BCD REGIONAL FREIGHT MOBILITY PLAN

APPENDIX E

Technical Memorandum

Freight and Economics

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BCDCOG
BERKELEY-CHARLESTON-DORCHESTER
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1. INTRODUCTION

Millions of tons and billions of dollars in freight, which include finished goods and intermediate materials, traverse the Berkeley-Charleston-Dorchester (BCD) region's transportation infrastructure annually. The following analysis assesses various freight databases, summarizes freight volumes moving on the region's transportation network, identifies regional relevance, and quantifies its economic impacts.

Various data sources are used or incorporated in this analysis to explain freight movements within and between modes by volume (tons, value, units), commodity, and direction. While freight data are reported as sourced, it is important to note that each source has limitations. The IHS Markit Transearch (Transerach) reported data serve as the primary source for truck and rail freight flows; however, a major challenge with this data is identifying the share of freight originating and terminating at the Port of Charleston. To overcome this limitation, supplemental data from the U.S. Army Corps of Engineers (USACE) and Port of Charleston were also utilized.

Refined freight values by direction (inbound, outbound, internal, and through) and commodity type are used in conjunction with the IMPLAN economic model to identify the direct impacts generated by 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 effects. The IMPLAN model supplied socioeconomic data that provided baseline regional economic data for select economic measures, such as employment, labor income, value-added, and output, , which facilitated comparison of the freight-related impacts to the overall regional economy.

2. FREIGHT DIMENSIONS 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., BCD Region), 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 BCDCOG tri-county region (i.e., Berkeley, Charleston, Dorchester) or the individual port facilities in the region, depending on the data source.

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, with a historical base year of 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 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 Transearch for truck and rail
- Lock Performance Monitoring System (LPMS) – by USACE for water
- Standard Classification of Transported Goods (SCTG) – by Freight Analysis Framework (FAF) for air

2.2 DATA SOURCES

Two primary multimodal freight data sources used in this analysis include the for-hire Transearch database and the publicly available Federal Highway Administration (FHWA) Freight Analysis Framework (FAF). Although each of these sources cover all major modes, some limitations to the datasets required use of additional data sources. The Transearch data was therefore supplemented with the Surface Transportation Board (STB) Waybill rail data, while the USACE Waterborne Commerce Statistics (WCS) were used to supplement waterborne freight. USACE Waterborne Commerce Statistics (WCS) were used to supplement waterborne freight.

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. Base- and future-year estimates are available at a county-level. It establishes production tonnages by industry/commodity—drawn from IHS's Business Markets Insights database and supplemented by trade associations, industry reports, and federal government data. Rail data is further supplemented by the STB Waybill sample. Since Transearch was originally developed for private truck and rail users and the reporting geography is NAFTA-focused (Non-NAFTA water and air freight movements with Europe, Asia, South America, Africa, etc. are excluded), the data is not extensive for modes other than truck and rail.[1] Non-NAFTA water and air movements are excluded. Nonetheless, 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 – FHWA FAF 4 is an integrated freight database for all primary transportation modes, produced by FHWA in collaboration with the Bureau of Transportation Statistics. Estimates are based on 2012 Commodity Flow Survey data and international trade Census data. FAF uses the SCTG commodity code convention. However, FAF was not used because of various limitations. Limited routing information precludes freight density mapping and through volumes estimates. Such through volumes are often significant, especially for interstate truck freight. Geography is constrained by state and/or large regional totals that preclude county or specific study area analysis. The SCTG commodity convention differs notably from the STCC used by Transearch.

USACE – USACE WCS makes publicly available various waterborne freight tonnage and container data for both foreign and domestic movements, by direction, port, commodity, and year. It compiles domestic waterborne movements, as reported by vessel operators of record on ENG Forms 3925 and 3925b (or equivalent) and approved by the Office of Management and Budget. Foreign-related import, export, and in-transit statistics are derived primarily from Port

[1] i.e., excludes freight movement with Europe, Asia, South America, Africa, etc.

Import/Export Reporting Service (PIERS) via the Census and Customs Service using the LPMS commodity code convention.

Other – Water and air freight volume data from Transearch are supplemented with facility data from the Port of Charleston and the Charleston and Greenville-Spartanburg regions).

- *Port of Charleston* – Details freight volume differently. Instead of summarizing freight tonnage, the Port of Charleston tracks freight volume differently between terminals. Whereas containers and twenty-foot equivalent units (TEU) are tracked at the North Charleston Terminal and Wando Welch Terminal, automobiles are tracked at the Columbus and Veterans piers. Such metrics differ from the broader comprehensive volume metrics (tons, value, units) used by Transearch for all freight. Nonetheless, the Port of Charleston data provided a direct source for comparing/confirming Transearch and USACE volumes.

- *Airports* – Airports provide limited air freight volumes (tons and/or value) used to supplement and confirm the limited Transearch data.

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 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 water and air freight data. The pipeline and "other" categories[2] are questionable/irrelevant given their relatively minor role.

The multimodal summary is provided below by mode and major direction, with the non-surface modes grayed out. Directional data is relative to the tri-county BCDCOG region, which includes Berkeley, Charleston, and Dorchester counties.

Transearch reports 113 million tons of freight moved across the regional surface network, valued at $249 billion in 2016. Almost 80% of the tons (85% of the value) are carried via truck and the remainder are carried by rail. Through traffic constitutes most regional volumes but pertain almost entirely to interstate truck trade on I-95 in Dorchester County.

Table 3-1: Transearch Summary, 2016

Direction	Truck	Rail	Water	Air	Other
Tons					
Outbound	15,013,564	4,432,478	8,446	9,391	1,036
Inbound	13,413,669	11,144,727	1,645,583	17,167	19,198
Intra-Regional	8,510,723	780,056	369,270	#N/A	#N/A
Through	52,135,754	7,550,479	#N/A	#N/A	#N/A
Total	89,073,711	23,907,740	2,023,299	26,559	20,233
Units					
Outbound	1,138,237	129,716	#N/A	#N/A	#N/A
Inbound	1,085,043	241,889	#N/A	#N/A	#N/A
Intra-Regional	1,190,516	7,688	#N/A	#N/A	#N/A
Through	2,971,248	187,008	#N/A	#N/A	#N/A
Total	6,385,045	566,301	0	0	0
Value, in millions					
Outbound	$46,880	$10,086	$28	$532	$10
Inbound	$28,482	$13,782	$154	$1,498	$194
Intra-Regional	$19,640	$443	$89	#N/A	#N/A
Through	$116,713	$12,693	#N/A	#N/A	#N/A
Total	$211,716	$37,005	$270	$2,030	$204

[2] "other" in Transearch is either unspecified "other", mail, or foreign trade zone-related movements

3.1.1 Truck

In 2016, Transearch estimated 89 million tons of goods traveling on the tri-county highway network, transported within 6.4 million units and valued at over $211 billion. (**Table 3-2**)

Table 3-2: Transearch Truck Summary, 2016

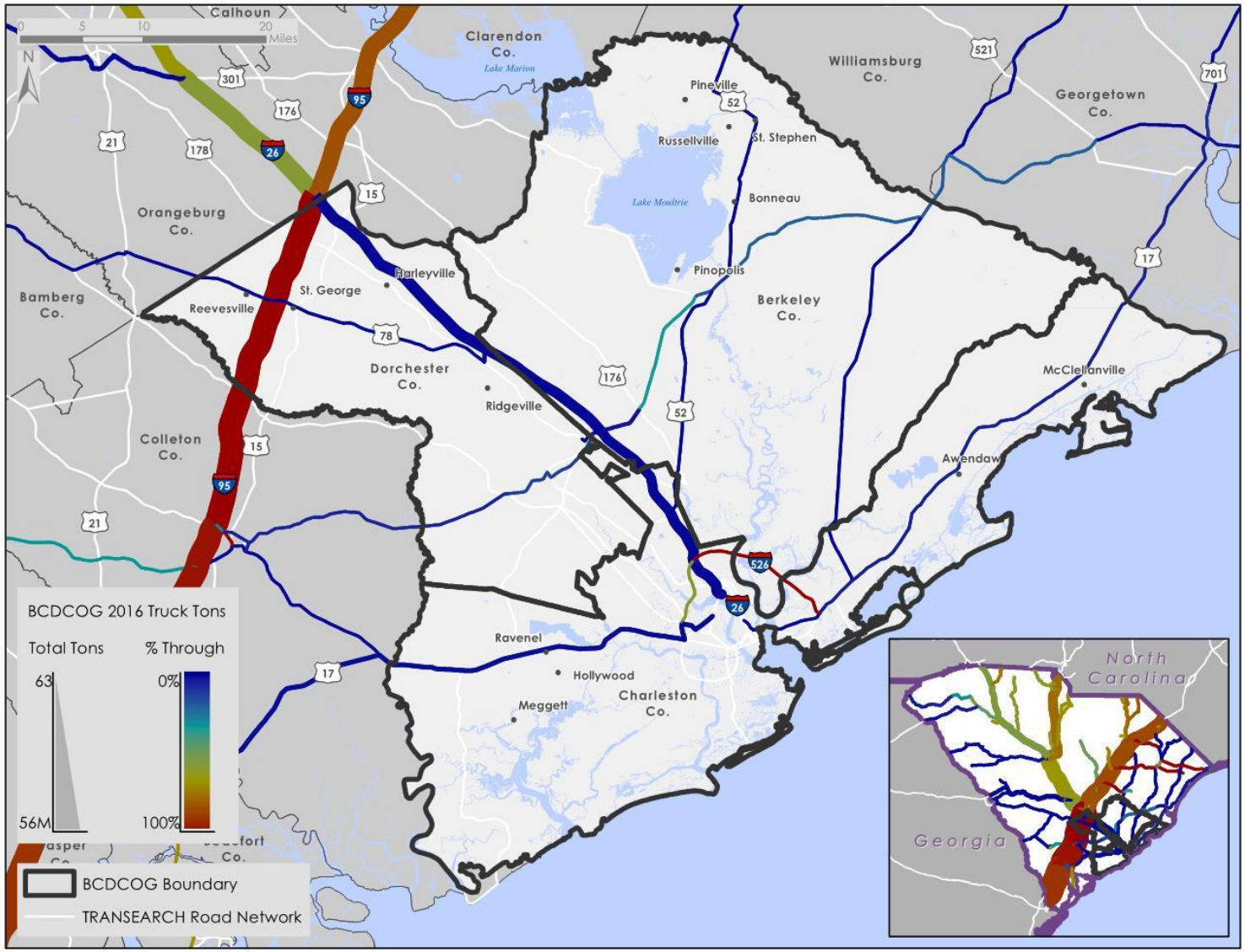
Direction	Tons		Units		Value (in millions)		Average Value/Ton
	Amount	Percent	Amount	Percent	Amount	Percent	
Outbound	15,013,564	16.9%	1,138,237	17.8%	$46,880	22.1%	$3,123
Outbound to SC	4,585,980	5.1%	420,446	6.6%	$5,813	2.7%	$1,268
Outbound to non-SC	10,427,584	11.7%	717,791	11.2%	$41,067	19.4%	$3,938
Inbound	13,413,669	15.1%	1,085,043	17.0%	$28,482	13.5%	$2,123
Inbound from SC	3,400,089	3.8%	376,497	5.9%	$4,446	2.1%	$1,307
Inbound from non-SC	10,013,580	11.2%	708,546	11.1%	$24,037	11.4%	$2,400
Intra-Regional	8,510,723	9.6%	1,190,516	18.6%	$19,640	9.3%	$2,308
Through	52,135,754	58.5%	2,971,248	46.5%	$116,713	55.1%	$2,239
Through SC to SC	620,197	0.7%	56,428	0.9%	$604	0.3%	$974
Through non-SC to SC	3,249,517	3.6%	275,290	4.3%	$5,484	2.6%	$1,688
Through SC to non-SC	4,005,009	4.5%	260,003	4.1%	$7,465	3.5%	$1,864
Through non-SC to non-SC	44,261,032	49.7%	2,379,527	37.3%	$103,159	48.7%	$2,331
Total	89,073,711	100.0%	6,385,045	100.0%	$211,716	100.0%	$2,377

Directions – Most truck tonnage (59%) and value (55%) traverses through the region, which is typical of regions situated on a major interstate, such as I-95 in Dorchester County. The tri-county region exhibited a 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 it consumes). This reflects the truck-leg of the Charleston Ports freight that is moved inland. Intra-regional 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).

Network Density – Most trucks travel through the BCD Region on I-95 in Dorchester County (**Figure 3-1**), reflecting non-South Carolina interstate trade. Such volumes represent half the tons and values of all trucks traversing the regional highways. I-95 aside, the remaining regionally relevant truck volumes are routed mostly along I-26 toward the Upstate region and north along I-95. Transearch-routed tonnage on I-26 is about a third of the volumes on I-95 in Dorchester. Transearch routes trucks on other regional roadways—U.S. 17 and U.S. 52. Other roadways are allocated minor volumes, which is typical for Transearch routing because of the database resolution2F3. As such, roadways like I-526 are under allocated volumes relative to observed reality (e.g., the eastern segment is only routed a few thousand tons from Georgetown County to/from Jasper County and the surrounding counties).

[3] 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 origin/destination.

Figure 3-1: Transearch Truck Density, 2016 Tons



Origins/Destinations – Aside from I-95 through traffic, which is almost entirely non-South Carolina interstate trade (e.g., New England/mid-Atlantic to/from Florida), the remaining inbound, outbound, and intra-regional volumes are concentrated in Charleston County. Most inbound and outbound tons are traded with non-South Carolina origins/destinations, mostly from/to North Carolina, Georgia, and Florida. Truck directional volumes (tons, value, units) are summarized in **Table 3-3**.

Table 3-3: Transearch Truck Average Miles Traveled, 2016

Direction	Tons	Units	Value
Outbound	409	344	602
Outbound to SC	111	110	138
Outbound to non-SC	540	482	668
Inbound	444	342	571
Inbound from SC	116	108	136
Inbound from non-SC	555	467	651
Intra-Regional	17	17	17
Through	828	784	841
Through SC to SC	160	148	176
Through non-SC to SC	414	365	353
Through SC to non-SC	404	374	490
Through non-SC to non-SC	906	892	896

While most non-through BCD tons originated/terminated in other states, each state traded fewer tons with the BCD region than the remainder of South Carolina. Inbound tons from South Carolina are led by Orangeburg County, followed by the Columbia area (Lexington/Richland counties), the Pee Dee (Florence/Horry counties), and then Upstate (Greenville/Spartanburg counties). Outbound volumes are mostly to the same geographies, but with a more heterogenous mix.

Commodities by Direction – Various commodity groups traverse the BCD region, including major long-distance interstate trade on I-95, especially secondary traffic (warehousing and distribution center repositioning, drayage, etc.). Tonnage volumes are shown inclusive of the through movements in **Figure 3-2**. A second perspective, excluding through tonnage in **Figure 3-3**, provides a clearer picture of economically relevant BCD freight—volumes produced and/or consumed in the region.

Regional inbound, outbound, and intra-regional truck volumes pertain mostly to the bulleted STCC groups below. The high proportion of shipping containers and secondary traffic for units represent relatively concentrated warehousing movements.

- By tons
  - Nonmetallic minerals (6.6 million tons, 18.0% of total)
  - Secondary traffic (6.4 million tons, 17.4% of total)
  - Petroleum or coal products (4.6 million tons, 12.4% of total)
  - Waste or scrap materials (3.1 million tons, 8.5% of total)
  - Chemicals or allied products (2.3 million tons, 6.3% of total)

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

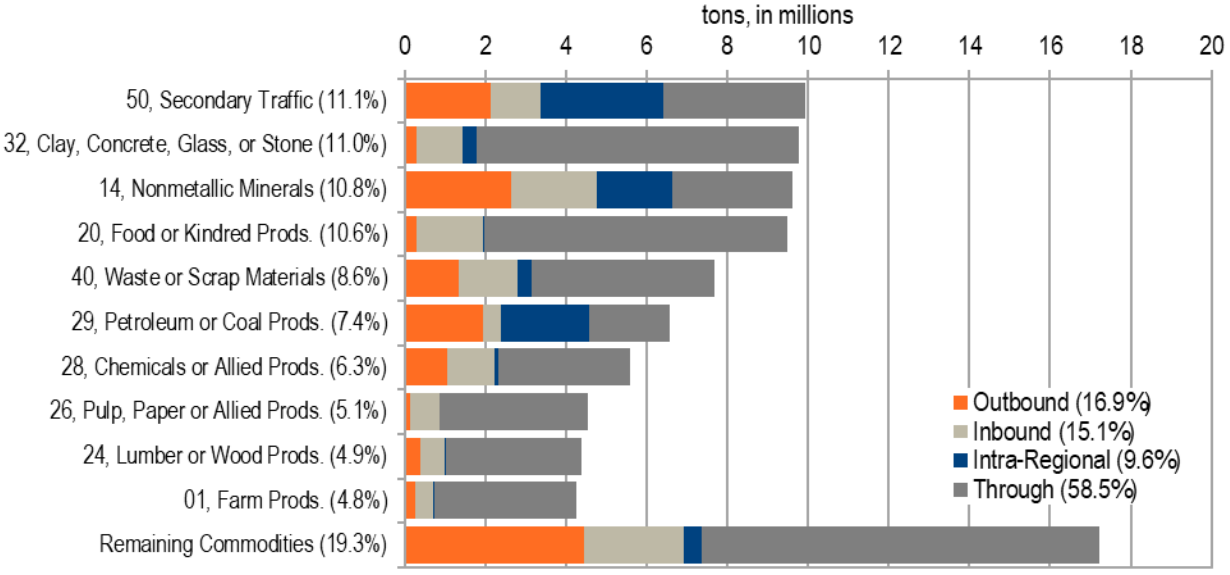
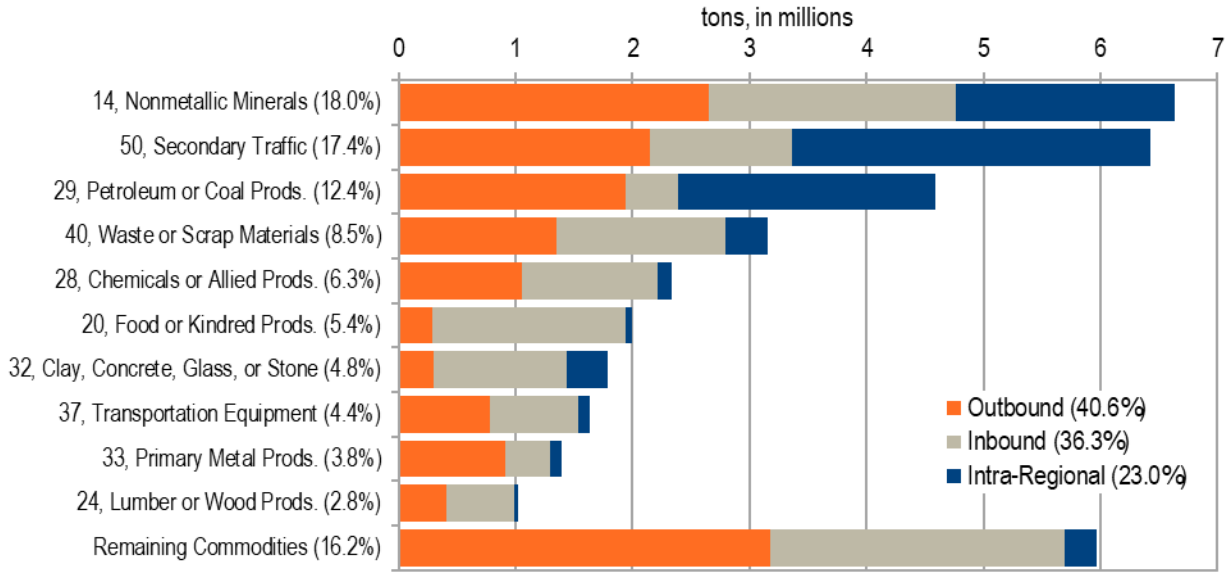


Figure 3-3: Transearch Truck Commodities, 2016 Tons, excluding Through



- By units
  - Shipping containers (1,456,595 units, 42.7% of total)
  - Secondary traffic (464,681 units, 13.6% of total)
  - Nonmetallic minerals (272,800 units, 8.0% of total)
  - Petroleum or coal products (188,573 units, 5.5% of total)
  - Waste or scrap materials (138,544 units, 4.1% of total)

- By value
  - Secondary traffic ($21.5 billion, 22.6% of total)
  - Transportation equipment ($18.6 billion, 19.6% of total)
  - Machinery ($10.5 billion, 11.0% of total)
  - Chemicals or allied products ($6.2 billion, 6.6% of total)
  - Electrical equipment ($5.2 billion, 5.5% of total)

Growth – By 2040, the horizon year in Transearch, truck freight on the tri-county network is projected to increase to over 170 million tons, a 92% total increase (2.7% annually), as shown in **Figure 3-4**. Over half of the growth is in the same top five commodity groups that currently comprise most tons, with outbound volume growing slightly faster than the other directions.

Summary – I-95 in Dorchester County is a bridge connecting interstate trade along the East Coast, but most volumes do not pertain to the BCDCOG region. Aside from I-95, regional truck tons are mostly along I-26, connecting with the rest of South Carolina, especially the Columbia capital area, the Pee Dee region, and the Upstate region. Much of the regional truck tons pertain to energy and warehousing supply chains. Intermodal petroleum products reflect water to truck transfer.

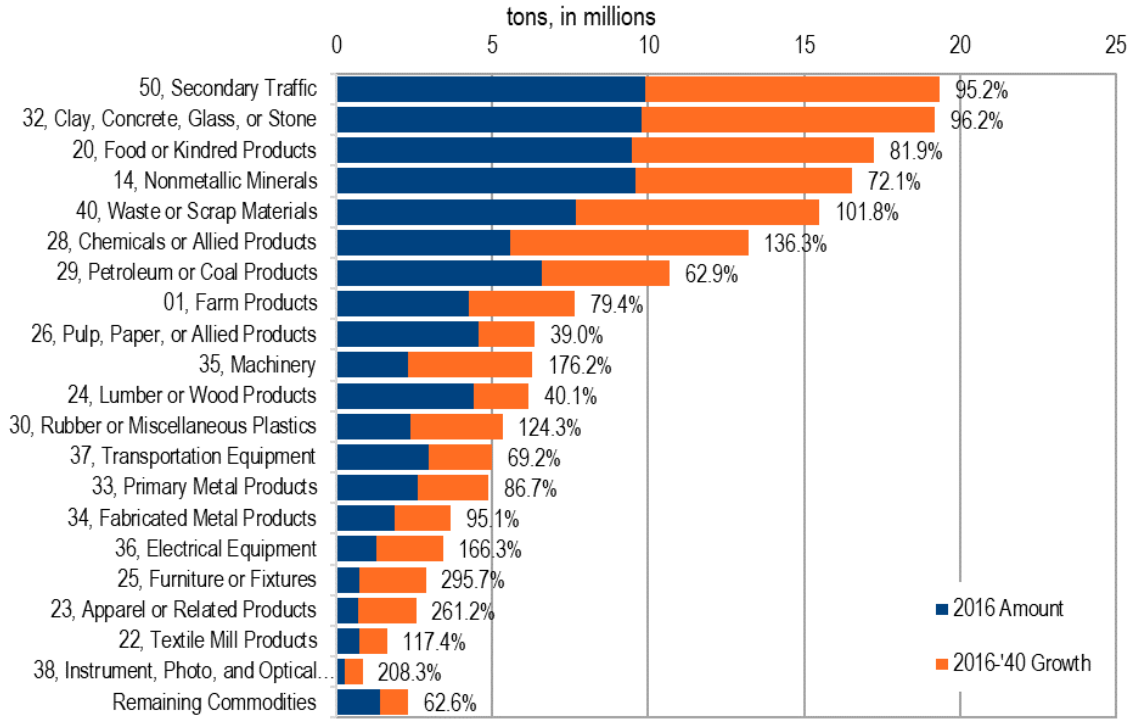
3.1.2 Rail

In 2016, Transearch estimated 24 million tons of goods traveling on the tri-county railroads within 566,300 carloads and valued at over $37 billion. Rail volumes are summarized by direction in **Table 3-4**.

Table 3-4: Transearch Rail Summary, 2016

Direction	Tons		Units		Value (in millions)		Average Value/Ton
	Amount	Percent	Amount	Percent	Amount	Percent	
Outbound	4,432,478	18.5%	129,716	22.9%	$10,086	27.3%	$2,275
Outbound to SC	1,625,080	6.8%	48,240	8.5%	$3,512	9.5%	$2,161
Outbound to non-SC	2,807,398	11.7%	81,476	14.4%	$6,574	17.8%	$2,342
Inbound	11,144,727	46.6%	241,889	42.7%	$13,782	37.2%	$1,237
Inbound from SC	2,687,557	11.2%	88,215	15.6%	$7,356	19.9%	$2,737
Inbound from non-SC	8,457,170	35.4%	153,674	27.1%	$6,426	17.4%	$760
Intra-Regional	780,056	3.3%	7,688	1.4%	$443	1.2%	$568
Through	7,550,479	31.6%	187,008	33.0%	$12,693	34.3%	$1,681
Through SC to SC	111,920	0.5%	1,160	0.2%	$107	0.3%	$960
Through non-SC to SC	1,185,744	5.0%	11,284	2.0%	$334	0.9%	$282
Through SC to non-SC	771,760	3.2%	8,960	1.6%	$623	1.7%	$807
Through non-SC to non-SC	5,481,055	22.9%	165,604	29.2%	$11,629	31.4%	$2,122
Total	23,907,740	100.0%	566,301	100.0%	$37,005	100.0%	$1,548

Figure 3-4: Transearch Truck 2016–2040 Ton Growth



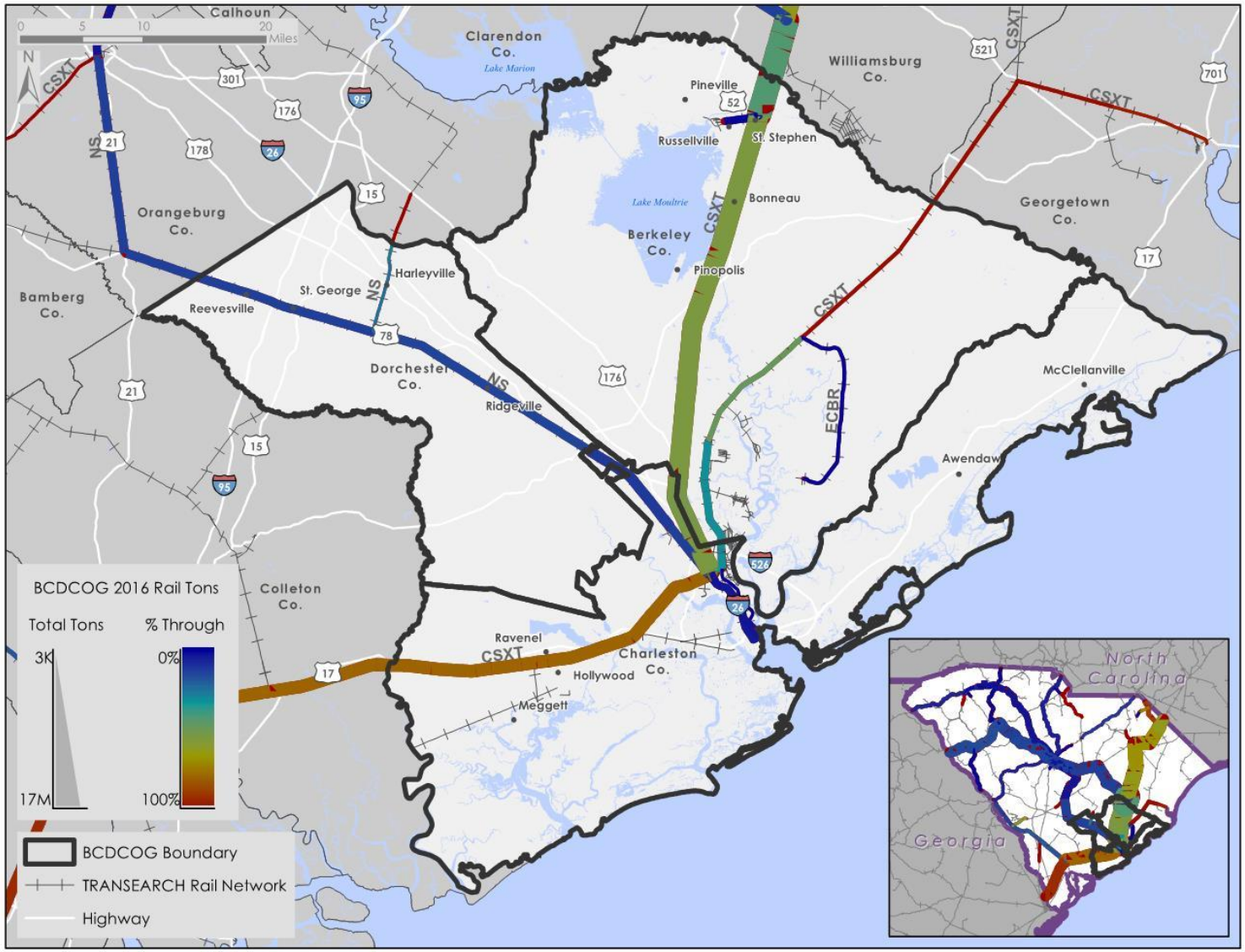
Directions – Unlike trucks, regional rail freight flows are not comprised mostly of through movements (about one-third), but instead originate/terminate in the region (including at the port and intermodal transfer facilities). Inbound is the largest relative direction, at almost half of the tonnage and more than a third of the freight value. Outbound rail comprises about one-fifth of the tonnage and a quarter of the value. Intra-regional rail is a relatively small proportion, as expected, given rail freight is typically long haul.

Network Density – **Figure 3-5** illustrates rail line densities. Railroad routes with relatively densest freight volumes are the CSX Transportation (CSXT) line serving Charleston and continuing north parallel to U.S. 52 (17 million tons), followed by CSXT line from Charleston continuing south paralleling U.S. 17. However, much of the rail freight volumes on these lines are moving through the region. Transearch allocates some freight to the Northern Southern (NS) line connecting Charleston with Columbia. Like trucks, non-Class 1 railroads are allocated minor volumes, which is typical for Transearch routing because of the database resolution[4].

Origins/Destinations – Aside from non-South Carolina through traffic (e.g., Florida to/from New England, mid-Atlantic), the remaining inbound, outbound, and intra-regional volumes mostly pertain to Charleston and Berkeley counties. Comparatively, Dorchester County is not an origin or destination for rail freight. About a quarter of inbound and a third of outbound tons are from/to the rest of South Carolina, mostly with the Greenville/Spartanburg and Columbia areas. Rail beyond South Carolina includes outbound flows to North Carolina, Alabama, and Tennessee, with inbound mostly from Kentucky, Indiana, and Pennsylvania.

[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 – The three major commodity groups traversing the region's railroads by tonnage are coal, miscellaneous mixed shipments (shipping containers), and chemical 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 following STCC2 groups.

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

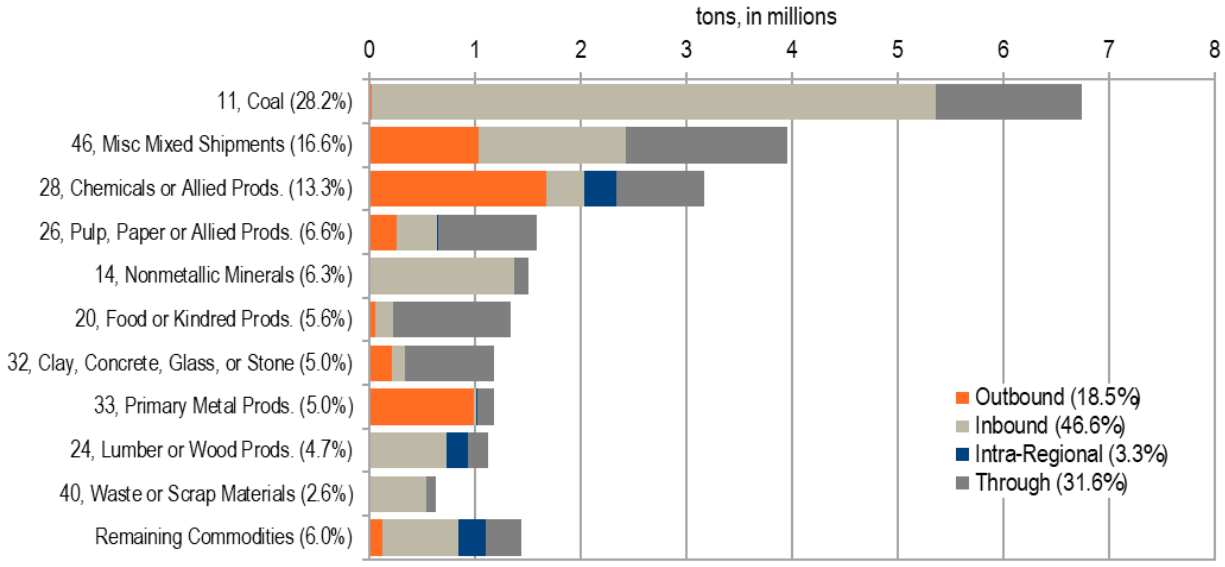
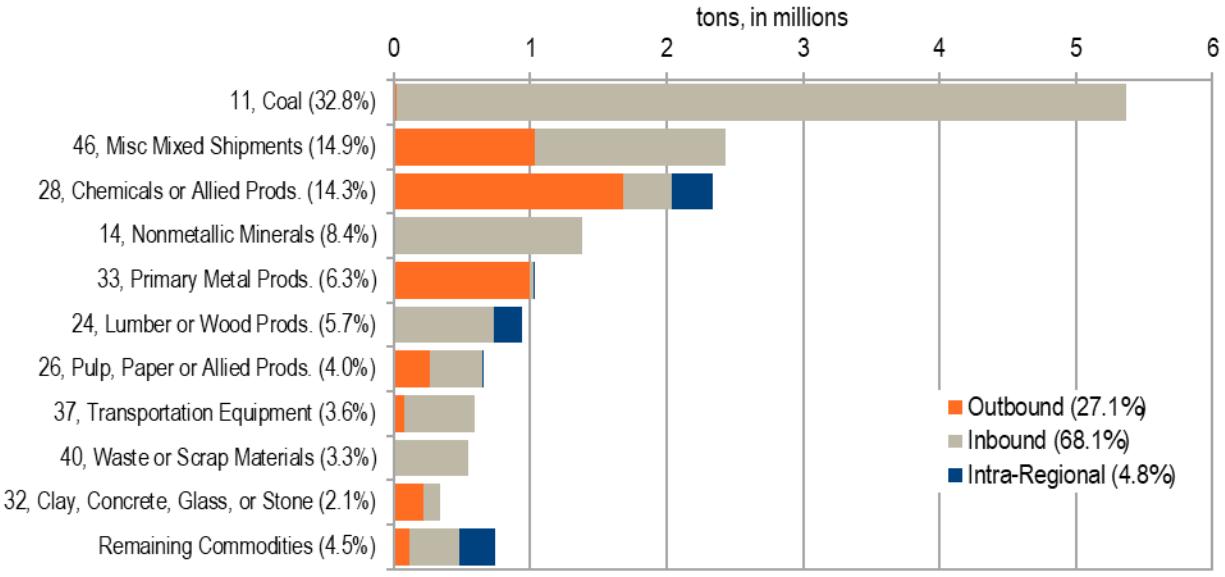


Figure 3-7: Transearch Rail Commodities, 2016 Tons, excluding Through



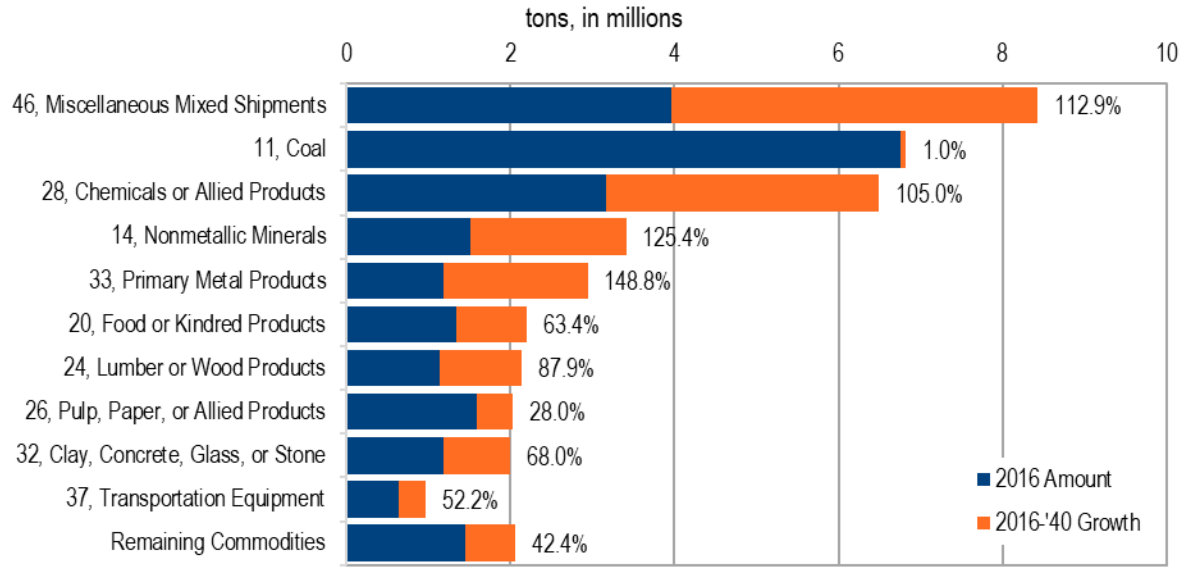
- By tons
  - Coal (5.4 million tons, 32.8% of total)
  - Miscellaneous mixed shipments (2.4 million tons, 14.9% of total)
  - Chemicals or allied products (2.3 million tons, 14.3% of total)
  - Nonmetallic minerals (1.4 million tons, 8.4% of total)
  - Primary metal products (1.0 million, 6.3% of total)

- By units
  - Miscellaneous mixed shipments (209,160 units, 55.1% of total)
  - Coal (46,279 units, 12.2% of total)
  - Transportation equipment (31,188 units, 8.2% of total)
  - Chemicals or allied products (27,512 units, 7.3% of total)
  - Nonmetallic minerals (12,782 units, 3.4% of total)

- By value
  - Miscellaneous mixed shipments ($12.6 billion, 51.8% of total)
  - Transportation equipment ($5.6 billion, 23.2% of total)
  - Chemicals or allied products ($3.0 billion, 12.3% of total)
  - Primary metal products ($1.5 billion, 6.1% of total)
  - Pulp, paper, or allied products ($0.5 billion, 2.0% 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 tri-county railroads is projected to increase to almost 40 million tons, a 65% total increase, or 2.1% annually, with outbound volumes growing slightly faster than the other directions. About half of the absolute volume growth is in miscellaneous mixed shipments and chemicals; coal imports (from Kentucky, Indiana, and Pennsylvania) are not expected to grow.

Figure 3-8: Transearch Rail 2016–2040 Ton Growth



Summary – Rail in the BCDCOG region mostly serves the city of Charleston, port connections with Upstate and out-of-state markets, inbound coal from the Midwest, container shipping, and the regional energy supply chain. Intermodal petroleum products reflect water to rail transfers.

3.2 Other Freight Sources/Non-Surface Modes

Transearch pertains to NAFTA/ United States-Mexico-Canada Agreement countries. Hence, the non-surface modal data (airports and seaports) excludes trade with overseas partners. Given such limitations, airport and seaport data are supplemented with other freight data sources.

Seaports – Various public and private sources are available, including:

- U.S. Census Bureau's USA Trade Online
- USACE WCS Center
- IHS-produced PIERS
- American Association of Port Authorities
- U.S. Department of Transportation Maritime Administration

As with other freight sources, each has limitations. USACE data are presented for tons but do not publish commodity value while USA Trade Online data provide foreign-borne tons and value data primarily, but excludes domestic data.

Airports – Fewer, less detailed, alternative sources are available: 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 Charleston International Airport and USA Trade Online were reviewed.

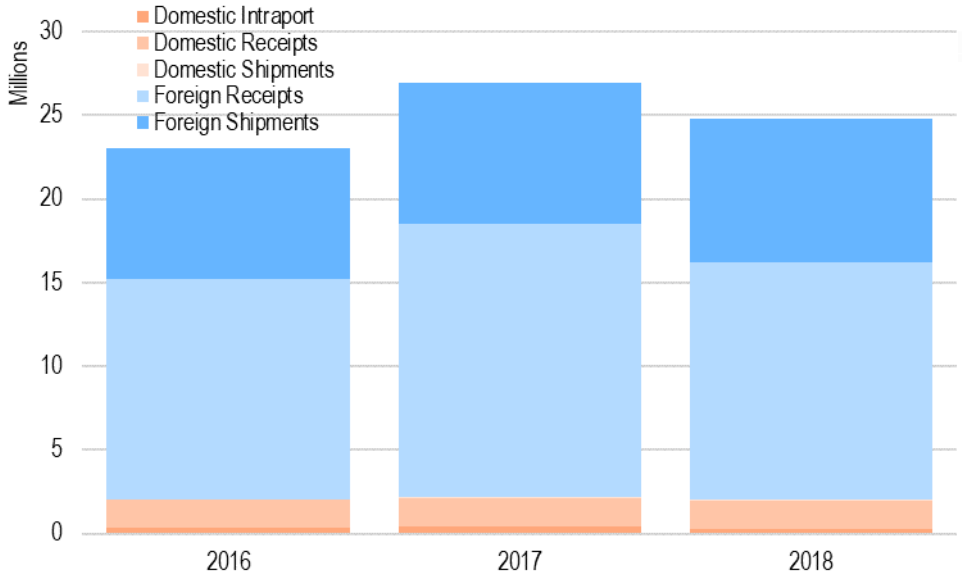
Other Freight Source Summary – Reporting seaport (water) and airport freight data is important in the context of intermodal transfers. This is especially true for water movements, because most waterborne freight is transferred to trucks or rail and moved through the region to other South Carolina regions or other states. Such distinction is important for the economic impact estimates, as such movements are not directly part of the BCD economy other than the regional carriers and facility operations (i.e., the goods are neither produced nor consumed regionally).

3.2.1 Port of Charleston

The USACE WCS provides data on the foreign and domestic waterborne commerce moved at the ports and harbors (i.e., nodes) and on the waterways and canals (i.e., links) of the U.S. This includes comprehensive historical *port-specific* freight data, which Transearch and FAF do not provide. While the USACE WCS data are facility-specific, data are limited to historical tons; value and forecasts are unavailable.

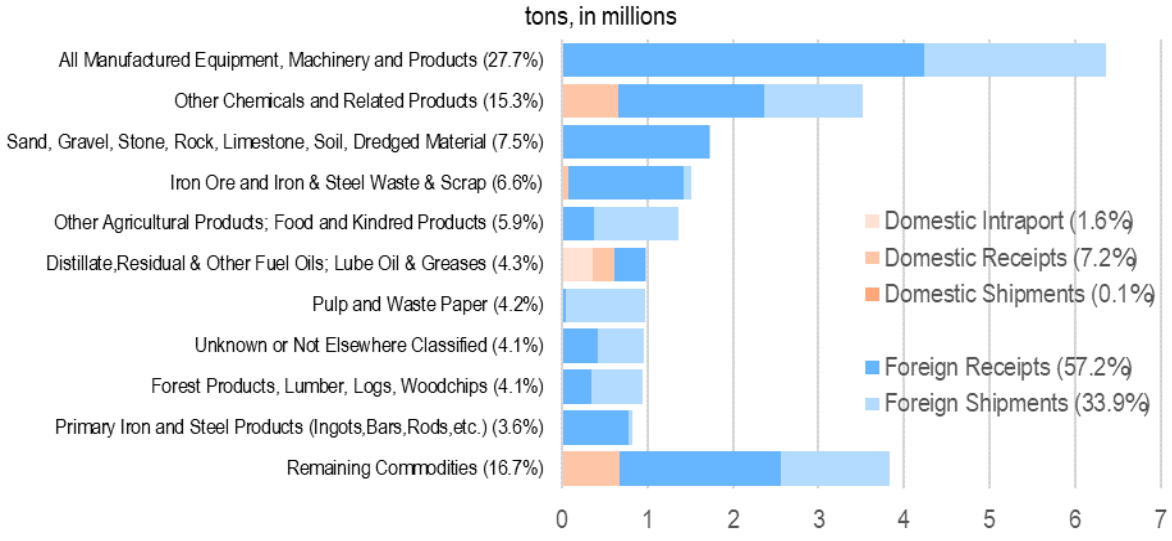
USACE Total Tons – Between 2016 and 2018, the Port of Charleston fluctuated around 25 million freight tons, as shown in **Figure 3-9**. A significant majority (92%) is foreign borne (in blue) and the remaining is domestic (8%). Directionally, about two-thirds are receipts (inbound, or imports), and the remaining third are shipments (outbound, or exports), with a small fraction pertaining to intra-port movements.

Figure 3-9: USACE WCS Port of Charleston Tons, 2016–18



USACE Commodity Tons – In 2016, the Port of Charleston facilitated the movement of various commodities, as shown in **Figure 3-10**.[5] The two major groups include manufactured equipment, machinery, and products (vehicles, parts, textile products, etc.) and other chemicals/related products. Other major commodities include heavy-ton/low-value imported sand, gravel, rock, etc. and iron ore/steel scrap materials. Such waterborne freight movements reflect various types, including bulk (both dry and wet), breakbulk, automobiles, and containers (1.8 million TEUs).

Figure 3-10: USACE WCS Port of Charleston Commodity Tons, 2016



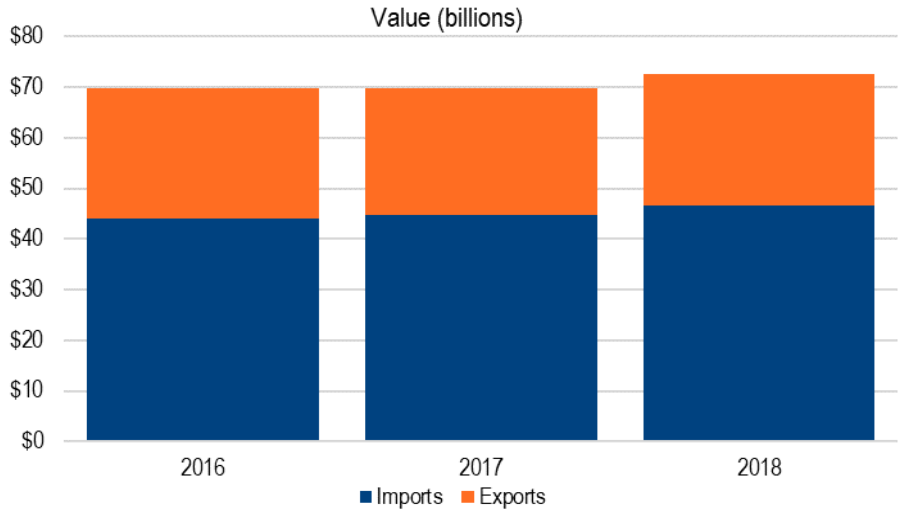
[5] Per LPMS2 commodity definition

USACE TEUs – Although not measured by tons (and included in the preceding figure), the Port of Charleston facilitated the movement of 1.6 million TEUs in 2016 and 1.8 million in 2018, ranking as the ninth- and eighth-largest container port in the nation for those years, respectively. TEUs are almost entirely foreign trade related, and like tons, include more receipts (inbound, or imports) than shipments (outbound, or exports).

USA Trade Online Value – Seaport data from U.S. Census Bureau's USA Trade Online agrees closely with the USACE foreign-borne tonnage data. USA Trade Online indicates 21 to 25 million foreign tons (imports and exports) between years 2016 and 2018. As noted in the USACE data, this represents a significant majority of all seaport volumes (92%).

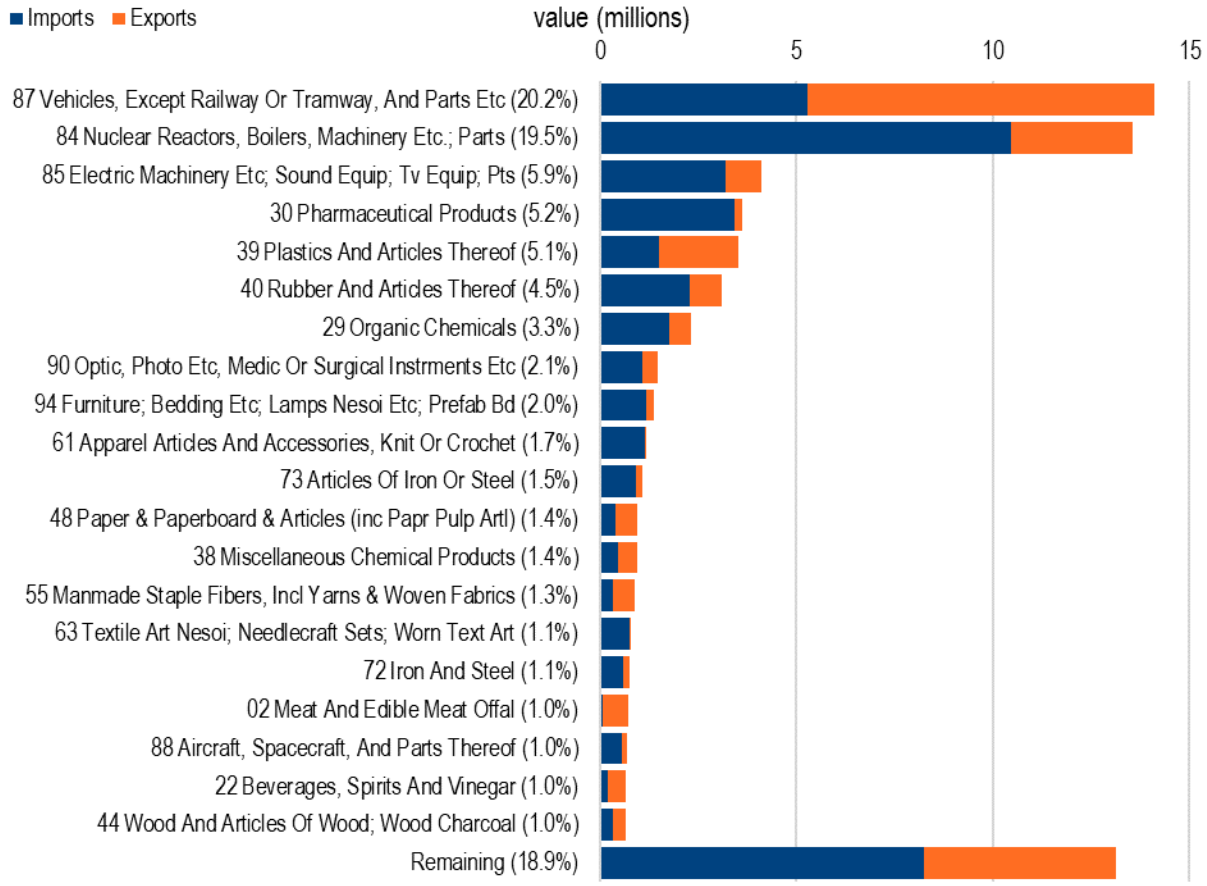
USA Trade Online also provides dollar values of such foreign-borne freight, which helps identify the value of intermodal movements traveling through the BCD region—especially relevant for the subsequent economic impact analysis. As seen in **Figure 3-11**, about $70–72 billion worth of foreign-traded goods traverse the Port of Charleston as intermodal transfers to trucks and rail. Like tons, the import values represent about two-thirds of the directional movements, and exports are the remaining third.

Figure 3-11: USA Trade Online Port of Charleston Foreign-Borne Value, 2016–18



USA Trade Online Commodity Values – As seen in **Figure 3-12**, two commodity groups comprise the predominate values traversing the Port of Charleston. Vehicles and parts (more exports than imports) and heavy machinery (more imports than exports) combine to account more than 40% of the foreign trade value. Other notable commodity groups include pharmaceuticals, plastics, rubber, and organic chemicals. All other commodity groups represent a relatively small percent.

Figure 3-12: USA Trade Online Port of Charleston Foreign-Born Commodity Value, 2016



Growth – USACE and USA Trade Online do not provide port-specific forecasts; however, the more-aggregated FHWA FAF 4 data for the greater Charleston district includes future-year 2045 forecasts. However, baseline 2016 data differ from historical USACE or USA Trade Online data (which reflect estimates of a larger area beyond the Port of Charleston).

As shown in **Table 3-5**, total waterborne tonnage is projected to almost double (95% or 2.3% annually) by 2045. Imports grow faster than exports, and waterborne value nearly triples (191% or 3.8% annually).

Table 3-5: FHWA FAF 4 Charleston District, Foreign Water Growth, 2016-2045

	Tons (millions)			Value (billions)		
Year	Imports	Exports	Total	Imports	Exports	Total
2016	15.4	17.1	32.5	$57.9	$40.9	$98.7
2045	36.1	27.1	63.2	$171.4	$115.8	$287.2
Δ	20.7	10.0	30.7	$113.5	$75.0	$188.4
% Δ	135%	58%	95%	196%	183%	191%
CAGR	3.0%	1.6%	2.3%	3.8%	3.7%	3.8%

Note: Compound annual growth rate (CAGR)

Summary – The Port of Charleston is one of the most important transportation facilities in the BCD region, facilitating relatively large volumes and values that connect intermodally to truck and

rail, mostly to origins and destinations beyond the BCD region. Significant volumes and value of transportation equipment, manufacturing machinery, textiles, and other heavy-weight/lower-value goods (scrap, iron ore, and nonmetallic minerals) move through the Port. Such relatively large volumes and values, connecting via truck and rail, are facilitated by the local infrastructure and carriers, but are not produced or consumed regionally.

3.2.2 Airborne

Regional airborne freight is relatively very small volume-wise compared to other modes. Transearch reported only 26,559 tons of air cargo moved via the BCDCOG metropolitan statistical area (MSA) in 2016. Major airborne ton and/or value commodities include high-end rubber/plastics and transportation equipment. Charleston International Airport freight data yielded similar volumes but lacked the directional detail and values.

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).

Supplemental USACE and USA Trade Online port data was used to overcome the Transearch port data constraints and estimate total Port of Charleston tonnage and value. Since most port volume is transferred to road and rail, the through volume clarification provided a key element in the following section's economic impact estimates, which focuses on the freight produced and/or consumed in the region. Lastly, freight volume through airports and/or other foreign-trade zones (FTZ) comprise less than 1% of total volumes.

In summary, 113.0 million tons move across BCDCOG roads and railroads. 23.0 million tons (20%) move through the ports—17.2 million (15%) transfers to/from trucks and 5.8 million (5%) transfers to/from rail. 59.7 million tons (53%) transit the region's surface modes–52.1 million tons (46%) via roads and 7.6 million tons (7%) via rail. The remaining 30.3 million tons (27%) reflect freight produced and/or consumed in the region—19.7 million tons (17%) move via truck and 10.6 million tons (10%) via rail, as illustrated in **Figure 3-13**.

These volumes summarize the region's net freight movements by eliminating double-counting (i.e., modal transfers). They illustrate the bridge-role played by the region's transport infrastructure between the rest of South Carolina, the U.S., and abroad. They also summarize the net freight volume moved by local shippers and receivers—the volumes used to estimate the associated economic impacts in the following subsection.

Figure 3-13: Summary Freight Tonnage by Mode and Direction

4. ECONOMIC ANALYSIS

The BCD region freight economic analysis begins with a brief description of the IMPLAN economic model. IMPLAN data is then used to profile study area socioeconomic characteristics (population, employment, income, etc.). 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 three-county BCD region. IMPLAN models represent a static, single-year economic snapshot. It 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, almost 788,000 people resided in the BCD region, as shown in **Table 4-1**. Over 489,000 people were employed, earning $27.3 billion in the production of $44.2 billion in GRP. The BCD region represented about a sixth of South Carolina's population and economic activity. Within the region, over half of the population resided in Charleston County, with almost three quarters of the employment and production value. Berkeley County represented the second-largest population and economic activity, followed by Dorchester County.

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

				Value-Added				
	Population	Households	Employment	Labor Income*	Property Income*	Taxes*	Total Virginia (GRP)*	Output*
BCDCOG	787,643	304,817	489,149	$27,288	$13,989	$2,969	$44,246	$83,395
Berkeley	221,091	80,416	81,282	$4,279	$2,720	$615	$7,613	$17,815
Charleston	405,905	166,405	351,659	$20,843	$10,007	$2,053	$32,903	$57,406
Dorchester	160,647	57,995	56,207	$2,166	$1,262	$301	$3,730	$8,174
BCDCOG %	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Berkeley	28.1%	26.4%	16.6%	15.7%	19.4%	20.7%	17.2%	21.4%
Charleston	51.5%	54.6%	71.9%	76.4%	71.5%	69.1%	74.4%	68.8%
Dorchester	20.4%	19.0%	11.5%	7.9%	9.0%	10.1%	8.4%	9.8%
BCDCOG % of South Carolina	15.5%	15.4%	17.4%	19.2%	18.5%	17.6%	18.9%	17.6%
South Carolina	5,084,127	1,975,128	2,814,815	$142,009	$75,459	$16,911	$234,379	$473,873
U.S.	327,167,424	123,459,411	198,964,200	$12,530,142	$6,672,690	$1,377,392	$20,580,224	$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 NAICS2-equivilent 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 – BCD's goods-related industries account for 25% of employment, 26% of income, 29% of GRP, and 39% of output. Comparatively, transportation and warehousing industries account for 3 to 4% of regional totals. Services account for a far larger component, ranging from 58% of output to 71% of employment, as summarized in **Figure 4-1**.

Industry Detail – More detailed two-digit disaggregation of goods-related industries (see **Table 4-2**) indicates that construction, manufacturing, and retail trade industries employ a notable share of industry jobs (6.7, 5.7, and 9.2%, respectively), with manufacturing comprising 21.3% of output, which reflects relatively high output per employee (productivity).

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

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

	Industry	Employment		Labor Income*		Total VA*		Output*	
Goods	11 Ag, Forestry, Fish and Hunting	2,838	0.6%	$34	0.1%	$65	0.1%	$153	0.2%
	21 Mining	1,320	0.3%	$16	0.1%	$42	0.1%	$303	0.4%
	22 Utilities	1,647	0.3%	$150	0.6%	$664	1.5%	$1,763	2.1%
	23 Construction	**32,554**	**6.7%**	$2,131	7.8%	$2,880	6.5%	$5,175	6.2%
	31-33 Manufacturing	**28,009**	**5.7%**	$2,470	9.1%	$4,724	10.7%	$17,761	21.3%
	42 Wholesale Trade	10,044	2.1%	$854	3.1%	$2,006	4.5%	$3,238	3.9%
	44-45 Retail Trade	**44,853**	**9.2%**	$1,501	5.5%	$2,303	5.2%	$3,852	4.6%
	48-49 Transportation and Warehousing	20,277	4.1%	$955	3.5%	$1,242	2.8%	$2,810	3.4%
Services	51 Information	7,728	1.6%	$628	2.3%	$1,484	3.4%	$4,062	4.9%
	52 Finance and Insurance	17,481	3.6%	$1,219	4.5%	$1,550	3.5%	$3,876	4.6%
	53 Real Estate and Rental	31,034	6.3%	$1,028	3.8%	$6,693	15.1%	$10,659	12.8%
	54 Professional- Scientific and Tech Svcs	42,507	8.7%	$3,426	12.6%	$4,168	9.4%	$6,753	8.1%
	55 Management of Companies	3,812	0.8%	$237	0.9%	$280	0.6%	$521	0.6%
	56 Administrative and Waste Services	37,589	7.7%	$1,283	4.7%	$1,452	3.3%	$2,663	3.2%
	61 Educational Svcs	6,686	1.4%	$272	1.0%	$266	0.6%	$401	0.5%
	62 Health and Social Services	40,566	8.3%	$2,655	9.7%	$3,091	7.0%	$4,923	5.9%
	71 Arts- Entertainment and Recreation	11,612	2.4%	$269	1.0%	$435	1.0%	$751	0.9%
	72 Accommodation and Food Services	48,392	9.9%	$1,382	5.1%	$2,117	4.8%	$3,629	4.4%
	81 Other Services	27,527	5.6%	$1,057	3.9%	$1,275	2.9%	$1,968	2.4%
	92 Government and Non NAICS	72,673	14.9%	$5,722	21.0%	$7,509	17.0%	$8,134	9.8%
	Total	489,149	100.0%	$27,288	100.0%	$44,246	100.0%	$83,395	100.0%
	Goods	*121,266*	*24.8%*	*$7,155*	*26.2%*	*$12,684*	*28.7%*	*$32,246*	*38.7%*
	Transportation	*20,277*	*4.1%*	*$955*	*3.5%*	*$1,242*	*2.8%*	*$2,810*	*3.4%*
	Services	*347,607*	*71.1%*	*$19,178*	*70.3%*	*$30,320*	*68.5%*	*$48,339*	*58.0%*

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**.

Table 4-3: IMPLAN, BCDCOG Employment Location Quotients (vs. South Carolina), 2018

	Industry	BCD	Berkeley	Charleston	Dorchester
Goods	11 Ag/Forestry	0.39	0.79	0.17	1.26
	21 Mining	**1.40**	4.88	0.39	2.63
	22 Utilities	0.73	1.36	0.48	1.32
	23 Construction	**1.11**	1.55	0.97	1.30
	31-33 Manufacturing	0.62	0.91	0.48	1.02
	42 Wholesale Trade	0.73	0.96	0.68	0.75
	44-45 Retail Trade	0.96	1.06	0.91	1.14
	48-49 Transp.	1.24	1.68	1.12	1.41
Services	**51 Information**	**1.31**	2.04	1.21	0.82
	52 Finance/Insurance	0.87	0.79	0.89	0.84
	53 Real Estate/Rental	**1.35**	0.99	1.47	1.11
	54 Professional Services	**1.37**	1.80	1.35	0.85
	55 Management	0.85	0.37	1.04	0.29
	56 Admin./Waste	0.98	0.86	0.97	1.25
	61 Educational Svcs	1.02	0.97	1.08	0.74
	62 Health/Social Svcs	0.97	0.54	1.10	0.82
	71 Arts/Entertain/Rec.	**1.24**	1.04	1.28	1.24
	72 Accom./Food Svcs	1.06	0.68	1.18	0.83
	81 Other Services	0.82	0.98	0.77	0.95
	92 Government	1.08	0.82	1.17	0.88

Compared to South Carolina, BCD's industry employment is relatively concentrated in mining and construction for goods-related industries; and information, real estate, professional services, and arts/entertainment for services-related industries.

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.

[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 (+/- 10%) indicate local industry employment is on par with the State.

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 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, year 2016 TRANSEARCH value data were interpolated to year 2018 data based on TRANSEARCH forecasts (by commodity and direction),

[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.
[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.

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 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: BCD Freight Economic Impacts, 2018 (*in millions)

	Employment	Labor Income*	Value-Added*	Output*
Impact Type				
Direct	96,551	$5,375	$9,084	$23,603
Indirect	42,865	$2,257	$3,789	$7,189
Induced	39,836	$1,853	$3,144	$5,492
Total	179,251	$9,485	$16,018	$36,284
% of Region				
BCDCOG	489,149	$27,288	$44,246	$83,395
Direct %	19.7%	19.7%	20.5%	28.3%
Indirect %	8.8%	8.3%	8.6%	8.6%
Induced %	8.1%	6.8%	7.1%	6.6%
Total %	36.6%	34.8%	36.2%	43.5%

Direct Effects – The three-county BCD region sold $23.6 billion in direct outbound, inbound, and intra-regional freight. Such direct freight sales are associated with 96,551 direct regional jobs, almost 20% of the regional economy. These jobs earn $5.4 billion in income produce and $9.1 billion in GRP.

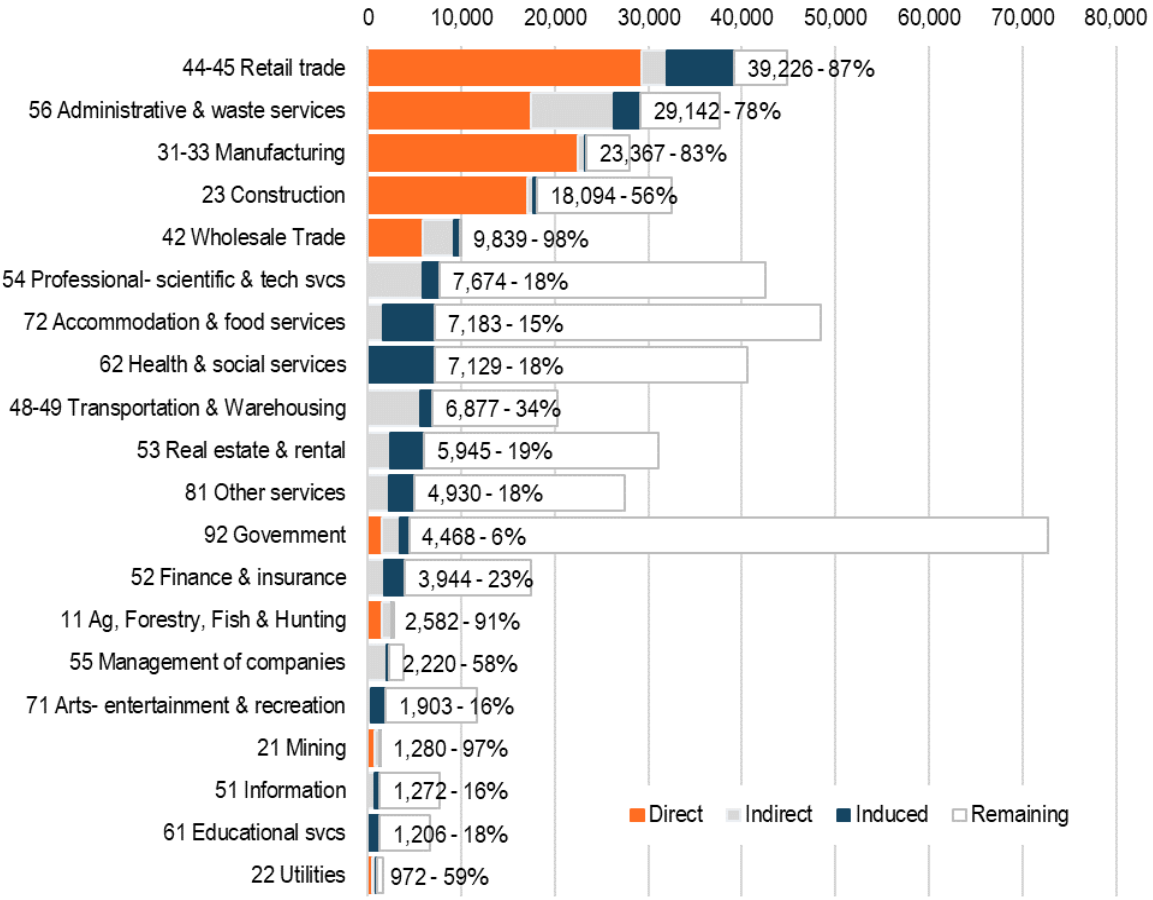
Total Effects – Direct freight-related economic impacts create regional multiplier effects, including the supply-chain related indirect and re-spending induced effects. Many of the indirect and induced multiplier effects include the non-freight intensive goods industry sectors, as well as the freight service providers required to haul such goods. In total, freight-related impacts total 179,251 jobs, $9.5 billion in income, $16.0 billion in GRP (value-added), and $36.3 billion in output.

Employment Impacts by Type and Industry – The relationship between 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 (orange bar)* – Predominantly arise in retail trade, administration/ waste services, manufacturing, construction, and wholesale trade
- *Indirect Impacts (gray bar)* – Supplier impacts include transportation and warehousing (i.e., freight service providers), as well as other services

- *Induced Impacts (blue 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

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



Freight Service Provider 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 6,877 transportation and warehousing related employment in the BCD region, which represents slightly more than half of 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 9,622. This is a reasonable estimate of the freight service provider impacts stemming from the regional shipper and receivers of freight. Compositionally,

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

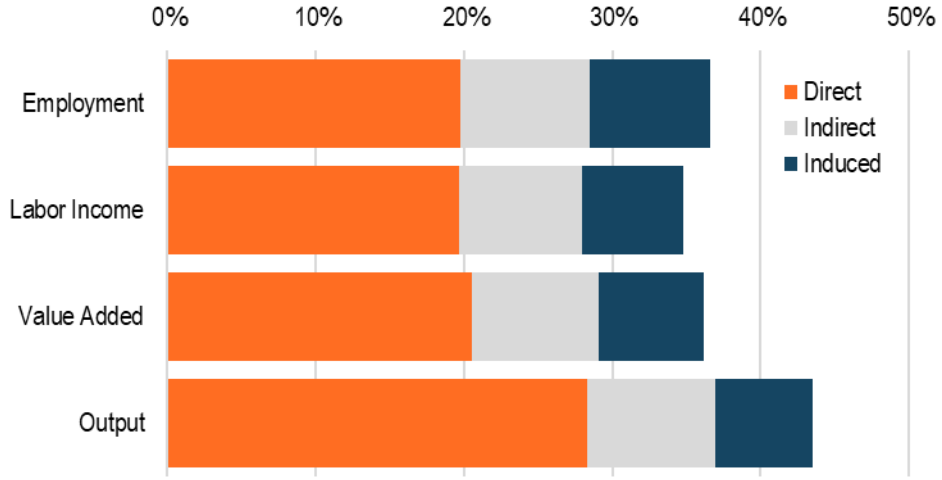
truck represents the largest relative share at 65%, followed by warehousing/storage (28%), rail (4%), and water (3%).

4.3.3 Impact Summary

The 96,551 regional jobs associated directly with freight shippers and receivers represents 20% of the regional employment base. Such direct employment earns 20% regional income, produces 20% regional value-added (GRP), and accounts for 28% of final sales value. The higher sales share reflects the high-value manufacturing products and other high productivity jobs (e.g., automobile production).

With the indirect and induced multiplier effects, the total freight related impacts are estimated at 179,251 jobs, earning $9.5 billion in income, producing $16.0 billion in gross regional product in the sales of $36.3 billion. In total, such employment, income, value-added, and final sales represent 37, 35, 36, and 44% of the regional economy, respectively (**Figure 4-3**).

Figure 4-3: BCDCOG Freight Impact, % of Regional Economy, 2018



APPENDIX A

Table A-1: Transearch Truck, All Directions 2016

STCC2	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	4,262,202	4.8%	227,533	3.6%	$5,988	2.8%	$1,405
08	Forest Products	276,228	0.3%	11,885	0.2%	$585	0.3%	$2,117
09	Fresh Fish or Marine Products	61,720	0.1%	2,662	0.0%	$551	0.3%	$8,924
10	Metallic Ores	16,551	0.0%	652	0.0%	$59	0.0%	$3,540
11	Coal	2,931	0.0%	118	0.0%	$0	0.0%	$139
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	9,606,500	10.8%	395,161	6.2%	$216	0.1%	$23
19	Ordnance or Accessories	34,826	0.0%	1,555	0.0%	$890	0.4%	$25,546
20	Food or Kindred Products	9,476,581	10.6%	413,045	6.5%	$17,455	8.2%	$1,842
21	Tobacco Products	107,754	0.1%	4,863	0.1%	$2,079	1.0%	$19,290
22	Textile Mill Products	746,975	0.8%	34,955	0.5%	$4,168	2.0%	$5,580
23	Apparel or Related Products	706,187	0.8%	42,942	0.7%	$8,033	3.8%	$11,375
24	Lumber or Wood Products	4,397,015	4.9%	172,094	2.7%	$2,466	1.2%	$561
25	Furniture or Fixtures	723,925	0.8%	48,019	0.8%	$3,221	1.5%	$4,449
26	Pulp, Paper, or Allied Products	4,557,820	5.1%	188,821	3.0%	$5,132	2.4%	$1,126
27	Printed Matter	430,893	0.5%	24,156	0.4%	$1,396	0.7%	$3,239
28	Chemicals or Allied Products	5,589,135	6.3%	268,815	4.2%	$17,858	8.4%	$3,195
29	Petroleum or Coal Products	6,569,442	7.4%	272,909	4.3%	$2,726	1.3%	$415
30	Rubber or Miscellaneous Plastics	2,381,174	2.7%	200,348	3.1%	$11,517	5.4%	$4,837
31	Leather or Leather Products	92,247	0.1%	6,253	0.1%	$1,783	0.8%	$19,329
32	Clay, Concrete, Glass, or Stone	9,786,199	11.0%	620,054	9.7%	$2,882	1.4%	$294
33	Primary Metal Products	2,605,377	2.9%	106,429	1.7%	$6,017	2.8%	$2,309
34	Fabricated Metal Products	1,871,980	2.1%	104,225	1.6%	$7,736	3.7%	$4,132
35	Machinery	2,276,866	2.6%	168,546	2.6%	$24,867	11.7%	$10,922
36	Electrical Equipment	1,284,148	1.4%	77,150	1.2%	$15,945	7.5%	$12,417
37	Transportation Equipment	2,948,917	3.3%	209,790	3.3%	$32,024	15.1%	$10,859
38	Instrument, Photo, and Optical Equip.	273,685	0.3%	21,679	0.3%	$4,924	2.3%	$17,993
39	Miscellaneous Manufacturing Products	350,818	0.4%	18,105	0.3%	$2,840	1.3%	$8,094
40	Waste or Scrap Materials	7,679,714	8.6%	325,629	5.1%	$2,332	1.1%	$304
41	Miscellaneous Freight Shipments	4,045	0.0%	199	0.0%	$21	0.0%	$5,264
42	Shipping Containers	#N/A	#N/A	1,780,334	27.9%	#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	31,707	0.0%	1,542	0.0%	$150	0.1%	$4,715
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	9,920,147	11.1%	634,577	9.9%	$25,857	12.2%	$2,607
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total	*89,073,711*	*100.0%*	*6,385,045*	*100.0%*	*$211,716*	*100.0%*	*$2,377*

Table A-2: Transearch Truck, Outbound 2016

STCC2	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	267,105	1.8%	14,351	1.3%	$561	1.2%	$2,101
08	Forest Products	136,250	0.9%	5,862	0.5%	$328	0.7%	$2,405
09	Fresh Fish or Marine Products	3,158	0.0%	136	0.0%	$30	0.1%	$9,638
10	Metallic Ores	11,722	0.1%	462	0.0%	$42	0.1%	$3,621
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	2,646,874	17.6%	108,879	9.6%	$34	0.1%	$13
19	Ordnance or Accessories	12,887	0.1%	575	0.1%	$430	0.9%	$33,341
20	Food or Kindred Products	290,542	1.9%	12,652	1.1%	$542	1.2%	$1,865
21	Tobacco Products	105	0.0%	5	0.0%	$1	0.0%	$13,824
22	Textile Mill Products	241,675	1.6%	11,321	1.0%	$1,445	3.1%	$5,978
23	Apparel or Related Products	226,210	1.5%	13,765	1.2%	$2,243	4.8%	$9,915
24	Lumber or Wood Products	403,101	2.7%	15,785	1.4%	$221	0.5%	$547
25	Furniture or Fixtures	164,775	1.1%	10,939	1.0%	$774	1.7%	$4,697
26	Pulp, Paper, or Allied Products	143,032	1.0%	5,900	0.5%	$191	0.4%	$1,333
27	Printed Matter	9,904	0.1%	553	0.0%	$54	0.1%	$5,455
28	Chemicals or Allied Products	1,052,713	7.0%	51,036	4.5%	$2,830	6.0%	$2,688
29	Petroleum or Coal Products	1,939,493	12.9%	79,499	7.0%	$992	2.1%	$512
30	Rubber or Miscellaneous Plastics	472,929	3.2%	39,427	3.5%	$2,837	6.1%	$6,000
31	Leather or Leather Products	35,592	0.2%	2,431	0.2%	$787	1.7%	$22,108
32	Clay, Concrete, Glass, or Stone	299,817	2.0%	17,315	1.5%	$518	1.1%	$1,729
33	Primary Metal Products	914,241	6.1%	38,430	3.4%	$1,980	4.2%	$2,166
34	Fabricated Metal Products	374,011	2.5%	20,797	1.8%	$1,799	3.8%	$4,811
35	Machinery	681,304	4.5%	50,560	4.4%	$7,365	15.7%	$10,811
36	Electrical Equipment	282,035	1.9%	17,037	1.5%	$3,695	7.9%	$13,100
37	Transportation Equipment	785,381	5.2%	55,597	4.9%	$9,664	20.6%	$12,304
38	Instrument, Photo, and Optical Equip.	41,565	0.3%	3,292	0.3%	$1,088	2.3%	$26,178
39	Miscellaneous Manufacturing Products	66,353	0.4%	3,418	0.3%	$966	2.1%	$14,562
40	Waste or Scrap Materials	1,354,304	9.0%	57,577	5.1%	$305	0.6%	$225
41	Miscellaneous Freight Shipments	3,149	0.0%	156	0.0%	$8	0.0%	$2,592
42	Shipping Containers	#N/A	#N/A	371,417	32.6%	#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	2,153,335	14.3%	129,064	11.3%	$5,150	11.0%	$2,392
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total	*15,013,564*	*100.0%*	*1,138,237*	*100.0%*	*$46,880*	*100.0%*	*$3,123*

Table A-3: Transearch Truck, Inbound 2016

STCC2	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	459,506	3.4%	28,967	2.7%	$268	0.9%	$584
08	Forest Products	2,933	0.0%	126	0.0%	$7	0.0%	$2,363
09	Fresh Fish or Marine Products	2,474	0.0%	107	0.0%	$24	0.1%	$9,788
10	Metallic Ores	2,038	0.0%	80	0.0%	$7	0.0%	$3,663
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	2,116,089	15.8%	87,045	8.0%	$38	0.1%	$18
19	Ordnance or Accessories	6,017	0.0%	269	0.0%	$93	0.3%	$15,374
20	Food or Kindred Products	1,651,411	12.3%	71,992	6.6%	$3,813	13.4%	$2,309
21	Tobacco Products	39	0.0%	2	0.0%	$1	0.0%	$18,351
22	Textile Mill Products	105,435	0.8%	4,936	0.5%	$539	1.9%	$5,114
23	Apparel or Related Products	10,371	0.1%	632	0.1%	$102	0.4%	$9,788
24	Lumber or Wood Products	587,203	4.4%	23,407	2.2%	$275	1.0%	$468
25	Furniture or Fixtures	31,525	0.2%	2,094	0.2%	$163	0.6%	$5,186
26	Pulp, Paper, or Allied Products	734,864	5.5%	30,433	2.8%	$902	3.2%	$1,227
27	Printed Matter	29,992	0.2%	1,682	0.2%	$97	0.3%	$3,232
28	Chemicals or Allied Products	1,165,311	8.7%	56,102	5.2%	$3,103	10.9%	$2,663
29	Petroleum or Coal Products	454,574	3.4%	19,120	1.8%	$150	0.5%	$329
30	Rubber or Miscellaneous Plastics	422,175	3.1%	35,373	3.3%	$2,136	7.5%	$5,059
31	Leather or Leather Products	2,639	0.0%	179	0.0%	$26	0.1%	$9,766
32	Clay, Concrete, Glass, or Stone	1,137,544	8.5%	70,878	6.5%	$348	1.2%	$306
33	Primary Metal Products	380,282	2.8%	15,191	1.4%	$866	3.0%	$2,278
34	Fabricated Metal Products	293,979	2.2%	16,392	1.5%	$1,174	4.1%	$3,993
35	Machinery	254,656	1.9%	18,849	1.7%	$2,483	8.7%	$9,752
36	Electrical Equipment	123,970	0.9%	7,439	0.7%	$1,104	3.9%	$8,903
37	Transportation Equipment	747,035	5.6%	53,118	4.9%	$7,135	25.0%	$9,551
38	Instrument, Photo, and Optical Equip.	21,572	0.2%	1,708	0.2%	$375	1.3%	$17,395
39	Miscellaneous Manufacturing Products	15,097	0.1%	779	0.1%	$101	0.4%	$6,721
40	Waste or Scrap Materials	1,443,663	10.8%	66,626	6.1%	$679	2.4%	$470
41	Miscellaneous Freight Shipments	43	0.0%	2	0.0%	$1	0.0%	$17,199
42	Shipping Containers	#N/A	#N/A	405,605	37.4%	#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	153	0.0%	7	0.0%	$1	0.0%	$5,258
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	1,211,078	9.0%	65,904	6.1%	$2,472	8.7%	$2,041
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total	*13,413,669*	*100.0%*	*1,085,043*	*100.0%*	*$28,482*	*100.0%*	*$2,123*

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

STCC2	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	7,853	0.1%	426	0.0%	$14	0.1%	$1,841
08	Forest Products	1,391	0.0%	60	0.0%	$3	0.0%	$2,351
09	Fresh Fish or Marine Products	387	0.0%	17	0.0%	$4	0.0%	$9,586
10	Metallic Ores	607	0.0%	24	0.0%	$1	0.0%	$2,448
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	1,868,887	22.0%	76,876	6.5%	$19	0.1%	$10
19	Ordnance or Accessories	504	0.0%	22	0.0%	$13	0.1%	$26,486
20	Food or Kindred Products	53,597	0.6%	2,320	0.2%	$117	0.6%	$2,186
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	9,914	0.1%	465	0.0%	$54	0.3%	$5,465
23	Apparel or Related Products	18,444	0.2%	1,124	0.1%	$222	1.1%	$12,019
24	Lumber or Wood Products	32,336	0.4%	1,254	0.1%	$28	0.1%	$851
25	Furniture or Fixtures	14,576	0.2%	969	0.1%	$74	0.4%	$5,062
26	Pulp, Paper, or Allied Products	2,705	0.0%	113	0.0%	$5	0.0%	$1,971
27	Printed Matter	1,172	0.0%	65	0.0%	$6	0.0%	$5,313
28	Chemicals or Allied Products	118,054	1.4%	5,762	0.5%	$314	1.6%	$2,656
29	Petroleum or Coal Products	2,195,807	25.8%	89,955	7.6%	$1,069	5.4%	$487
30	Rubber or Miscellaneous Plastics	18,265	0.2%	1,534	0.1%	$101	0.5%	$5,526
31	Leather or Leather Products	1,551	0.0%	105	0.0%	$32	0.2%	$20,951
32	Clay, Concrete, Glass, or Stone	353,193	4.1%	22,268	1.9%	$97	0.5%	$275
33	Primary Metal Products	98,321	1.2%	4,139	0.3%	$160	0.8%	$1,627
34	Fabricated Metal Products	78,764	0.9%	4,366	0.4%	$330	1.7%	$4,192
35	Machinery	60,813	0.7%	4,518	0.4%	$640	3.3%	$10,526
36	Electrical Equipment	44,645	0.5%	2,690	0.2%	$386	2.0%	$8,643
37	Transportation Equipment	98,186	1.2%	6,955	0.6%	$1,792	9.1%	$18,253
38	Instrument, Photo, and Optical Equip.	5,874	0.1%	465	0.0%	$116	0.6%	$19,776
39	Miscellaneous Manufacturing Products	7,710	0.1%	398	0.0%	$66	0.3%	$8,524
40	Waste or Scrap Materials	351,673	4.1%	14,340	1.2%	$83	0.4%	$236
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	679,573	57.1%	#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	3,065,493	36.0%	269,714	22.7%	$13,893	70.7%	$4,532
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total	*8,510,723*	*100.0%*	*1,190,516*	*100.0%*	*$19,640*	*100.0%*	*$2,308*

Table A-5: Transearch Truck, Through 2016

STCC2	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	3,527,738	6.8%	183,789	6.2%	$5,144	4.4%	$1,458
08	Forest Products	135,654	0.3%	5,836	0.2%	$247	0.2%	$1,820
09	Fresh Fish or Marine Products	55,701	0.1%	2,402	0.1%	$492	0.4%	$8,840
10	Metallic Ores	2,184	0.0%	86	0.0%	$7	0.0%	$3,295
11	Coal	2,931	0.0%	118	0.0%	$0	0.0%	$139
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	2,974,650	5.7%	122,362	4.1%	$125	0.1%	$42
19	Ordnance or Accessories	15,419	0.0%	688	0.0%	$354	0.3%	$22,970
20	Food or Kindred Products	7,481,030	14.3%	326,081	11.0%	$12,983	11.1%	$1,735
21	Tobacco Products	107,609	0.2%	4,856	0.2%	$2,076	1.8%	$19,295
22	Textile Mill Products	389,950	0.7%	18,232	0.6%	$2,130	1.8%	$5,463
23	Apparel or Related Products	451,161	0.9%	27,421	0.9%	$5,467	4.7%	$12,118
24	Lumber or Wood Products	3,374,375	6.5%	131,649	4.4%	$1,943	1.7%	$576
25	Furniture or Fixtures	513,049	1.0%	34,017	1.1%	$2,210	1.9%	$4,307
26	Pulp, Paper, or Allied Products	3,677,219	7.1%	152,375	5.1%	$4,034	3.5%	$1,097
27	Printed Matter	389,824	0.7%	21,855	0.7%	$1,238	1.1%	$3,177
28	Chemicals or Allied Products	3,253,057	6.2%	155,916	5.2%	$11,612	9.9%	$3,570
29	Petroleum or Coal Products	1,979,568	3.8%	84,336	2.8%	$515	0.4%	$260
30	Rubber or Miscellaneous Plastics	1,467,806	2.8%	124,013	4.2%	$6,442	5.5%	$4,389
31	Leather or Leather Products	52,466	0.1%	3,539	0.1%	$938	0.8%	$17,877
32	Clay, Concrete, Glass, or Stone	7,995,644	15.3%	509,593	17.2%	$1,919	1.6%	$240
33	Primary Metal Products	1,212,534	2.3%	48,669	1.6%	$3,010	2.6%	$2,483
34	Fabricated Metal Products	1,125,225	2.2%	62,669	2.1%	$4,433	3.8%	$3,939
35	Machinery	1,280,092	2.5%	94,620	3.2%	$14,378	12.3%	$11,232
36	Electrical Equipment	833,497	1.6%	49,984	1.7%	$10,761	9.2%	$12,910
37	Transportation Equipment	1,318,315	2.5%	94,120	3.2%	$13,433	11.5%	$10,190
38	Instrument, Photo, and Optical Equip.	204,674	0.4%	16,214	0.5%	$3,345	2.9%	$16,342
39	Miscellaneous Manufacturing Products	261,658	0.5%	13,511	0.5%	$1,706	1.5%	$6,521
40	Waste or Scrap Materials	4,530,074	8.7%	187,085	6.3%	$1,265	1.1%	$279
41	Miscellaneous Freight Shipments	854	0.0%	42	0.0%	$12	0.0%	$14,519
42	Shipping Containers	#N/A	#N/A	323,739	10.9%	#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	31,554	0.1%	1,535	0.1%	$149	0.1%	$4,713
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	3,490,240	6.7%	169,896	5.7%	$4,343	3.7%	$1,244
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total	*52,135,754*	*100.0%*	*2,971,248*	*100.0%*	*$116,713*	*100.0%*	*$2,239*

Table A-6: Transearch Truck 2016–2040 Ton Growth

STCC2	Commodity	2016		2040		Percent	Percent
		Amount	Percent	Amount	Percent	Total	CAGR
01	Farm Products	4,262,202	4.8%	7,644,494	4.5%	79.4%	2.5%
08	Forest Products	276,228	0.3%	370,740	0.2%	34.2%	1.2%
09	Fresh Fish or Marine Products	61,720	0.1%	147,808	0.1%	139.5%	3.7%
10	Metallic Ores	16,551	0.0%	45,114	0.0%	172.6%	4.3%
11	Coal	2,931	0.0%	1,690	0.0%	-42.4%	-2.3%
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	9,606,500	10.8%	16,533,977	9.7%	72.1%	2.3%
19	Ordnance or Accessories	34,826	0.0%	110,628	0.1%	217.7%	4.9%
20	Food or Kindred Products	9,476,581	10.6%	17,239,124	10.1%	81.9%	2.5%
21	Tobacco Products	107,754	0.1%	68,555	0.0%	-36.4%	-1.9%
22	Textile Mill Products	746,975	0.8%	1,623,894	1.0%	117.4%	3.3%
23	Apparel or Related Products	706,187	0.8%	2,551,081	1.5%	261.2%	5.5%
24	Lumber or Wood Products	4,397,015	4.9%	6,162,364	3.6%	40.1%	1.4%
25	Furniture or Fixtures	723,925	0.8%	2,864,480	1.7%	295.7%	5.9%
26	Pulp, Paper, or Allied Products	4,557,820	5.1%	6,336,644	3.7%	39.0%	1.4%
27	Printed Matter	430,893	0.5%	494,377	0.3%	14.7%	0.6%
28	Chemicals or Allied Products	5,589,135	6.3%	13,207,366	7.7%	136.3%	3.6%
29	Petroleum or Coal Products	6,569,442	7.4%	10,699,657	6.3%	62.9%	2.1%
30	Rubber or Miscellaneous Plastics	2,381,174	2.7%	5,341,903	3.1%	124.3%	3.4%
31	Leather or Leather Products	92,247	0.1%	179,392	0.1%	94.5%	2.8%
32	Clay, Concrete, Glass, or Stone	9,786,199	11.0%	19,197,435	11.3%	96.2%	2.8%
33	Primary Metal Products	2,605,377	2.9%	4,863,194	2.9%	86.7%	2.6%
34	Fabricated Metal Products	1,871,980	2.1%	3,653,106	2.1%	95.1%	2.8%
35	Machinery	2,276,866	2.6%	6,288,027	3.7%	176.2%	4.3%
36	Electrical Equipment	1,284,148	1.4%	3,419,234	2.0%	166.3%	4.2%
37	Transportation Equipment	2,948,917	3.3%	4,988,562	2.9%	69.2%	2.2%
38	Instrument, Photo, and Optical Equip.	273,685	0.3%	843,894	0.5%	208.3%	4.8%
39	Miscellaneous Manufacturing Products	350,818	0.4%	767,646	0.4%	118.8%	3.3%
40	Waste or Scrap Materials	7,679,714	8.6%	15,500,394	9.1%	101.8%	3.0%
41	Miscellaneous Freight Shipments	4,045	0.0%	7,270	0.0%	79.7%	2.5%
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	31,707	0.0%	99,100	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	9,920,147	11.1%	19,365,061	11.4%	95.2%	2.8%
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total	*89,073,711*	*100.0%*	*170,616,208*	*100.0%*	*91.5%*	*2.7%*

Table A-7: Transearch Truck 2016–2040 Value (millions) Growth

STCC2	Commodity	2016		2040		Percent	Percent
		Amount	Percent	Amount	Percent	Total	CAGR
01	Farm Products	$5,988	2.8%	$15,785	3.2%	163.6%	4.1%
08	Forest Products	$585	0.3%	$791	0.2%	35.3%	1.3%
09	Fresh Fish or Marine Products	$551	0.3%	$1,387	0.3%	151.7%	3.9%
10	Metallic Ores	$59	0.0%	$164	0.0%	179.2%	4.4%
11	Coal	$0	0.0%	$0	0.0%	-42.4%	-2.3%
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	$216	0.1%	$332	0.1%	53.6%	1.8%
19	Ordnance or Accessories	$890	0.4%	$2,863	0.6%	221.8%	5.0%
20	Food or Kindred Products	$17,455	8.2%	$33,043	6.7%	89.3%	2.7%
21	Tobacco Products	$2,079	1.0%	$1,305	0.3%	-37.2%	-1.9%
22	Textile Mill Products	$4,168	2.0%	$8,502	1.7%	104.0%	3.0%
23	Apparel or Related Products	$8,033	3.8%	$27,163	5.5%	238.1%	5.2%
24	Lumber or Wood Products	$2,466	1.2%	$3,617	0.7%	46.7%	1.6%
25	Furniture or Fixtures	$3,221	1.5%	$12,975	2.6%	302.8%	6.0%
26	Pulp, Paper, or Allied Products	$5,132	2.4%	$7,671	1.6%	49.5%	1.7%
27	Printed Matter	$1,396	0.7%	$1,859	0.4%	33.2%	1.2%
28	Chemicals or Allied Products	$17,858	8.4%	$43,495	8.8%	143.6%	3.8%
29	Petroleum or Coal Products	$2,726	1.3%	$4,800	1.0%	76.1%	2.4%
30	Rubber or Miscellaneous Plastics	$11,517	5.4%	$26,393	5.3%	129.2%	3.5%
31	Leather or Leather Products	$1,783	0.8%	$3,237	0.7%	81.5%	2.5%
32	Clay, Concrete, Glass, or Stone	$2,882	1.4%	$5,375	1.1%	86.5%	2.6%
33	Primary Metal Products	$6,017	2.8%	$11,163	2.3%	85.5%	2.6%
34	Fabricated Metal Products	$7,736	3.7%	$15,866	3.2%	105.1%	3.0%
35	Machinery	$24,867	11.7%	$70,601	14.3%	183.9%	4.4%
36	Electrical Equipment	$15,945	7.5%	$47,490	9.6%	197.8%	4.7%
37	Transportation Equipment	$32,024	15.1%	$65,959	13.4%	106.0%	3.1%
38	Instrument, Photo, and Optical Equip.	$4,924	2.3%	$15,157	3.1%	207.8%	4.8%
39	Miscellaneous Manufacturing Products	$2,840	1.3%	$7,314	1.5%	157.6%	4.0%
40	Waste or Scrap Materials	$2,332	1.1%	$4,502	0.9%	93.1%	2.8%
41	Miscellaneous Freight Shipments	$21	0.0%	$38	0.0%	78.6%	2.4%
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	$150	0.1%	$467	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	$25,857	12.2%	$54,712	11.1%	111.6%	3.2%
60	Unclassified	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total	*$211,716*	*100.0%*	*$494,026*	*100.0%*	*133.3%*	*3.6%*

Figure A-1: Transearch Truck South Carolina Tons 2016 and BCDCOG-Related

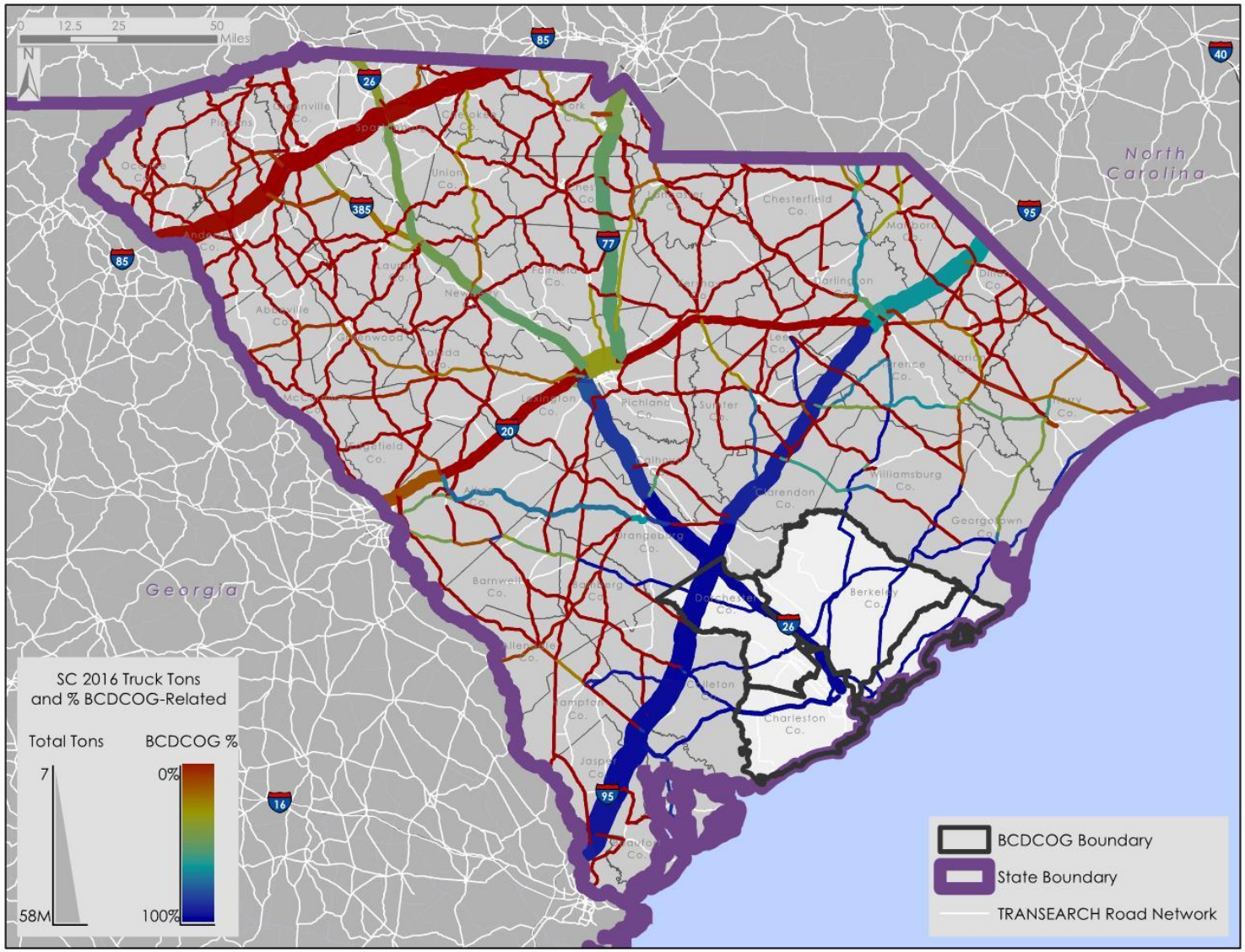


Figure A-2: Transearch Truck SC Tons 2016–2040 Network Growth

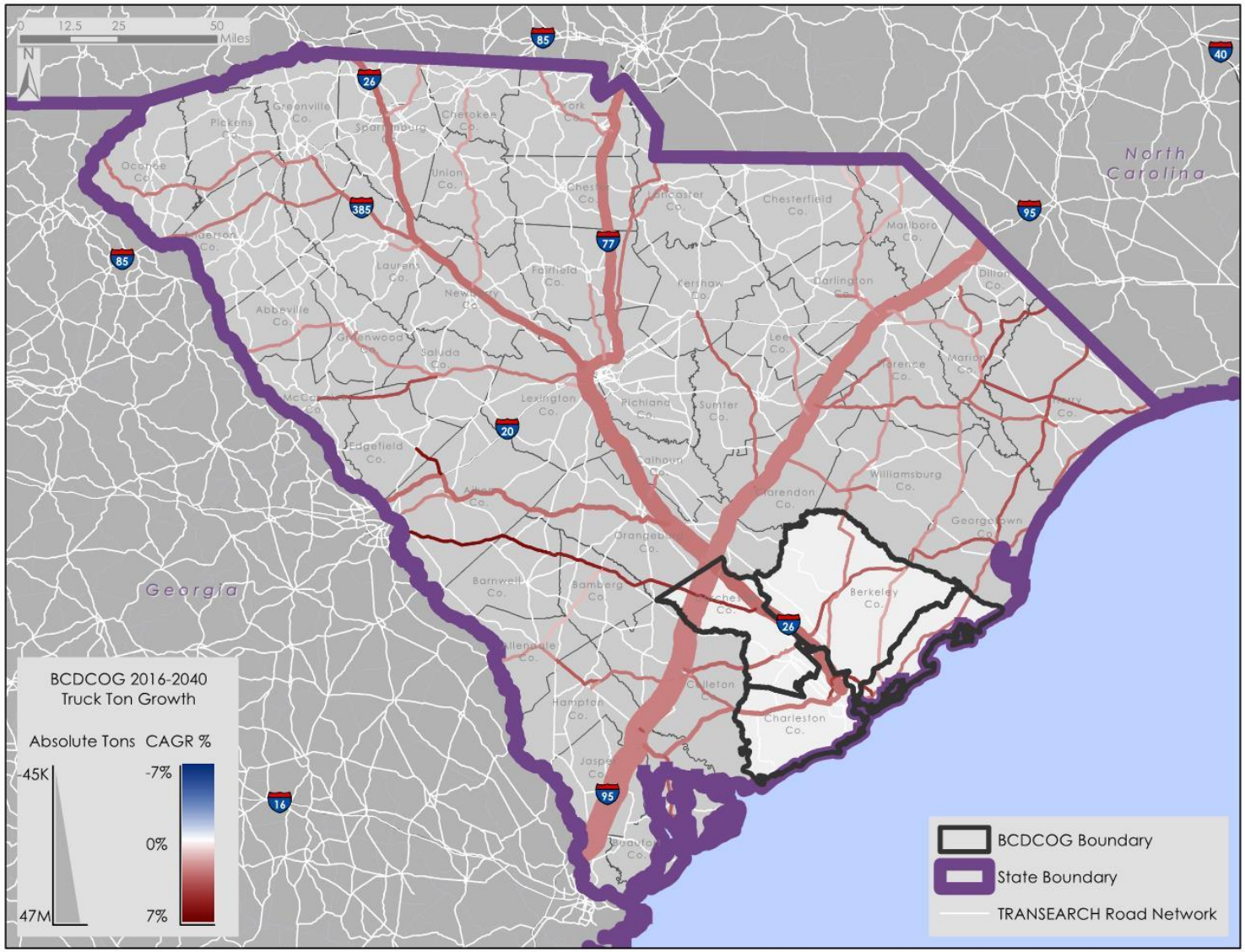


Table A-8: Transearch Rail, All Directions 2016

STCC2	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	9,880	0.0%	720	0.1%	$7	0.0%	$701
08	Forest Products	7,040	0.0%	120	0.0%	$17	0.0%	$2,351
09	Fresh Fish or Marine Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10	Metallic Ores	273,176	1.1%	2,528	0.4%	$110	0.3%	$402
11	Coal	6,752,530	28.2%	58,107	10.3%	$235	0.6%	$35
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	1,515,402	6.3%	14,082	2.5%	$24	0.1%	$16
19	Ordnance or Accessories	4,720	0.0%	280	0.0%	$129	0.3%	$27,289
20	Food or Kindred Products	1,342,244	5.6%	21,928	3.9%	$1,224	3.3%	$912
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	12,200	0.1%	960	0.2%	$69	0.2%	$5,673
23	Apparel or Related Products	31,640	0.1%	2,560	0.5%	$244	0.7%	$7,699
24	Lumber or Wood Products	1,132,996	4.7%	12,876	2.3%	$240	0.6%	$212
25	Furniture or Fixtures	11,640	0.0%	1,080	0.2%	$51	0.1%	$4,386
26	Pulp, Paper, or Allied Products	1,586,440	6.6%	30,040	5.3%	$1,416	3.8%	$892
27	Printed Matter	1,880	0.0%	120	0.0%	$10	0.0%	$5,159
28	Chemicals or Allied Products	3,171,056	13.3%	37,636	6.6%	$4,538	12.3%	$1,431
29	Petroleum or Coal Products	175,920	0.7%	1,968	0.3%	$60	0.2%	$339
30	Rubber or Miscellaneous Plastics	4,280	0.0%	440	0.1%	$21	0.1%	$4,890
31	Leather or Leather Products	320	0.0%	80	0.0%	$4	0.0%	$12,204
32	Clay, Concrete, Glass, or Stone	1,189,056	5.0%	11,280	2.0%	$222	0.6%	$187
33	Primary Metal Products	1,184,948	5.0%	13,356	2.4%	$1,727	4.7%	$1,457
34	Fabricated Metal Products	1,000	0.0%	80	0.0%	$2	0.0%	$2,482
35	Machinery	4,024	0.0%	156	0.0%	$36	0.1%	$8,934
36	Electrical Equipment	13,600	0.1%	280	0.0%	$200	0.5%	$14,694
37	Transportation Equipment	629,880	2.6%	33,436	5.9%	$5,828	15.7%	$9,252
38	Instrument, Photo, and Optical Equip.	2,920	0.0%	200	0.0%	$22	0.1%	$7,428
39	Miscellaneous Manufacturing Products	2,760	0.0%	360	0.1%	$24	0.1%	$8,610
40	Waste or Scrap Materials	630,548	2.6%	8,268	1.5%	$123	0.3%	$194
41	Miscellaneous Freight Shipments	7,120	0.0%	800	0.1%	$25	0.1%	$3,482
42	Shipping Containers	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	3,000	0.0%	480	0.1%	$9	0.0%	$2,969
44	Freight Forwarder Traffic	81,440	0.3%	5,480	1.0%	#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	3,962,920	16.6%	304,680	53.8%	$20,392	55.1%	$5,146
47	Small Packaged Shipments	520	0.0%	40	0.0%	#N/A	#N/A	#N/A
48	Waste	160,640	0.7%	1,880	0.3%	#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
	Total	*23,907,740*	*100.0%*	*566,301*	*100.0%*	*$37,005*	*100.0%*	*$1,548*

Table A-9: Transearch Rail, Outbound 2016

STCC2	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	25,634	0.6%	220	0.2%	$1	0.0%	$35
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	2,320	0.1%	160	0.1%	$63	0.6%	$27,289
20	Food or Kindred Products	63,840	1.4%	720	0.6%	$51	0.5%	$792
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	680	0.0%	40	0.0%	$5	0.1%	$7,830
23	Apparel or Related Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
24	Lumber or Wood Products	15,160	0.3%	160	0.1%	$2	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	260,880	5.9%	5,320	4.1%	$252	2.5%	$968
27	Printed Matter	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
28	Chemicals or Allied Products	1,683,680	38.0%	17,960	13.8%	$2,191	21.7%	$1,302
29	Petroleum or Coal Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
30	Rubber or Miscellaneous Plastics	320	0.0%	40	0.0%	$2	0.0%	$6,172
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	218,576	4.9%	2,080	1.6%	$21	0.2%	$95
33	Primary Metal Products	994,868	22.4%	11,156	8.6%	$1,435	14.2%	$1,443
34	Fabricated Metal Products	400	0.0%	40	0.0%	$1	0.0%	$2,421
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	75,680	1.7%	4,580	3.5%	$680	6.7%	$8,983
38	Instrument, Photo, and Optical Equip.	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
39	Miscellaneous Manufacturing Products	160	0.0%	40	0.0%	$1	0.0%	$8,610
40	Waste or Scrap Materials	10,680	0.2%	240	0.2%	$2	0.0%	$190
41	Miscellaneous Freight Shipments	3,960	0.1%	440	0.3%	$14	0.1%	$3,482
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	1,035,120	23.4%	86,040	66.3%	$5,363	53.2%	$5,181
47	Small Packaged Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
48	Waste	40,520	0.9%	480	0.4%	#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
	Total	*4,432,478*	*100.0%*	*129,716*	*100.0%*	*$10,086*	*100.0%*	*$2,275*

Table A-10: Transearch Rail, Inbound 2016

STCC2	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	4,800	0.0%	480	0.2%	$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	4,400	0.0%	40	0.0%	$16	0.1%	$3,663
11	Coal	5,343,465	47.9%	46,059	19.0%	$186	1.3%	$35
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	1,380,066	12.4%	12,782	5.3%	$14	0.1%	$10
19	Ordnance or Accessories	2,400	0.0%	120	0.0%	$65	0.5%	$27,289
20	Food or Kindred Products	162,844	1.5%	2,356	1.0%	$66	0.5%	$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	716,996	6.4%	7,716	3.2%	$120	0.9%	$167
25	Furniture or Fixtures	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
26	Pulp, Paper, or Allied Products	388,320	3.5%	5,680	2.3%	$238	1.7%	$613
27	Printed Matter	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
28	Chemicals or Allied Products	358,136	3.2%	6,712	2.8%	$502	3.6%	$1,402
29	Petroleum or Coal Products	152,880	1.4%	1,648	0.7%	$41	0.3%	$265
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	120,880	1.1%	1,200	0.5%	$29	0.2%	$237
33	Primary Metal Products	26,320	0.2%	280	0.1%	$50	0.4%	$1,885
34	Fabricated Metal Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
35	Machinery	4,024	0.0%	156	0.1%	$36	0.3%	$8,934
36	Electrical Equipment	13,040	0.1%	200	0.1%	$129	0.9%	$9,927
37	Transportation Equipment	518,840	4.7%	26,608	11.0%	$4,959	36.0%	$9,558
38	Instrument, Photo, and Optical Equip.	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
39	Miscellaneous Manufacturing Products	200	0.0%	40	0.0%	$2	0.0%	$8,610
40	Waste or Scrap Materials	532,596	4.8%	6,052	2.5%	$93	0.7%	$174
41	Miscellaneous Freight Shipments	2,360	0.0%	320	0.1%	$8	0.1%	$3,482
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	1,320	0.0%	120	0.0%	#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	1,394,640	12.5%	123,120	50.9%	$7,229	52.4%	$5,183
47	Small Packaged Shipments	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
48	Waste	16,200	0.1%	200	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
	Total	*11,144,727*	*100.0%*	*241,889*	*100.0%*	*$13,782*	*100.0%*	*$1,237*

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

STCC2	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	264,816	33.9%	2,448	31.8%	$92	20.8%	$348
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	204,840	26.3%	2,200	28.6%	$33	7.4%	$160
25	Furniture or Fixtures	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
26	Pulp, Paper, or Allied Products	9,160	1.2%	160	2.1%	$7	1.6%	$770
27	Printed Matter	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
28	Chemicals or Allied Products	297,960	38.2%	2,840	36.9%	$306	69.1%	$1,028
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	3,280	0.4%	40	0.5%	$5	1.0%	$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	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
37	Transportation Equipment	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
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
	Total	*780,056*	*100.0%*	*7,688*	*100.0%*	*$443*	*100.0%*	*$568*

Table A-12: Transearch Rail, Through 2016

STCC2	Commodity	Tons		Units		Value (in millions)		Average Value/Ton
		Amount	%	Amount	%	Amount	%	
01	Farm Products	5,080	0.1%	240	0.1%	$6	0.0%	$1,216
08	Forest Products	7,040	0.1%	120	0.1%	$17	0.1%	$2,351
09	Fresh Fish or Marine Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10	Metallic Ores	3,960	0.1%	40	0.0%	$1	0.0%	$348
11	Coal	1,383,431	18.3%	11,828	6.3%	$48	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	135,336	1.8%	1,300	0.7%	$10	0.1%	$77
19	Ordnance or Accessories	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
20	Food or Kindred Products	1,115,560	14.8%	18,852	10.1%	$1,107	8.7%	$993
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	11,520	0.2%	920	0.5%	$64	0.5%	$5,545
23	Apparel or Related Products	31,640	0.4%	2,560	1.4%	$244	1.9%	$7,699
24	Lumber or Wood Products	196,000	2.6%	2,800	1.5%	$85	0.7%	$435
25	Furniture or Fixtures	11,640	0.2%	1,080	0.6%	$51	0.4%	$4,386
26	Pulp, Paper, or Allied Products	928,080	12.3%	18,880	10.1%	$918	7.2%	$989
27	Printed Matter	1,880	0.0%	120	0.1%	$10	0.1%	$5,159
28	Chemicals or Allied Products	831,280	11.0%	10,124	5.4%	$1,538	12.1%	$1,850
29	Petroleum or Coal Products	23,040	0.3%	320	0.2%	$19	0.2%	$829
30	Rubber or Miscellaneous Plastics	3,960	0.1%	400	0.2%	$19	0.1%	$4,786
31	Leather or Leather Products	320	0.0%	80	0.0%	$4	0.0%	$12,204
32	Clay, Concrete, Glass, or Stone	849,600	11.3%	8,000	4.3%	$173	1.4%	$203
33	Primary Metal Products	160,480	2.1%	1,880	1.0%	$237	1.9%	$1,477
34	Fabricated Metal Products	600	0.0%	40	0.0%	$2	0.0%	$2,523
35	Machinery	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
36	Electrical Equipment	560	0.0%	80	0.0%	$70	0.6%	$125,705
37	Transportation Equipment	35,360	0.5%	2,248	1.2%	$189	1.5%	$5,341
38	Instrument, Photo, and Optical Equip.	2,920	0.0%	200	0.1%	$22	0.2%	$7,428
39	Miscellaneous Manufacturing Products	2,400	0.0%	280	0.1%	$21	0.2%	$8,610
40	Waste or Scrap Materials	87,272	1.2%	1,976	1.1%	$28	0.2%	$319
41	Miscellaneous Freight Shipments	800	0.0%	40	0.0%	$3	0.0%	$3,482
42	Shipping Containers	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	3,000	0.0%	480	0.3%	$9	0.1%	$2,969
44	Freight Forwarder Traffic	80,120	1.1%	5,360	2.9%	#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	1,533,160	20.3%	95,520	51.1%	$7,800	61.4%	$5,087
47	Small Packaged Shipments	520	0.0%	40	0.0%	#N/A	#N/A	#N/A
48	Waste	103,920	1.4%	1,200	0.6%	#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
	Total	*7,550,479*	*100.0%*	*187,008*	*100.0%*	*$12,693*	*100.0%*	*$1,681*

Table A-13: Transearch Rail 2016–2040 Ton Growth

STCC2	Commodity	2016		2040		Percent	Percent
		Amount	Percent	Amount	Percent	Total	CAGR
01	Farm Products	9,880	0.0%	13,454	0.0%	36.2%	1.3%
08	Forest Products	7,040	0.0%	9,949	0.0%	41.3%	1.5%
09	Fresh Fish or Marine Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10	Metallic Ores	273,176	1.1%	546,191	1.4%	99.9%	2.9%
11	Coal	6,752,530	28.2%	6,817,274	17.3%	1.0%	0.0%
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	1,515,402	6.3%	3,415,952	8.7%	125.4%	3.4%
19	Ordnance or Accessories	4,720	0.0%	7,403	0.0%	56.8%	1.9%
20	Food or Kindred Products	1,342,244	5.6%	2,193,104	5.6%	63.4%	2.1%
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	12,200	0.1%	23,773	0.1%	94.9%	2.8%
23	Apparel or Related Products	31,640	0.1%	91,874	0.2%	190.4%	4.5%
24	Lumber or Wood Products	1,132,996	4.7%	2,129,142	5.4%	87.9%	2.7%
25	Furniture or Fixtures	11,640	0.0%	19,645	0.0%	68.8%	2.2%
26	Pulp, Paper, or Allied Products	1,586,440	6.6%	2,030,724	5.1%	28.0%	1.0%
27	Printed Matter	1,880	0.0%	2,401	0.0%	27.7%	1.0%
28	Chemicals or Allied Products	3,171,056	13.3%	6,499,087	16.5%	105.0%	3.0%
29	Petroleum or Coal Products	175,920	0.7%	189,548	0.5%	7.7%	0.3%
30	Rubber or Miscellaneous Plastics	4,280	0.0%	11,293	0.0%	163.9%	4.1%
31	Leather or Leather Products	320	0.0%	910	0.0%	184.4%	4.5%
32	Clay, Concrete, Glass, or Stone	1,189,056	5.0%	1,997,659	5.1%	68.0%	2.2%
33	Primary Metal Products	1,184,948	5.0%	2,947,630	7.5%	148.8%	3.9%
34	Fabricated Metal Products	1,000	0.0%	1,899	0.0%	89.9%	2.7%
35	Machinery	4,024	0.0%	11,599	0.0%	188.3%	4.5%
36	Electrical Equipment	13,600	0.1%	46,672	0.1%	243.2%	5.3%
37	Transportation Equipment	629,880	2.6%	958,503	2.4%	52.2%	1.8%
38	Instrument, Photo, and Optical Equip.	2,920	0.0%	15,394	0.0%	427.2%	7.2%
39	Miscellaneous Manufacturing Products	2,760	0.0%	7,180	0.0%	160.1%	4.1%
40	Waste or Scrap Materials	630,548	2.6%	784,836	2.0%	24.5%	0.9%
41	Miscellaneous Freight Shipments	7,120	0.0%	9,518	0.0%	33.7%	1.2%
42	Shipping Containers	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	3,000	0.0%	1,393	0.0%	-53.6%	-3.1%
44	Freight Forwarder Traffic	81,440	0.3%	32,103	0.1%	-60.6%	-3.8%
45	Shipper Association Traffic	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
46	Miscellaneous Mixed Shipments	3,962,920	16.6%	8,435,473	21.4%	112.9%	3.2%
47	Small Packaged Shipments	520	0.0%	812	0.0%	56.1%	1.9%
48	Waste	160,640	0.7%	222,706	0.6%	38.6%	1.4%
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
	Total	*23,907,740*	*100.0%*	*39,475,101*	*100.0%*	*65.1%*	*2.1%*

Table A-14: Transearch Rail 2016–2040 Value (millions) Growth

STCC2	Commodity	2016		2040		Percent	Percent
		Amount	Percent	Amount	Percent	Total	CAGR
01	Farm Products	$7	0.0%	$10	0.0%	49.7%	1.7%
08	Forest Products	$17	0.0%	$23	0.0%	41.3%	1.5%
09	Fresh Fish or Marine Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10	Metallic Ores	$110	0.3%	$224	0.3%	104.1%	3.0%
11	Coal	$235	0.6%	$237	0.3%	1.0%	0.0%
13	Crude Petroleum or Natural Gas	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	Nonmetallic Minerals	$24	0.1%	$45	0.1%	87.6%	2.7%
19	Ordnance or Accessories	$129	0.3%	$202	0.3%	56.8%	1.9%
20	Food or Kindred Products	$1,224	3.3%	$2,084	2.8%	70.3%	2.2%
21	Tobacco Products	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	Textile Mill Products	$69	0.2%	$133	0.2%	92.9%	2.8%
23	Apparel or Related Products	$244	0.7%	$687	0.9%	182.1%	4.4%
24	Lumber or Wood Products	$240	0.6%	$431	0.6%	79.7%	2.5%
25	Furniture or Fixtures	$51	0.1%	$87	0.1%	70.8%	2.3%
26	Pulp, Paper, or Allied Products	$1,416	3.8%	$1,831	2.5%	29.3%	1.1%
27	Printed Matter	$10	0.0%	$12	0.0%	27.7%	1.0%
28	Chemicals or Allied Products	$4,538	12.3%	$9,788	13.2%	115.7%	3.3%
29	Petroleum or Coal Products	$60	0.2%	$61	0.1%	2.9%	0.1%
30	Rubber or Miscellaneous Plastics	$21	0.1%	$54	0.1%	158.3%	4.0%
31	Leather or Leather Products	$4	0.0%	$11	0.0%	184.4%	4.5%
32	Clay, Concrete, Glass, or Stone	$222	0.6%	$370	0.5%	66.7%	2.2%
33	Primary Metal Products	$1,727	4.7%	$4,306	5.8%	149.4%	3.9%
34	Fabricated Metal Products	$2	0.0%	$5	0.0%	88.9%	2.7%
35	Machinery	$36	0.1%	$103	0.1%	186.5%	4.5%
36	Electrical Equipment	$200	0.5%	$696	0.9%	248.4%	5.3%
37	Transportation Equipment	$5,828	15.7%	$8,718	11.8%	49.6%	1.7%
38	Instrument, Photo, and Optical Equip.	$22	0.1%	$107	0.1%	394.4%	6.9%
39	Miscellaneous Manufacturing Products	$24	0.1%	$62	0.1%	160.1%	4.1%
40	Waste or Scrap Materials	$123	0.3%	$159	0.2%	29.9%	1.1%
41	Miscellaneous Freight Shipments	$25	0.1%	$33	0.0%	33.7%	1.2%
42	Shipping Containers	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
43	Mail or Contract Traffic	$9	0.0%	$4	0.0%	-53.6%	-3.1%
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	$20,392	55.1%	$43,457	58.8%	113.1%	3.2%
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
	Total	*$37,005*	*100.0%*	*$73,943*	*100.0%*	*99.8%*	*2.9%*

Figure A-3: Transearch Rail South Carolina Tons 2016 and BCDCOG-Related

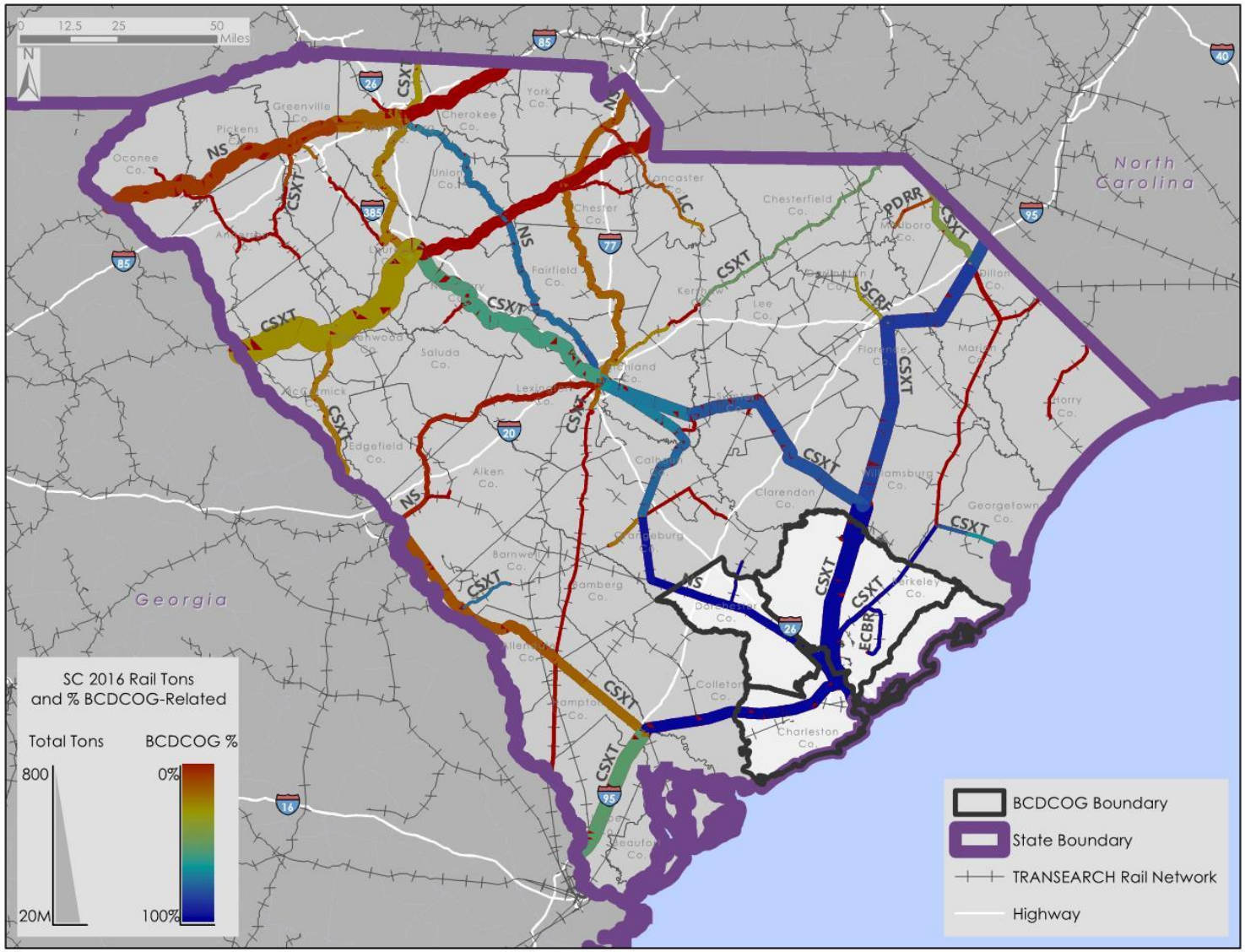
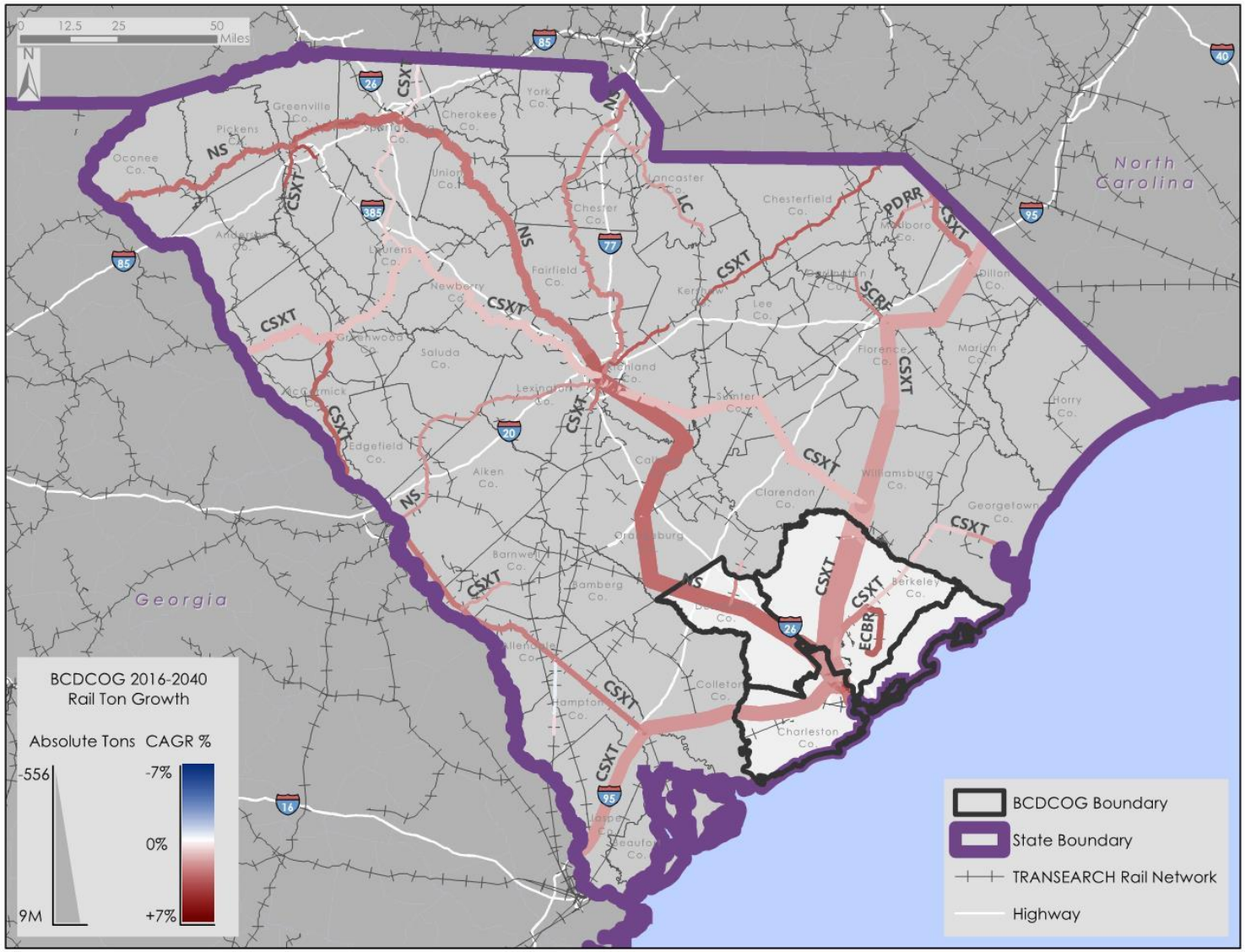


Figure A-4: Transearch Rail South Carolina Tons 2016–2040 Network Growth



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