CAMBRIDGE SYSTEMATICS

Augusta Regional Transportation Study

Freight Plan

final

report

prepared by

Cambridge Systematics, Inc.

with

EDAW/AECOM
MPH & Associates

July 22, 2009

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Freight Plan

prepared for

Augusta-Richmond County Planning Commission
Aiken County Planning and Development Department

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1.0 Introduction

This report covers three primary topics in the Augusta region:

1. Freight needs and deficiencies;
2. Freight project identification; and
3. Freight project prioritization.

This report is structured to cover each of these topics in a separate section and it concludes with a section on integrating the freight plan into the Augusta Regional Transportation System. This report is the second of two documents that comprise the Augusta-Richmond County Freight Plan. The first document was the Augusta Regional Transportation Study Freight Plan – Regional Freight Profile. The regional freight profile summarized available data on goods movement activity in the region, including freight flows by commodity and mode, truck safety, and air cargo activity.

2.0 Freight Needs and Deficiencies

This section describes needs and deficiencies as they relate to freight transportation in the Augusta region. These needs and deficiencies reflect those that directly impact freight-related companies. Additionally, the needs and deficiencies reflect the impact that freight-related activity is having on other users of the transportation system such as passenger cars, railroads, and the neighborhoods that are nearby to freight-related activities. The needs and deficiencies in the Augusta region were compiled based on information from three primary sources:

1. The Augusta Regional Transportation Study Freight Plan – Regional Freight Profile;
2. Surveys of freight stakeholders in the Augusta region; and
3. Information collected at public meetings and project advisory meetings for this study.

Based on these three sources, the Augusta Regional Transportation Study Freight Plan needs and deficiencies were grouped into five general categories:

1. Rail as a "friendly neighbor";
2. Inefficiencies experienced at at-grade rail crossings;
3. Truck safety;
4. Need for an efficient truck route network; and
5. Limited air cargo options.

Each of these categories is addressed separately in the following sections. Each section describes the nature of the freight need and deficiency, the source for identifying the freight need and deficiency, and in certain cases begins a discussion of potential freight projects to address the freight need. Section 3.0 of this report will comprehensively identify freight-related projects for the region.

2.1 Rail as a "Friendly Neighbor"

The Augusta region is crisscrossed by numerous rail lines which provide the local economy a cost-effective method to ship goods in and out of the region. Several of the rail lines overlap with or are located in close proximity to local roads, neighborhoods, retail outlets, and tourist locations. Over the years, many of the transportation planning public outreach efforts have received comments from the general public that rail activity has a detrimental impact on their quality of life. The negative impacts include delays for autos and trucks at at-grade rail crossings, train noise throughout the day and night disturbing residents, and vibration from passing trains rattling houses and damaging homes and

furnishings. There are a series of Federal regulations that govern the operations of railroads. These regulations are designed to maximize safety for the railroads and minimize the disturbance to other nearby land uses and activities. This information can potentially be disseminated throughout the Augusta region to assist neighborhoods that are interested in the establishment of local quiet zones. The feasibility of quiet zones for the Augusta region has been studied in previous projects and it was determined that they are not feasible at this time. However, it would be worthwhile to make this information available to the general public to answer their questions regarding the establishment of quiet zones in local neighborhoods. A description of the quiet zone regulations is provided in Appendix A.

2.2 AT-GRADE RAIL CROSSINGS

The Augusta Regional Transportation Study Freight Plan – Regional Freight Profile (referred to as the regional freight profile) identified 216 at-grade railroad crossings in the Augusta region. While most of these crossings are at low auto volume and low truck volume locations, there remain several of the at-grade crossings that are located in the downtown area and other high-volume locations. Substantial delays are experienced by auto and truck drivers at these at-grade crossings, when they are in use by trains. These delays were cited at the public meetings for this study and in the survey of freight stakeholders conducted for this study. The delays are also evident based on the location of railroad crossings relative to locations with high auto and truck counts. Members of the general public also cited potential car damage at poorly paved or poorly maintained crossing locations to be a significant deficiency in the region. This section identifies the at-grade rail crossings that are likely to cause the most delay based on the number of trains, the number of autos, and the number of trucks. This section also provides information on the condition of some of the at-grade railroad crossings in the region that were found to have particularly high levels of vehicular or rail traffic. This information was based on observations of a licensed professional engineer with significant rail engineering experience.

The FRA maintains an inventory of highway-rail crossings for the entire country. The inventory includes information on the number of trains, trucks, and autos that utilize each intersection. The amount of delay at each crossing is a function of each of these factors. Therefore, to identify the most problematic crossings in terms of delay, the FRA database was used as a source of information. Tables 2.1 and 2.2 were extracted from the regional freight profile (excluding crossings with no trains per day) and show the volume information at the most heavily used crossing locations. The daily vehicle and truck volumes are based on AADT provided in the most recently available Federal Railroad Administration Railroad Crossing Database factored up from the year of data collection to 2006 using truck growth rates established in the ARTS Regional Freight Profile. The FRA collects auto and truck volumes at each grade crossing in different years and sometimes the number of years between vehicle volume counts can be

extensive. The rail crossings shown in Table 2.1 can be considered as the most problematic for the Augusta region and prime candidates for consideration of grade separation projects.

Table 2.2 shows a list of at-grade crossings with the highest number of trucks. This was also extracted from the regional freight profile and excludes crossings with no trains. Field observations were conducted at the highlighted locations in this list to determine whether or not there were any engineering or geometric design deficiencies that might be impeding the movement of goods or people. The field observation revealed that many of the locations could benefit from improved traffic safety devices. However, the potential for additional at-grade separation projects in the region was much more limited. A detailed list of these observations is included as Appendix B in this report. Future tasks will describe potential improvements in much more detail.

Table 2.1 High-Volume At-Grade Railroad Crossings

Street Road	Cross Street or Nearest Location	Type Warning	Daily Trains	Estimated Daily Vehicles (2006)	Reporting Railroad	Estimated Truck Percent	Estimated Daily Trucks (2006)	Original AADT Year
15th Street Ramp A	Augusta Levee Road	Gates	6	**28,000**	CSX	6	1,680	1989
U.S. 25/SR 121	Pendleton Road	Gates	2	**23,200**	NS	–	–	1994
Broad Street	15th Street	Gates	18	**22,829**	CSX	11	2,511	1988
Laney Walker Boulevard	Hickory Street	Crossbucks	12	**17,400**	NS	7	1,218	1997
15th Street Ramp	Poplar Street	Flashing Lights	15	**16,513**	CSX	2	330	1988
Walton Way	12th Street	Gates	15	**16,012**	CSX	3	480	1986
Doug Barnard	Newsprint Road	Crossbucks	2	**16,000**	NS	15	2,400	1996
15th Street	Greene Street	Gates	17	**15,536**	CSX	12	1,864	1986
Old Savannah Road	Lumpkin Road	Gates	2	**14,553**	NS	5	728	1975
Laney Walker Boulevard	New Savannah Road	Flashing Lights	6	**13,096**	CSX	8	1,048	1986
Rutland Drive	North Boulevard	Flashing Lights	4	**16,145**	NS	10	1,615	2006
Pleasant Home Road	Riverwatch Parkway	Gates	15	**13,700**	CSX	3	411	1996

Source: Federal Railroad Administration, Office of Safety Analysis.

Table 2.2 High Truck Volume At-Grade Railroad Crossings

Street Road	Cross Street or Nearest Location	Type Warning	Daily Trains	Estimated Daily Vehicles (2006)	Reporting Railroad	Estimated Truck Percent	Estimated Daily Trucks (2006)	Original AADT Year
Broad Street	15th Street	Gates	18	22,829	CSX	11	**2,511**	1988
Doug Barnard	Newsprint Road	Crossbucks	2	16,000	NS	15	**2,400**	1996
Williamsburg	Staubes Lane	Crossbucks	2	2,200	NS	90	**1,980**	1988
15th Street	Greene Street	Gates	17	15,536	CSX	12	**1,864**	1986
15th Street Ramp	Augusta Levee Road	Gates	6	28,000	CSX	6	**1,680**	1989
Rutland Drive	Northland Boulevard	Flashing Lights	4	16,145	NS	10	**1,615**	2006
York Street	Kershaw Street NE	Flashing Lights	4	10,650	NS	15	**1,598**	2006
Williamsburg	Staubes Lane	Crossbucks	2	1,850	NS	85	**1,573**	1989
Laney Walker Boulevard	Hickory Street	Crossbucks	12	17,400	NS	7	**1,218**	1997
Laney Walker Boulevard	New Savannah Road	Flashing Lights	6	13,096	CSX	8	**1,048**	1986
13th Street	Walker Street	Gates	17	11,528	CSX	9	**1,038**	1986
Richland Avenue	Union Street	Flashing Lights	4	5,485	NS	18	**987**	2006
Park Avenue	Union Street	Crossbucks	2	4,900	NS	20	**980**	1989
Richland Avenue	Union Street	Flashing Lights	4	5,175	NS	18	**932**	2006
Laney Walker Boulevard	Anthem Road	Flashing Lights	26	9,700	CSX	8	**776**	2001
Gordon Highway	Highland Ave	Flashing Lights	5	36,692	NS	2	**734**	1988
SC 191	Walton Street	Flashing Lights	4	6,000	NS	12	**720**	1988
State Highway 56	Broome Road	Gates	6	6,755	NS	10	**676**	1979
Hampton Avenue	Union Street	Flashing Lights	4	6,100	NS	10	**610**	2006

Street Road	Cross Street or Nearest Location	Type Warning	Daily Trains	Estimated Daily Vehicles (2006)	Reporting Railroad	Estimated Truck Percent	Estimated Daily Trucks (2006)	Original AADT Year
Ascauga Lake Road	Aiken Street	Flashing Lights	11	6,000	NS	10	**600**	2006
Main Street	Augusta Aiken Road	Flashing Lights	4	6,625	NS	9	**596**	2006
Main Street	Augusta Aiken Road	Gates	12	6,625	NS	8	**530**	2006

Source: Federal Railroad Administration, Office of Safety Analysis.

2.3 TRUCK SAFETY

Truck safety is a particular concern in any region with high levels of truck and auto activity. Particularly, the mixing of truck and auto traffic has unique safety characteristics which must be considered. The Georgia DOT Truck-Only Lane Needs Identification Study analyzed truck-involved and auto-only crashes around the State and determined that vehicle classes have virtually identical accident rates. However, truck-involved accidents are three times more likely to involve a fatality than auto-only accidents.

To identify the locations with the greatest number of truck-involved accidents, the Georgia Statewide Crash Database was analyzed for the years between 2000 and 2005. For this six-year time period, there were 2,701 commercial vehicle involved crashes in Richmond and Columbia Counties. In the Augusta region, detailed data on truck-involved crashes was only available in the Georgia portion of the Augusta Regional Transportation Study area. The first step of this analysis was to determine the routes with the highest number of truck-involved crashes in Richmond and Columbia Counties. These routes are shown in Table 2.3. The next step was to identify the point on each of these routes that had the highest number of crashes. These locations are shown in Table 2.4.

Similar to the process used for at-grade railroad crossings, a licensed engineer was sent to each of the high truck-involved accident locations to determine the existence of any deficiencies in roadway geometries, pavement condition, sight distances, signage, or other factors that would potentially increase the number of truck-involved accidents at this location. Generally, it was found that each of these intersections had multiple geometric issues. A detailed list of these observations is included as Appendix B in a separate report. Future tasks will describe potential improvements at each of these locations in much more detail.

Table 2.3 High Truck-Involved Accident Routes in Richmond and Columbia Counties
2000-2005

Route	Number of Accidents	Percentage of Total Accidents in Two Counties
I-20	523	19.4%
I-520	229	8.5%
SR 56 (Mike Padgett Highway)	258	9.6%
U.S. 1 (Gordon Highway)	179	6.6%
SR 4 (Dean's Bridge Road[a])	171	6.3%

[a] Dean's Bridge Road carries both U.S. 1 and SR 4 from the Jefferson County line to the Gordon Highway intersection.

Table 2.4 High Truck-Involved Locations in Richmond and Columbia Counties
2000-2005

Route	Nearby Interchange Location or Intersection
I-20	MP 1.5 – Near Riverwatch Parkway Interchange (close to Pilot Travel Center Interchange)
I-20	MP 4 – Near I-20/I-520 Interchange
I-20	MP 5.3 – Near the Wheeler Road Interchange
I-20	MP 11.4 – Near the Lewiston Road (SR 288) Interchange
I-520	MP 1.5 – Near Wheeler Road Interchange
I-520	MP 4 – Near Gordon Highway
I-520	MP 5.5 – Near Dean's Bridge Road (U.S. 1) Interchange
SR 56	Dixon Airline Road
SR 56	Marvin Griffin Road
SR 56	Apple Valle Drive
SR 56	Old Waynesboro Road
SR 56	Loop – Doug Barnard Parkway
U.S. 1	SR 56
U.S. 1	Old McDuffie Road
U.S. 1	Dan Bowles Road
GA 4	Morgan Road
GA 4	Meadowbrook Drive
GA 4	Georgetown Drive
GA 4	Walton Way

2.4 NEED FOR EFFICIENT TRUCK ROUTES

The need for an efficient truck route network can be considered in two components. First, there is the need for improved intercity connectors. Secondarily, there is a need to designate select roadways within the Augusta region as being truck-friendly and to instruct truck operators to utilize these roadways as their primary routes.

2.4.1 Need for Improved Intercity Connectors

Interstate 20 provides the Augusta region with good access to both Atlanta and Columbia. However, there is no Interstate access that connects Augusta with Macon, Georgia; Savannah, Georgia; Charleston, South Carolina, or Greenville, South Carolina. This lack of connectivity was also mentioned by freight stakeholders in response to the survey that was conducted as part of the Augusta Regional Transportation Study Freight Plan – Regional Freight Profile. Tables 2.5 and 2.6 show the amount of truck tonnage between Augusta and several other metropolitan regions based on 2006 Global Insight TRANSEARCH data. The Macon metropolitan region is the second largest trading partner of Augusta originating 16 percent of the goods that are destined for Macon. Macon also is the destination for 6 percent of the goods that originate in Augusta. The importance of the Augusta-Macon freight corridor has also been highlighted in the recent Investing in Tomorrow's Transportation Today (IT3) report and presented by the Georgia Department of Transportation at the Joint Board Meeting in January 2009. Figure 2.1 shows the Augusta-Macon freight corridor as one of the three truck hubs in the State.

Table 2.7 highlights the need for improved intercity connectors by estimating the travel time that would be reduced by having interstates directly from Augusta to the four nearest metropolitan areas that are not currently connected by Interstate. The travel time reductions are between 36 minutes and 47 minutes assuming that average speeds of 60 miles per hour are achieved on straight-line interstates between Augusta and these other cities. Notably, the travel time savings between Augusta and Macon is the highest at 47 minutes. The high volume of truck tons moved between Augusta and Macon combined with the highest amount of travel time savings result in the Augusta-Macon corridor being the best candidate for a new Interstate related to the Augusta region.

Table 2.5 2006 Origins of Truck Freight with Destinations in Augusta Region

Origin	Tons	Percent
Jefferson County, Georgia	2,914,828	17%
Macon, Georgia	2,657,400	16%
Atlanta, Georgia	2,189,076	13%
Columbia, South Carolina	1,323,099	8%
Jacksonville, Florida	933,420	6%
Savannah, Georgia	536,311	3%
Greenville, South Carolina	563,803	3%
Rest of Georgia	710,567	4%
Rest of South Carolina	632,785	4%
Rest of Florida	369,188	2%
Rest of the United States	3,829,044	23%
Total	**16,659,522**	**100%**

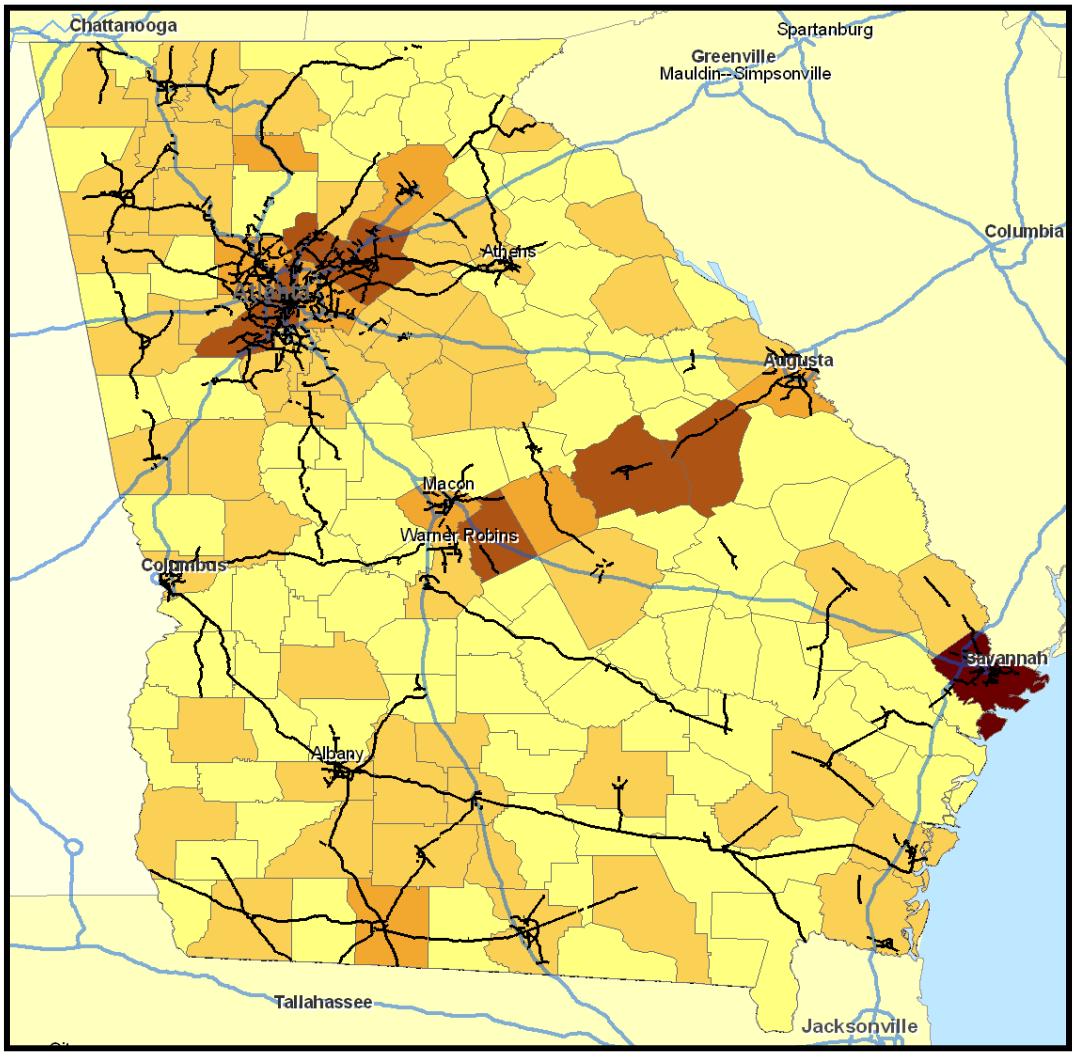
Source: 2006 TRANSEARCH.

Table 2.6 2006 Destinations of Truck Freight with Origins in Augusta

Destination	Tons	Percent
Atlanta, Georgia	2,282,139	17%
Greenville, South Carolina	929,458	7%
Macon, Georgia	859,647	6%
Savannah, Georgia	780,594	6%
Charlotte, North Carolina	731,964	5%
Columbia, South Carolina	598,888	4%
Rest of South Carolina	377,223	3%
Rest of Georgia	910,982	7%
Rest of North Carolina	843,700	6%
Rest of the United States	5,166,616	38%
Total	**13,481,211**	**100%**

Source: 2006 TRANSEARCH.

Figure 2.1 Major Truck Hubs in Georgia (Preliminary)



Legend

4-Lane Roads

Freeway System (State)

Total Tonnage 2004

< 1,000,000

1,000,001 - 5,000,000

5,000,001 - 10,000,000

10,000,001 - 20,000,000

20,000,001 - 25,953,293

Source: IT3 Presentation at Joint Board Meeting, January 7, 2009.

Table 2.7 Travel Time Reductions to Major Metropolitan Regions under Interstate Conditions

Origin	Total Tons to and From Augusta (TRANSEARCH)	Current Approximate Driving Time[a] (No Congestion)	Approximate Straight-Line Drive Time at 60 mph	Approximate Time Saved per Trip with Straight-Line Interstate
Macon, Georgia	3,517,047	162 minutes	115 minutes	47 minutes
Greenville, South Carolina	1,493,261	146 minutes	110 minutes	36 minutes
Savannah, Georgia	1,316,905	163 minutes	120 minutes	43 minutes
Charleston, South Carolina	1,237,673	167 minutes	130 minutes	37 minutes

[a] Based on Google Maps.

2.4.2 Need for a Regional Truck Route Network

There are several benefits of developing a truck route network in the Augusta metropolitan region. The most basic benefit is that it will provide truck drivers with information to improve their routing decisions for moving goods in, around, and through the Augusta region. The truck route network can also reduce the amount of truck-auto and truck-rail interaction in the region. This will in turn reduce the amount of truck-related accidents and particularly it will reduce truck-auto accidents which are much more severe in terms of bodily harm and property damage. Additionally, the truck route network will provide the ARTS MPO with a set of roadways which can be targeted for freight-focused improvements for projects considered in future long-range transportation plans. The truck route network will also preserve other roadways for nontruck-intensive activities. These can include bicycle lanes, pedestrian-friendly corridors along with cultural and historical resource preservation.

The initial truck route network for the Augusta region was developed by identifying the preferred roadways that are currently utilized by trucks and the critical roadways that connect with key freight facilities. Information from earlier tasks was used to identify the preferred roadways of trucks. The regional freight profile identified all of the available truck counts in the region. All of the high truck volume roadways are included in the initial truck route network. For purposes of this analysis, roadways with truck volumes greater than 1,000 per day are included in the initial truck route network. These roadways are shown in Table 2.8. Additionally, the regional freight profile included a survey of freight-related firms which included a question regarding which roadways are most often used by trucks for each firm. There were 26 completed truck surveys. Roadways that were cited by three or more respondents will be included in the initial truck route network and are shown in Table 2.9. Additionally, roadways that connect to major freight facilities as described in the modal profile section of the regional freight profile will also be included in the initial truck route

network. The truck route network defined by these three criteria will be referred to as the initial truck route network.

As shown in Figure 2.2, the initial truck route network is extensive. It includes coverage of each of the major roadways in the region. While, this would be ideal for streamlining truck movement throughout the region, it does not provide focus for freight-related transportation improvements. Additionally, the truck route network conflicts with several other key features of the region. For example, the bike/pedestrian routes in the region are also extensive and overlap with the initial truck route network. This conflict is shown in Figure 2.3. Additionally, the truck route network intersects with several at-grade railroad crossings which could cause delays for trucks and increase the number of accidents in the region. This overlap is shown in Figure 2.4. The initial truck route network also overlaps with several of the congested locations that were identified in the regional freight profile as shown in Figure 2.5. There is also overlap between the initial truck route network and several high-crash locations as shown in Figure 2.6. In the next task, we will look closely at each of these potential conflicts and identify the truck route network which minimizes the conflicts and provides a high level of service for trucks.

Table 2.8 2006 ATR and Rail Crossing Truck Volumes
1,000+ Daily Trucks

Location	Cross Street or Nearest Location	State	Data Source	AADT Two-Way	Truck Percent	Truck AADT Two-Way
I-20	SC 39	SC	SCDOT	27,600	31.9%	8,815
I-20	GA/SC Border	SC	GDOT	50,300	17.4%	8,762
I-20	U.S. 1	SC	GDOT	28,300	30.8%	8,705
I-20	SC 19	SC	SCDOT	28,000	29.6%	8,274
I-20	U.S. 25	SC	GDOT	30,200	24.4%	7,369
I-20	Savannah River Bridge	GA	GDOT	52,490	13.8%	7,244
I-20	SC 19	SC	SCDOT	27,100	25.5%	6,902
Broad Street	15th Street	GA	FRA	44,773	11.0%	4,925
I-520	SR 56 Spur	GA	GDOT	67,750	7.2%	4,878
Williamsburg	Staubes Lane	SC	FRA	4,316	90.0%	3,884
15th Street	Greene Street	GA	FRA	32,125	12.0%	3,855
Doug Barnard Parkway	Newsprint Road	GA	FRA	16,000	15.0%	2,400
Walton Way	12th Street	GA	FRA	40,338	8.0%	3,227
Edgefield Road	Edgefield County Line	SC	SCDOT	25,300	12.7%	3,208
15th Street Ramp A	Augusta Levee Road	GA	FRA	53,433	6.0%	3,206

Location	Cross Street or Nearest Location	State	Data Source	AADT Two-Way	Truck Percent	Truck AADT Two-Way
Williamsburg	Staubes Lane	SC	FRA	3,531	85.0%	3,001
13th Street	9th Avenue	GA	FRA	21,809	11.0%	2,399
Edgefield Road	SC 126	SC	SCDOT	29,000	7.8%	2,265
Laney Walker Boulevard	New Savannah Road	GA	FRA	27,100	8.0%	2,168
13th Street	Walker Street	GA	FRA	23,856	9.0%	2,147
SR 56	Lumpkin Road	GA	FRA	38,680	5.0%	1,934
Park Avenue	Union Street	GA	FRA	9,350	20.0%	1,870
Laney Walker Boulevard	Hickory Street	GA	FRA	25,771	7.0%	1,804
Old Savannah Road	Molly Pond Road	GA	FRA	21,850	8.0%	1,748
Georgia Avenue	SC 125	SC	SCDOT	27,100	6.2%	1,680
State Highway 56	Broome Road	GA	FRA	16,510	10.0%	1,651
Rutland Drive	Northern Boulevard	SC	FRA	16,150	10.0%	1,615
York Street	Kershaw Street NE	SC	FRA	10,653	15.0%	1,598
SC 191	Walton Street	SC	FRA	11,767	12.0%	1,412
Jefferson Davis Highway	Main Street	SC	GDOT	22,300	5.9%	1,318
Reynolds Street	6th Street	SC	FRA	25,260	5.0%	1,263
Reynolds Street	6th Street	SC	FRA	20,633	6.0%	1,238
South Belair Road	Highway Drive	GA	GDOT	29,070	3.9%	1,134
Old Ninety Six Indian Trail	I-20	SC	SCDOT	2,700	41.7%	1,127
Broad Street	6th Street	GA	FRA	18,733	6.0%	1,124

Source: Georgia Department of Transportation Office of Transportation Data, Federal Railroad Administration.

Table 2.9 Key Truck Roadways

Roadway	Survey Responses
I-20	19
I-520	8
Highway 25	6
Gordon Highway	5
Highway 1	5
Highway 56	5
Highway 26	4

Source: 2008 Survey of Augusta Trucking Firms.

Figure 2.2 Preliminary Truck Route Network

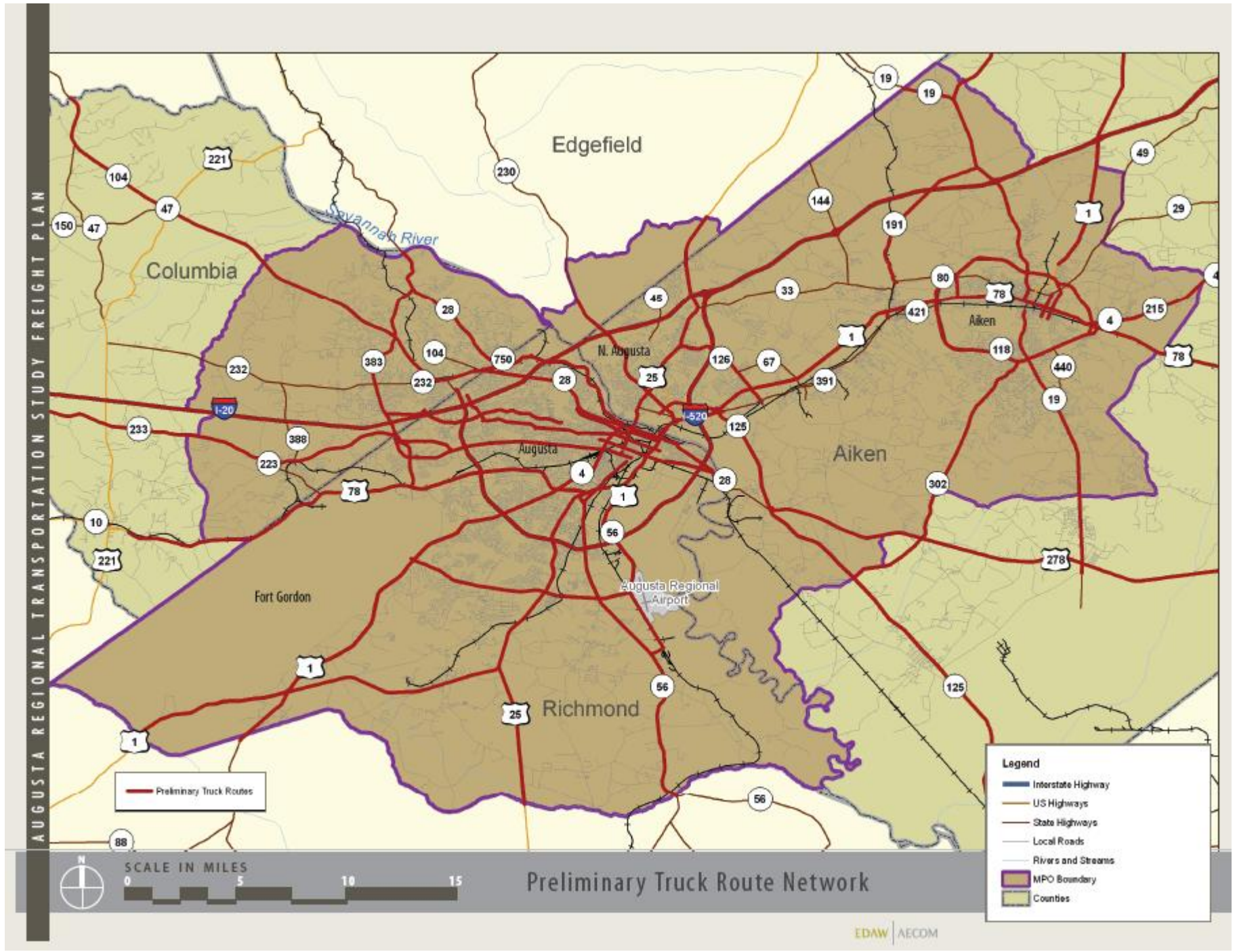


Figure 2.3 Preliminary Truck Route Network and Proposed Bike and Pedestrian Routes

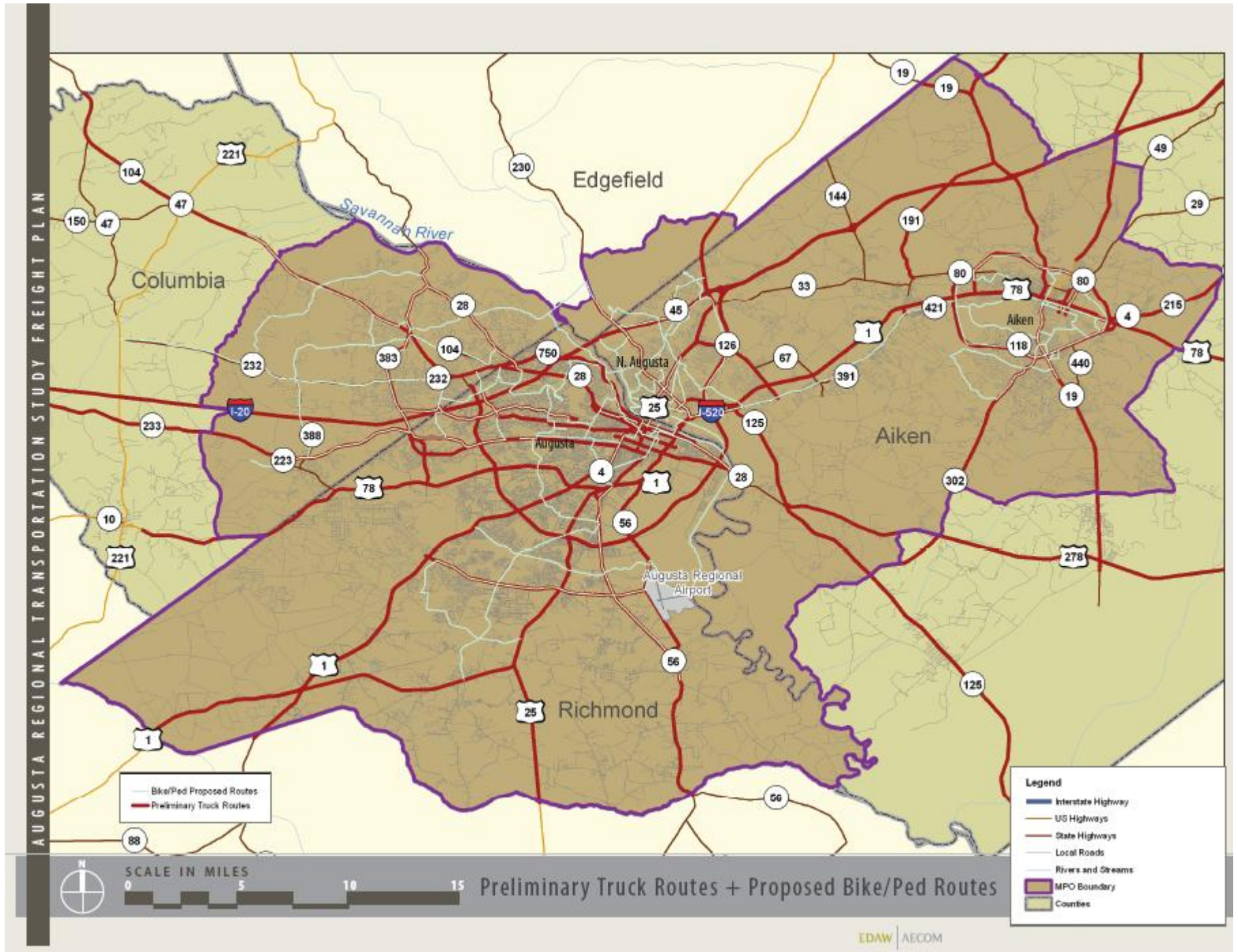


Figure 2.4 Preliminary Truck Route Network and Major At-Grade Railroad Crossings

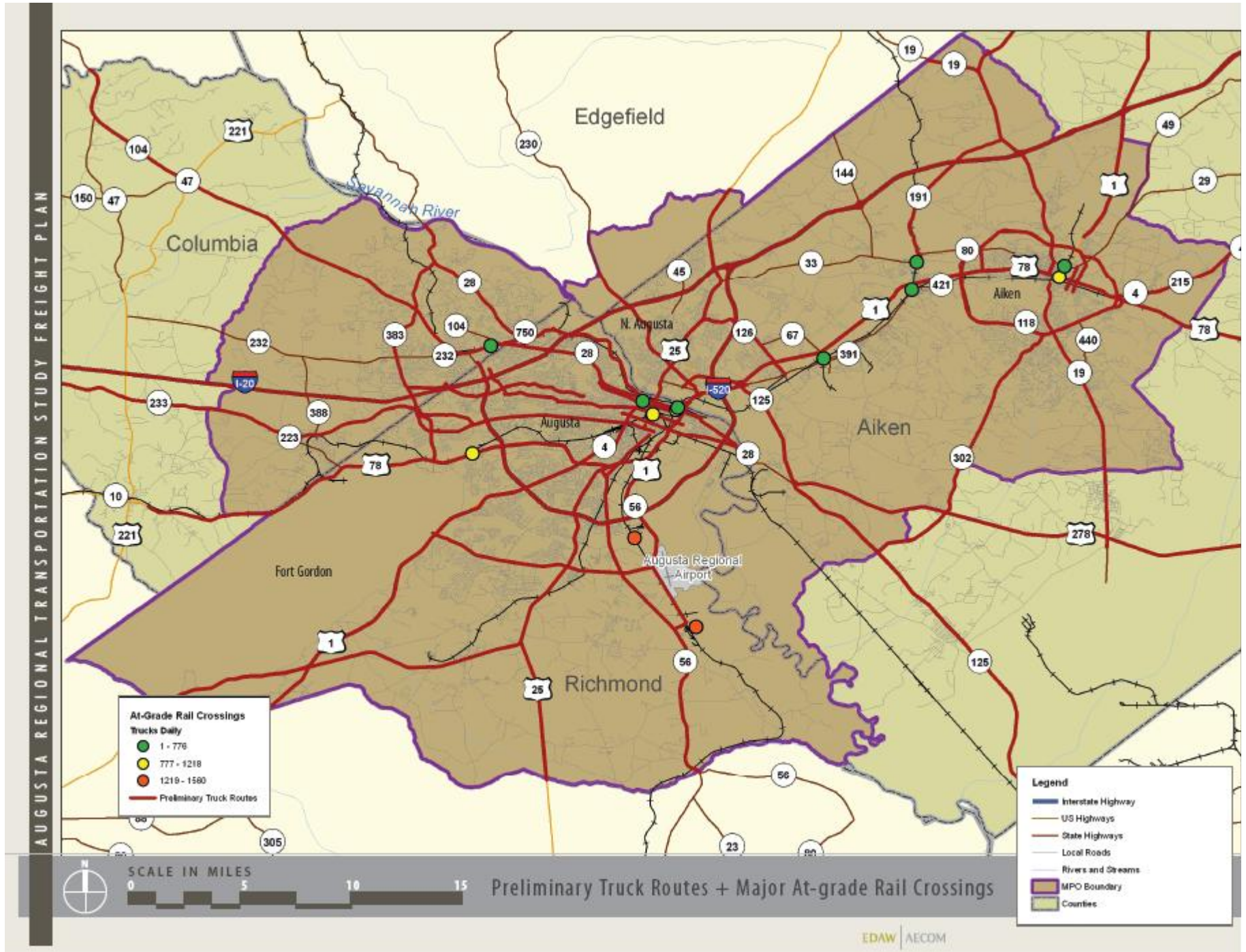


Figure 2.5 Preliminary Truck Route Network and Congested Locations

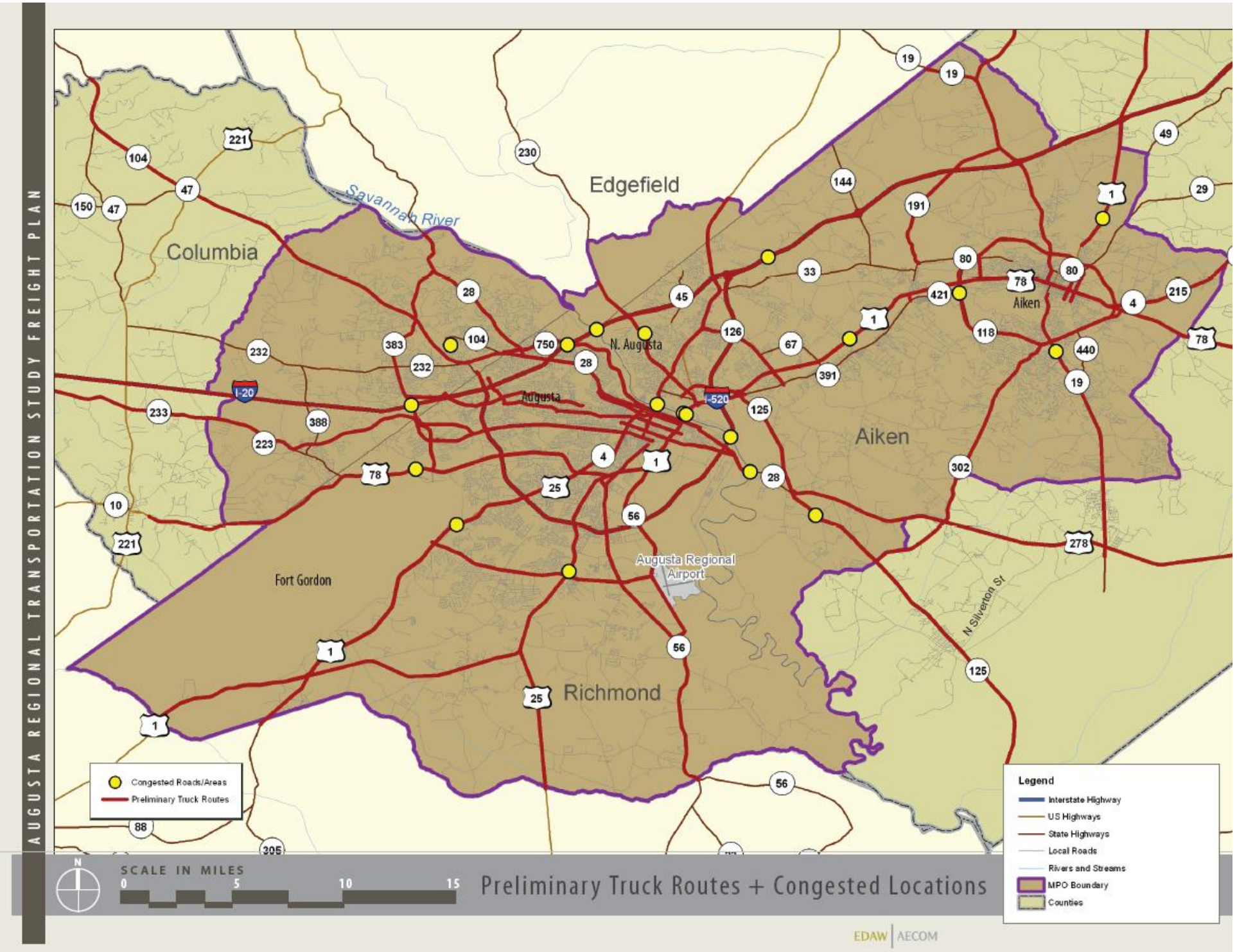
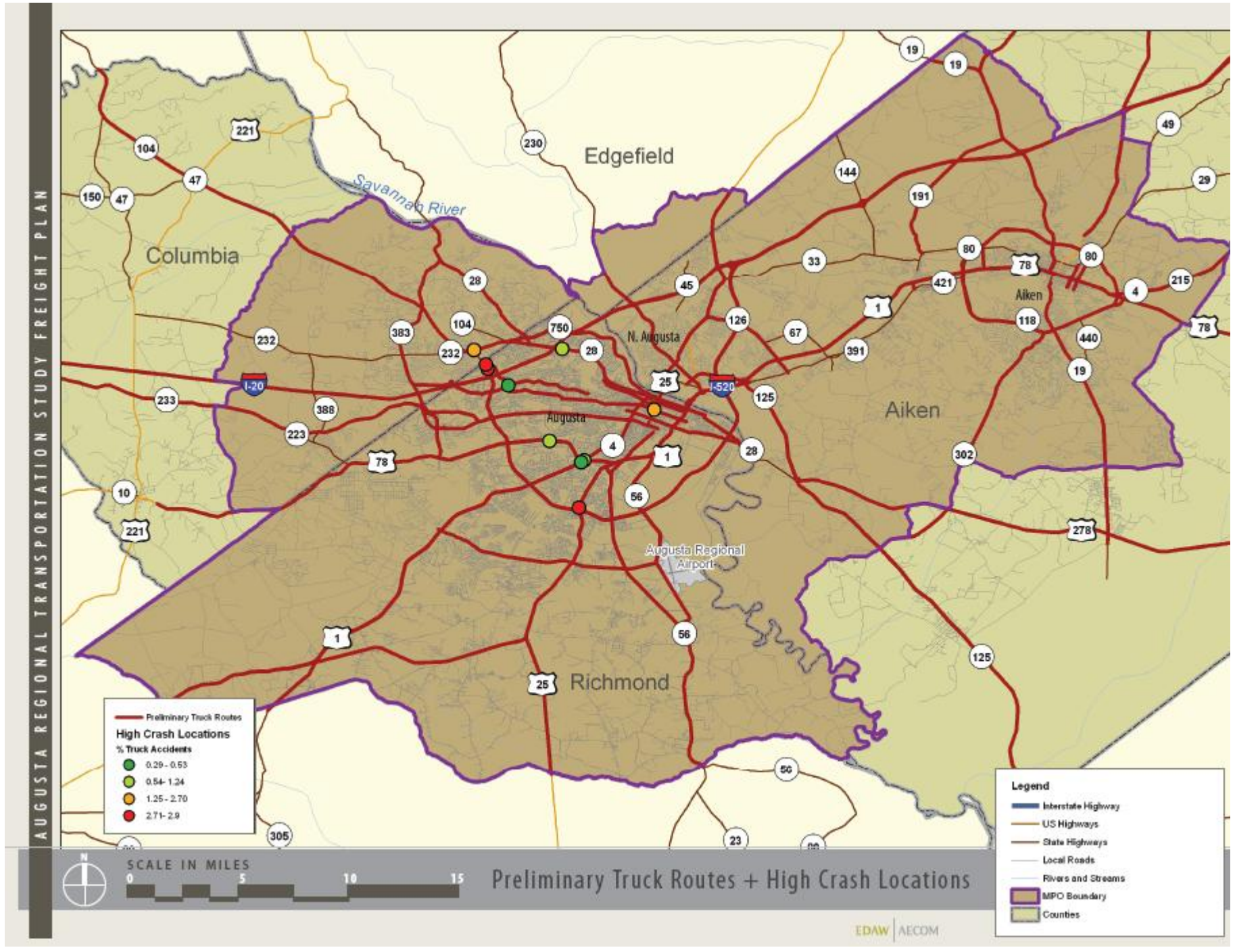


Figure 2.6 Preliminary Truck Route Network and High-Crash Locations



2.5 LIMITED AIR CARGO OPTIONS

The largest commercial airport in the Augusta region is the Augusta Regional Airport. There are 38 commercial passenger flights at the airport. Roughly half of these flights travel directly to Atlanta via Atlantic Southeast Airlines (a Delta Connection Carrier) and the other half go to Charlotte via U.S. Airways. According to flightaware.com, there are also 21 air taxi flights, 10 private flights local to Georgia, 34 transient Georgia flights, and 11 military flights at this airport. This volume of service does not provide a wide range of alternatives to ship air cargo out of the Augusta region. By comparison, the Hartsfield-Jackson Atlanta International Airport has over 2,500 flights per day. A large portion of air cargo flies in the belly of passenger planes. However, with the limited air passenger service in Augusta relative to Atlanta, air cargo needs in the Augusta region are satisfied primarily by trucking goods to the Atlanta airport and utilizing the Atlanta airport air cargo facilities rather than the utilizing the air cargo facilities at the Augusta Regional Airport.

3.0 Freight Project Identification

This section documents the process of identifying potential freight improvement projects in the Augusta region. The projects considered will include both projects to increase the efficiency of the movement of goods in the Augusta region and the safe interaction of freight modes with other transportation modes. The first step in this process was to review the projects that are already incorporated into the Augusta Regional Transportation Study (ARTS) Long-Range Transportation Plan (LRTP) and to describe the impacts of these projects on goods movement. The freight-related projects were identified in the Augusta Regional Transportation Study Freight Plan – Regional Freight Profile which occurred in Task 2 of this study. The impacts of the freight-related projects in ARTS will be compared with the freight needs and deficiencies identified. New freight-focused projects will be identified for each of the needs and deficiencies, but not already addressed in the projects included in the Augusta Regional Transportation System (ARTS). Supplemental freight-focused projects will also be identified that provide additional benefits to already identified projects.

3.1 FREIGHT-RELATED PROJECTS IN ARTS AND THE AUGUSTA REGIONAL AIRPORT MASTERPLAN

3.1.1 Highway Projects

The ARTS Long-Range Transportation Plan (LRTP) contains a list of 48 prioritized roadway projects. Twenty-six of the proposed LRTP projects are located on or near potential truck routes. The projects on potential truck routes are shown in Table 3.1. The I-20/I-520 interchange reconstruction project is currently underway. Proposed projects include the widening of Atomic Road from East Buena Vista Avenue to U.S. 1, and widening U.S. 78 from Robinson Avenue to Fort Gordon Gate 1. The projects to extend Georgia Avenue by constructing a new two-lane facility from Georgia Avenue to Riverside Boulevard and widen I-20 to six through lanes from SR 383 to Riverwatch Parkway are currently under construction. The I-20/I-520 interchange reconstruction project will significantly enhance safety and traffic flow related to goods movement in the Augusta region. It will also assist in reducing the interaction between trucks and passenger cars.

Table 3.1 Long-Range Transportation Plan Proposed and Under Construction Projects on Potential Truck Routes

State	Project Number	Type	Project Name	From	To	Description	Construction Year
SC	74		Georgia Avenue Extension[a]	Georgia Avenue	Riverside Boulevard	Construct a new 2-lane facility	2005
SC	68	LRTP	Whiskey Road-Silver Bluff Road Connector[a]	SR 19 (Whiskey Road)	SR 302 (Silver Bluff Road)	Construct a new 2-lane facility	2007
GA	6431	LRTP	SR 56[a]	Old Waynesboro Road	Bennock Mill Road	Widen to 4 through lanes	2007
GA	210450	Tier 1	I-20 at I-520 Interchange Reconstruction[a]	I-20	I-520	Reconstruct interchange and approaches	2008
SC	86		SR 302 (Silver Bluff Road) [a]	Indian Creek Trail	Richardson's Lake Road	Widen to 3 lanes (passing lanes where needed)	2008
SC	11	Tier 1	Atomic Road[a]	East Buena Vista Avenue	U.S. 1/78 (Jefferson Davis Highway)	Widen to 4 through lanes and 1 continuous center turn lane	2008
GA	210570	Tier 2	I-20[a]	SR 383 (Belair Road)	Riverwatch Parkway	Widen to 6 through lanes	2008
GA	4	New LRTP	I-520 Southbound	Wrightsboro Road	U.S. 78 (Gordon Highway)	Add auxiliary lane	2011
GA	3		U.S. 78/SR 10 (Gordon Highway)	Robinson Avenue	Fort Gordon Gate 1	Widen to 6 through lanes	2013
SC	69	LRTP	SC 19 (Edgefield Highway)	SC 118 (University Parkway)	I-20	Widen to 4 through lanes	2015
SC	Aiken 11	LRTP	Five Notch Road	Georgia Avenue	Walnut Lane	Widen to 4 through lanes	2015
GA	210700	Tier 2	I-520	U.S. 1/SR 4 (Deans Bridge Road)	U.S. 78/278 (Gordon Highway)	Widen	2015
GA	210327		I-20 Bridge shoulders at Savannah River	I-20	Savannah River	Widen bridge shoulders	2017
SC	7-11	New LRTP	U.S. 1 (Aiken-Augusta Highway)	Savannah River	I-520 (Palmetto Parkway)	Widen to 4 through lanes with continuous center turn lane	2017
SC	Aiken 07	LRTP	U.S. 78 (Charleston Highway)	Pine Log Road	Old Dibble Road	Widen to 4 through lanes	2020
SC	Aiken 08	LRTP	I-20	Savannah River	U.S. 25 (Edgefield Road)	Widen to 6 through lanes	2020

State	Project Number	Type	Project Name	From	To	Description	Construction Year
GA	7	New LRTP	U.S. 1 (Dean's Bridge Road)	Meadowbrook Dr	Tobacco Road	Widen to 6 through lanes	2020
SC	10	New LRTP	SR 118	North of Willow Run Road	North of Old Wagener Road	Widen to 4 through lanes	2021
GA	14	LRTP	SR 388 (Lewiston Road/Horizon South Parkway)	SR 232 (Columbia Road)	Wrightsboro Road	Widen to 4 through lanes	2021
GA	17	New LRTP	Stevens Creek Road	Evans To Locks Road	Claussen Road	Widen to 4 through lanes	2024
GA	13	New LRTP	SR 232 (Columbia Road)	Chamblin Road	Old Belair Road	Widen to 4 through lanes	2026
SC	2	New LRTP	I-20	U.S. 25/SR 121 (Edgefield Road)	Bettis Academy Road	Widen to 6 through lanes	2027
SC	15	New LRTP	SR 19 (Edgefield Highway)	I-20	SR 191 (Shiloah Church Road)	Widen to 4 through lanes	2028
SC	12	New LRTP	SR 118 (Hitchcock Parkway)	U.S. 1/78	SR 302 (Silver Bluff Road)	Widen to 4 through lanes	2030

Source: ARTS 2030 Long-Range Transportation Plan, September 2005; ARTS TIP, June 2007.

[a] Under Construction.

Table 3.2 Long-Range Transportation Plan Proposed Projects Impact on Freight

State	Project Number	Project Name	Description	Impact on Freight
GA	210450	I-20 at I-520 Interchange Reconstruction[a]	Reconstruct interchange and approaches.	Improve mobility at high truck count location. Improve mobility at high truck accident location.
SC	11	Atomic Road[a]	Widen to 4 through lanes and 1 continuous center turn lane.	Improve mobility at a medium truck count location.
SC	74	Georgia Avenue Extension[a]	Construct a new 2-lane facility.	Improve connectivity to high truck count location.
GA	210570	I-20[a]	Widen to 6 through lanes.	Improve mobility at high truck count location. Improve mobility at high truck accident location.
GA	210700	I-520	Widen.	Improve mobility at high truck count location. Improve mobility at high truck accident location.
GA	210327	I-20 Bridge shoulders at Savannah River	Widen bridge shoulders.	Improve mobility at high truck count location.
SC	68	Whiskey Road-Silver Bluff Road Connector[a]	Construct a new 2-lane facility.	Improve connectivity to a medium truck count location.
SC	86	SR 302 (Silver Bluff Road) [a]	Widen to 3 lanes (passing lanes where needed).	Improve mobility on a truck connectivity road.
SC	69	SC 19 (Edgefield Highway)	Widen to 4 through lanes.	Improve mobility at high truck count location.
SC	Aiken 11	Five Notch Road	Widen to 4 through lanes.	Improve mobility at medium truck count location.
SC	Aiken 07	U.S. 78 (Charleston Highway)	Widen to 4 through lanes.	Improve mobility at high truck count location.
SC	Aiken 08	I-20	Widen to 6 through lanes.	Improve mobility at a high truck count location. Improve mobility at high truck accident location.
GA	4	I-520 Southbound	Add auxiliary lane.	Improve mobility at high truck count location. Improve mobility at high truck accident location.
GA	6431	SR 56[a]	Widen to 4 through lanes.	Improve mobility at high truck count location.
GA	3	U.S. 78/SR 10 (Gordon Highway)	Widen to 6 through lanes.	Improve mobility on a truck connectivity road.
GA	7	U.S. 1 (Dean's Bridge Road)	Widen to 6 through lanes.	Improve mobility at medium truck count location.

State	Project Number	Project Name	Description	Impact on Freight
GA	13	SR 232 (Columbia Road)	Widen to 4 through lanes.	Improve mobility on a truck connectivity road.
GA	14	SR 388 (Lewiston Road/Horizon South Parkway)	Wrightsboro Road.	Improve mobility on a truck connectivity road.
GA	17	Stevens Creek Road	Widen to 4 through lanes.	Improve mobility on truck connectivity.
SC	10	SR 118 (Rudy Mason/Rutland)	Widen to 4 through lanes.	Improve mobility at high truck count location.
SC	2	I-20	Widen to 6 through lanes.	Improve mobility at high truck count location. Improve mobility at high truck accident location.
SC	15	SR 19 (Edgefield Highway)	Widen to 4 through lanes.	Improve mobility at high truck count location.
SC	12	SR 118 (Hitchcock Parkway)	Widen to 4 through lanes.	Improve mobility at high truck count location.
SC	7-11	U.S. 1 (Aiken-Augusta Highway, Jefferson Davis Highway/Gordon Highway)	Widen to 4 through lanes with continuous center turn lane.	Improve mobility at high truck count location.

[a] Under construction.

3.1.2 Rail Projects

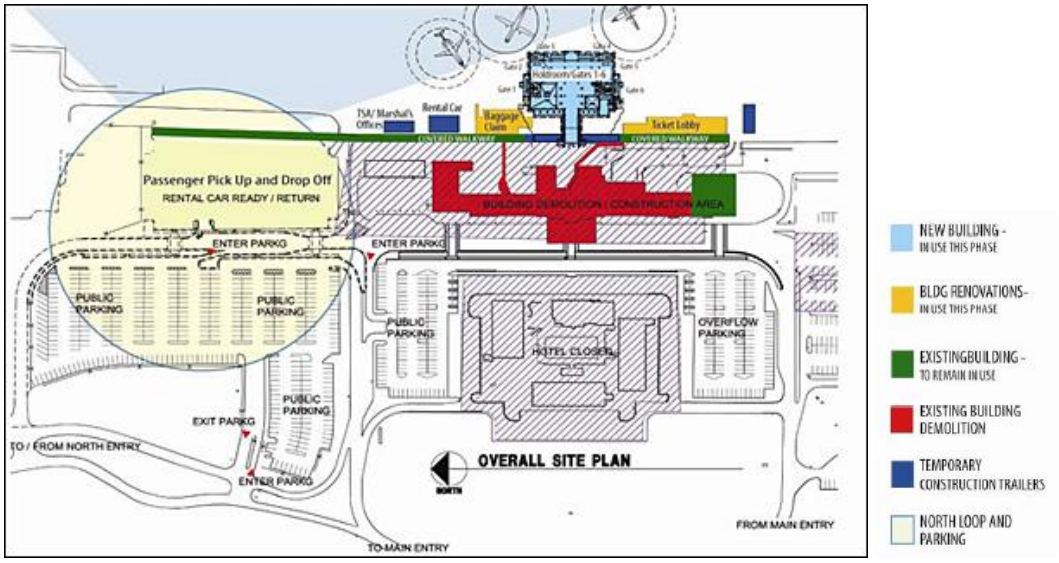
At-grade rail crossings were mentioned as a significant issue by both truck and auto drivers. The recently started St. Sebastian Parkway – Greene Street Extension Project in Augusta is one project that will increase the separation of road traffic from rail traffic. This project extends St. Sebastian Parkway from Walton Way by University Hospital to Reynolds Street. It also extends Greene Street and crosses over to River Watch Parkway. The project will provide faster access of emergency vehicles to the nearby hospital. It will also assist the general public, including commuters, by providing access to downtown that is not impeded by railroad delays. The ARTS TIP also includes annual funding for Railway-Highway Crossing Hazard Elimination projects. These projects fall under the safety category of lump sum funding through the Georgia DOT State Transportation Improvement Program.

3.1.3 Air Cargo Projects

The Augusta Regional Airport has completed a new terminal that will allow passenger traffic to flow more efficiently. Departing passengers flow from the ticketing area, through screening in the core, and out to the concourse. Arriving passengers deplane at the concourse, come through the core, and pick up their luggage in baggage claim. The terminal construction also includes a new ticketing area, which will allow for easier passenger check in. The new baggage claim area will have two bag belts and space for six rental car offices. Operations

out of the new terminal have begun. Improvements to the airport terminal have the potential to generate new passengers and therefore additional air service routes to the Augusta Regional Airport. Additional routes would result in increased belly cargo capacity in the Augusta region and therefore more options for air cargo service.

Figure 3.1 Schematic of New Airport Terminal



3.2 COMPARISON OF LRTP PROJECTS TO REGIONAL FREIGHT NEEDS AND DEFICIENCIES

The ARTS area freight needs and deficiencies can be grouped into five general categories:

1. Rail as a "friendly neighbor";
2. Inefficiencies experienced at at-grade rail crossings;
3. Truck safety;
4. Need for efficient truck routes; and
5. Limited air cargo options.

As shown in Table 3.3, all of the projects mentioned in the previous section were located on the preliminary truck route. Seven of the other projects will have a positive impact on truck safety. None of the projects impact the other freight needs and deficiencies. Therefore, there is a gap between the freight-related needs in the region and the projects that have been identified in ARTS. Specifically, there are no projects that improves rail as a friendly neighbor, improves at-grade rail crossings, or the limited air cargo options in the Augusta region. Additionally, there are no projects that address safety except for the

projects on I-20 and I-520. The following sections will describe projects to fill each of these gaps.

Table 3.3 Long-Range Transportation Plan Proposed Projects Impact on Freight

Project	Rail as a "Friendly Neighbor"	At-Grade Rail Crossings	Truck Safety	Efficient Truck Routes	Air Cargo Options
I-20 at I-520 Interchange Reconstruction			X	X	
Atomic Road				X	
Georgia Avenue Extension				X	
I-20 between SR 383 and Riverwatch Parkway			X	X	
I-520 between Dean's Bridge Road and Gordon Highway			X	X	
I-20 Bridge shoulders at Savannah River			X	X	
Whiskey Road-Silver Bluff Road Connector				X	
SR 302 (Silver Bluff Road)				X	
SC 19 (Edgefield Highway)				X	
Five Notch Road				X	
U.S. 78 (Charleston Highway)				X	
I-20 between Savannah River and Edgefield Road			X	X	
I-520 Southbound			X	X	
U.S. 78/SR 10 (Gordon Highway)				X	
U.S. 1 (Dean's Bridge Road)				X	
SR 232 (Columbia Road)				X	
Stevens Creek Road				X	
SR 118 (Rudy Mason/Rutland)				X	
I-20 between Wrightsboro Road and Gordon Highway			X	X	
SR 19 (Edgefield Highway)				X	
SR 118 (Hitchcock Parkway)				X	
U.S. 1 (Aiken-Augusta Highway, Jefferson Davis Highway/Gordon Highway)				X	
Total	**0**	**0**	**7**	**22**	**0**

3.3 POTENTIAL FREIGHT PROJECTS FOR CONSIDERATION IN ARTS

3.3.1 Rail as a "Friendly Neighbor"

As mentioned in the Freight Needs and Deficiencies Report, existing communities can propose for new quiet zones to be established in their communities by working with their elected officials at the city and county level and by working with the Federal Railroad Administration. One potential project for consideration in ARTS is the distribution of information to community groups and elected officials on the procedures to establish new quiet zones in the Augusta region.

An additional approach for consideration in improving rail's standing as a friendly neighbor would be to proactively ensure that future land uses minimize the interaction between railroad operations and other uses. The ARTS area could work with city and county land use planners to enact zoning regulations that prohibited new residential zoning approvals within a certain distance to active railroad operations. Alternatively, the zoning could require that specific sound and other barriers be utilized between proposed residential land uses and current railroad operations.

3.3.2 At-Grade Rail Crossings

The two types of solutions to at-grade rail crossings are: 1) improve the safety and warning devices nearby to the crossing and 2) develop a grade-separated rail-highway crossing. The Freight Needs and Deficiencies Report included site observations at the busiest rail crossings in the region. The site observations described both freight needs and potential projects to address the needs. A summary of the needs is shown in Table 3.4.

At-grade rail-highway crossings with high levels of truck, auto, and train activity are ideal candidates for grade separation. There are three such rail crossing locations in the Augusta region with over 10,000 autos per day, over 1,000 trucks per day, and over 10 trains per day. These three locations are shown in Table 3.5. Based on these volumes of trucks, autos, and trains, these would be ideal locations for consideration of rail-highway separation projects. However, previous studies in the region have already concluded that grade separation at these locations is not feasible. Therefore, these projects will not be pursued as part of this freight plan.

Table 3.4 Potential At-Grade Rail Crossing Project Descriptions

Street Road	Cross Street or Nearest Location	Potential Projects
Doug Barnard Parkway	Newsprint Road	Correct hump by tapering asphalt with leveling course and overlay.

Broad Street	15th Street	Develop a train activated traffic signal timing plan that flushes traffic following train passage.
15th Street	Greene Street	Install a W10-2 on westbound Greene Street. Install a W10-1 southbound on 15th Street. Develop a train-activated traffic signal timing plan that flushes traffic following train passage.
Walton Way	12th Street	Re-evaluate the railroad pre-emption sequence to provide adequate clearance and passage protection. Northbound 12th Street – Install W10-1 and railroad warning pavement markings. Southbound 12th Street – Install "Do Not Stop on Tracks" sign.
Williamsburg	Park Avenue/ Staubes Lane	Upgrade pavement markings, signs, and pre-emption to MUTCD standards. Install street lighting if railroad activity warrants. Consider active railroad warning devices if railroad activity warrants.

Table 3.5 High Truck Volume At-Grade Railroad Crossings

Street Road	Cross Street or Nearest Location	Type Warning	Daily Trains	Average Daily Vehicles	Reporting Railroad	Estimated Truck Percent	Average Daily Trucks	AADT Year
Broad Street	15th Street	Gates	18	22,829	CSX	11	2,511	1988
15th Street	Greene Street	Gates	17	15,536	CSX	12	1,864	1986
Laney Walker Boulevard	Hickory Street	Crossbucks	12	17,400	NS	7	1,218	1997

Source: Federal Railroad Administration, Office of Safety Analysis.

3.3.3 Truck Safety

Site observations were also utilized at the high truck-involved locations that were identified as part of the Augusta Regional Transportation Study Freight Plan – Regional Freight Profile and the Freight Needs and Deficiencies Report. The site observations noted existing conditions and deficiencies. It also identified freight-related project recommendations to improve operations at the intersections where high levels of truck-involved accidents occurred. These potential projects are described in Table 3.6. The highest truck-involved accident locations are found on I-20 and I-520. This is directly related to the fact that these locations have the highest truck volumes in the region. Initial observations at these locations did not reveal any major (or easily corrected) roadway geometry issues. There is the possibility of weaving issues at some of the Interstate interchanges. However, the Georgia safety data is not sufficiently accurate at the accident-type level to determine if these are the types of accidents that are occurring at these locations.

It should be noted that detailed truck-involved accident data was not available from the South Carolina portion of the region at the time of this analysis. A recommendation from this study is that the South Carolina DOT provides truck-involved accident information to ARTS which would enable freight-focused safety analysis.

Several improvement ideas were generated related to truck safety for state and local roads, including SR 56 and SR 4 as shown in Table 3.6.

Table 3.6 Potential Projects at High Truck-Involved Accident Locations in Richmond and Columbia Counties

Route	Nearby Interchange Location or Intersection	Potential Projects
I-20	MP 1.5 – Near Riverwatch Parkway Interchange	Several ongoing projects on I-20 (widening, I-520 interchange, and Lewiston Road interchange) will address safety.
I-20	MP 4 – Near I-20/I-520 Interchange	Several ongoing projects on I-20 (widening, I-520 interchange, and Lewiston Road interchange) will address safety.
I-20	MP 5.3 – Near the Wheeler Road Interchange	Several ongoing projects on I-20 (widening, I-520 interchange, and Lewiston Road interchange) will address safety.
I-20	MP 11.4 – Near the Lewiston Road (SR 288) Interchange	Several ongoing projects on I-20 (widening, I-520 interchange, and Lewiston Road interchange) will address safety.
I-520	MP 1.5 – Near Wheeler Road Interchange	No small project identifiable based on road geometry.
I-520	MP 4 – Near Gordon Highway	No small project identifiable based on road geometry, but widening between Gordon Highway and Dean's Bridge Road should improve safety at this interchange.
I-520	MP 5.5 – Near Dean's Bridge Road (U.S. 1) Interchange	No small project identifiable based on road geometry, but widening between Gordon Highway and Dean's Bridge Road should improve safety at this interchange.
SR 56	Dixon Airline Road	Construct northbound and southbound deceleration lanes. Widen SR 56 to current lane width standards, including a 14-foot-wide 2-way left-turn lane and uphill auxiliary lane. Widen bridge over Butler Creek. Replace north side T-intersection warning sign with a plus-intersection warning sign. Evaluate intersection for the need of signalized traffic control.

Route	Nearby Interchange Location or Intersection	Potential Projects
SR 56	Marvin Griffin Road	Improve corner radii in the NE and SE corners. Update turn arrows and "ONLY" words on the northbound right-turn lane. Evaluate detector gaps on Marvin Griffin Road and adjust as needed. Widen throat entering Marvin Griffin Road.
SR 56	Apple Valley Drive	Decrease the concrete island or increase the corner radius to allow more room for turning trucks in the NE corner. Increase the turning radius in the southeast corner to accommodate northbound turning trucks. Increase the entering throat width on Apple Valley Drive to accommodate truck traffic. Obtain and construct access to Brownlee Drive for the convenience store in the northwest quadrant. Add street lighting to existing light configuration.
SR 56	Old Waynesboro Road	Widen SR 56 to standard lane widths. Lower the speed limit below existing 55 mph.
SR 4/U.S. 1	Morgan Road	Review traffic signal timing related to northbound yellow and red clearance interval to account for higher than posted speeds. Review traffic signal related to northbound green interval to be sure enough time is allowed for the northbound through movement during peak hours.
SR 4/U.S. 1	Meadowbrook Drive	Review traffic signal timing to optimize for capacity. Check for proper yellow and red change intervals and that they account for the steep southbound grade.
SR 4/U.S. 1	Georgetown Drive	Review intersection capacity for adequate westbound left-turn storage. Construct longer storage bay, if needed. Construct an eastbound right-turn lane and improve corner radii in the southeast and southwest corners.
SR 4/U.S. 1	Walton Way	Widen Walton Way on the west side of 15th Street to provide adequate lane widths.

3.3.4 Efficient Truck Routes

As mentioned in Section 2.0, there is a need to improve intercity connectivity between the Augusta region and the regions of Macon, Georgia; Savannah, Georgia Charleston, South Carolina; and Greenville, South Carolina. The most effective way to improve this connectivity in terms of freight mobility would be the development of controlled access interstate facilities between Augusta and these cities. The distances between Augusta and these cities are too short to

consider the potential for diverting the freight from truck to rail. Typically, these diversions only occur for freight that is moving 500 miles or more. The four potential freight-related projects for the region are as follows:

1. Construction of an interstate between Augusta and Macon;
2. Construction of an interstate between Augusta and Savannah;
3. Construction of an interstate between Augusta and Charleston; and
4. Construction of an interstate between Augusta and Greenville.

As shown in Table 2.7, the Macon metropolitan region is the largest trading partner with the Augusta region, excluding Atlanta. There are over 3.5 million tons of truck traffic between the two regions based on 2006 TRANSEARCH data. Based on the high volume of truck tonnage between Augusta and Macon combined with the lack of current facilities between these two regions, this Interstate would be the most effective in terms of its ability to improve goods movement in the Augusta region and throughout the State. It should also be noted that an interstate that connected Augusta with Macon and extended to Columbus/I-85 would also have the potential to divert a significant amount of through truck and auto traffic around the congested freeways in the Atlanta region. This would provide additional mobility for several regions in Georgia and relieve congestion in the Atlanta region.

There has been some work on developing Augusta's intercity corridors in the past. Investment in the Savannah River Parkway (Augusta to Savannah) and the Fall Line Freeway (Augusta to Macon/Columbus) has been substantial over the years. Both of these are part of the Governor's Road Improvement Program (GRIP) corridors which created four-lane connecting roads between major metropolitan areas in the State. The Savannah River Parkway has been under construction for a number of years, while The Fall Line Freeway has been under consideration for being built, but faces environmental constraints. However, none of these improvements will deliver Interstate levels of service for Augusta's intercity truck traffic. The FHWA has considered new interstates to be built which would satisfy two of the four needs for intercity connectors. The Proposed Interstate 3 would start in Savannah, Georgia and continue through Augusta, Georgia, Greenville, South Carolina, and Knoxville, Tennessee. The proposed Interstate 14 would start in Augusta, Georgia and connects to Macon, Georgia along with Columbus, Georgia on its way to Natchez, Mississippi.

A preliminary truck route network was defined in the Freight Needs and Deficiencies Report. This truck route network will designate a set of roads within the Augusta-Richmond County MPO boundary that will be the preferred routes for trucking activity. Information is proposed to be disseminated to the trucking industry regarding the roadways that are included in this network. Simultaneously, it is proposed that the Augusta Regional Transportation Study maintain these roadways to be truck-friendly, including appropriately designed road geometries, clearances, and curbs. The next step is to refine this truck route network based on specific prioritization criteria and develop a final

recommended truck route network for the region. The prioritization of the truck route network roads needs to be coordinated with overall freight project prioritization. Therefore, we will use this section to develop a preliminary set of prioritization criteria to consider for both the truck route network and the larger set of projects for consideration in the freight plan.

The starting point for developing a freight prioritization process is to understand the current project selection process being utilized for projects that are incorporated into the LRTP process. As discussed in the Augusta Regional LRTP 2030 Update in Section V ARTS Technical Update, potential projects were added to the Existing Plus Long-Range (E+LR) Network based on four criteria:

1. Congestion (Roadway operating at LOS E or F);
2. Safety;
3. Connectivity; and
4. Economic development.

Of these criteria, congestion and safety were weighted the highest. Connectivity was weighted slightly less, and economic development was weighted very low. These criteria will also be used to refine the truck route network. In the Freight Needs and Deficiencies Report, the preliminary truck route network was found to conflict with several other transportation features in the Augusta region. The truck route overlaps with the Augusta regional bike/pedestrian network. It also intersects with several at-grade railroad crossings and high-accident locations. The truck route network also overlaps with several congested locations based on the information contained in the Augusta Regional Congestion Management Plan. Using qualitative ratings, we can determine which of these features to prioritize to generate the final truck route network for the region. This is shown in Table 3.7.

Table 3.7 Qualitative Rating of Project Selection Criteria

Crossing ID	Congestion	Safety	Connectivity	Economic Development
Avoid Congested Locations	5	3	1	3
Avoid High-Accident Locations	3	5	1	2
Avoid Rail-Highway Grade Crossings	2	3	1	4
Avoid Bicycle/Pedestrian Network	1	1	1	2

Note: 1 = Lowest, 5 = Highest

The implication of this rating is that the first step in refining the truck route network is to avoid congested locations. This will be followed by avoiding high-accident locations, avoiding rail-highway at-grade crossings, and finally avoiding the bicycle/pedestrian network. The implementation of this process results in the removal of several roads from the preliminary truck route network.

These roads are shown in Figure 3.2 and listed in Table 3.8. The final truck route network is shown in Figure 3.9. Table 3.9 lists the roadways along with start points and end points for the final recommended truck route network.

In developing the recommended truck route network, care has been taken to avoid established residential areas as much as possible. Figure 3.3 shows that the recommended truck routes are mostly confined to state and federal highways and interstate highways.

Adjustments have been made to the recommended truck route network as it affects downtown Augusta. Reynolds Street, from 5th Street to 15th Street, is already a designated truck route. Designating Reynolds Street as a truck route minimizes the number of trucks passing through the heart of downtown and provides truckers with a direct link to major controlled and limited-access roadways such as River Watch Parkway, Interstate 20 and Interstate 520. Since Reynolds Street is a designated truck route, Broad Street, from 5th Street to 13th Street is not a recommended truck route. The only part of Greene Street included on the recommended truck route map is the section between 5th Street and the Calhoun Expressway. In summary, the road segments recommended truck route network for the downtown area are:

- Reynolds Street from 5th Street to 15th Street
- Jones Street from 15th Street to 13th Street
- Sand Bar Ferry Road / Broad Street from the Sand Bar Ferry Bridge to 5th St. (SR 28)*
- Fifth St. from Broad to Greene Street (SR 28)*
- Greene St. from 5th Street to the J. C. Calhoun Expressway (SR 28)*
- 13th St. from the 13th Street Bridge to Walton Way (SR 4)*
- 15th St. from Reynolds St. / River Watch to MLK Blvd. (part SR 4)*
- Gordon Hwy. from the Savannah River to the Columbia County line (US 78, SR 10)*
- Twiggs Street / Old Savannah Rd. from Laney-Walker Blvd. to Gordon Hwy.
- Walton Way from Gordon Hwy. to 15th St. (part SR 4)*

*Note: State routes are designated as truck routes by the State Department of Transportation.

It is also important to note that the Recommended Truck Route Network is only a recommended network. In both Georgia and South Carolina, state and federal highways are official truck routes only after being designated by the applicable state department of transportation. Likewise, city or county roads are official truck routes only after being recommended for designation by the applicable local government and approved by the state departments of transportation.

Figure 3.2 Truck Routes Removed from Preliminary Truck Route Network

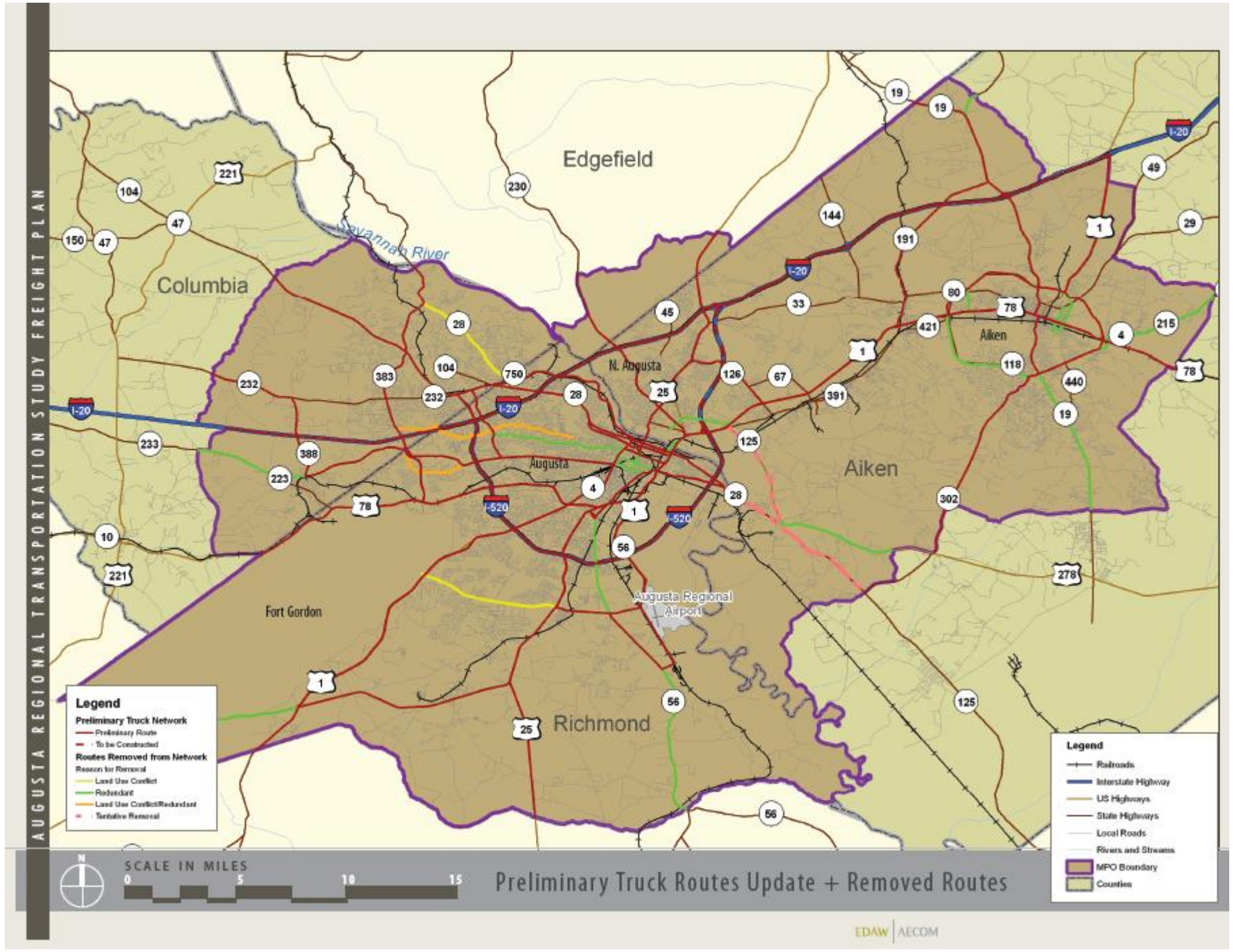


Table 3.8 Roadways Removed from Preliminary Truck Route Network

Road Segment	Start	End	Removal Reason
13th Street (Removed)	Wrightsboro Road	Walton Way	Redundant
Belair Road (Removed)	Wrightsboro Road	Wrightsboro Road	Land Use Conflict/ Redundant
Broad Street	5th Street	13th Street	Land Use Conflict
GA 28 (Removed)	Washington Road	Belair Road	Land Use Conflict
GA 28 (Removed)	Greene Street	Broad Street	Redundant
Laney Walker Boulevard (Removed)	Twiggs Street	Druid Park Avenue	Land Use Conflict
SC 118 (Removed)	Jefferson Davis Highway/ U.S. 78	Pine Log Road	Redundant
SC 118 (Removed)	Robert M. Bell Parkway	Jefferson Davis Highway/ U.S. 78	Redundant
SC 118 (Removed)	Rudy Mason Parkway	South Boundary Avenue	Redundant
SC 125 (Tentative)	Jefferson Davis Highway/ U.S. 78	MPO Boundary	Tentative
SC 125 (Removed)	Jefferson Davis Highway/ U.S. 78	Buena Vista Avenue	Redundant
SC 19 (Removed)	Pine Log Road	MPO Boundary (South)	Redundant
SC 191 (Removed)	Edgefield Road	MPO Boundary (North)	Redundant
SC 230 (Removed)	I-20	Jefferson Hwy	Redundant, Passes through residential area
SC 302 (Removed)	Charleston Highway/ U.S. 78	MPO Boundary (North)	Redundant
Tobacco Road (Removed)	Deans Bridge Road	Peach Orchard Road	Land Use Conflict
U.S. 25 (Removed)	I-20	Broad Street	Redundant, Passes through residential area
Walton Way (Removed)	Jackson Road	15th Street	Redundant, Passes through residential area
Williamsburg Street (Boundary)	Camelia Street	South Boundary Avenue	Redundant
Wrightsboro Road (Removed)	GA 388	MPO Boundary (West)	Redundant
Wrightsboro Road (Removed)	15th Street	James Brown Boulevard	Redundant, Passes through residential area

Figure 3.3 Final Recommended Truck Route Network

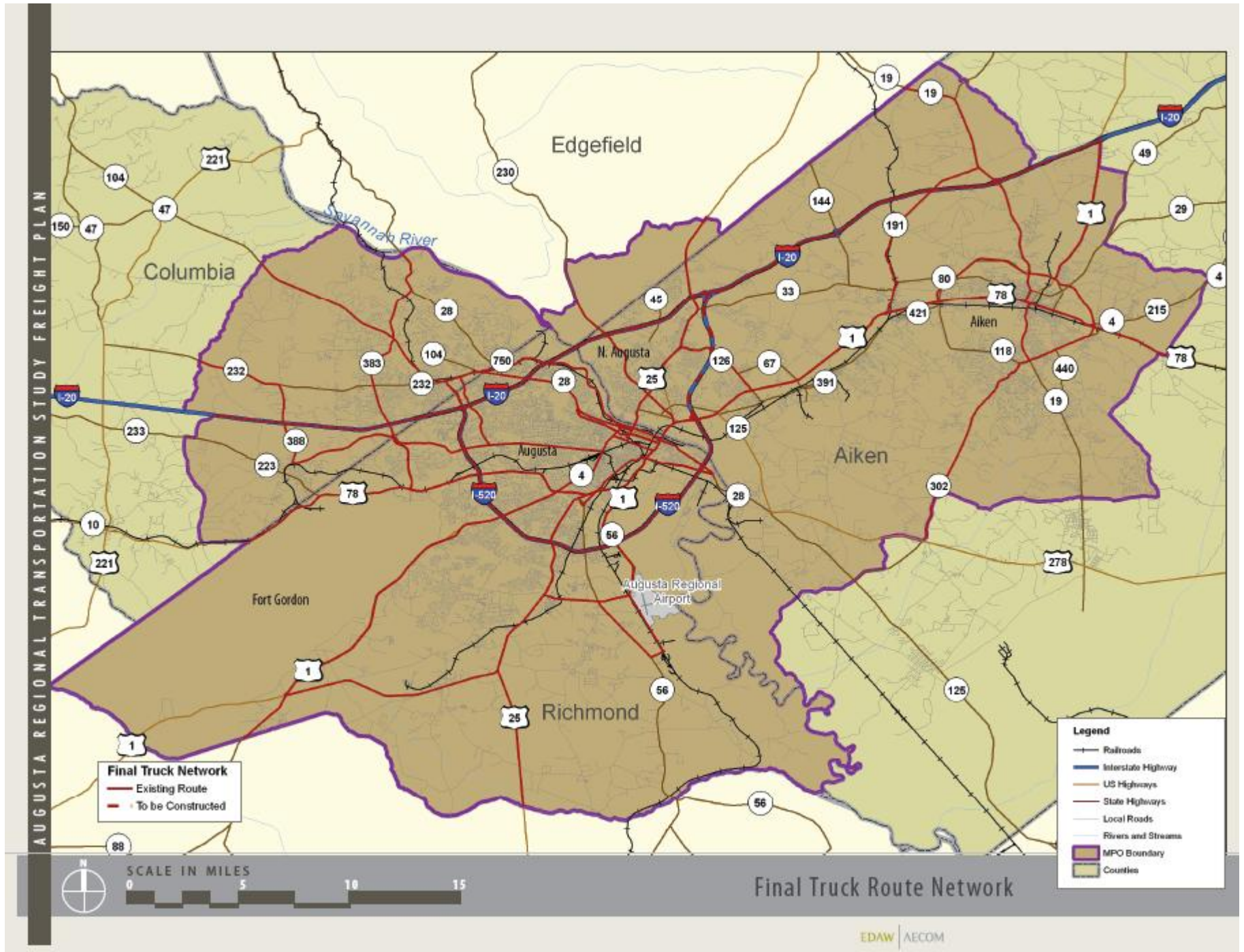


Table 3.9 Roadways in Final Recommended Truck Route Network

Road Segment	Start	End
5th Street	Broad Street	Greene Street
13th Street	13th Street Bridge	Walton Way (SR 4)
15th Street	Riverwatch Parkway	Walton Way
Belair Road (GA 383 and GA 874)	Fury's Ferry Road/GA 28	Wrightsboro Road
Bobby Jones Expressway/GA 232	I-20	GA 104/Washington Road
Broad Street/Sand Bar Ferry Road*	Laney Walker Boulevard	Washington Road
Davis Road/Walton Way/Jackson Road	Washington Road	Wrightsboro Road
GA 104 (Washington Road)	Fury's Ferry Road/GA 28	MPO Boundary
GA 104/Riverwatch Parkway	15th Street/GA 4	Washington Road
GA 232 (Columbia Road)	Lewiston Road/GA 388	MPO Boundary
GA 28(Fury's Ferry)	Belair Road	MPO Boundary
GA 28 (Washington Road)	Fury's Ferry Road/GA 28	Laney Walker Boulevard
GA 28	Laney Walker Boulevard	Atomic Road/SC 125
GA 383/GA 874 (Dyess Parkway)	Gordon Highway/U.S. 78	I-20
GA 388 (Horizon South Parkway/Lewiston Road)	Wrightsboro Road	Columbia Road
GA 4/13th Street	Walton Way	Broad Street
GA 4/15th Street	Martin Luther King Jr. Boulevard	Walton Way
GA 4/MLK	Gordon Highway/U.S. 78	15th Street
GA 4/Walton Way	15th Street	13th Street
Mike Padgett Hwy/GA 56	Gordon Highway/U.S. 78	MPO Boundary (Burke County)
Doug Barnard Parkway/GA 56 Spur	Gordon Highway/U.S. 78	Mike Padgett Highway/GA 56
GA 57	Tobacco Road	Doug Barnard Parkway
GA 88	Peach Orchard Road	MPO Boundary
Greene Street	5th Street	J. C. Calhoun Expressway
I-20	MPO Boundary West	MPO Boundary East
I-520	I-20	Jefferson Davis Highway (U.S. 1, U.S 78)
I-520 (under construction)	Jefferson Davis Highway	I-20
Jones Street	15th Street	13th Street
Laney Walker Boulevard	Sandbar Ferry Road	Twiggs Street
Old Savannah Road	Milledgeville Road	Mike Padgett Highway/GA 56

Road Segment	Start	End
Reynolds Street	5th Street	15th Street
SC 118	Jefferson Davis Highway/U.S. 78	Charleston Highway/U.S. 78
SC 126	Edgefield Road	Jefferson Davis Highway/U.S. 78
SC 19	MPO Boundary (North)	Pine Log Road
SC 191	SC 19	Trolley Line Road
SC 191 (Added)	Trolley Line Road	Jefferson Davis Highway/U.S. 78
SC 230	MPO Boundary (North)	I-20
SC 302	Charleston Highway/U.S. 78	MPO Boundary (South)
Tobacco Road/GA 56 Spur	Peach Orchard Road	Doug Barnard Parkway
Twiggs Street/Old Savannah Rd	Laney Walker Blvd	Gordon Highway
U.S. 1	Atomic Road/SC 125	Robert Bell Parkway
U.S. 1	Gordon Highway/U.S. 78	MPO Boundary (Jefferson County)
U.S. 1	Rudy Mason Parkway	MPO Boundary (North)
U.S. 25	I-20	MPO Boundary (North)
U.S. 25	Old Savannah Road	MPO Boundary
U.S. 78	Robert M. Bell Parkway	MPO Boundary (East)
U.S. 78/Gordon Highway	GA 28	MPO Boundary (West)
Walton Way	15th Street	Gordon Highway/U.S. 78
Wheeler Road	Belair Road	Walton Way Extension
Wrightsboro Road	15th Street	GA 388 (Horizon South Parkway)

* except between 5th Street and 15th Street

3.3.5 Air Cargo Routes

As part of the survey of freight-related firms, one of the respondents commented that there were not sufficient air cargo options in the Augusta region. This resulted in brokers and freight forwarders draying goods to the Atlanta airport rather than utilizing air cargo facilities in the Augusta region. Developing a broader set of air cargo options in Augusta would involve expanding passenger operations which is a significant endeavor and tied to a complex international network of airline operations that is beyond the scope of this study. Nevertheless, a recommendation of this study is that the Augusta Regional Airport maintains a list of air cargo logistics firms and firms that send air cargo to notify them as route changes occur at the airport.

3.4 SUMMARY OF POTENTIAL PROJECTS

This report has described numerous potential freight-related projects for consideration in the Augusta region. These projects were generated across numerous categories and identified by using several different sources, including the existing ARTS LRTP, input from the freight community, site observations of engineers, and previous experience of the consulting team. A listing of the projects is shown in Table 3.8. Note that the construction years shown are taken from the ARTS LRTP in September of 2005 and some of the dates have since changed.

Table 3.10 Recommended ARTS Freight-Related Project List

Project Type	Project Name	From	To	Description	Construction Year
Roadway	Augusta-Macon Interstate (segment of proposed I-14)	Augusta	Macon	Construct a new Interstate	N/A
Roadway	Augusta-Savannah Interstate (segment of proposed I-3)	Augusta	Savannah	Construct a new Interstate	N/A
Roadway	Augusta-Charleston Interstate	Augusta	Charleston	Construct a new Interstate	N/A
Roadway	Augusta-Greenville Interstate	Augusta	Greenville	Construct a new Interstate	N/A
Interchange Improvement	I-20 at I-520 Interchange Reconstruction	I-20	I-520	Reconstruct interchange and approaches	2008
Roadway	Atomic Road	East Buena Vista Avenue	U.S. 1/78 (Jefferson Davis Highway)	Widen to 4 through lanes and 1 continuous center turn lane	2008
Roadway	Georgia Avenue Extension	Georgia Avenue	Riverside Boulevard	Construct a new 2-lane facility	2005
Roadway	I-20	SR 383 (Belair Road)	Riverwatch Parkway	Widen to 6 through lanes	2008
Roadway	I-520	U.S. 1/SR 4 (Deans Bridge Road)	U.S. 78/278 (Gordon Highway)	Widen to 6 through lanes	2015
Roadway	I-20 Bridge shoulders at Savannah River	I-20	Savannah River	Widen bridge shoulders	2017
Roadway	Whiskey Road-Silver Bluff Road Connector	SR 19 (Whiskey Road)	SR 302 (Silver Bluff Road)	Construct a new 2-lane facility	2007
Roadway	SR 302 (Silver Bluff Road)	Indian Creek Trail	Richardson's Lake Road	Widen to 3 lanes (passing lanes where needed)	2008
Roadway	SC 19 (Edgefield Highway)	SC 118 (University Parkway)	I-20	Widen to 4 through lanes	2015

Project Type	Project Name	From	To	Description	Construction Year
Roadway	Five Notch Road	Georgia Avenue	Walnut Lane	Widen to 4 through lanes	2015
Roadway	U.S. 78 (Charleston Highway)	Pine Log Road	Old Dibble Road	Widen to 4 through lanes	2020
Roadway	I-20	Savannah River	U.S. 25 (Edgefield Road)	Widen to 6 through lanes	2020
Roadway	I-520 Southbound	Wrightsboro Road	U.S. 78 (Gordon Highway)	Add auxiliary lane	2011
Roadway	U.S. 78/SR 10 (Gordon Highway)	Robinson Avenue	Fort Gordon Gate 1	Widen to 6 through lanes	2013
Roadway	U.S. 1 (Dean's Bridge Road)	Meadowbrook Dr	Tobacco Road	Widen to 6 through lanes	2020
Roadway	SR 232 (Columbia Road)	Chamblin Road	Old Belair Road	Widen to 4 through lanes	2026
Roadway	Stevens Creek Road	Evans To Locks Road	Claussen Road	Widen to 4 through lanes	2024
Roadway	SR 118	North of Willow Run Road	North of Old Wagener Road	Widen to 4 through lanes	2021
Roadway	I-20	U.S. 25/SR 12 1 (Edgefield Road)	Bettis Academy Road	Widen to 6 through lanes	2027
Roadway	SR 19 (Edgefield Highway)	I-20	SR 191 (Shiloah Church Road)	Widen to 4 through lanes	2028
Roadway	SR 118 (Hitchcock Parkway)	U.S. 1/78	SR 302 (Silver Bluff Road)	Widen to 4 through lanes	2030
Roadway	U.S. 1 (Aiken-Augusta Highway)	Savannah River	I-520 (Palmetto Parkway)	Widen to 4 through lanes with continuous center turn lane	2017
Intersection Improvement	SR 56 at Dixon Airline Road	Intersection Improvement	Intersection Improvement	Deceleration lanes, widen lane widths and bridge, improve signage, evaluate need for signalized traffic control	N/A
Intersection Improvement	SR 56 at Marvin Griffin Road	Intersection Improvement	Intersection Improvement	Widen turning radii, improve road signage, improve detector gaps, widen throat	N/A

Project Type	Project Name	From	To	Description	Construction Year
Intersection Improvement	SR 56 at Apple Valley Drive	Intersection Improvement	Intersection Improvement	Decrease concrete island or increase turning radii, increase throat, construct new access, add street lighting	N/A
Intersection Improvement	SR 56 at Old Waynesboro Road	Intersection Improvement	Intersection Improvement	Widen lane widths, lower speed limit	N/A
Intersection Improvement	GA 4 at Morgan Road	Intersection Improvement	Intersection Improvement	Improve traffic signal timing	N/A
Intersection Improvement	GA 4 at Meadowbrook Drive	Intersection Improvement	Intersection Improvement	Improve traffic signal timing to account for grade and optimizing capacity	N/A
Intersection Improvement	GA 4 at Georgetown Drive	Intersection Improvement	Intersection Improvement	Construct longer storage bay, construct right-turn lane, improve turning radii	N/A
Intersection Improvement	GA 4 at Walton Way	Intersection Improvement	Intersection Improvement	Widen Walton Way lane widths	N/A
Railroad Crossing Improvement	NS on Doug Barnard Parkway	Railroad Crossing Improvement	Railroad Crossing Improvement	Correct hump, move pavement markings	N/A
Railroad Crossing Improvement	CSX at Broad Street	Railroad Crossing Improvement	Railroad Crossing Improvement	Improve signal timing plan	N/A
Railroad Crossing Improvement	CSX at 15th Street	Railroad Crossing Improvement	Railroad Crossing Improvement	Install W10-2 and W10-1 Develop traffic signal plan	N/A
Railroad Crossing Improvement	CSX at Walton Way/12th Street	Railroad Crossing Improvement	Railroad Crossing Improvement	Redo railroad pre-emption sequence Improve signage Install W10-1 and pavement markings	N/A
Railroad Crossing Improvement	NS at Park Avenue/Williamsburg Lane/Staubes Lane	Railroad Crossing Improvement	Railroad Crossing Improvement	Upgrade pavement markings, signs and pre-emption Install street lighting Construct active railroad warning	N/A
Operations	Develop Truck Route Network	Multiple	Multiple	Designate roadways	N/A

Project Type	Project Name	From	To	Description	Construction Year
Policy	Air Cargo Communications	Augusta Regional Airport	Cargo-related firms	Notify cargo-related firms of route changes at regional airport	N/A

4.0 Freight Project Prioritization

4.1 GOALS AND OBJECTIVES

The first step in the project prioritization process is to examine the ARTS LRTP goals and objectives. Specifically, the goals and objectives related to freight should be consistent with the evaluation criteria discussed in Section 3.0. A review of the LRTP goals and objectives reveal the following goals and objectives as having particular applicability to regional freight movement:

- **Goal 1 –** Develop a transportation system integrated with planned land use.
- **Goal 3 –** Develop a transportation system that will allow effective mobility throughout the region and provide efficient movement of persons and goods.
  - **Objective 5 –** Provide a plan which addresses the needs of intermodal movement of goods via rail and truck.
  - **Objective 6 –** Provide a plan that allows for an efficient system of intracity freight movements which does not conflict with the circulation of traffic.
  - **Objective 7 –** Provide a plan that improves travel safety.
- **Goal 4 –** Develop a transportation system that will enhance the economic, social, and environmental fabric of the area, using resources wisely while minimizing adverse impacts.
  - **Objective 2 –** Provide a plan that ensures that new transportation facilities result in disruption or displacement of residential or commercial areas only when the benefits to the community at large outweigh the costs and where no viable alternative exists.

The existing ARTS LRTP Goals appropriately include freight-related language in key areas. Therefore, it is recommended that no additional language be added to the LRTP Goals. However, additional freight-specific objectives have been crafted in order to better articulate freight-specific aspects of existing goals. The proposed freight-related objectives appear under specific goals as shown below:

- **Goal 1 –** Develop a transportation system integrated with planned land use.
  - **Proposed Objective –** Promote efficient linkages to and from major commercial/industrial origins and destinations.
  - **Proposed Objective –** Encourage rail as a "friendly neighbor," minimizing potential conflicts between rail movement and nearby land uses and other components of the transportation system.

- **Goal 3 –** Develop a transportation system that will allow effective mobility throughout the region and provide efficient movement of persons and goods.
  - **Proposed Objective –** Provide a plan that addresses conflicts between highway and rail traffic.
  - **Proposed Objective –** Provide a plan that clearly indicates a designated truck route network.
- **Goal 4 –** Develop a transportation system that will enhance the economic, social, and environmental fabric of the area, using resources wisely while minimizing adverse impacts.
  - **Proposed Objective –** Avoid the development of new facilities that degrade the natural environment and/or disrupt ecological processes where possible.

4.2 EVALUATION CRITERIA AND SCORING PROCESS

As mentioned in Section 3.0, the ARTS 2030 Long-Range Transportation Plan specifies the following project prioritization criteria:

- Congestion (roadway operating at LOS E or F);
- Safety;
- Connectivity; and
- Economic development.

Of these criteria, the ARTS LRTP weighted congestion and safety the highest. Connectivity was weighted slightly less, and economic development was weighted the lowest. The numerical rating system developed to match this weighting was to allow for projects to receive a maximum of 10 points for congestion relief, 5 points for reducing accidents, 3 points for improving connectivity for the region and 2 points for improving economic development.

Ten points are achievable for the congestion category only for projects that are likely to improve operations on a proposed truck route with an LOS of E or F. Ten points also are achievable for new alignments that would relieve congestion on a proposed truck route with an LOS of E or F. Lesser points are awarded for projects that improve congestion to a lesser extent. Five points are achievable for the safety category for projects that are likely to reduce accidents on the roadways with the highest percent of accidents as identified in the Augusta Regional Transportation Study Freight Plan – Regional Freight Profile. Three points are achievable for the connectivity category for projects that improve the truck route network in the region. Two points are achievable for the economic development category if they allow for freight companies to operate their businesses in a more efficient fashion.

4.3 RATING OF PROJECTS

In this section, the evaluation criteria are applied to each of the projects listed in Section 3.0. The following tables provide the proposed ratings for each of the projects for each of the project categories. The final table (Table 4.5) ranks all of the freight-related projects based on their estimated benefits. More detailed project-level studies would be needed to estimate costs for each of the potential projects. This would enable a comparison of these projects with non-freight related projects that are included in the LRTP and it would provide important information that can be used to assess the sequencing and timing of project development.

Table 4.1 Rating of Proposed New Roadways

Criteria	Maximum Score	Augusta-Macon Corridor	Augusta-Savannah Corridor	Augusta-Charleston Corridor	Augusta-Greenville Corridor
Congestion	10	7	5	5	5
Safety	5	5	5	5	5
Connectivity	3	2	2	3	3
Economic Development	2	2	2	2	2
Total Score	**20**	16	14	15	15

Table 4.2 Rating of Proposed Safety Projects

		Safety Projects							
		SR 56 (Mike Padgett Highway)				SR 4/ U.S. 1 (Deans Bridge Road)			
Criteria	Maximum Score	Dixon Airline Road	Marvin Griffin Road	Apple Valley Drive	Old Waynes-boro Road	Morgan Road	Meado-brook	George-town	Walton Way
Congestion	10	–	–	–	–	5	5	5	5
Safety	5	5	5	5	5	4	4	4	4
Connectivity	3	–	–	–	–	–	–	–	–
Economic Development	2	2	2	2	2	2	2	2	2
Total Score	**20**	**7**	**7**	**7**	**7**	**11**	**11**	**11**	**11**

Table 4.3 Rating of Highway-Rail Grade Crossing Improvements

Criteria	Maximum Score	Highway-Rail Grade Crossing Safety Improvements			
		NS on Doug Barnard Parkway	CSX at 15th Street	CSX at Walton Way/12th Street	NS at Park Avenue/ Williamsburg Lane/ Staubes Lane
Congestion	10	–	–	–	–
Safety	5	2	2	2	2
Connectivity	3	–	–	–	–
Economic Development	2	2	2	2	2
Total Score	**20**	**4**	**4**	**4**	**4**

Table 4.4 Rating of Operational and Policy Projects

Criteria	Maximum Score	Develop Truck Route Network	Air Cargo Communications	Distribution of Quiet Zone Information	Rail Considerations in Future Land Use Decisions
Congestion	10	10	–	–	–
Safety	5	5	–	–	3
Connectivity	3	3	–	–	–
Economic Development	2	2	2	1	1
Total Score	**20**	**20**	**2**	**1**	**4**

Table 4.5 Freight-Related Project Ranking (All Projects)

Project	Total Score
Truck Route Network Implementation	20
Augusta-Macon Corridor	16
Augusta-Savannah Corridor	14
Augusta-Charleston Corridor	15
Augusta-Greenville Corridor	15
SR 4 at Morgan Road Safety Improvements	11
SR 4 at Meadowbrook Road Safety Improvements	11
SR 4 at Georgetown Road Safety Improvements	11
SR 4 at Walton Way Safety Improvements	11
SR 56 at Dixon Airline Road Safety Improvements	11
SR 56 at Marvin Griffin Road Safety Improvements	11
SR 56 at Apple Valley Drive Safety Improvements	11
SR 56 at Old Waynesboro Road Safety Improvements	11
Rail Considerations in Future Land Use Decisions	4
NS Doug Barnard Parkway – Rail Crossing Safety Improvements	4
CSX at 15th Street – Rail Xing Safety Improvements	4
CSX at Walton Way/12th Street – Rail Crossing Safety Improvements	4
NS at Park Avenue/Williamsburg Lane/Staubes Lane – Rail Crossing Safety Improvements	4
Air Cargo Communications	2
Distribution of Quiet Zone Information	1

Appendix A. Description of Quiet Zone Regulations

The Federal Railroad Administration (FRA) is required by law (49 U.S.C. 20153) to issue regulations that require trains to sound a locomotive horn while approaching and entering upon public crossings. FRA issued a Final Rule on the use of locomotive horns at highway-rail grade crossings that requires locomotive horns to be sounded as a warning to highway users at public highway-rail crossings. This rule took effect on June 24, 2005. Before June 24, 2005, the sounding of locomotive horns at public crossings was subject to applicable state and local laws. Due to this final rule, thousands of localities nationwide have the power to mitigate the effects of train horn noise through the establishment of new "quiet zones." The rule also details actions communities with pre-existing "whistle bans" can take to preserve the quiet they have previously established.

The Final Rule impacts highway-rail grade crossing safety and noise effects. The Final Environmental Impact Statement (FEIS) for the rule describes the expected increase in safety at highway-rail at-grade crossings and changes in noise from locomotive horns. The maximum horn sound level (Section 229.129) and the horn sounding requirements (Section 222.21) will reduce noise at all of the approximately 150,000 public crossings nationwide where locomotive horns are presently used.

The FRA encourages communities seeking to establish New Quiet Zones to thoroughly investigate the options available to them under the rule. A quiet zone is a section of a rail line that contains one or more consecutive public crossings at which locomotive horns are not routinely sounded. This rule describes the requirements that communities must meet in order to implement a quiet zone (Section 222.9 – definition of a quiet zone). The FRA will work with public authorities in reviewing applications for quiet zones in order to permit communities to institute quiet zones at the earliest possible date. The FRA also involves the railroads in establishing quiet zones, from possible installation of Supplementary Safety Measures (SSM) to providing updated information for the National Grade Crossing Inventory. While the rule does not specifically require that a railroad provide access to its property to accommodate the installation of equipment such as four quadrant gates, it is expected that railroads will continue to cooperate with local and state authorities for the installation of grade crossing safety improvements. Once a public authority establishes a quiet zone under the terms of this rule, the railroad is legally prohibited from sounding the locomotive horn at crossings within the quiet zone unless otherwise permitted in the rule (i.e., during emergency situations).

A.1 Background on Train Horn Use

Horns must be sounded when trains approach and pass through a public highway-rail grade crossing. The horn does not have to be sounded when approaching or passing through grade-separated or private crossings (unless required by state law) (Section 222.21). All locomotives must sound the horn starting 15 to 20 seconds before reaching a public highway-rail grade crossing. However, in no case may the horn be sounded more than one-quarter mile before the crossing (Section 222.21). Train horn sound levels must range between a minimum of 96 dB(A) and a maximum of 110 dB(A) (inclusive) measured 100 feet in front of the locomotive and 15 feet above the rail. Prior to issuance of this rule, there was no maximum horn sound limit. Horns must sound in the standard sequence of two longs, one short, and one long blast until the train occupies the crossing. This is a long-standing practice. This pattern may be varied as necessary where crossings are spaced closely together (Section 222.21). Each new locomotive built on or after December 18, 2004 must comply with the provisions in this rule. Locomotives built prior to this date must be tested and brought into compliance within five years from the date of publication of this rule (i.e., by December 2008) (Section 229.129).

Wayside horns may be used in place of locomotive horns at individual or multiple at-grade crossings, including those within quiet zones. The wayside horn is a stationary horn located at a highway-rail grade crossing, designed to provide audible warning to oncoming motorists of the approach of a train. The wayside horn will be treated as a one-for-one substitute for the train horn. The crossing where the wayside horn is being utilized must be equipped with flashing lights and gates (Section 222.59 and Appendix E). State and local laws and ordinances which govern the sounding of locomotive horns at public highway-rail grade crossings will be preempted by this Interim Final Rule when it becomes effective, in one year, on December 18, 2004.

A.2 Requirements for Quiet Zones

For New Quiet Zones, the rule establishes a minimum length of at least one-half mile along the length of railroad right-of-way. There is no maximum length for a quiet zone. New Quiet Zones must have active (automatic) grade crossing warning devices comprising both flashing lights and gates at all public highway-rail grade crossings. Each highway approach to every public and private grade crossing within a New Quiet Zone must have an advance warning sign that advises motorists that train horns are not sounded at the crossing (Section 222.35).

Supplemental Safety Measures (SSM) are engineering improvements, that when installed at crossings within a quiet zone, would reduce the risk of a collision at the crossing. SSMs are installed to reduce the risk level either to that which would exist if the train horn were sounded (i.e., compensating for the lack of the train horn) or to a level below the Nationwide Significant Risk Threshold (NSRT). The NSRT is the average of the risk indexes for gated public crossings

nationwide where train horns are routinely sounded. A community that is trying to establish and/or maintain its quiet zone can compare the Quiet Zone Risk Index calculated for its specific crossing corridor to the NSRT to determine whether sufficient measures have been taken to compensate for the excess risk that results from prohibiting routine sounding of the locomotive horn. In the alternative, a community can establish its quiet zone by using the "Risk Index with Horns," which is a corridor-specific measure of risk to the motoring public when based on the level of safety estimated when locomotive horns are routinely sounded at every public highway-rail grade crossing within the quiet zone. SSMs that are approved by the FRA for use to achieve the NSRT include:

1. Temporary closure of a public highway-rail grade crossing (i.e., nighttime closure);
2. Four-quadrant gate systems;
3. Gates with medians or channelization devices (traffic separators); and
4. Conversion of a two-way street into a one-way street with gates(s).

In certain circumstances, modifications to SSMs are allowed. Detailed information on SSMs can be obtained on the FRA web site, www.fra.org.

The public authority that is responsible for the safety and maintenance of the roadway that crosses the railroad track(s) is the only entity that can designate or apply for a quiet zone. Private companies, citizens, or neighborhood associations are not able to create a quiet zone independent of local authorities. A designation or application must come from the governmental jurisdiction (e.g., city, county, or state government) that is responsible for motor vehicle safety at the crossing (Section 222.39). The public authority is responsible for funding the improvements needed at the crossing to compensate for the lack of a horn. The statute did not provide a dedicated source of funding for the improvements necessary to create quiet zones. Although there were no dedicated funds made available for these improvements, there are several categories of Federal transportation funding available that may be used by states and localities for this purpose. Improvements at public crossings are typically funded by the Section 130 Program which is a part of the 10 percent Safety Set Aside Program under the Transportation Equity Act for the 21st Century. However, the obligation of these safety funds must be made on a statewide priority basis for safety improvements. Installing safety measures to compensate for the lack of an existing safety device (i.e., the locomotive horn) is not the purpose of Section 130, which is directed at risk reduction.

Quiet zones that include crossing closures and other major risk reduction methods may have a better chance of qualifying, to the extent they more than compensate for the absence of the train horn. SSMs would be eligible to compete with other priorities for funding under the remainder (90 percent) of the Surface Transportation Program (STP) (and, with respect to a U.S. highway, under the National Highway System program). Decision-making for these programs is primarily vested at the state level, with participation in planning by local

metropolitan planning organizations. Surface transportation reauthorization legislation was pending in the Congress as the briefing material provided in this section was being prepared by the FRA. However, it is assumed that SAFETEA-LU continued these same policies. Note that there also are separate rules that pertain to private crossings which can be found at the FRA web site. However, none of the major railroad crossings in the Augusta region are on privately owned roads.

FRA developed a **Quiet Zone Calculator** to enable local planners to consider a variety of options that could reduce risk levels to those necessary for the establishment of quiet zones. The Quiet Zone Calculator (http://www.fra.dot.gov/Content3.asp?P=1337) is designed to:

1. Perform the necessary calculations used to determine the existing risk levels at crossings along corridors;
2. Recalculate the risk indexes to reflect implementation of SSMs, ASMs (and, in the case of Prerule Quiet Zones, crossing warning device upgrades); and
3. Show corridor risk levels relative to the risk levels needed for compliance with the quiet zone establishment requirements.

To use the Internet-based computer tool effectively, accurate information about the current physical and operational characteristics of the relevant crossings must be used. That is, the National Highway-Rail Crossing Inventory record of each affected crossing must reflect current conditions.

It also should be noted that there are several circumstances in which the locomotive engineer may sound the horn in a quiet zone. The horn may be used in an emergency situation to provide an audible warning to motorists, pedestrians, trespassers, train crews, or others in order to prevent injury, death, or property damage. Under the terms of the rule, it will be a locomotive engineer's sole judgment on whether or not to sound the horn for an emergency. The use of the horn also will be required in a quiet zone if the train crew is aware that automatic warning devices are not functioning properly in accordance with FRA regulations (49 CFR Part 234). The horn also may be used to provide a warning to workmen alongside the track in accordance with another FRA regulation (49 CFR Part 214) (Section 222.23). The courts will ultimately determine who will be held liable if a collision occurs at a grade crossing located within a quiet zone, as the collision may have been caused by factors other than the absence of an audible warning. Nonetheless, the Interim Final Rule is intended to remove "failure to sound the locomotive horn" as a cause of action in lawsuits involving collisions at grade crossings located within quiet zones.

Augusta Regional Freight Profile

final

report

prepared by

Cambridge Systematics, Inc.

with

EDAW, Inc.
MPH and Associates, Inc.

January 2008

www.camsys.com

final report

Augusta Regional Freight Profile

prepared for

Augusta-Richmond County Planning Commission
Aiken County Planning and Development Department

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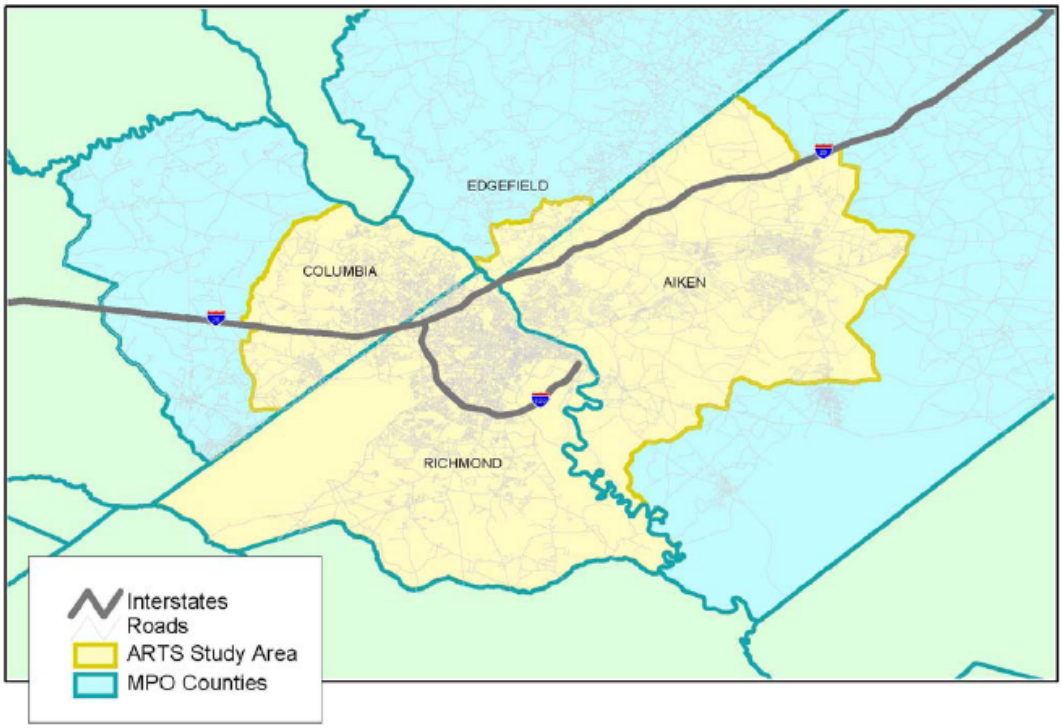
1.0 Introduction

This document describes freight movement in the Augusta Regional Transportation Study (ARTS) Area based on existing data and interviews of key stakeholders in the region. It also provides alternative forecast methodologies to allow for an estimation of future freight flows in the region.

The ARTS study area includes all of Richmond County and portions of Columbia County in Georgia and parts of Aiken and Edgefield Counties in South Carolina (Figure 1.1). The ARTS area includes the Georgia cities of Augusta, Grovetown, Hephzibah, and Blythe; and South Carolina cities of Aiken, North Augusta, and Burnettown. The study area also includes the Fort Gordon Military Reservation located in Georgia's Columbia and Richmond Counties.

This document is the deliverable for Task 2 – Freight Profile in the Augusta-Richmond County MPO Freight Plan Development Study. This freight profile is structured modally, so that each mode is described in terms of the network, current and future freight volumes, bottlenecks, and potential solutions.

Figure 1.1 ARTS Study Area



This report utilizes data from four major sources – Georgia and South Carolina Department of Transportation traffic flow and safety data, Global Insight

TRANSEARCH commodity flow data, R.L. Polk and Company's National Vehicle Population Profile, and a Georgia Department of Transportation (GDOT) Truck Study and Survey.

Traffic flow data for the study area was retrieved from the Georgia and South Carolina Departments of Transportation. These agencies also provided corridor and intersection crash data.

Commodity flow data are valuable tools for freight transportation planning activities, as they provide detailed information on mode split, origin/destination pairs, and key commodities. The commodity flow data utilized in this profile were derived from a TRANSEARCH database developed by Global Insight and Waterbourne Data from the Army Corps of Engineers.

TRANSEARCH is generally accepted as the best available commodity flow data. However, it should be noted that there are some limitations in how the database should be used and interpreted. In some cases, data are not available for certain types of flows. The Rail Waybill data used by Global Insight are based on data collected from Class I railroads. The waybill data contain some data for regional and short-line railroads, but only in regards to interline service associated with a Class I railroad. The rail tonnage movements provided by the TRANSEARCH database are a conservative estimate.

The TRANSEARCH data discussed in this report is comprised of freight movements in the Augusta Metropolitan Statistical Area (MSA). The MSA includes Burke, Columbia, McDuffie, and Richmond Counties in Georgia; and Aiken and Edgefield Counties in South Carolina. To account for this difference in boundary areas, the inbound, outbound, and internal trips are based on the ARTS area and the through movements include the remaining flows provided in the TRANSEARCH database.

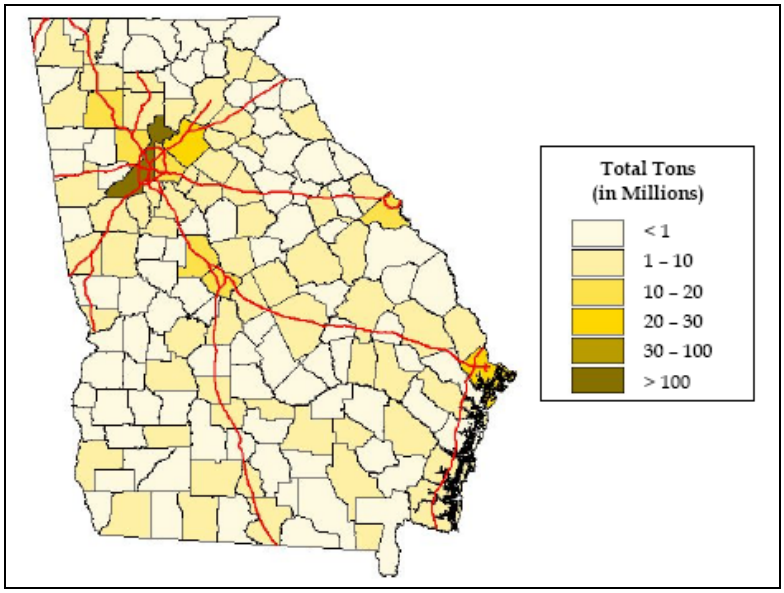
The R.L. Polk and Company's National Vehicle Population Profile is used to identify heavy-duty vehicle registrations in Augusta. The vehicle population profile includes all heavy-duty vehicles in the Augusta MSA.

1.1 MODAL ANALYSIS

Freight is transported from, to, through, and within the Augusta metropolitan area by truck, rail, and air. It is important to analyze how freight is moving in order to understand its impact on overall traffic patterns and modal interdependence of freight. Figures 1.2 and 1.3, from the 2005-2035 Georgia Statewide Freight Plan, show 1998 and 2035 freight flows for the State of Georgia. Columbia and Richmond County tonnages total 1 to 10 million tons and 20 to 30 million tons, respectively. The 2035 projections show Richmond County's freight flows increasing to 30 to 100 million tons by 2035. These forecasts were derived by taking the state-to-state forecasts of freight flows provided by the Federal Highway Administration's Freight Analysis Framework (FAF). The state-to-

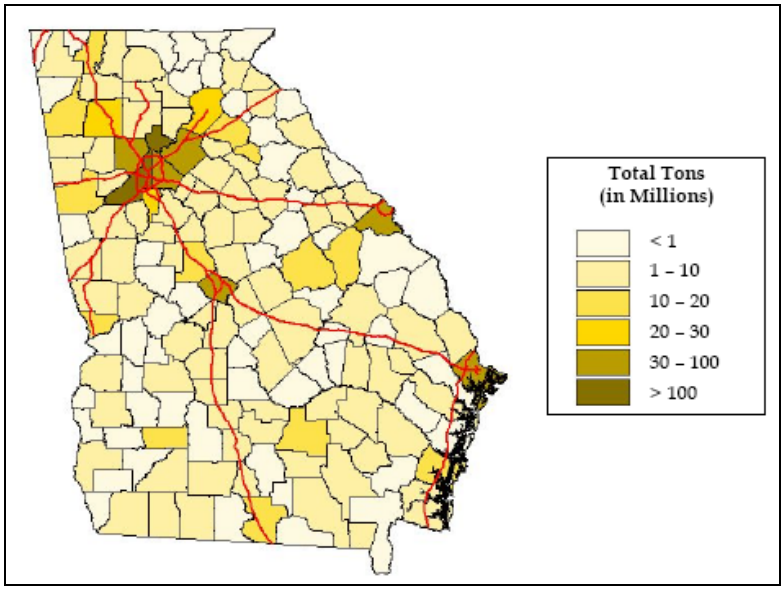
state growth rates were applied to the 2005 Georgia TRANSEARCH database and were extrapolated to 2035.

Figure 1.2 1998 Tonnage by County for All Modes



Source: 2005-2035 Georgia Statewide Freight Plan.

Figure 1.3 2035 Tonnage by County for All Modes



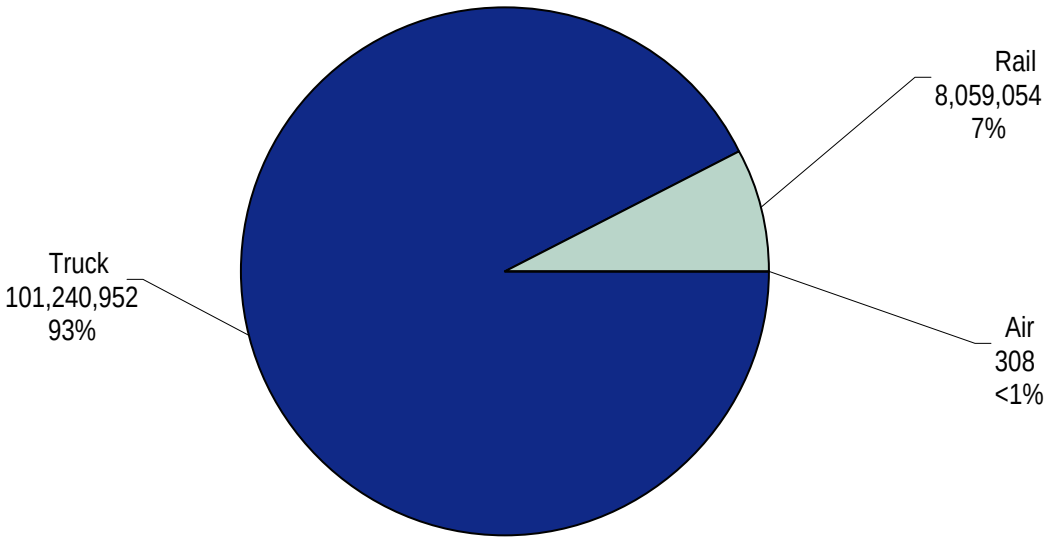
Source: 2005-2035 Georgia Statewide Freight Plan.

Figure 1.4 shows the mode split of freight cargo movement in the Augusta region. Truck cargo accounts for 93 percent (101 million tons) of all freight in the region by weight. Another 7 percent (8 million tons) is transported via rail and

less than one percent (308 tons) moves into and out of the region via airplane. This information shows that, like most places, the Augusta region is dependent upon trucks for the movement of much of its freight and major highways play an important role in the movement of goods into, out of, and through the region.

Figure 1.4 2006 Mode Split by Weight

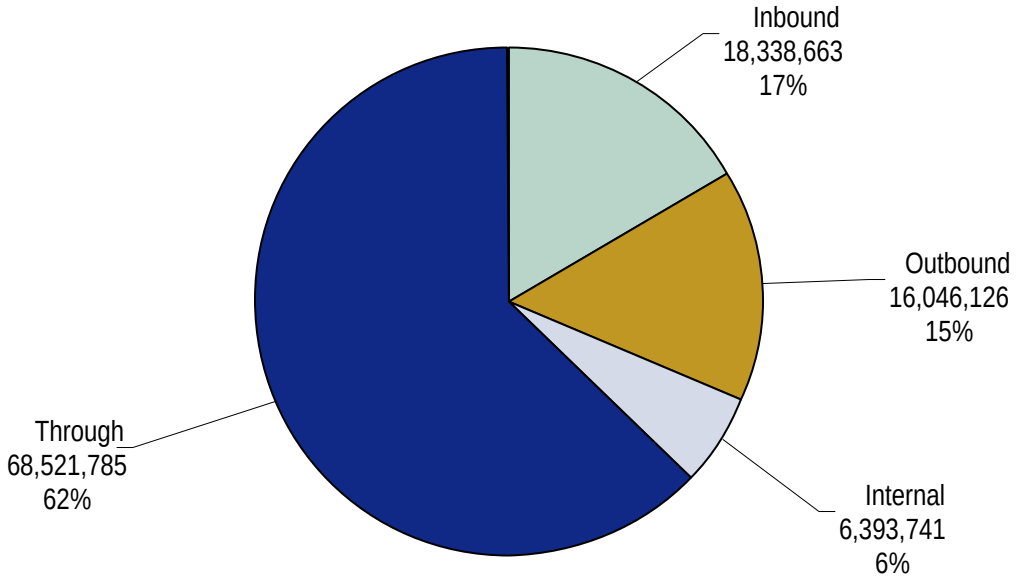
In Tons



Source: 2006 TRANSEARCH.

As shown in Figure 1.5, 68.5 million tons of through freight cargo account for 62 percent of all cargo for the region. This high volume is attributed mostly to shipments headed to the Atlanta, Macon, Columbia, Charleston, and Savannah regions or from Macon, Columbia, Charleston, Atlanta, and Houston traveling on I-20 through Aiken, Columbia, and Richmond Counties. Nearly 18.3 million tons of freight are transported to the region and account for 17 percent of all freight cargo in the area. Outbound shipments make up a smaller percentage of the tonnage transported than inbound movements (15 percent versus 17 percent). Freight movement within the region makes up the smallest share of the movement by weight (6 percent). Given the short-distance nature of these shipments, they impact local roadways greatly.

Figure 1.5 2006 Freight Movement by Type
By Weight (Tons)



Source: 2006 TRANSEARCH.

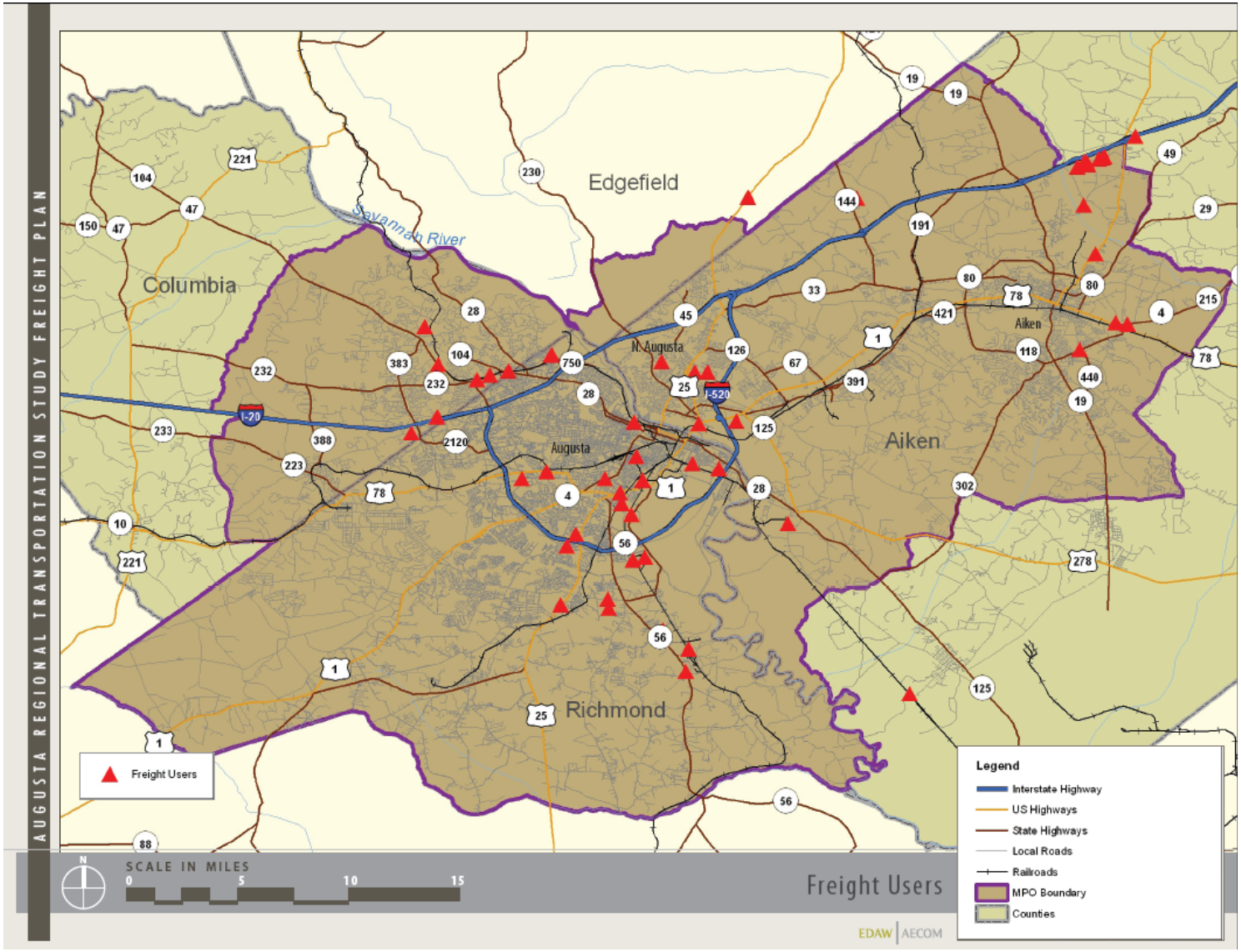
It also is important to understand the types of commodities being moved along Augusta's freight transportation infrastructure. Table 1.1 shows the top 15 commodities moving into, out of, within, and through Augusta. The top five commodity groups accounted for 74 percent of the total flows, or 79 million tons, by weight. These commodity groups consisted of nonmetallic minerals (27 percent); clay, concrete, glass or stone (13 percent); lumber or wood products (12 percent); secondary traffic (12 percent); and chemicals or allied products (8 percent). These commodities accounted for over nine million tons each while the top commodity accounted for over 29 million tons.

Figure 1.6 identifies a sample of freight users in the Augusta region. Freight users are manufacturing facilities, retail establishments, airports, office buildings, rail yards, warehouses, and distribution centers that contribute to the flow of cargo in the region. A large number of the freight users identified by the study are located inside the I-520 loop. Freight users also are located in Columbia and Aiken Counties. The freight users are typically clustered around or near the rail lines in the region. The cluster of freight users inside the I-520 loop is located at the junction of four rail lines.

Table 1.1 2006 Top 15 Commodity Flows

STCC	Commodity	Tons (Millions)	Percent Share
14	Nonmetallic Minerals	29.7	27.2%
32	Clay, Concrete, Glass, or Stone	13.6	12.5%
24	Lumber or Wood Products	13.2	12.1%
50	Secondary Traffic	13.2	12.0%
28	Chemicals or Allied Products	9.2	8.4%
20	Food or Kindred Products	7.0	6.4%
29	Petroleum or Coal Products	7.0	6.4%
26	Pulp, Paper, or Allied Products	4.3	3.9%
01	Farm Products	1.6	1.5%
33	Primary Metal Products	1.5	1.4%
22	Textile Mill Products	1.4	1.3%
34	Fabricated Metal Products	1.3	1.2%
35	Machinery	1.2	1.1%
30	Rubber or Miscellaneous Plastics	1.2	1.1%
37	Transportation Equipment	1.0	0.9%
	All Other	2.8	2.5%
	Total	109.3	100.00%

Figure 1.6 2007 Freight Users in the Augusta Region



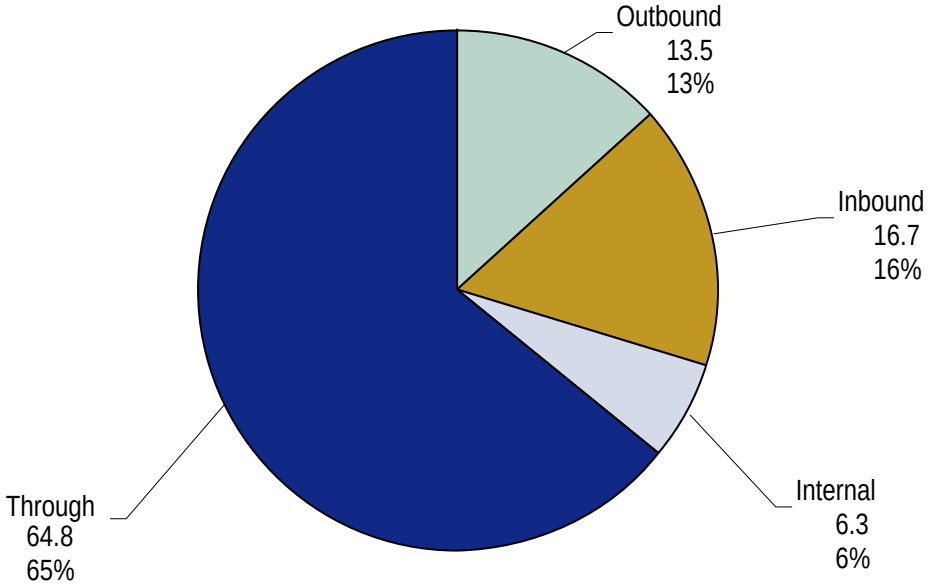
2.0 Truck Flows in Augusta Regional Transportation Study Area

As shown in Figure 1.4, approximately 101.2 million tons of freight was transported to, from, within, and through the Augusta region via truck. Figure 2.1 shows the split of movement type for truck freight. As expected, through freight make up the most significant portion of the truck freight in the Augusta region (65 percent by weight). This high volume is attributed mostly to shipments headed to/from nearby regions such as Atlanta, Savannah, Macon, Albany, Columbia, and Charleston. Thirteen percent of the truck movement is outbound freight and 16 percent is inbound freight movement. Intraregional movements make up the smallest share of the truck freight in the region (6 percent). The movement split for the region is similar when looking at truck tons (Figure 2.2).

The TRANSEARCH database provided commodity information at the two-digit STCC level. Table 2.1 shows the top commodities moving into, out of, within, and through the Augusta region by truck. The top five commodity groups accounted for 71 percent of the total truck flows, or 72 million tons, by weight. These commodity groups consisted of nonmetallic minerals (27 percent); secondary moves (13 percent); lumber or wood products (12 percent), clay, concrete, glass, or stone (12 percent); and petroleum or coal products (7 percent).

Figure 2.1 2006 Augusta Truck Flows by Movement Type

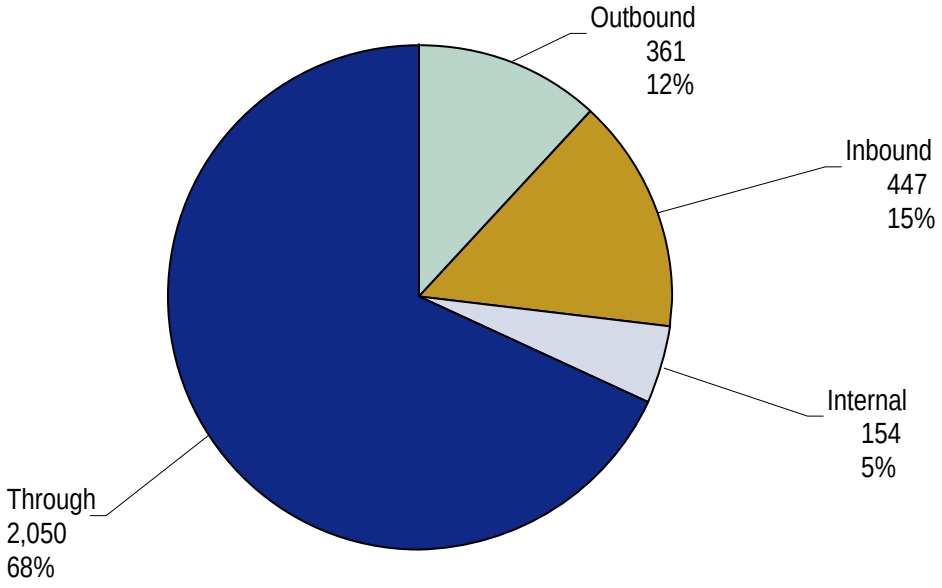
By Weight (Millions of Tons)



Source: 2006 TRANSEARCH.

Figure 2.2 2006 Augusta Truck Flows by Movement Type

By Weight (Thousands of Truck Loads)



Source: 2006 TRANSEARCH.

Table 2.1 2006 Top Truck Commodities

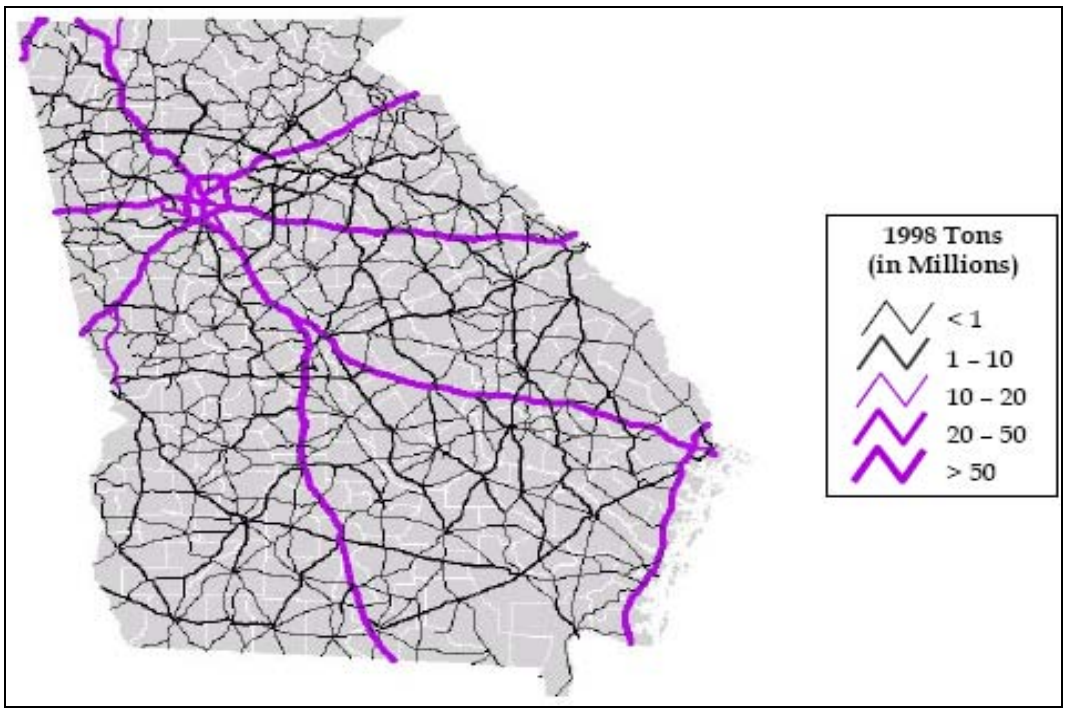
STCC2	Commodity	Tons	Percent Share
14	Nonmetallic Minerals	27.14	27%
50	Secondary Traffic	13.16	13%
24	Lumber or Wood Products	12.53	12%
32	Clay, Concrete, Glass, or Stone	12.02	12%
29	Petroleum or Coal Products	7.01	7%
20	Food or Kindred Products	7.00	7%
28	Chemicals or Allied Products	6.89	7%
26	Pulp, Paper, or Allied Products	3.69	4%
	All Others	11.80	12%
	Total Tons	101.24	100%

Source: 2006 TRANSEARCH.

2.1 NETWORK

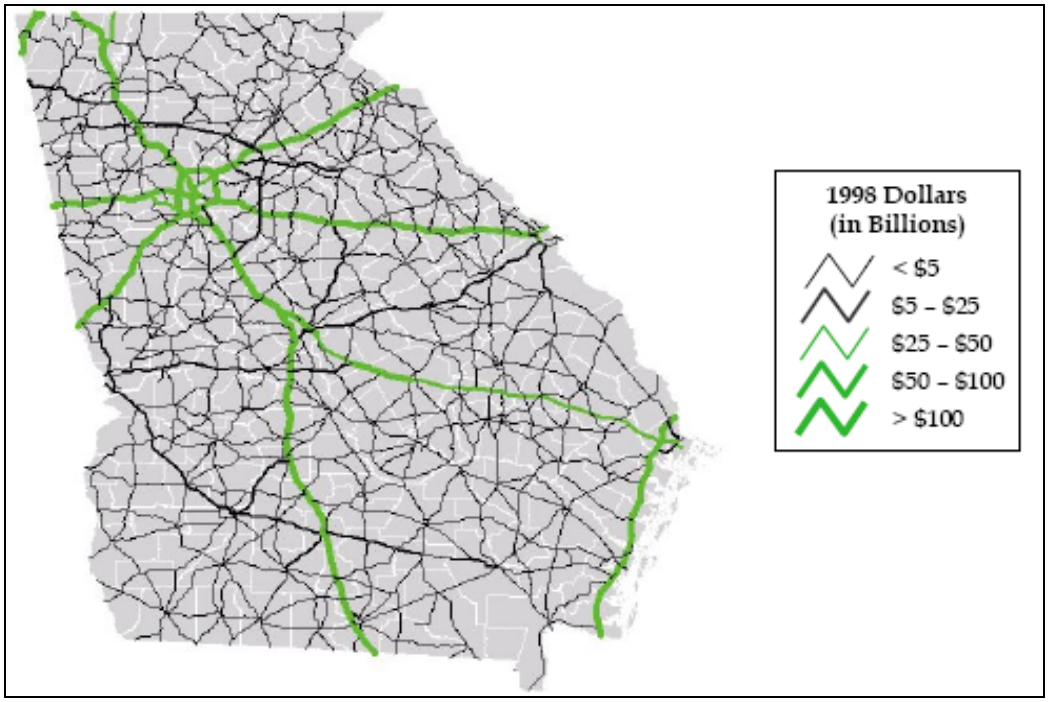
Figures 2.3 and 2.4, from the 2005-2035 Georgia Statewide Freight Plan, identify the high-tonnage truck corridors in the State of Georgia. The 2005 TRANSEARCH database was used to compile the Georgia Statewide Freight Plan while 2006 TRANSEARCH data is the freight data source for this report. The interstate highway system is responsible for moving the largest amount of the truck traffic. I-20 provides primary truck access to the Augusta region. The major routes in the region are I-20, I-520, U.S. 1, U.S. 25 BUS, U.S. 278, GA 4, GA 28, GA 104, SC 121, SC 125, SC 126, SC 230, and SC 302. I-20 provides the most direct access to the region from Atlanta, Georgia, located northwest of the Augusta-Richmond metropolitan area, and from Columbia, South Carolina located northeast of the region. I-520 provides radial access to the City of Augusta from I-20 on the southwest side to U.S. 1 northeast of Augusta. U.S. 25 provides access to Savannah and U.S. 78 to Charleston. U.S. 1 connects Augusta to Macon and southeast Georgia and continues from Augusta to Columbia, South Carolina. The Savannah River runs northwest to southeast at the border of Georgia and South Carolina. There are five major roadway bridges across the Savannah River: I-20, U.S. 1, U.S. 25 BUS, I-520, and SR 28/Sand Bar Ferry Road.

Figure 2.3 1998 High-Tonnage Truck Corridors



Source: 2005-2035 Georgia Statewide Freight Plan.

Figure 2.4 1998 High-Value Truck Corridors



Source: 2005-2035 Georgia Statewide Freight Plan.

The major routes of the region are candidates for consideration as truck routes. These routes provide access to the area for traffic from Atlanta, Macon, and Columbia. U.S. 1, U.S. 278, SR 28, and SR 104 provide access to secondary streets within the region. A 2006 survey conducted for the Augusta Regional Transportation Study indicated that I-20, I-520, Gordon Highway, U.S. 1, U.S. 25, SC 19, and SC 302 are the most frequently used routes for trucks.

Table 2.2 shows the functional classification of each major route in the Augusta-Richmond metropolitan area. Tables 2.3, 2.4, 2.5, and 2.6 provide an overview of the mileage on different types of routes within Columbia, Richmond, Aiken, and Edgefield Counties. Table 2.7 provides a breakdown of the mileage on specific state routes in the Augusta city limits.

Table 2.2 2006 Functional Classification of Major Routes

Route Name	Functional Classification
I-20	Urban Interstate Principal Arterial
I-520	Urban Interstate Principal Arterial
U.S. 1	Urban Principal Arterial
U.S. 25 BUS	Urban Principal Arterial
U.S. 278	Urban Principal Arterial
GA 4	Urban Principal Arterial
GA 28	Urban Principal Arterial/Freeway and Expressway
GA 104	Urban Principal Arterial/Freeway and Expressway
SC 121	Principal Arterial
SC 125	Minor Arterial
SC 126	Minor Arterial
SC 230	Minor Arterial
SC 302	Minor Arterial

Source: GDOT, Office of Transportation Data, and SC DOT.

Table 2.3 2006 Columbia County Mileage by Type of Route

Type of Route	Paved Miles	Unpaved Miles	Total Miles	Lane Miles	Daily VMT
State Routes	130.17	0.00	130.17	335.67	1,704,844.62
County Roads	484.7	99.66	584.36	1,169.22	748,704.00
City Streets	30.78	1.15	31.93	63.67	30,617.20
Total	645.65	100.81	746.46	1568.56	2,484,166.62

Source: Georgia Department of Transportation, Office of Transportation Data.

Table 2.4 2006 Richmond County Mileage
By Type of Route

Type of Route	Paved Miles	Unpaved Miles	Total Miles	Lane Miles	Daily VMT
State Routes	146	0.02	146	583	3,031,588
County Roads	915	29	944	1,981	2,280,680
City Streets	18	4	22	44	22,736
Total	1,078	33	1,111	2,608	5,335,004

Source: Georgia Department of Transportation, Office of Transportation Data

Table 2.5 2006 Aiken County Mileage
By Type of Route

Type of Route	Paved Miles	Unpaved Miles	Total Miles	Lane Miles	DVMT
Interstate	37	0	37	149	1,119,689
Primary	308	0	308	797	2,243,644
Secondary	1,129	33	1,162	2,364	1,165,127
Other	97	772	869	1,738	125,946
Total	1,571	805	2,376	5,047	4,654,407

Source: South Carolina Department of Transportation.

Table 2.6 2006 Edgefield County Mileage by Type of Route

Type of Route	Paved Miles	Unpaved Miles	Total Miles	Lane Miles	DVMT
Interstate	0	0	0	0	0
Primary	136	0	136	286	393,951
Secondary	447	22	469	938	185,029
Other	7	333	340	681	40,232
Total	590	355	945	1,905	619,212

Source: South Carolina Department of Transportation.

Table 2.7 2006 Augusta City Mileage
By State Route

Route Number	Miles
SR-000400	23.4
SR-001000	18.2
SR-002800	11.3
SR-005600	14.6
SR-0056SP	6.6
SR-008800	5.2
SR-010400	7.4
SR-0104CO	0.7
SR-0104EA	0.6
SR-012100	13.7
SR-022300	0.2
SR-023200	0.8
SR-038300	2.6
SR-040200	6.5
SR-041500	15.6
SR-105600	1.2
SR-110200	2.6
SR-112800	2.8
SR-113200	0.3
SR-1132TA	0.2
SR-1132TB	0.2
Total	134.7

Source: Georgia Department of Transportation, Office of Transportation Data.

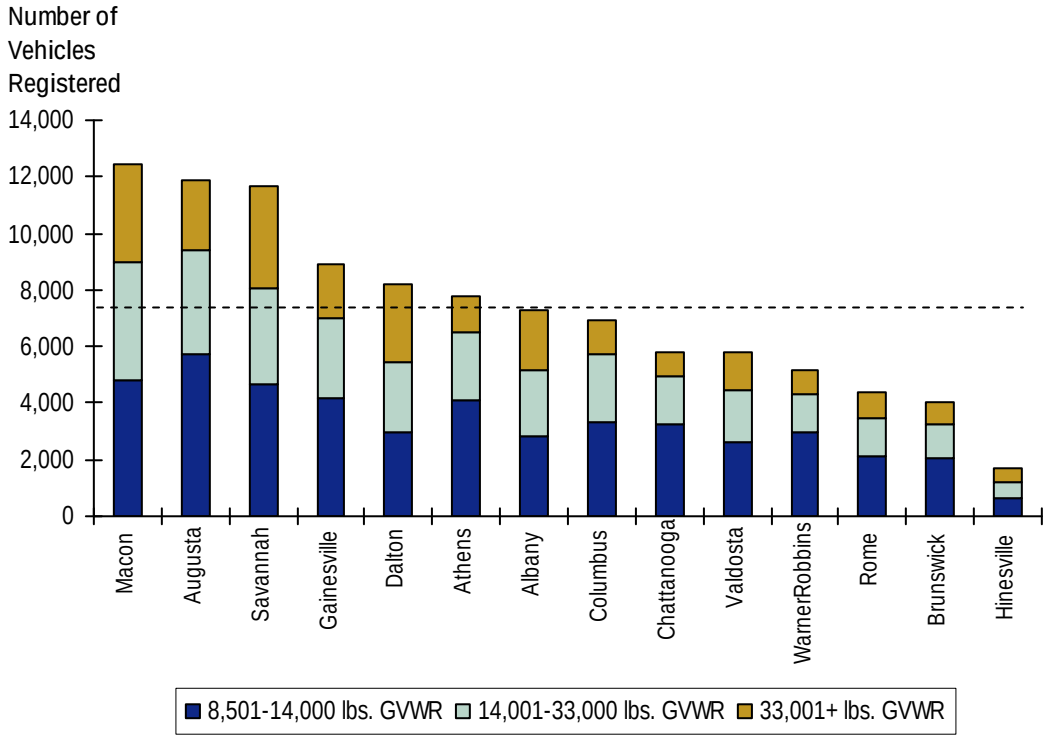
Vehicles

A variety of information about trucks in the Augusta-Richmond County area can be gathered by analyzing registration data from R.L. Polk and Company's 2003 National Vehicle Population Profile. This database tracks the number of vehicles registered by age, vehicle class, and county. Data from across Georgia was obtained in order to compare the Augusta Metropolitan Statistical Area (MSA), which contains Burke, Columbia, McDuffie, and Richmond Counties in Georgia and Aiken and Edgefield Counties in South Carolina, to other MSAs in the State. Data specific to the ARTS area was not available. Heavy-duty vehicles, which will most likely be carrying freight, are separated into a number of classes based on the gross vehicle weight rating (GVWR).

Figure 2.5 shows the number of heavy-duty vehicle registrations by MSA and provides a breakdown by three different weight categories. The Atlanta MSA

was excluded from the chart because it contains almost 230,000 heavy-duty vehicles, which would make it difficult to compare the remaining MSAs. When comparing Augusta to other MSAs it can be seen that Augusta ranks 3 out of 15 in terms of the total number of registered heavy-duty vehicles. Another way to rank the MSAs against each other is by the percent of all vehicles that are represented by heavy-duty vehicles. In this type of comparison, which can be seen in Table 2.8, Augusta ranks lower than before (13 out of 15) with 4.35 percent of all vehicles as heavy duty.

Figure 2.5 2003 Heavy-Duty Vehicle Registrations



Source: R.L. Polk and Company's National Vehicle Population Profile.

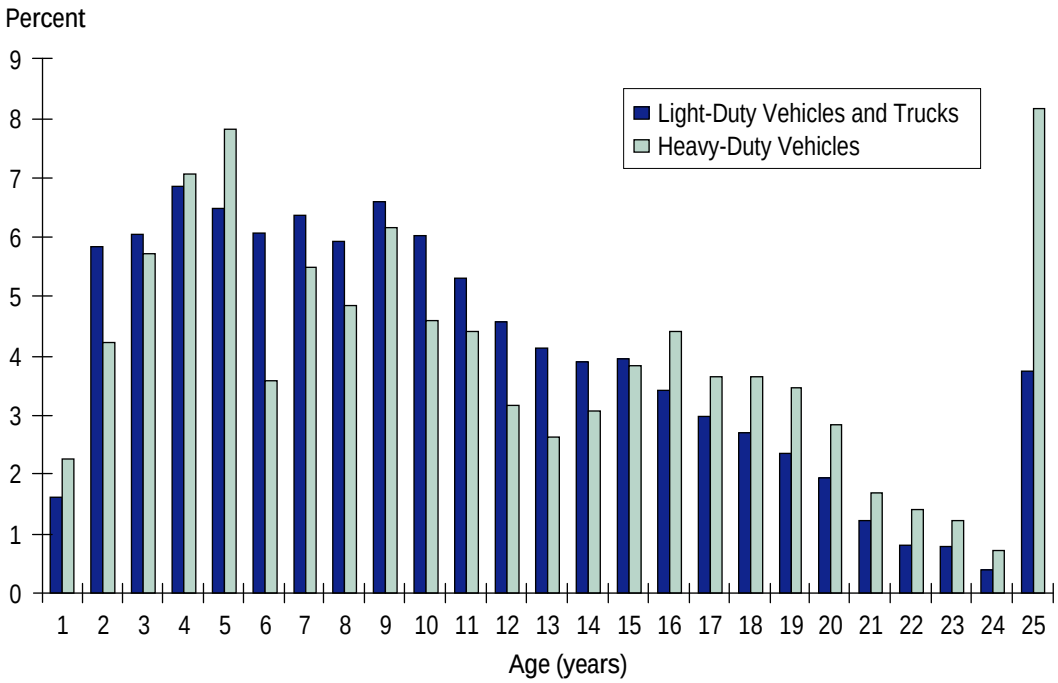
Table 2.8 2003 Percent of Vehicles Registered As Heavy Duty

MSA	Heavy Duty Vehicles
Dalton	7.31%
Gainesville	6.58%
Macon	6.53%
Albany	6.20%
Atlanta	6.19%
Valdosta	6.06%
Athens	5.81%
Rome	5.62%
Chattanooga	5.20%
Warner Robbins	5.19%
Brunswick	4.98%
Savannah	4.88%
Augusta	4.35%
Columbus	4.07%
Hinesville	3.53%

Source: R.L. Polk and Company's National Vehicle Population Profile.

The R.L. Polk database also groups vehicles by age in one-year increments from 1 to 24 years old and another category for 25 or more years old. Figure 2.6 shows the age distributions for both light and heavy duty vehicles in the Augusta MSA. The light duty vehicles and trucks group has the largest number of vehicles in the four- and nine-year-old range. The heavy duty vehicles group has the most vehicles in the four to five and 25 and older range. The light duty vehicles are spread more evenly over all years, while heavy duty vehicles experience up and down trends with smaller peaks also occurring at nine and 16 years. However, when a weighted average of the vehicle age is taken overall, both light and heavy-duty vehicles have an average between 10 and 12 years old. This can be seen in Table 2.9.

Figure 2.6 2003 Age Distributions for Augusta MSA Vehicles



Source: R.L. Polk and Company's National Vehicle Population Profile.

Table 2.9 2003 Weighted Average age for Augusta MSA Vehicles

Vehicle Class	Average Age (years)
Light-duty vehicles	10.76
Light-duty trucks	10.22
Heavy-duty vehicles	11.52
Buses	10.23

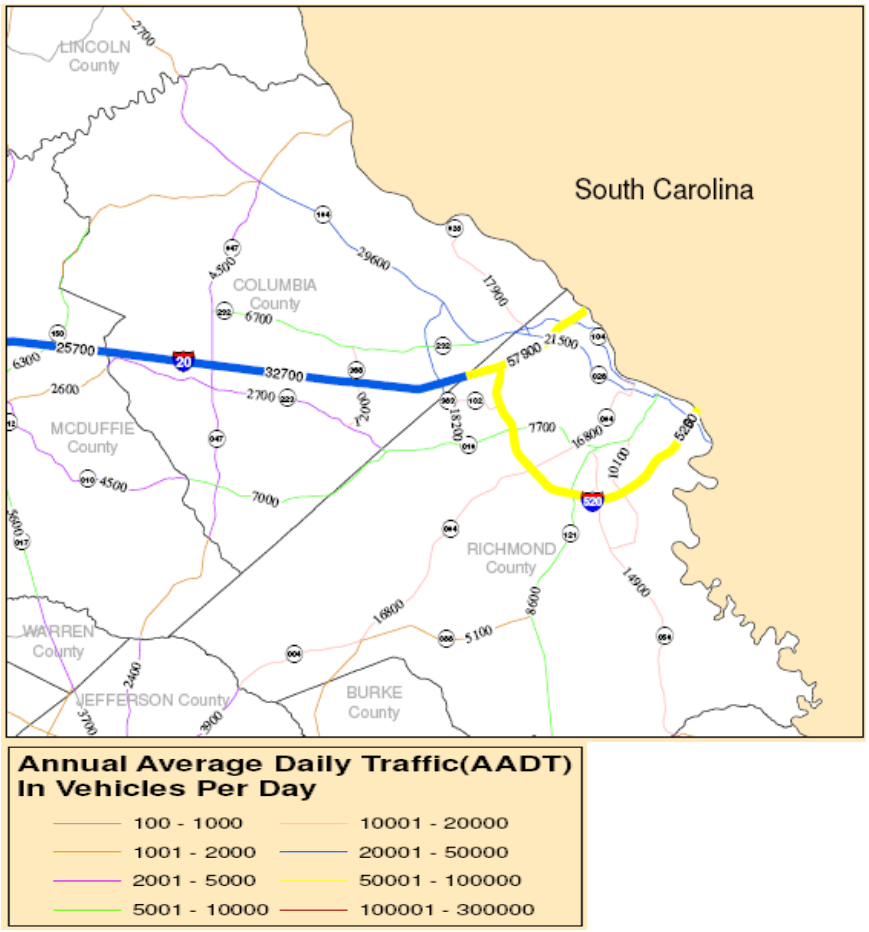
Source: R.L. Polk and Company's National Vehicle Population Profile.

2.2 TRUCK FLOWS

Figures 2.7 and 2.8 show the annual average daily traffic (AADT) for the Augusta area of Columbia and Richmond Counties and Aiken County in South Carolina. These data are for all vehicles, autos, and trucks. Therefore, count data from GDOT's Office of Transportation Data (OTD) and South Carolina DOT will be used to determine the location of significant truck flows. Count data comes from both permanent automatic traffic recorders (ATR) and portable count stations that use a different type of technology, such as rubber tubes. The locations of ATRs in Richmond County are shown in Figure 2.9. No permanent ATRs are located in Columbia County though portable count stations are available. While

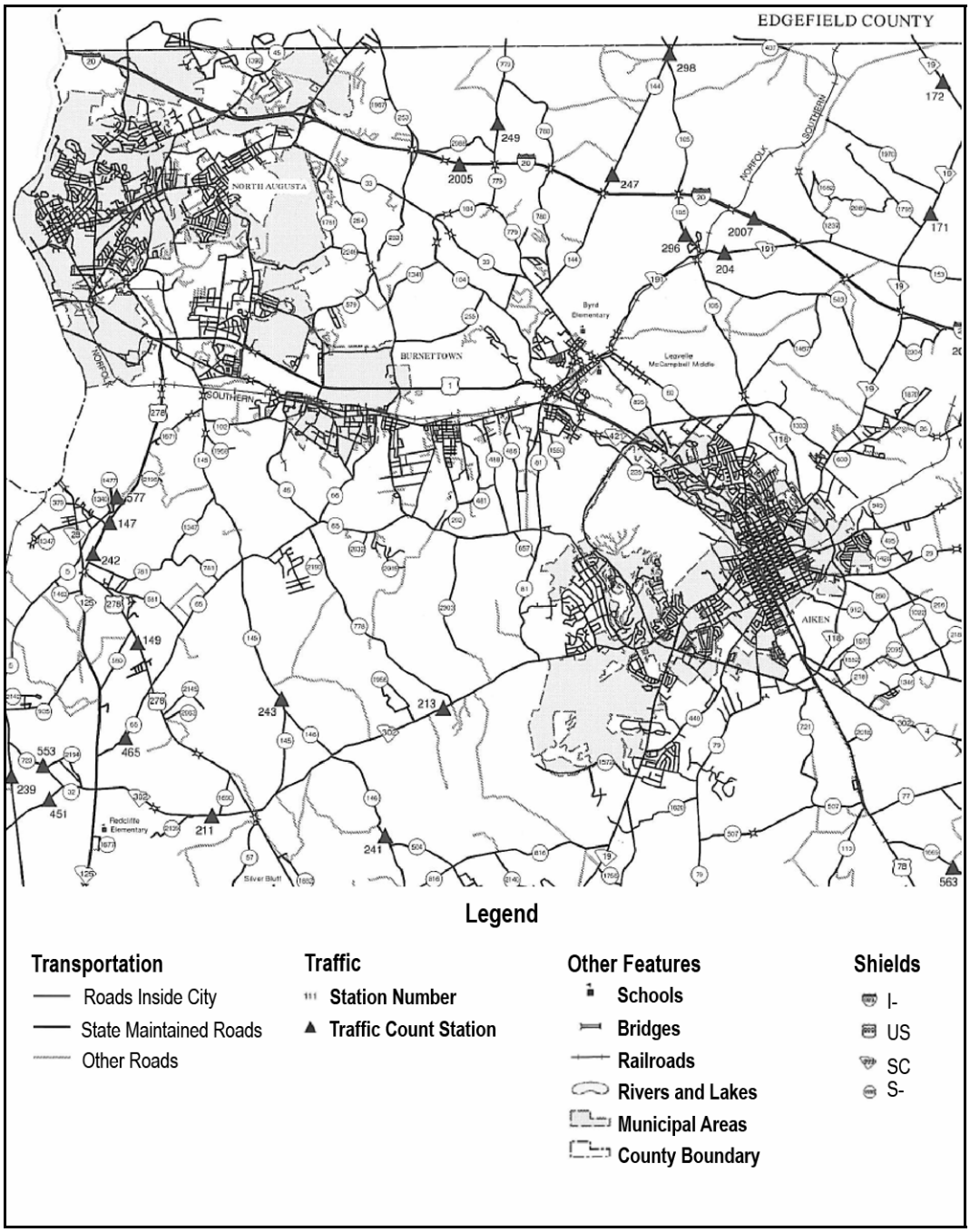
almost all ATRs have information on the percentage of trucks on a roadway, only a limited number of portable stations have these data available. Therefore, out of the several hundred count stations in Richmond and Columbia County, only 21 had truck percentage data. Twenty-four count stations in Aiken County provided truck percentage data.

Figure 2.7 2006 Augusta Area Traffic Flow



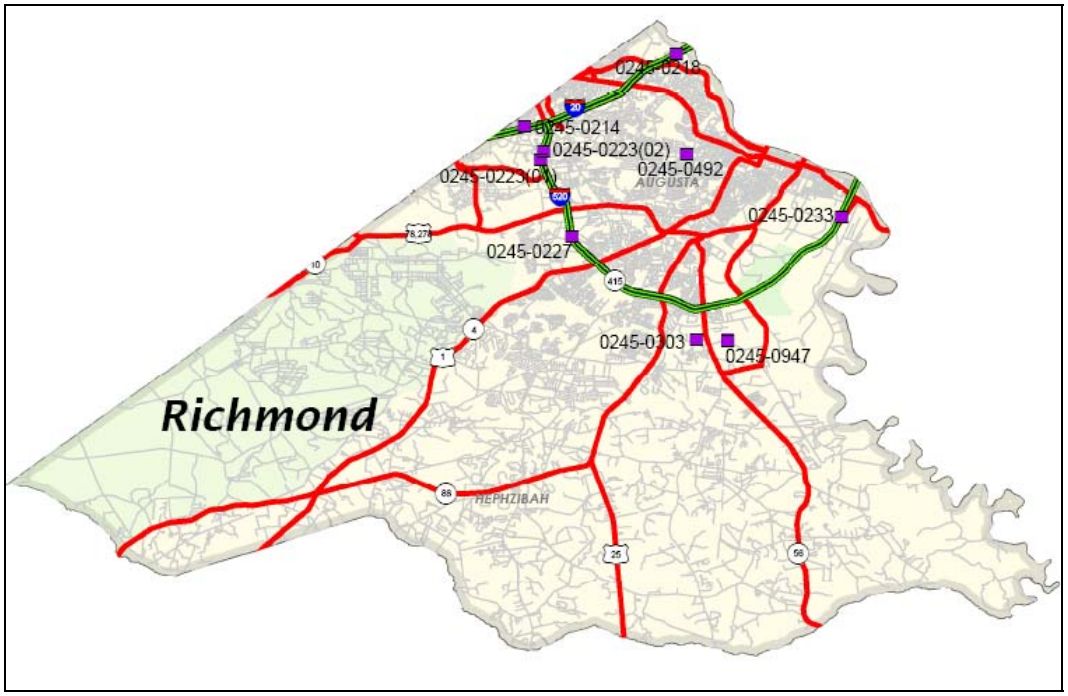
Source: Georgia Department of Transportation, Office of Transportation Data.

Figure 2.8 2006 Aiken County, South Carolina Traffic Flow Map



Source: South Carolina Department of Transportation.

Figure 2.9 Location of Permanent Automatic Traffic Recorders (ATR) in Augusta-Richmond Area



Source: Georgia Department of Transportation, Office of Transportation Data.

Truck volumes can be used to identify routes that should be included in a truck route network. This report integrates traffic flow data from multiple sources to identify key routes in the Augusta area based on estimated truck volumes.

The Federal Rail Administration provides vehicle volumes and truck percentages for at-grade rail crossings. To identify truck flows on additional routes in the Augusta region, not provided by the GDOT ATRs, at-grade rail crossing truck volumes also were identified. Tables 2.10, 2.11, and 2.12 show 2006 volumes for the traffic counters that yielded information on truck volumes in Georgia and South Carolina, respectively. The tables also show the truck volumes for at-grade crossings on major routes in the Augusta region. The rail crossing volumes were adjusted to 2006 using the growth rate calculated in Section 2.5. The percent of trucks at the traffic counters is calculated by dividing the truck count by the Annual Average Daily Traffic, then multiplying by 100.

Some information on truck flows going to and coming from Augusta, Georgia also was extracted from an origin/destination (O/D) survey of truck drivers in the Augusta area done for the GDOT. This O/D survey was conducted by interviewing truck drivers at the Grovetown Weigh Station on eastbound I-20. Two-hundred forty-three surveys were conducted on May 17, 2006 from 8:30 a.m. to 6:00 p.m.

The GDOT O/D survey counted vehicles by classification at the weigh station for a 48-hour period. Figures 2.10 and 2.11 show the east and westbound volumes for small, medium, and large vehicle classes. The small vehicle class consists of passenger vehicles and medium vehicles are small trucks. The large vehicle class consists of cargo trucks, which are of greatest interest to this study. The highest eastbound vehicle volumes were observed during the 9:00 a.m. hour on both days. Other high-volume periods included 5:00 to 7:00 p.m. The westbound I-20 lanes experienced the highest volumes during the 8:00 p.m. hour. Overall the 6:00 to 8:00 p.m. period was the busiest.

Table 2.10 2006 ATR and Rail Crossing Truck Percentages
1,000+ Daily Trucks

County	Route Number	Name	Beginning Intersection/ Longitude	End Intersection/ Latitude	AADT Two-Way	Truck Percent	Truck AADT Two-Way	Traffic Counter Number
A	I-20	I-20	SC 39	U.S. 178	27,600	31.9%	8,815	2015
A	I-20	I-20	Georgia State Line	S.C. 230	50,300	17.4%	8,762	2001
A	I-20	I-20	U.S. 1	S-49	28,300	30.8%	8,705	2011
A	I-20	I-20	S-144	SC 19	28,000	29.6%	8,274	2007
A	I-20	I-20	U.S. 25	S-144	30,200	24.4%	7,369	2005
R	I-20	I-20	Riverwatch Parkway	Savannah River Bridge	52,490	13.8%	7,244	218
A	I-20	I-20	SC 19	U.S. 1	27,100	25.5%	6,902	2009
R	633723M	Broad Street	33.473801	-81.9617	44,773	11.0%	4,925	RR XX
R	SR 415	I-520	Gordon Highway	Deans Bridge Road	67,750	7.2%	4,878	227
A	728954L	Williamsburg	33.554817	-81.709518	4,316	90.0%	3,884	RR XX
R	633722F	15th ST	33.4706	-81.963303	32,125	12.0%	3,855	RR XX
R	915995F	New Savannah Highway	33.334298	-81.949096	24,547	15.0%	3,682	RR XX
R	864854D	Walton Way	33.470798	-81.9767	40,338	8.0%	3,227	RR XX
A	U.S. 25	Edgefield Road	S-33	Edgefield County Line	25,300	12.7%	3,208	133
R	279431R	15th Street Ramp A	33.497601	-81.996696	53,433	6.0%	3,206	RR XX
A	721379F	Williamsburg	33.554817	-81.709518	3,531	85.0%	3,001	RR XX
R	633727P	13th Street	33.428444	-82.176361	21,809	11.0%	2,399	RR XX
A	U.S. 25	Edgefield Road	U.S. 25 BUS	SC 126	29,000	7.8%	2,265	129
R	633713G	Gwinnett Street	33.427391	-82.181709	27,100	8.0%	2,168	RR XX
R	633716C	13th Street	33.473701	-81.977699	23,856	9.0%	2,147	RR XX
R	734127S	SR 56	33.4175	-82.007301	38,680	5.0%	1,934	RR XX
A	721385J	Park Avenue	33.557152	-81.715683	9,350	20.0%	1,870	RR XX
R	734120U	Gwinnett/L. Walker	33.458037	-81.973541	25,771	7.0%	1,804	RR XX
R	279447M	Old Savannah Road	33.451099	-81.986298	21,850	8.0%	1,748	RR XX
A	U.S. 25	Georgia Avenue	SC 125	SC 230	27,100	6.2%	1,680	125

County	Route Number	Name	Beginning Intersection/ Longitude	End Intersection/ Latitude	AADT Two-Way	Truck Percent	Truck AADT Two-Way	Traffic Counter Number
R	732980H	State Highway 56	33.243305	-81.95108	16,510	10.0%	1,651	RR XX
A	715765C	Rutland Drive	33.577728	-81.70618	16,150	10.0%	1,615	RR XX
A	715764V	York Street	33.571056	-81.709251	10,653	15.0%	1,598	RR XX
A	720840W	SC 191	0	0	11,767	12.0%	1,412	RR XX
R	915994Y	New Savannah Highway	33.334298	-81.949096	9,207	15.0%	1,381	RR XX
A	U.S. 1	Jefferson Davis Highway	S-254	SC 421	22,300	5.9%	1,318	108
R	633724U	Reynolds Street	33.475101	-81.960899	25,260	5.0%	1,263	RR XX
R	864837M	Reynolds Street	33.475101	-81.960899	20,633	6.0%	1,238	RR XX
C	SR 383	S. Belair Road	Old Belair Road	Highview Drive	29,070	3.9%	1,134	221
A	SC 39	Old Ninety Six Indian Trail	S-75	I-20	2,700	41.7%	1,127	177
R	864838U	Broad Street	33.473801	-81.9617	18,733	6.0%	1,124	RR XX

Source: Georgia Department of Transportation, Office of Transportation Data.

Table 2.11 2006 ATR and Rail Crossing Truck Percentages
500 to 1,000 Daily Trucks

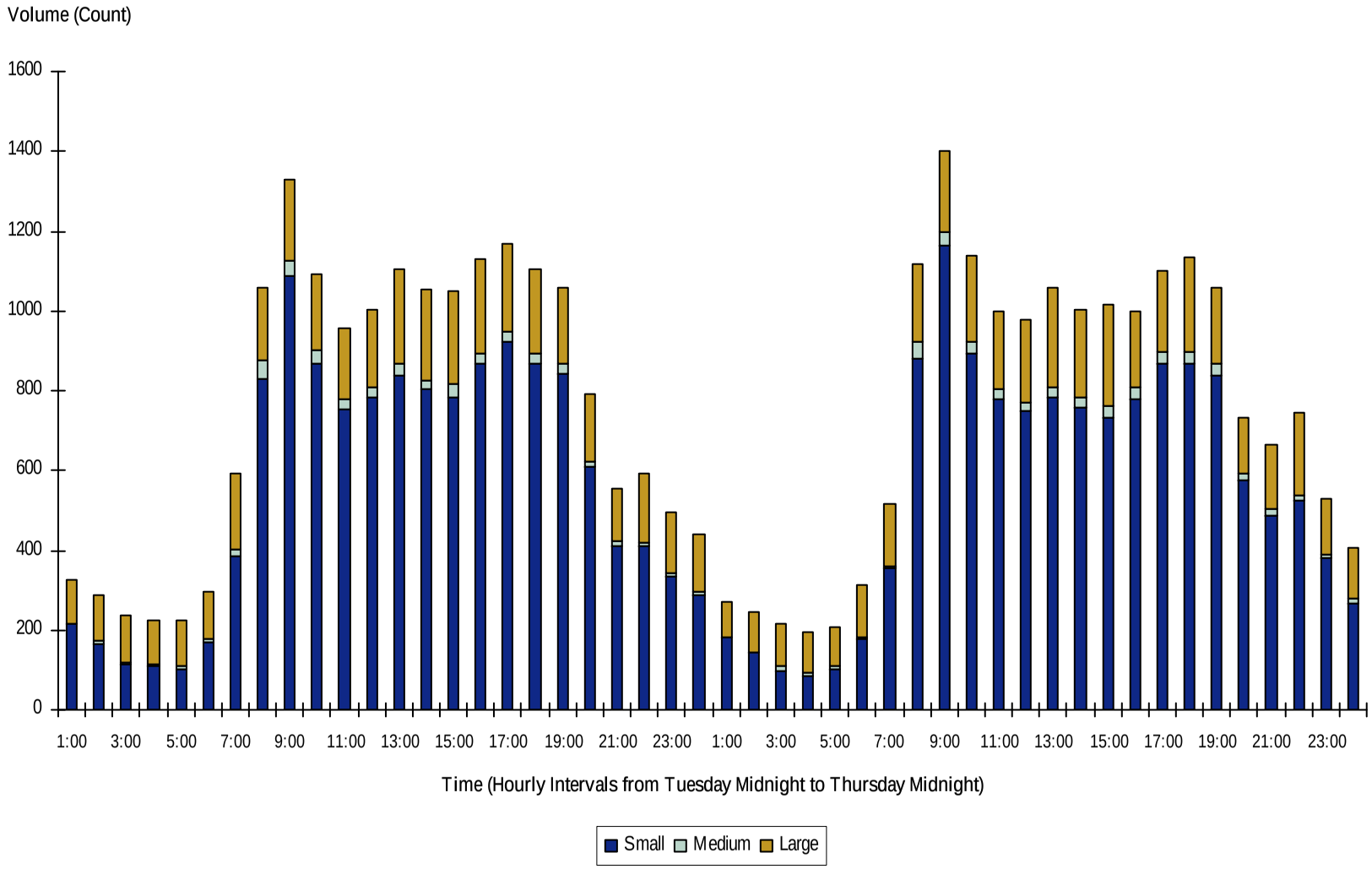
County	Route Number	Name	Beginning Intersection/ Longitude	End Intersection/ Latitude	AADT Two-Way	Truck Percent	Truck AADT Two-Way	Traffic Counter Number
R	279424F	Walton Way	33.470798	-81.9767	33,100	3.0%	993	RR XX
A	715754P	Richland Avenue	33.55909	-81.715553	5,483	18.0%	987	RR XX
R	633712A	Laney Walker Boulevard	33.445618	-82.092834	12,288	8.0%	983	RR XX
A	U.S. 1	Jefferson Davis Highway	S-495 and S-940	I-20	12,900	7.4%	953	117
A	SC 118	Rutland Drive	S-2131	SC 19	7,900	11.9%	938	185
A	715754P	Richland Avenue	33.55909	-81.715553	5,178	18.0%	932	RR XX
A	SC 19	Whiskey Road	SC 118	I-20	12,000	6.8%	821	169
A	SC 125	Atomic Road	U.S. 278/SC 28	S-63	14,100	5.4%	759	195
R	839923U	Reynolds Street	33.475101	-81.960899	24,967	3.0%	749	RR XX
R	CR 601	Wheeler Road	SR 415	I-20	27,460	2.7%	741	512
A	715643X	Augusta Road	33.506721	-81.867004	8,200	9.0%	738	RR XX
R	SR 4	Dean Bridge Road	Wheeless Road	Rocky Creek	21,140	3.3%	698	18
R	279430J	15th Street Ramp	33.479301	-81.9832	32,350	2.0%	647	RR XX
C	633746U	Pleasant Home Road	33.514938	-82.08102	21,033	3.0%	631	RR XX
R	CR 1503	Tobacco Road	No name	Old Savannah Road	7,160	8.8%	630	272
A	715763N	Hampton Avenue	33.566715	-81.71199	6,100	10.0%	610	RR XX
A	715671B	Ascauga Lake Road	33.569328	-81.807198	6,000	10.0%	600	RR XX
A	715654K	Main Street	33.550823	-81.810375	6,622	9.0%	596	RR XX
A	U.S. 78	Richland Avenue	S-77	Barnwell County	6,800	8.0%	546	145
R	CR 272	Broad Street	Fifteenth Street	Fourteenth Street	9,160	5.7%	522	98
R	SR 88	State Route 88	Windsor Spring Road	Peach Orchard Road	6,950	7.4%	514	167

Source: South Carolina Department of Transportation.

Table 2.12 2006 ATR and Rail Crossing Truck Percentages
Less Than 500 Daily Trucks

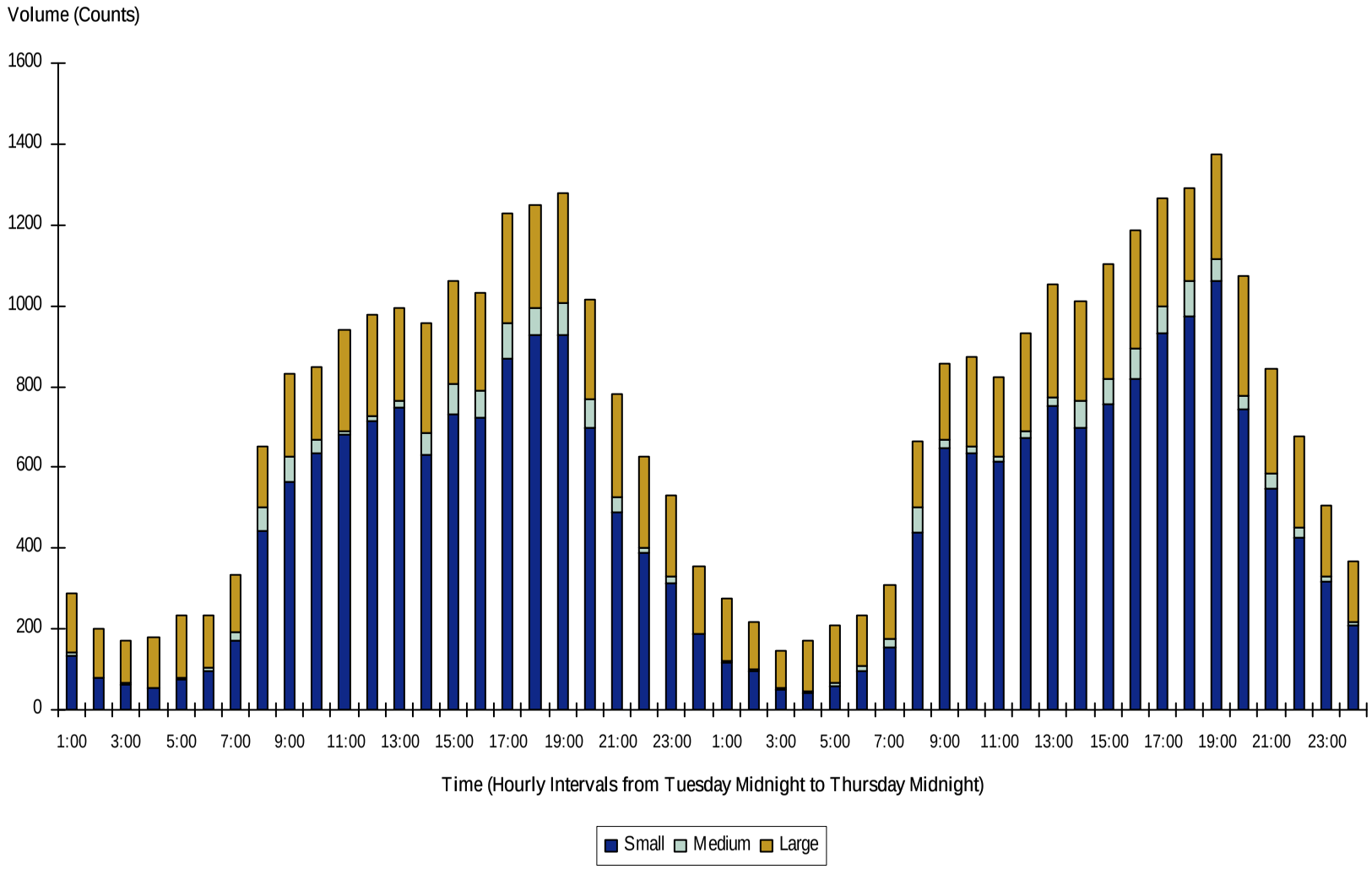
County	Route Number	Name	Beginning Intersection/ Longitude	End Intersection/ Latitude	AADT Two-Way	Truck Percent	Truck AADT Two-Way	Traffic Counter Number
A	SC 19	Whiskey Road	I-20	SC 191	8,000	6.0%	478	171
R	CR 2664	Railroad Avenue	Wrightsboro Road	Walton Way	7,400	4.4%	326	429
A	S-87	Pine Log Road	S-302	S-65	5,500	4.9%	268	269
R	CR 1507	Walton Way	Milledge Road	Highland Avenue	16,430	1.5%	246	492
R	CR 2676	Twiggs Street	MLK Jr. Boulevard	7th Street	4,250	5.5%	234	943
R	CR 564	Stevens Creek Road	Washington Road	Windsong Way	6,910	3.3%	228	758
R	CR 2477	James Brown Boulevard	Walton Way	Telfair Street	2,800	7.0%	196	621
A	SC 19	Laurens Road	AEC Boundary	S-440	12,300	1.6%	194	161
C	CR 177	Pleasant Home Road	Flowing Wells Road	Buckhead Road	2,880	5.7%	164	298
A	S-45	Five Notch Road	S-68	U.S. 25/SC-121	2,800	5.0%	139	395
A	SC 118	Rutland Drive	SC 302	U.S. 1/78	5,500	2.5%	138	269
R	CR 274	Phinizy Road	Old Louisville Road	Mike Padgett Highway	4,180	2.6%	109	303
R	CR 349	Nixon Road	Doug Barnard	Winter Road	530	19.8%	105	703
R	CR 1504	Hephzibah McBean Road	Storey Mill Road	Mims Road	1,700	5.7%	97	232
R	CR 275	Dixon Airline Road	Doug Barnard Parkway	Mike Padgett Hwy. (SR 56)	460	19.1%	88	947
R	CR 2496	Telfair Street	Third Street	E. Boundary Street	1,780	4.9%	87	576
R	CR 329	Chester Avenue	Mike Padgett Highway	Old Savannah Road	1,290	5.3%	68	305
R	CR 146	Bayvale Road	Gordon Highway	Milledgeville Road	840	3.3%	28	381
A	SC 394	Salley Road/ Walnut Street	SC 4	Orangeburg County	650	2.4%	15	225
A	S-811	Kirby Avenue	S-812	U.S. 25	700	1.1%	7	393

Figure 2.10 2006 Augusta I-20 Eastbound Vehicle Class Count



Source: Georgia Department of Transportation 2006 Truck Lane Needs Identification Study.

Figure 2.11 2006 Augusta I-20 Westbound Vehicle Class Count



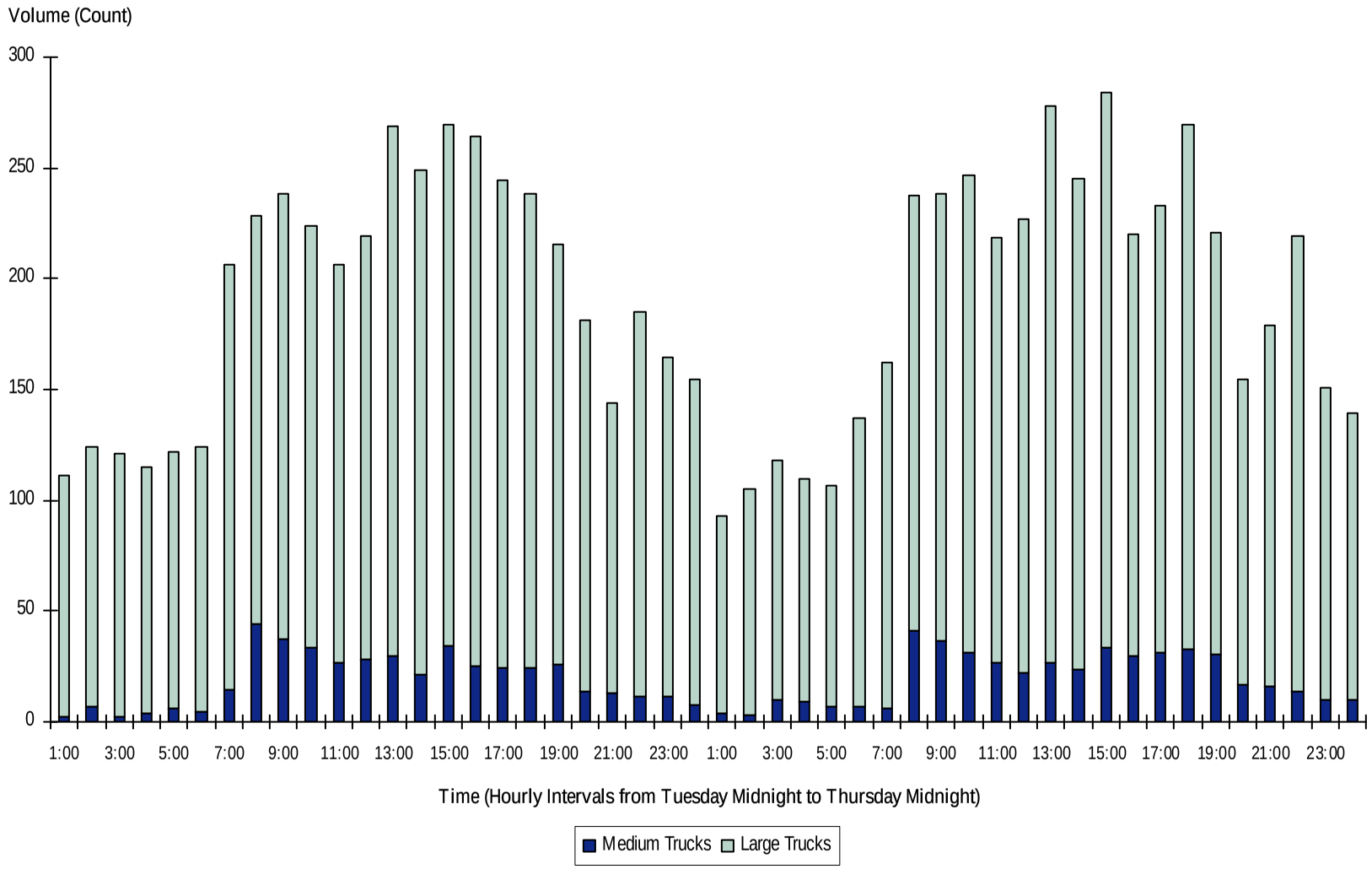
Source: Georgia Department of Transportation 2006 Truck Lane Needs Identification Study.

The highest truck volumes are not necessarily observed during the same period of high overall traffic volumes. This is because many truck trips are made during the offpeak-periods presumably to avoid the high passenger car volumes and to adhere to offpeak delivery hours. Figures 2.12 and 2.13 show the medium and large vehicle class volumes in the east and westbound I-20 corridors. In the east and westbound lanes, the peak for trucks occurred between 4:00 p.m. to 7:00 a.m. It is important to note that though both the east and westbound lanes experienced peak-periods during the same hours, the westbound lanes generally experienced higher truck volumes than the eastbound lanes.

The percentage of trucks was measured at the Augusta Weight Station on I-20 east and westbound for a two-day period. The truck percentages were highest 4:00 to 6:00 a.m. on both days and in both directions (Figures 2.14 and 2.15). The westbound lanes experienced slightly higher truck percentages during the peak-period than the eastbound lanes. During the 4:00 a.m. to 6:00 a.m. period, truck percentages reached approximately 50 percent, while the westbound lanes peaked at 70 percent.

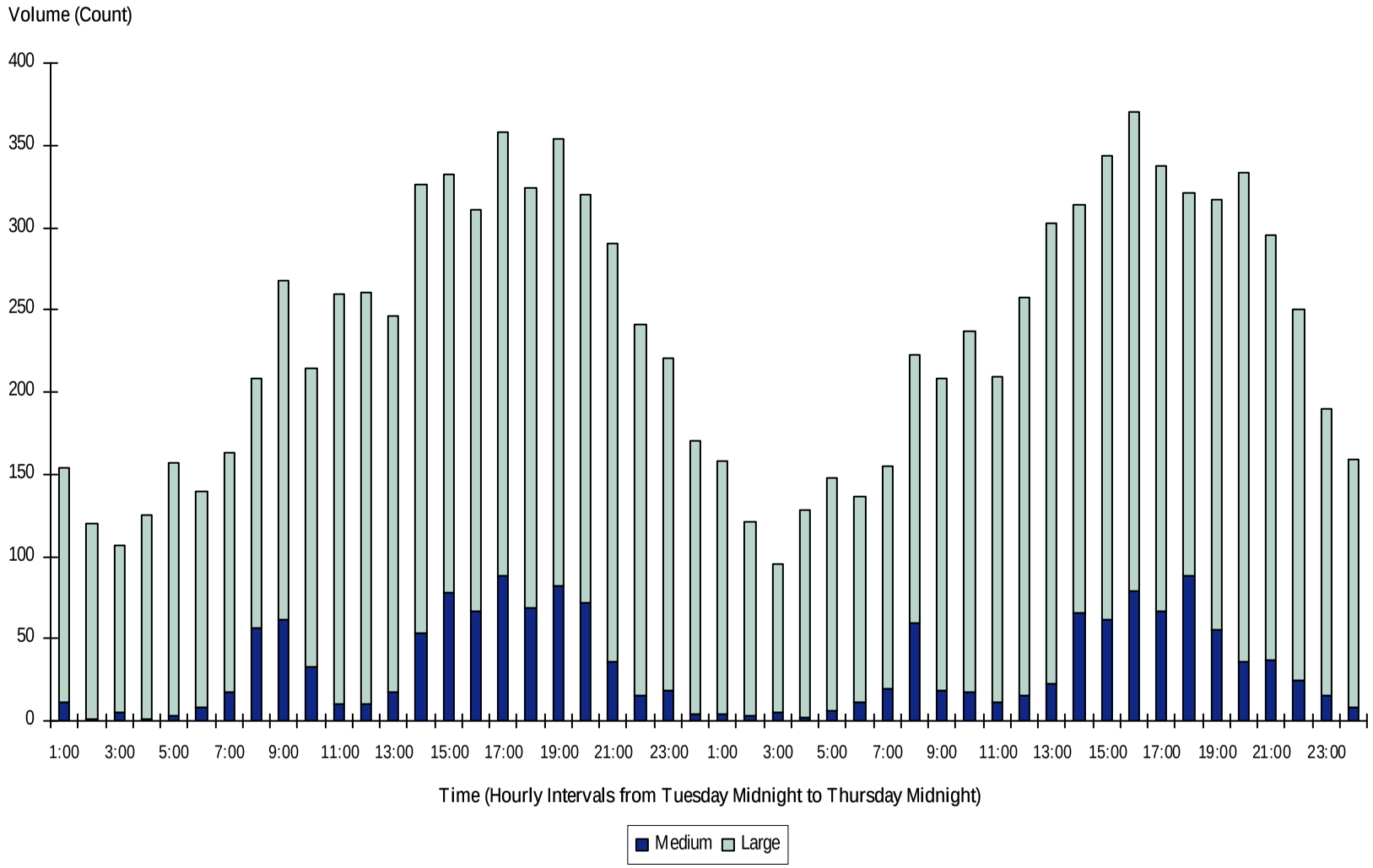
Figure 2.16 shows the compiled truck volume data for major roadways in the Augusta region. The map includes counts from traffic counters and at-grade rail crossings. Several routes have high truck percentages and large traffic volumes. Other routes have lower traffic volumes but a large percentage of trucks. Such routes are idea candidates for designated truck routes. In some cases, a route may have a low truck volume but a large percentage of the traffic is trucks. In these cases, the route may be designated as a truck route if an alternate route is not available and the route can safety and adequately be traveled by trucks. In the Augusta area, I-20, I-520, SR 383 (S. Belair Road), CR 601 (Wheeler Road), and U.S. 25 (Edgefield Road), and SR 4 (Dean Bridge Road) have the highest truck volumes. The I-20 corridor, in Richmond and Aiken Counties, has the highest traffic volumes for the region.

Figure 2.12 2006 Augusta I-20 Eastbound Truck Count



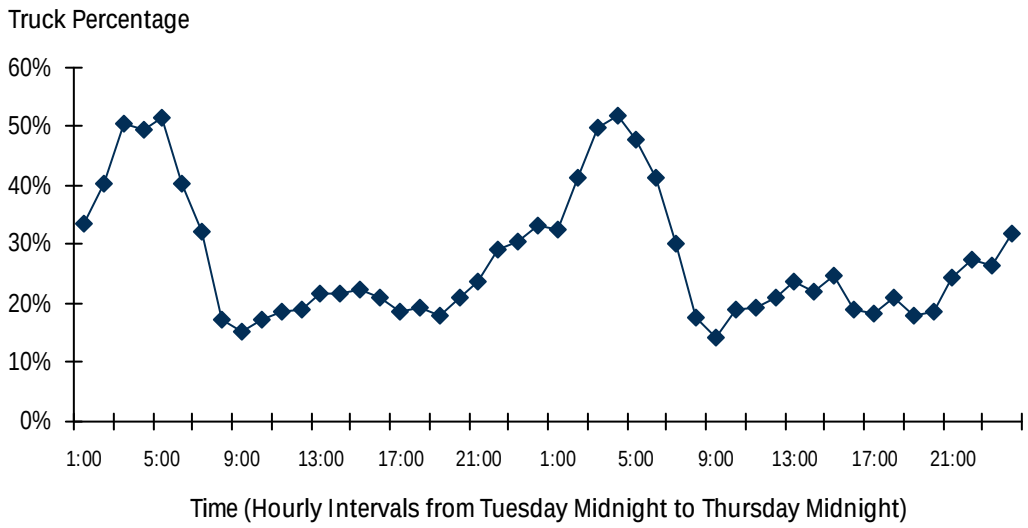
Source: Georgia Department of Transportation 2006 Truck Lane Needs Identification Study.

Figure 2.13 2006 Augusta I-20 Westbound Truck Count



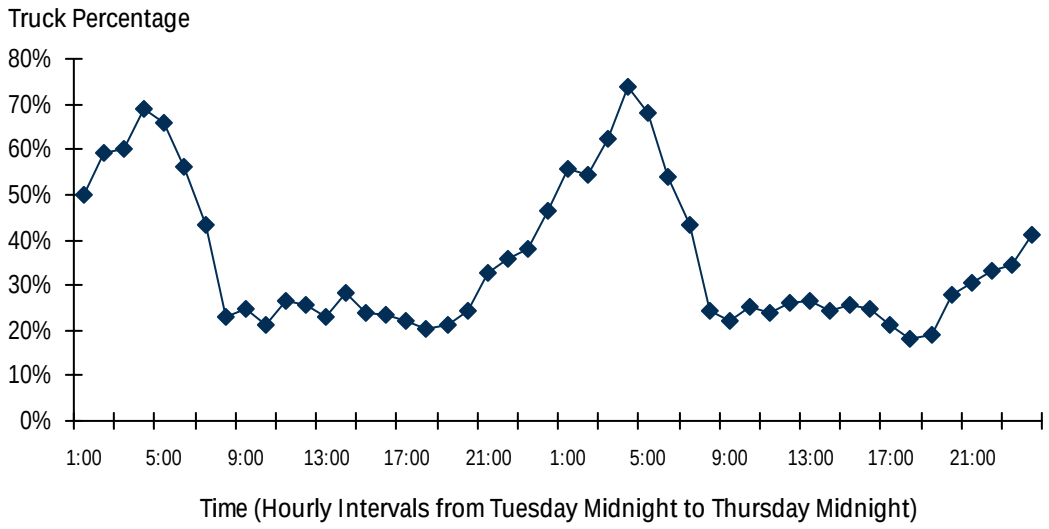
Source: Georgia Department of Transportation 2006 Truck Lane Needs Identification Study.

Figure 2.14 2006 Truck Percentage at I-20 Eastbound Augusta Weigh Station



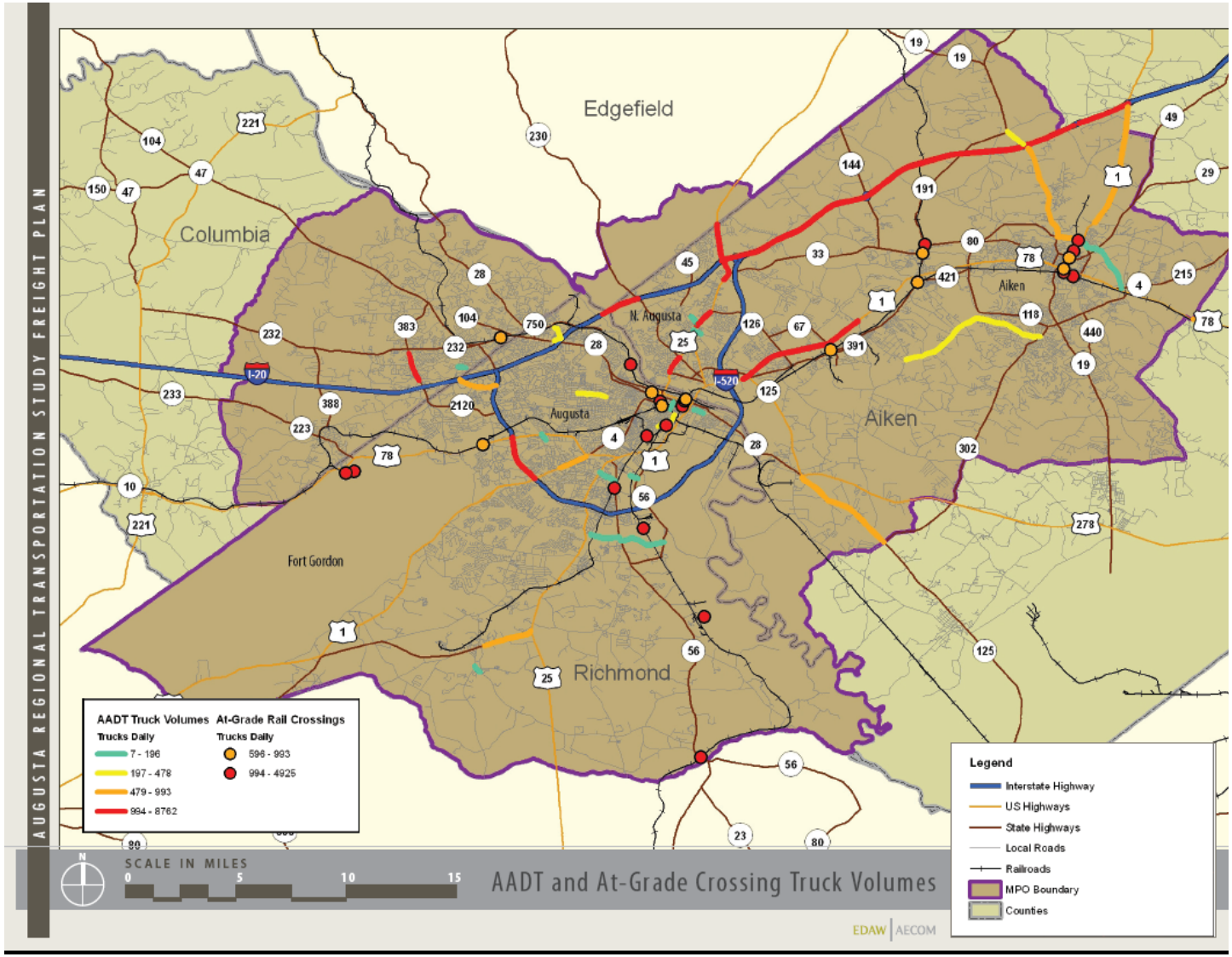
Source: Georgia Department of Transportation 2006 Truck Lane Needs Identification Study.

Figure 2.15 2006 Truck Percentage at I-20 Westbound Augusta Weigh Station



Source: Georgia Department of Transportation 2006 Truck Lane Needs Identification Study.

Figure 2.16 2006 Available Truck Volumes (ATRs and Rail Crossing Data)



2.3 ORIGIN/DESTINATION INFORMATION

Origin/Destination Information from GDOT Survey on I-20

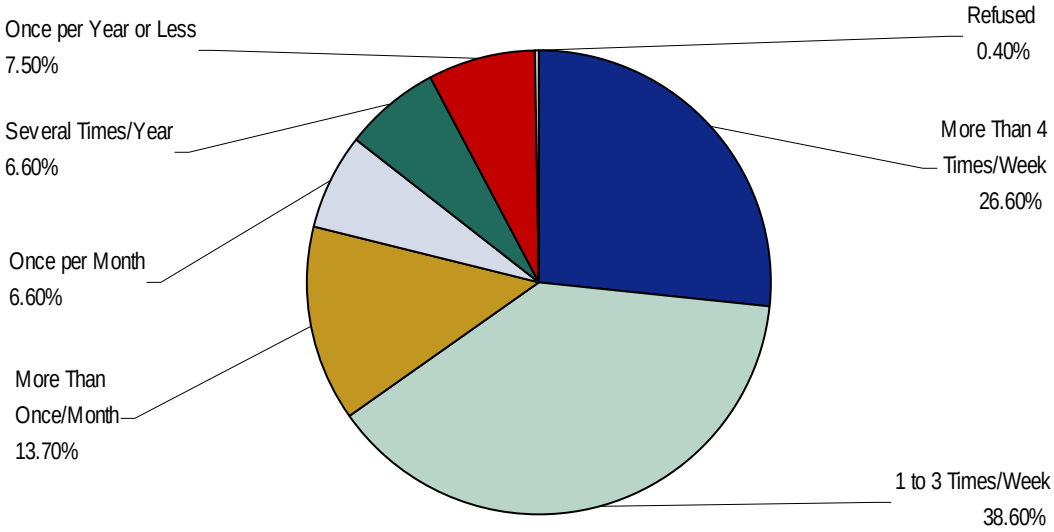
The 2006 GDOT Origin/Destination survey also provided some information about the type of trip, purpose, and commodities related to truck trips in the Augusta region. Trucks surveyed during the study periods were registered in 32 U.S. states and two Canadian provinces. The top 5 states of registration were Georgia, South Carolina, North Carolina, Tennessee, and Indiana (Table 2.13). Figure 2.17 shows the frequency of travel for the vehicles interviewed. Thirty-nine percent of the trucks interviewed travel to the Augusta area one to three times per a week and 27 percent more than four times per a week. Another 14 percent reported making more than one trip per month to the area. These results suggest that many of the trucks traveling to the region make frequent or regular trips.

Table 2.13 2006 Top Five Registration Locations

State	Count	Percentage
Georgia	55	22.9%
South Carolina	39	16.3%
North Carolina	20	8.3%
Tennessee	19	7.9%
Indiana	18	7.5%
Other	92	37.1%

Source: Georgia Department of Transportation 2006 Origin/Destination Survey.

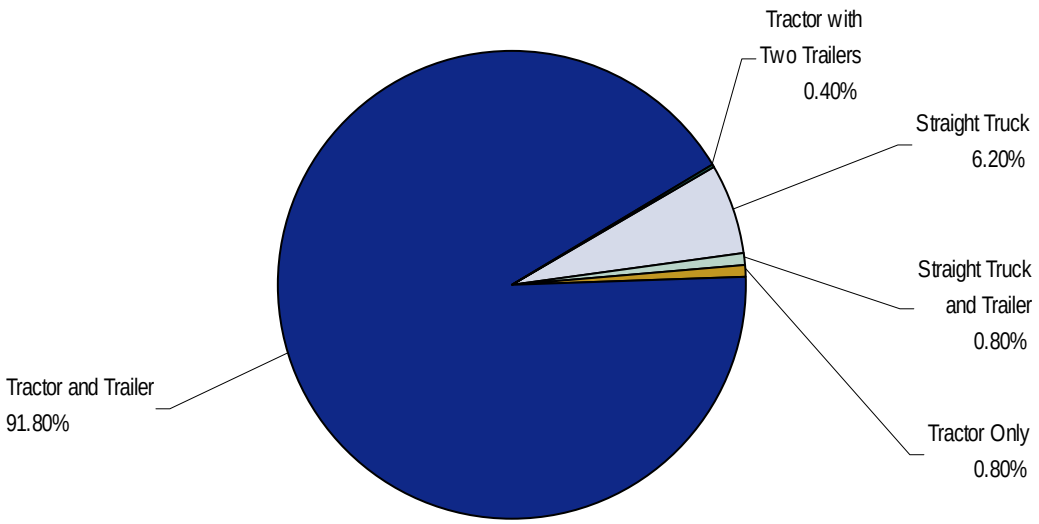
Figure 2.17 2006 Frequency of Truck Travel



Source: Georgia Department of Transportation 2006 Origin/Destination Survey.

The survey collected information on the truck configuration and trailer style of the survey participants. The tractor and trailer configuration was the most common truck configuration of trucks surveyed, with nearly 92 percent (Figure 2.18). Six percent were straight trucks with no trailer. Table 2.14 shows the variations in trailer styles from car carriers to tankers. Fifty-seven percent of the trucks utilized a dry van or refrigerated trailer and 21 percent were flatbed trucks.

Figure 2.18 2006 Truck Configuration



Source: Georgia Department of Transportation 2006 Origin/Destination Survey.

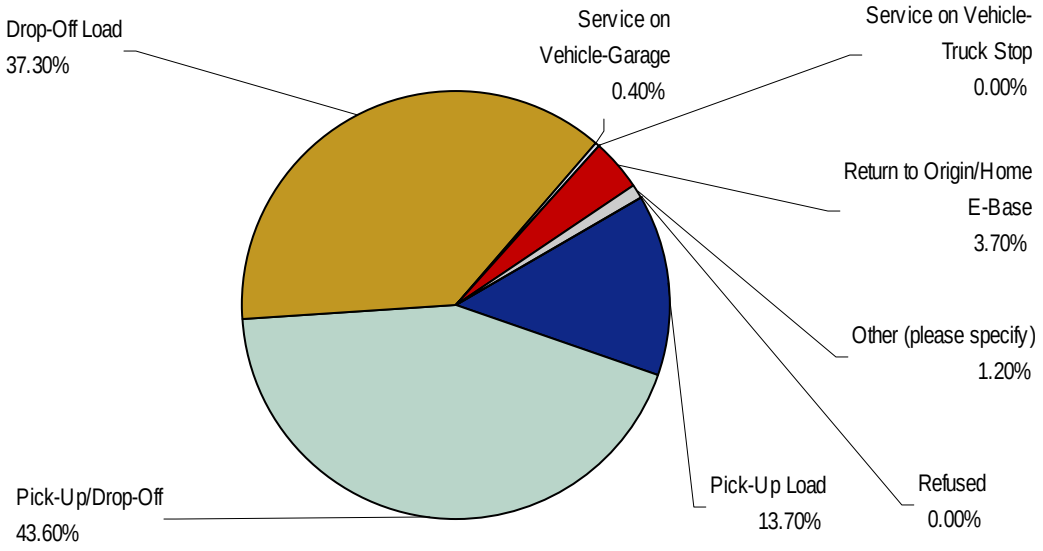
Table 2.14 2006Trailer Style

Trailer Style	Count	Percent
Animal Carrier	0	0.0%
Car Carrier	6	2.4%
Concrete Mixer	0	0.0%
Container	19	7.8%
Dry Van/Refrigerated	140	57.1%
Dump	0	0.0%
Flatbed	52	21.2%
Hopper	1	0.4%
Logging	9	3.7%
Tanker	18	7.3%
Total	245	100.0%

Source: Georgia Department of Transportation 2006 Origin/Destination Survey.

It is important to understand the purpose of truck movements in the region as well. The trip purpose provides insight into the various truck-related services, such as parking, needed in the region. According to Figure 2.19, 44 percent of the survey participants dropped off one load and picked up another. Thirty-seven percent dropped off a load and 14 percent picked up a load. The purpose of the remaining trips was service on the vehicle at a garage or truck stop or to return to home base. Pick-up/drop-off trips sometimes require the driver to sit idle to wait for the scheduled pick-up time for the next load. When adequate parking facilities are not available, truckers may park on exit or entry ramps or unsecured areas. Providing adequate parking for trucks is necessary to ensure the safety of truckers and the traveling public.

Figure 2.19 2006 Primary Trip Purpose

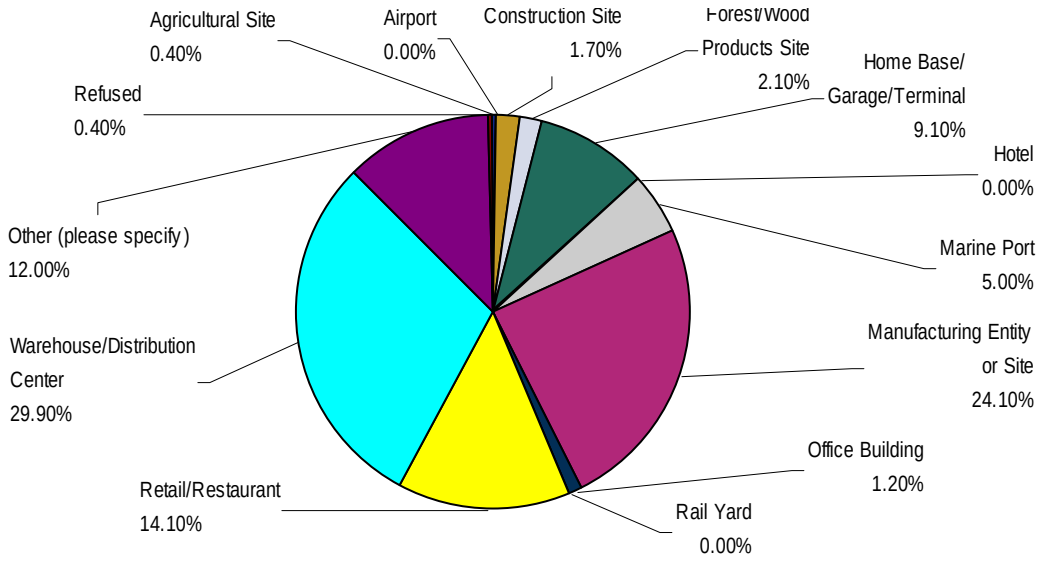


Source: Georgia Department of Transportation 2006 Origin/Destination Survey.

The survey participants were asked questions about the type of facility from which they originated and the destination of their delivery (Figure 2.20). Nearly 30 percent of the trucks delivered goods to a warehouse or distribution center. Twenty-four percent made deliveries to a manufacturing entity or site. Other destinations include retail/restaurant, marine port, and construction site.

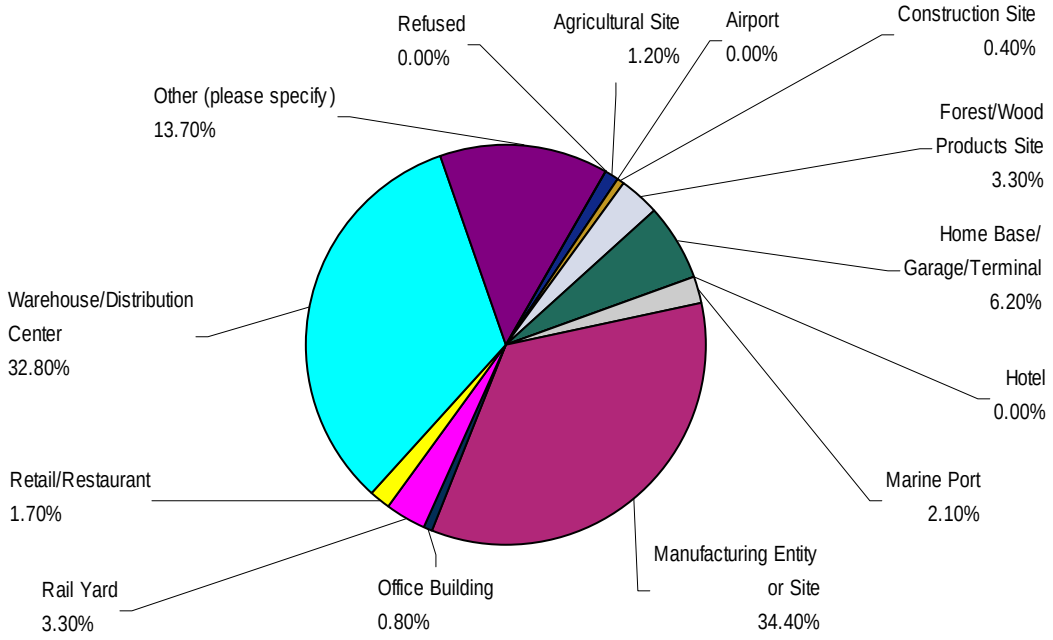
The trucks surveyed at the I-20 weigh station originated from a variety of facilities (Figure 2.21). Thirty-four percent of the trucks survey originated from a manufacturing entity or site while 33 percent picked up freight from a warehouse or distribution center. Other origin facilities included forest/wood products site, rail yard, or retail/restaurant.

Figure 2.20 2006 Destination Facility Type



Source: Georgia Department of Transportation 2006 Origin/Destination Survey.

Figure 2.21 2006 Origin Facility Type

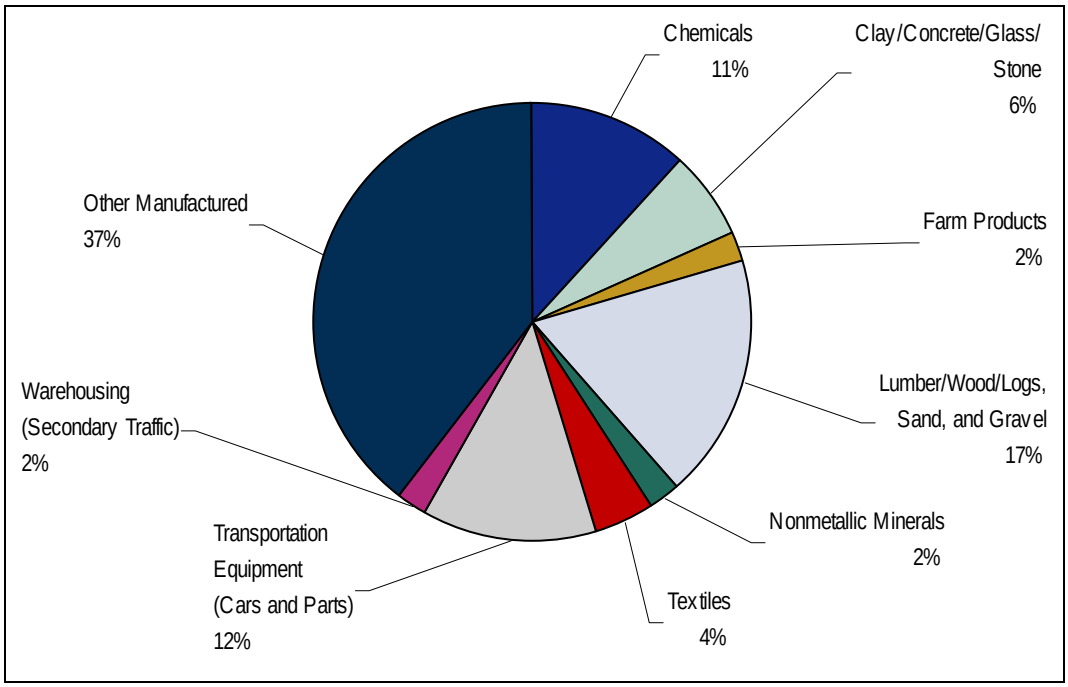


Source: Georgia Department of Transportation 2006 Origin/Destination Survey.

It is important to understand the types of commodities being moved along Augusta's freight transportation infrastructure. Figure 2.22 shows the commodities transported by the trucks surveyed in the GDOT origin/destination

survey. Thirty-seven percent of the products are other manufactured materials, 17 percent is food products another 17 percent is lumber/wood/logs. Other commodities include chemicals (11 percent) and transportation equipment (12 percent).

Figure 2.22 2006 Commodity Data



Source: Georgia Department of Transportation 2006 Origin/Destination Survey.

Figure 2.23 shows the Georgia locations from which trucks traveling eastbound on I-20 originated during the study period. Sixty-two percent of trucks originated from a Georgia city (Table 2.15). Approximately 58 trucks originated from the 14-county Atlanta region. Trucks originated from several other Atlanta metro cities, including Rome, Norcross, Austell, and Forest Park. Cities of origin in the southern part of the State included Macon, Columbus, and Americus. Approximately six percent of the trucks were from Tennessee or South Carolina. Twenty-six percent of the trips originated from other states. Overall, the majority of the trucks surveyed originated from the Atlanta metropolitan area.

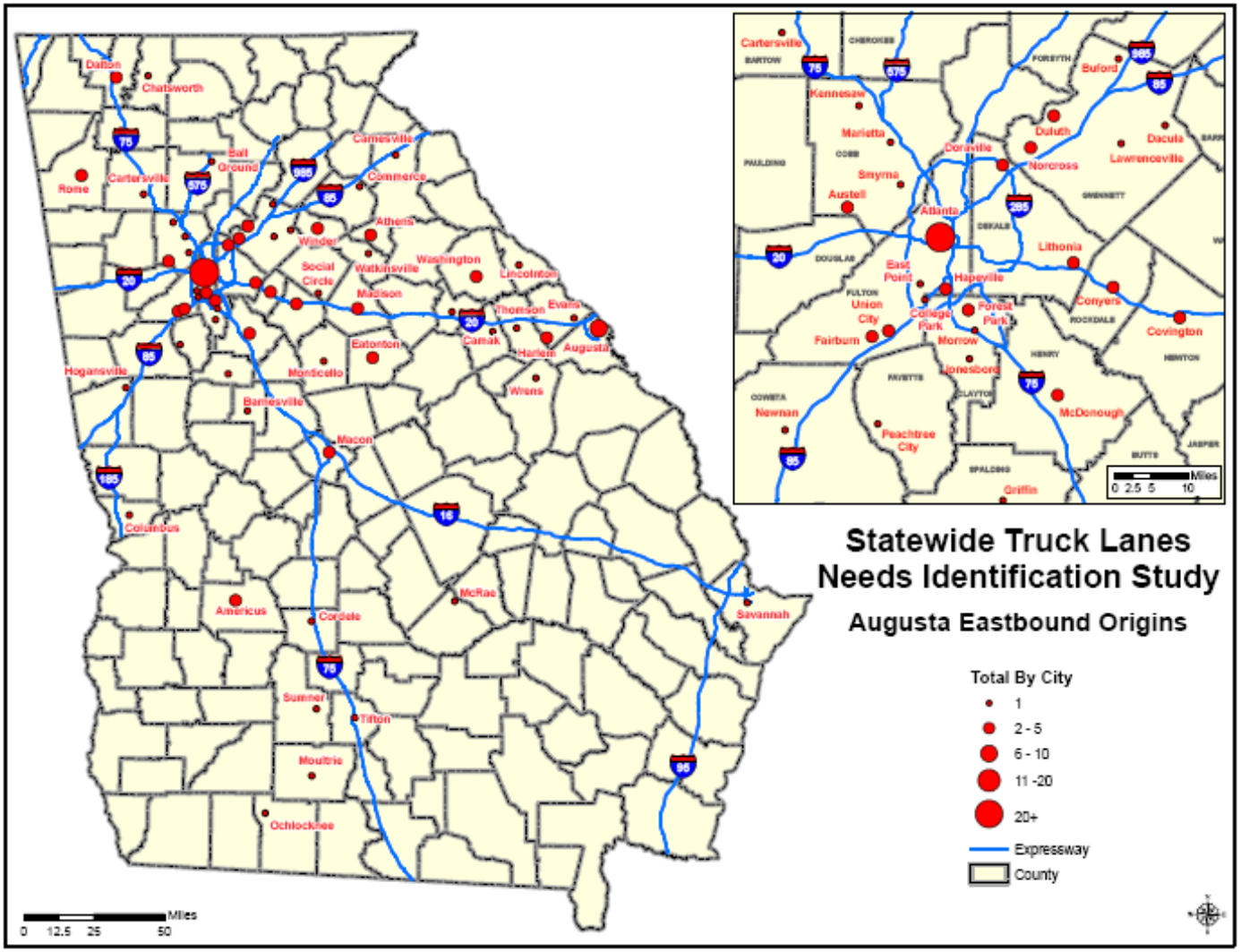
Table 2.15 2006 Origins by State

Origins by State	Frequency	Percent
Georgia	149	61.57%
Tennessee	14	5.79%
South Carolina	14	5.79%
Other States	63	26.03%
Unknown	2	0.83%
Total	242	100.00%

Source: Georgia Department of Transportation 2006 Origin/Destination Survey.

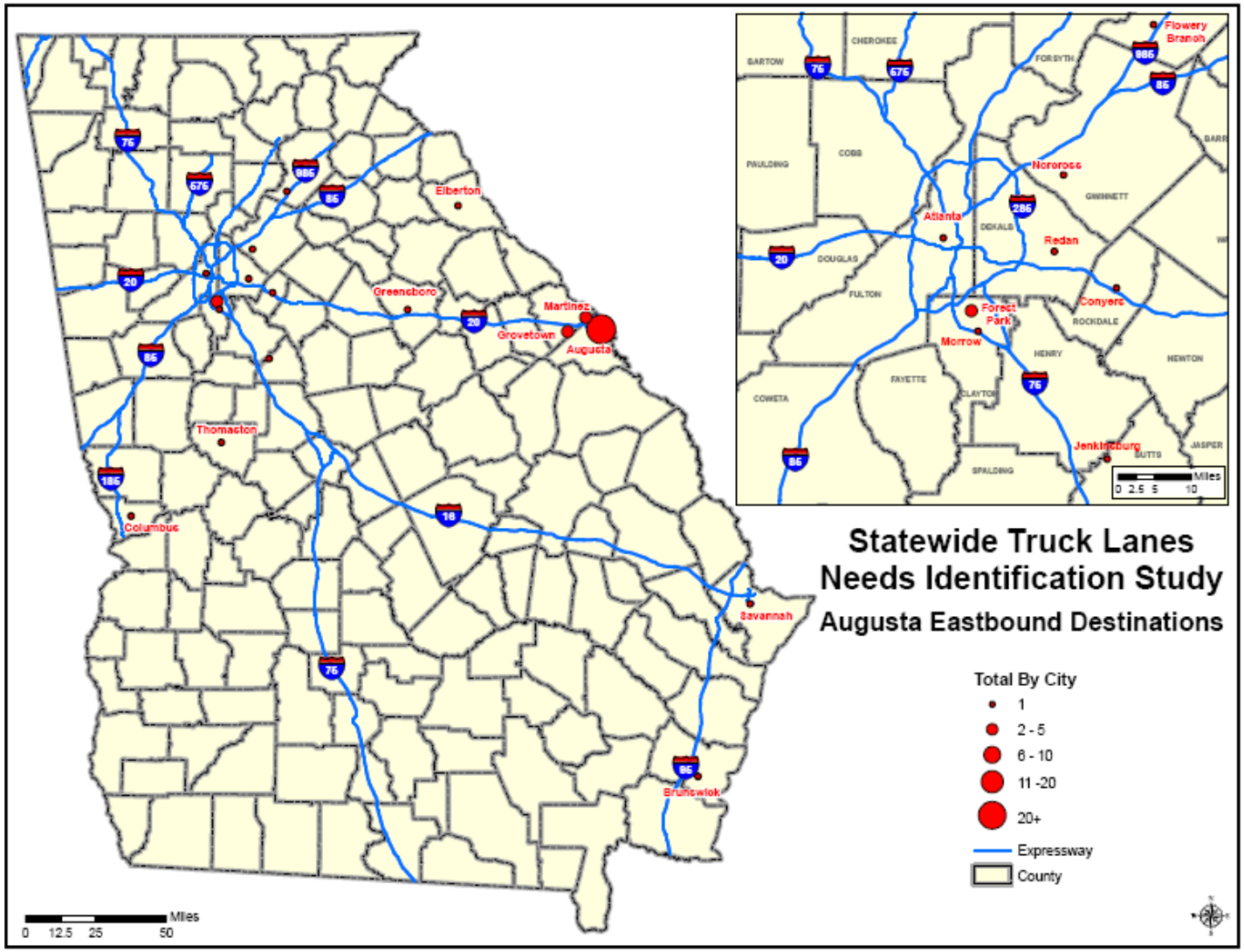
The Georgia destinations of the trucks traveling eastbound on I-20 during the study period are shown in Figure 2.24. Augusta was the destination for more than 20 trucks. Other destinations included Forest Park, Columbus, and Brunswick. Table 2.16 summarizes the destinations by state. Nearly 48 percent of the trucks surveyed identified cities in South Carolina as their destination. Thirty percent of the trips were delivering goods to Georgia destinations. Eleven percent of the trucks carried goods to North Carolina and 10 percent were destined for other states.

Figure 2.23 Augusta I-20 Eastbound Origins



Source: Georgia Department of Transportation Truck Lane Needs Identification Study.

Figure 2.24 Augusta I-20 Eastbound Destinations



Source: Georgia Department of Transportation Truck lane needs Identification Study.

Table 2.16 2006 Destinations by State

Destinations by State	Frequency	Percent
Georgia	73	30.17%
South Carolina	115	47.52%
North Carolina	27	11.16%
Other States	25	10.33%
Unknown	2	0.83%
Total	242	100.00%

Source: Georgia Department of Transportation 2006 Origin/Destination Survey.

Origin/Destination Information from TRANSEARCH Analysis

The TRANSEARCH database provides information on all truck traffic in the Augusta region. The tables that follow summarize the origin and destination data extracted from the database. Table 2.17 shows the origin cities for truck freight. Fifty-three percent of the truck cargo was from a Georgia destination. Nearby Jefferson County, Georgia accounted for 17 percent of the freight, Macon accounted for 16 percent and 13 percent was from Atlanta. Columbia and Greenville, South Carolina accounted for eight and three percent respectively. Six percent of the truck trips originated from Jacksonville, Florida.

Table 2.17 2006 Origins of Truck Freight with Destinations in Augusta Region

Origin	Tons	Percent
Jefferson County, Georgia	2,914,828	17%
Macon, Georgia	2,657,400	16%
Atlanta, Georgia	2,189,076	13%
Columbia, South Carolina	1,323,099	8%
Savannah, Georgia	536,311	3%
Greenville, South Carolina	563,803	3%
Jacksonville, Florida	933,420	6%
Rest of Georgia	710,567	4%
Rest of South Carolina	632,785	4%
Rest of Florida	369,188	2%
Rest of the United States	3,829,044	23%
Total	16,659,522	100%

Source: 2006 TRANSEARCH

The destinations of the truck flows are shown in Table 2.18. Atlanta is the most common destination accounting for 17 percent of the trips. Other frequent destinations included Greenville, Macon, Savannah, Charlotte, and Columbia.

The internal movement of good within the region is of importance to the movement of goods. Approximately 6.5 million tons of freight account for internal movement in the region. Table 2.19 shows the county-to-county flow of goods in the ARTS area by tonnage. The most significant portion of goods circulating within the region originated in Aiken County and was delivered to Richmond County (4.4 million tons). Upon further investigation, it is determined that nonmetallic goods account for nearly all of the 4.4 million tons from Aiken County.

Table 2.18 2006 Truck Freight Destinations

Destination	Tons	Percent
Atlanta, Georgia	2,282,139	17%
Greenville, South Carolina	929,458	7%
Macon, Georgia	859,647	6%
Savannah, Georgia	780,594	6%
Charlotte, North Carolina	731,964	5%
Columbia, South Carolina	598,888	4%
Rest of South Carolina	377,223	3%
Rest of Georgia	910,982	7%
Rest of North Carolina	843,700	6%
Rest of the United States	5,166,616	38%
Total	13,481,211	100%

Source: 2006 TRANSEARCH

Table 2.19 2006 County to County Truck Tonnage

	Destination			
Origin	Columbia	Richmond	Aiken	Edgefield
Columbia	303,082	609,838	6434	64
Richmond	208,404	74,325	15,004	5,155
Aiken	58,704	4,408,235	484,728	52,580
Edgefield	135	42,864	1,473	6,668
Totals	570,325	5,135,262	507,639	64,468

Source: 2006 TRANSEARCH

2.4 TRUCK BOTTLENECKS

While trucks provide sufficient goods movement in the region, the presence of trucks on the transportation network requires the consideration of many congestion and safety issues. Motor vehicle crashes and congestion adversely affect the flow of goods. The presence of trucks on routes that are not adequately designed to accommodate trucks creates a safety hazard for both truckers and motor vehicle occupants. To address these operational issues, this study identified congested corridors and high-crash locations.

As part of the ARTS Congestion Management Process (CMP) report, areas of general traffic congestion were identified using the results of a travel-time survey. Fifty-two corridors were included in the survey. Sixteen of the corridors were located in Aiken County, South Carolina, twenty-two in Richmond County, and nine in Columbia County.

Each corridor is divided into links, which correspond with major signalized intersections. The length and travel time was measured for each link. The level of congestion on the link is determined by the deviation from the posted speed limit. The travel times for six runs were collected on each route. The corridors are rated based on the performance measures listed in Table 2.20.

Table 2.20 ARTS CMS Performance Measures

Category	Average Speed
Not Presently Congested (NPC)	>= Posted speed limit
At Risk of Congestion (ARC)	1%-15% below the posted speed limit
Borderline Congested (BC)	15%-25% below the posted speed limit
Marginally Congested (MC)	25%-30% below the posted speed limit
Seriously Congested (SC)	>30% below the posted speed limit

Source: ARTS Congestion Management Process (CMP) Report.

Figure 2.25 shows the seriously congested, marginally congested, and borderline congested routes in the ARTS area respectively that are potential truck routes. Detailed information on the congested routes is provided in Tables 2.21, 2.22, and 2.23. If available, truck volumes for each route are included in the table. Other routes that have been identified as seriously, marginally or borderline congested may have significant truck volumes. The availability of data related to the truck volumes on various routes is limited and, therefore, some additional truck bottlenecks may be identified as a result of the public involvement process.

It is important to identify congested routes that trucks use frequently. Routes that fall into this category may be excluded from the regional designated truck routes and alternate routes identified or operational improvements may be recommended to avoid truck bottlenecks.

Several routes included in Tables 2.21, 2.22, and 2.23 did not have truck volume data available, but have at-grade rail crossings and thus are of importance. The rail and truck conflicts will be discussed in greater detail in the rail section of this report.

Figure 2.25 Delay on Potential Truck Corridors (Based on Travel Time)

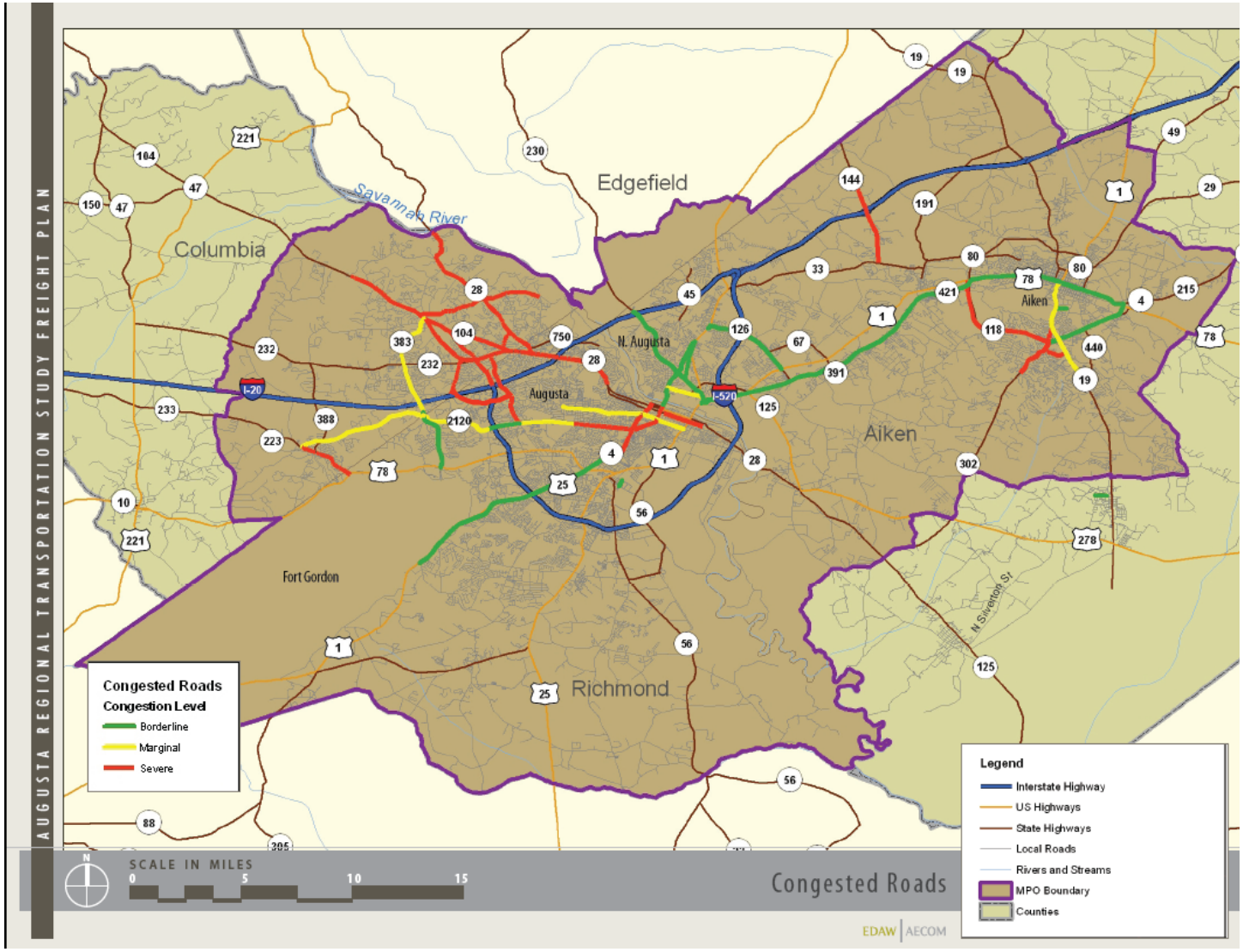


Table 2.21 Severely Congested Routes

Route	From	To	County	Year	AADT	Truck Percent	Truck AADT
Bettis Academy Road	Ascagua Lake	Fields Cemetery	Aiken	2005			
Dougherty Road	Whiskey Road	Silver Bluff Road	Aiken	2007			
SC 118	U.S. 78	Silver Bluff Road	Aiken	2005	5,500	2.50%	138
Silver Bluff Road	Whiskey Road	Savannah Drive	Aiken	2007			
Baston Road	Fury's Ferry Road	Washington Road	Columbia	2005			
Bobby Jones Expressway (I-520)	Washington Road	I-20	Columbia	2007			
Evans-to-Locks Road	Stevens Creek Road	Washington Road	Columbia	2007			
Flowing Wells Road	Wheeler Road	Washington Road	Columbia	2007			
Fury's Ferry Road	Savannah River	Washington Road	Columbia	2007			
Old Evans Road	Belair Road	Washington Road	Columbia	2005			
Old Petersburg Road	Riverwatch Parkway	Old Evans Road	Columbia	2007			
SR 223	Wrightsboro Road	Gordon Hwy	Columbia	2005			
Washington Road	Hardy McManus Road	Pleasant Home Road	Columbia	2007			
Fifteenth Street	Reynolds Street	MLK Boulevard	Richmond	2007			
Greene Street	E. Boundary Street	12th Street	Richmond	2005			
Washington Road	Pleasant Home Road	John C. Calhoun Expressway	Richmond	2007			
Wheeler Road	Flowing Wells Road	Walton Way Ext.	Richmond	2007	27,460	2.7%	741
Wrightsboro Road	Highland Avenue	Fifteenth Street	Richmond	2007			
Davis Road/Pleasant Home Road/Jackson Road	Washington Road	Wrightsboro Road	Richmond	2005			
13th Street/RA Dent Boulevard	Reynolds Street	Wrightsboro Road	Richmond	2004			

Source: ARTS Congestion Management Process (CMP) Report.

Table 2.22 Marginally Congested Routes

Route	From	To	County	Year	AADT	Truck Percent	Truck AADT
Buena Vista Avenue	Martintown Road	Georgia Avenue	Aiken	2006			
Whiskey Road	Richland Avenue	Powderhouse Road	Aiken	2007	8,000	5.97%	478
Belair Road	Washington Road	Wrightsboro Road	Columbia	1999	29,070	3.9%	1,134
Wrightsboro Road	Baron Chapel Road	Robinson Avenue	Columbia	2002			
Walton Way	Gordon Hwy	Bransford Road	Richmond	1997	16,430	1.5%	246
Walton Way	Gordon Hwy	Milledge Road	Richmond	2004	16,430	1.5%	246
Wrightsboro Road	Jackson Road	Highland Avenue	Richmond	2005			

Source: ARTS Congestion Management Process (CMP) Report

Table 2.23 Borderline Congested Routes

Route	From	To	County	Year	AADT	Truck Percent	Truck AADT
Clearwater Road	U.S. 25	U.S. 1	Aiken	2005			
Georgia Avenue	Savannah River	I-20	Aiken	2007	29,000	7.81%	2,265
Knox Avenue	Martintown Road	Georgia Avenue	Aiken	2005			
Martintown Road	Jeff Davis Hwy/U.S. 1	I-20	Aiken	2007			
Pine Log Road	U.S. 78	Silver Bluff Road	Aiken	2006	5,500	4.9%	268
U.S. 1/U.S. 78	Martintown Road	Pine Log Road	Aiken	2004	22,300	5.9%	1,318
Belair Road	Washington Road	Gordon Highway	Columbia	2004	29,070	3.9%	1,134
Deans Bridge Road	Milledgeville Road	Willis Foreman Road	Richmond	2006	21,140	3.3%	698
Wrightsboro Road	Barton Chapel Road	Jackson Road	Richmond	2007			

Source: ARTS Congestion Management Process (CMP) Report

High motor vehicle crash locations can be useful in the identification of truck bottlenecks and unsafe highway conditions. An intersection may not have a large number of crashes but the crashes that do occur at the intersection may be more severe than the average. To account for this, a severity index was used to identify intersections with the most severe crashes. The weighting factors for the severity are shown in Table 2.24.

Table 2.24 Severity Index Factory

Injury Type	Points
C Injury	2
B Injury	4
A Injury	6
Fatality	10

The weighting factors are summed over all crashes at the location and then divided by the total number of crashes at the intersection in order to get a relative weighting factor. The factor is multiplied by 10, so that the severity indicator is a number between 0 (all property damage only) and 100 (all fatalities.

Figure 2.26 shows 2000-2006 high-crash intersections in Columbia and Richmond County based on number of crashes. Detailed intersection crash statistics are included in Table 2.25. The number and percentage of tractor trailer crashes is included in the table. Intersections on Washington Road, Walton Way, Gordon Highway, and Columbia Road are included in the table. Table 2.26 shows the high-crash intersections in Columbia and Richmond Counties based on the severity index. The number and percentage of trucks involved in crashes at the intersections also is reported in the table. Gordon Highway, Walton Way, and Washington Road have intersections that have high severity indexes.

Aiken County crash data was received from the South Carolina DOT. Table 2.27 shows the high-crash intersections in the county. I-20, Whiskey Road, Georgia Avenue, Edgefield Road, York Street, Rutland Drive, and Richland Avenue have high-crash intersections. The estimated truck percentages for these routes are included in the table. Every high-crash intersection in Aiken County has a truck percentage of at least 5 percent with several intersections' truck percentages greater than 20 percent. The percentage of trucks involved in the crashes was not available.

The intersections identified in Tables 2.25, 2.26, and 2.27 help identify locations where operational improvements should be made and vehicle conflicts should be reduced. This information also helps determine the routes in which trucks may experience delays and bottlenecks.

Figure 2.26 2000-2005 Truck Percentages at High-Crash Locations in Columbia and Richmond Counties

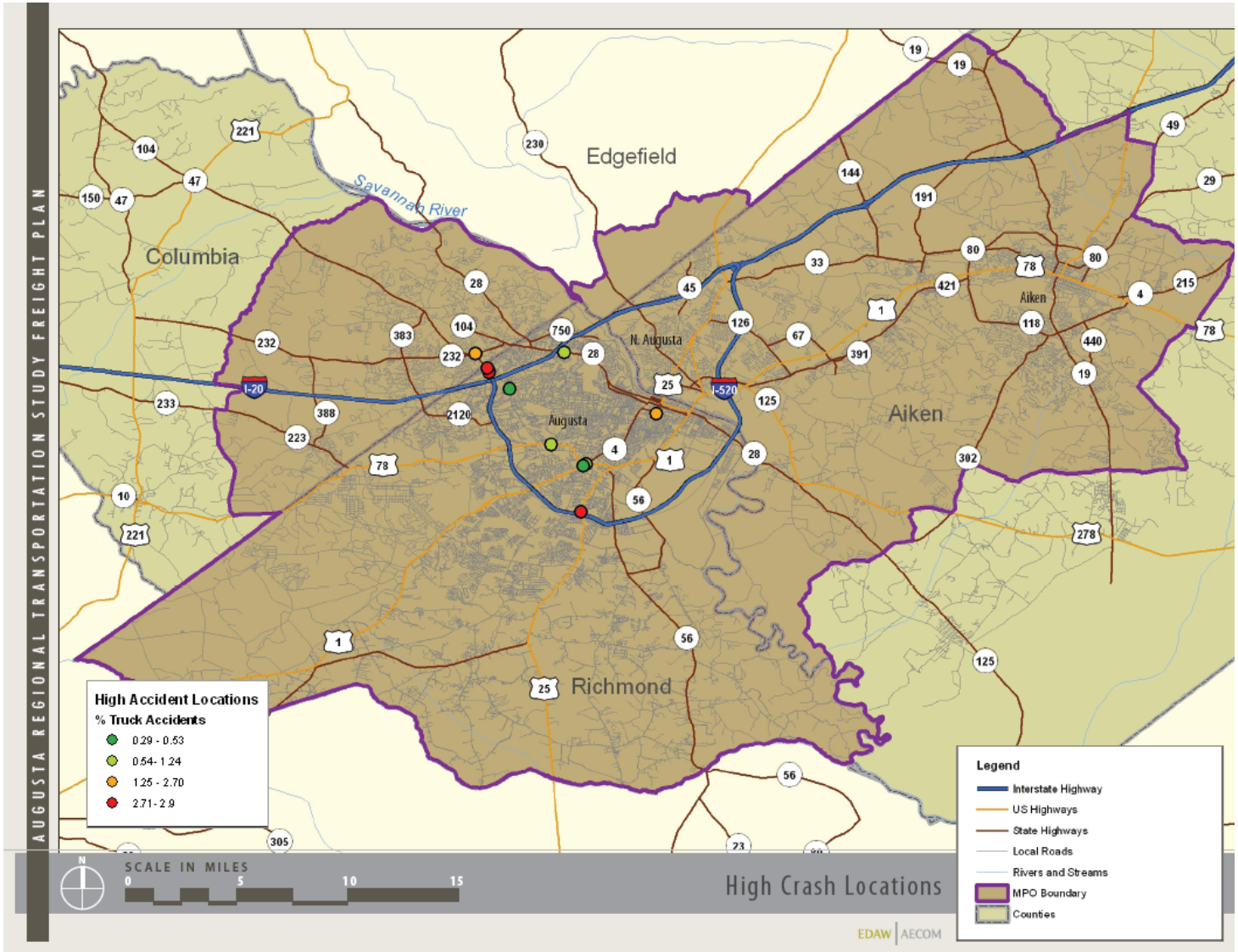


Table 2.25 2000-2005 Top 10 High-Crash Intersections
Columbia and Richmond Counties

Description	MP	County	Total Crashes	Fatalities	Injuries	PDO	Severity Index	Persons		Tractor Trailer Crashes	Percent
								Fatalities	Injured		
SR 104 at SR 232	1.58	C	700	1	146	553	5.11	3	237	19	2.71
SR 4 at SR 10	20.73	R	653	0	141	512	4.75	0	213	7	1.07
SR 4 at CR 1507	24.18	R	428	0	76	352	4.25	0	113	11	2.57
SR 232 at CR 579	0.34	R	425	0	72	353	4.00	0	98	12	2.82
SR 10 at CR 200	11.16	R	402	0	74	328	3.98	0	108	5	1.24
SR 121 at CR 65	12.7	R	380	0	63	317	3.95	0	88	11	2.89
SR 4 at CR 210	20.55	R	374	1	109	264	7.01	2	177	2	0.53
SR 28 at CR 643	9.57	R	360	0	71	289	4.83	0	99	4	1.11
SR 232 at CR 1689	0.16	R	352	0	65	287	3.98	0	96	10	2.84
CR 601 at CR 1505	2.68	R	343	0	73	270	4.90	0	108	1	0.29

Source: GA DOT Crash Database.

Table 2.26 2000-2005 Top 10 High-Crash Intersections by Severity Index
Columbia and Richmond Counties

Description	MP	County	Total Crashes	Fatalities	Injuries	PDO	Severity Index	Persons		Tractor Trailer Crashes	Percent
								Fatalities	Injured		
SR 121 at CR 1504	1.83	R	50	1	21	28	14.40	1	39	1	2
SR 121 at CR 40	8.81	R	53	1	25	27	13.96	1	43	3	5.66
SR 10 at CR 146	10.67	R	73	1	30	42	13.15	1	57	1	1.37
SR 10 at CR 2083	9.14	R	62	1	22	39	11.29	1	32	0	0
SR 104 at CR 16	6.91	C	109	0	47	62	11.19	0	100	1	0.92
SR 121 at CR 261	14.37	R	62	0	26	36	10.97	0	44	0	0
SR 383 at CR 214	1.7	C	67	0	26	41	10.45	0	42	0	0
SR 232 at SR 388	6.63	C	67	1	19	47	9.85	1	39	2	2.99
SR 4 at CR 1070	19.93	R	112	1	43	68	9.64	1	67	2	1.79
SR 56 at CR 199	13.39	R	69	0	20	49	9.57	0	47	3	4.35

Source: GA DOT Crash Database.

Table 2.27 2004 Aiken County High-Crash Locations

Route Number 1	Common Name 1	Route		Common Name 2	Total Collisions	Persons		Truck Percent
		Category 2	Number 2			Fatalities	Injured	
20	I-20	U.S. Primary	25	Edgefield Road	38	0	10	24.40%
1	York Street	SC Primary	118	Rutland Drive	28	0	12	5.91%
19	Whiskey Road	SC Primary	302	Pine Log Road	19	0	3	5.97%
25	Georgia Avenue	SC Primary	230	Martintown Road	14	0	12	6.20%
20	I-20	U.S. Primary	1		12	0	0	30.76%
25	Edgefield Road	Interstate	20	I-20	12	0	10	7.81%
25	Georgia Avenue	Secondary	45	Five Notch Road	11	0	2	6.20%
20	I-20	Secondary	144	Bettis Academy Road	11	1	5	25.47%
25	Edgefield Road	Secondary	33	Auscaga Lake Road	10	0	5	12.68%
19	Laurens Street	SC Primary	118	University Parkway	9	0	3	5.97%
25		Secondary	1445		9	0	3	7.81%
25	Knox Avenue	Secondary	125	Lecompte Drive	8	0	1	7.81%
25	Georgia Avenue	Secondary	712	Observatory Avenue	8	0	2	7.81%
1		Secondary	1004		8	0	3	8.03%
19	Whiskey Road	Secondary	419	Dougherty Road	8	0	4	6.84%
19	Whiskey Road	Secondary	440	Powderhouse Road	8	0	5	6.84%
1	York Street	U.S. Primary	78	Richland Avenue	8	0	5	8.03%

Source: Lower Savannah Council of Governments.

2.5 FORECAST OF TRUCK ACTIVITY

In order to forecast truck activity in the Augusta area, a growth rate can be applied to count data. A growth rate for Columbia and Richmond County truck activity can be estimated by using data from the Georgia Statewide Truck Model. The growth rate was estimated by calculating the percent change in truck volumes for all Columbia and Richmond County roads in the 2005 Statewide Truck Model and the projected 2035 Statewide Truck Model estimations. This method allowed a truck volume growth rate for the region to be calculated without being skewed by extremely high or low rates in other parts of the State. The growth rate was then used to calculate the estimated truck volumes on the routes.

Since the growth estimate used data from 2005 to 2035 (30 years) and the count data only needs to be expanded from 2005 or 2006 to 2035 (30 or 29 years), appropriate adjustments were made to the growth estimate to account for the fewer number of years. The adjustments to the growth rate are shown in Table 2.28.

Table 2.28 Estimated Truck Growth Rates

	2005	2035	Percent Change
Columbia and Richmond County Commercial Truck Volume (2005 to 2035)	598,170	1,556,705	160.25%
Columbia and Richmond County Commercial Truck Volume (2006 to 2035)	–	–	154.90%

Source: 2005 TRANSEARCH and Cambridge Systematics Analysis.

The 2035 projections suggest that the truck volumes in the Augusta area will more than double by 2035. Table 2.29 shows a comparison of the two-way AADT for trucks in the base year (2006) and the future year (2035) for routes with more than 1,000 daily trucks. It can be seen that the application of the growth rate causes 15 additional counting stations and rail crossings to be grouped in the 1000+ trucks category for daily truck traffic. Table 2.30 shows a comparison of the two-way AADT for trucks in the base year (2006) and the future year (2035) for routes with 500 to 1,000 daily trucks. Ten counting stations or rail crossings are grouped in the 500 to 1,000 category for daily truck traffic. Table 2.31 shows the stations and rail crossings forecasted to carry less than 500 daily trucks.

Table 2.29 Forecasted Truck Activity in 2035
1,000+ Daily Trucks

County	Route Number	Name	Beginning Intersection/ Longitude	End Intersection/ Latitude	AADT Two-Way	Truck Percent	2006 Truck AADT Two-Way	2035 Truck AADT Two-Way	Traffic Counter Number
A	I-20	I-20	SC 39	U.S. 178	27,600	31.9%	8,815	13,654	2015
A	I-20	I-20	Georgia State Line	S.C. 230	50,300	17.4%	8,762	13,572	2001
A	I-20	I-20	U.S. 1	S-49	28,300	30.8%	8,705	13,484	2011
A	I-20	I-20	S-144	SC 19	28,000	29.6%	8,274	12,816	2007
A	I-20	I-20	U.S. 25	S-144	30,200	24.4%	7,369	11,415	2005
R	I-20	I-20	Riverwatch Parkway	Savannah River Bridge	52,490	13.8%	7,244	11,221	218
A	I-20	I-20	SC 19	U.S. 1	27,100	25.5%	6,902	10,691	2009
R	633723M	Broad Street	33.473801	-81.9617	44,773	11.0%	4,925	7,629	RR XX
R	SR 415	I-520	Gordon Highway	Deans Bridge Road	67,750	7.2%	4,878	7,556	227
A	728954L	Williamsburg	33.554817	-81.709518	4,316	90.0%	3,884	6,016	RR XX
R	633722F	15th Street	33.4706	-81.963303	32,125	12.0%	3,855	5,971	RR XX
R	915995F	New Savannah Highway	33.334298	-81.949096	24,547	15.0%	3,682	5,703	RR XX
R	864854D	Walton Way	33.470798	-81.9767	40,338	8.0%	3,227	4,999	RR XX
A	U.S. 25	Edgefield Road	S-33	Edgefield County Line	25,300	12.7%	3,208	4,969	133
R	279431R	15th Street Ramp A	33.497601	-81.996696	53,433	6.0%	3,206	4,966	RR XX
A	721379F	Williamsburg	33.554817	-81.709518	3,531	85.0%	3,001	4,649	RR XX
R	633727P	13th Street	33.428444	-82.176361	21,809	11.0%	2,399	3,716	RR XX
A	U.S. 25	Edgefield Road	U.S. 25 BUS	SC 126	29,000	7.8%	2,265	3,508	129
R	633713G	Gwinnett Street	33.427391	-82.181709	27,100	8.0%	2,168	3,358	RR XX
R	633716C	13th Street	33.473701	-81.977699	23,856	9.0%	2,147	3,326	RR XX
R	734127S	SR 56	33.4175	-82.007301	38,680	5.0%	1,934	2,996	RR XX
A	721385J	Park Avenue	33.557152	-81.715683	9,350	20.0%	1,870	2,897	RR XX
R	734120U	Gwinnett/L. Walker	33.458037	-81.973541	25,771	7.0%	1,804	2,794	RR XX
R	279447M	Old Savannah Road	33.451099	-81.986298	21,850	8.0%	1,748	2,708	RR XX
A	U.S. 25	Georgia Avenue	SC 125	SC 230	27,100	6.2%	1,680	2,602	125
R	732980H	State Highway 56	33.243305	-81.95108	16,510	10.0%	1,651	2,557	RR XX
A	715765C	Rutland Drive	33.577728	-81.70618	16,150	10.0%	1,615	2,502	RR XX

County	Route Number	Name	Beginning Intersection/ Longitude	End Intersection/ Latitude	AADT Two-Way	Truck Percent	2006 Truck AADT Two-Way	2035 Truck AADT Two-Way	Traffic Counter Number
A	715764V	York Street	33.571056	-81.709251	10,653	15.0%	1,598	2,475	RR XX
A	720840W	SC 191	0	0	11,767	12.0%	1,412	2,187	RR XX
R	915994Y	New Savannah Highway	33.334298	-81.949096	9,207	15.0%	1,381	2,139	RR XX
A	U.S. 1	Jefferson Davis Highway	S-254	SC 421	22,300	5.9%	1,318	2,042	108
R	633724U	Reynolds Street	33.475101	-81.960899	25,260	5.0%	1,263	1,956	RR XX
R	864837M	Reynolds Street	33.475101	-81.960899	20,633	6.0%	1,238	1,918	RR XX
C	SR 383	S. Belair Road	Old Belair Road	Highview Drive	29,070	3.9%	1,134	1,757	221
A	SC 39	Old Ninety Six Indian Trail	S-75	I-20	2,700	41.7%	1,127	1,746	177
R	864838U	Broad Street	33.473801	-81.9617	18,733	6.0%	1,124	1,741	RR XX
R	279424F	Walton Way	33.470798	-81.9767	33,100	3.0%	993	1,538	RR XX
A	715754P	Richland Avenue	33.55909	-81.715553	5,483	18.0%	987	1,529	RR XX
R	633712A	Laney Walker Boulevard	33.445618	-82.092834	12,288	8.0%	983	1,523	RR XX
A	U.S. 1	Jefferson Davis Highway	S-495 and S-940	I-20	12,900	7.4%	953	1,476	117
A	SC 118	Rutland Drive	S-2131	SC 19	7,900	11.9%	938	1,453	185
A	715754P	Richland Avenue	33.55909	-81.715553	5,178	18.0%	932	1,444	RR XX
A	SC 19	Whiskey Road	SC 118	I-20	12,000	6.8%	821	1,272	169
A	SC 125	Atomic Road	U.S. 278/SC 28	S-63	14,100	5.4%	759	1,176	195
R	839923U	Reynolds Street	33.475101	-81.960899	24,967	3.0%	749	1,160	RR XX
R	CR 601	Wheeler Road	SR 415	I-20	27,460	2.7%	741	1,148	512
A	715643X	Augusta Road	33.506721	-81.867004	8,200	9.0%	738	1,143	RR XX
R	SR 4	Dean Bridge Road	Wheeless Road	Rocky Creek	21,140	3.3%	698	1,081	18
R	279430J	15th Street Ramp	33.479301	-81.9832	32,350	2.0%	647	1,002	RR XX

Source: GA DOT Data and Cambridge Systematics Analysis.

Table 2.30 Forecasted Truck Activity in 2035
500 to 1,000 Daily Trucks

County	Route Number	Name	Beginning Intersection/ Longitude	End Intersection/ Latitude	AADT Two-Way	Truck Percent	2006 Truck AADT Two-Way	2035 Truck AADT Two-Way	Traffic Counter Number
C	633746U	Pleasant Home Road	33.514938	-82.08102	21,033	3.0%	631	977	RR XX
R	CR 1503	Tobacco Road	No name	Old Savannah Road	7,160	8.8%	630	976	272
A	715763N	Hampton Avenue	33.566715	-81.71199	6,100	10.0%	610	945	RR XX
A	715671B	Ascauga Lake Road	33.569328	-81.807198	6,000	10.0%	600	929	RR XX
A	715654K	Main Street	33.550823	-81.810375	6,622	9.0%	596	923	RR XX
A	U.S. 78	Richland Avenue	S-77	Barnwell County	6,800	8.0%	546	846	145
R	CR 272	Broad Street	Fifteenth Street	Fourteenth Street	9,160	5.7%	522	809	98
R	SR 88	State Route 88	Windsor Spring Road	Peach Orchard Road	6,950	7.4%	514	796	167
A	SC 19	Whiskey Road	I-20	SC 191	8,000	6.0%	478	740	171
R	CR 2664	Railroad Avenue	Wrightsboro Road	Walton Way	7,400	4.4%	326	505	429

Source: S.C. DOT Data and Cambridge Systematics Analysis.

Table 2.31 Forecasted Truck Activity in 2035
Less Than 500 Daily Trucks

County	Route Number	Name	Beginning Intersection/ Longitude	End Intersection/ Latitude	AADT Two-Way	Truck Percent	2006 Truck AADT Two-Way	2035 Truck AADT Two-Way	Traffic Counter Number
A	S-87	Pine Log Road	S-302	S-65	5,500	4.9%	268	415	269
R	CR 1507	Walton Way	Milledge Road	Highland Avenue	16,430	1.5%	246	381	492
R	CR 2676	Twiggs Street	MLK Jr. Boulevard	7th Street	4,250	5.5%	234	362	943
R	CR 564	Stevens Creek Road	Washington Road	Windsong Way	6,910	3.3%	228	353	758
R	CR 2477	James Brown Boulevard	Walton Way	Telfair Street	2,800	7.0%	196	304	621
A	SC 19	Laurens Road	AEC Boundary	S-440	12,300	1.6%	194	301	161
C	CR 177	Pleasant Home Road	Flowing Wells Road	Buckhead Road	2,880	5.7%	164	254	298
A	S-45	Five Notch Road	S-68	U.S. 25/SC-121	2,800	5.0%	139	215	395
A	SC 118	Rutland Drive	SC 302	U.S. 1/78	5,500	2.5%	138	214	269
R	CR 274	Phinizy Road	Old Louisville Road	Mike Padgett Highway	4,180	2.6%	109	169	303
R	CR 349	Nixon Road	Doug Barnard	Winter Road	530	19.8%	105	163	703
R	CR 1504	Hephzibah McBean Road	Storey Mill Road	Mims Road	1,700	5.7%	97	150	232
R	CR 275	Dixon Airline Road	Doug Barnard Parkway	Mike Padgett Hwy. (SR 56)	460	19.1%	88	136	947
R	CR 2496	Telfair Street	Third Street	E. Boundary Street	1,780	4.9%	87	135	576
R	CR 329	Chester Avenue	Mike Padgett Highway	Old Savannah Road	1,290	5.3%	68	105	305
R	CR 146	Bayvale Road	Gordon Highway	Milledgeville Road	840	3.3%	28	43	381
A	SC 394	Salley Road/Walnut Street	SC 4	Orangeburg County	650	2.4%	15	23	225
A	S-811	Kirby Avenue	S-812	U.S. 25	700	1.1%	7	11	393

2.6 POTENTIAL TRUCK ROUTES

Based on the information gathered and analyzed for this document, a list of potential truck routes can be identified. A route is considered a potential truck route if the volume and truck percentage data shows more than 500 trucks per day on the route, the route is a major thoroughfare vital to the circulation of vehicles in the region, or the route is near a cluster of freight users.

The major highways that should be considered as potential truck routes include, but are not limited to, I-20, I-520, U.S. 1, U.S. 25, U.S. 278, GA 4, GA 28, GA 104, SC 121, SC 125, SC 126, SC 230, and SC 302. Based on truck volumes, other routes that are potential truck routes are Belair Road, Wheeler Road, Tobacco Road, Broad Street, GA 88, SC 39, SC 118, SC 19, and U.S. 78.

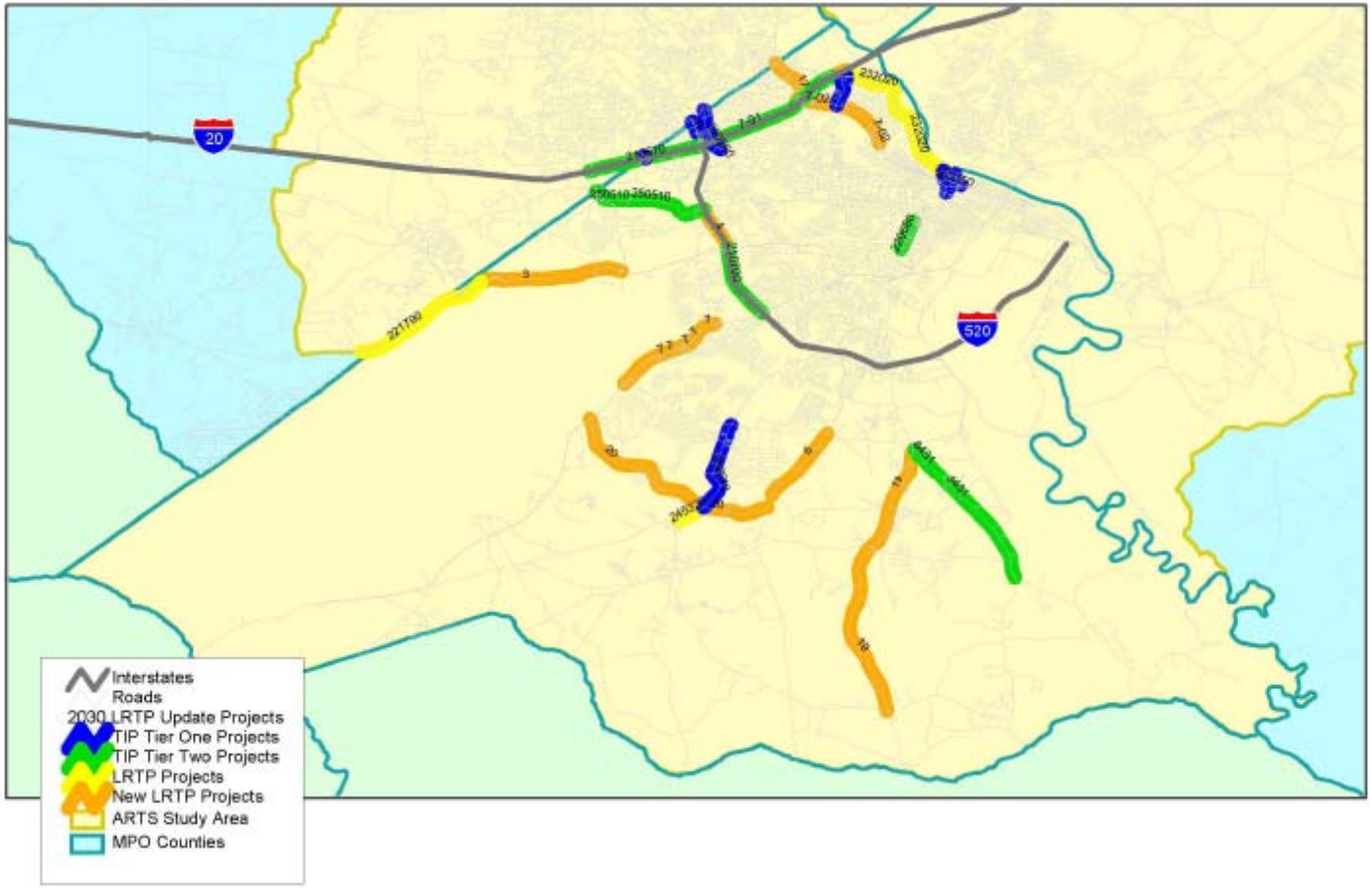
Truck volumes are not available for some major thoroughfares in the Augusta area. Corridors that did not have adequate truck volume data include I-20 in Richmond and Columbia Counties (only one station available), GA 56, Wrightsboro Road, GA 28, GA 104, and U.S. 278. The ARTS should consider gathering truck volume data at these locations to better understand the truck characteristics of the area.

2.7 PROPOSED LONG-RANGE TRANSPORTATION PLAN PROJECTS ON POTENTIAL TRUCK ROUTES

The ARTS Long-Range Transportation Plan (LRTP) contains a list of 48 prioritized roadway projects. Maps of proposed projects in Richmond, Columbia, and Aiken Counties are show in Figures 2.27, 2.28, and 2.29. Figure 2.30 shows the bicycle and pedestrian projects in the ARTS area. Twenty-four of the proposed LRTP projects are located on or near potential truck routes. The projects on potential truck routes are shown in Table 2.32.

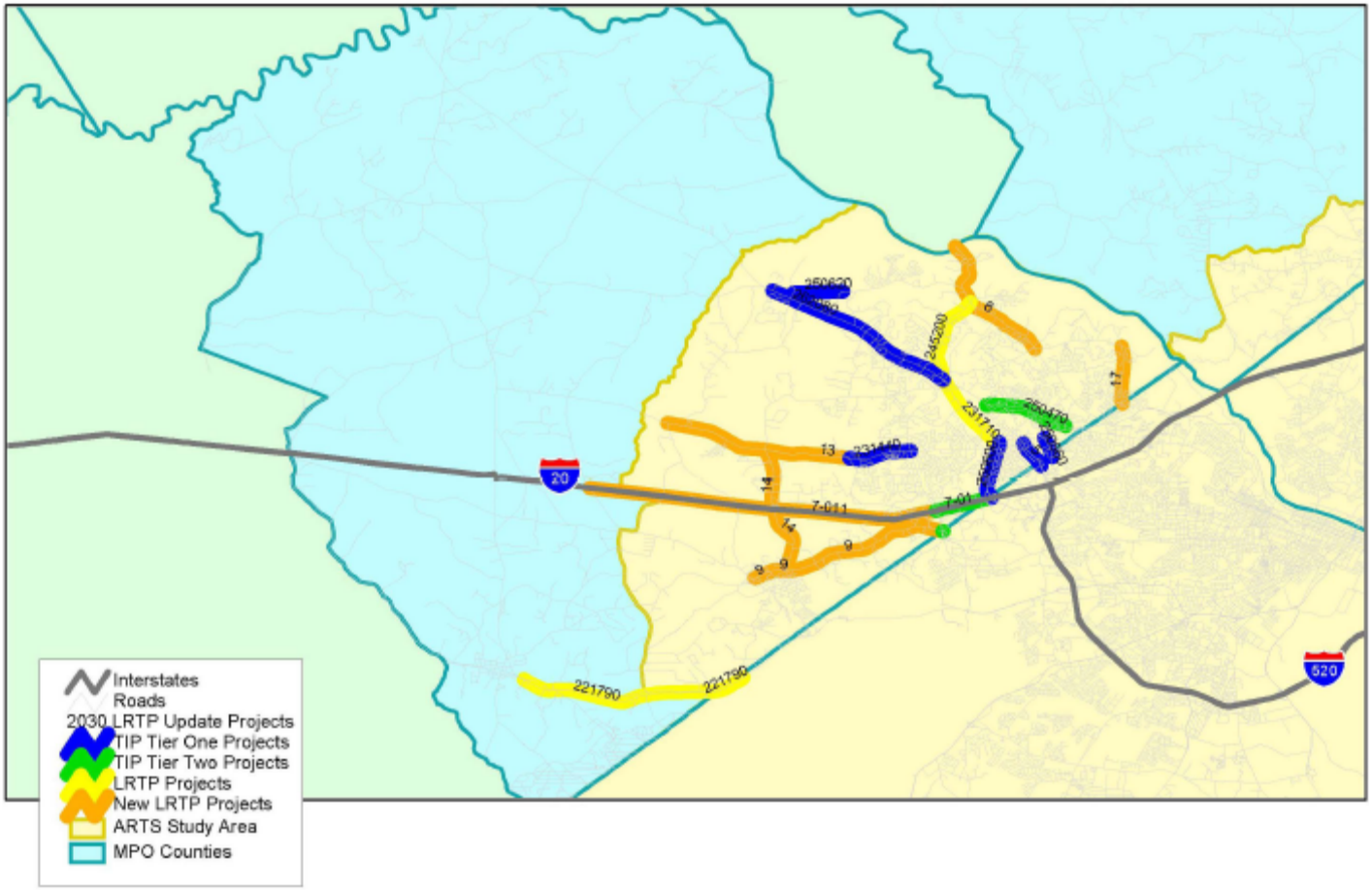
Proposed projects include the reconstruction of the I-20 and I-520 interchange and approaches, widening Atomic Road from East Buena Vista Avenue to U.S. 1, and widening U.S. 78 from Robinson Avenue to Fort Gordon Gate 1. The projects to extend Georgia Avenue by constructing a new two-lane facility from Georgia Avenue to Riverside Boulevard and widen I-20 to six through lanes from SR 383 to Riverwatch Parkway are currently under construction.

Figure 2.27 Location of Richmond County Long-Range Transportation Plan Proposed Projects



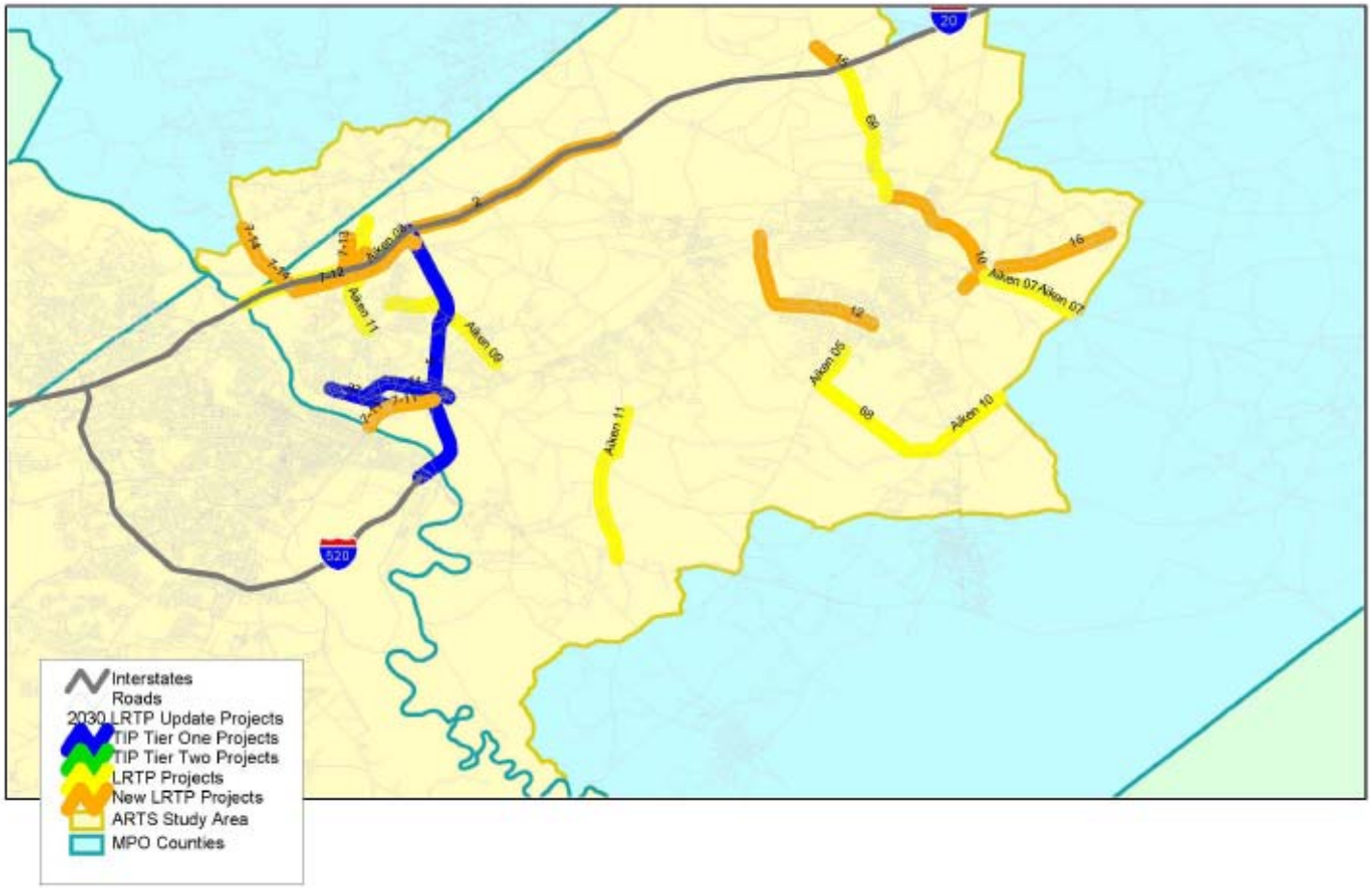
Source: ARTS 2030 Long-Range Transportation Plan.

Figure 2.28 Location of Columbia County Long-Range Transportation Plan Proposed Projects



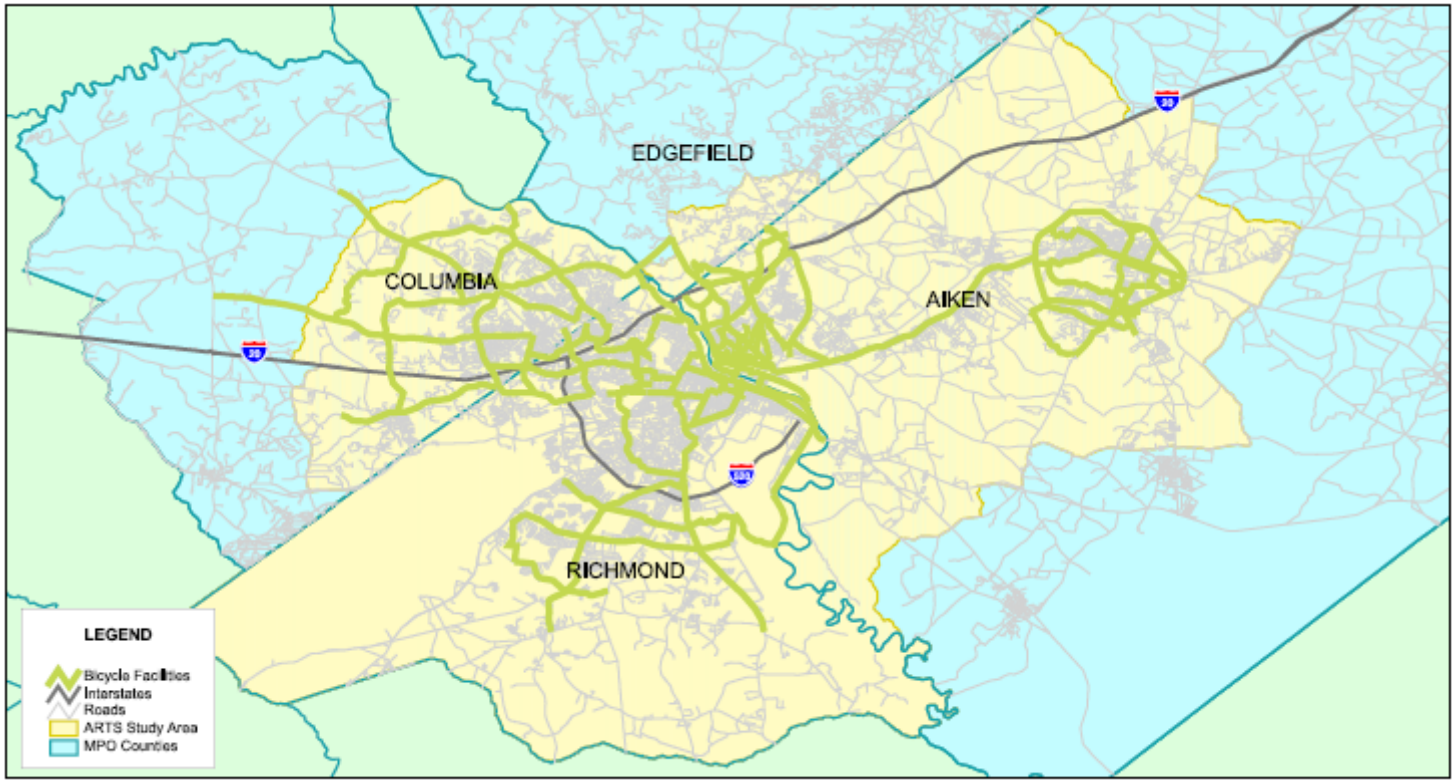
Source:ARTS 2030 Long-Range Transportation Plan.

Figure 2.29 Location of Columbia County Long-Range Transportation Plan Proposed Projects



Source: ARTS 2030 Long-Range Transportation Plan.

Figure 2.30 Location of Proposed Bicycle and Pedestrian Projects



Source: ARTS 2030 Long-Range Transportation Plan.

Table 2.32 Long-Range Transportation Plan Proposed Projects on Potential Truck Routes

St.	Project Number	Type	Project Name	From	To	Description	Const. Year	Project Total (2005 Dollars)	FY 2012-2020 Est. Proj. Cost (Low Range)*	FY 2012-2020 Est. Proj. Cost (High Range)**
GA	210450	Tier 1	I-20 @ I-520 Interchange Reconstruction	I-20	I-520	Reconstruct interchange and approaches	2008	$85,673,000	$93,741,193	$102,569,203
SC	11	Tier 1	Atomic Road	East Buena Vista Avenue	U.S. 1/78 (Jefferson Davis Hwy)	Widen to 4 through lanes and 1 continuous center turn lane	2008	$8,065,000	$8,824,516	$9,655,558
SC	74		Georgia Avenue Extension	Georgia Avenue	Riverside Boulevard	Construct a new 2-lane facility	2005	-	-	-
GA	210570	Tier 2	I-20	SR 383 (Belair Road)	Riverwatch Pkwy	Widen to 6 through lanes	2008	$36,100,000	$39,499,692	$43,219,547
GA	210700	Tier 2	I-520	U.S. 1/SR 4 (Deans Bridge Road)	U.S. 78/278 (Gordon Hwy)	Widen	2015	$9,669,473	$13,052,423	$15,164,752
GA	210327		I-20 Bridge shoulders at Savannah River	I-20	Savannah River	Widen bridge shoulders	2017	$5,275,223	$7,561,132	$8,273,197
SC	68	LRTP	Whiskey Road-Silver Bluff Road Connector	SR 19 (Whiskey Road)	SR 302 (Silver Bluff Road)	Construct a new 2-lane facility	2007	$9,680,087	$10,278,670	$11,589,168
SC	86		SR 302 (Silver Bluff Road)	Indian Creek Trail	Richardson's Lake Road	Widen to 3 lanes (passing lanes where needed)	2008	$7,030,000	$7,692,045	$8,416,438
SC	69	LRTP	SC 19 (Edgefield Hwy)	SC 118 (University Pkwy)	I-20	Widen to 4 through lanes	2015	$14,670,656	$19,803,314	$23,008,169
SC	Aiken 11	LRTP	Five Notch Road	Georgia Avenue	Walnut Lane	Widen to 4 through lanes	2015	$18,150,163	$24,500,157	$28,465,122
SC	Aiken 07	LRTP	U.S. 78 (Charleston Hwy)	Pine Log Road	Old Dibble Road	Widen to 4 through lanes	2020	$3,980,299	$6,242,351	$6,242,351
SC	Aiken 08	LRTP	I-20	Savannah River	U.S. 25 (Edgefield Road)	Widen to 6 through lanes	2020	$11,617,166	$18,219,343	$18,219,343
GA	4	New LRTP	I-520 Southbound	Wrightsboro Road	U.S. 78 (Gordon Hwy)	Add auxiliary lane	2011	$1,120,000	$1,340,883	$1,340,883
GA	3		U.S. 78/SR 10 (Gordon Hwy)	Robinson Avenue	Fort Gordon Gate 1	Widen to 6 through lanes	2013	$12,253,164	$15,576,824	$19,216,786
GA	7	New LRTP	U.S. 1 (Dean's Bridge Road)	Meadowbrook Dr	Tobacco Road	Widen to 6 through lanes	2020	$9,654,008	$15,140,498	$15,140,498

St.	Project Number	Type	Project Name	From	To	Description	Const. Year	Project Total (2005 Dollars)	FY 2012-2020 Est. Proj. Cost (Low Range)*	FY 2012-2020 Est. Proj. Cost (High Range)**
GA	13	New LRTP	SR 232 (Columbia Road)	Chamblin Road	Old Belair Road	Widen to 4 through lanes	2026	$15,337,504	$28,797,860	$32,469,496
GA	17	New LRTP	Stevens Creek Road	Evans To Locks Road	Claussen Road	Widen to 4 through lanes	2024	$9,669,296	$17,097,898	$20,469,900
SC	10	New LRTP	SR 118	North of Willow Run Road	North of Old Wagener Road	Widen to 4 through lanes	2021	$4,334,512	$7,004,894	$9,176,162
SC	2	New LRTP	I-20	U.S. 25/SR 121 (Edgefield Road)	Bettis Academy Road	Widen to 6 through lanes	2027	$20,258,308	$39,195,619	$42,886,838
SC	15	New LRTP	SR 19 (Edgefield Hwy)	I-20	SR 191 (Shiloah Church Road)	Widen to 4 through lanes	2028	$2,667,392	$5,318,021	$5,646,869
SC	12	New LRTP	SR 118 (Hitchcock Pkwy)	U.S. 1/78	SR 302 (Silver Bluff Road)	Widen to 4 through lanes	2030	$16,337,776	$34,587,072	$34,587,072
GA	7-01	Tier 2	2+ Concurrent Flow HOV on I-20	Louisville Road	Riverwatch Pkwy	Construct 1 HOV lane in each direction	2026	$66,059,700	$124,034,392	$139,848,386
SC	7-11	New LRTP	U.S. 1 (Aiken-Augusta Hwy)	Savannah River	I-520 (Palmetto Pkwy)	Widen to 4 through lanes with continuous center turn lane	2017	$5,588,310	$8,009,889	$8,764,215
SC	7-12	New LRTP	I-20 Frontage Road Collector	Five Notch Road	U.S. 25 (Edgefield Road)	Construct 3-lane frontage road on the south side of I-20	2018	$6,270,453	$9,261,339	$9,834,028

* Low Range – estimated short-term costs for years 2005-2011 illustrates the cost increases related to the individual project's implementation year (construction year).

**High Range – estimated project cost is subject to increases related to 6 years of inflation assuming that the project will not be implemented until the year 2011.

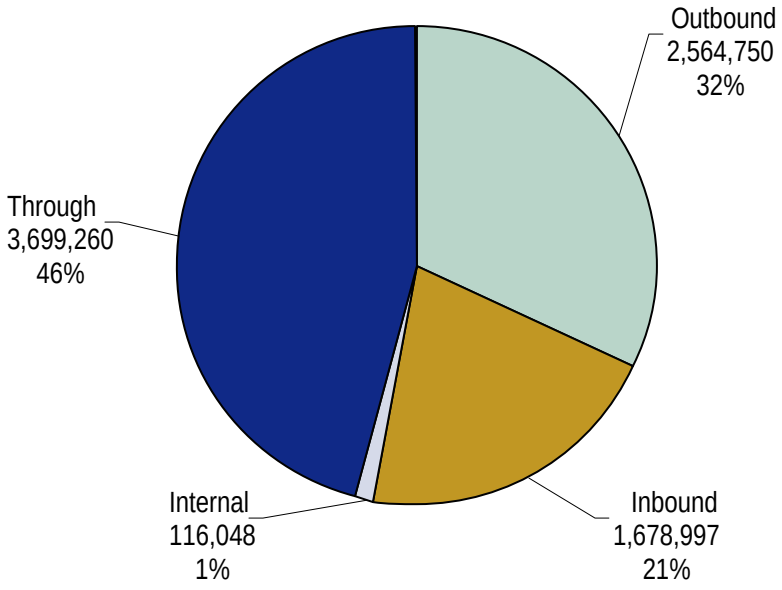
Source: ARTS 2030 Long-Range Transportation Plan.

3.0 Rail Flows in Augusta Regional Transportation Study Area

2005 TRANSEARCH rail data are used for the rail portion of this study until the 2006 TRANSEARCH database for the ARTS area becomes available. The 2005 TRANSEARCH dataset does not include the South Carolina portion of the study area.

According to Figure 3.1, rail movements, totaling nearly 8 million tons, accounted for approximately 7 percent of all the freight moving into, out of, within, and through the Augusta region. Nearly 3.7 million tons of freight pass through the Augusta region. Thirty-two percent of the rail movements are outbound freight going to other destinations. More than 1.7 million tons or 21 percent of the rail freight is bound for the Augusta region. Most rail systems handle low-value, high-weight product. Table 3.1 shows the top commodities transported via rail in the Augusta Region. Nonmetallic metals (32 percent); chemicals or allied products (29 percent); and clay, concrete, glass or stone (20 percent) comprise 81 percent of the rail movements in Augusta by weight.

Figure 3.1 2005 Rail Movement Type by Carload Tons



Source: 2005 TRANSEARCH.

Table 3.1 2005 Top Rail Commodities (Augusta Region)

STCC2	Commodity	Tons	Percent Share
14	Nonmetallic Minerals	2,590,025	32%
28	Chemicals or Allied Products	2,307,785	29%
32	Clay, Concrete, Glass or Stone	1,594,732	20%
40	Waste or Scrap Materials	174,578	2%
24	Lumber or Wood Products	671,058	8%
26	Pulp, Paper or Allied Products	570,840	7%
10	Metallic Ores	63,456	1%
20	Food or Kindred Products	43,147	1%
	All Others	43,433	1%
	Total Tons	8,059,054	100%*

* Total not equal to 100% due to rounding.
Source: 2005 TRANSEARCH.

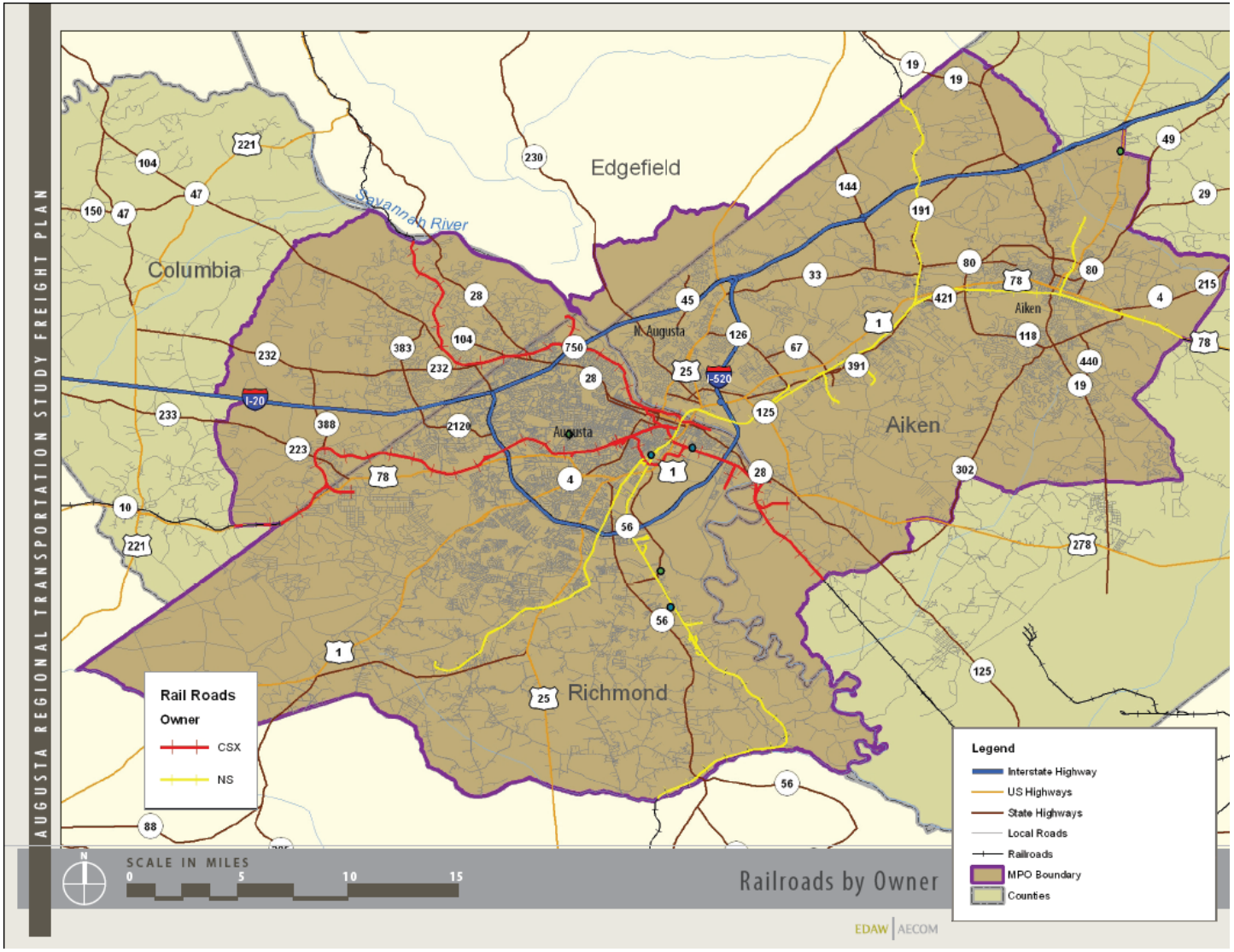
3.1 RAIL NETWORK

Railroads are a vital part of goods movement activities in the ARTS area. Freight service is provided to the area primarily by Norfolk Southern Corporation and CSX Corporation. Figure 3.2 shows the rail network in the Augusta area. A Norfolk Southern mainline and spur tracks serve industrial areas in Augusta, North Augusta and Aiken. A CSX mainline and spur tracks serve manufacturing facilities in Augusta and Columbia County.

CSX Corporation has a mainline and spur tracks in the South Carolina portion of the ARTS study area. The line runs southeast from Augusta in Aiken County towards the Savannah River Site. Aiken and Edgefield Counties also have three short line rail service providers.

Norfolk Southern Corporation and CSX Corporation are classified as Class 1 railroads. The Surface Transportation Board classifies railroad companies into three classes based on operating revenues for each of the railroads. The STB defines a Class I railroad or Class I rail carrier as a railway company with a minimum annual operating revenue exceeding $319.3 million.

Figure 3.2 ARTS Area Rail Network



Source: ARTS Area GIS Maps

There are two main rail yards in Augusta: the Norfolk Southern Corporation yard, and the CSX Corporation yard. The Norfolk Southern Corporation yard is at Twiggs Street and Gwinnett Boulevard. The main CSX Corporation Yard is at East Boundary Road and Gwinnett Boulevard. Both companies have small facilities in south Richmond and central Augusta. Figure 3.3 shows the locations of the CSX Corporation and Norfolk Southern Corporation rail yards.

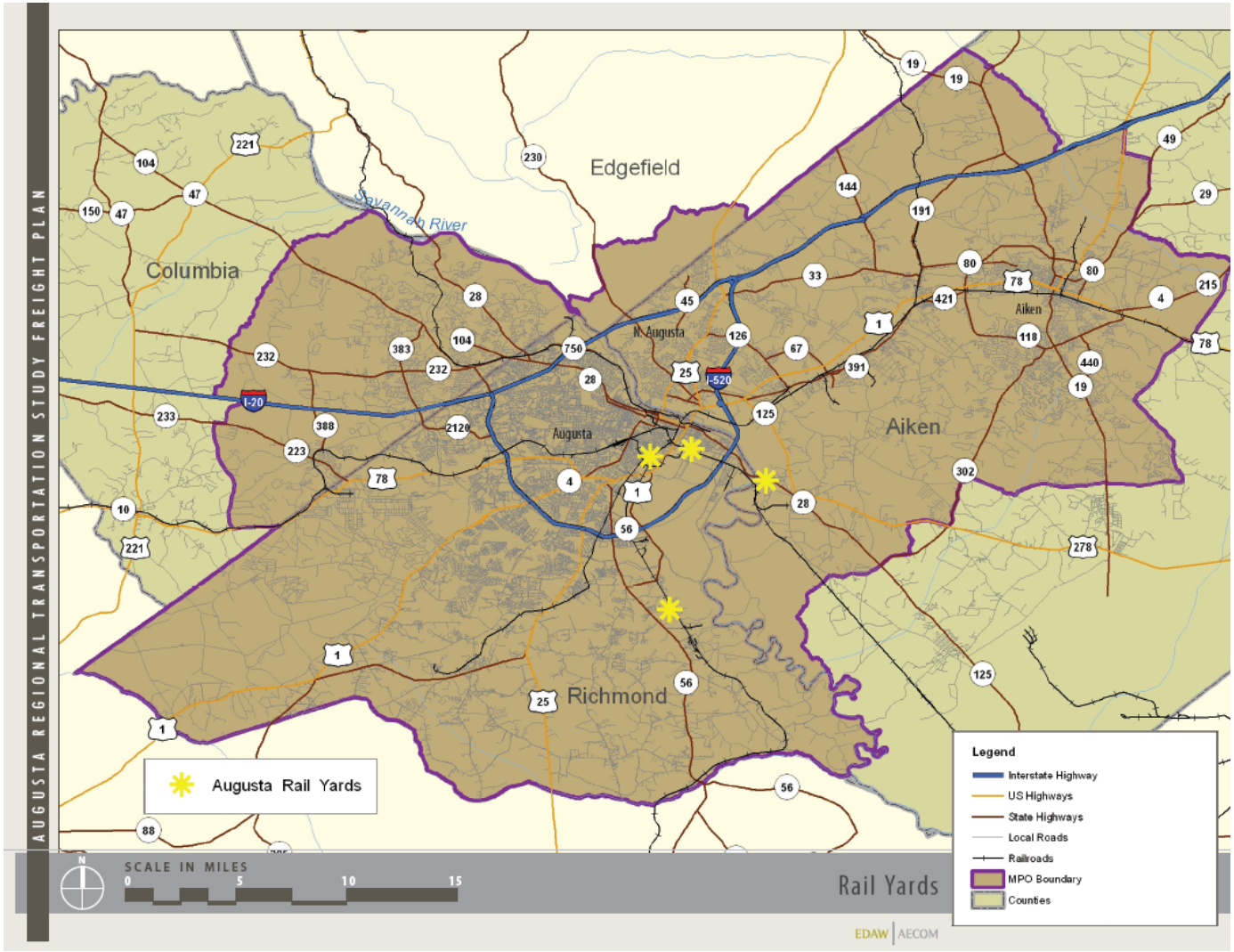
There are many railroad crossings in the Augusta area. Table 3.2 shows that there are approximately 216 at-grade railroad crossings in the Augusta area and it provides a breakdown by railway and by type of warning device. While there are a substantial number of at-grade crossings, there also are a number of grade separated crossings where tracks cross major roadways.

Figure 3.4 shows the at-grade crossings on major roadways that are potential truck routes and the daily vehicle volumes at the crossings. The daily truck volumes at these at-grade crossings are shown in Figure 3.5. The at-grade crossings with the highest truck volumes are located inside of the I-520 loop. These at-grade crossing locations are in the area where a large number of freight users are located. Table 3.3 gives detailed information for the at-grade rail crossings with more than 500 trucks per day annually. Table 3.4 lists the at-grade rail crossings in the region with the highest annual vehicle counts for both cars and trucks. The truck volumes provided by the Federal Railroad Administration Highway-Rail Crossing Inventory are from various years because all crossing are not updated each year. The crossings identify points in the freight system in which motor vehicle conflicts are most likely.

The rail crossing data includes truck percentages at crossings. The truck volumes obtained from the Federal Railroad Administration Highway-Rail Crossing Inventory identified routes that carry a large number of trucks but were not included in the traffic volume count data from the Georgia and South Carolina Departments of Transportation. Fifteenth Street, Laney Walker Boulevard, and Thirteenth Street fit into this category.

The rail crossing data also included the number of daily trains at each crossing. Three crossings have a large number of daily trains and high overall traffic volumes or high truck volumes. The crossings at Broad Street, Fifteenth Street, and Laney Walker Boulevard have 12 or more daily trains and more than 1,200 trucks per day.

Figure 3.3 Norfolk Southern Corporation and CSX Corporation Rail Yards in the ARTS Area



Source: Maps.google.com.

Table 3.2 Augusta Area At-Grade Railroad Crossings

	Type of Highway Warning							
Railroad	None	Cross Bucks	Stop Signs	Special Warning	HWTS, WW, Bells	Flashing Lights	Gates	Total
CSX Corporation	1	16	6	23	1	15	39	101
Norfolk Southern Corporation.	3	55	10	0	0	23	24	115
Total	4	71	16	23	1	38	63	216

Source: Federal Railroad Administration, Office of Safety Analysis, *Highway-Rail Crossing Inventory*, http://safetydata.fra.dot.gov/OfficeofSafety/.

Figure 3.4 At-Grade Crossings and Daily Vehicle Volumes

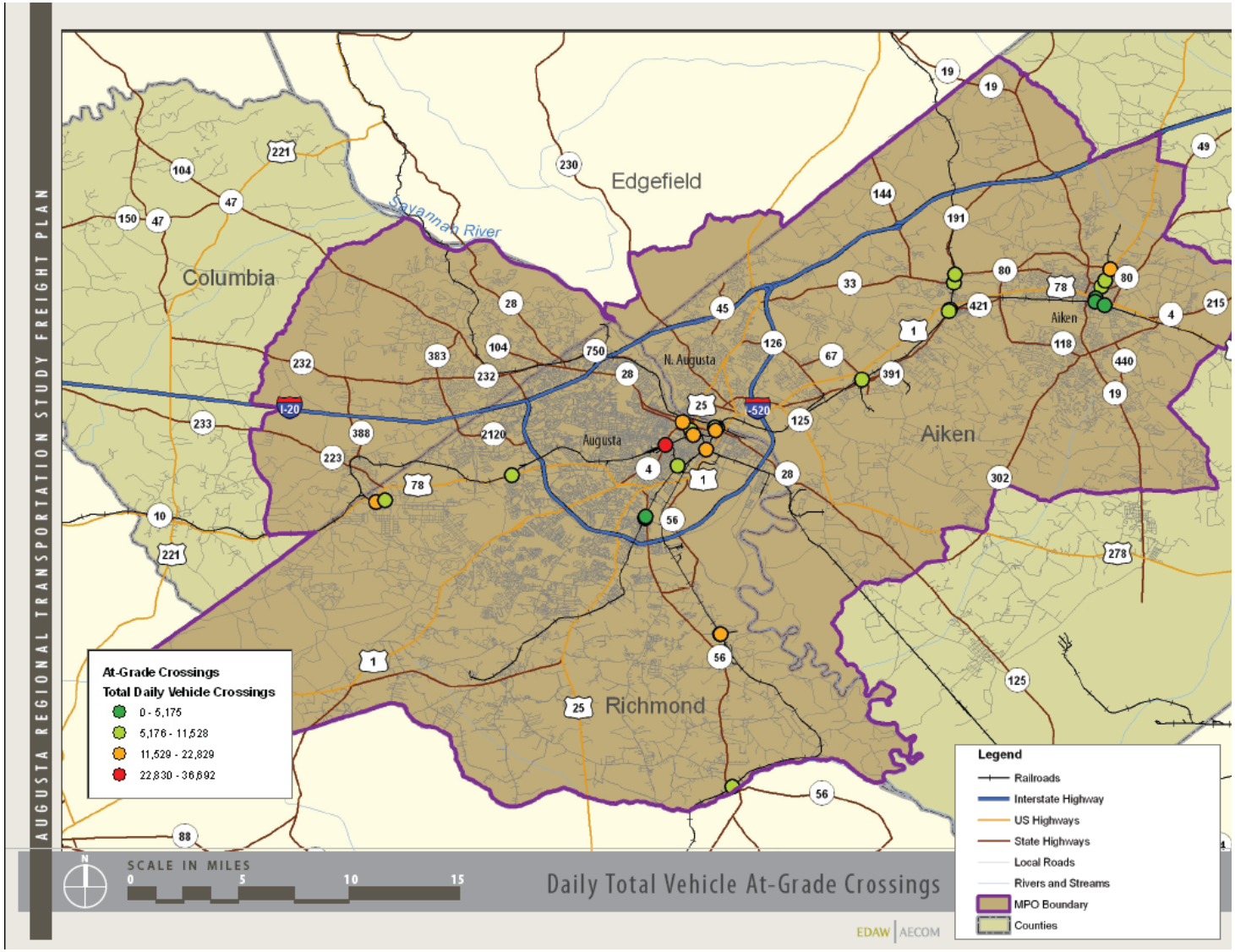


Figure 3.5 At-Grade Crossings and Daily Truck Volumes

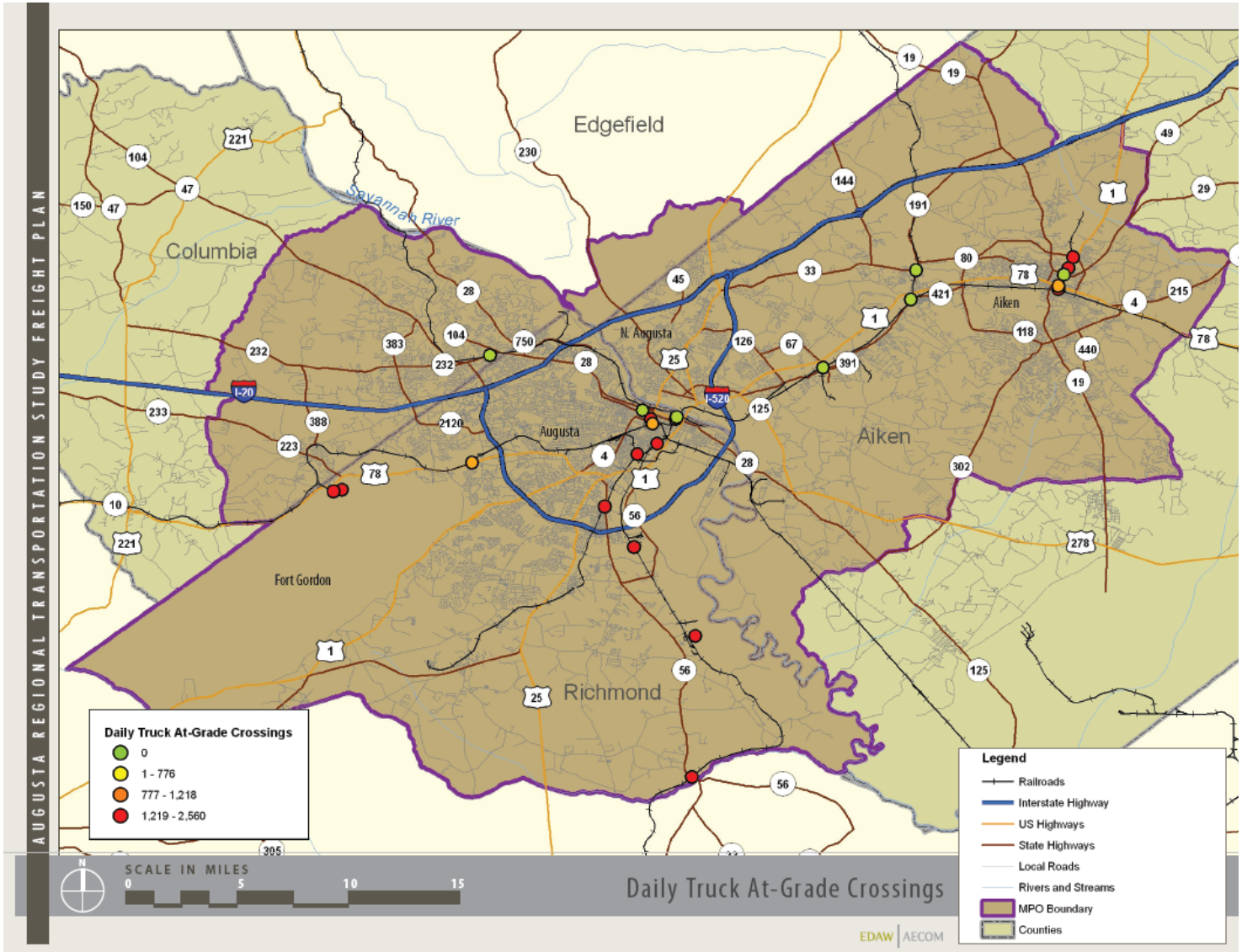


Table 3.3 High Truck Volume At-Grade Railroad Crossings

County	Crossing ID	Street Road	Type Warning	Daily Trains	Average Daily Vehicles	Reporting Railroad	Estimated Truck Percent	Average Daily Trucks	AADT Year	Location	
										Latitude	Longitude
R	633723M	Broad Street	Gates	18	22,829	CSX	11	2511	1988	33.473801	-81.9617
R	915995F	New Savannah Hwy.	Crossbucks	2	16,000	NS	15	2400	1996	33.334298	-81.949096
R	633722F	15th Street	Gates	17	15,536	CSX	12	1864	1986	33.4706	-81.963303
R	279431R	15th St Ramp	Gates	6	28,000	CSX	6	1680	1989	33.497601	-81.996696
R	864854D	Walton Way	Crossbucks	0	20,565	CSX	8	1645	1988	33.470798	-81.9767
R	734120U	Gwinnett/L. Walker	Crossbucks	12	17,400	NS	7	1218	1997	33.458037	-81.973541
R	633727P	13th Street	Special Warning	0	10,545	CSX	11	1160	1986	33.428444	-82.176361
R	633713G	Gwinnett Street	Flashing Lights	6	13,096	CSX	8	1048	1986	33.427391	-82.181709
R	633716C	13th Street	Gates	17	11,528	CSX	9	1038	1986	33.473701	-81.977699
R	915994Y	New Savannah Hwy.	Crossbucks	2	6,000	NS	15	900	1996	33.334298	-81.949096
R	279447M	Old Savannah Road	Gates	0	10,566	CSX	8	845	1986	33.451099	-81.986298
R	633712A	Laney Walker Boulevard	Flashing Lights	26	9,700	CSX	8	776	2001	33.445618	-82.092834
R	734135J	Gordon Hwy	Flashing Lights	5	36,692	NS	2	734	1988	0	0
R	732980H	State Highway 56	Gates	6	6,755	NS	10	676	1979	33.243305	-81.95108
R	864837M	Reynolds Street	Special Warning	0	10,522	CSX	6	631	1988	33.475101	-81.960899
R	864838U	Broad Street	Signals/Bells	0	9,549	CSX	6	573	1988	33.473801	-81.9617
R	633724U	Reynolds Street	Special Warning	0	10,118	CSX	5	506	1978	33.475101	-81.960899
A	728954L	Williamsburg	Crossbucks	2	2,200	NS	90	1980	1988	33.554817	-81.709518
A	715765C	Rutland Drive	Flashing Lights	4	16,145	NS	10	1615	2006	33.577728	-81.706177
A	715764V	York Street	Flashing Lights	4	10,650	NS	15	1598	2006	33.571056	-81.709251
A	721379F	Williamsburg	Crossbucks	2	1,850	NS	85	1573	1989	33.554817	-81.709518
A	715755W	Richland Avenue	Flashing Lights	4	5,485	NS	18	987	2006	33.55909	-81.715553
A	721385J	Park Avenue	Crossbucks	2	4,900	NS	20	980	1989	33.557152	-81.715683
A	715754P	Richland Avenue	Flashing Lights	4	5,175	NS	18	932	2006	33.55909	-81.715553
A	715643X	Augusta Road	Crossbucks	0	8,205	NS	9	738	2006	33.506721	-81.867004
A	720840W	SC191	Flashing Lights	4	6,000	NS	12	720	1988	0	0
A	715763N	Hampton Avenue	Flashing Lights	4	6,100	NS	10	610	2006	33.566715	-81.71199
A	715671B	Ascauga Lake Road	Flashing Lights	11	6,000	NS	10	600	2006	33.569328	-81.807198
A	715654K	Main Street	Flashing Lights	4	6,625	NS	9	596	2006	33.550823	-81.810375
A	715655S	Main Street	Gates	12	6,625	NS	8	530	2006	33.552047	-81.809841

Source: Federal Railroad Administration, Office of Safety Analysis.

Table 3.4 High-Volume At-Grade Railroad Crossings

County	Crossing ID	Street Road	Type Warning	Daily Trains	Average Daily Vehicles	Reporting Railroad	Estimated Truck Percent	Average Daily Trucks	AADT Year	Location	
R	279431R	15th Street Ramp A	Gates	6	28000	CSX	6	1680	1989	33.4976	-81.9967
R	915873B	U.S. 25\ SR 121	Gates	2	23200	NS	0	0	1994	33.4668	-82.0165
R	633723M	Broad Street	Gates	18	22829	CSX	11	2511	1988	33.4738	-81.9617
R	864854D	Walton Way	Crossbucks	0	20565	CSX	8	1645	1988	33.4708	-81.9767
R	734120U	Gwinnett/L. Walker	Crossbucks	12	17400	NS	7	1218	1997	33.45804	-81.9735
R	279430J	15th Street Ramp	Flashing Lights	15	16513	CSX	2	330	1988	33.4793	-81.9832
R	279424F	Walton Way	Gates	15	16012	CSX	3	480	1986	33.4708	-81.9767
R	915995F	New Savannah Highway	Crossbucks	2	16000	NS	15	2400	1996	33.3343	-81.9491
R	633722F	15th Street	Gates	17	15536	CSX	12	1864	1986	33.4706	-81.9633
R	734127S		Gates	2	14553	NS	5	728	1975	33.4175	-82.0073
R	633713G	Gwinnett Street	Flashing Lights	6	13096	CSX	8	1048	1986	33.42739	-82.1817
R	839923U	Reynolds Street	Crossbucks	0	12070	CSX	3	362	1986	33.4751	-81.9609
A	715765C	Rutland Drive	Flashing Lights	4	16145	NS	10	1615	2006	33.57773	-81.7062
C	633746U	Pleasant Home Road	Gates	15	13700	CSX	3	411	1996	33.51494	-82.081

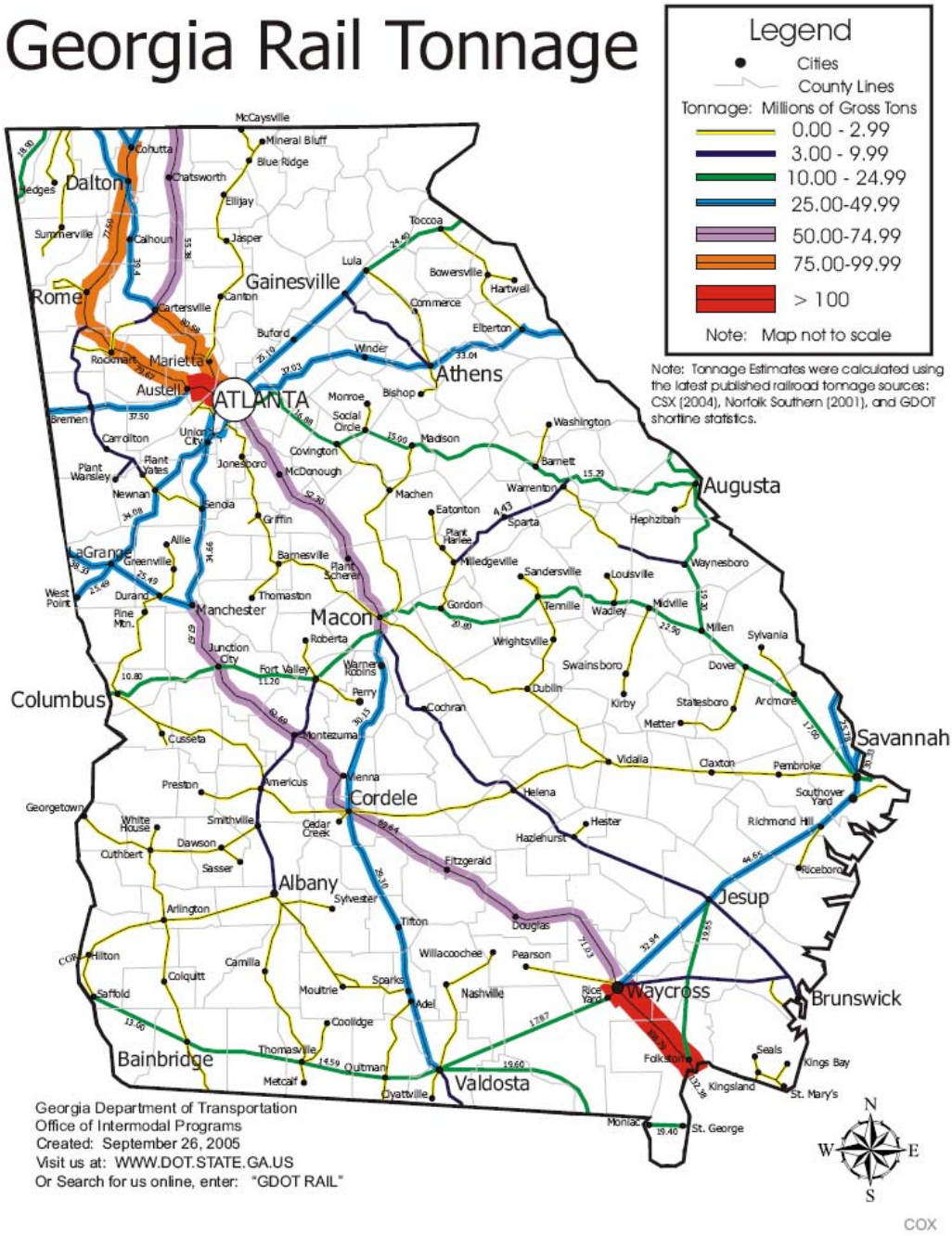
Source: Federal Railroad Administration, Office of Safety Analysis.

3.2 RAIL FLOWS

Rails flows in Georgia and the Augusta area are shown in Figure 3.6 and are measured in millions of gross tons. The map shows rail tonnage from 10 to 24.99 millions of gross tons for three lines in the Augusta region. This information may appear to contradict the TRANSEARCH rail flows in Figure 3.1. It is important to understand that the TRANSEARCH data does not include short line rail data and Figure 3.1 is carload tons. The data shown in Figure 3.6 is in millions of gross tons. Rail data for Aiken and Edgefield Counties was not available at the time of the study. It is expected that this data will be provided by the completion of the study.

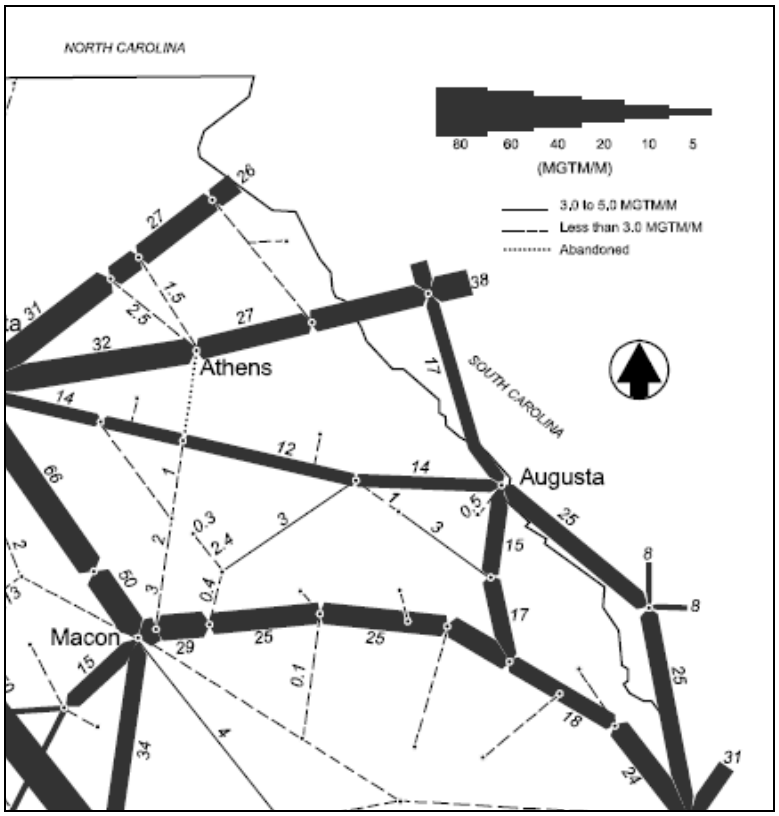
In comparison to the major freight corridors in Georgia, rail flows in the Augusta area are relatively light. Rail flows also can be measured using density as shown in Figures 3.7 and 3.8, which represent Class I railways and short-line railways respectively. Figure 3.7 shows the density of rail lines in the area based on millions of gross ton-miles per mile (MGTM/M). Lines handling more than 40 MGTM/M can be considered very busy lines. Those handling less than 5 MGTM/M are known as light density lines according to the Federal Railroad Administration. Figure 3.8 shows the densities in carloads/mile and total carloads. Unfortunately, the different units of density make it hard to compare the two figures.

Figure 3.6 Georgia Rail Tonnage



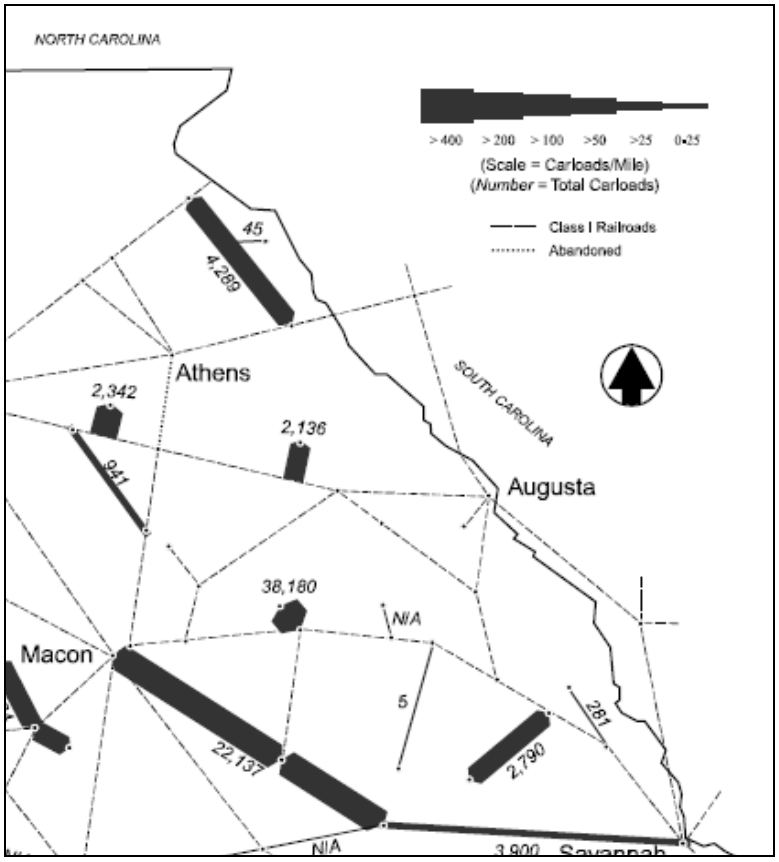
Source: Georgia Department of Transportation, Office of Intermodal Programs.

Figure 3.7 1998 Class I Rail Line Traffic Densities



Source: Georgia Department of Transportation Georgia Rail Freight Plan.

Figure 3.8 1998 Short-Line Rail Traffic Densities



Source: Georgia Department of Transportation Georgia Rail Freight Plan.

Some of the leading commodities shipped by rail into and out of Augusta are shown in Table 3.5. These figures are approximated from graphical illustrations in the Georgia Rail Freight Plan. They show that the leading commodity originating in Augusta are clay/concrete/glass/stone products, while the leading commodity terminating in Augusta area is lumber and wood products.

Table 3.5 1998 Augusta Area Rail Commodities

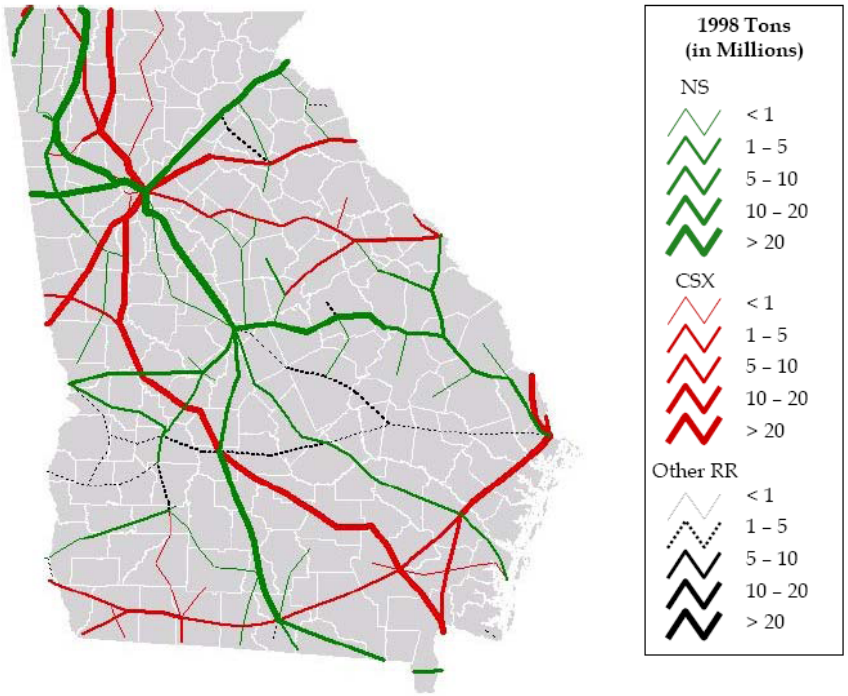
	Tons Originating	Tons Terminating
Clay/Concrete Glass/Stone Products	500,000	<600,000
Nonmetallic Mineral Products	100,000	<600,000
Lumber/Wood Products	100,000	<664,280
Pulp/Paper/Allied Products	400,000	0
Coal	<3,000,000	0

Source: Georgia Department of Transportation, Georgia Statewide Freight Plan.

3.3 FORECAST OF RAIL ACTIVITY

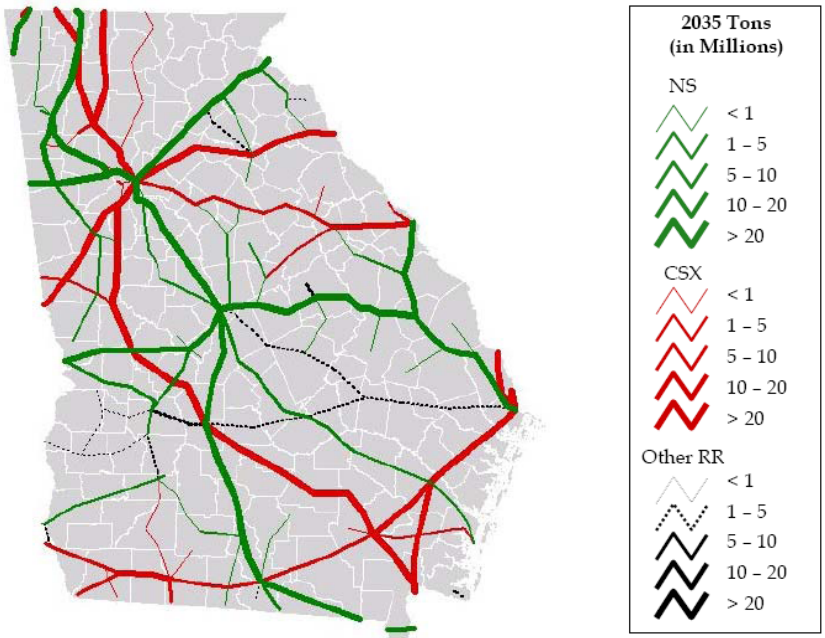
According to the Georgia Statewide Freight Plan, rail traffic along main routes in Georgia, such as between Macon, Atlanta, and Chattanooga, is expected to double by 2035. This can be seen by comparing Figure 3.9 and Figure 3.10, which show tons shipped by rail routes in 1998 and 2035, respectively. Rail traffic for the Augusta area is expected to double on both the Norfolk Southern Corporation and CSX Corporation lines.

Figure 3.9 1998 Tons by Rail



Source: Georgia Department of Transportation, Georgia Statewide Freight Plan.

Figure 3.10 2035 Tons by Rail



Source: Georgia Department of Transportation, Georgia Statewide Freight Plan.

3.4 PROPOSED RAIL PROJECTS

The ARTS LRTP currently does not include any rail-related projects.

4.0 Air Flows in Augusta Regional Transportation Study Area

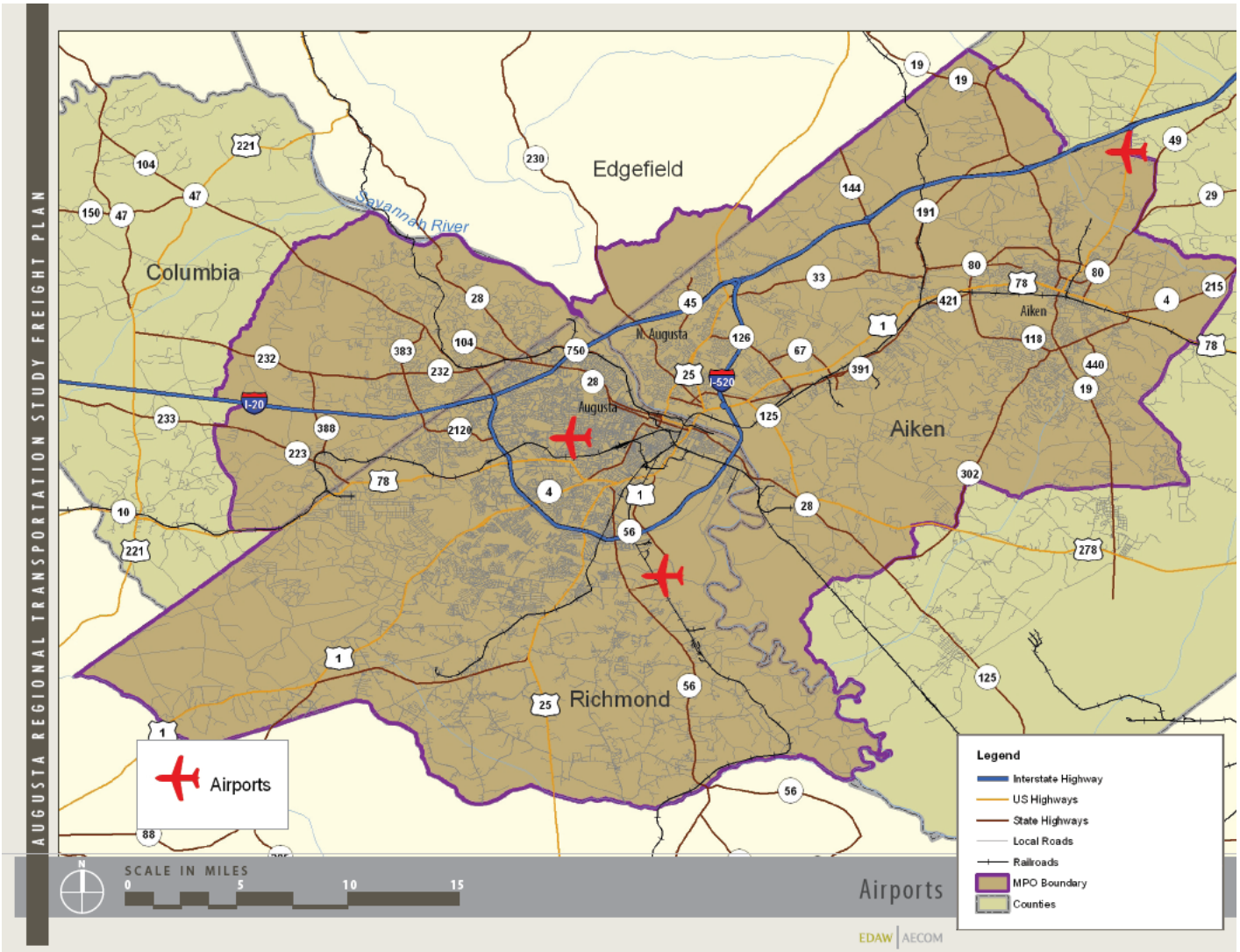
Augusta Regional Airport at Bush Field, Daniel Field Airport, and Aiken Municipal Airport are located in the ARTS study area (Figure 4.1). The Daniel Field Airport is located on Highland Avenue and the Augusta Regional Airport is on Aviation Way. Aiken Municipal Airport is located in close proximity to Interstate 20 in South Carolina.

Daniel Field serves the general aviation community by providing service for private air craft and air ambulance and medical transport aircraft. The economic benefit of the airport to the Augusta area is estimated to be $3.1 million.

Aiken Municipal Airport is general aviation airport owned and operated by the City of Aiken. The airport is located in western South Carolina five miles north of Aiken's central business district. The Aiken Municipal Airport generates $1.9 million in direct output and a $5.0 million total economic output.

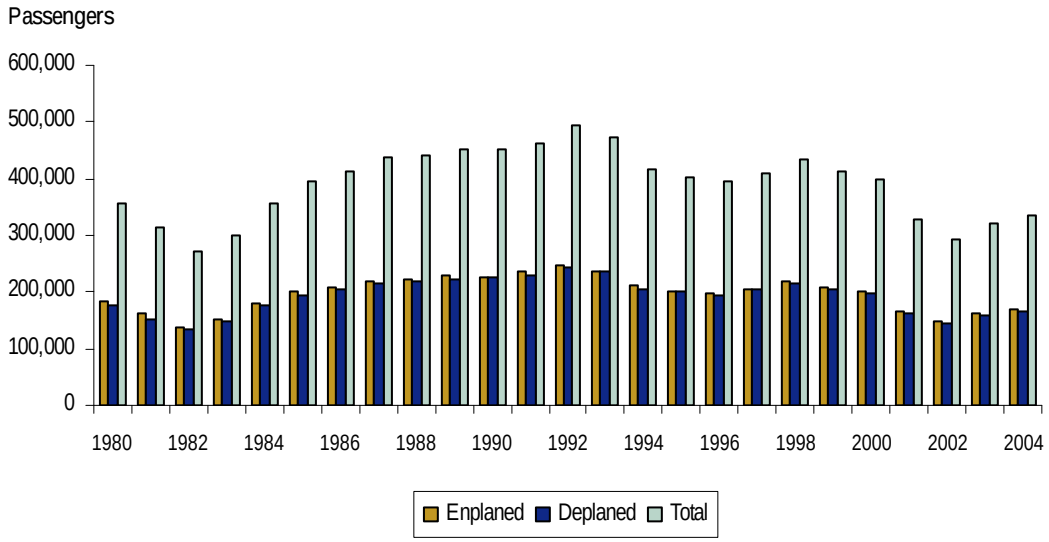
The Augusta Regional Airport (AGS) at Bush Field serves as the airport that receives and dispatches commercial air carrier flights, conducts air cargo and charter operations, and acts as a commercial and military pilot training exercise air field. The Augusta Regional Airport is located 10 minutes from downtown Augusta on Highway 56 Spur (Doug Bernard Parkway), four miles south of I-520 East (Bobby Jones Expressway). The airport serves 18 counties in Georgia and South Carolina and is the only airport in the Central Savannah River Area. In 2005, more than 315,000 commercial service passengers used the airport and about 17,000 general aviation operations carried 70,000 persons. Figure 4.2 shows passenger data for the airport from 1980 to 2004.

Figure 4.1 Airports in the ARTS Area



Source: Various Airport Websites.

Figure 4.2 1980-2004 Enplaned, Deplaned, and Total Passengers at the Augusta Regional Airport



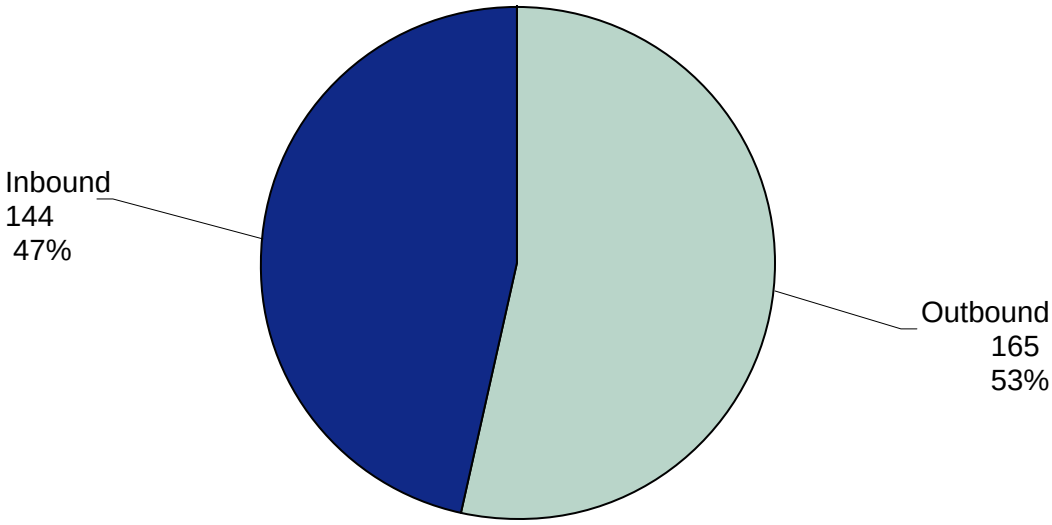
Commercial airline service is at the Augusta Regional Airport is provided by Delta Connection and U.S. Airways Express. The majority of commercial passenger flights service Atlanta and Charlotte. Other destinations available via Atlanta and Charlotte include Daytona Beach, Panama City and Charleston. Augusta Regional Airport tenants and visitors contribute approximately $300 million in economic activity to the area annually.

According to flightaware.com there is an average of 84 flights to and from Augusta Regional Airport per day. These flights are broken down into 8 commercial, 21 air taxi, 10 GA Local, 34 GA Transient, and 11 military flights. Commercial passenger service at Augusta Regional Airport (AGS) is limited to four arriving and four departing flights to Atlanta and one arriving and two departing flights to Charlotte daily. All eight flights to Atlanta are operated by Atlantic Southeast Airlines, which is a Delta Connection carrier. U.S. Airways operates the flights to Charlotte.

Air cargo flows in the Augusta region are limited to outbound and inbound trips. Fifty-three percent of air cargo trips are outbound trips to other regions (Figure 4.3). Table 4.1 summarizes the air cargo commodities in Columbia, Richmond, and Aiken Counties. Forty-four percent of air cargo flows are mail or contract traffic. Thirty percent are miscellaneous mixed shipments. Other air cargo shipped to or leaving the Augusta Regional Airport includes chemicals or allied products, transportation equipment, electrical equipment, and machinery.

The Georgia Statewide Freight Plan projects that Richmond County's Augusta Regional Airport will transport domestic air cargo with a value in excess of $1 million per year by 2035.

Figure 4.3 2006 Augusta Air Flows
By Movement Type



Source: 2006 TRANSEARCH.

Table 4.1 2006 Augusta Air Cargo Commodity Summary

STCC2	Commodity	Air Tons	Percent Share
43	Mail or Contract Traffic	134.5	43.64%
46	Miscellaneous Mixed Shipments	90.9	29.49%
28	Chemicals or Allied Products	29.1	9.44%
37	Transportation Equipment	16.6	5.39%
36	Electrical Equipment	16.6	5.38%
35	Machinery	13.0	4.22%
38	Instruments, Photograph Equipment, Optical Equipment	4.1	1.34%
27	Printed Matter	1.7	0.54%
30	Rubber or Miscellaneous Plastics	1.5	0.49%
23	Apparel or Related Products	0.2	0.06%
	Total	308.3	100.00%

Source: 2006 TRANSEARCH.

The Augusta Regional Airport is nearing the completion of a new terminal estimated to cost $30 million (Figure 4.4). The project is funded by existing airport funds, Federal grants, funds collected from passenger faculty charges and

airport revenue bonds. The new terminal will allow passenger traffic to flow in a more natural path. Departing passengers flow from the ticketing area, through screening in the core, and out to the concourse. Arriving passengers deplane at the concourse, come through the core, and pick up their luggage in baggage claim. The terminal construction also includes a new ticketing area, which will allow for easier passenger check in. The new baggage claim area will have two bag belts and space for six rental car offices.

Operations out of the new terminal have begun. The final phase of construction to demolish temporary buildings, landscape the garden areas between the main terminal and the hold room, and other miscellaneous tasks is underway. It is expected that the entire project will be completed by May 2008.

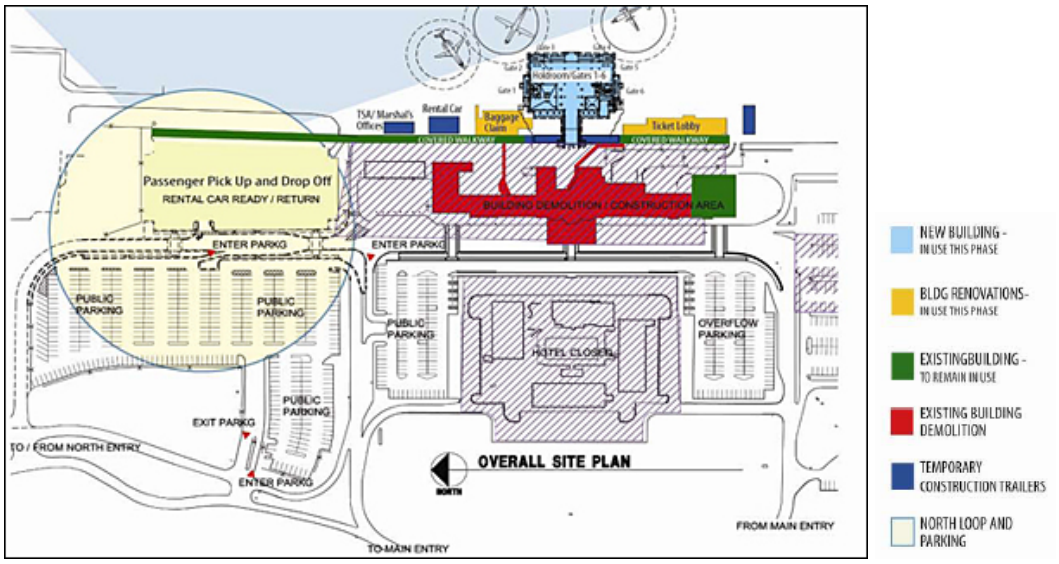



Figure 4.4 Schematic of New Airport Terminal