

APPALACHIAN REGIONAL FREIGHT MOBILITY PLAN

Appendix E FREIGHT AND ECONOMICS



DRAFT – FOR REVIEW

Prepared for:
APPALACHIAN COUNCIL OF GOVERNMENTS

Prepared by:
**CDM
Smith**[®]

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1 Introduction



Millions of tons and billions of dollars in freight annually traverse the Appalachian region's transportation infrastructure, including finished goods and intermediate materials. The following analysis assesses the various freight databases, summarizes freight volumes, identifies regional relevance, and quantifies economic impacts.

Freight data are reported as sourced, but each source has limitations. The various sources are incorporated to explain freight movements within and between modes by volume (tons, value, units), commodity, and direction.

Refined freight values by direction (inbound, outbound, internal, and through) and commodity type are used in conjunction with the IMPLAN economic model to identify how the production and consumption of regional freight result in direct impacts. The IMPLAN model was also used to estimate the total impacts associated with indirect supplier and induced re-spending impacts. These impacts were measured in terms of employment, labor income, value-added, and output. The IMPLAN model supplied socioeconomic data that provided baseline regional economic data for the same impact measures, which facilitated comparison of the freight-related impacts to the overall regional economy.

2 Freight Dimension and Sources



A universal freight database encompassing all data dimensions is not publicly available. Each database is limited across one or more dimensions; therefore, multiple sources should be considered to comprehensively analyze freight movements.

2.1 Data Dimensions

Freight data are always characterized relative to a facility and/or an analysis geography (i.e., Appalachian Council of Governments [ACOG]), by direction, within a given timeframe, and by mode, typically measured by weight and/or monetary value in aggregate, or by commodity detail.

Geography/Facility – Data are presented relative to the ACOG seven-county study region (i.e., Anderson, Cherokee, Greeneville, Laurens, Oconee, Pickens, and Spartanburg).

Direction – Freight is typically delineated by four major movement directions relative to the geography/facility: outbound, inbound, intra, and through. Such directions may be subcategorized depending on geographic resolution (e.g., outbound to South Carolina, foreign exports). Direction is determined from origins and destinations.

Time – Freight data from the sources herein are in annual terms, always with a historical base year (i.e., 2016). Some sources include forecasts, some do not.

Mode – Freight is sometimes multimodal; however, most freight databases identify only the primary mode. As such, freight data are typically sorted into modal groups, including truck, rail, water (ports and waterways), airports, pipeline, and sometimes “other.”

Volume – Freight is typically measured by weight (e.g., tons) and/or monetary value. Given the source disparity, tonnage data are presented mostly herein for comparability.

Commodity – Freight comprises all goods movements, which typically entail a mix of commodities—both intermediary and final products. Three commodity conventions are used in the freight databases, most of which do not agree perfectly. Consequently, commodity data are presented within each source’s unique convention. The three conventions used (by source and mode) are:

- Standard Transportation Commodity Code (STCC) – by IHS Markit TRANSEARCH (TRANSEARCH) for truck and rail
- Lock Performance Monitoring System – by U.S. Army Corps of Engineers for water
- Standard Classification of Transported Goods (SCTG) – by Freight Analysis Framework (FAF) for air and pipeline

2.2 Data Sources

Two primary multimodal freight databases include the for-hire TRANSEARCH and the publicly available Federal Highway Administration (FHWA) FAF. Each covers all major modes but has limitations. The TRANSEARCH data was supplemented with the Surface Transportation Board (STB) Waybill rail data.

TRANSEARCH – IHS Markit develops a North American freight database based only on North American Free Trade Agreement (NAFTA)–focused geography and compiled from various sources, including rail and truck carriers, with base- and future-year, county-level estimates. It establishes production tonnages by industry/commodity—drawn from IHS's Business Markets Insights database and supplemented by trade associations, industry reports, federal government data, and the STB Waybill sample for rail data. TRANSEARCH was originally developed for private truck and rail users; therefore, the data is not extensive for modes other than truck and rail, especially because of the NAFTA-focused geography. Although non-NAFTA water and air movements are excluded, TRANSEARCH provides a comprehensive database of truck and rail freight using the STCC commodity code convention.

STB Waybill – The STB Waybill provides annual freight rail data, using a 2% stratified sample of carload waybills for freight rail traffic submitted by carriers terminating 4,500 or more revenue carloads annually. While STB Waybill data are more robust and accurate than TRANSEARCH estimations, they lack forecasts and routing information. TRANSEARCH (standard product) incorporates the more robust STB Waybill data and amends it with routing and corresponding forecasts. As such, the rail data presented herein are sourced from TRANSEARCH, but stem from the STB Waybill.

FHWA FAF 4.3 – FHWA FAF 4.5.1 is an integrated freight database for all primary transportation modes, produced by FHWA in collaboration with the Bureau of Transportation Statistics and based primarily on domestic data from the 2012 Commodity Flow Survey and international trade Census data. It is a comprehensive database and internally consistent; however, it is limited in routing information that precludes certain freight density mapping and cannot identify through volumes, which can often be significant, especially for major interstate truck freight. FAF uses the Standard Classification of Transported Goods commodity code convention.

3 Freight Data



The following subsections summarize modal freight data from the various sources. Additional detailed freight data tables and maps are in the appendix.

3.1 TRANSEARCH

TRANSEARCH data for the ACOG study region is presented in **Table 3-1** for the two surface modes: truck and rail. Although the database includes additional modes, the NAFTA-level trade restriction limits the usefulness of the air data, and “other” categories¹ are questionable/irrelevant.

Table 3-1: TRANSEARCH Summary, 2016, ACOG Study Region

Direction	Truck	Rail	Other	Air
Tons				
Outbound	23,277,834	1,939,905	840	15,753
Inbound	22,359,643	3,016,116	38,648	15,279
Intra-Regional	6,710,030	20,920	#N/A	#N/A
Through	51,394,006	29,791,316	#N/A	#N/A
Total	103,741,513	34,768,257	39,488	31,033
Units				
Outbound	1,990,475	83,471	#N/A	#N/A
Inbound	1,981,527	67,460	#N/A	#N/A
Intra-Regional	834,006	240	#N/A	#N/A
Through	3,095,382	737,339	#N/A	#N/A
Total	7,901,390	888,510	0	0
Value, in millions				
Outbound	\$43,343	\$8,307	\$6	\$1,484.97
Inbound	\$31,412	\$5,891	\$409	\$1,598
Intra-Regional	\$6,217	\$41	#N/A	#N/A
Through	\$112,411	\$48,396	#N/A	#N/A
Total	\$193,383	\$62,635	\$415.8	\$3,083.4

The multimodal summary is provided below by mode and major direction, with the non-surface modes grayed out. Directional data is relative to the seven-county ACOG study region, which includes Anderson, Cherokee, Greeneville, Laurens, Oconee, Pickens, and Spartanburg counties.

TRANSEARCH reports 138 million tons moved across the regional surface network, valued at \$256 billion in 2016. About 75% of the tons and value are carried via truck and the remainder are carried by rail. Through traffic constitutes most regional volumes but pertains almost entirely to interstate truck trade on Interstate (I)-85, which traverses all the regional counties, except Laurens.

¹ “other” in TRANSEARCH is either unspecified “other,” mail, or foreign trade zone-related movements

3.1.1 Truck

In 2016, TRANSEARCH estimated 104 million tons of goods traveling on the seven-county highway network, transported within 7.9 million units and valued at over \$193 billion (**Table 3-2**).

Directions – Most truck tonnage (50%) and value (58%) traverses as through traffic, which is typical of regions situated on a major interstate, such as I-85. The seven-county region exhibited a slight positive truck-bound trade balance, with more outbound than inbound goods, especially by value. Therefore, the region is a net producer of truck-borne freight (produces more than consumes). Intraregional truck movements represent the smaller directional share, but a relatively higher proportion of intra-regional units reflects the repositioning of shipping containers (which have no associated freight tons or value).

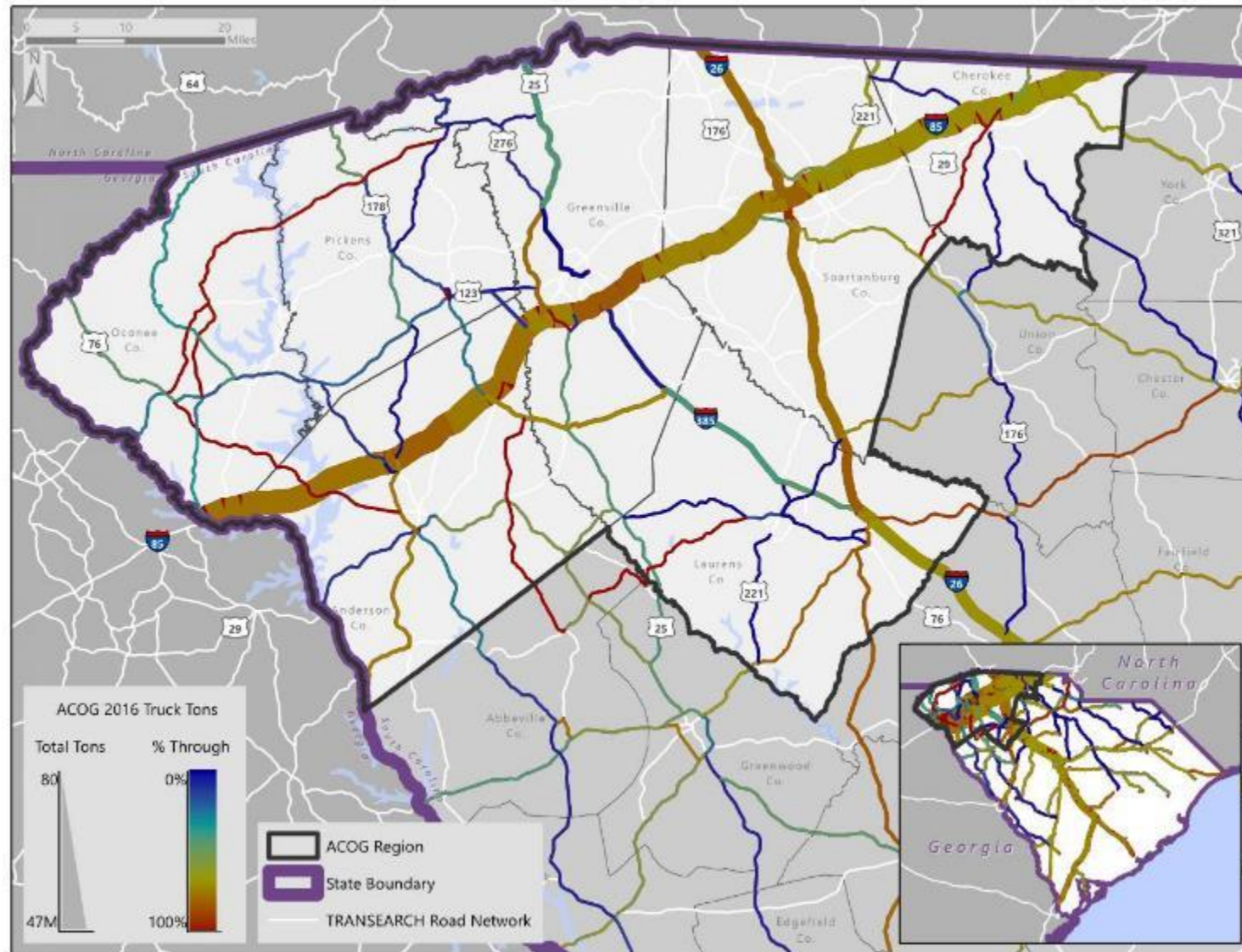
Table 3-2: TRANSEARCH Truck Summary, 2016

Direction	Tons		Units		Value (in millions)		Average Value/Ton
	Amount	Percent	Amount	Percent	Amount	Percent	
Outbound	23,277,834	22.4%	1,990,475	25.2%	\$43,343.1	22.4%	\$1,862
Outbound to SC	3,573,723	3.4%	333,318	4.2%	\$3,476.4	1.8%	\$973
Outbound to non-SC	19,704,111	19.0%	1,657,157	21.0%	\$39,866.7	20.6%	\$2,023
Inbound	22,359,643	21.6%	1,981,527	25.1%	\$31,412.1	16.2%	\$1,405
Inbound from SC	3,479,417	3.4%	338,879	4.3%	\$4,157	2.1%	\$1,195
Inbound from non-SC	18,880,226	18.2%	1,642,648	20.8%	\$27,255	14.1%	\$1,444
Intra-Regional	6,710,030	6.5%	834,006	10.6%	\$6,217	3.2%	\$927
Through	51,394,006	49.5%	3,095,382	39.2%	\$112,411	58.1%	\$2,187
Through SC to SC	42,044	0.0%	4,430	0.1%	\$23	0.0%	\$544
Through non-SC to SC	6,817,267	6.6%	428,993	5.4%	\$13,344	6.9%	\$1,957
Through SC to non-SC	6,334,284	6.1%	416,292	5.3%	\$16,802	8.7%	\$2,652
Through non-SC to non-SC	38,200,410	36.8%	2,245,668	28.4%	\$82,242	42.5%	\$2,153
Total	103,741,513	100.0%	7,901,390	100.0%	\$193,383	100.0%	\$1,864

Network Density – Most trucks travel through the Appalachian region on I-85, reflecting mostly non-South Carolina interstate trade, as seen in **Figure 3-1**. Such volumes represent almost half the tons and values of all trucks traversing the regional highways. Additionally, some trucks traverse the region through Spartanburg along I-26, at less than half the volume of I-85. Aside from those two highest-volume interstates, TRANSEARCH shows high truck volumes along I-385 and U.S. 25, which mostly serves regional freight origins and destinations. Other roadways are allocated minor volumes, which is typical for TRANSEARCH routing because of the database resolution².

² TRANSEARCH is based on a NAFTA trade network; as such, intra-county and -regional movements are not routed with a detailed resolution. Specifically, intra-county movements are not routed at all because there is no sub-county origin/destination.

Figure 3-1: TRANSEARCH Truck Density, 2016 Tons



Origins/Destinations – Aside from I-85 and I-26 through traffic, which is mostly non-South Carolina interstate trade (e.g., Georgia, North Carolina, and Florida predominately, but also some Ohio, Pennsylvania, and New York), the remaining inbound, outbound, and intra-regional volumes are concentrated in Greenville and Spartanburg Counties. Truck directional volumes (tons, value, units) are summarized in **Table 3-3**.

- *Outbound* – More than 56% of outbound tons originated in Greenville (35%) and Spartanburg (21%), with Cherokee contributing an additional 19%. More than 50% is destined for either North Carolina (33%) or Georgia (17%), followed by the non-ACOG remainder of South Carolina (15%). All other states are a small share. Tons to the rest of South Carolina were mostly destined for York (12.4%), Richland (12.3%), Charleston (10.4%), Lexington (9.9%), and Aiken (9%) counties.
- *Inbound* – Over 70% of inbound tons were destined for Spartanburg (43%) and Greenville (28%). 58% originated from North Carolina (23%), Georgia (20%), and the rest of South Carolina (16%). Tons from the rest of South Carolina originated in Charleston (15.8%), Richland (12.8%), Lexington (10.1%), Orangeburg (8.2%), and York (6.4%) counties.
- *Intra-Regional* – Most intra-regional truck tons are intra-county for both Greenville and Spartanburg and the intercounty trade between. Less than half of the truck tons pertain to all other county pairings.

Table 3-3: TRANSEARCH Truck Average Miles Traveled

Direction	Tons	Units	Value
Outbound	314	259	592
Outbound to SC	119	116	148
Outbound to non-SC	349	288	631
Inbound	329	246	449
Inbound from SC	138	125	160
Inbound from non-SC	364	271	494
Intra-Regional	27	28	24
Through	702	639	838
Through SC to SC	102	99	98
Through non-SC to SC	642	548	699
Through SC to non-SC	685	606	888
Through non-SC to non-SC	716	663	850

Commodities by Direction – Various commodity groups traverse the ACOG region, especially long-distance interstate trade on I-85. Tonnage volumes are shown inclusive of the through in **Figure 3-2**. A second perspective, excluding through tonnage in **Figure 3-3**, provides a clearer picture of economically relevant ACOG freight—volumes produced and/or consumed in the region.

Figure 3-2: TRANSEARCH Truck Commodities, 2016 Tons, including Through

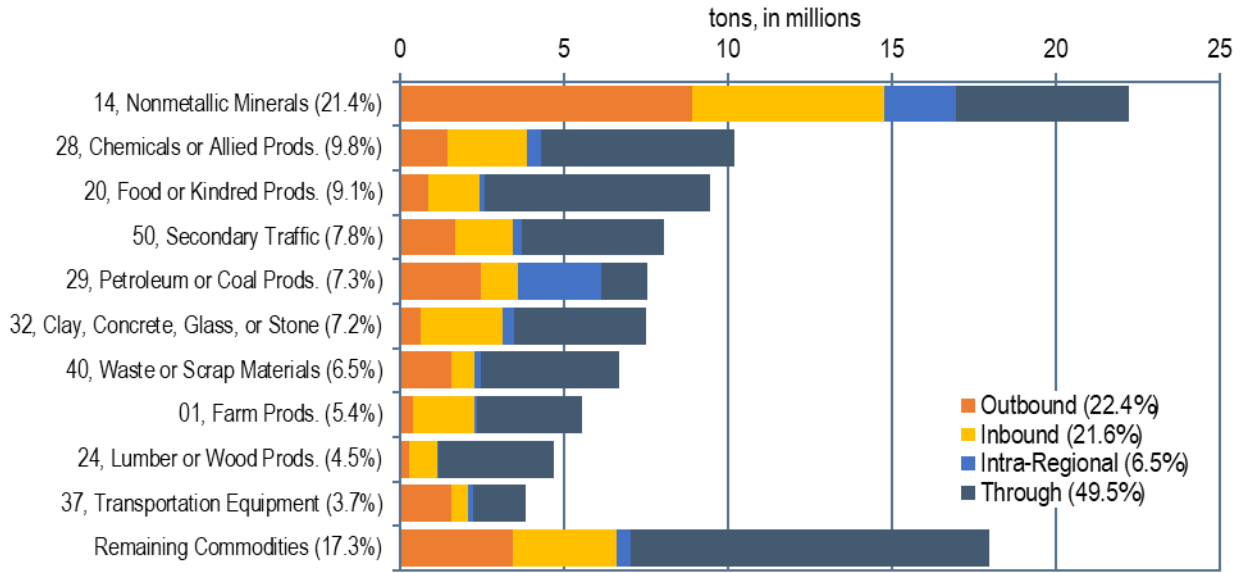
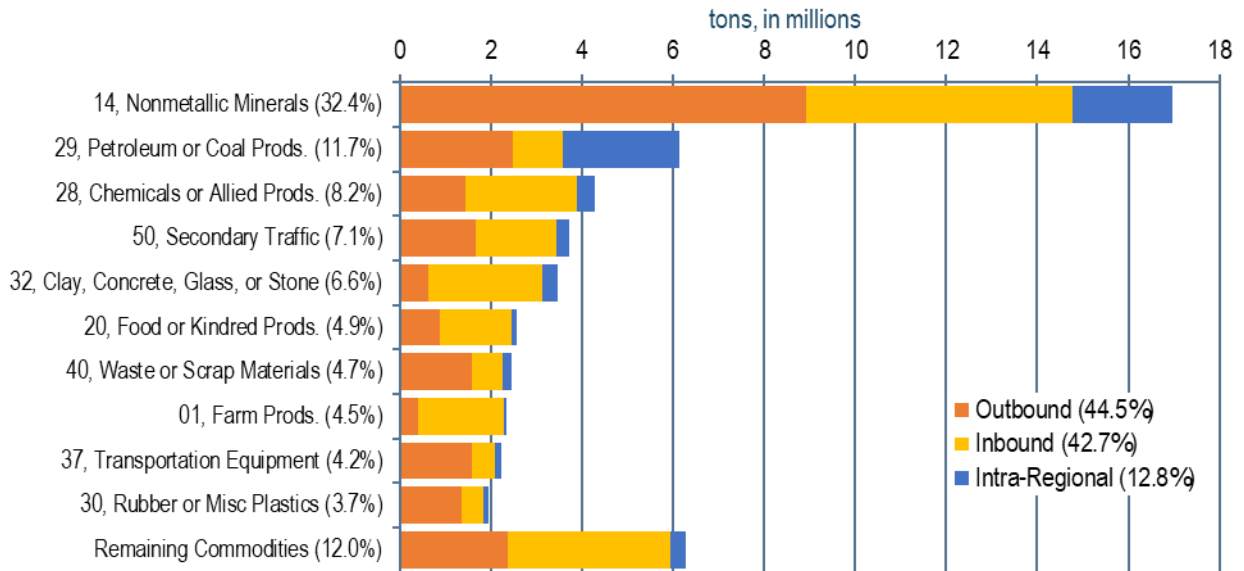


Figure 3-3: TRANSEARCH Truck Commodities, 2016 Tons, excluding Through



Regional inbound, outbound, and intra-regional truck volumes pertain mostly to the bulleted STCC groups below. The high proportion of shipping containers for units represents repositioning empty containers.

- By tons
 - Nonmetallic minerals (17.0 million tons, 32.4% of total)
 - Petroleum or coal products (6.1 million tons, 11.7% of total)
 - Chemicals or allied products (4.3 million tons, 8.2% of total)

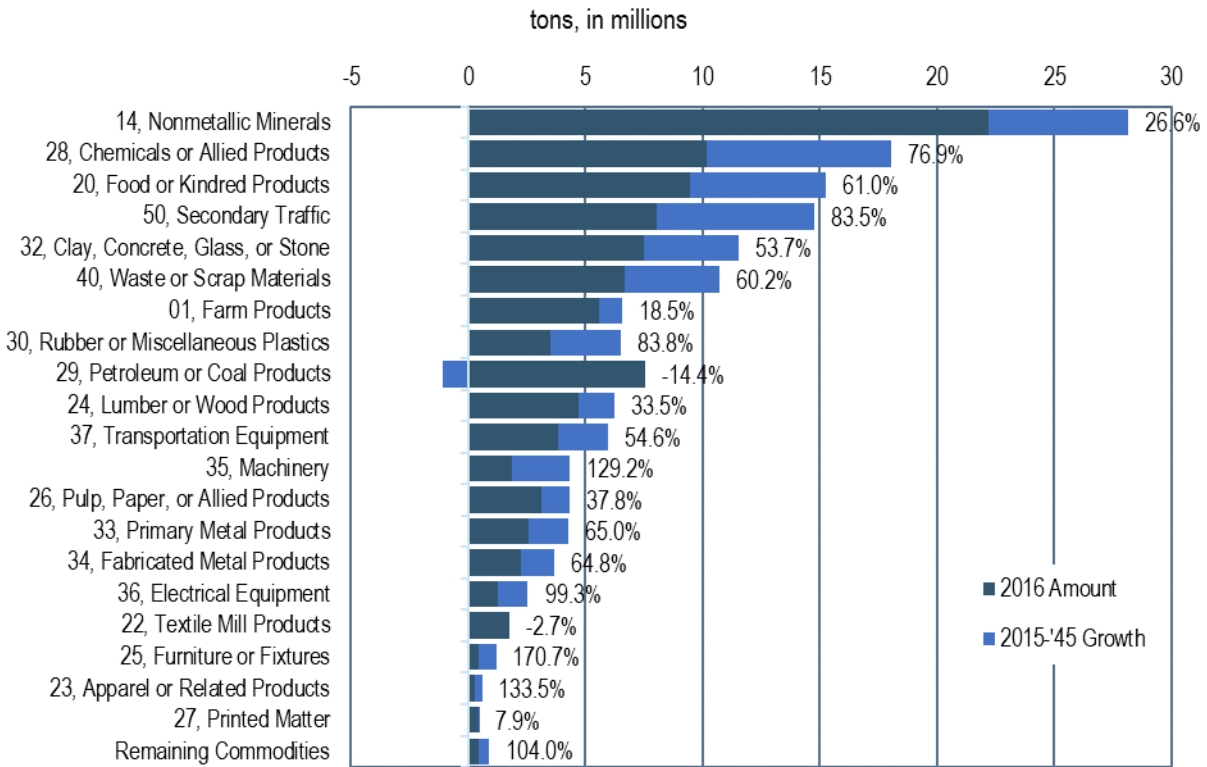
- Secondary traffic³ (3.7 million tons, 7.1% of total)
- Clay, concrete, glass, or stone (3.5 million tons, 6.6% of total)
- By units
 - Shipping containers (2,262,284 units, 47.1% of total)
 - Nonmetallic minerals (698,079 units, 14.5% of total)
 - Petroleum or coal products (252,179 units, 5.2% of total)
 - Clay, concrete, glass, or stone (218,515 units, 4.5% of total)
 - Chemicals or allied products (205,604 units, 4.3% of total)
- By value
 - Transportation equipment (\$19,368.4 million, 23.9% of total)
 - Chemicals or allied products (\$10,510.2 million, 13.0% of total)
 - Rubber or miscellaneous plastics (\$7,778.5 million, 9.6% of total)
 - Machinery (\$6,770.4 million, 8.4% of total)
 - Textile mill products (\$5,996.9 million, 7.4% of total)

Growth – By 2040, the horizon year in TRANSEARCH, truck freight on the seven-county network is projected to increase to over 154 million tons, a 49% total increase, or 1.7% annually, as shown in **Figure 3-4**. Inbound and through volumes grow slightly faster than the other directions. More than half the absolute volume growth is in chemicals or allied products, secondary traffic, nonmetallic minerals, and food and kindred products.

Summary – I-85 is a bridge connecting interstate trade, but most volumes traversing do not pertain to the ACOG region. Volumes along I-85 pertinent to ACOG are mostly between Greenville and Spartanburg. Aside from I-85, the regional truck tons are mostly along I-26, connecting with the rest of South Carolina, especially the Columbia capital area and Charleston. Much of the regional trucks carry a heterogeneous commodity mix, with nonmetallic minerals and empty shipping containers comprising the largest ton and unit movements, respectively. Absolute truck volumes are forecast to increase the most on I-85 and I-26, in relative proportion to existing 2016 estimated volumes.

³ warehousing and distribution center repositioning/drayage/etc.

Figure 3-4: TRANSEARCH Truck 2015–2040 Ton Growth



3.1.2 Rail

In 2016, TRANSEARCH estimated 35 million tons of goods traveling on the seven-county railroads within 888,500 carloads and valued at over \$62 billion. Rail volumes are summarized by direction in **Table 3-4**.

Directions – Freight traversing ACOG’s railroads are mostly through (more than three-fourths of volumes), with only a small relative proportion originating/terminating in the region. More inbound tons are railed compared to outbound, but with an average value/ton that is more than twice inbound, the outbound value. Intra-regional rail is a very small fraction of total movements, as expected, given rail freight is typically long haul.

Table 3-4: TRANSEARCH Rail Summary, 2016

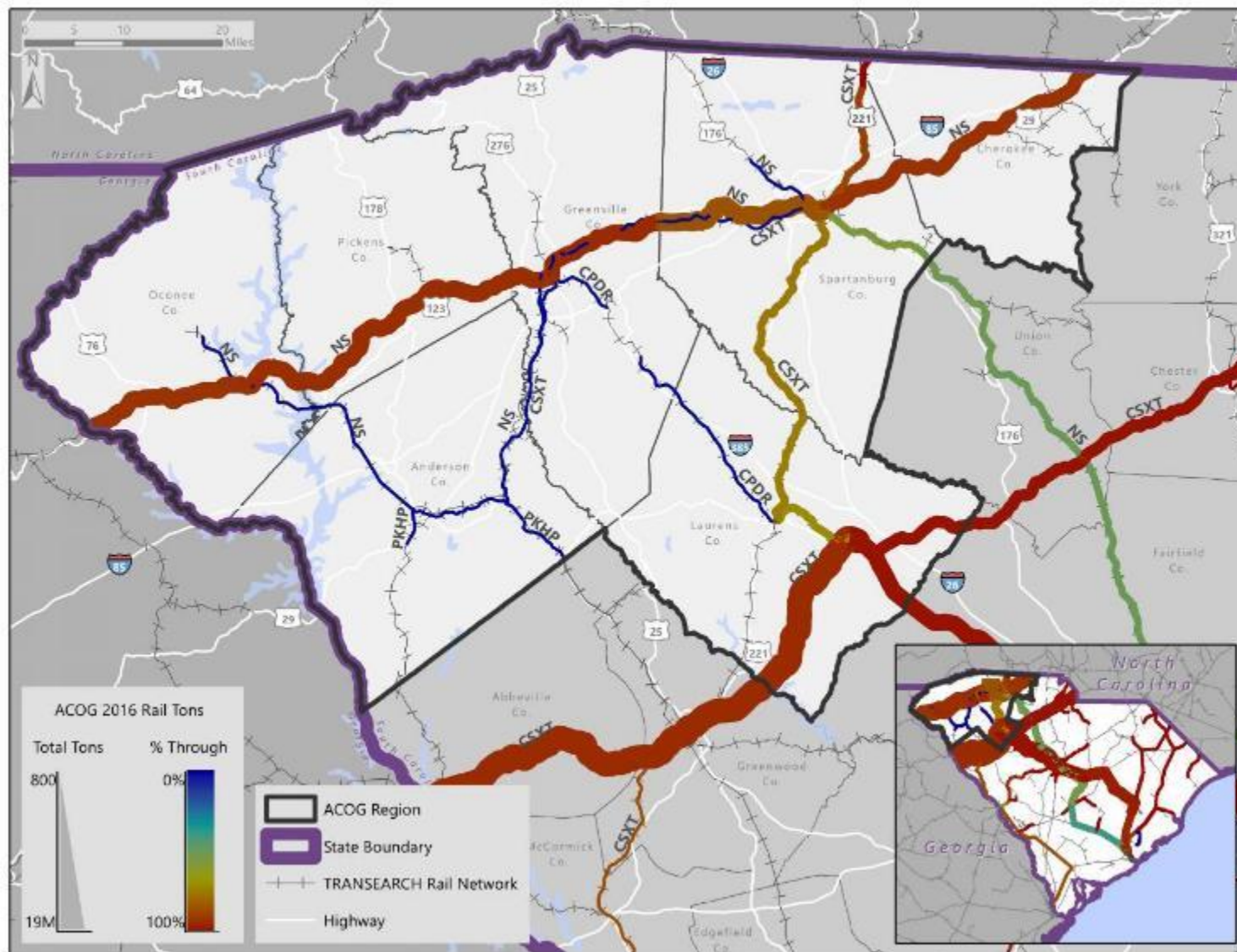
Direction	Tons		Units		Value (in millions)		Average Value/Ton
	Amount	Percent	Amount	Percent	Amount	Percent	
Outbound	1,939,905	5.6%	83,471	9.4%	\$8,306.7	13.3%	\$4,282
Outbound to SC	1,395,185	4.0%	74,951	8.4%	\$7,247.1	11.6%	\$5,194
Outbound to non-SC	544,720	1.6%	8,520	1.0%	\$1,059.6	1.7%	\$1,945
Inbound	3,016,116	8.7%	67,460	7.6%	\$5,891.4	9.4%	\$1,953
Inbound from SC	578,480	1.7%	37,840	4.3%	\$2,427	3.9%	\$4,195
Inbound from non-SC	2,437,636	7.0%	29,620	3.3%	\$3,465	5.5%	\$1,421
Intra-Regional	20,920	0.1%	240	0.0%	\$41	0.1%	\$1,966
Through	29,791,316	85.7%	737,339	83.0%	\$48,396	77.3%	\$1,624
Through SC to SC	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Through non-SC to SC	10,996,121	31.6%	191,150	21.5%	\$11,441	18.3%	\$1,040
Through SC to non-SC	2,593,364	7.5%	41,488	4.7%	\$3,694	5.9%	\$1,424
Through non-SC to non-SC	16,201,831	46.6%	504,701	56.8%	\$33,261	53.1%	\$2,053
Total	34,768,257	100.0%	888,510	100.0%	\$62,635	100.0%	\$1,802

Network Density – **Figure 3-5** illustrates rail line densities. Railroad routes with the relatively densest freight volumes are the two northeast-southwest-oriented lines—CSX running through southern Laurens County with almost 19 million tons, and Norfolk Southern running in close parallel along I-85 with about 12 million tons. Like trucks, non-Class 1 railroads are allocated minor volumes, which is typical for TRANSEARCH routing because of the database resolution⁴.

Origins/Destinations – Major through rail volumes are a mix of non-South Carolina interstate trade, mostly states east of the Mississippi River, and coal imports from Kentucky and Indiana to other non-ACOG counties in South Carolina. Outbound regional rail tons are almost entirely from Greenville (60%) and Spartanburg (38%), destined predominately for Charleston (port). Inbound rail tons were destined for Spartanburg (41%), Greenville (30%), and Anderson (18%), from Louisiana, Illinois, and the Charleston/Berkeley intermodal transfer facilities.

⁴ TRANSEARCH is based on a NAFTA trade network; as such, intra-county and -regional movements are not routed with a detailed resolution; specifically, intra-county movement are not routed at all because there is no sub-county O/D.

Figure 3-5: TRANSEARCH Rail Density, 2016 Tons



Commodities – Rail volumes typically comprise certain major commodity groups, including coal, miscellaneous mixed shipments (shipping containers), chemical products, transportation equipment, and waste and scrap products. Tonnage volumes are shown in **Figure 3-6** (including through) and **Figure 3-7** (excluding through). Regional inbound, outbound, and intra-regional rail volumes pertain mostly to the bulleted STCC groups below.

- By tons
 - Chemicals or allied products (1.8 million tons, 35.4% of total)
 - Miscellaneous mixed shipments (0.8 million tons, 15.2% of total)
 - Transportation equipment (0.6 million tons, 12.7% of total)
 - Nonmetallic minerals (0.4 million tons, 7.7% of total)
 - Waste or scrap materials (0.4 million tons, 7.3% of total)
- By units
 - Miscellaneous mixed shipments (75,480 units, 49.9% of total)
 - Transportation equipment (32,492 units, 21.5% of total)
 - Chemicals or allied products (20,844 units, 13.8% of total)
 - Pulp, paper, or allied products (4,320 units, 2.9% of total)
 - Waste or scrap materials (4,200 units, 2.8% of total)
- By value
 - Transportation equipment (\$5,970.2 million, 41.9% of total)
 - Miscellaneous mixed shipments (\$3,912.4 million, 27.5% of total)
 - Chemicals or allied products (\$3,002.0 million, 21.1% of total)
 - Pulp, paper, or allied Products (\$277.6 million, 1.9% of total)
 - Food or kindred products (\$228.5 million, 1.6% of total)

Growth – **Figure 3-8** graphs tonnage growth between 2016 and 2040 by leading commodities. By 2040, the horizon year in TRANSEARCH, rail freight on the seven-county railroads is projected to increase to almost 59 million tons, a 69% total increase, or 2.2% annually, with inbound volumes growing slightly faster than the other directions. More than half the absolute volume growth is in miscellaneous mixed shipments and chemicals; coal imports from Kentucky, Indiana, and Pennsylvania are not expected to grow.

Summary – Rail in the ACOG region mostly serves long distance interstate trade not pertaining to South Carolina. However, the regionally pertinent movements are mostly to/from Greenville, Spartanburg, and Charleston, South Carolina and Louisiana and Illinois for heavier commodity groups like chemicals, twenty-foot equivalent units (TEU), nonmetallic minerals, and transportation equipment.

Figure 3-6: TRANSEARCH Rail Commodities, 2016 Tons, including Through

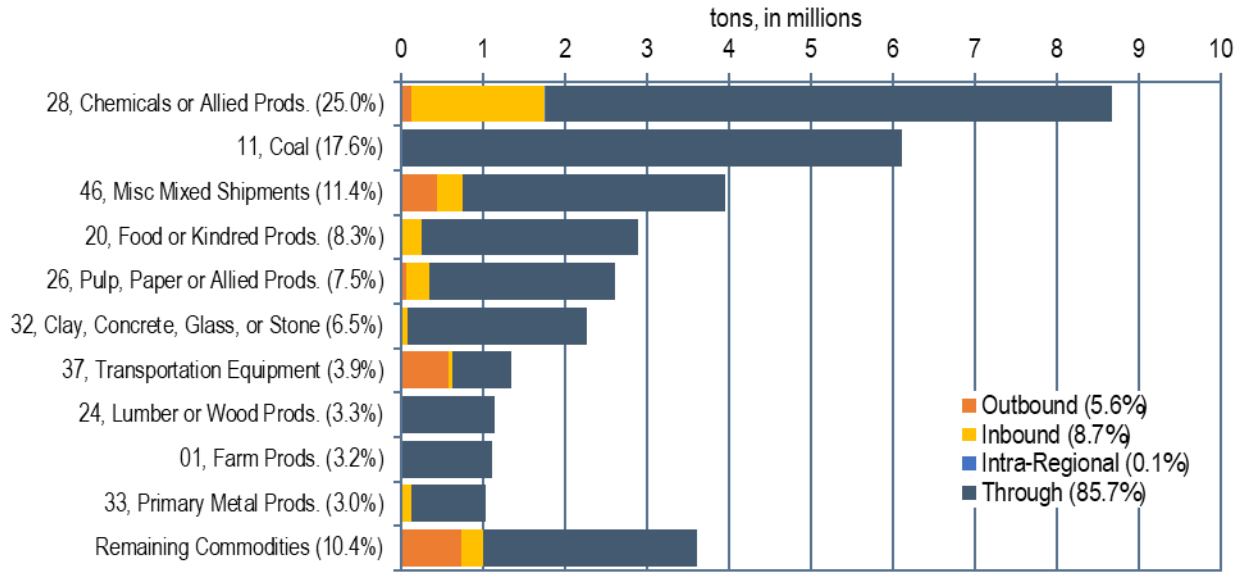


Figure 3-7: TRANSEARCH Rail Commodities, 2016 Tons, excluding Through

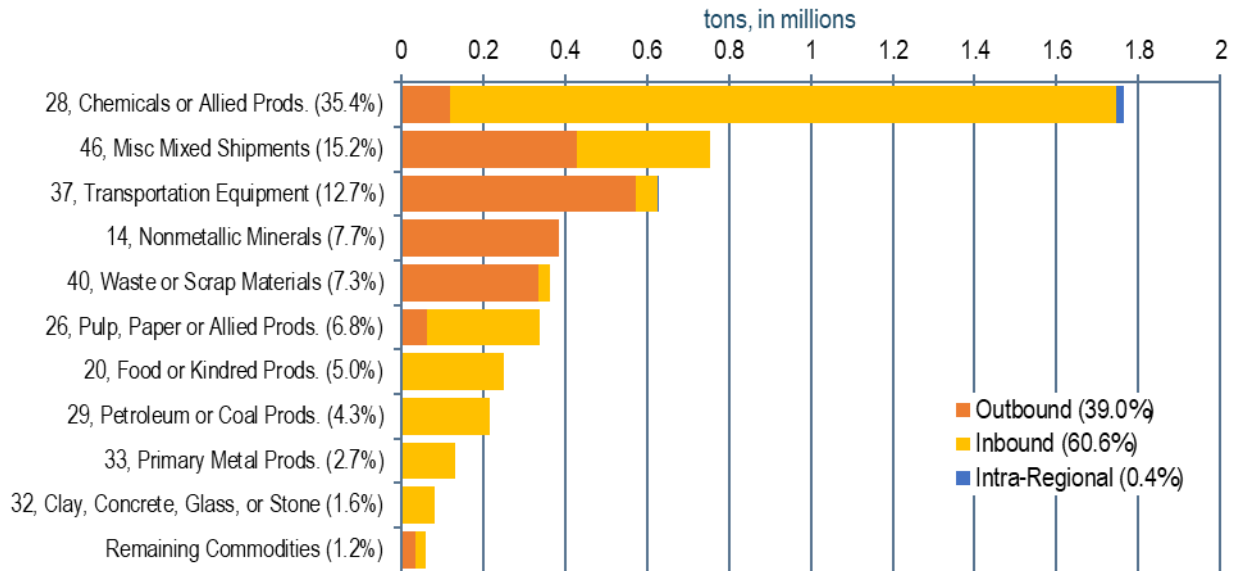
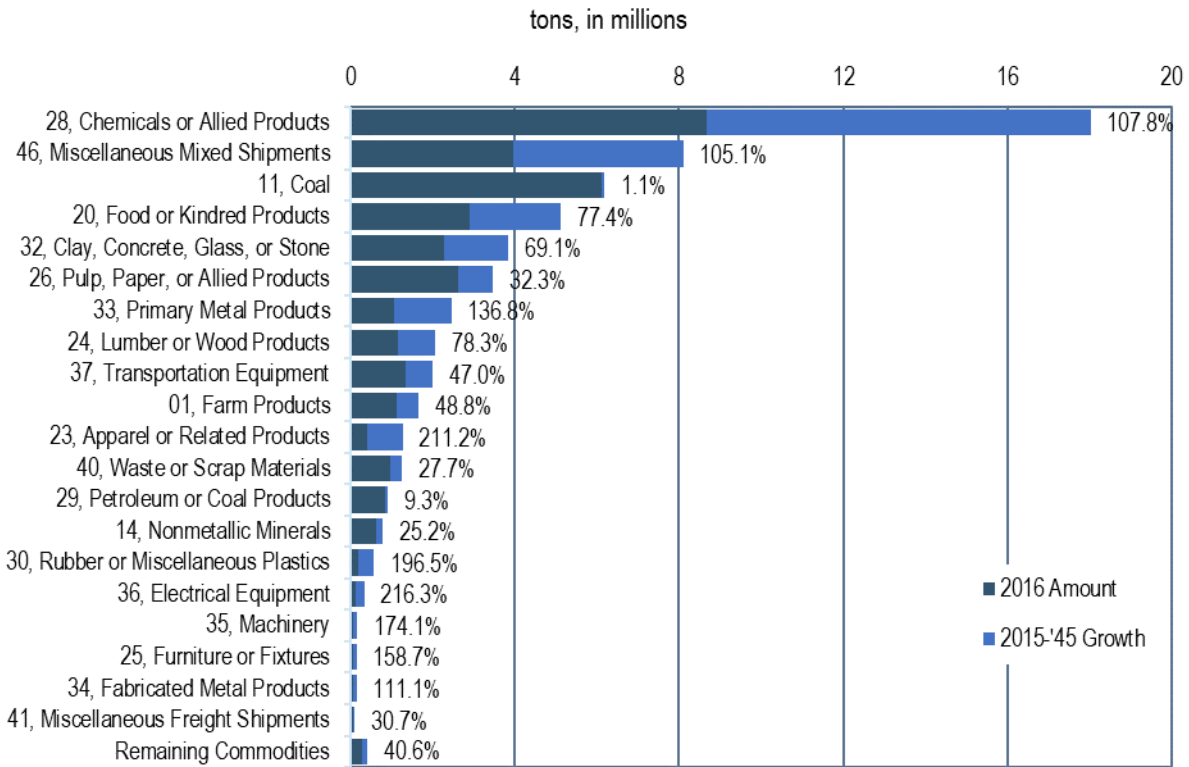


Figure 3-8: TRANSEARCH Rail 2015–2040 Ton Growth



3.2 Other Airborne Freight Sources

TRANSEARCH pertains to NAFTA/United States-Mexico-Canada Agreement countries (Canada, Mexico, and the United States [U.S.]); therefore, the non-surface modal data (airports and seaports) excludes trade with overseas partners. Given such limitations, ACOG airport data are supplemented with less detailed airport sources, including direct airport records, the U.S. Department of Transportation T-100 dataset, and the U.S. Census Bureau USA Trade Online. Air cargo data directly from the Greenville-Spartanburg (GSP) International Airport and USA Trade Online were reviewed.

Reporting airport freight data is important in the context of intermodal transfers, as any goods moving on planes are regularly transferred to trucks. The inbound and outbound truck movements reported by TRANSEARCH for the ACOG include such airport intermodal transfers, which helps ensure appropriate economic impact estimates.

3.3 Freight Conclusions

Multiple data sources were used to process the myriad of freight data because no single source captured the entire multidimensional paradigm. Of the various sources evaluated, the Waybill-supplemented TRANSEARCH data provide the broadest and most detailed information for truck and rail volume (tons, value, units) by commodity, direction, and year (2016 and 2040). Freight volume through airports and/or other foreign trade zones (FTZs) comprise less than 1% of total volumes.

Of the 138.5 million tons moving on ACOG freight study region roads and railroads, 81.2 million tons (59%) traverse the region—51.4 million tons (37%) via roads and 29.8 million tons (22%) via rail. The remaining 57.3 million tons (41%) reflect ACOG-relevant freight produced and/or consumed in the region, of which 52.3 million (38%) move via truck and 5.0 million (3%) move via rail, as shown in **Figure 3-9**. This illustrates the bridge role the region’s transportation infrastructure plays between the rest of South Carolina, the multistate region, and the U.S. It also summarizes the net freight volume moved by local ACOG shippers and receivers.

Figure 3-9: Summary Freight Tonnage by Mode and Direction



4 Economic Analysis



The ACOG freight economic analysis begins with a brief description of the IMPLAN economic model. IMPLAN data is then used to profile study area socioeconomic characteristics (e.g., population, employment, income). Such data provides context for understanding the regional character and freight demands. Freight data previously presented and the IMPLAN model are then used to estimate the relative economic importance of regional freight, using the same baseline socioeconomic measures.

4.1 IMPLAN

IMPLAN is an input-output social account matrix software used for estimating regional annual economic impacts from assumed industry or commodity changes. A social account matrix reflects economic interrelationships between industries, commodities, households, and governments, measured by impact multipliers and other economic characteristics. Multipliers are developed from regional purchase coefficients, production functions, and socioeconomic data for each geographically specific variable. IMPLAN also provides commodity-to-industry production and absorption relationships that quantify basic industry supply chain relationships underpinning the production of goods and services. IMPLAN is one of the most used models for quantifying economic interactions along various metrics and dimensions and can be evaluated in many ways.

Characteristics – IMPLAN data are geographically defined at various resolutions (national, states, counties, zip codes) that can be aggregated, such as the seven-county ACOG study region. IMPLAN models represent a static, single-year economic snapshot. The model does not include forecasts (dynamic multi-timeframe feedback effects). Data presented are for year 2018, the latest available. The model defines 544 industries, generally structured by the two- and three-digit North American Industry Classification System (NAICS) framework. Industry data presented are collapsed into the two-digit NAICS structure or further collapsed into goods, services, and transportation/warehousing industry sectors.

Evaluation Measures – All data are in dollar-denominated terms, except employment and baseline demographics (population and households):

- *Population* – Resident individuals
- *Households* – Population residences
- *Employment (Jobs)* – Full-time-equivalent job years
- *Output* – Total sales value associated with all levels of economic activity; comprises intermediate inputs and value-added, combined
- *Intermediary Inputs* – The value of goods and services purchased and applied to production processes (e.g., component parts, supplies)

- *Value-Added* – Net additional economic activity beyond intermediate inputs in the production of goods and services, synonymous with gross regional product (GRP); includes labor income, other property income types, and taxes
- *Labor Income* – Includes employee compensation (employee wage/salary earnings) and proprietor income
- *Other Property Type Income* – Income from dividends, royalties, corporate profits, rents, and interest income from capital returns
- *Taxes* – Various production and import taxes (e.g., sales, property, excise), fines, fees, licenses, permits, etc. resulting from business economic activity; includes all federal, state, and local tax revenues

Impact Types – An industry or commodity change applied to the IMPLAN model yields three impact types that aggregate into a total impact for the above-mentioned measures (except baseline population and households):

- *Direct* – Impacts attributable to the changed industry or commodity
- *Indirect* – Impacts associated with the suppliers that provide intermediate goods and services to the directly impacted industries; this is a supply-chain effect
- *Induced* – Impacts associated with the re-spending of earned income from both the direct and indirect industries in the region; this is a net regional income gain/loss effect
- *Total* – Summation of direct, indirect, and induced types

4.2 Local Economy

The socioeconomic profile below outlines current socioeconomics (e.g., population, employment, GRP), regional industry composition data, and industry employment location quotients (LQs). Such data are sourced from the IMPLAN model for year 2018 and provide context for estimating the economic impacts of regional freight.

Socioeconomics – In 2018, 1.36 million people resided in the ACOG studyregion, as shown in **Table 4-1**. Over 790,000 people were employed, earning \$40.7 billion in the production of \$67.8 billion in GRP. ACOG represented more than a quarter of South Carolina’s population and economic activity, and almost a third of the state’s sales (output). Within ACOG, more than a third of the population resided in Greenville County, with almost half of the employment and production value. Spartanburg County represented about a quarter of the population and economic activity, followed by Anderson, Pickens, Oconee, Laurens, and Cherokee counties.

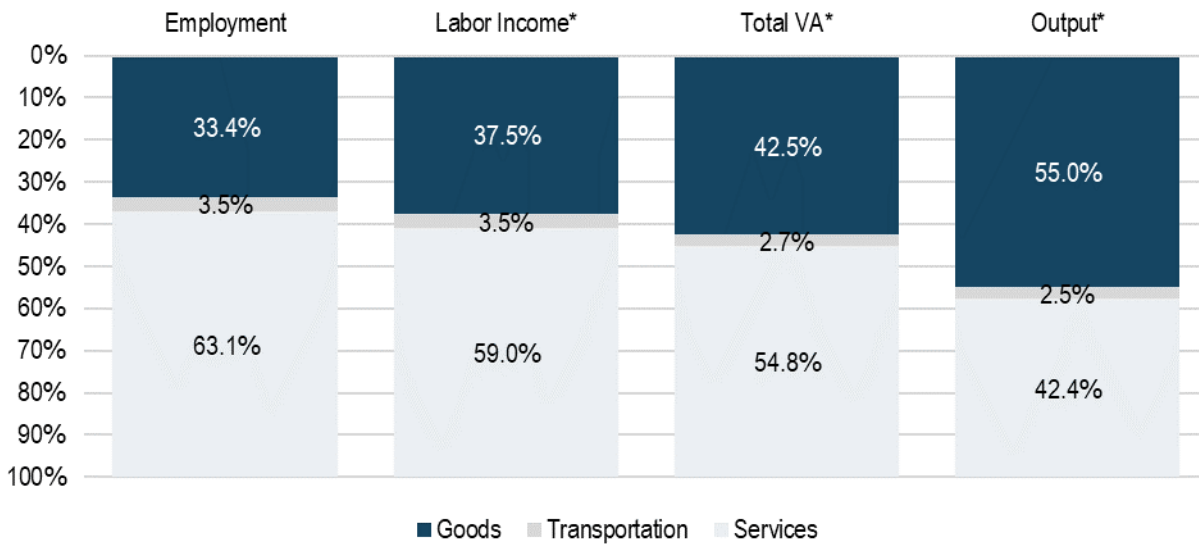
Table 4-1: IMPLAN, ACOG Economy by County, 2018 (*in millions)

	Population	Households	Employment	Value-Added				Output*
				Labor Income*	Property Income*	Taxes*	Total Virginia (GRP)*	
ACOG	1,355,966	525,326	790,234	\$40,666	\$22,255	\$4,901	\$67,822	\$147,219
Anderson	200,482	77,587	87,927	\$3,890	\$2,458	\$522	\$6,870	\$14,754
Cherokee	57,078	21,742	27,722	\$1,117	\$714	\$158	\$1,988	\$5,405
Greenville	514,213	199,802	369,025	\$20,119	\$9,909	\$2,237	\$32,265	\$62,253
Laurens	66,994	25,824	31,939	\$1,414	\$706	\$130	\$2,250	\$6,102
Oconee	78,374	31,595	33,489	\$1,698	\$1,251	\$307	\$3,256	\$7,101
Pickens	124,937	48,741	55,233	\$2,596	\$1,343	\$244	\$4,183	\$7,739
Spartanburg	313,888	120,035	184,900	\$9,833	\$5,874	\$1,303	\$17,009	\$43,866
ACOG %	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Anderson	14.8%	14.8%	11.1%	9.6%	11.0%	10.7%	10.1%	10.0%
Cherokee	4.2%	4.1%	3.5%	2.7%	3.2%	3.2%	2.9%	3.7%
Greenville	37.9%	38.0%	46.7%	49.5%	44.5%	45.7%	47.6%	42.3%
Laurens	4.9%	4.9%	4.0%	3.5%	3.2%	2.7%	3.3%	4.1%
Oconee	5.8%	6.0%	4.2%	4.2%	5.6%	6.3%	4.8%	4.8%
Pickens	9.2%	9.3%	7.0%	6.4%	6.0%	5.0%	6.2%	5.3%
Spartanburg	23.1%	22.8%	23.4%	24.2%	26.4%	26.6%	25.1%	29.8%
ACOG % of South Carolina	26.7%	26.6%	28.1%	28.6%	29.5%	29.0%	28.9%	31.1%
South Carolina U.S.	5,084,127 327,167,424	1,975,128 123,459,411	2,814,815 198,964,200	\$142,009 \$12,530,142	\$75,459 \$6,672,690	\$16,911 \$1,377,392	\$234,379 \$20,580,224	\$473,873 \$36,684,654

Industry Composition – IMPLAN defines hundreds of industries that are aggregated into NAICS industry sectors, which are then aggregated into general industry groups: goods, transportation and warehousing, and services. Goods industries predominately produce, and thus move, physical goods, including agriculture, mining, utilities, construction, manufacturing, and wholesale and retail trade. Such NAICS-equivalent industries also include many support services that are relatively freight intensive. Services industries also produce physical goods, but to a smaller relative extent, and include information, finance, management, education, health care, etc. Generally, services industries are relatively less freight intensive.

Industry Overview – ACOG's goods-related industries employ about a third of the region, but earn and produce relatively more labor income (38%), GRP (43%), and output (55%), as summarized in **Figure 4-1**. This goods-sector variance between economic measures reflects high productivity per goods-sector employee. Comparatively, transportation and warehousing industries account for 3% of regional totals. Services range from 42% of output to 63% of employment.

Figure 4-1: IMPLAN, ACOG Economy by Industry Group, 2018



Industry Detail – More detailed two-digit disaggregation of goods-related industries (see **Table 4-2**) indicates that manufacturing industries drive the local economy with 13.4% of employment accounting for 38.2% of output (sales). The relatively high productivity per employee reflects transportation equipment (automotive and motor vehicle parts) and chemical manufacturing (plastics and resins, artificial fibers, and pharmaceuticals) subsectors. Construction, wholesale trade, and retail trade industries employ a notable share of regional jobs, but with relatively lower productivity per employee.⁵

Location Quotients – Measure the relative employment within the region (and each county), compared to South Carolina employment. Specifically, LQs are the ratio of local industry employment percentages versus the state.⁶ Relatively concentrated local industry employment is in green, low concentration in red, and close to statewide composition in black, as shown in **Table 4-3**.

Compared to South Carolina, ACOG’s industry employment is relatively concentrated in manufacturing and wholesale trade for goods-related industries; and management, administrative/waste, and education for services-related industries. Manufacturing is especially concentrated in Cherokee, Laurens, and Spartanburg counties. Comparatively, Greenville manufacturing is on par with the state given the relatively higher concentrations of services-related jobs (e.g., information, management, education), which offset manufacturing jobs as a concentrated proportion.

⁵ This reflects typical relationships between such industry subsectors.

⁶ LQs greater than 1.0 indicate local industry employment is relatively concentrated. LQs less than 1.0 indicate local industry employment is less concentrated relative to South Carolina. LQs around 1.0 (+/- about 10%) indicate local industry employment is on par with the state.

Table 4-2: IMPLAN, ACOG Economy by Industry, 2018 (*in millions)

	Industry	Employment		Labor Income*		Total VA*		Output*	
Goods	11 Ag, Forestry, Fish and Hunting	7,469	0.9%	\$35	0.1%	\$102	0.1%	\$467	0.3%
	21 Mining	1,092	0.1%	\$39	0.1%	\$96	0.1%	\$281	0.2%
	22 Utilities	2,820	0.4%	\$384	0.9%	\$1,219	1.8%	\$2,755	1.9%
	23 Construction	46,188	5.8%	\$2,496	6.1%	\$3,519	5.2%	\$6,773	4.6%
	31-33 Manufacturing	105,884	13.4%	\$7,864	19.3%	\$15,317	22.6%	\$56,225	38.2%
	42 Wholesale Trade	28,965	3.7%	\$2,268	5.6%	\$4,982	7.3%	\$8,391	5.7%
	44-45 Retail Trade	71,908	9.1%	\$2,156	5.3%	\$3,607	5.3%	\$6,117	4.2%
	48-49 Transportation and Warehousing	27,611	3.5%	\$1,435	3.5%	\$1,798	2.7%	\$3,728	2.5%
Services	51 Information	10,033	1.3%	\$764	1.9%	\$1,965	2.9%	\$5,386	3.7%
	52 Finance and Insurance	29,489	3.7%	\$2,022	5.0%	\$2,517	3.7%	\$6,242	4.2%
	53 Real Estate and Rental	31,976	4.0%	\$740	1.8%	\$7,105	10.5%	\$11,498	7.8%
	54 Professional- Scientific and Tech Svcs	49,455	6.3%	\$3,327	8.2%	\$4,258	6.3%	\$7,512	5.1%
	55 Management of Companies	8,243	1.0%	\$852	2.1%	\$990	1.5%	\$1,510	1.0%
	56 Administrative and Waste Services	71,877	9.1%	\$2,646	6.5%	\$3,356	4.9%	\$5,782	3.9%
	61 Educational Svcs	13,097	1.7%	\$420	1.0%	\$503	0.7%	\$805	0.5%
	62 Health and Social Services	61,542	7.8%	\$3,548	8.7%	\$4,071	6.0%	\$6,494	4.4%
	71 Arts- Entertainment and Recreation	12,502	1.6%	\$215	0.5%	\$345	0.5%	\$680	0.5%
	72 Accommodation and Food Services	66,856	8.5%	\$1,557	3.8%	\$2,421	3.6%	\$4,555	3.1%
	81 Other Services	54,826	6.9%	\$2,065	5.1%	\$2,189	3.2%	\$3,998	2.7%
	92 Government and Non-NAICS	88,399	11.2%	\$5,832	14.3%	\$7,460	11.0%	\$8,021	5.4%
	Total	790,234	100.0%	\$40,666	100.0%	\$67,822	100.0%	\$147,219	100.0%
	Goods	264,327	33.4%	\$15,242	37.5%	\$28,841	42.5%	\$81,010	55.0%
	<i>Transportation</i>	<i>27,611</i>	<i>3.5%</i>	<i>\$1,435</i>	<i>3.5%</i>	<i>\$1,798</i>	<i>2.7%</i>	<i>\$3,728</i>	<i>2.5%</i>
	Services	498,296	63.1%	\$23,989	59.0%	\$37,182	54.8%	\$62,482	42.4%

Table 4-3: IMPLAN, ACOG Employment Location Quotients (relative to South Carolina), 2018

	Industry	ACOG	Anderson	Cherokee	Greenville	Laurens	Oconee	Pickens	Spartan
Goods	11 Ag/Forestry	0.64	1.16	1.15	0.24	1.91	2.09	1.02	0.53
	21 Mining	0.72	1.13	0.90	0.33	0.54	1.59	2.33	0.65
	22 Utilities	0.77	0.79	1.36	0.26	0.25	8.91	0.32	0.45
	23 Construction	0.97	0.93	1.16	0.95	0.76	1.19	0.98	0.99
	31-33 Manufacturing	1.44	1.74	2.70	0.91	2.87	1.89	1.10	1.95
	42 Wholesale Trade	1.31	0.95	0.92	1.59	0.70	0.62	0.41	1.46
	44-45 Retail Trade	0.95	1.19	0.95	0.90	0.66	1.13	1.06	0.93
	48-49 Transp.	1.05	0.89	1.52	0.86	1.53	0.62	0.77	1.51
Services	51 Information	1.05	0.53	0.34	1.63	0.40	0.96	0.57	0.52
	52 Finance/Insurance	0.91	0.66	0.38	1.18	0.51	0.79	0.62	0.73
	53 Real Estate/Rental	0.86	0.83	0.46	1.02	0.35	0.94	0.83	0.70
	54 Prof. Svcs	0.99	0.74	0.39	1.28	0.69	0.68	0.74	0.79
	55 Management	1.13	0.39	0.09	1.58	0.39	0.18	0.32	1.30
	56 Admin./Waste	1.16	0.76	1.46	1.47	0.80	0.82	0.54	1.00
	61 Educational Svcs	1.24	0.92	1.57	1.49	0.93	0.64	0.88	1.10
	62 Health/Social Svcs	0.92	0.92	0.64	1.02	0.86	0.70	0.83	0.82
	71 Arts/Entertain/Rec.	0.82	0.78	0.54	0.96	0.58	0.88	1.01	0.61
	72 Accom./Food Svcs	0.90	1.03	0.92	0.89	0.55	0.67	1.37	0.83
	81 Other Services	1.02	0.97	0.62	1.03	1.50	0.95	0.77	1.08
	92 Government	0.81	1.01	0.66	0.64	0.87	0.88	1.70	0.81

Note: Relatively concentrated local industry employment is in green, low concentration in red, and close to statewide composition in black.

4.3 Freight Impacts

Economic impacts associated with freight movements arise from local shippers/receivers who use freight service providers.

Freight User Impacts – Associated with the production and/or consumption of locally produced goods and/or materials. TRANSEARCH commodity values are bridged and compared with IMPLAN to assess the freight-related interrelationships and freight-dependency. IMPLAN does not identify directionally specific commodity value movements (only the underlying commodity-to-industry structure). TRANSEARCH does not provide the economic interrelationships necessary to determine how commodity movements interact within the economy. As such, the two are combined to derive direct freight user-related impacts.

However, combining/comparing the disparate sources typically identifies data incongruities (typically TRANSEARCH) that need to be reconciled. Freight data source dimensions, limitations, and intended purposes can under- or overestimate the true value of goods-pertinent movements.⁷ Such issues are expounded upon in the freight users section below.

Freight Service Impacts – Reflect the truckers, railroad workers, stevedores, etc. who physically transport freight to/from/within/through the region. While notable, such service impacts are minor compared with the freight users who produce and/or consume the goods/materials. Such freight service impacts are identified from the baseline IMPLAN data, and are estimated via the indirect and induced effects from the shippers/receivers.

4.3.1 Approach

Freight user impacts reflect complex supply chain relationships spanning local, domestic, and international movements. Goods industries are mostly freight-dependent, although some are self-supplied intra-industry production.⁸ To determine the relative portion of the goods industries that trade (i.e., freight-dependent), regional freight data (TRANSEARCH) are compared with the regional economic data (IMPLAN).

Origin and/or Destination Freight – Only inbound, outbound, and intra-regional freight values are considered and compared with regional economic data, as through traffic is mostly unrelated to the regional economy.⁹ Outbound and intra-regional movements pertain to regional production, and inbound movements reflect regional production inputs or final consumption (direct sales or retail). Certain commodities are economically irrelevant, pertaining to neither consumption (intermediate or final) or production, such as waste materials and TRANSEARCH's secondary traffic, which encapsulates short-haul intermodal drayage and repositioning by truck from railyards, ports, and warehouses/distribution facilities.

Adjustments – TRANSEARCH freight value data (measured in dollars) may misrepresent, or double-count, actual economic activity associated with freight. Often, many commodity groups in freight databases designated as inbound and/or outbound are through movements, via an intermodal transfer or

⁷ e.g., inbound and outbound movements that are actually through movements, which results in double-counting intermediary products as final products, etc.

⁸ Examples include the farming industry producing and storing seed for the following season, or an equipment manufacturer with a component part supplier collocated in the same commercial complex.

⁹ Beyond freight transport addressed under the following Freight Service Provider subsection.

warehousing facility. Such freight value movements do not necessarily translate into regional freight user-related economic activity. Inbound freight, especially intermediary products, are used in the production processes for locally consumed final products and outbound freight. Given such overlaps between intermodal transfers, warehousing storage, and production components, freight value data is not equivalent to freight-related economic activity. As such, freight data values are adjusted downward to reflect production overlaps and directional misattributions.¹⁰

Interpolation – Lastly, to compare with IMPLAN, the 2016 and 2025 TRANSEARCH value data were incorporated into 2018 data (by commodity and direction), economically irrelevant movements were expunged, downward freight-value adjustments were applied, and the commodities were bridged with IMPLAN industry sectors.

Summary – As such, freight data values are adjusted downward to reflect production overlaps and directional misattributions. Typically, agricultural, manufacturing, and wholesale/retail goods in the freight databases are assigned values that exceed actual regional production and consumption, measured via economic data or impact modeling software.

4.3.2 Impacts

Reconciling the freight data values with the observed economic activity facilitates direct economic output (sales) estimates. These estimates provide inputs into the IMPLAN model to estimate total economic impacts, measured via employment, income, and value-added, as depicted in **Table 4-4**.

Table 4-4: ACOG Freight Economic Impacts, 2018 (*in millions)

	Employment	Labor Income*	Value-Added*	Output*
Impact Type				
Direct	184,709	\$10,680	\$19,570	\$59,849
Indirect	95,348	\$5,185	\$8,827	\$17,321
Induced	<u>84,192</u>	<u>\$3,553</u>	<u>\$6,144</u>	<u>\$11,037</u>
Total	364,249	\$19,418	\$34,541	\$88,207
% of Region				
ACOG	790,234	\$40,666	\$67,822	\$147,219
Direct %	23.4%	26.3%	28.9%	40.7%
Indirect %	12.1%	12.7%	13.0%	11.8%
Induced %	<u>10.7%</u>	<u>8.7%</u>	<u>9.1%</u>	<u>7.5%</u>
Total %	46.1%	47.8%	50.9%	59.9%

Direct Impacts – The seven-county ACOG region sold \$59.8 billion in direct outbound, inbound, and intra-regional freight. Such direct freight sales are associated with 184,709 regional jobs, or almost a quarter of the regional economy. These jobs earn \$10.7 billion in income and produce \$19.6 billion in gross regional product.

¹⁰ Typically, agricultural, manufacturing, and wholesale/retail goods in the freight databases are assigned values that exceed actual regional production and consumption, measured via economic data or impact modeling software.

Total Impacts – Direct freight-related economic impacts create regional multiplier effects, including the supply-chain related indirect, and re-spending induced effects. Many of the indirect and induced multiplier effects include the non-freight intensive goods industry sectors, as well as the freight service providers required to haul such goods. In total, freight-related impacts total 364,249 jobs, \$19.4 billion in income, \$34.5 billion in GRP (value-added), and \$88.2 billion in output.

Employment Impacts by Type and Industry – The relationship between the direct impacts associated with freight users versus the indirect impacts associated with suppliers (including freight service providers) and the induced re-spending is shown by industry in **Figure 4-2**.

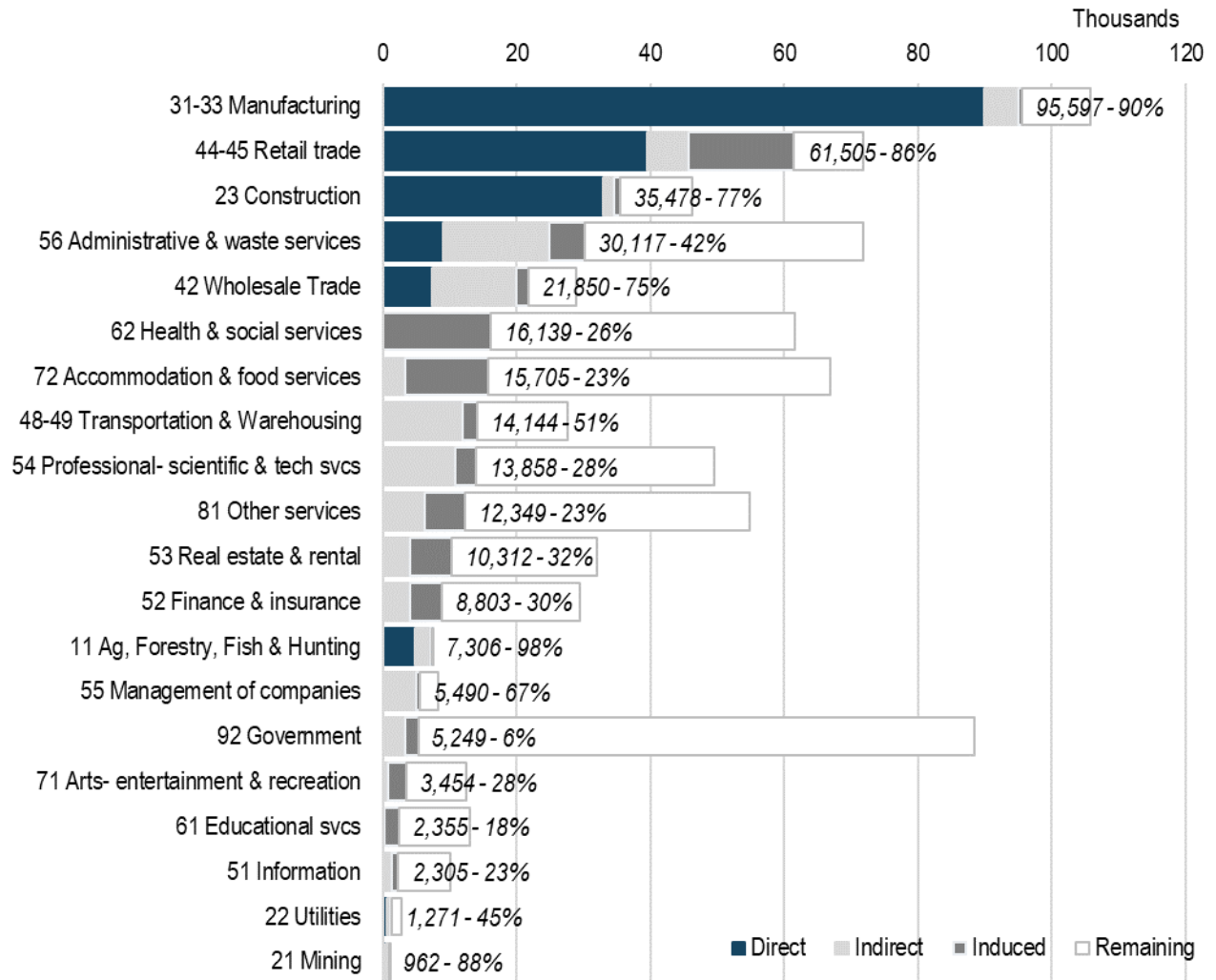
- *Direct impacts (dark blue bar)* – Predominantly arise in manufacturing, retail trade, construction, administration/waste services, and wholesale trade
- *Indirect Impacts (light gray bar)* – Supplier impacts include transportation and warehousing (i.e., freight service providers), as well as other services
- *Induced Impacts (dark gray bar)* – Reflects jobs associated with income re-spending across most all industries, most notably in health and social services
- *Remaining (white bar)* – reflects the balance of regional employment not associated with freight

Freight Service Providers Impacts – Indirect supply chain effects include freight service providers (among other industries), including trucking, railroad, and warehousing. Per **Figure 4-2**, the multiplier effect from the freight users equates to 14,144 transportation and warehousing-related employments, which represents slightly more than half the entire industry (which also includes non-freight providers).¹¹

Comparatively, baseline IMPLAN data identified total employment for trucking, railroad, and warehousing/storage industries, at 17,809. This is a reasonable estimate of freight service provider impacts from the regional shipper/receivers of freight. Compositionally, truck represents the largest relative share at 60%, followed by warehousing/storage at 38%, with the remaining 2% attributable to rail.

¹¹ i.e., passenger rail, transit, scenic/sightseeing transportation, non-freight storage, and couriers/messengers

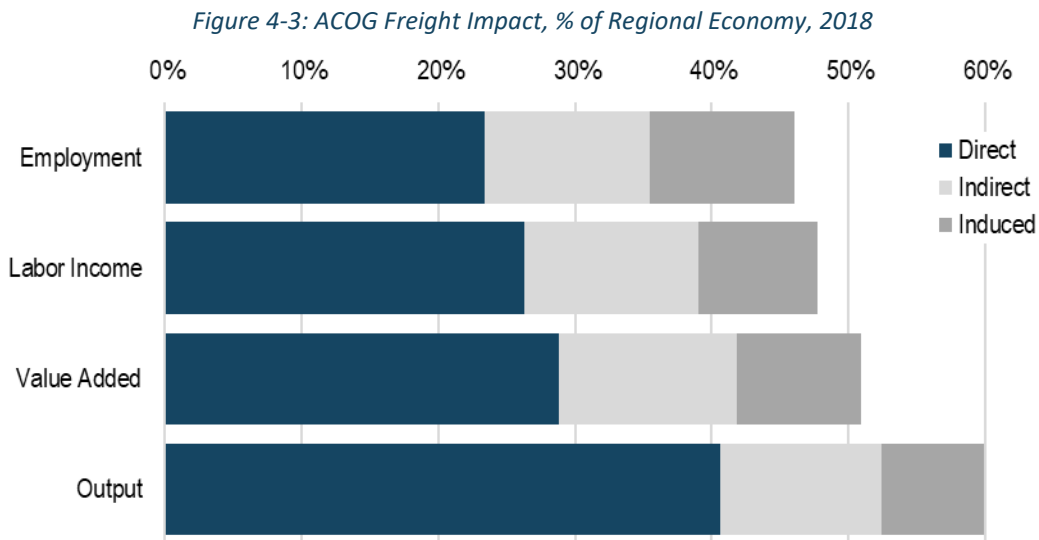
Figure 4-2: ACOG Freight Employment Impacts by Industry, 2018



4.3.3 Impact Summary

The 184,709 regional jobs associated directly with freight shippers and receivers represents about a quarter (23.4%) of the regional employment base. Such direct employment earns a little more than a quarter (26.3%) of the regional income and produced almost 30% of the regional value added (GRP), and over 40% of final sales value (output). Such increasing proportions are expected, given that most of the good-related, freight-dependent employment is in manufacturing and other high productivity jobs (e.g., automobile production).

With the indirect and induced multiplier effects, the total freight-related impacts are estimated at 364,249 employed, earning \$19.4 billion in income, producing \$34.5 billion in GRP, and sales of \$88.2 billion. In total, such employment, income, value added, and final sales represent 46, 48, 51, and 60 of the regional economy, respectively.



Appendix A

ACOG REGIONAL FREIGHT MOBILITY PLAN



Table A-1: TRANSEARCH Truck, All Directions 2016

STCC	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	5,560,460	5.4%	317,093	4.0%	\$5,740	3.0%	\$1,032
08	Forest Products	76,592	0.1%	3,295	0.0%	\$163	0.1%	\$2,123
09	Fresh Fish or Marine Products	28,861	0.0%	1,245	0.0%	\$282	0.1%	\$9,781
10	Metallic Ores	21,958	0.0%	865	0.0%	\$80	0.0%	\$3,659
11	Coal	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
13	Crude Petroleum or Natural Gas	2,127	0.0%	87	0.0%	\$0	0.0%	\$16
14	Nonmetallic Minerals	22,221,745	21.4%	914,086	11.6%	\$311	0.2%	\$14
19	Ordnance or Accessories	16,253	0.0%	725	0.0%	\$489	0.3%	\$30,111
20	Food or Kindred Products	9,469,900	9.1%	412,874	5.2%	\$17,238	8.9%	\$1,820
21	Tobacco Products	33,595	0.0%	1,516	0.0%	\$645	0.3%	\$19,194
22	Textile Mill Products	1,746,551	1.7%	81,740	1.0%	\$10,134	5.2%	\$5,803
23	Apparel or Related Products	264,910	0.3%	16,144	0.2%	\$2,395	1.2%	\$9,042
24	Lumber or Wood Products	4,688,950	4.5%	183,128	2.3%	\$2,508	1.3%	\$535
25	Furniture or Fixtures	440,490	0.4%	29,172	0.4%	\$2,139	1.1%	\$4,855
26	Pulp, Paper, or Allied Products	3,127,198	3.0%	129,349	1.6%	\$4,069	2.1%	\$1,301
27	Printed Matter	430,180	0.4%	24,133	0.3%	\$1,231	0.6%	\$2,862
28	Chemicals or Allied Products	10,191,888	9.8%	493,811	6.2%	\$23,697	12.3%	\$2,325
29	Petroleum or Coal Products	7,560,126	7.3%	313,140	4.0%	\$3,131	1.6%	\$414
30	Rubber or Miscellaneous Plastics	3,535,998	3.4%	298,480	3.8%	\$14,770	7.6%	\$4,177
31	Leather or Leather Products	34,599	0.0%	2,335	0.0%	\$632	0.3%	\$18,258
32	Clay, Concrete, Glass, or Stone	7,493,051	7.2%	464,445	5.9%	\$1,965	1.0%	\$262
33	Primary Metal Products	2,580,395	2.5%	103,899	1.3%	\$9,354	4.8%	\$3,625
34	Fabricated Metal Products	2,227,674	2.1%	124,128	1.6%	\$8,574	4.4%	\$3,849
35	Machinery	1,894,439	1.8%	140,019	1.8%	\$19,712	10.2%	\$10,405
36	Electrical Equipment	1,280,824	1.2%	77,089	1.0%	\$12,149	6.3%	\$9,485
37	Transportation Equipment	3,850,558	3.7%	274,818	3.5%	\$34,295	17.7%	\$8,907
38	Instrument, Photo, and Optical Equip.	93,359	0.1%	7,419	0.1%	\$1,932	1.0%	\$20,692
39	Miscellaneous Manufacturing Products	119,752	0.1%	6,199	0.1%	\$733	0.4%	\$6,122
40	Waste or Scrap Materials	6,691,431	6.5%	274,224	3.5%	\$1,866	1.0%	\$279
41	Miscellaneous Freight Shipments	144	0.0%	7	0.0%	\$1	0.0%	\$9,426
42	Shipping Containers	#N/A	#N/A	2,786,349	35.3%	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
44	Freight Forwarder Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
45	Shipper Association Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
46	Miscellaneous Mixed Shipments	16,802	0.0%	817	0.0%	\$100	0.1%	\$5,968
47	Small Packaged Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
48	Waste	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
49	Hazardous Materials	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
50	Secondary Traffic	8,040,699	7.8%	418,756	5.3%	\$13,046	6.7%	\$1,623
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Total		103,741,513	100.0%	7,901,390	100.0%	\$193,383	100.0%	\$1,864

Table A-2: TRANSEARCH Truck, Outbound 2016

STCC	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	399,926	1.7%	23,361	1.2%	\$639	1.5%	\$1,598
08	Forest Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
09	Fresh Fish or Marine Products	9	0.0%	0	0.0%	\$0	0.0%	\$3,874
10	Metallic Ores	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
11	Coal	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	8,925,676	38.3%	367,156	18.4%	\$95	0.2%	\$11
19	Ordnance or Accessories	330	0.0%	15	0.0%	\$8	0.0%	\$25,254
20	Food or Kindred Products	873,946	3.8%	37,963	1.9%	\$1,706	3.9%	\$1,952
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	592,511	2.5%	27,700	1.4%	\$3,570	8.2%	\$6,025
23	Apparel or Related Products	37,107	0.2%	2,276	0.1%	\$230	0.5%	\$6,188
24	Lumber or Wood Products	273,424	1.2%	10,816	0.5%	\$117	0.3%	\$426
25	Furniture or Fixtures	6,175	0.0%	411	0.0%	\$29	0.1%	\$4,731
26	Pulp, Paper, or Allied Products	150,995	0.6%	6,307	0.3%	\$294	0.7%	\$1,948
27	Printed Matter	39,274	0.2%	2,202	0.1%	\$118	0.3%	\$3,000
28	Chemicals or Allied Products	1,449,699	6.2%	69,491	3.5%	\$4,033	9.3%	\$2,782
29	Petroleum or Coal Products	2,469,291	10.6%	101,409	5.1%	\$1,177	2.7%	\$477
30	Rubber or Miscellaneous Plastics	1,362,037	5.9%	115,011	5.8%	\$5,343	12.3%	\$3,923
31	Leather or Leather Products	101	0.0%	7	0.0%	\$1	0.0%	\$7,557
32	Clay, Concrete, Glass, or Stone	625,138	2.7%	40,065	2.0%	\$196	0.5%	\$314
33	Primary Metal Products	62,696	0.3%	2,495	0.1%	\$188	0.4%	\$3,004
34	Fabricated Metal Products	520,147	2.2%	28,910	1.5%	\$2,302	5.3%	\$4,425
35	Machinery	304,675	1.3%	22,298	1.1%	\$3,465	8.0%	\$11,372
36	Electrical Equipment	343,223	1.5%	20,702	1.0%	\$2,520	5.8%	\$7,342
37	Transportation Equipment	1,570,908	6.7%	112,068	5.6%	\$14,250	32.9%	\$9,071
38	Instrument, Photo, and Optical Equip.	1,621	0.0%	129	0.0%	\$19	0.0%	\$11,672
39	Miscellaneous Manufacturing Products	21,675	0.1%	1,118	0.1%	\$127	0.3%	\$5,873
40	Waste or Scrap Materials	1,573,861	6.8%	63,175	3.2%	\$430	1.0%	\$273
41	Miscellaneous Freight Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
42	Shipping Containers	#N/A	#N/A	850,341	42.7%	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
44	Freight Forwarder Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
45	Shipper Association Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
46	Miscellaneous Mixed Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
47	Small Packaged Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
48	Waste	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
49	Hazardous Materials	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
50	Secondary Traffic	1,673,388	7.2%	85,049	4.3%	\$2,486	5.7%	\$1,485
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	<i>Total</i>	23,277,834	100.0%	1,990,475	100.0%	\$43,343	100.0%	\$1,862

Table A-3: TRANSEARCH Truck, Inbound 2016

STCC	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	1,877,823	8.4%	103,540	5.2%	\$919	2.9%	\$489
08	Forest Products	14,104	0.1%	607	0.0%	\$27	0.1%	\$1,908
09	Fresh Fish or Marine Products	3,963	0.0%	171	0.0%	\$39	0.1%	\$9,810
10	Metallic Ores	2,716	0.0%	107	0.0%	\$10	0.0%	\$3,655
11	Coal	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	5,850,987	26.2%	240,679	12.1%	\$75	0.2%	\$13
19	Ordnance or Accessories	196	0.0%	9	0.0%	\$4	0.0%	\$21,970
20	Food or Kindred Products	1,568,702	7.0%	68,278	3.4%	\$2,030	6.5%	\$1,294
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	319,130	1.4%	14,951	0.8%	\$1,834	5.8%	\$5,747
23	Apparel or Related Products	40,240	0.2%	2,453	0.1%	\$382	1.2%	\$9,491
24	Lumber or Wood Products	875,829	3.9%	34,309	1.7%	\$434	1.4%	\$495
25	Furniture or Fixtures	62,945	0.3%	4,181	0.2%	\$395	1.3%	\$6,269
26	Pulp, Paper, or Allied Products	225,247	1.0%	9,375	0.5%	\$387	1.2%	\$1,718
27	Printed Matter	29,930	0.1%	1,680	0.1%	\$86	0.3%	\$2,873
28	Chemicals or Allied Products	2,438,500	10.9%	117,250	5.9%	\$5,438	17.3%	\$2,230
29	Petroleum or Coal Products	1,109,725	5.0%	46,323	2.3%	\$420	1.3%	\$379
30	Rubber or Miscellaneous Plastics	475,525	2.1%	40,113	2.0%	\$2,084	6.6%	\$4,384
31	Leather or Leather Products	13,183	0.1%	888	0.0%	\$242	0.8%	\$18,393
32	Clay, Concrete, Glass, or Stone	2,496,964	11.2%	156,687	7.9%	\$562	1.8%	\$225
33	Primary Metal Products	1,007,492	4.5%	40,513	2.0%	\$1,960	6.2%	\$1,946
34	Fabricated Metal Products	503,715	2.3%	28,121	1.4%	\$1,762	5.6%	\$3,498
35	Machinery	275,895	1.2%	20,466	1.0%	\$2,723	8.7%	\$9,870
36	Electrical Equipment	167,141	0.7%	10,096	0.5%	\$1,813	5.8%	\$10,845
37	Transportation Equipment	501,580	2.2%	35,740	1.8%	\$4,209	13.4%	\$8,391
38	Instrument, Photo, and Optical Equip.	8,432	0.0%	670	0.0%	\$183	0.6%	\$21,742
39	Miscellaneous Manufacturing Products	15,886	0.1%	827	0.0%	\$75	0.2%	\$4,708
40	Waste or Scrap Materials	691,401	3.1%	29,856	1.5%	\$173	0.6%	\$250
41	Miscellaneous Freight Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
42	Shipping Containers	#N/A	#N/A	879,731	44.4%	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
44	Freight Forwarder Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
45	Shipper Association Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
46	Miscellaneous Mixed Shipments	15,013	0.1%	730	0.0%	\$85	0.3%	\$5,684
47	Small Packaged Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
48	Waste	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
49	Hazardous Materials	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
50	Secondary Traffic	1,767,378	7.9%	93,176	4.7%	\$3,060	9.7%	\$1,731
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	<i>Total</i>	22,359,643	100.0%	1,981,527	100.0%	\$31,412	100.0%	\$1,405

Table A-4: TRANSEARCH Truck, Intra-Regional 2016

STCC	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	61,517	0.9%	3,059	0.4%	\$22	0.4%	\$359
08	Forest Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
09	Fresh Fish or Marine Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10	Metallic Ores	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
11	Coal	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	2,193,873	32.7%	90,244	10.8%	\$23	0.4%	\$10
19	Ordnance or Accessories	5	0.0%	0	0.0%	\$0	0.0%	\$25,627
20	Food or Kindred Products	119,434	1.8%	5,190	0.6%	\$226	3.6%	\$1,891
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	101,348	1.5%	4,738	0.6%	\$593	9.5%	\$5,851
23	Apparel or Related Products	8,133	0.1%	498	0.1%	\$47	0.7%	\$5,718
24	Lumber or Wood Products	25,781	0.4%	1,008	0.1%	\$20	0.3%	\$759
25	Furniture or Fixtures	1,527	0.0%	102	0.0%	\$7	0.1%	\$4,862
26	Pulp, Paper, or Allied Products	13,926	0.2%	583	0.1%	\$25	0.4%	\$1,828
27	Printed Matter	2,090	0.0%	117	0.0%	\$7	0.1%	\$3,325
28	Chemicals or Allied Products	395,443	5.9%	18,863	2.3%	\$1,039	16.7%	\$2,627
29	Petroleum or Coal Products	2,548,777	38.0%	104,446	12.5%	\$1,254	20.2%	\$492
30	Rubber or Miscellaneous Plastics	92,841	1.4%	7,835	0.9%	\$351	5.6%	\$3,779
31	Leather or Leather Products	37	0.0%	2	0.0%	\$0	0.0%	\$8,232
32	Clay, Concrete, Glass, or Stone	339,368	5.1%	21,763	2.6%	\$69	1.1%	\$204
33	Primary Metal Products	13,793	0.2%	548	0.1%	\$29	0.5%	\$2,126
34	Fabricated Metal Products	80,256	1.2%	4,460	0.5%	\$326	5.2%	\$4,066
35	Machinery	56,910	0.8%	4,216	0.5%	\$582	9.4%	\$10,234
36	Electrical Equipment	27,194	0.4%	1,661	0.2%	\$266	4.3%	\$9,778
37	Transportation Equipment	140,394	2.1%	10,181	1.2%	\$909	14.6%	\$6,476
38	Instrument, Photo, and Optical Equip.	235	0.0%	19	0.0%	\$4	0.1%	\$18,645
39	Miscellaneous Manufacturing Products	2,448	0.0%	127	0.0%	\$12	0.2%	\$4,807
40	Waste or Scrap Materials	197,030	2.9%	8,140	1.0%	\$48	0.8%	\$243
41	Miscellaneous Freight Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
42	Shipping Containers	#N/A	#N/A	532,212	63.8%	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
44	Freight Forwarder Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
45	Shipper Association Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
46	Miscellaneous Mixed Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
47	Small Packaged Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
48	Waste	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
49	Hazardous Materials	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
50	Secondary Traffic	287,669	4.3%	13,993	1.7%	\$357	5.7%	\$1,241
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	<i>Total</i>	<i>6,710,030</i>	<i>100.0%</i>	<i>834,006</i>	<i>100.0%</i>	<i>\$6,217</i>	<i>100.0%</i>	<i>\$927</i>

Table A-5: TRANSEARCH Truck, Through 2016

STCC	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	3,221,194	6.3%	187,132	6.0%	\$4,160	3.7%	\$1,291
08	Forest Products	62,488	0.1%	2,688	0.1%	\$136	0.1%	\$2,171
09	Fresh Fish or Marine Products	24,889	0.0%	1,073	0.0%	\$243	0.2%	\$9,779
10	Metallic Ores	19,242	0.0%	758	0.0%	\$70	0.1%	\$3,659
11	Coal	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
13	Crude Petroleum or Natural Gas	2,127	0.0%	87	0.0%	\$0	0.0%	\$16
14	Nonmetallic Minerals	5,251,210	10.2%	216,007	7.0%	\$118	0.1%	\$22
19	Ordnance or Accessories	15,723	0.0%	702	0.0%	\$477	0.4%	\$30,316
20	Food or Kindred Products	6,907,818	13.4%	301,443	9.7%	\$13,277	11.8%	\$1,922
21	Tobacco Products	33,595	0.1%	1,516	0.0%	\$645	0.6%	\$19,194
22	Textile Mill Products	733,561	1.4%	34,352	1.1%	\$4,137	3.7%	\$5,640
23	Apparel or Related Products	179,429	0.3%	10,916	0.4%	\$1,737	1.5%	\$9,683
24	Lumber or Wood Products	3,513,917	6.8%	136,996	4.4%	\$1,938	1.7%	\$551
25	Furniture or Fixtures	369,843	0.7%	24,478	0.8%	\$1,708	1.5%	\$4,617
26	Pulp, Paper, or Allied Products	2,737,029	5.3%	113,084	3.7%	\$3,362	3.0%	\$1,228
27	Printed Matter	358,887	0.7%	20,134	0.7%	\$1,020	0.9%	\$2,843
28	Chemicals or Allied Products	5,908,245	11.5%	288,207	9.3%	\$13,186	11.7%	\$2,232
29	Petroleum or Coal Products	1,432,332	2.8%	60,961	2.0%	\$280	0.2%	\$195
30	Rubber or Miscellaneous Plastics	1,605,596	3.1%	135,522	4.4%	\$6,992	6.2%	\$4,355
31	Leather or Leather Products	21,279	0.0%	1,437	0.0%	\$388	0.3%	\$18,243
32	Clay, Concrete, Glass, or Stone	4,031,581	7.8%	245,930	7.9%	\$1,138	1.0%	\$282
33	Primary Metal Products	1,496,414	2.9%	60,343	1.9%	\$7,176	6.4%	\$4,796
34	Fabricated Metal Products	1,123,556	2.2%	62,637	2.0%	\$4,184	3.7%	\$3,724
35	Machinery	1,256,958	2.4%	93,039	3.0%	\$12,941	11.5%	\$10,296
36	Electrical Equipment	743,266	1.4%	44,631	1.4%	\$7,550	6.7%	\$10,158
37	Transportation Equipment	1,637,676	3.2%	116,829	3.8%	\$14,927	13.3%	\$9,115
38	Instrument, Photo, and Optical Equip.	83,071	0.2%	6,600	0.2%	\$1,725	1.5%	\$20,768
39	Miscellaneous Manufacturing Products	79,744	0.2%	4,127	0.1%	\$519	0.5%	\$6,512
40	Waste or Scrap Materials	4,229,138	8.2%	173,054	5.6%	\$1,215	1.1%	\$287
41	Miscellaneous Freight Shipments	144	0.0%	7	0.0%	\$1	0.0%	\$9,426
42	Shipping Containers	#N/A	#N/A	524,064	16.9%	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
44	Freight Forwarder Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
45	Shipper Association Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
46	Miscellaneous Mixed Shipments	1,789	0.0%	87	0.0%	\$15	0.0%	\$8,344
47	Small Packaged Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
48	Waste	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
49	Hazardous Materials	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
50	Secondary Traffic	4,312,264	8.4%	226,539	7.3%	\$7,144	6.4%	\$1,657
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	<i>Total</i>	<i>51,394,006</i>	<i>100.0%</i>	<i>3,095,382</i>	<i>100.0%</i>	<i>\$112,411</i>	<i>100.0%</i>	<i>\$2,187</i>

Table A-6: TRANSEARCH Truck 2016–40 Ton Growth

STCC	Commodity	2016		2040		Percent	Percent
		Amount	Percent	Amount	Percent	Total	CAGR ¹
01	Farm Products	5,560,460	5.4%	6,591,921	4.3%	18.5%	0.7%
08	Forest Products	76,592	0.1%	114,128	0.1%	49.0%	1.7%
09	Fresh Fish or Marine Products	28,861	0.0%	50,125	0.0%	73.7%	2.3%
10	Metallic Ores	21,958	0.0%	37,319	0.0%	70.0%	2.2%
11	Coal	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
13	Crude Petroleum or Natural Gas	2,127	0.0%	2,728	0.0%	28.3%	1.0%
14	Nonmetallic Minerals	22,221,745	21.4%	28,140,157	18.3%	26.6%	1.0%
19	Ordnance or Accessories	16,253	0.0%	46,421	0.0%	185.6%	4.5%
20	Food or Kindred Products	9,469,900	9.1%	15,245,182	9.9%	61.0%	2.0%
21	Tobacco Products	33,595	0.0%	13,876	0.0%	-58.7%	-3.6%
22	Textile Mill Products	1,746,551	1.7%	1,698,934	1.1%	-2.7%	-0.1%
23	Apparel or Related Products	264,910	0.3%	618,653	0.4%	133.5%	3.6%
24	Lumber or Wood Products	4,688,950	4.5%	6,261,308	4.1%	33.5%	1.2%
25	Furniture or Fixtures	440,490	0.4%	1,192,390	0.8%	170.7%	4.2%
26	Pulp, Paper, or Allied Products	3,127,198	3.0%	4,308,157	2.8%	37.8%	1.3%
27	Printed Matter	430,180	0.4%	463,997	0.3%	7.9%	0.3%
28	Chemicals or Allied Products	10,191,888	9.8%	18,024,815	11.7%	76.9%	2.4%
29	Petroleum or Coal Products	7,560,126	7.3%	6,472,708	4.2%	-14.4%	-0.6%
30	Rubber or Miscellaneous Plastics	3,535,998	3.4%	6,499,896	4.2%	83.8%	2.6%
31	Leather or Leather Products	34,599	0.0%	67,329	0.0%	94.6%	2.8%
32	Clay, Concrete, Glass, or Stone	7,493,051	7.2%	11,518,699	7.5%	53.7%	1.8%
33	Primary Metal Products	2,580,395	2.5%	4,258,337	2.8%	65.0%	2.1%
34	Fabricated Metal Products	2,227,674	2.1%	3,670,510	2.4%	64.8%	2.1%
35	Machinery	1,894,439	1.8%	4,342,944	2.8%	129.2%	3.5%
36	Electrical Equipment	1,280,824	1.2%	2,552,533	1.7%	99.3%	2.9%
37	Transportation Equipment	3,850,558	3.7%	5,953,713	3.9%	54.6%	1.8%
38	Instrument, Photo, and Optical Equip.	93,359	0.1%	284,381	0.2%	204.6%	4.8%
39	Miscellaneous Manufacturing Products	119,752	0.1%	236,911	0.2%	97.8%	2.9%
40	Waste or Scrap Materials	6,691,431	6.5%	10,719,341	7.0%	60.2%	2.0%
41	Miscellaneous Freight Shipments	144	0.0%	311	0.0%	115.0%	3.2%
42	Shipping Containers	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
44	Freight Forwarder Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
45	Shipper Association Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
46	Miscellaneous Mixed Shipments	16,802	0.0%	52,514	0.0%	212.5%	4.9%
47	Small Packaged Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
48	Waste	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
49	Hazardous Materials	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
50	Secondary Traffic	8,040,699	7.8%	14,752,108	9.6%	83.5%	2.6%
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
<i>Total</i>		<i>103,741,513</i>	<i>100.0%</i>	<i>154,192,345</i>	<i>100.0%</i>	<i>48.6%</i>	<i>1.7%</i>

Note: ¹Compound annual growth rate (CAGR)

Table A-7: TRANSEARCH Truck 2016–40 Value (millions) Growth

STCC	Commodity	2016		2040		Percent	Percent
		Amount	Percent	Amount	Percent	Total	CAGR
01	Farm Products	\$5,740	3.0%	\$8,546	2.5%	48.9%	1.7%
08	Forest Products	\$163	0.1%	\$242	0.1%	48.8%	1.7%
09	Fresh Fish or Marine Products	\$282	0.1%	\$491	0.1%	73.8%	2.3%
10	Metallic Ores	\$80	0.0%	\$137	0.0%	70.1%	2.2%
11	Coal	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
13	Crude Petroleum or Natural Gas	\$0	0.0%	\$0	0.0%	28.3%	1.0%
14	Nonmetallic Minerals	\$311	0.2%	\$387	0.1%	24.5%	0.9%
19	Ordnance or Accessories	\$489	0.3%	\$1,362	0.4%	178.3%	4.4%
20	Food or Kindred Products	\$17,238	8.9%	\$29,222	8.4%	69.5%	2.2%
21	Tobacco Products	\$645	0.3%	\$267	0.1%	-58.6%	-3.6%
22	Textile Mill Products	\$10,134	5.2%	\$9,261	2.7%	-8.6%	-0.4%
23	Apparel or Related Products	\$2,395	1.2%	\$6,003	1.7%	150.6%	3.9%
24	Lumber or Wood Products	\$2,508	1.3%	\$3,533	1.0%	40.9%	1.4%
25	Furniture or Fixtures	\$2,139	1.1%	\$5,840	1.7%	173.0%	4.3%
26	Pulp, Paper, or Allied Products	\$4,069	2.1%	\$5,760	1.7%	41.6%	1.5%
27	Printed Matter	\$1,231	0.6%	\$1,459	0.4%	18.5%	0.7%
28	Chemicals or Allied Products	\$23,697	12.3%	\$42,382	12.2%	78.9%	2.5%
29	Petroleum or Coal Products	\$3,131	1.6%	\$2,565	0.7%	-18.1%	-0.8%
30	Rubber or Miscellaneous Plastics	\$14,770	7.6%	\$27,550	7.9%	86.5%	2.6%
31	Leather or Leather Products	\$632	0.3%	\$1,150	0.3%	82.0%	2.5%
32	Clay, Concrete, Glass, or Stone	\$1,965	1.0%	\$3,057	0.9%	55.5%	1.9%
33	Primary Metal Products	\$9,354	4.8%	\$16,322	4.7%	74.5%	2.3%
34	Fabricated Metal Products	\$8,574	4.4%	\$14,837	4.3%	73.0%	2.3%
35	Machinery	\$19,712	10.2%	\$45,775	13.2%	132.2%	3.6%
36	Electrical Equipment	\$12,149	6.3%	\$27,010	7.8%	122.3%	3.4%
37	Transportation Equipment	\$34,295	17.7%	\$56,253	16.2%	64.0%	2.1%
38	Instrument, Photo, and Optical Equip.	\$1,932	1.0%	\$5,946	1.7%	207.8%	4.8%
39	Miscellaneous Manufacturing Products	\$733	0.4%	\$1,574	0.5%	114.7%	3.2%
40	Waste or Scrap Materials	\$1,866	1.0%	\$3,038	0.9%	62.8%	2.1%
41	Miscellaneous Freight Shipments	\$1	0.0%	\$3	0.0%	115.8%	3.3%
42	Shipping Containers	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
44	Freight Forwarder Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
45	Shipper Association Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
46	Miscellaneous Mixed Shipments	\$100	0.1%	\$313	0.1%	212.5%	4.9%
47	Small Packaged Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
48	Waste	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
49	Hazardous Materials	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
50	Secondary Traffic	\$13,046	6.7%	\$27,101	7.8%	107.7%	3.1%
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	<i>Total</i>	\$193,383	100.0%	\$347,384	100.0%	79.6%	2.5%

Figure A-1: TRANSEARCH Truck South Carolina Tons 2016 and ACOG-Related

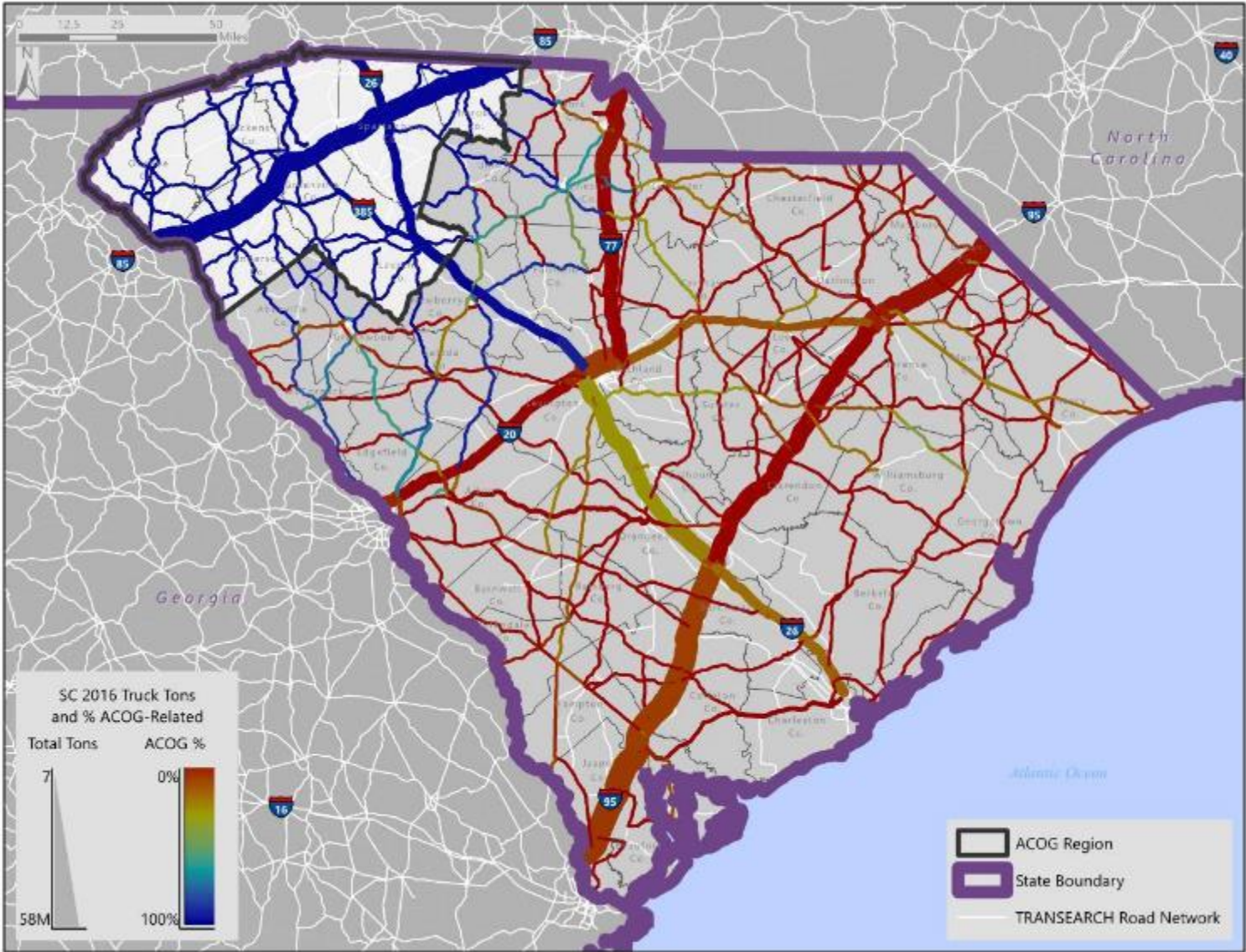


Figure A-2: TRANSEARCH Truck South Carolina Tons 2016–40 Network Growth

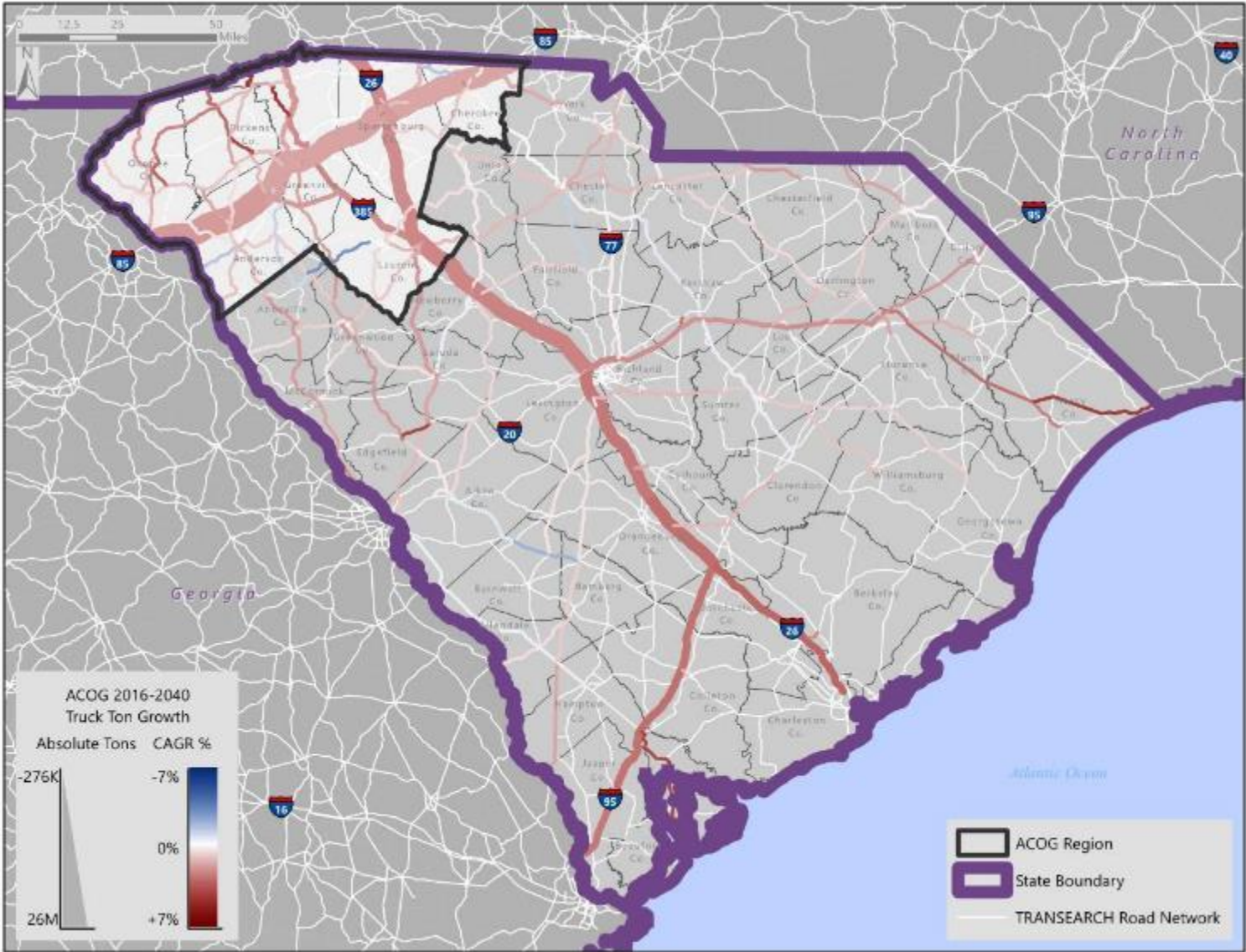


Table A-8: TRANSEARCH Rail, All Directions 2016

STCC	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	1,110,611	3.2%	11,773	1.3%	\$342	0.5%	\$308
08	Forest Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
09	Fresh Fish or Marine Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10	Metallic Ores	38,120	0.1%	400	0.0%	\$6	0.0%	\$149
11	Coal	6,111,922	17.6%	52,691	5.9%	\$213	0.3%	\$35
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	615,874	1.8%	5,856	0.7%	\$15	0.0%	\$24
19	Ordnance or Accessories	26,888	0.1%	1,660	0.2%	\$734	1.2%	\$27,289
20	Food or Kindred Products	2,886,153	8.3%	51,698	5.8%	\$1,985	3.2%	\$688
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	21,160	0.1%	2,000	0.2%	\$131	0.2%	\$6,197
23	Apparel or Related Products	407,680	1.2%	39,120	4.4%	\$2,187	3.5%	\$5,363
24	Lumber or Wood Products	1,147,336	3.3%	15,396	1.7%	\$364	0.6%	\$317
25	Furniture or Fixtures	51,040	0.1%	5,000	0.6%	\$229	0.4%	\$4,487
26	Pulp, Paper, or Allied Products	2,613,136	7.5%	57,128	6.4%	\$2,606	4.2%	\$997
27	Printed Matter	32,880	0.1%	2,240	0.3%	\$195	0.3%	\$5,918
28	Chemicals or Allied Products	8,682,576	25.0%	109,204	12.3%	\$14,554	23.2%	\$1,676
29	Petroleum or Coal Products	831,816	2.4%	9,988	1.1%	\$610	1.0%	\$733
30	Rubber or Miscellaneous Plastics	188,640	0.5%	16,560	1.9%	\$960	1.5%	\$5,091
31	Leather or Leather Products	15,600	0.0%	1,520	0.2%	\$375	0.6%	\$24,031
32	Clay, Concrete, Glass, or Stone	2,273,044	6.5%	30,132	3.4%	\$454	0.7%	\$200
33	Primary Metal Products	1,037,935	3.0%	12,276	1.4%	\$1,510	2.4%	\$1,455
34	Fabricated Metal Products	62,000	0.2%	5,360	0.6%	\$310	0.5%	\$5,004
35	Machinery	56,232	0.2%	3,188	0.4%	\$575	0.9%	\$10,223
36	Electrical Equipment	106,440	0.3%	7,920	0.9%	\$1,104	1.8%	\$10,369
37	Transportation Equipment	1,346,160	3.9%	67,040	7.5%	\$12,116	19.3%	\$9,001
38	Instrument, Photo, and Optical Equip.	3,760	0.0%	440	0.0%	\$48	0.1%	\$12,747
39	Miscellaneous Manufacturing Products	24,520	0.1%	2,640	0.3%	\$198	0.3%	\$8,074
40	Waste or Scrap Materials	958,332	2.8%	11,692	1.3%	\$193	0.3%	\$202
41	Miscellaneous Freight Shipments	59,842	0.2%	2,468	0.3%	\$208	0.3%	\$3,482
42	Shipping Containers	1,400	0.0%	80	0.0%	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
44	Freight Forwarder Traffic	68,320	0.2%	6,160	0.7%	#N/A	#N/A	#N/A
45	Shipper Association Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
46	Miscellaneous Mixed Shipments	3,950,880	11.4%	356,200	40.1%	\$20,415	32.6%	\$5,167
47	Small Packaged Shipments	1,240	0.0%	80	0.0%	#N/A	#N/A	#N/A
48	Waste	36,720	0.1%	600	0.1%	#N/A	#N/A	#N/A
49	Hazardous Materials	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
50	Secondary Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	<i>Total</i>	34,768,257	100.0%	888,510	100.0%	\$62,635	100.0%	\$1,802

Table A-9: TRANSEARCH Rail, Outbound 2016

STCC	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	4,800	0.2%	480	0.6%	\$1	0.0%	\$156
08	Forest Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
09	Fresh Fish or Marine Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10	Metallic Ores	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
11	Coal	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	383,881	19.8%	3,395	4.1%	\$4	0.0%	\$10
19	Ordnance or Accessories	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
20	Food or Kindred Products	400	0.0%	40	0.0%	\$0	0.0%	\$405
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
23	Apparel or Related Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
24	Lumber or Wood Products	12,080	0.6%	160	0.2%	\$7	0.1%	\$576
25	Furniture or Fixtures	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
26	Pulp, Paper, or Allied Products	62,560	3.2%	920	1.1%	\$48	0.6%	\$770
27	Printed Matter	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
28	Chemicals or Allied Products	120,600	6.2%	2,480	3.0%	\$277	3.3%	\$2,299
29	Petroleum or Coal Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
30	Rubber or Miscellaneous Plastics	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
31	Leather or Leather Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
32	Clay, Concrete, Glass, or Stone	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
33	Primary Metal Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
34	Fabricated Metal Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
35	Machinery	16,944	0.9%	116	0.1%	\$173	2.1%	\$10,204
36	Electrical Equipment	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
37	Transportation Equipment	571,720	29.5%	29,120	34.9%	\$5,507	66.3%	\$9,632
38	Instrument, Photo, and Optical Equip.	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
39	Miscellaneous Manufacturing Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
40	Waste or Scrap Materials	336,520	17.3%	3,720	4.5%	\$59	0.7%	\$174
41	Miscellaneous Freight Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
42	Shipping Containers	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
44	Freight Forwarder Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
45	Shipper Association Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
46	Miscellaneous Mixed Shipments	430,400	22.2%	43,040	51.6%	\$2,231	26.9%	\$5,183
47	Small Packaged Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
48	Waste	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
49	Hazardous Materials	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
50	Secondary Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	<i>Total</i>	1,939,905	100.0%	83,471	100.0%	\$8,307	100.0%	\$4,282

Table A-10: TRANSEARCH Rail, Inbound 2016

STCC	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	4,120	0.1%	40	0.1%	\$9	0.2%	\$2,154
08	Forest Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
09	Fresh Fish or Marine Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10	Metallic Ores	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
11	Coal	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
19	Ordnance or Accessories	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
20	Food or Kindred Products	250,840	8.3%	3,960	5.9%	\$228	3.9%	\$910
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
23	Apparel or Related Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
24	Lumber or Wood Products	7,200	0.2%	80	0.1%	\$1	0.0%	\$162
25	Furniture or Fixtures	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
26	Pulp, Paper, or Allied Products	276,040	9.2%	3,400	5.0%	\$229	3.9%	\$831
27	Printed Matter	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
28	Chemicals or Allied Products	1,626,520	53.9%	18,204	27.0%	\$2,689	45.6%	\$1,653
29	Petroleum or Coal Products	216,036	7.2%	2,484	3.7%	\$225	3.8%	\$1,041
30	Rubber or Miscellaneous Plastics	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
31	Leather or Leather Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
32	Clay, Concrete, Glass, or Stone	81,920	2.7%	1,480	2.2%	\$13	0.2%	\$157
33	Primary Metal Products	131,960	4.4%	1,560	2.3%	\$187	3.2%	\$1,414
34	Fabricated Metal Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
35	Machinery	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
36	Electrical Equipment	15,640	0.5%	40	0.1%	\$166	2.8%	\$10,641
37	Transportation Equipment	53,640	1.8%	3,292	4.9%	\$458	7.8%	\$8,544
38	Instrument, Photo, and Optical Equip.	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
39	Miscellaneous Manufacturing Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
40	Waste or Scrap Materials	27,800	0.9%	480	0.7%	\$5	0.1%	\$170
41	Miscellaneous Freight Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
42	Shipping Containers	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
44	Freight Forwarder Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
45	Shipper Association Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
46	Miscellaneous Mixed Shipments	324,400	10.8%	32,440	48.1%	\$1,681	28.5%	\$5,183
47	Small Packaged Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
48	Waste	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
49	Hazardous Materials	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
50	Secondary Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	<i>Total</i>	3,016,116	100.0%	67,460	100.0%	\$5,891	100.0%	\$1,953

Table A-11: TRANSEARCH Rail, Intra-Regional 2016

STCC	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
08	Forest Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
09	Fresh Fish or Marine Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10	Metallic Ores	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
11	Coal	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
19	Ordnance or Accessories	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
20	Food or Kindred Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
23	Apparel or Related Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
24	Lumber or Wood Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
25	Furniture or Fixtures	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
26	Pulp, Paper, or Allied Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
27	Printed Matter	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
28	Chemicals or Allied Products	15,720	75.1%	160	66.7%	\$36	88.1%	\$2,304
29	Petroleum or Coal Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
30	Rubber or Miscellaneous Plastics	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
31	Leather or Leather Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
32	Clay, Concrete, Glass, or Stone	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
33	Primary Metal Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
34	Fabricated Metal Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
35	Machinery	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
36	Electrical Equipment	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
37	Transportation Equipment	5,200	24.9%	80	33.3%	\$5	11.9%	\$943
38	Instrument, Photo, and Optical Equip.	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
39	Miscellaneous Manufacturing Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
40	Waste or Scrap Materials	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
41	Miscellaneous Freight Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
42	Shipping Containers	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
44	Freight Forwarder Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
45	Shipper Association Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
46	Miscellaneous Mixed Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
47	Small Packaged Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
48	Waste	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
49	Hazardous Materials	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
50	Secondary Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	<i>Total</i>	20,920	100.0%	240	100.0%	\$41	100.0%	\$1,966

Table A-12: TRANSEARCH Rail, Through 2016

STCC	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	1,101,691	3.7%	11,253	1.5%	\$332	0.7%	\$302
08	Forest Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
09	Fresh Fish or Marine Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10	Metallic Ores	38,120	0.1%	400	0.1%	\$6	0.0%	\$149
11	Coal	6,111,922	20.5%	52,691	7.1%	\$213	0.4%	\$35
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	231,993	0.8%	2,461	0.3%	\$11	0.0%	\$45
19	Ordnance or Accessories	26,888	0.1%	1,660	0.2%	\$734	1.5%	\$27,289
20	Food or Kindred Products	2,634,913	8.8%	47,698	6.5%	\$1,757	3.6%	\$667
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	21,160	0.1%	2,000	0.3%	\$131	0.3%	\$6,197
23	Apparel or Related Products	407,680	1.4%	39,120	5.3%	\$2,187	4.5%	\$5,363
24	Lumber or Wood Products	1,128,056	3.8%	15,156	2.1%	\$356	0.7%	\$315
25	Furniture or Fixtures	51,040	0.2%	5,000	0.7%	\$229	0.5%	\$4,487
26	Pulp, Paper, or Allied Products	2,274,536	7.6%	52,808	7.2%	\$2,328	4.8%	\$1,024
27	Printed Matter	32,880	0.1%	2,240	0.3%	\$195	0.4%	\$5,918
28	Chemicals or Allied Products	6,919,736	23.2%	88,360	12.0%	\$11,552	23.9%	\$1,669
29	Petroleum or Coal Products	615,780	2.1%	7,504	1.0%	\$385	0.8%	\$625
30	Rubber or Miscellaneous Plastics	188,640	0.6%	16,560	2.2%	\$960	2.0%	\$5,091
31	Leather or Leather Products	15,600	0.1%	1,520	0.2%	\$375	0.8%	\$24,031
32	Clay, Concrete, Glass, or Stone	2,191,124	7.4%	28,652	3.9%	\$441	0.9%	\$201
33	Primary Metal Products	905,975	3.0%	10,716	1.5%	\$1,323	2.7%	\$1,461
34	Fabricated Metal Products	62,000	0.2%	5,360	0.7%	\$310	0.6%	\$5,004
35	Machinery	39,288	0.1%	3,072	0.4%	\$402	0.8%	\$10,231
36	Electrical Equipment	90,800	0.3%	7,880	1.1%	\$937	1.9%	\$10,322
37	Transportation Equipment	715,600	2.4%	34,548	4.7%	\$6,146	12.7%	\$8,589
38	Instrument, Photo, and Optical Equip.	3,760	0.0%	440	0.1%	\$48	0.1%	\$12,747
39	Miscellaneous Manufacturing Products	24,520	0.1%	2,640	0.4%	\$198	0.4%	\$8,074
40	Waste or Scrap Materials	594,012	2.0%	7,492	1.0%	\$130	0.3%	\$219
41	Miscellaneous Freight Shipments	59,842	0.2%	2,468	0.3%	\$208	0.4%	\$3,482
42	Shipping Containers	1,400	0.0%	80	0.0%	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
44	Freight Forwarder Traffic	68,320	0.2%	6,160	0.8%	#N/A	#N/A	#N/A
45	Shipper Association Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
46	Miscellaneous Mixed Shipments	3,196,080	10.7%	280,720	38.1%	\$16,503	34.1%	\$5,163
47	Small Packaged Shipments	1,240	0.0%	80	0.0%	#N/A	#N/A	#N/A
48	Waste	36,720	0.1%	600	0.1%	#N/A	#N/A	#N/A
49	Hazardous Materials	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
50	Secondary Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	<i>Total</i>	29,791,316	100.0%	737,339	100.0%	\$48,396	100.0%	\$1,624

Table A-13: TRANSEARCH Rail 2016–40 Ton Growth

STCC	Commodity	2016		2040		Percent	Percent
		Amount	Percent	Amount	Percent	Total	CAGR
01	Farm Products	1,110,611	3.2%	1,652,310	2.8%	48.8%	1.7%
08	Forest Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
09	Fresh Fish or Marine Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10	Metallic Ores	38,120	0.1%	60,603	0.1%	59.0%	2.0%
11	Coal	6,111,922	17.6%	6,181,501	10.5%	1.1%	0.0%
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	615,874	1.8%	770,971	1.3%	25.2%	0.9%
19	Ordnance or Accessories	26,888	0.1%	42,172	0.1%	56.8%	1.9%
20	Food or Kindred Products	2,886,153	8.3%	5,120,451	8.7%	77.4%	2.4%
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	21,160	0.1%	41,632	0.1%	96.7%	2.9%
23	Apparel or Related Products	407,680	1.2%	1,268,689	2.2%	211.2%	4.8%
24	Lumber or Wood Products	1,147,336	3.3%	2,046,062	3.5%	78.3%	2.4%
25	Furniture or Fixtures	51,040	0.1%	132,039	0.2%	158.7%	4.0%
26	Pulp, Paper, or Allied Products	2,613,136	7.5%	3,456,173	5.9%	32.3%	1.2%
27	Printed Matter	32,880	0.1%	60,639	0.1%	84.4%	2.6%
28	Chemicals or Allied Products	8,682,576	25.0%	18,044,706	30.7%	107.8%	3.1%
29	Petroleum or Coal Products	831,816	2.4%	909,437	1.5%	9.3%	0.4%
30	Rubber or Miscellaneous Plastics	188,640	0.5%	559,330	1.0%	196.5%	4.6%
31	Leather or Leather Products	15,600	0.0%	14,503	0.0%	-7.0%	-0.3%
32	Clay, Concrete, Glass, or Stone	2,273,044	6.5%	3,844,677	6.5%	69.1%	2.2%
33	Primary Metal Products	1,037,935	3.0%	2,457,643	4.2%	136.8%	3.7%
34	Fabricated Metal Products	62,000	0.2%	130,901	0.2%	111.1%	3.2%
35	Machinery	56,232	0.2%	154,108	0.3%	174.1%	4.3%
36	Electrical Equipment	106,440	0.3%	336,707	0.6%	216.3%	4.9%
37	Transportation Equipment	1,346,160	3.9%	1,979,393	3.4%	47.0%	1.6%
38	Instrument, Photo, and Optical Equip.	3,760	0.0%	13,994	0.0%	272.2%	5.6%
39	Miscellaneous Manufacturing Products	24,520	0.1%	69,519	0.1%	183.5%	4.4%
40	Waste or Scrap Materials	958,332	2.8%	1,223,843	2.1%	27.7%	1.0%
41	Miscellaneous Freight Shipments	59,842	0.2%	78,221	0.1%	30.7%	1.1%
42	Shipping Containers	1,400	0.0%	1,411	0.0%	0.8%	0.0%
43	Mail or Contract Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
44	Freight Forwarder Traffic	68,320	0.2%	26,931	0.0%	-60.6%	-3.8%
45	Shipper Association Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
46	Miscellaneous Mixed Shipments	3,950,880	11.4%	8,101,565	13.8%	105.1%	3.0%
47	Small Packaged Shipments	1,240	0.0%	1,936	0.0%	56.1%	1.9%
48	Waste	36,720	0.1%	47,167	0.1%	28.4%	1.0%
49	Hazardous Materials	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
50	Secondary Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	<i>Total</i>	34,768,257	100.0%	58,829,234	100.0%	69.2%	2.2%

Table A-14: TRANSEARCH Rail 2016–40 Value (millions) Growth

STCC	Commodity	2016		2040		Percent	Percent
		Amount	Percent	Amount	Percent	Total	CAGR
01	Farm Products	\$342	0.5%	\$741	0.6%	116.8%	3.3%
08	Forest Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
09	Fresh Fish or Marine Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10	Metallic Ores	\$6	0.0%	\$10	0.0%	75.7%	2.4%
11	Coal	\$213	0.3%	\$215	0.2%	1.1%	0.0%
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	\$15	0.0%	\$20	0.0%	37.4%	1.3%
19	Ordnance or Accessories	\$734	1.2%	\$1,151	0.9%	56.8%	1.9%
20	Food or Kindred Products	\$1,985	3.2%	\$3,793	3.0%	91.1%	2.7%
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	\$131	0.2%	\$241	0.2%	83.4%	2.6%
23	Apparel or Related Products	\$2,187	3.5%	\$6,853	5.5%	213.4%	4.9%
24	Lumber or Wood Products	\$364	0.6%	\$612	0.5%	68.1%	2.2%
25	Furniture or Fixtures	\$229	0.4%	\$648	0.5%	183.1%	4.4%
26	Pulp, Paper, or Allied Products	\$2,606	4.2%	\$3,573	2.9%	37.1%	1.3%
27	Printed Matter	\$195	0.3%	\$364	0.3%	87.0%	2.6%
28	Chemicals or Allied Products	\$14,554	23.2%	\$32,161	25.7%	121.0%	3.4%
29	Petroleum or Coal Products	\$610	1.0%	\$656	0.5%	7.6%	0.3%
30	Rubber or Miscellaneous Plastics	\$960	1.5%	\$2,860	2.3%	197.8%	4.7%
31	Leather or Leather Products	\$375	0.6%	\$284	0.2%	-24.2%	-1.1%
32	Clay, Concrete, Glass, or Stone	\$454	0.7%	\$819	0.7%	80.4%	2.5%
33	Primary Metal Products	\$1,510	2.4%	\$3,579	2.9%	137.1%	3.7%
34	Fabricated Metal Products	\$310	0.5%	\$673	0.5%	116.8%	3.3%
35	Machinery	\$575	0.9%	\$1,569	1.3%	173.0%	4.3%
36	Electrical Equipment	\$1,104	1.8%	\$3,593	2.9%	225.6%	5.0%
37	Transportation Equipment	\$12,116	19.3%	\$17,739	14.2%	46.4%	1.6%
38	Instrument, Photo, and Optical Equip.	\$48	0.1%	\$178	0.1%	271.5%	5.6%
39	Miscellaneous Manufacturing Products	\$198	0.3%	\$558	0.4%	181.8%	4.4%
40	Waste or Scrap Materials	\$193	0.3%	\$257	0.2%	33.0%	1.2%
41	Miscellaneous Freight Shipments	\$208	0.3%	\$272	0.2%	30.7%	1.1%
42	Shipping Containers	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
44	Freight Forwarder Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
45	Shipper Association Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
46	Miscellaneous Mixed Shipments	\$20,415	32.6%	\$41,877	33.4%	105.1%	3.0%
47	Small Packaged Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
48	Waste	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
49	Hazardous Materials	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
50	Secondary Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	<i>Total</i>	\$62,635	100.0%	\$125,297	100.0%	100.0%	2.9%

Figure A-3: TRANSEARCH Truck South Carolina Tons 2016 and ACOG-Related

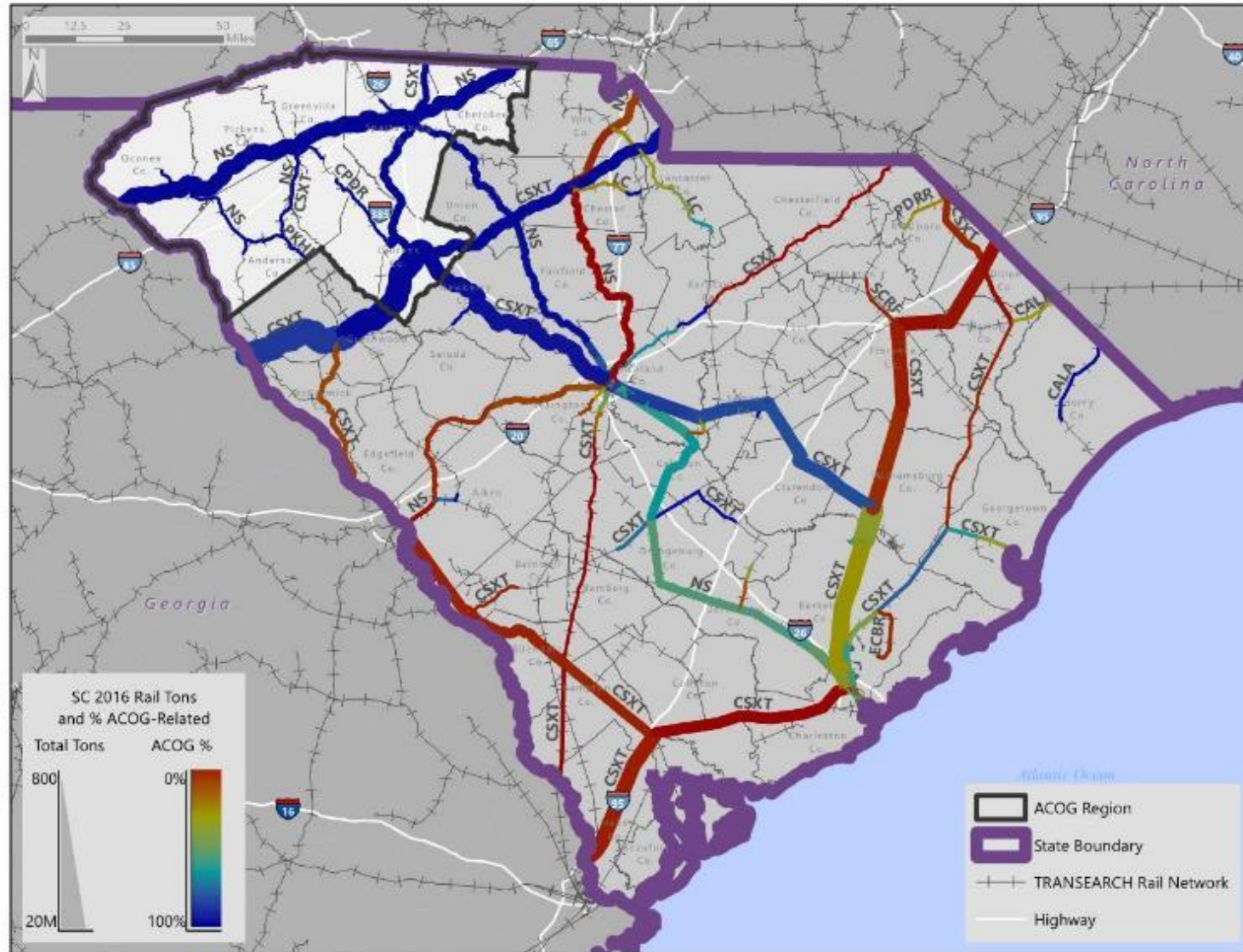


Figure A-4: TRANSEARCH Truck South Carolina Tons 2016–40 Network Growth

