165	Location identified as regional rail safety hot spot. Improvements to safety gates, pedestrian facilities, advance warning signs and signals, and vegetation maintenance recommended. See Appendix G - Rail Recommendations for more detail.	$	Mid Term (Up to 5 Years)	BCDCOG, CHATS, Charleston County, Town of Ravenel
35	Rail Crossing Improvement - East Montague Avenue	At-Grade Crossing	Rail at-grade crossing safety improvements at E. Montague Avenue	Location identified as regional rail safety hot spot. Improvements to safety gates, pedestrian facilities, advance warning signs and signals, and vegetation maintenance recommended. See Appendix G - Rail Recommendations for more detail.	$$$	Mid Term (Up to 5 Years)	BCDCOG, CHATS, Charleston County, City of North Charleston

***Cost Level**
$ - Less than $25k
$$ - $25k - $150k
SSS - $150k - $500k
$$$$ - $500k - $2m
$$$$$ - Greater than $2m

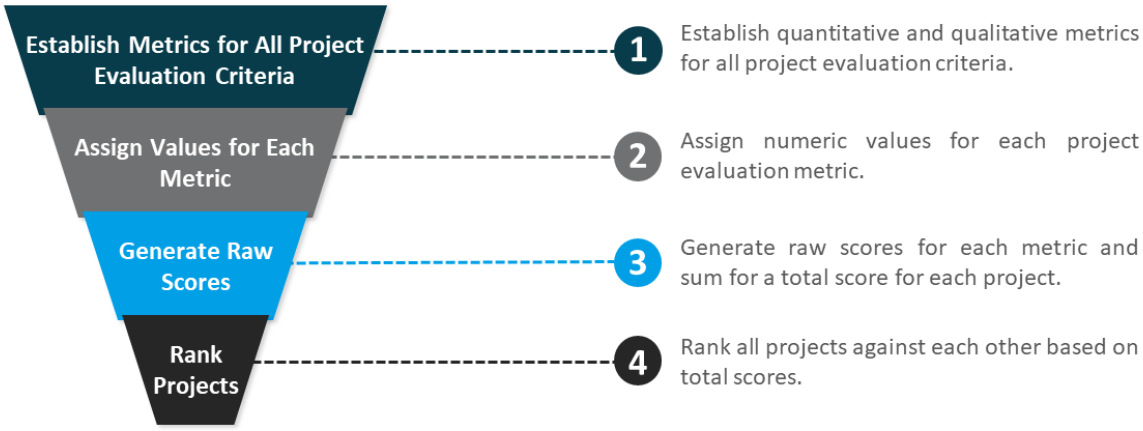
**Estimated Time Frame
Near Term – 1 Year
Mid Term – Up to 5 Years
Long Term – Beyond 5 Years

7. PROJECT PRIORITIZATION

Freight project prioritization assists BCDCOG and regional decision makers systematical rank the projects that best meet the region's freight goals and objectives or those most likely to have the greatest impact on the freight transportation system. 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 7-1**, identified several criteria that determine how well each project addressed the different freight plan goal areas. These criteria are listed in **Table 7-1,** 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 3**. 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 7-1: Project Evaluation and Prioritization Process



Each project then received a score for each metric, resulting in a total project score. The final scores help BCDCOG staff, and its 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 7-1: Freight Project Prioritization Framework

Goal Area	Evaluation Criteria	Qualitative or Quantitative Evaluation	Data Source
Mobility and System Reliability	Address a High Congestion Location	Quantitative	BCDCOG Freight Plan GIS LOS Layer
	Addresses a Freight Bottleneck	Qualitative	BCDCOG 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 Freight Corridor?	Qualitative	SCDOT Statewide Freight Plan
	Is Project Located on Tier 1, 2, or 3 Freight Network?	Qualitative	BCD Freight Network GIS Layer
Safety and Security	Addresses a Hot Spot Crash Location	Qualitative	SCDOT Highway Safety Statistical Services
	Separates a Highway At-Grade Rail Crossing	Quantitative	BCD 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 BCD 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 SCDOT PQI data
	Improves Roadway on the Regional Freight Network (RFN)	Quantitative and Qualitative	BCD Freight Network GIS Layer, SCDOT PQI data
	Addresses Poor Bridge Condition	Quantitative and Qualitative	SCDOT Statewide Freight Plan SCDOT Bridge Condition GIS
Economic and Community Vitality	Supports an Existing or Future Freight Cluster	Quantitative	BCD Freight Plan GIS Industrial Sites and Freight Generators Layer
	Supports an Existing or Future Freight Corridor	Quantitative	BCD Freight Plan Freight Corridors GIS Layer

Goal Area	Evaluation Criteria	Qualitative or Quantitative Evaluation	Data Source
	Provides Access to a Freight Generator, Industrial Park, or Intermodal Facility	Quantitative	BCDCOG Freight Plan GIS Industrial Sites and Freight Generators Layer
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	BCDCOG 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 114[24] prioritization freight filter was included to prioritize regional freight projects within the Act 114 prioritization process for BCDCOG. The freight prioritization filter provides an additional point for projects located on the State and proposed regional freight networks, reinforcing the significance of freight prioritization within Act 114 guidance. **Table 7-2** 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 7-2: 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 BCDCOG Regional Freight Mobility Plan?

All the project recommendations are shown in **Table 7-3** with the different total weighted scores for the different plan goal areas and the final overall ranking.

[24] 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 7-3: Prioritized Freight Projects

Project Information			Total Weighted Score							Final Ranking
Project ID	Project Type	Project Name	Mobility and Reliability	Safety and Security	Infrastructure Conditions	Economic and Community Vitality	Environmental	Equity	Total Score - Weighted	
13	Smart Corridor Study	I-526 Corridor EAST	13.33	0.00	11.11	16.67	8.33	16.67	66.11	1
19	Smart Corridor Study	Remount Road Corridor Study	6.67	6.25	11.11	8.33	16.67	12.50	61.53	2
9	Smart Corridor Study	I-26 Smart Corridor Study	13.33	8.33	5.56	16.67	16.67	0.00	60.56	3
10	Design Considerations for Freight	Park and Ride Design Criteria Analysis	13.33	8.33	5.56	16.67	16.67	0.00	60.56	3
1	Truck Parking and Land Use Subarea Study	Ashley Phosphate Road - Freight Subarea Plan	10.00	6.25	0.00	16.67	16.67	8.33	57.92	5
12	Interchange Improvements	Interchange Improvements in I-526 Lowcountry Corridor (LCC) WEST Study Area	13.33	0.00	11.11	16.67	8.33	8.33	57.78	6
3	Corridor Study / Truck Parking Study	Clements Ferry Road - Freight Subarea Plan	10.00	4.17	0.00	13.89	16.67	12.50	57.22	7
2	Corridor Study	Ashley Phosphate Road Corridor Improvements	8.33	4.17	0.00	16.67	16.67	8.33	54.17	8
21	Design Considerations for Freight	U.S. 78 Design Guidelines and Restriping Plan	11.67	2.08	0.00	13.89	16.67	8.33	52.64	9
20	Roadway Alignment	U.S. 78 Widening Project	10.00	2.08	5.56	11.11	16.67	4.17	49.58	10
5	Corridor Study	Dorchester Road Corridor Study (I-26 to Wescott Blvd)	11.67	2.08	0.00	16.67	8.33	8.33	47.08	11
28	Signal Warrant Analysis	Signal Warrant Analysis - Palmetto Commerce Pkwy	8.33	10.42	0.00	11.11	16.67	0.00	46.53	12
11	Dynamic Messaging System	I-26 Dynamic Messaging System Upgrades	8.33	4.17	0.00	16.67	16.67	0.00	45.83	13
17	Design Considerations for Freight	Design Guidelines for U.S. 52 Corridor	10.00	10.42	0.00	16.67	8.33	0.00	45.42	14
4	Signal Optimization	Dorchester Road and Cosgrove Avenue Signal Optimization	11.67	4.17	0.00	11.11	16.67	0.00	43.61	15
22	Roadway Alignment	Berlin G Meyers Extension Project	11.67	0.00	5.56	5.56	16.67	4.17	43.61	16
18	Design Considerations for Freight	Design Guidelines for U.S. 78 Corridor	11.67	6.25	0.00	13.89	8.33	0.00	40.14	17
31	At Grade Crossing	Rail Crossing Improvement - Ashley Phosphate Road	8.33	6.25	5.56	11.11	8.33	0.00	39.58	18

Project Information			Total Weighted Score							Final Ranking
Project ID	Project Type	Project Name	Mobility and Reliability	Safety and Security	Infrastructure Conditions	Economic and Community Vitality	Environmental	Equity	Total Score - Weighted	
15	Corridor Study and Signal Optimization	Sam Rittenberg Blvd Signal Optimization	13.33	4.17	0.00	0.00	8.33	12.50	38.33	19
8	Signal Optimization and Access Management	ReThink Folly Road Improvements	11.67	4.17	5.56	0.00	0.00	16.67	38.06	20
27	Land Use Study	Subarea Land Use Study - U.S. 17 A Corridor (Dorchester County)	6.67	2.08	0.00	8.33	8.33	12.50	37.92	21
6	Corridor Study	Morrison Drive Corridor Improvements	10.00	0.00	0.00	11.11	8.33	8.33	37.78	22
23	Interchange Improvements	I-526 at Paul Cantrell Boulevard Interchange Improvements	10.00	0.00	5.56	5.56	16.67	0.00	37.78	23
30	Safety Improvements	I-26 (Berkeley County)	1.67	2.08	0.00	11.11	16.67	4.17	35.69	24
24	Corridor Study	Ridgeville Industrial Subarea Corridor Study	6.67	0.00	11.11	8.33	8.33	0.00	34.44	25
26	Corridor/Access Management Study	U.S. 17 Corridor Improvements	10.00	2.08	0.00	5.56	8.33	8.33	34.31	26
7	Truck Parking and Land Use Subarea Study	Downtown Charleston - Freight Subarea Plan	13.33	0.00	5.56	11.11	0.00	0.00	30.00	27
32	At Grade Crossing	Rail Crossing Improvement - Red Bank Road	11.67	6.25	5.56	0.00	0.00	4.17	27.64	28
25	Intersection Improvement	N Rhett Ave and Yeamans Hall Road Intersection Area Improvements	8.33	2.08	0.00	5.56	8.33	0.00	24.31	29
14	Smart Corridor Study	I-526/LCC East: Long Point Road Corridor Improvements	0.00	0.00	5.56	0.00	0.00	16.67	22.22	30
16	Corridor Study	SC 41 Corridor Study	10.00	0.00	0.00	0.00	0.00	8.33	18.33	31
35	At-Grade Crossing	Rail Crossing Improvement - East Montague Avenue	0.00	4.17	0.00	5.56	0.00	8.33	18.06	32
33	At Grade Crossing	Rail Crossing Improvement - N. Main Street (Summerville)	0.00	4.17	0.00	0.00	0.00	8.33	12.50	33
34	At-Grade Crossing	Rail Crossing Improvement – SC 165 (Ravenel)	0.00	4.17	0.00	0.00	0.00	0.00	4.17	34
29	Corridor Study	SC-165/Givhans Road Corridor Study	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35

8. POLICY AND PROGRAMMATIC RECOMMENDATIONS

Unlike project recommendations which include one-time infrastructure improvements or standalone studies, policy and program recommendations address broader, systemic courses of action aimed to achieve the region's freight plan's goals and objectives. Policy recommendations provide guidance for the investment in and maintenance of the region's freight infrastructure to support the efficient movement of goods. Programs are recommendations for short term interventions to improve the regional freight mobility system or other related decision-making processes.

Like freight project recommendations, the freight policy and programmatic recommendations also provide guidance to BCDCOG and regional freight stakeholders for maintaining and improving the regional freight network. The recommended freight policies and programs were identified during the development of this 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. Policy and programmatic recommendations are summarized below in **Table 8-1**. Each policy recommendation includes a short description, the plan goals addressed through the recommendation, and potential implementation owners. 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, and Long-term recommendations require 10 or more years for implementation.

Table 8-1: Freight Policy and Programmatic Recommendations

ID	Type	Name	Note	Plan Goals Addressed (in bold)	Potential Implementation Ownership	Location	Time Frame
POL-1	Policy	Adoption of Urban Design Criteria Policy for Roadways on the Freight Network	Urban Design Criteria Policy for Freight Projects within Downtown Charleston (lane width, speed limits, clearly marked facility for bicycle and pedestrian infrastructure, ITS facilities, etc.) The Master Plan for the Neck Area of Charleston and North Charleston has detailed findings that provide criteria for freight infrastructure. (http://www.neckprosperity.org/)	**1. Reliability** **2. Safety** **3. Infrastructure Condition** **4. Economic Vitality** **5. Environmental** **6. Equity**	✓ City of Charleston ✓ City of North Charleston ✓ Charleston County ✓ SCDOT	Urbanized Areas	Short-Term
POL-2	Policy	Retirement 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. Seek opportunities to obtain federal grant funding for local use and establishment of vehicle retrofit programs.	1. Reliability 2. Safety 3. Infrastructure Condition 4. Economic Vitality **5. Environmental** **6. Equity**	✓ BCDCOG ✓ SCPA ✓ Berkeley, Charleston, Dorchester Counties ✓ Truck Owners ✓ Rail Operators	Regionwide	Short-Term
POL-3	Policy	Inspection and Maintenance of Vehicles	Support improved inspection and maintenance of vehicles to minimize emission. While the BCD Region is within EPA attainment status, providing resources and potential economic incentives for maintain efficient vehicles may prevent worsening air quality.	1. Reliability 2. Safety 3. Infrastructure Condition 4. Economic Vitality **5. Environmental** 6. Equity	✓ SCDOT ✓ SCDPS ✓ SCDMV ✓ SCDHEC ✓ Truck Owners	Regionwide	Short-Term
POL-4	Policy	Implementation of Freight Performance Measures	Freight performance measures to track system performance over time. This provides continued monitoring of regional goals and reporting successes to the traveling public, transportation industry, and economic development partners.	**1. Reliability** **2. Safety** **3. Infrastructure Condition** **4. Economic Vitality** **5. Environmental** **6. Equity**	✓ BCDCOG ✓ CHATS ✓ SCDOT	Regionwide	Short-Term
POL-5	Policy	Design Criteria Policy for all transportation improvements on the regional freight network.	This expands beyond the urban design criteria recommended in POL-1, supporting infrastructure development throughout the region. This allows developing rural communities preemptively design corridors that safely accommodate all users through design, access management, ITS, and provide safe mobility.	**1. Reliability** **2. Safety** **3. Infrastructure Condition** **4. Economic Vitality** **5. Environmental** **6. Equity**	✓ BCDCOG ✓ CHATS ✓ Charleston County ✓ SCDOT	Regionwide	Short-Term
POL-6	Policy	Promote Travel Demand Management Options for Employees	Work with regional employers to support and implement TDM strategies to promote more efficient travel modes to increase the effective capacity of the existing infrastructure and/or shift travel to off-peak periods to reduce congestion. Strategies may include staggered work shifts at industrial facilities and use of rideshare and regional public transportation options.	**1. Reliability** 2. Safety 3. Infrastructure Condition **4. Economic Vitality** 5. Environmental 6. Equity	✓ Chambers of Commerce ✓ Economic Development Partners ✓ Private Industry	Regionwide	Short-Term

ID	Type	Name	Note	Plan Goals Addressed (in bold)	Potential Implementation Ownership	Location	Time Frame
POL-7	Policy	Fiber Installation at Roadway Construction Projects	Enables fiber connectivity for SCDOT and regional entities. This provides communications equipment to ready corridors for vehicles equipped with communications technology.	**1. Reliability** **2. Safety** **3. Infrastructure Condition** 4. Economic Vitality 5. Environmental 6. Equity	✓ Berkeley County ✓ Charleston County ✓ Dorchester County ✓ SCDOT	Regionwide	Mid-Term
POL-8	Policy	Truck Parking Requirements in Land Use Plans	Encourage land use updates to address existing and potential truck parking shortages. Review truck parking requirements in land use plans for establishing parking minimums for manufacturing, distribution, and major retail developments.	1. Reliability **2. Safety** 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ BCDCOG ✓ Berkeley County ✓ Charleston County ✓ Dorchester County ✓ Municipal Partners	Regionwide	Mid-Term
POL-9	Policy	Installation of Raised Medians on Freight Network	Install raised medians on freight corridors where required, enhancing safety along freight corridors. Access management and limited turns should also improve through movement mobility.	1. Reliability **2. Safety** 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ Berkeley County ✓ Charleston County ✓ Dorchester County ✓ SCDOT	Regionwide	Mid-Term
POL-10	Policy	Collaboration with Local Jurisdictions to Adopt Access Management Policies	Collaborate with local jurisdictions to adopt access management policies or overlay districts that require installation of inter-parcel connections along regional truck routes during redevelopment or expansion of an existing use, and consolidation of access when adjacent parcels come under common ownership. Overlays or policies could establish standards for the number, density, and spacing of curb cuts to better manage access and seek to provide access via side streets rather than the main line.	**1. Reliability** **2. Safety** **3. Infrastructure Condition** **4. Economic Vitality** 5. Environmental 6. Equity	✓ CHATS ✓ Berkeley County ✓ Charleston County ✓ Dorchester County ✓ Municipal Partners ✓ SCDOT	Regionwide	Short-Term
POL-11	Policy	Evaluate Land Uses Along Freight Corridors to Better Accommodate Truck Traffic	Evaluation of land uses along freight corridors to determine ways to better accommodate truck traffic and avoid future conflicts between industrial land uses and others. Strategies can include clustering of manufacturing, warehousing, and distribution centers, encouraging siting of freight facilities along regional truck routes, or incentivizing redevelopment of underutilized properties in lieu or greenfield development.	**1. Reliability** **2. Safety** **3. Infrastructure Condition** **4. Economic Vitality** 5. Environmental 6. Equity	✓ BCDCOG ✓ Berkeley County ✓ Charleston County ✓ Dorchester County ✓ Municipal Partners	Regionwide	Short-Term
POL-12	Policy	Identify Vacant Properties for Truck Parking	Work with local governments, property owners, and/or property managers to identify vacant properties that could accommodate truck staging and /or overnight parking on a temporary basis. The temporary repurposing of these properties should be handled on a case-by-case basis and depending on the situation at-hand, management and oversight of the parking lot could be handed by a third-party operator, by the property owner, or local government.	1. Reliability **2. Safety** 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ BCDCOG ✓ Berkeley County ✓ Charleston County ✓ Dorchester County ✓ Municipal Partners	Regionwide	Short-Term
POL-13	Policy	Identify Underutilized Sites for Truck Parking	Identify potential candidate locations and evaluate the feasibility of redeveloping underutilized sites into permanent truck parking with amenities such as secured parking, lighting, and restroom/shower facilities.	1. Reliability **2. Safety** 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ BCDCOG ✓ Berkeley County ✓ Charleston County ✓ Dorchester County ✓ Municipal Partners	Regionwide	Short-Term

ID	Type	Name	Note	Plan Goals Addressed (in bold)	Potential Implementation Ownership	Location	Time Frame
POL-14	Policy	Expansion of Rail Capacity to Enhance Freight and Economic Competitiveness	One objective of the plan is to encourage an expansion of rail capacity that will enhance freight and economic competitiveness. Key strategies are to provide for truck and rail mobility to and from major freight hubs and consider road improvements that support goods movement between the Port of Charleston and the inland ports.	**1. Reliability** 2. Safety **3. Infrastructure Condition** **4. Economic Vitality** 5. Environmental 6. Equity	✓ Class 1 Railroads ✓ SC Department of Commerce ✓ SCPA ✓ Palmetto Railways ✓ Economic Development Partners	Rail Lines in the BCD Region	Long-Term
POL-15	Policy	Maintain Rail Elements on the Freight Network	Maintaining or improving state of good repair for rail elements of the freight network is a goal of the State Rail Plan. This includes ongoing maintenance and operational improvements required to support efficient intermodal freight movement between the Port of Charleston and inland ports, and between port terminals.	1. Reliability 2. Safety **3. Infrastructure Condition** **4. Economic Vitality** 5. Environmental 6. Equity	✓ Class 1 Railroads ✓ SC Department of Commerce ✓ SCPA ✓ Palmetto Railways ✓ Economic Development Partners	Rail Lines in the BCD Region	Short-Term
POL-16	Policy	Preserve Collaborative Planning Efforts with Partner Agencies	As partner agencies (such as SCPA and Palmetto Railways) proceed with projects like the Inland Ports in Greer and Dillon and the NBIF in North Charleston, SC, SCDOT should preserve and enhance the collaborative planning efforts with these agencies.	**1. Reliability** 2. Safety **3. Infrastructure Condition** **4. Economic Vitality** 5. Environmental 6. Equity	✓ Class 1 Railroads ✓ SC Department of Commerce ✓ SCPA ✓ Palmetto Railways ✓ Economic Development Partners	Statewide	Short-Term
POL-17	Policy	Assess Mode Shift Options	Continue assessing mode shift options via actual data from the Inland Port Greer, Inland Port Dillon, NBIF as these projects are executed to help estimate growth potential and cost/benefit of new modal options.	**1. Reliability** 2. Safety **3. Infrastructure Condition** **4. Economic Vitality** 5. Environmental 6. Equity	✓ Class 1 Railroads ✓ SC Department of Commerce ✓ SCPA ✓ Palmetto Railways ✓ Economic Development Partners	Statewide	Short-Term
POL-18	Policy	Close Highway Rail Crossings	Explore opportunities to close highway rail 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. Reliability** **2. Safety** 3. Infrastructure Condition 4. Economic Vitality **5. Environmental** **6. Equity**	✓ Class 1 Railroads ✓ SC Department of Commerce ✓ Palmetto Railways ✓ Municipal Partners ✓ SCDOT	Regionwide	Long-Term
POL-19	Policy	Assess Areas for Quiet Zone Designations	Assess areas disproportionately impacted by train horn nose 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. Reliability 2. Safety 3. Infrastructure Condition **4. Economic Vitality** **5. Environmental** **6. Equity**	✓ BCDCOG ✓ CHATS ✓ Municipal Partners	Rail Lines in the BCD Region	Short-Term

ID	Type	Name	Note	Plan Goals Addressed (in bold)	Potential Implementation Ownership	Location	Time Frame
POL-20	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. Reliability **2. Safety** 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ Class 1 Railroads ✓ Palmetto Railways ✓ Municipal Partners	Rail Lines in the BCD Region	Short-Term
POL-21	Policy	Conduct Assessment of Areas Disproportionately Impacted by 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. Reliability 2. Safety 3. Infrastructure Condition **4. Economic Vitality** **5. Environmental** **6. Equity**	✓ BCDCOG ✓ CHATS ✓ Municipal Partners ✓ Community Advocacy Organizations	Rail Lines in the BCD Region	Short-Term
PRG-1	Program	Ramp Metering Pilot Program (I-26 at Ashley Phosphate Road)	Ramp metering is a traffic management strategy aimed at reducing mainline interstate congestion. Ramp Metering Pilot Program for I-26 at Ashley Phosphate Road would allow a temporary evaluation of such an application in the region.	**1. Reliability** **2. Safety** 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ CHATS ✓ Charleston County ✓ SCDOT	I-26 Corridor from Downtown Charleston to Ashley Phosphate Road	Short-Term
PRG-2	Program	Urban Delivery Pilot Program	Urban Delivery Pilot Program in King Street corridor, limiting deliveries to King Street between Columbus Street to Broad Street between specified hours.	**1. Reliability** **2. Safety** **3. Infrastructure Condition** **4. Economic Vitality** **5. Environmental** **6. Equity**	✓ CHATS ✓ City of Charleston	Downtown Charleston Roadways	Short-Term
PRG-3	Program	Education Outreach	Regional freight mobility will benefit from perception improvements from the public. Conduct educational efforts to counter public perception that increases in truck size and weight limits will impact roadway quality and compromise safety.	1. Reliability 2. Safety 3. Infrastructure Condition **4. Economic Vitality** 5. Environmental **6. Equity**	✓ BCDCOG ✓ CHATS ✓ Municipal Partners ✓ Freight Advisory Committee	Regionwide	Short-Term
PRG-4	Program	Incident Management Program	Incident Management Performance Measure - Average time to clear travel lanes for traffic incidents along Incident Management Zone is 20 minutes or less	**1. Reliability** **2. Safety** 3. Infrastructure Condition 4. Economic Vitality 5. Environmental 6. Equity	✓ BCDCOG ✓ CHATS ✓ SCDPS ✓ SCDOT	Interstate Corridors	Short-Term
PRG-6	Program	Coordinate with Recommendations from I-26 Corridor Management Plan	Implement range of improvements to benefit travel demand management strategies for freight. These include constructing the NBIF, providing additional truck parking, and establish partnerships to improve private sector truck trip planning and scheduling.	**1. Reliability** **2. Safety** **3. Infrastructure Condition** **4. Economic Vitality** 5. Environmental 6. Equity	✓ BCDCOG ✓ CHATS SCDOT	Interstate Corridors	Long-Term

ID	Type	Name	Note	Plan Goals Addressed (in bold)	Potential Implementation Ownership	Location	Time Frame
PRG-8	Program	Explore facilitation of regional smart parking and/or scheduling program	Drawing from the West Coast experience of the DrayFLEX program, seek opportunities to partner with the Freight Advisory Committee and vehicle owners/operators to develop communications tools that facilitate parking, delivery, and other operational needs. Features of this program should be integrated into ITS Master Planning efforts.	**1. Reliability** 2. Safety 3. Infrastructure Condition **4. Economic Vitality** **5. Environmental** 6. Equity	✓ BCDCOG ✓ CHATS ✓ SCPA ✓ SCDPS ✓ Municipal Partners ✓ Charleston Motor Carriers Association ✓ SC Trucking Association	Regionwide Statewide	Short-Term
PRG-9	Program	Formalize working relationship between BCDCOG, CHATS, SCDOT and SCPA to support integrated freight mobility planning	With ongoing investments and enhancements of the freight system, a more formal arrangement would enhance the partnerships of local and state agencies. This partnership and formalized coordination meetings would increase the awareness of infrastructure needs, planned improvements, and provide greater shared efforts to fund, program, and construct needed infrastructure improvements in a collaborative manner. This also provides leveraging of the needs of multiple agencies to reach common goals.	**1. Reliability** **2. Safety** **3. Infrastructure Condition** **4. Economic Vitality** **5. Environmental** 6. **Equity**	✓ BCDCOG ✓ CHATS ✓ SCDOT ✓ SCDOC ✓ SCPA ✓ SCDPS ✓ Municipal Partners ✓	Regionwide Statewide	Short-Term
PRG-10	Program	Identify local process for review and improvement of at-grade rail crossings	The Network Assessment Technical Memorandum identified key grade crossing conflict points in the BCD Region. This is a good starting point for identifying candidates for grade crossing separation or closure, which would promote safety and more efficient traffic flows. Local standards would identify needed improvements beyond industry standards set by state departments of transportation and may depend on local priorities, including transit corridors or other context sensitive factors.	**1. Reliability** **2. Safety** 3. Infrastructure Condition **4. Economic Vitality** **5. Environmental** **6. Equity**	✓ BCDCOG ✓ CHATS ✓ SCDOT ✓ Municipal Partners ✓ Class 1 Railroads ✓ Palmetto Railways	Regionwide	Short-Term
PRG-11	Program	Continue engagement of the Freight Advisory Committee to enhance regional freight planning	Continue to engage the CHATS Freight Advisory Committee in the implementation of the Plan. Efforts should be made to expand stakeholder representation, pursue grant funding opportunities, and engage private funding partners in regional initiatives.	**1. Reliability** **2. Safety** 3. Infrastructure Condition **4. Economic Vitality** 5. Environmental **6. Equity**	✓ BCDCOG ✓ CHATS ✓ Municipal Partners ✓ Freight Advisory Committee	Regionwide	Short-Term
PRG-12	Program	Prepare Urban Truck Platooning Pilot Project	Building upon PRG-11, the FAC and community stakeholders should partner with SCDOT to explore a potential location to conduct a pilot urban truck platooning corridor.	**1. Reliability** **2. Safety** 3. Infrastructure Condition **4. Economic Vitality** 5. Environmental **6. Equity**	✓ BCDCOG ✓ CHATS ✓ Municipal Partners ✓	Regionwide	Mid-Term

ID	Type	Name	Note	Plan Goals Addressed (in bold)	Potential Implementation Ownership	Location	Time Frame
PRG-13	Program	Partner with SCDOT and ACOG for statewide truck parking communications system	Building upon the ongoing work of the ACOG Regional Freight Mobility Plan and the SCDOT Statewide Truck Parking Plan, a partnership should be created to formalize the development of a communications system to inform drivers of available parking on a statewide basis.	1. **Reliability** 2. **Safety** 3. Infrastructure Condition 4. **Economic Vitality** 5. Environmental 6. **Equity**	✓ ACOG ✓ BCDCOG ✓ CHATS ✓ SCDOT ✓ SCDOC ✓ SCPA ✓ SCDPS ✓	Regionwide Statewide Multi-State	Short-Term

9. HOW TO USE THIS PLAN

Implementation of the plan's freight recommendations requires participation from and coordination between local, regional, state, and national partners, from both the public and private sectors. Although the BCDCOG is not directly responsible for land use planning, the freight plan should serve as a resource to local municipalities and governmental agencies to facilitate their efforts on comprehensive plan updates, mapping updates of the land use and zoning layers, and conducting developmental services.

For infrastructure improvements, some of the recommended highway projects are already consistent with the MPO's/COG's, LRTPs and Transportation Improvement Program and will follow the project development process for implementation. Additional recommended highway projects may either be incorporated into future updates to the region's long-range transportation plans and evaluated and prioritized for funding under the respective plans' fiscal constraints or be incorporated into SCDOT programs for implementation. This freight plan should also serve as a planning resource or reference to various stakeholders in the evaluation of rail, port, and airport needs, and selection of improvement projects.

9.1 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 entire freight network needs and issues. Whereas local and regional freight plans are more geared toward exploring localized freight issues and needs for improving freight and goods movement. Planning at this more regional-scale also allows for greater land use-transportation planning linkages to be made. These local and regional freight plans fill in important pieces of the state's overall freight puzzle. Freight planning coordination with the state needs to be a two-way dialogue, as the BCD Regional Freight Mobility Plan will inform SCDOT about local freight needs and issues for inclusion in the overall state freight program, and SCDOT will share statewide freight issues and needs that may impact the BCD Region.

Just as regional freight plans align with statewide freight plans, the statewide freight plans align with the national freight planning process. 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 condition 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 to fund projects identified in this plan include the RAISE (previously known as BUILD) and INFRA programs, U.S. Department of Transportation (USDOT) loan programs such as TIFIA and RRIF, and, through the latest Surface

Transportation Bill Reauthorization process, a reintroduction of congressional directed spending requests (earmarks). 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. The RAISE Grant is highly competitive since it is one of the few DOT discretionary programs for which regional and local governments can directly compete for multimodal transportation funding.
- **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 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.

9.2 Metropolitan Planning Organizations

The BCD Regional Freight Mobility Plan is an integrated planning effort between BCDCOG and the CHATS MPO. Representatives from the MPO were part of the 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.

9.3 Municipalities, Counties, and Economic Development Organizations

Moving freight is critical to the BCD regional economy. As the area anticipates continued growth in the volume of freight traveling through the region, it is equally important to ensure that the transportation infrastructure is adequate to support these flows and freight-dependent or freight-intensive land uses are strategically developed in areas that can maximize the productivity of the freight transportation infrastructure. It is recommended that local governments utilize this Freight Plan to better inform the local planning and future land use decision making processes.

Prioritizing the development of freight intensive activities at sites located on existing freight corridors or within freight clusters/concentrations that are directly served by the freight network, is crucial in preserving the most strategic areas of land for freight related growth. Locating these activities 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. Ultimately, the regional freight plan's land use recommendations will need to be a

coordinated effort, implemented by local municipalities and counties through adoption into their local zoning, land use planning and development processes.

9.4 Private Sector Interests

As freight volumes in the region are projected to continue to grow, the discussion of regional freight needs, and issues should be kept in the forefront of regional coordination. Several of this 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 Mobility Plan, the continued engagement of the Freight Advisory Committee is important for the plan's implementation and to sustain discussion among regional partners about freight and economic development related issues. 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 plan's recommendations, championed by BCDCOG, will actively foster stronger relationships between major stakeholders, and highlight the critical role the public and private sector organizations play in providing freight transportation infrastructure. This can be accomplished by reshaping the meeting frequencies and agendas to identify and assign action items by committee members as well as explore new membership to boost the success of the group. By increasing the ownership of this work product, this organization should begin to focus on how the region can build better and smarter infrastructure, support more efficient and sustainable land use decisions that balance economic development with quality of life for residents, and raise the awareness of freight as a regional and statewide driver of economic sustainability.

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