7 Freight Element

7.1 Introduction

7.1.1 Purpose of Chapter

This chapter provides the freight element of the RFATS 2035 Long Range Transportation Plan. It describes the existing conditions and trends at the national level, at the statewide/regional level and within the RFATS Study Area. It then describes the current and future issues, at the same set of levels. Stakeholder input is summarized, followed by a summary of key points and a list of recommendations. The chapter includes both highway freight and rail freight. Because many of the issues and trends in highway and rail freight are distinct from each other, these two modes of transportation are discussed separately where appropriate.

7.1.2 Relevance to the Transportation System and the Plan

Freight movement is a critical element of an advanced industrial economy, and the ease of freight movement is one component of a region's economic competitiveness for attracting and retaining heavy industry, manufacturing, warehousing and other light industrial functions. Freight movement can also have an impact on a region's quality of life, particularly with the need to ensure heavy truck traffic has suitable routes to/from the national highway or rail networks, avoiding established residential areas.

Federal legislation has recently placed additional emphasis on the role of freight in regional transportation planning. Freight must be considered both in its own right and in terms of supporting an area's economic vitality and competitiveness.

Highway freight and rail freight play complementary, and sometimes competing, roles in the freight transportation system. The RFATS Study Area has strong highway and rail connections for freight, including a major north-south interstate connecting Charlotte and Columbia and main lines of two Class I railroads. These connections serve a wide range of industries in the RFATS Study Area, including distribution centers and automobile component manufacturing. In addition, the northern edge of the RFATS Study Area flows into the light-industrial region along I-77 and I-485 near Pineville. Indeed, the RFATS Study Area's relationship with Charlotte is a key factor influencing its freight needs.

7.2 Existing Conditions and Trends

7.2.1 Entire Freight System: Statewide and Regional Conditions and Trends

The Federal Highway Administration (FHWA) produces the Freight Analysis Framework (FAF) which examines freight movements for each mode of transportation. The Framework is not detailed enough to give specific data for the RFATS Study Area or a corresponding region, so the data for South Carolina are described here.

The analysis shows that trucks carried 70% of freight traffic in South Carolina in 2002, while rail carried 14% (Table 7.1 and Figure 7.1). The top commodities moved in 2002, in terms of value, were machinery, textiles/leather, mixed freight, and plastics/rubber.

The truck mode is expected to increase its share of freight traffic to over 73% in 2035, while overall truck freight tonnage nearly doubles. Rail freight is also expected to increase in tonnage terms, although losing market share to trucks.

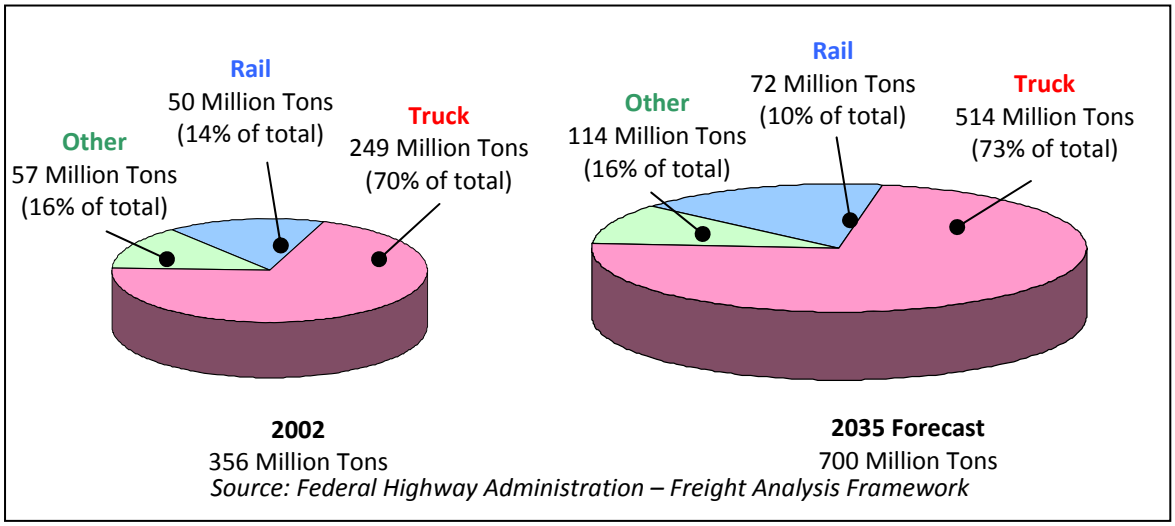
Table 7.1 Freight Movements in South Carolina

Millions of Tons

Year	Mode	Within SC	From SC	To SC	Total	Percent
2002	Truck	130	62	57	249	70%
	Rail	6	10	35	50	14%
	Other	4	26	28	57	16%
	Total	140	97	119	356	100%
2035	Truck	258	127	128	514	73%
	Rail	7	11	54	72	10%
	Other	32	44	38	114	16%
	Total	298	182	220	700	100%

Source: Federal Highway Administration – Freight Analysis Framework

Figure 7.1 Mode Share of Freight Movements To/From/Within South Carolina



Source: Federal Highway Administration – Freight Analysis Framework

7.2.2 Highway Freight: National Conditions and Trends

Truck mileage has been consistently increasing nationally over the past decades, but has been accommodated in essentially the same amount of road space. Urban freeways and arterials in particular have become increasingly congested, and this trend is expected to continue. Trucks will be affected just as much as commuters, with implications for freight travel times and reliability.

7.2.3 Highway Freight: Statewide and Regional Conditions and Trends

South Carolina is not immune from the pressures being experienced across the nation. The port of Charleston is an important freight origin/destination for the state. However, the RFATS Study Area also has close links to Charlotte and its intermodal terminals. Both Norfolk Southern and CSX railroads operate major rail-truck intermodal terminals in Charlotte, and Charlotte Douglas International Airport acts as an air-truck intermodal terminal.

The South Carolina Department of Transportation (SCDOT) only restricts truck traffic for safety reasons such as weight-restricted bridges and culverts. Trucks are generally allowed on all state-maintained roads.

7.2.4 Highway Freight: Conditions and Trends in the RFATS Study Area

As noted above, the RFATS Study Area looks strongly to Charlotte for highway access northward as well as access to the intermodal facilities in Charlotte itself. The existing and forecast congestion on I-77 therefore represents a potential threat to the RFATS Study Area's competitiveness. Forecast conditions on the main routes southward from the RFATS Study Area are more satisfactory.

7.2.5 Rail Freight: National Conditions and Trends

The US freight railroad industry is currently in a period of stability and growth following the major structural changes of the 1970s through the 1990s. The economic growth experienced in recent years has particularly benefited some freight flows, such as containers to and from the major ports, with the result that railroads have been adding or reinstating capacity on their main lines. Although there is a strong focus on unit trains (entire trains of a single commodity, such as coal or containers), the more traditional, smaller-scale traffic flows of single cars or small numbers of cars to/from local industries (carload freight) remains an important part of the industry.

7.2.6 Rail Freight: Statewide and Regional Conditions and Trends

SCDOT's multimodal transportation plan takes account of both highway and rail freight issues along key corridors. In addition, the South Carolina Department of Commerce has a Division of Public Railways. This division promotes economic development interests by providing freight rail access to new and existing industries. The division has the authority to acquire rail corridors that may be at risk of abandonment, or develop and construct new rail corridors.

7.2.7 Rail Freight: Conditions and Trends in the RFATS Study Area

Figure 7.2 shows the railroads in the RFATS Study Area. These include routes owned by both Norfolk Southern (NS) and CSX, the two major railroads in the eastern US, as well as the Lancaster and Chester Railroad.

The NS secondary main line from Charlotte to Chester and Columbia (known as the 'R' line, part of NS Piedmont Division) passes through Fort Mill and Rock Hill, serving a number of industrial customers and with a small switching yard at Rock Hill. The SCDOT Rail Right-Of-Way Inventory identified this as a potentially important line because it follows the SC-72 highway corridor, but its future appears to be secure. Although a single-track line, it has automatic block signaling and a relatively high density of traffic. Passing sidings exist at the Rock Hill yard and in Fort Mill.

The CSX line from Monroe (NC) to Chester passes through Catawba, as part of CSX's mainline axis from Hamlet (NC) to Atlanta and New Orleans. This line has centralized traffic control and a high traffic density, and its future also appears secure.

NS also operates a local line (the 'SB' line) that connects with the main 'R' line at Rock Hill, extending west to Tirzah and east to meet the CSX line at Catawba. Also serving Catawba is the independent Lancaster and Chester Railroad (L&C), a shortline (minor railroad).

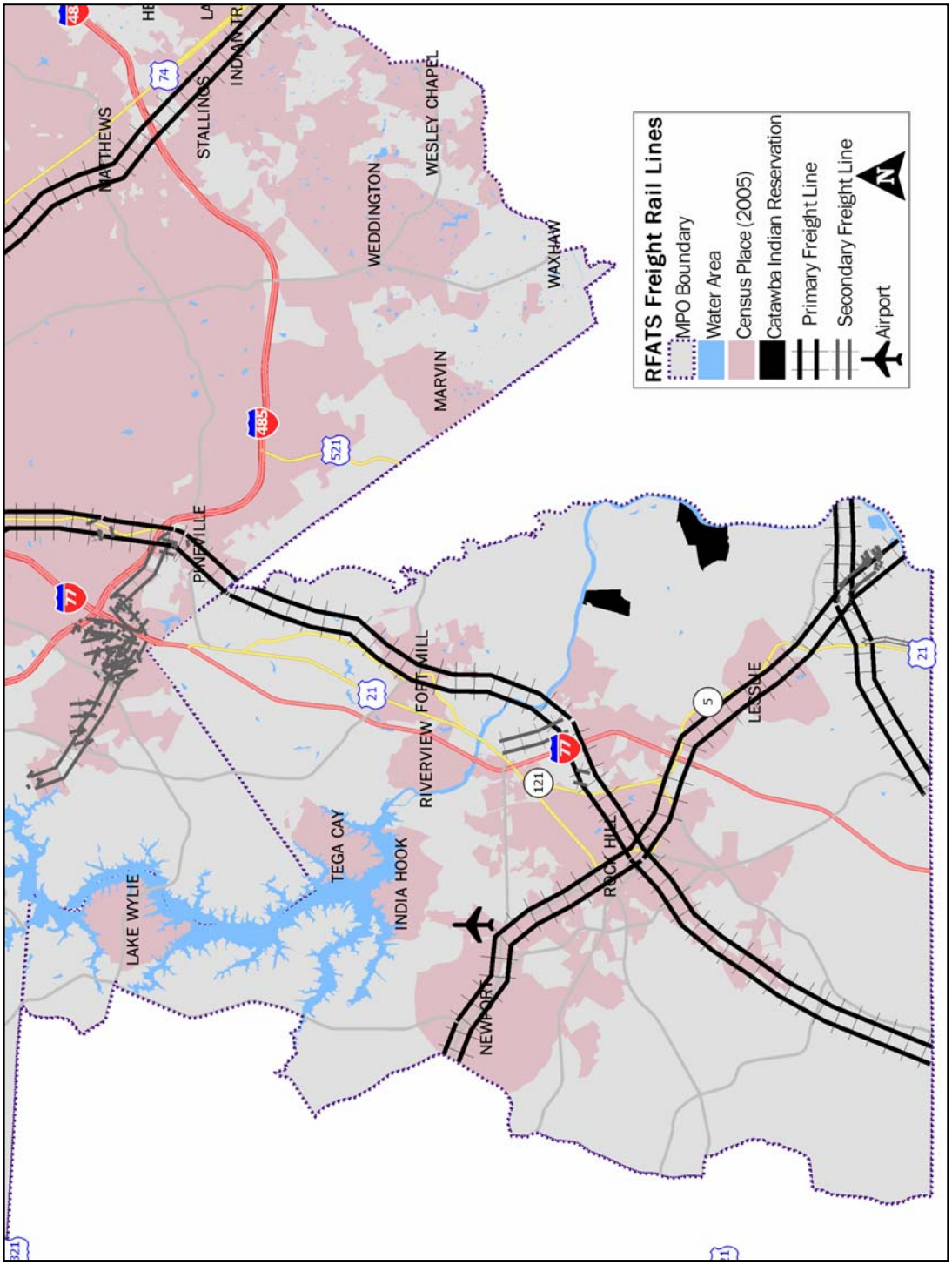


Figure 7.2 Railroads in the RFATS Study Area

7.3 Current and Future Issues

7.3.1 Entire Freight System: Statewide and Regional Current and Future Issues

South Carolina Public Railways (a division of the SC Department of Commerce) recently commissioned a review of the state's competitive position on transportation costs. The review found[1] that the state was very competitive in a number of freight markets, when compared to other nearby states. Maritime traffic is expected to shift from west coast to east coast ports, particularly after the expansion of the Panama Canal, now in progress and due for completion in 2014. South Carolina was seen as benefiting from this, as long as its ports could attract this traffic and could develop capacity, including intermodal rail, for onward distribution. Although Charleston-Charlotte is an existing rail distribution axis for onward destinations, the review concluded that the Charlotte area itself (which has relevance for the RFATS Study Area) was unlikely to develop as a railhead for Charleston, due to the relatively short haul making trucking more competitive. However, it specifically noted Rock Hill as one of the areas with potential truckload capacity.

7.3.2 Highway Freight: National Current and Future Issues

As described above, the impact on freight of congestion on urban freeways and arterials is expected to continue. At the national level, issues of expanding capacity are increasingly being supplanted by a recognition that the existing highway network needs to be kept in a state of good repair and that existing funding streams may not be adequate for this, even without major capacity expansion.

7.3.3 Highway Freight: Statewide and Regional Current and Future Issues

As part of its most recent Multimodal Transportation Plan, SCDOT has identified a system of Strategic Highway Corridors. This system is aimed at providing a connected, continuous network that not only serves the traveling public but also facilitates the movement of freight. This strategic system would in turn provide connectivity to allow South Carolina to maintain and enhance its economic vitality. The corridors were selected by evaluating a range of criteria: traffic levels and congestion, levels of truck traffic, high crash rates, connections to economic centers (urban, agricultural or

[1] South Carolina Transportation Cost Competitive Analysis, August 2008

manufacturing), their use as emergency evacuation routes, and their level of tourist traffic.

Two of the fourteen Strategic Highway Corridors serve the RFATS Study Area. **The Low Country to York Corridor** connects Charlotte and the RFATS Study Area with Columbia and Savannah. **The Olde English – Olde 96 Corridor** connects Charlotte and the RFATS Study Area with north-east Georgia. The specific issues identified within the RFATS Study Area on these corridors are described below.

7.3.4 Highway Freight: Current and Future Issues Within the RFATS Study Area

The Freight Analysis Framework (FAF) data shows significant truck movements along the major highway corridors of I-77, US-21, SC-72, SC-5, and SC-161 within the RFATS Study Area (Figure 7.4). The interstate highway is especially important as a freight conduit, as it connects the RFATS Study Area to the major regional urban areas in Charlotte and Columbia as well as the major port in the state in Charleston. The arterial roadways move freight within the RFATS Study Area as well as to other urban areas of the state and will continue to play an important role in the movement of freight traffic in the future. Figure 7.4 illustrates the expected truck traffic in 2010, according to the FAF forecasts, and shows the importance of I-77 for trucks.

As described above, two of the Strategic Highway Corridors identified by SCDOT have sections within the RFATS Study Area. SCDOT has developed Corridor Action Plans that propose improvements on each of the Strategic Highway Corridors.

The RFATS Study Area includes two segments of the Low Country to York Corridor. The first segment follows US-21 from the Chester County Line to SC-161, and the second segment (Y19) is SC-161 from I-77 to SC-5. The Corridor Action plan shows both of these segments as being deficient due to crash rates above the statewide average. The second segment is also deficient due to forecast congestion by 2030.

The RFATS Study Area also includes two segments (O12 and O13) of the Olde English – Olde 96 Corridor, following SC-72/121 into Rock Hill and connecting with I-77. The Corridor Action Plan shows one of these segments, from the Chester County Line to Mount Holly Road (segment O12), as deficient because of its crash rate above the statewide average.

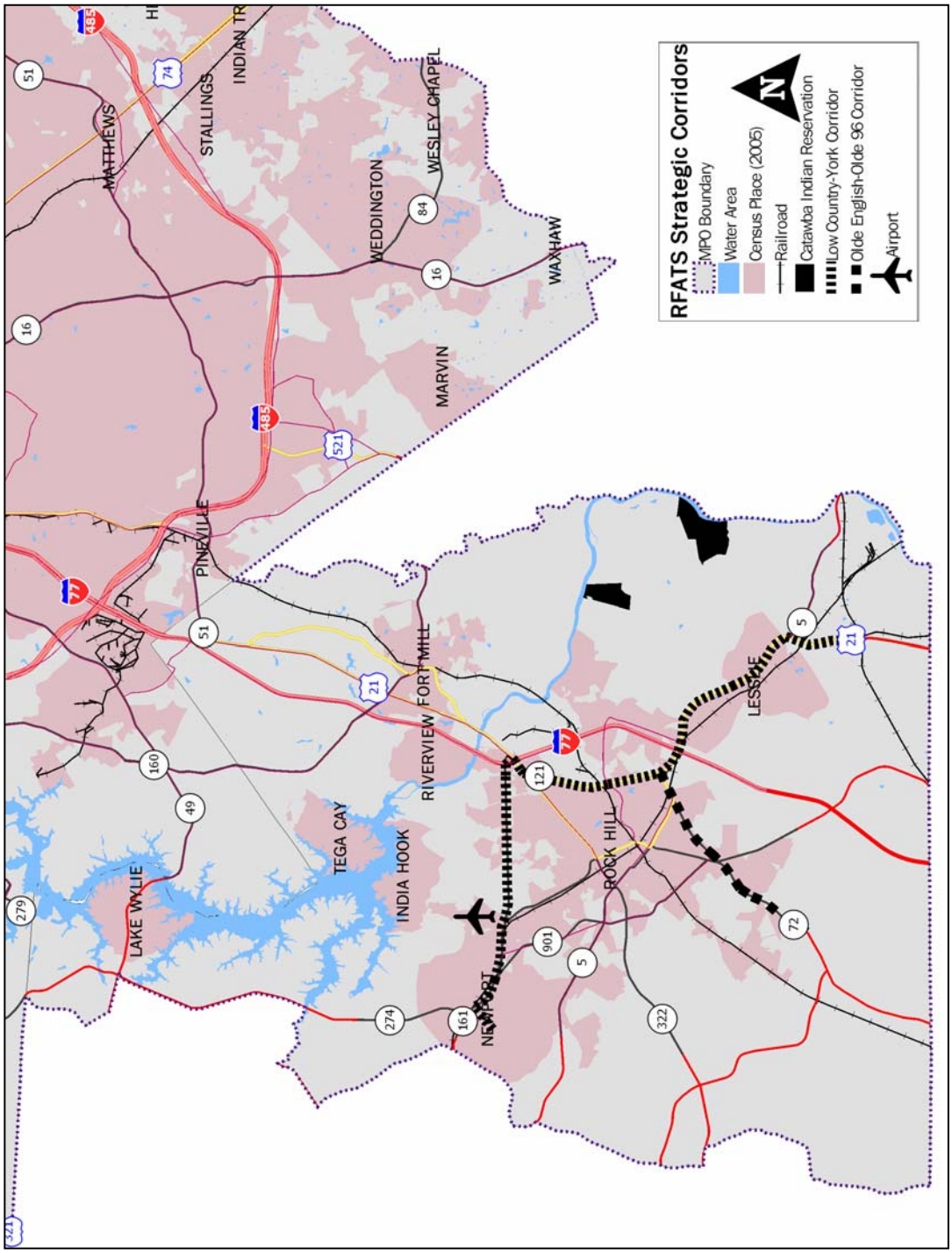


Figure 7.3 Strategic Highway Corridors Serving the RFATS Study Area

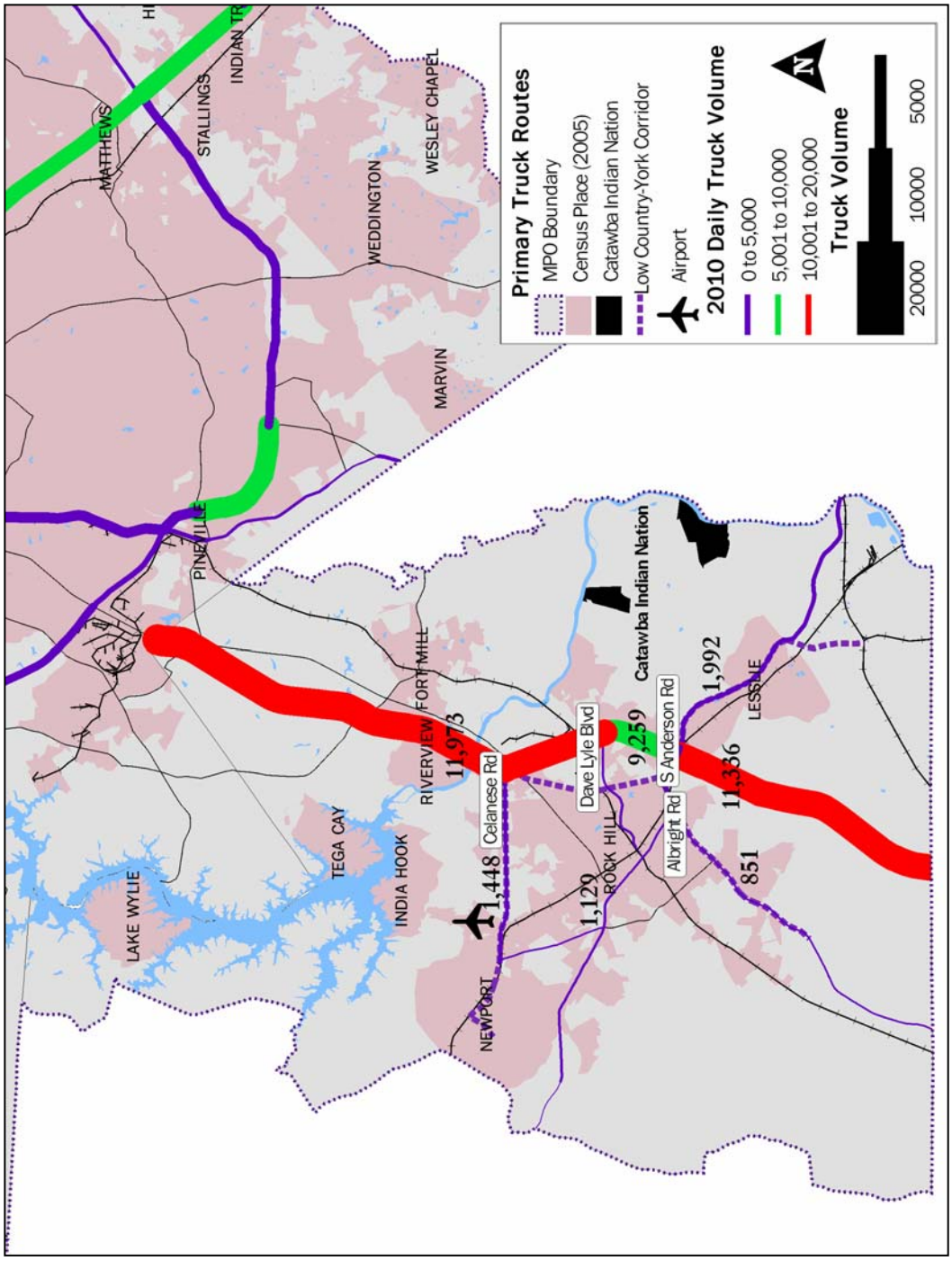


Figure 7.4 Highway Freight Traffic Volumes

Source: US Department of Transportation, Freight Analysis Framework

7.3.5 Rail Freight: National Current and Future Issues

Nationwide forecasts[2] suggest that long-term economic growth will create demand for substantial additional capacity on the main corridors – and that the railroad industry would not be able to pay for all that capacity on its own. Public-private partnerships are therefore likely to be a key funding mechanism for achieving the necessary capacity. Railroads are increasingly open to schemes that combine public funding of public benefits (principally reductions in truck traffic) with railroad funding of private benefits. In particular, states and municipalities are increasingly recognizing the public benefit of diverting truck traffic from highways to railroads.

7.3.6 Rail Freight: Statewide and Regional Current and Future Issues

The RFATS Study Area lies close to two major corridors that have been identified by railroads as potential partnership corridors. Both corridors are likely to involve increased capacity (additional tracks and/or improved signaling and speeds) as well as increasing clearances to allow double-stack container trains. The Norfolk Southern (NS) main line through Blacksburg, west of the RFATS Study Area, is part of its Crescent Corridor that runs from Washington DC to New Orleans via Charlotte and Atlanta, paralleling I-85 and other congested routes. NS hopes to attract long-haul truck traffic on this corridor, which the railroad industry has historically not developed strongly. A major intermodal terminal in Charlotte is part of the corridor plan. CSX's National Gateway corridor includes an axis from the port of Wilmington to Charlotte. Both railroads are currently working with state and municipal governments to develop plans and funding for these corridors.

7.3.7 Rail Freight: Current and Future Issues Within the RFATS Study Area

The two major corridor proposals described above, if successful, may increase the amount of truck traffic on I-77 to/from the major intermodal terminals in Charlotte.

The railroad lines within the RFATS Study Area are not major inter-state corridors and therefore were not part of the national capacity study. Nevertheless, their future remains tied to the overall health of the railroad industry and to the decisions of individual customers along the route. Although the future of the two main lines through the RFATS Study Area appears secure, the NS and L&C lines are, like any local routes, dependent on the presence of small numbers of individual customers, and changes in the industrial base can therefore easily affect those lines.

The RFATS Study Area includes a number of grade crossings where railroads and highways meet. Any future increase in train traffic may lead to additional congestion impacts on the highway network, which themselves will be magnified as highway traffic

[2] National Rail Freight Infrastructure Capacity and Investment Study, Cambridge Systematics, 2007

levels increase. In addition, grade crossings also represent a safety issue and have an impact on adjacent development. When individual crossings or entire corridors become busier, programs to upgrade, close or grade-separate the crossings are often introduced. These can be expensive and complex projects, so planning and coordination should start in good time when a need is identified.

RFATS has funded a project to work with Norfolk Southern to remove grade crossings in downtown Rock Hill. The project also involved adding capacity to the railroad yard, so that trains will not block key downtown intersections for long periods. This project used funds from the Congestion Mitigation and Air Quality Management (CMAQ) Improvement Program.

7.4 Stakeholder Input

As a part of this Long Range Transportation Plan (LRTP) Update, RFATS staff undertook specific efforts to seek out and secure feedback from area freight and rail providers. Included in the comprehensive stakeholder mailing that occurred on February 6, 2008 were the Norfolk Southern Railway Company, and the South Carolina Trucking Association, as well as SCDOT's Rail Planner.

Staff then assembled a freight providers' survey, which was mailed out in April 2008. Written comments were received assessing primary road network needs and issues (such as interstate congestion, capacity constraints, etc.). Items of particular note included:

- Intersection-specific recommendations (such as expanding turning lane capacity, road widenings, etc.),
- Preferred routes for truck traffic, and
- Identification of any structural impediments and/or barriers.

Staff then assembled all of the information gathered and reviewed it along with the other feedback collected during the broader public participation outreach effort. A number of the ideas identified from the area's freight providers are reflected in selected projects on the endorsed draft project list approved at the November 21, 2008 Policy Committee meeting.

7.5 Summary and Recommendations

7.5.1 Summary of Key Points

- Highway and rail freight are important and complementary parts of the freight transportation system.
- Access to Charlotte, its intermodal terminals, and destinations beyond Charlotte is important for the RFATS Study Area.

- Highway freight is vulnerable to increasing congestion on the corridor toward Charlotte.
- Rail freight in the RFATS Study Area is likely to be steady or slowly growing, and is likely to principally serve local freight customers.
- The railroads' proposed upgrades of corridors outside the RFATS Study Area may improve rail freight access to/from the Charlotte region. However, it remains to be determined whether and how the RFATS Study Area would benefit from this, or whether it would draw freight shippers away from the RFATS Study Area into Charlotte itself.

7.5.2 Recommendations

- RFATS should consider undertaking a comprehensive Freight Study. This would help understand the specific needs of freight shippers and receivers, as well as how the RFATS Study Area could benefit from Charlotte's existing and planned intermodal facilities. It would also include the congestion impacts of freight and considering designated truck rotes, as described in the Congestion Management Process element. It would build upon the issues highlighted by stakeholders.
- RFATS should review existing policies and practices on preservation of rail-served industrial sites and preservation of industrial railroad corridors. This would aim to understand whether any additional efforts are needed to ensure convenient access to freight movement by rail.