Introduction

Purpose of Chapter

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.

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.

Relevance to the Transportation System and the Plan

MAP-21 continues to emphasize the importance of freight accommodations 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 including distribution centers and automobile component manufacturers. In addition, the northern edge of the RFATS Study Area includes the light-industrial region along I-77 and I-485 near Pineville. The area's relationship to the greater Charlotte region is a key factor influencing the demand and location of freight supportive industries and facilities.

Existing Conditions and Trends

Entire Freight System

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.

Results indicate that trucks carried 78% of freight traffic in South Carolina in 2011, while rail carried 15% (**Table 7.1**). The top commodities moved in 2011 in terms of value, were motorized vehicles, machinery, electronics, textiles/leather, and plastics/rubber.

The truck mode is expected to increase its share of freight traffic to over 80% in 2040, while overall truck freight tonnage nearly doubles. Rail freight is also expected to increase in tonnage terms, although losing market share to trucks.

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 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.

Table 7.1 – Freight Movements in South Carolina (millions of tons)

Year	Mode	Within SC	From SC	To SC	Total	Percent
2011	Truck	122	59	46	227	78%
	Rail	7	5	32	44	15%
	Other	3	7	9	19	7%
	Total	132	71	87	290	100%
2040	Truck	211	115	82	408	80%
	Rail	9	11	41	61	12%
	Other	8	16	19	42	8%
	Total	228	142	142	511	100%

Source: Federal Highway Administration – Freight Analysis Framework

Highway Freight

National Conditions and Trends

Truck mileage has been consistently increasing nation-wide over the past decades without much increase in vehicular capacity. Urban freeways and arterials 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.

Nationally, 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, even without major capacity expansion. Some places like the nation's capital are turning to public-private partnerships to alleviate the funding issues and allow private sector stakeholders to contribute to the research, repair, and expansion required to allow for the safe and efficient movement of freight.

Statewide and Regional Conditions and Trends

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.

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

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. The existing and forecasted congestion on I-77 represents a potential threat to the RFATS Study Area's competitiveness. Forecasted conditions on the main routes southward from the RFATS Study Area are more satisfactory.

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.

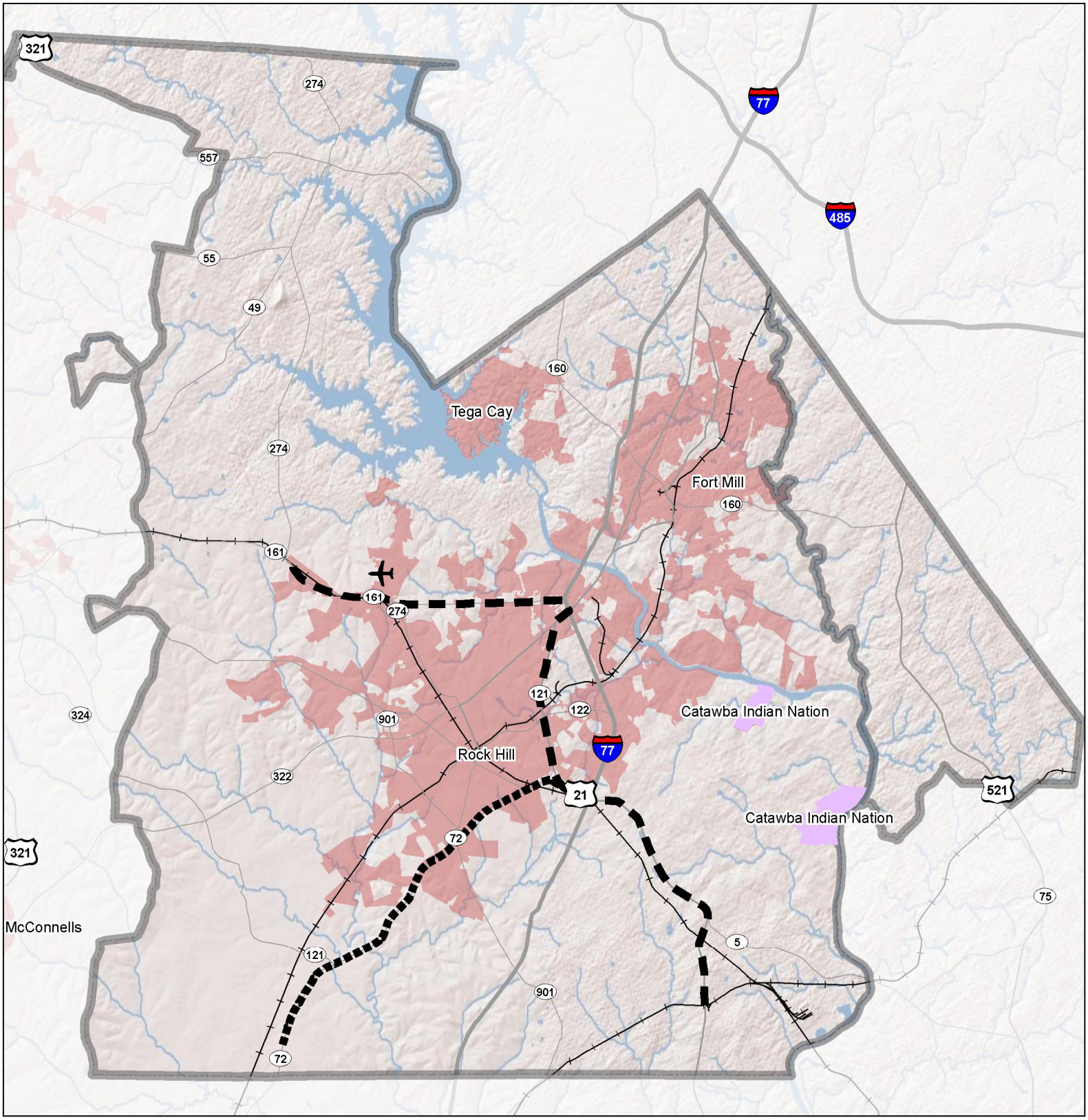
The Freight Analysis Framework (FAF) data shows significant truck movements along the major highway corridors of I-77, US-21, SC-72, SC-5, and SC-161 within the RFATS Study Area (**Figure 7.1**). The interstate highway is especially important as a freight conduit, as it connects the RFATS Study Area to the major regional urban areas in Charlotte and Columbia as well as to Charleston, the major port in the state. 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 7.2** illustrates the daily truck volumes for 2013 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 forecasted congestion.

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 with a crash rate above the statewide average.

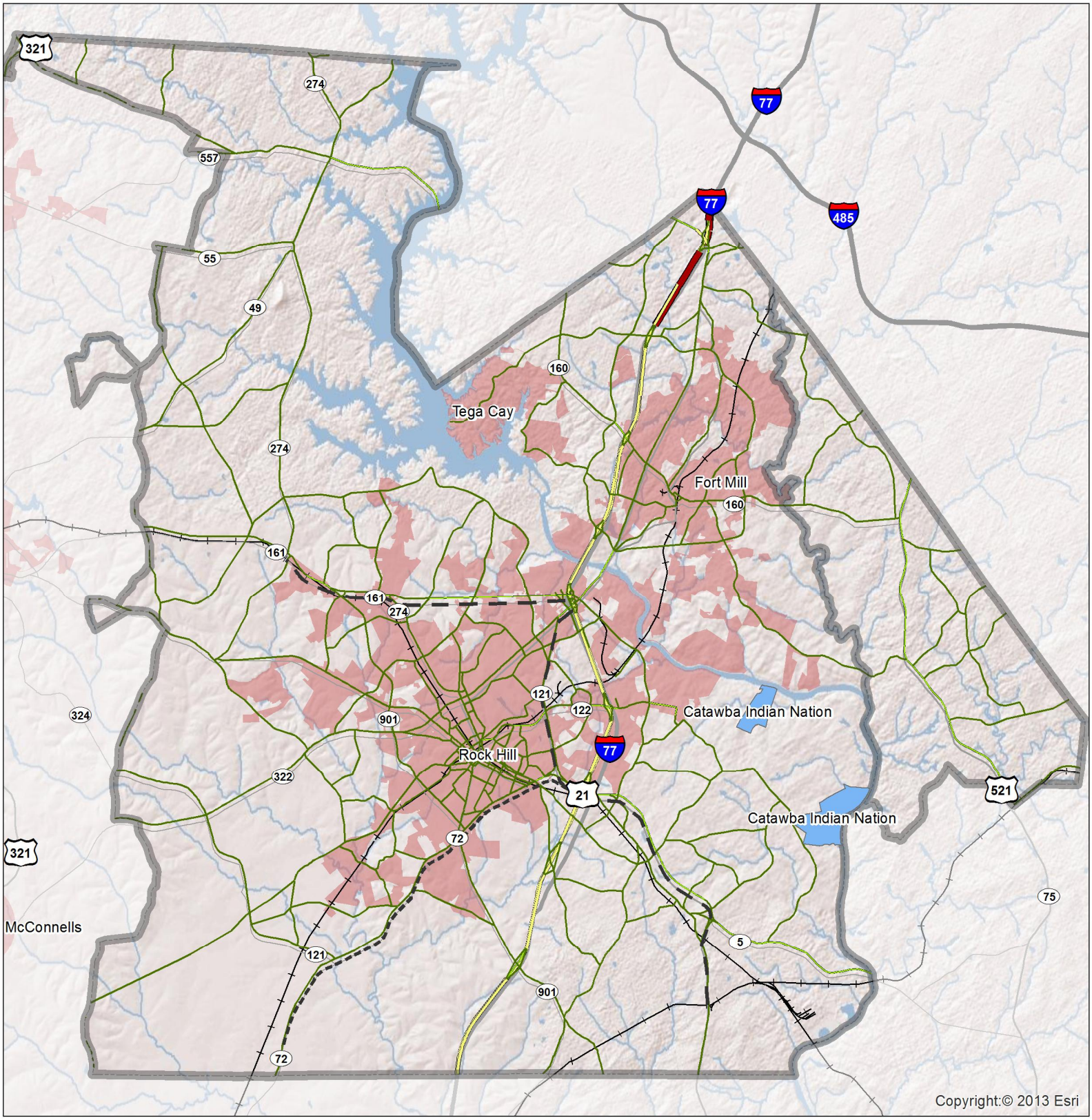


RFATS Strategic Highway Freight Corridors

- Low Country - York Corridor
- Olde English - Olde 96 Corridor
- Railroad
- Airport
- RFATS Boundary
- Catawba Indian Reservation
- Municipal Boundary

N W E S

0 3 6 Miles



Highway Freight Traffic Volumes

2013 Daily Truck Volumes
- Less than 1,000
- Between 1,000 and 2,000
- Between 2,000 and 4,000
- More than 4,000

- Low Country - York Corridor
- Olde English - Olde 96 Corridor
- RFATS Boundary

0 3 6 Miles

N W E S

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.

Nationwide forecasts suggest that long-term economic growth will create demand for substantial additional capacity on the main rail corridors – and that the railroad industry will 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 partnerships 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. Not only does it free up capacity on the highways, but it reduces impacts to the roadway surface itself - thereby extending its service life.

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.

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.

Conditions and Trends in the RFATS Study Area

Figure 7.3 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 (L & C) 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).

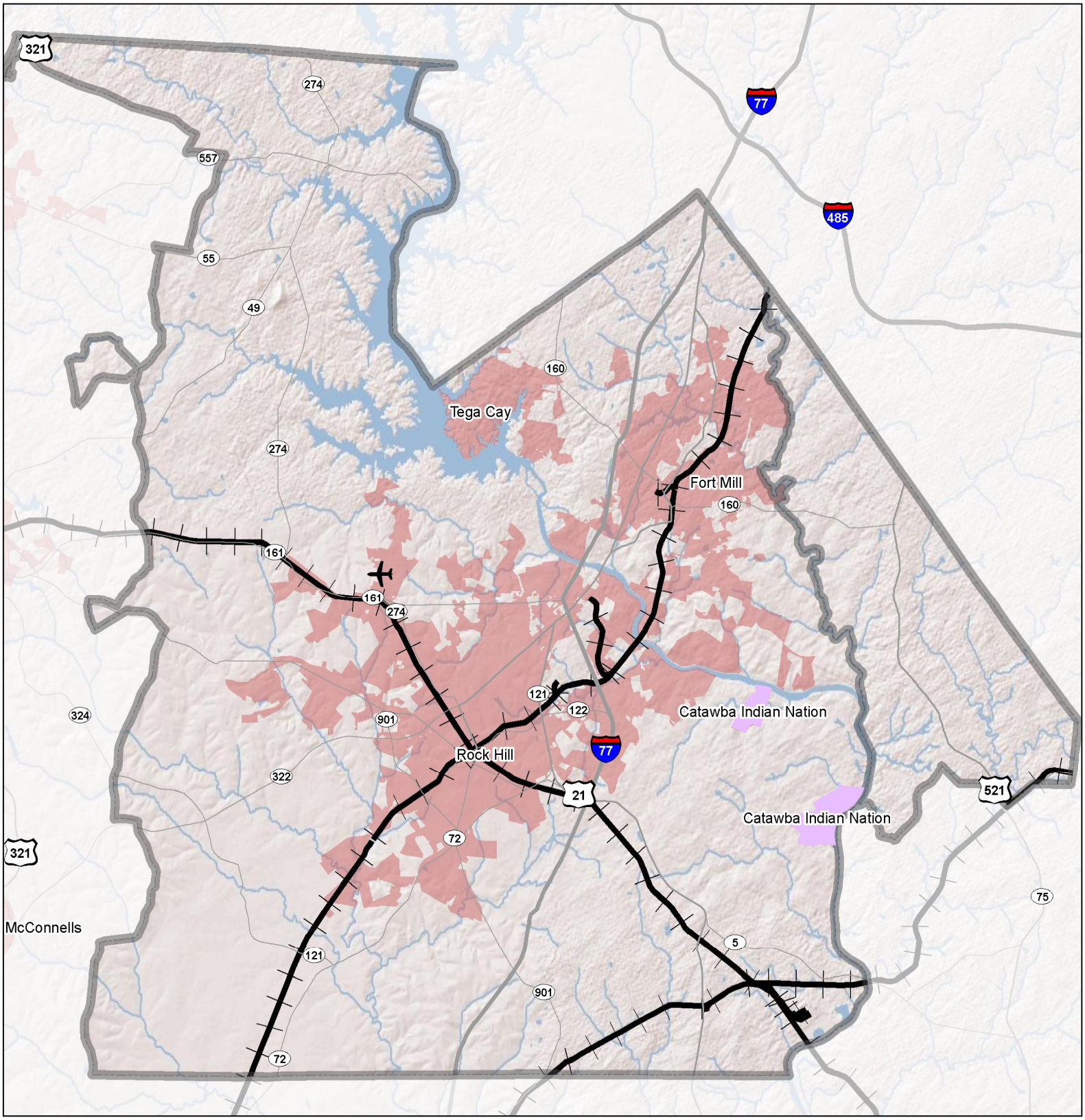
The two major corridor proposals described above, if successful, may increase the amount of truck traffic on I-77 to/from the major intermodal terminals in Charlotte.

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 region 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. 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.

RFATS has funded a project to work with Norfolk Southern to remove a select group of at-grade crossings within downtown Rock Hill. The project also involves adding capacity to the railroad yard, so that trains will not block important downtown intersections. Funding for this project came from the Congestion Mitigation and Air Quality Management (CMAQ) program.



Railroads in the RFATS Study Area

Railroad
Airport
RFATS Boundary
Catawba Indian Reservation
Municipal Boundary

N
W
E
S

Miles
0
3
6

Stakeholder Input

During the update to the LRTP, staff undertook specific efforts to identify and secure feedback from area freight and rail providers. In addition to the comprehensive stakeholder mailing that occurred on February 6, 2008, that included the Norfolk Southern Railway Company, South Carolina Trucking Association as well as SCDOT's Rail Planner – staff continued these outreach efforts this update cycle as an active participant in a broader regional effort in 2012 on freight mobility challenges and needs.

With this in mind, staff coordinated with the Centralina and Catawba Councils of Government, area Metropolitan and Regional Planning Organizations, NC / SC Trucking Associations, NCDOT & SCDOT; and most importantly, with a broad group of freight and rail representatives within the greater Charlotte region.

As with the input provided during the 2008-09 LRTP update – commonly identified themes from these planning / outreach efforts included the following:

- Interstate congestion
- Intersection specific recommendations (such as expanding turning lane capacity, road widening's, etc.)
- Preferred routes for truck traffic
- Identification of any structural impediments and/or barriers
- Importance of achieving an integrated, regionally focused approach
- Improved linkages and movement time to intermodal facilities

Staff then assembled all of this 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 project list approved at the March 22, 2013 Policy Committee meeting.

Summary and Recommendations

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 are important to the study area.
- Highway freight will be impacted by increased congestion along primary routes towards Charlotte.
- Rail freight in the RFATS Study Area is projected to increase at a slow, but steady rate and primarily serve local freight customers.
- It remains unclear what the impacts of improvements outside the RFATS study will have on freight movements.

Recommendations

- RFATS should consider undertaking a comprehensive Freight Study that considers the needs of freight shippers and receivers, as well as how the RFATS Study Area may benefit from Charlotte's existing and planned intermodal facilities. The study should also consider the congestion impacts of freight. The study should address the issues identified by stakeholders during outreach that occurred in 2012 and investigate alternate funding options, including public-private partnerships.
- RFATS should review existing policies and practices on the preservation of rail-served industrial sites and preservation of industrial railroad corridors.