

FLORIDA RAIL SYSTEM PLAN

NOVEMBER 2023

Appendix G:

Commodity Flows and Forecast



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G.1 APPROACH

Significant freight volumes traverse Florida's rail infrastructure annually. Such freight includes finished goods, materials, and supplies. Principal freight rail issues concern the identification of movements most important to Florida, and the options to facilitate/support such movements. Identifying the importance of, and solutions for, freight rail comprises several perspectives, including volumes (especially compared to capacity), values, related economic impacts, and public perception.

In this analysis, current freight rail volumes, as reported in the United States Surface Transportation Board (STB) RAILROAD WAYBILL SAMPLE database, are tabulated by major commodity types to understand freight movements and facilitate freight-related economic impact analysis (see Appendix E). Forecast freight movements are derived from a second source: TRANSEARCH®, which is a privately developed database by IHS Markit.

G.1.1 COMMODITY CLASSIFICATION

The Standard Transportation Commodity Code (STCC) is a four-digit numeric code, categorized by 35+ broad commodity groupings, based on physical product information used on shipping documents and published/maintained by the Railinc Corporation, a company that provides rail data and messaging services to the North American freight railway industry and are primarily used on rail waybills. The company was established as a wholly owned, for-profit subsidiary of the Association of American Railroads (AAR) in 1999. A hierarchical STCC structure allows for data collapsibility, enabling summarization of commodity information. Although freight movements are tallied at the four-digit STCC detail, the information is summarized at the aggregated two-digit level here.

G.1.2 FREIGHT MOVEMENT DATA SOURCES

WAYBILL SAMPLE and TRANSEARCH® are used to estimate current and future freight volumes and values.

WAYBILL SAMPLE (WS) – Based on STCC codes, WAYBILL provides detailed, most-recently available year 2018 movement data by commodity. It uses a 2% stratified sample by the STB CARLOAD WAYBILL SAMPLE of carload waybills for all rail traffic submitted by rail carriers that terminate 4,500 or more revenue carloads annually.

TRANSEARCH® – Developed by IHS Markit, TRANSEARCH® is a comprehensive database of North American freight flows, compiled from more than a hundred industry, commodity, and proprietary data sources. TRANSEARCH® combines primary shipment data obtained from the nation's largest rail and truck freight carriers with information from public, commercial, and proprietary sources to generate a base year estimate of freight flows at the county level. Further, TRANSEARCH® establishes market-specific production volumes by industry or commodity, drawn mostly from IHS Global Insight's Business Markets Insights (BMI) database, and supplemented by trade association and industry reports, and U.S. government-collected data – especially from the Input/Output (I/O) Tables produced by the Bureau of Economic Analysis (BEA). Growth rates between TRANSEARCH®-reported year 2018 and forecast year

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2045 by directional commodity movement were applied to the more-recent year 2018 WAYBILL movements to derive updated forecasts for 2045.

G.1.3 VALUES

Dollar values of the freight rail movements are not incorporated within the WAYBILL SAMPLE; therefore, values per ton (in 2018 dollars), culled from comparable TRANSEARCH® recent annual data in Florida and surrounding state geographies, were applied to the tonnage movements to derive directional-based values of freight moving across the Florida rail network.

G.2 CURRENT FREIGHT RAIL

The following presents year 2018 movements by direction (outbound, inbound, intrastate, intracounty and through) and terms (tons, units, and values), derived from the STB WAYBILL database. Units can be defined as the number of annual carloads or intermodal containers. Each subsection summarizes rail movements by direction and term and identifies the top two-digit STCC commodity movements. Data is generally presented graphically and in geospatial format for ease of visually identifying important commodity movements and related observations, with the supporting tabulated comprehensive data.

G.2.1 SUMMARY

Florida rail movements in 2018 totaled 80.1 million tons, valued at \$115.97 billion (equating to \$1,449/ton), and carried within 1.78 million units (see Table G-1). As depicted in Table G-1, inbound rail is the dominant directional movement: 45.88% of total tonnage, 47% of units, and 55.1% of value. Intrastate is the second largest directional movement by tons and units, although outbound movements are the second by value. Given that Florida is a peninsula, it is unsurprising that through movements constitute a marginal proportion of the total Florida-related rail movements.

Table G-1 | Rail by Direction, 2018

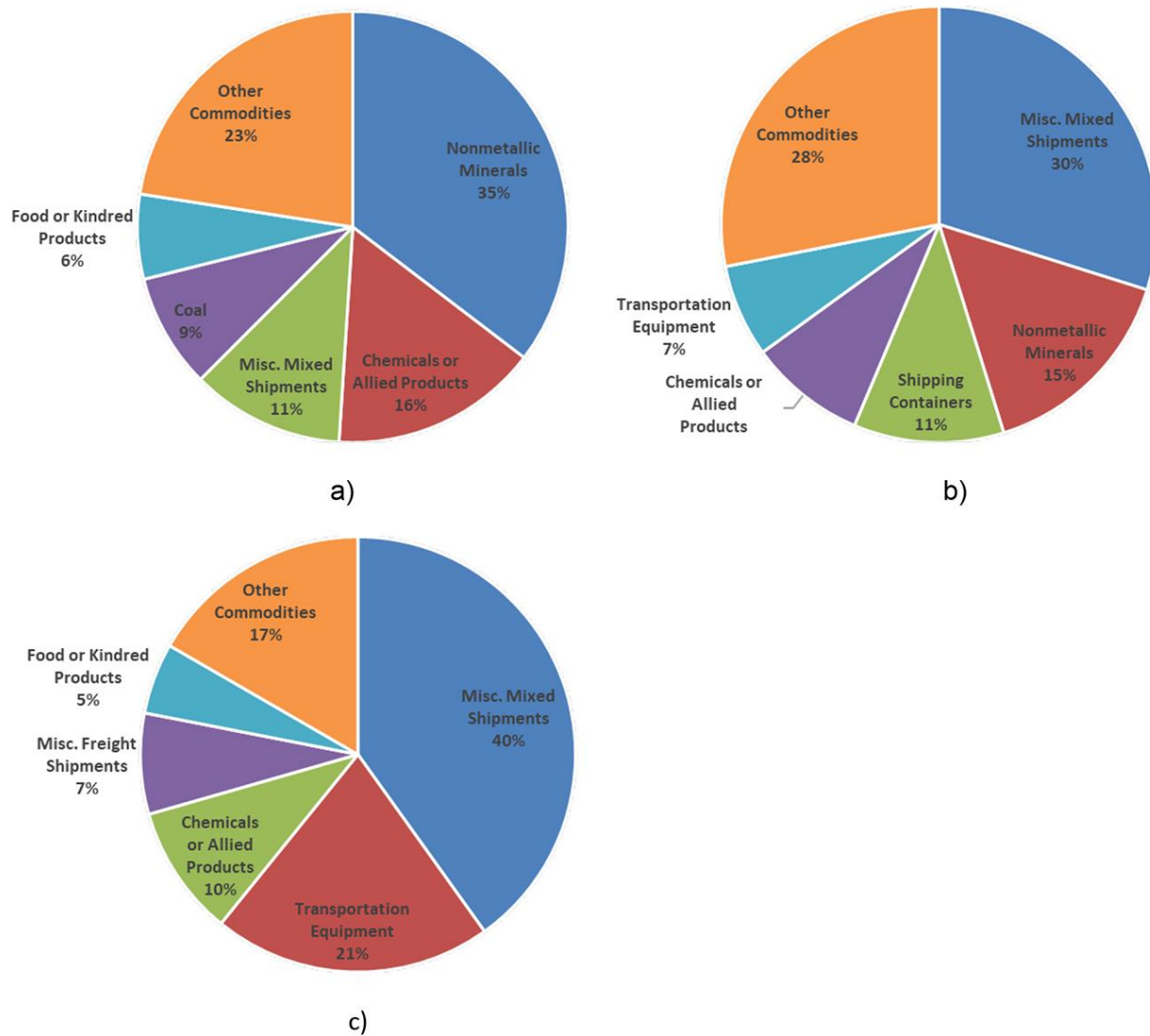
Direction	Tons		Units		Value (in millions)		Value/Ton
	Amount	Percent	Amount	Percent	Amount	Percent	
Outbound	11,666,092	16.15%	401,408	23.31%	21,446	19.64%	1,838
Inbound	36,731,369	45.88%	838,281	47.00%	63,889	55.09%	1,739
Through	3,096,962	3.87%	70,556	3.96%	5,805	5.01%	1,874
Intrastate	20,761,564	25.93%	411,676	23.08%	18,068	15.58%	870
Intra-county	7,796,858	9.74%	61,584	3.45%	6,759	5.83%	867
Totals	80,052,845	100%	1,783,506	100%	115,968	100%	1,449

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Major Commodity Movements

Figure G-1 depicts the top five two-digit STCC commodities by all rail directions combined for Florida freight rail, in terms of tonnage (a), units (b), and value (c), respectively.

Figure G-1 | 2018 Top 5 STCC Rail Commodities (All Directions)
by tonnage (a), units (b), value (c)



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Table G-2 depicts the two-digit STCC commodities by all rail directions combined for Florida freight rail in terms of tonnage, units, and value, respectively. Supporting data is presented, by direction and is further detailed in the following subsections.

Table G-2 | Rail Summary, 2018

STCC2	Tons	Units	Value	Value/Tons
Apparel or Related Products	616,463	52,882	\$4,148,442,286	\$6,729
Chemicals or Allied Products	12,530,691	154,784	\$11,284,679,797	\$901
Clay, concrete, glass or stone	2,785,765	29,266	\$817,893,684	\$294
Coal	6,879,230	58,939	\$213,973,711	\$31
Crude Petrol. Or Natural Gas	37,258	386	\$10,604,532	\$285
Electrical Equipment	180,503	16,211	\$1,081,410,399	\$5,991
Fabricated Metal Products	75,522	6,660	\$411,906,205	\$5,454
Farm Products	1,344,543	18,137	\$337,910,387	\$251
Food or Kindred Products	5,090,034	98,777	\$6,114,947,646	\$1,201
Forest Products	878	41	\$2,251,504	\$2,565
Fresh Fish or Marine Products	69	3	\$175,930	\$2,555
Furniture or Fixtures	197,322	13,078	\$883,031,363	\$4,475
Instruments, Photo Equipment, Optical Equipment	7,969	726	\$78,975,108	\$9,910
Leather or Leather Products	774	122	\$14,601,416	\$18,855
Lumber or Wood Products	1,711,680	23,579	\$621,926,453	\$363
Machinery	170,225	7,188	\$1,489,693,974	\$8,751
Mail or Contract Traffic	2,320	360	\$7,147,612	\$3,081
Metallic Ores	142,801	1,603	\$401,394,789	\$2,811
Misc. Freight Shipments	68,744	4,259	\$8,687,077,267	\$126,369
Misc. Manufacturing Products	19,585	2,427	\$87,159,913	\$4,450
Misc. Mixed Shipments	9,193,748	532,363	\$46,516,826,763	\$5,060
Nonmetallic Minerals	28,312,196	273,982	\$988,023,547	\$35
Ordnance or Accessories	8,136	244	-	-
Petroleum or Coal Products	863,727	12,000	\$550,245,095	\$637
Primary Metal Products	1,090,421	13,155	\$1,665,072,230	\$1,527
Printed Matter	36,947	2,094	\$193,854,287	\$5,247
Pulp, Paper Or Allied Products	3,882,701	94,669	\$3,795,085,141	\$977
Rubber or Misc. Plastics	234,558	20,054	\$974,656,204	\$4,155
Shipping Containers	548,760	198,800	-	-
Small Packaged Freight Shipments	22,440	2,320	-	-
Textile Mill Products	17,241	1,170	\$102,751,449	\$5,960
Transportation Equipment	2,428,924	122,518	\$24,038,176,060	\$9,897
Waste or Scrap Materials	1,550,672	20,707	\$447,855,181	\$289
All Commodities	80,052,845	1,783,506	\$115,967,749,933	\$1,449

Comparing tonnage, units, and value movements by mode and direction yields different perspectives on the importance of freight rail to the state. While Nonmetallic Minerals lead tonnage movements (and is

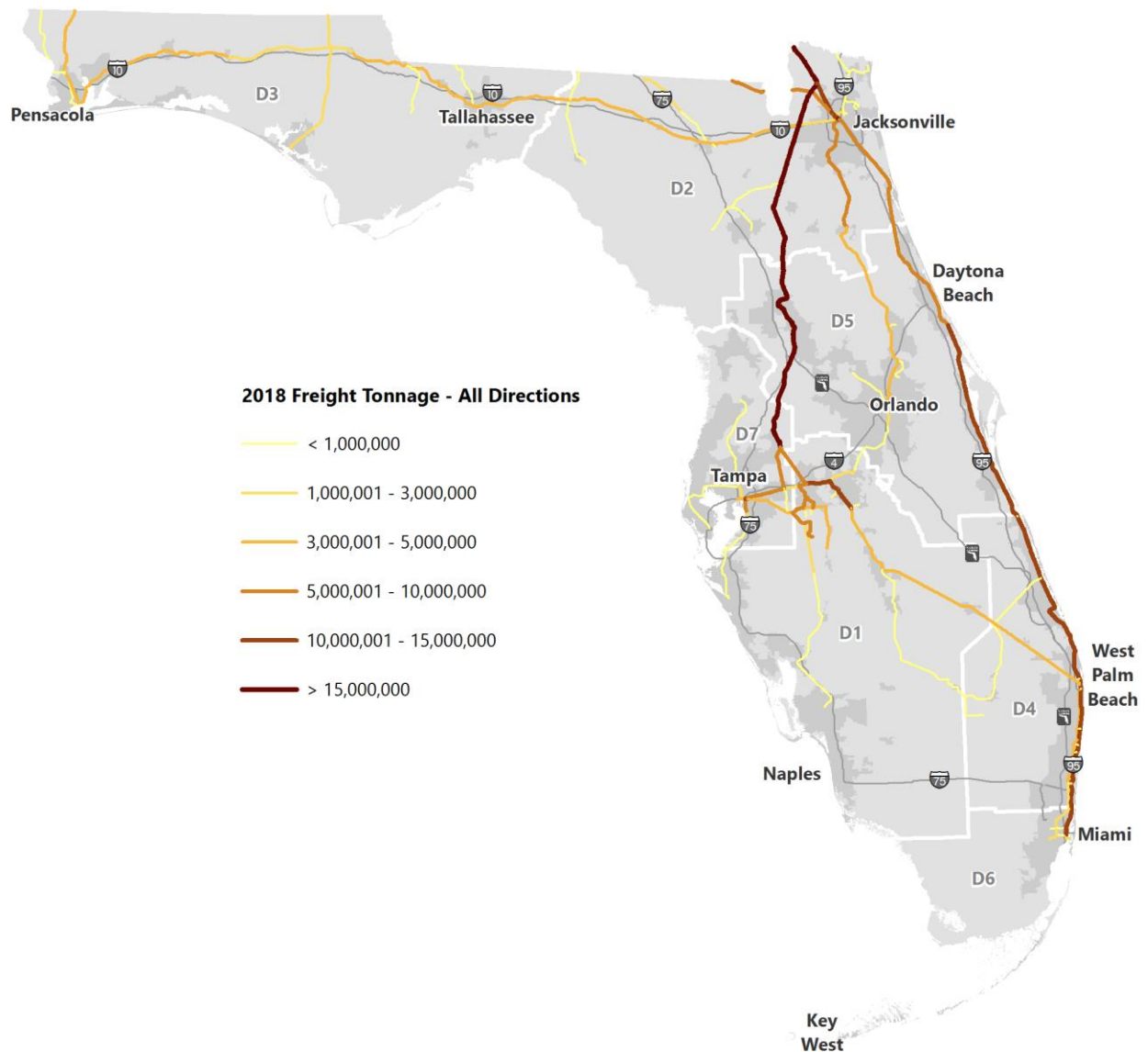
Appendix G: Commodity Flows and Forecast

second in terms of units), the value is comparatively low, reflecting a very low value-per-ton. Conversely, Transportation Equipment tonnage is a mere fraction of Nonmetallic Minerals tonnage, but the value is over 25 times greater. Similarly, directional differences by commodity are also noteworthy, as seen in the tables and figures discussed in the following sections.

Figure G-2 depicts the freight rail line density (combined for all directions) along the major rail corridors in state of Florida. The freight rail density is the total tonnage flows along different rail corridor segments. Freight rail density data is from the TRANSEARCH® database. Jacksonville accommodates the greatest relative concentration of freight rail flows, followed by Tampa-Lakeland and Miami-Fort Lauderdale, as seen in Figure G-2. Such relative concentration around the major metropolitan areas is logical, given that such areas are the primary origin/destination for freight rail in the state and, the relative concentration surrounding Jacksonville is also attributable to Jacksonville serving as the entry/egress gateway for most freight rail in the peninsula.

Appendix G: Commodity Flows and Forecast

Figure G-2 | Florida Freight Rail Density (All Directions)



Appendix G: Commodity Flows and Forecast

G.2.1 SUMMARY (OUTBOUND DIRECTION)

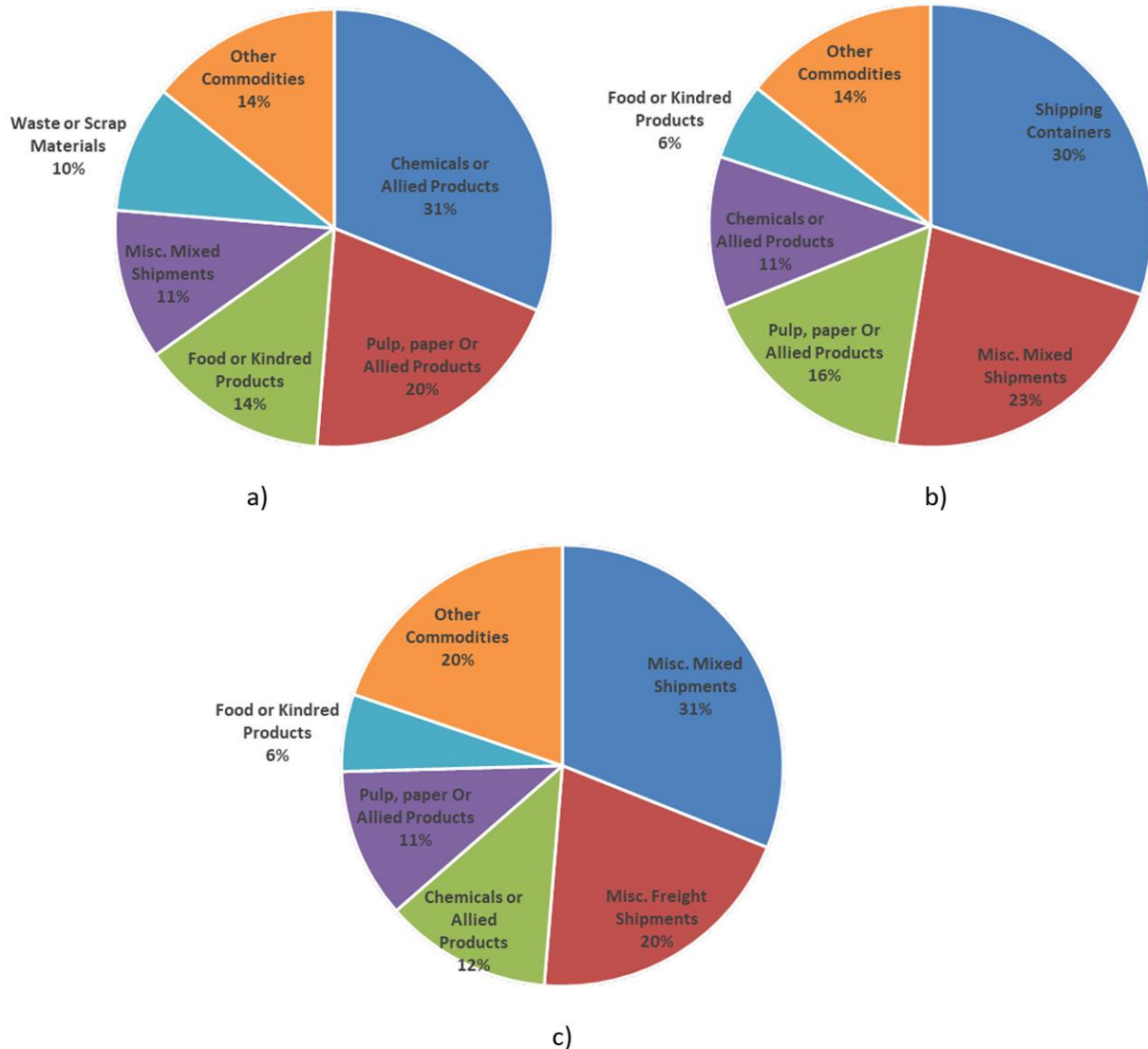
Table G-3 presents outbound rail commodities from Florida, in 2018, which total 11.7 million tons, via 401,408 units, valued at \$21.5 billion, with an average value/ton of \$1,838. Figure G-3 depicts the top five two-digit STCC commodities in outbound rail direction for Florida freight rail, in terms of tonnage (a), units (b), and value (c), respectively.

Table G-3 | Rail Outbound, 2018

STCC2	Tons	Units	Value	Value/Tons
Apparel or Related Products	124,457	11,282	\$889,525,846	\$7,147
Chemicals or Allied Products	3,630,415	44,678	\$2,629,256,362	\$724
Clay, concrete, glass or stone	621,548	5,803	\$123,736,073	\$199
Coal	79	1	\$14,028	\$177
Electrical Equipment	3,944	326	\$30,622,002	\$7,764
Fabricated Metal Products	4,783	320	\$37,401,091	\$7,820
Farm Products	23,376	1,104	\$37,540,672	\$1,606
Food or Kindred Products	1,621,137	22,523	\$1,216,679,949	\$751
Forest Products	28	0	\$86,677	\$3,104
Furniture or Fixtures	69,764	4,281	\$286,326,795	\$4,104
Leather or Leather Products	774	122	\$14,601,416	\$18,855
Lumber or Wood Products	51,747	2,412	\$23,575,978	\$456
Machinery	99,917	924	\$960,556,283	\$9,614
Mail or Contract Traffic	2,320	360	\$7,147,612	\$3,081
Metallic Ores	103,361	963	\$384,410,933	\$3,719
Misc. Freight Shipments	34,608	1,756	\$4,344,350,965	\$125,531
Misc. Manufacturing Products	10,561	1,270	\$26,917,142	\$2,549
Misc. Mixed Shipments	1,300,399	90,078	\$6,660,616,518	\$5,122
Nonmetallic Minerals	40,493	937	\$2,531,347	\$63
Ordnance or Accessories	640	40	-	-
Petroleum or Coal Products	20,726	290	\$12,321,664	\$594
Primary Metal Products	143,942	1,713	\$270,274,653	\$1,878
Printed Matter	2,621	130	\$13,540,044	\$5,166
Pulp, paper Or Allied Products	2,351,126	65,984	\$2,358,239,813	\$1,003
Rubber or Misc. Plastics	70,177	5,924	\$289,936,024	\$4,132
Shipping Containers	155,520	120,600	-	-
Textile Mill Products	3,800	360	\$20,838,992	\$5,484
Transportation Equipment	73,356	4,344	\$500,957,165	\$6,829
Waste or Scrap Materials	1,100,473	12,880	\$304,453,483	\$277
All Commodities	11,666,092	401,408	\$21,446,459,529	\$1,838

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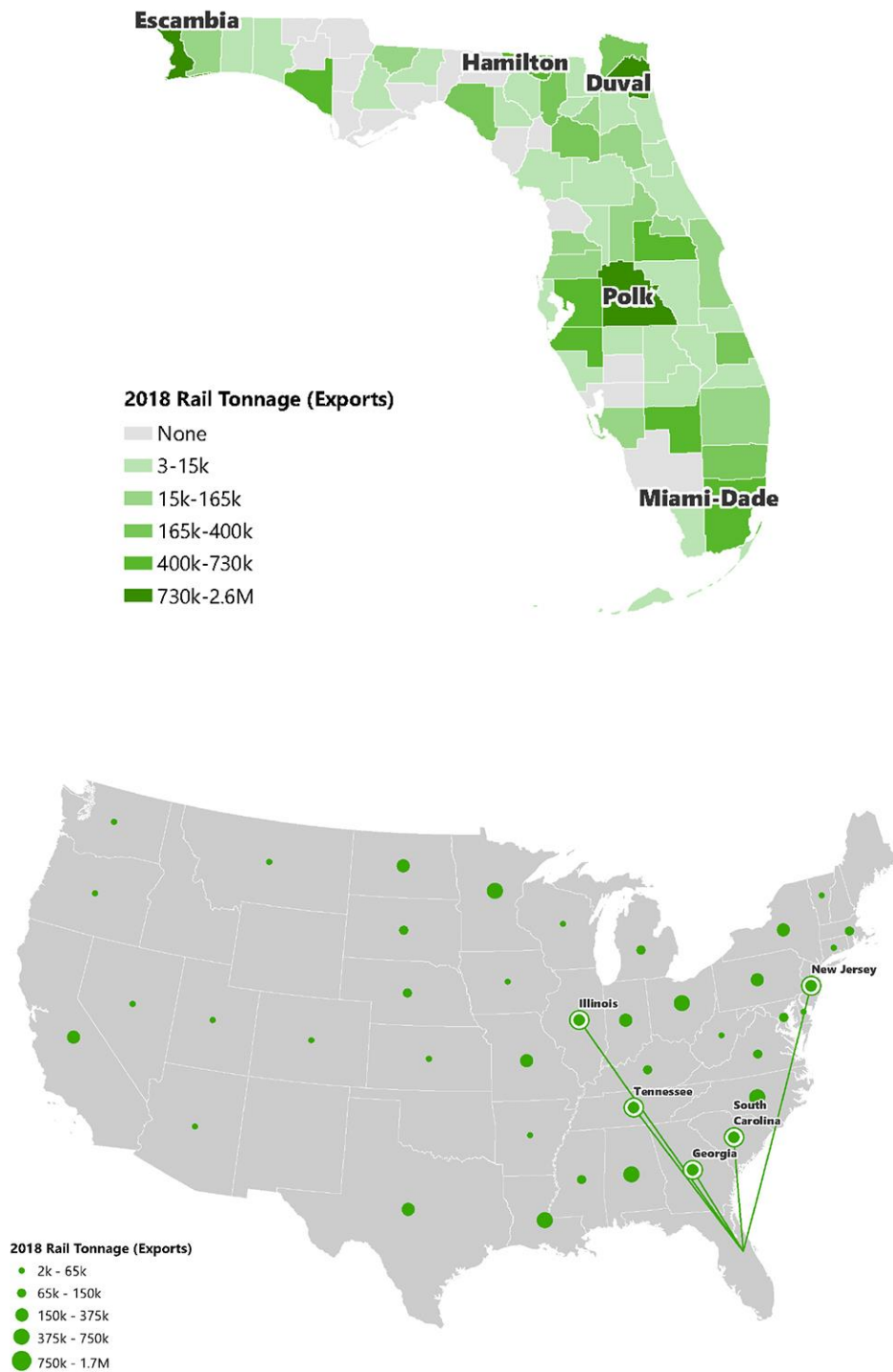
Figure G-3 | 2018 Top 5 STCC Rail Commodities (Outbound Direction)



Major outbound rail tonnages in 2018 are shown by county origin and destination states in Figure G-4. Rail movements destined out-of-state are primarily traveling from Duval County (2.6 million, 22.5%), Polk County (1.9 million, 16.2%), and Escambia County (0.7 million, 6.3%). Rail movements destined out-of-state are primarily traveling to Georgia (1.6 million, 15.6%), Illinois (1.6 million, 15.2%), and Tennessee (0.8 million, 7.1%).

Appendix G: Commodity Flows and Forecast

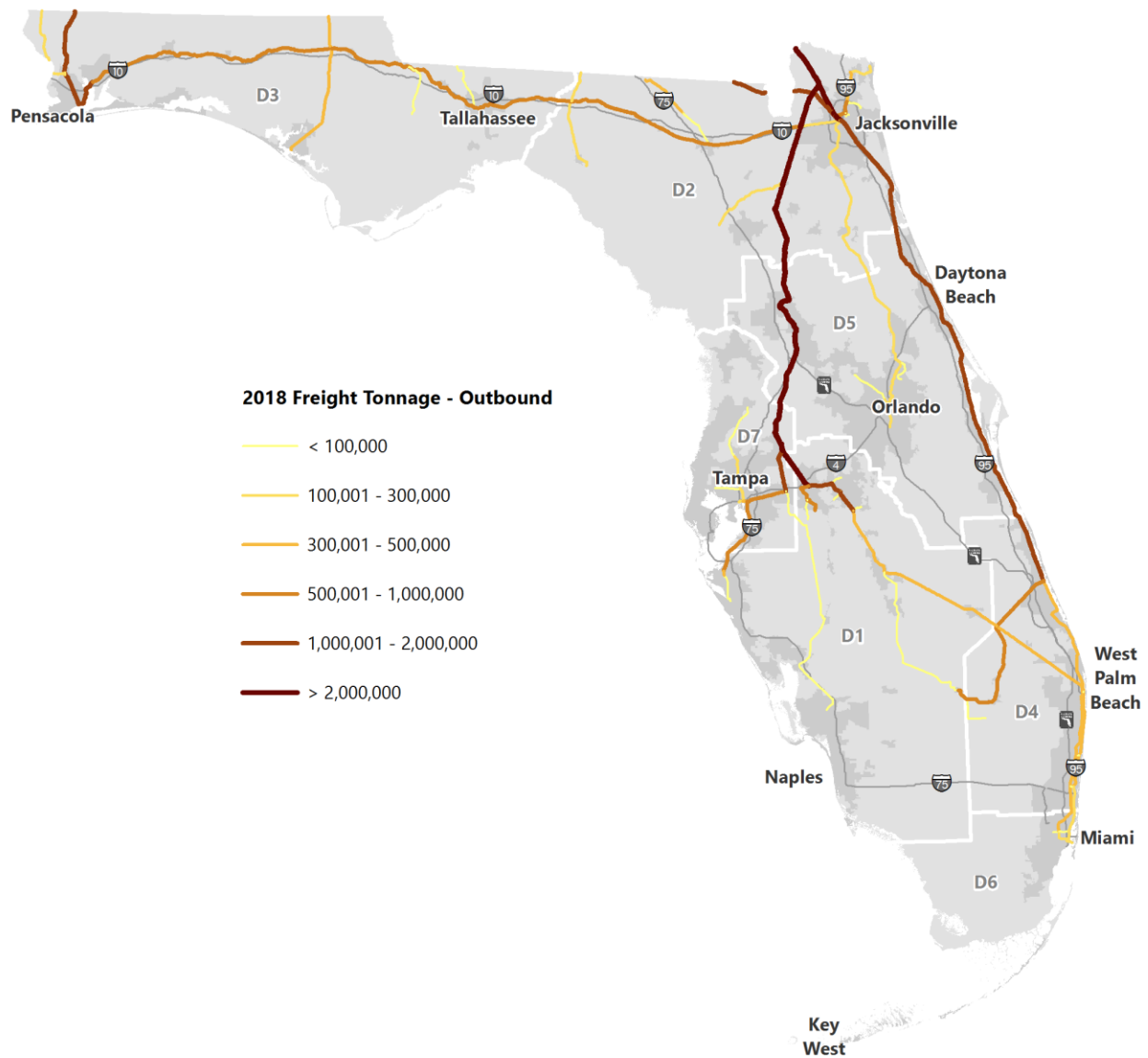
Figure G-4 | Rail Outbound by Origin and Destination, 2018



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Figure G-5 depicts the freight rail line density (outbound direction) along the major rail corridors in state of Florida.

Figure G-5 | Florida Freight Rail Density (Outbound Direction)



Appendix G: Commodity Flows and Forecast

G.2.2 SUMMARY (INBOUND DIRECTION)

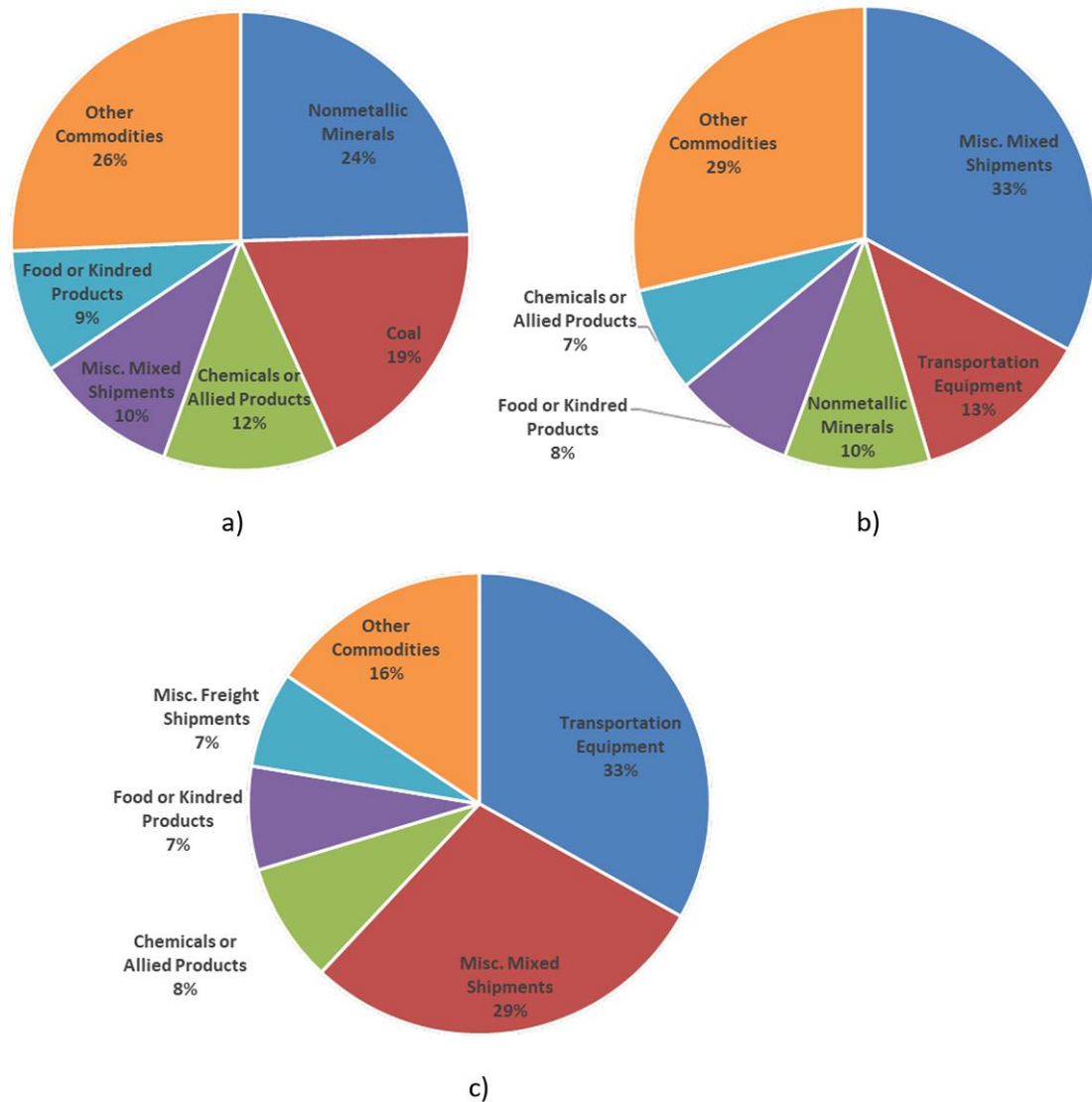
Table G-4 presents inbound rail commodities from Florida, in 2018, which total 36.7 million tons, via 838,281 units, valued at \$63.9 billion, with an average value/ton of \$1,739. Figure G-6 depicts the top five two-digit STCC commodities in outbound rail direction for Florida freight rail, in terms of tonnage (a), units (b), and value (c), respectively.

Table G-4 | Rail Inbound, 2018

STCC2	Tons	Units	Value	Value/Tons
Apparel or Related Products	418,279	36,319	\$2,866,001,802	\$6,852
Chemicals or Allied Products	4,506,989	61,336	\$5,353,642,344	\$1,188
Clay, concrete, glass or stone	1,467,372	16,289	\$584,193,018	\$398
Coal	6,844,219	58,645	\$212,874,511	\$31
Electrical Equipment	143,582	14,201	\$767,570,981	\$5,346
Fabricated Metal Products	55,045	4,746	\$300,058,945	\$5,451
Farm Products	1,269,637	16,399	\$288,608,447	\$227
Food or Kindred Products	3,212,610	70,698	\$4,639,330,969	\$1,444
Forest Products	840	40	\$2,140,598	\$2,548
Furniture or Fixtures	122,223	8,384	\$563,313,787	\$4,609
Instruments, Photo Equipment, Optical Equipment	7,614	641	\$68,897,941	\$9,049
Lumber or Wood Products	988,414	11,814	\$413,748,925	\$419
Machinery	41,352	3,564	\$339,868,893	\$8,219
Metallic Ores	22,400	440	\$13,939,022	\$622
Misc. Freight Shipments	22,400	1,660	\$4,302,330,303	\$192,069
Misc. Manufacturing Products	7,328	921	\$51,406,397	\$7,015
Misc. Mixed Shipments	3,713,802	276,268	\$18,454,973,498	\$4,969
Nonmetallic Minerals	9,016,195	84,957	\$173,028,252	\$19
Ordnance or Accessories	2,120	120	-	-
Petroleum or Coal Products	610,223	8,712	\$335,044,615	\$549
Primary Metal Products	766,398	9,346	\$1,124,306,224	\$1,467
Printed Matter	34,324	1,963	\$180,276,664	\$5,252
Pulp, paper Or Allied Products	1,021,973	20,329	\$1,023,773,525	\$1,002
Rubber or Misc. Plastics	120,558	10,944	\$562,088,691	\$4,662
Shipping Containers	7,120	8,400	-	-
Small Packaged Freight Shipments	13,680	1,280	-	-
Textile Mill Products	11,639	684	\$73,487,628	\$6,314
Transportation Equipment	2,099,180	104,951	\$21,149,860,324	\$10,075
Waste or Scrap Materials	183,855	4,232	\$44,616,713	\$243
Grand Total	36,731,369	838,281	\$63,889,383,019	\$1,739

Appendix G: Commodity Flows and Forecast

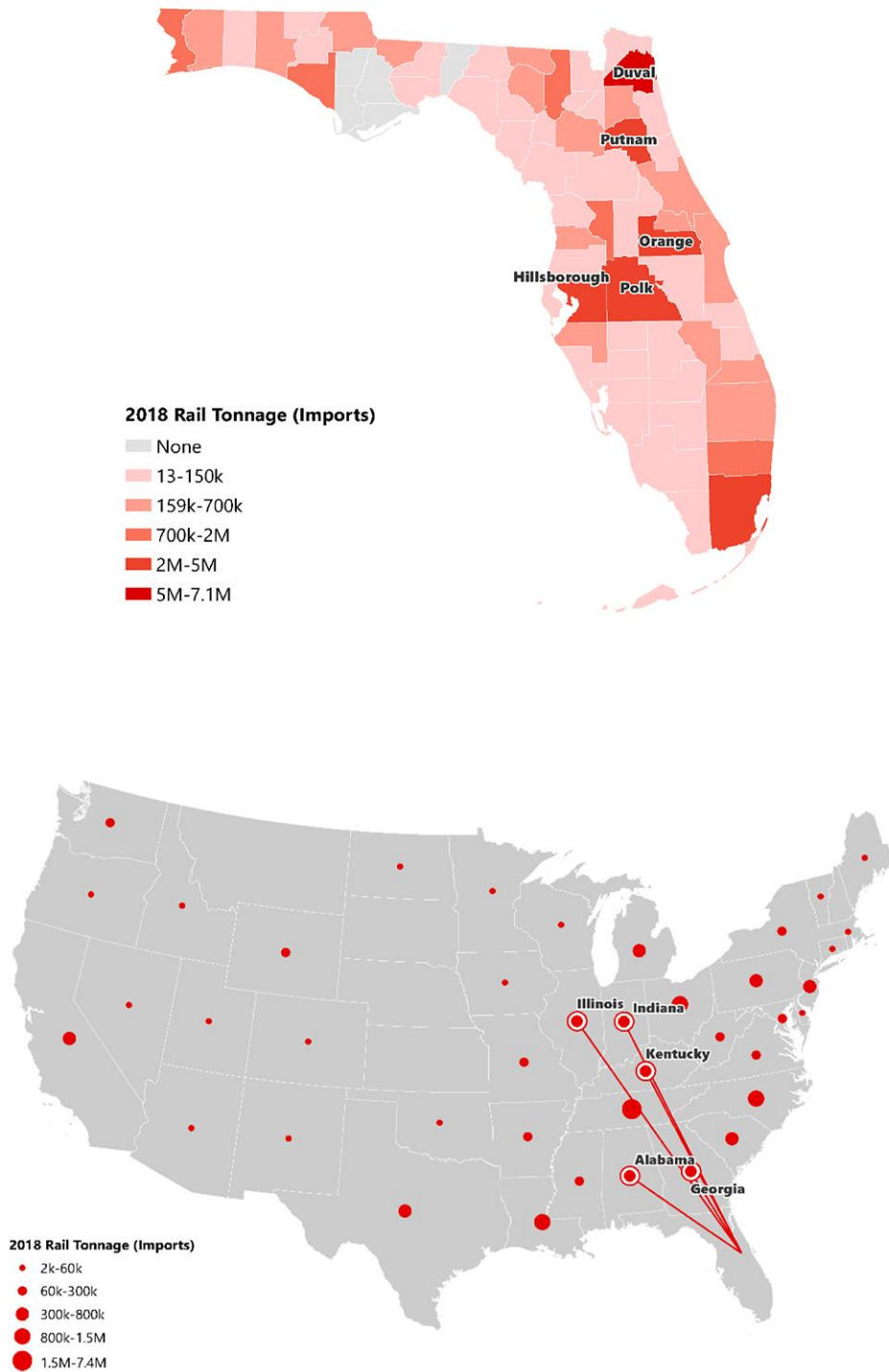
Figure G-6 | 2018 Top 5 STCC Rail Commodities (Inbound Direction)



Major inbound rail tonnages in 2018 are shown by county destinations and origin states in Figure G-7. Rail movements destined in-state are primarily traveling to Duval County (7.1 million, 19.45%), Polk County (4.9 million, 13.4%), and Hillsborough County (4.2 million, 11.4%). Rail movements destined in-state are primarily traveling from Georgia (7.4 million, 20.8%), Illinois (6 million, 16.9%), and Kentucky (4.3 million, 12.1%).

Appendix G: Commodity Flows and Forecast

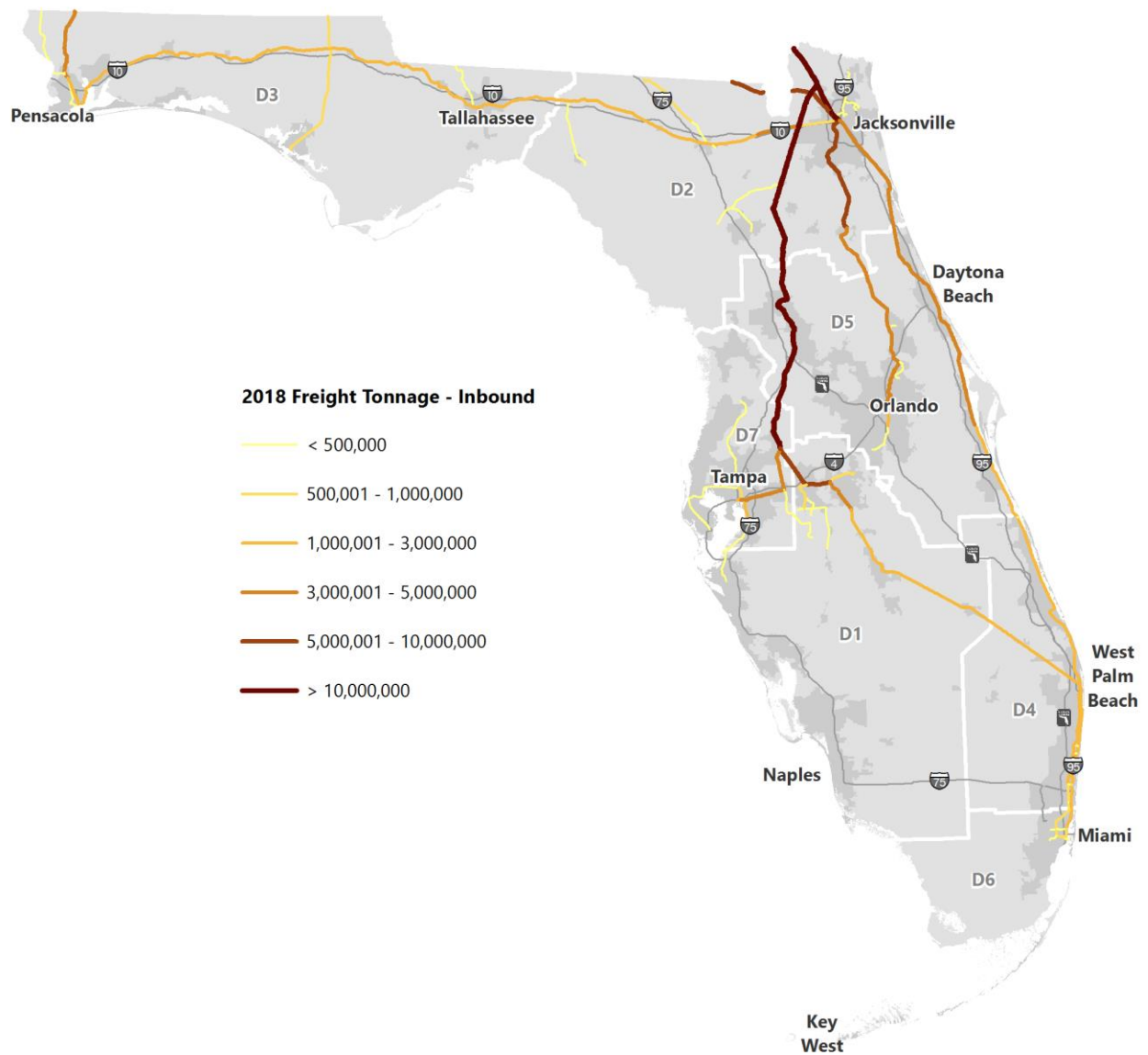
Figure G-7 | Rail Inbound by Origin and Destination, 2018



Appendix G: Commodity Flows and Forecast

Figure G-8 depicts the freight rail line density (inbound direction) along the major rail corridors in state of Florida.

Figure G-8 | Florida Freight Rail Density (Inbound Direction)



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G.2.2 SUMMARY (INTRASTATE MOVEMENTS)

Table G-5 presents intrastate (also includes intracounty) rail commodities within Florida, in 2018, which total 28.6 million tons, via 473,260 units, valued at \$24.8 billion, with an average value/ton of \$869.

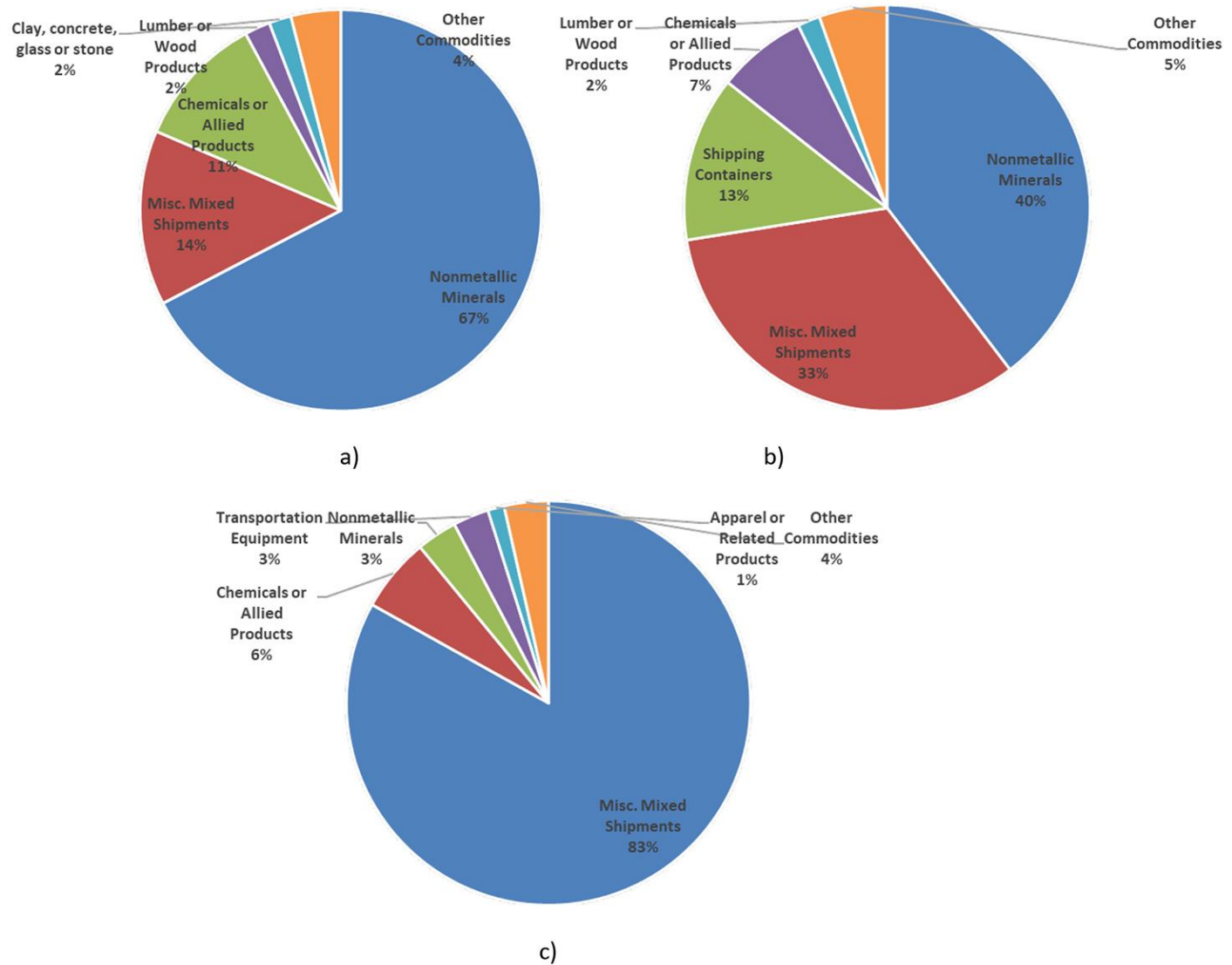
Figure G-9 depicts the top five two-digit STCC commodities for intrastate movements for Florida freight rail, in terms of tonnage (a), units (b), and value (c), respectively. Supporting data is presented, by direction and is further detailed in the following subsections.

Table G-5: Rail Intrastate/Intracounty, 2018

STCC2	Tons	Units	Value	Value/Tons
Apparel or Related Products	61,680	4,320	\$327,317,213	\$5,307
Chemicals or Allied Products	3,054,771	33,903	\$1,474,644,801	\$483
Clay, concrete, glass or stone	510,736	4,736	\$73,460,497	\$144
Electrical Equipment	18,320	568	\$182,746,138	\$9,975
Fabricated Metal Products	3,920	680	\$21,816,189	\$5,565
Farm Products	44,732	544	\$9,464,717	\$212
Food or Kindred Products	65,800	2,360	\$69,301,917	\$1,053
Furniture or Fixtures	3,360	280	\$16,902,980	\$5,031
Instruments, Photo Equipment, Optical Equipment	280	80	\$3,490,671	\$12,467
Lumber or Wood Products	589,328	8,456	\$129,695,981	\$220
Machinery	1,000	120	\$13,691,868	\$13,692
Metallic Ores	1,280	40	\$228,720	\$179
Misc. Freight Shipments	3,720	320	\$12,804,458	\$3,442
Misc. Mixed Shipments	4,026,720	155,360	\$20,629,651,112	\$5,123
Nonmetallic Minerals	19,231,475	187,639	\$806,197,813	\$42
Petroleum or Coal Products	14,160	200	\$11,250,327	\$795
Primary Metal Products	77,920	880	\$111,157,780	\$1,427
Pulp, paper Or Allied Products	169,560	2,520	\$131,036,496	\$773
Rubber or Misc. Plastics	3,080	280	\$13,182,585	\$4,280
Shipping Containers	386,120	62,280	-	-
Small Packaged Freight Shipments	8,760	1,040	-	-
Textile Mill Products	720	40	\$4,081,575	\$5,669
Transportation Equipment	84,880	4,308	\$711,577,206	\$8,383
Waste or Scrap Materials	196,100	2,308	\$73,282,005	\$374
Grand Total	28,558,421	473,260	\$24,826,983,049	\$869

Appendix G: Commodity Flows and Forecast

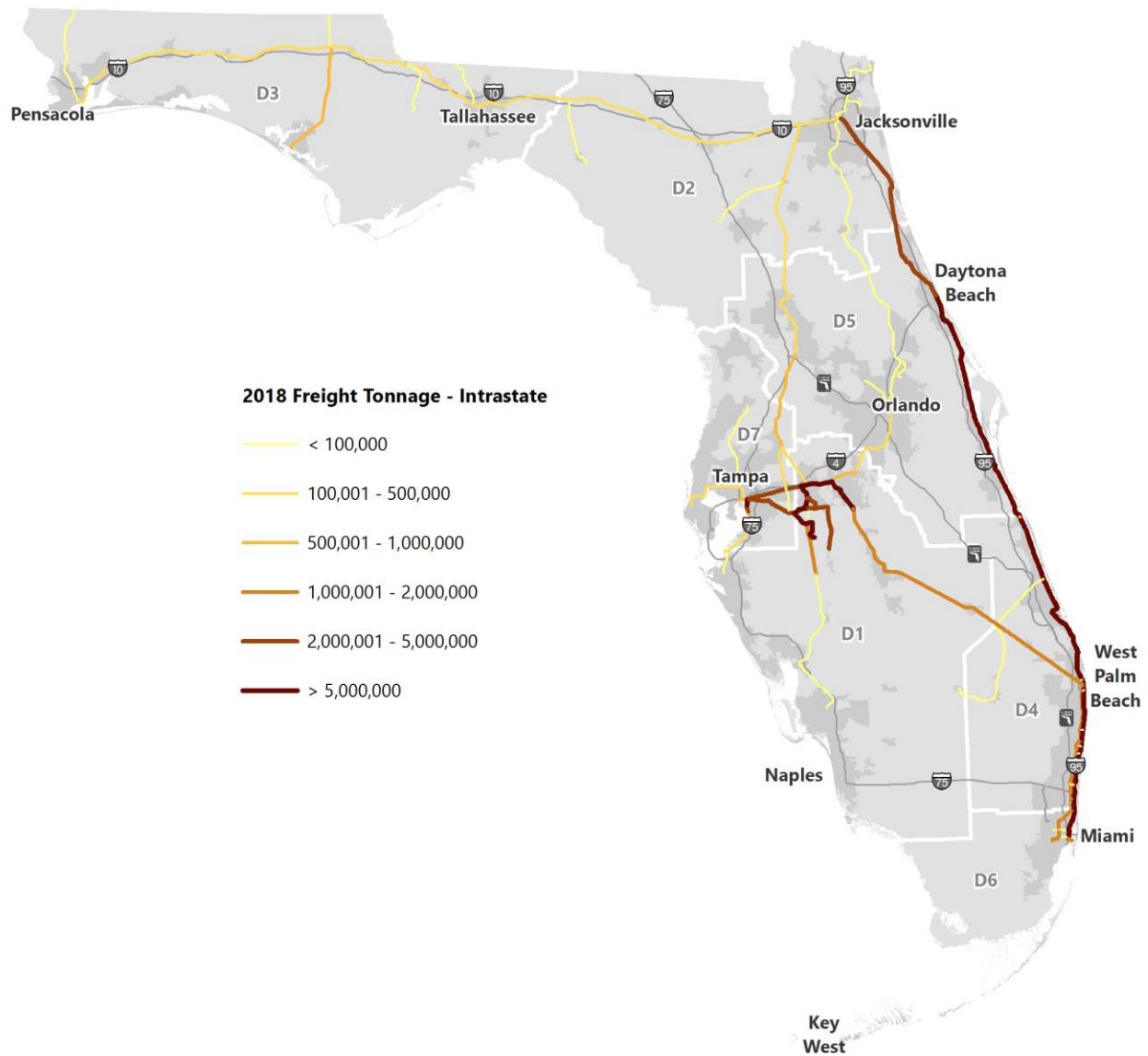
Figure G-9 | 2018 Top 5 STCC Rail Commodities (INTRASTATE)



Appendix G: Commodity Flows and Forecast

Figure G-10 depicts the freight rail line density (intrastate) along the major rail corridors in state of Florida.

Figure G-10 | Florida Freight Rail Density (Intrastate)



Appendix G: Commodity Flows and Forecast

G.2.3 SUMMARY (THROUGH MOVEMENTS)

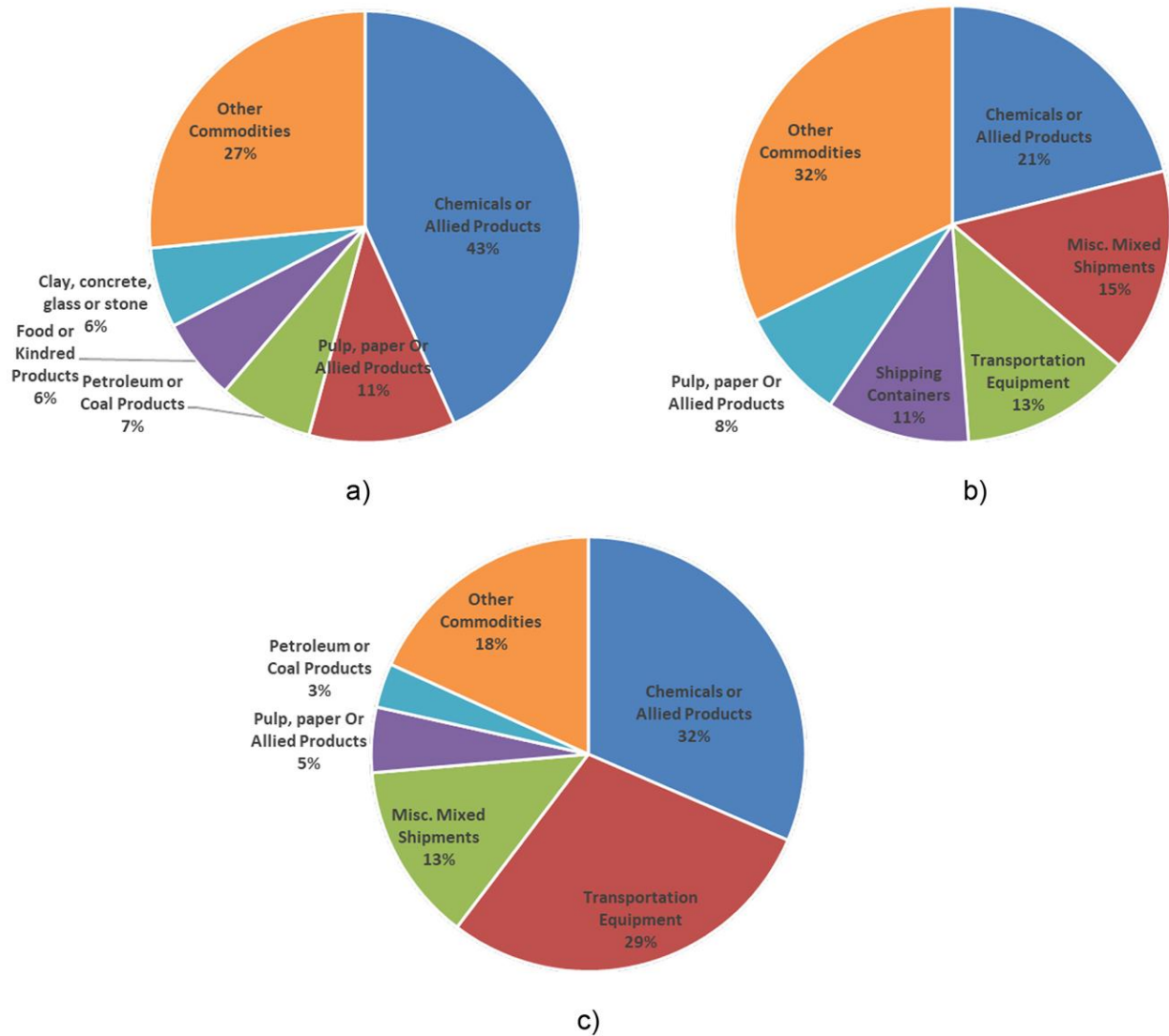
Table G-6 presents rail commodities for through movements, in 2018, which total 3.1 million tons, via 70,556 units, valued at \$5.8 billion, with an average value/ton of \$1,874. Figure G-11 depicts the top five two-digit STCC commodities (through movements) for Florida freight rail, in terms of tonnage (a), units (b), and value (c), respectively. Supporting data is presented, by direction and is further detailed in the following subsections.

Table G-6: Rail Through, 2018

STCC2	Tons	Units	Value	Value/Tons
Apparel or Related Products	12,046	961	\$65,597,426	\$5,446
Chemicals or Allied Products	1,338,515	14,868	\$1,827,136,289	\$1,365
Clay, concrete, glass or stone	186,109	2,439	\$36,504,095	\$196
Coal	34,932	294	\$1,085,172	\$31
Crude Petrol. Or Natural Gas	37,258	386	\$10,604,532	\$285
Electrical Equipment	14,658	1,117	\$100,471,279	\$6,854
Fabricated Metal Products	11,774	914	\$52,629,980	\$4,470
Farm Products	6,797	90	\$2,296,551	\$338
Food or Kindred Products	190,488	3,196	\$189,634,812	\$996
Forest Products	10	0	\$24,229	\$2,462
Fresh Fish or Marine Products	69	3	\$175,930	\$2,555
Furniture or Fixtures	1,975	133	\$16,487,801	\$8,347
Instruments, Photo Equipment, Optical Equipment	75	5	\$6,586,495	\$87,621
Lumber or Wood Products	82,192	898	\$54,905,569	\$668
Machinery	27,956	2,581	\$175,576,931	\$6,280
Metallic Ores	15,760	160	\$2,816,113	\$179
Misc. Freight Shipments	8,016	523	\$27,591,541	\$3,442
Misc. Manufacturing Products	1,696	235	\$8,836,374	\$5,212
Misc. Mixed Shipments	152,828	10,657	\$771,585,636	\$5,049
Nonmetallic Minerals	24,032	449	\$6,266,134	\$261
Ordinance or Accessories	5,376	84	-	-
Petroleum or Coal Products	218,617	2,798	\$191,628,488	\$877
Primary Metal Products	102,162	1,215	\$159,333,572	\$1,560
Printed Matter	2	0	\$37,578	\$15,092
Pulp, paper Or Allied Products	340,042	5,836	\$282,035,307	\$829
Rubber or Misc. Plastics	40,743	2,906	\$109,448,904	\$2,686
Shipping Containers	0	7,520	-	-
Textile Mill Products	1,082	86	\$4,343,254	\$4,015
Transportation Equipment	171,508	8,916	\$1,675,781,365	\$9,771
Waste or Scrap Materials	70,245	1,287	\$25,502,980	\$363
Grand Total	3,096,962	70,556	\$5,804,924,336	\$1,874

Appendix G: Commodity Flows and Forecast

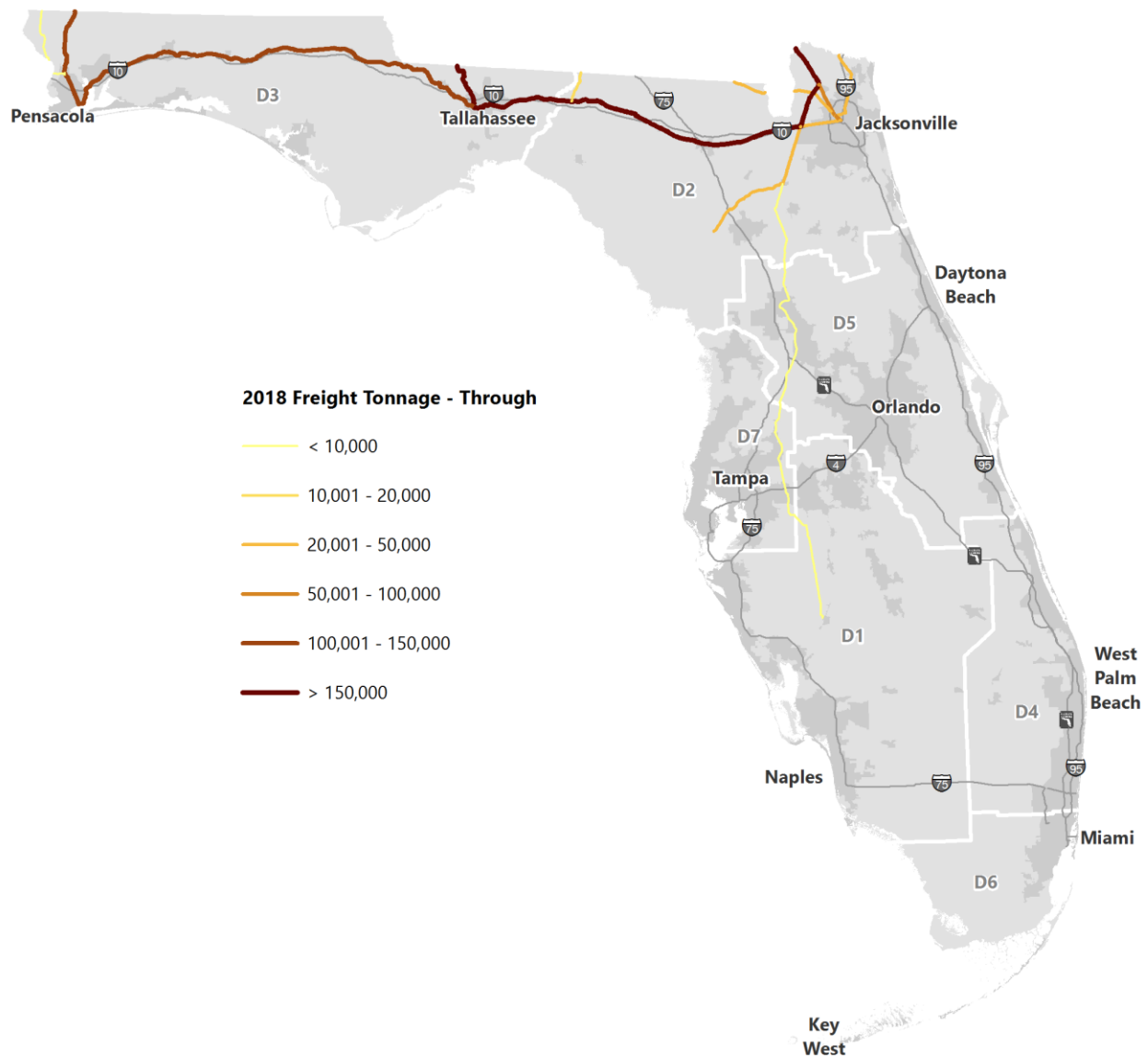
Figure G-11 | 2018 Top 5 STCC Rail Commodities (THROUGH)



Appendix G: Commodity Flows and Forecast

Figure G-12 depicts the freight rail line density (through movements) along the major rail corridors in state of Florida.

Figure G-12 | Florida Freight Rail Density (Through)



Appendix G: Commodity Flows and Forecast

G.3 FREIGHT RAIL FORECASTS

Freight rail tonnage forecasts for the year 2045 were made using directional commodity growth estimates from the IHS Markit 2018 TRANSEARCH® database, applied to the 2018 STB WAYBILL tonnage movements. The TRANSEARCH® database provides year 2018 actual volumes and year 2045 forecast volumes by direction and STCC commodity. Table G-7 provides the STCC directional commodity forecasts for 2045.

G.3.1 SUMMARY FORECASTS

In applying the TRANSEARCH®-derived growth rates to the STB WAYBILL tonnage movements, Florida freight rail movements would increase from 80.1 million tons in 2018 to 95.6 million in 2045, an average annual increase of 0.66% (Table G-7). Both inbound and outbound movements are forecast to appreciate at a comparable rate to the total movements, at 0.26% and 1.2%, respectively. The directional composition would not change appreciably.

Table G-7 | Rail Tonnage Forecast Summary, 2018-2045

Direction	2018		2045		Change	
	Amount	Percent	Amount	Percent	Total	CAGR
Outbound	11,666,092	16.15%	16,066,068	18.36%	37.72%	1.19%
Inbound	36,731,369	45.88%	39,353,319	41.16%	7.14%	0.26%
Through	3,096,962	3.87%	4,884,763	5.11%	57.73%	1.70%
Intrastate	20,761,564	25.93%	27,195,213	28.44%	30.99%	1.00%
Intra-County	7,796,858	9.74%	8,115,643	8.49%	4.09%	0.15%
All Directions	80,052,845	100%	95,615,006	100%	19.44%	0.66%

Commodity Growth

STCC commodity movements for 2045 are summarized in Table G-8. Figure G-13 depicts the top five two-digit STCC commodities by all rail directions combined for Florida freight rail, in terms of tonnage, units, and value, respectively. Supporting data is presented, by direction and is further detailed in the following subsections. Figure G-14 depicts the 2045 forecasted freight rail density map (all directions combined).

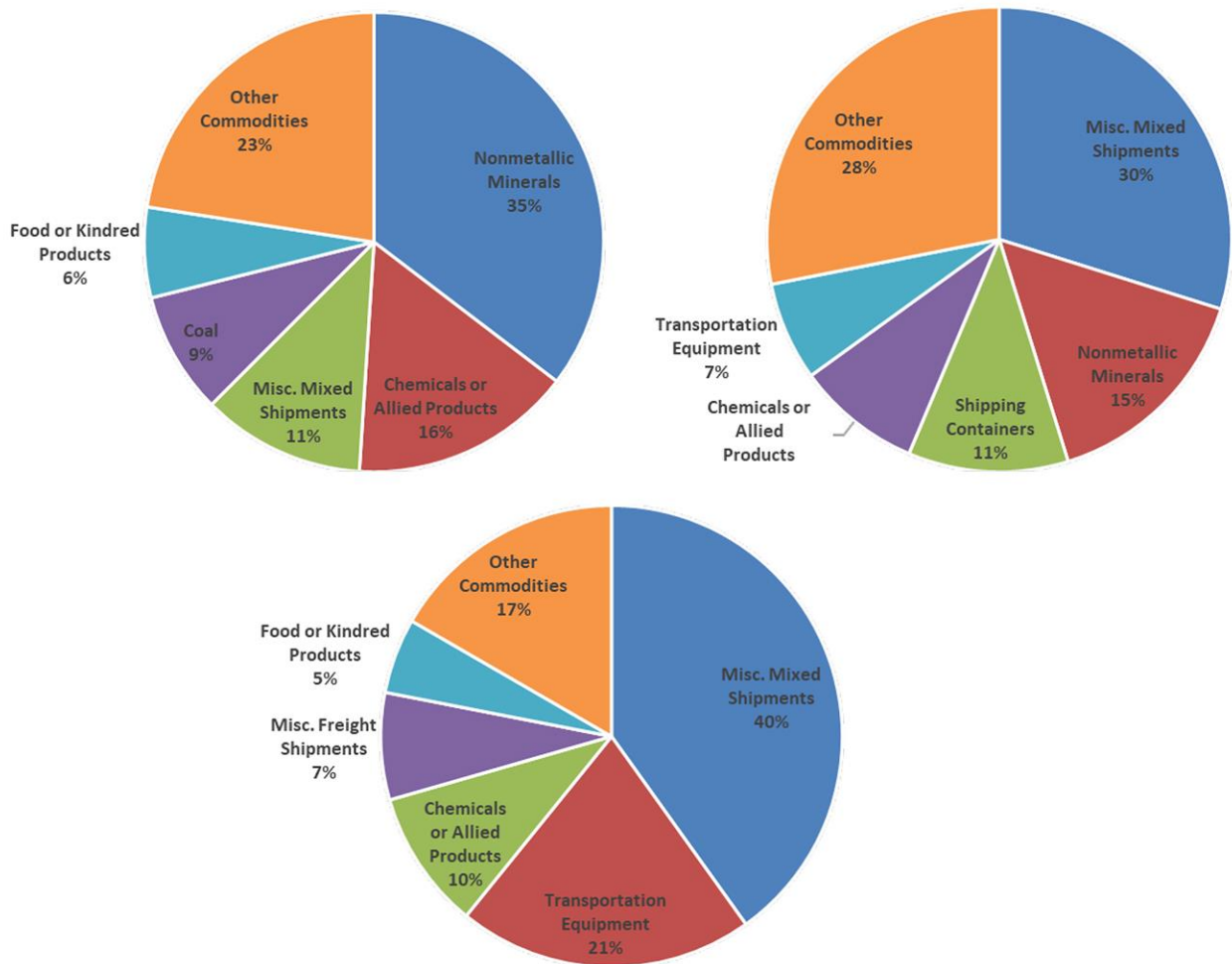
Appendix G: Commodity Flows and Forecast

Table G-8: Rail Summary, 2045

STCC2	Tons	Units	Value	Value/Tons
Apparel or Related Products	814,483	66,774	\$5,284,872,580	\$6,489
Chemicals or Allied Products	19,976,005	256,172	\$19,796,386,917	\$991
Clay, concrete, glass or stone	4,128,270	45,496	\$1,229,916,958	\$298
Coal	1,920,820	16,476	\$60,611,235	\$32
Crude Petrol. Or Natural Gas	11,883	123	\$3,382,351	\$285
Electrical Equipment	283,545	23,945	\$1,753,364,484	\$6,184
Fabricated Metal Products	211,079	17,082	\$897,779,531	\$4,253
Farm Products	1,692,118	26,189	\$432,706,647	\$256
Food or Kindred Products	7,685,650	150,288	\$9,081,725,583	\$1,182
Forest Products	1,864	87	\$4,778,635	\$2,564
Fresh Fish or Marine Products	169	7	\$671,594	\$3,977
Furniture or Fixtures	264,094	17,495	\$1,198,069,671	\$4,537
Instruments, Photo Equipment, Optical Equipment	21,013	1,887	\$202,377,358	\$9,631
Leather or Leather Products	922	138	\$19,553,763	\$21,204
Lumber or Wood Products	1,687,724	23,332	\$676,194,390	\$401
Machinery	337,491	17,669	\$2,699,891,256	\$8,000
Mail or Contract Traffic	3,073	477	\$9,468,304	\$3,081
Metallic Ores	121,637	1,362	\$322,263,498	\$2,649
Misc. Freight Shipments	47,317	3,531	\$162,869,991	\$3,442
Misc. Manufacturing Products	23,339	2,862	\$133,009,048	\$5,699
Misc. Mixed Shipments	13,376,369	774,517	\$67,834,140,291	\$5,071
Nonmetallic Minerals	31,622,585	308,411	\$1,065,073,490	\$34
Ordnance or Accessories	8,677	260	-	-
Petroleum or Coal Products	845,370	11,243	\$631,073,149	\$747
Primary Metal Products	1,148,677	13,630	\$1,884,736,159	\$1,641
Printed Matter	56,329	3,025	\$291,916,195	\$5,182
Pulp, paper Or Allied Products	3,996,497	89,007	\$3,565,465,275	\$892
Rubber or Misc. Plastics	437,697	37,079	\$1,812,509,355	\$4,141
Shipping Containers	797,771	289,043	-	-
Small Packaged Freight Shipments	20,049	2,073	-	-
Textile Mill Products	20,248	1,660	\$116,901,355	\$5,774
Transportation Equipment	2,511,913	125,986	\$25,039,786,292	\$9,968
Waste or Scrap Materials	1,540,328	20,968	\$465,234,663	\$302
Grand Total	95,615,006	2,348,292	\$146,676,730,017	\$1,534

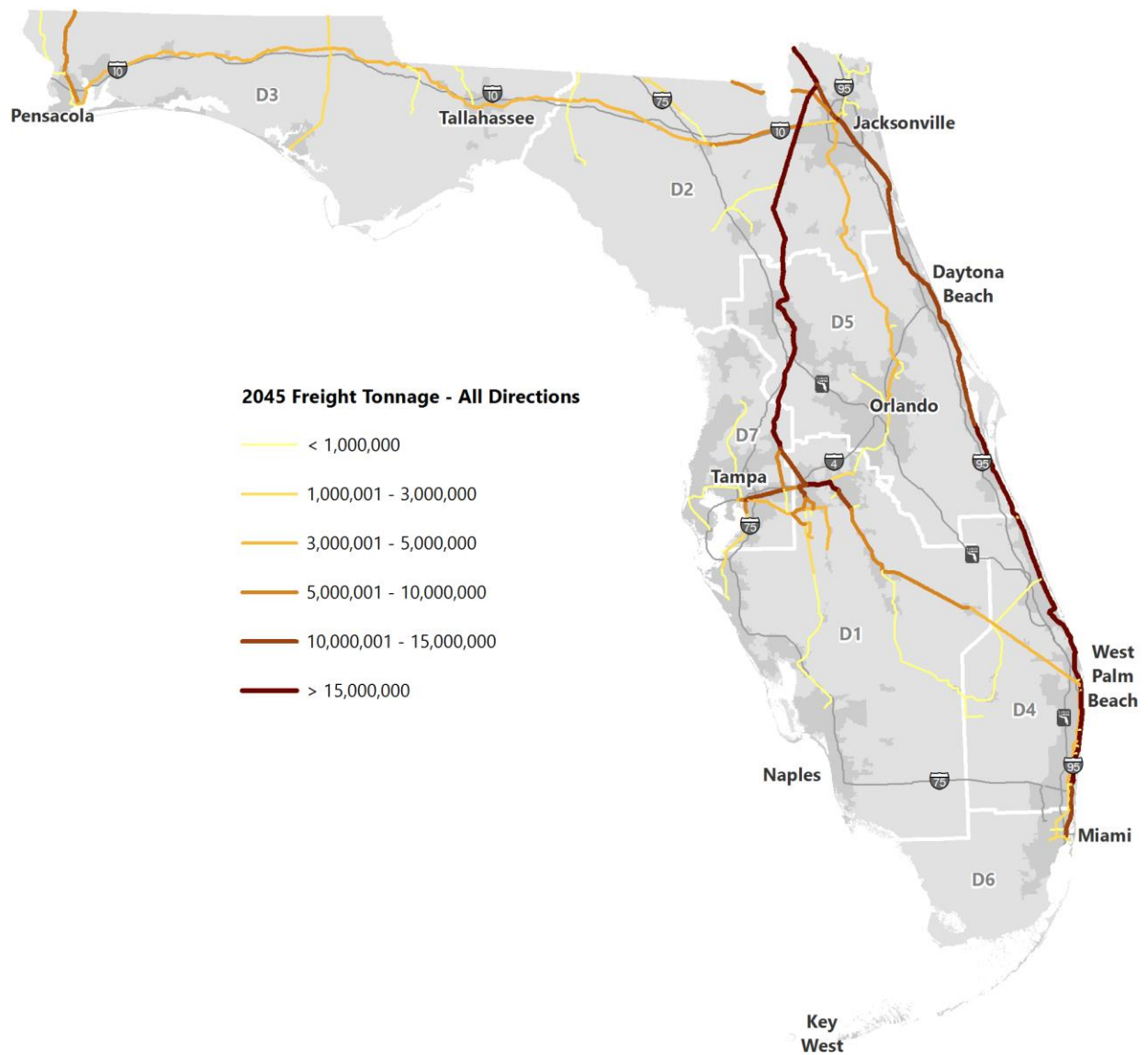
Appendix G: Commodity Flows and Forecast

Figure G-13 | 2045 Top 5 STCC Rail Commodities (All Directions)



Appendix G: Commodity Flows and Forecast

Figure G-14 | 2045 Florida Freight Rail Density (All Directions)



Appendix G: Commodity Flows and Forecast

G.4 SUMMARY AND NEXT STEPS

Freight rail movements pertaining to Florida comprise a range of commodities moving in different directions (outbound, inbound, intrastate, and through), measured in different terms (tons, units, and values), and with varying geographic origins/destinations. These various directional movements, terms, and geographies complicate simple summarization. Nonetheless, the following summary highlights major commodity movements by direction, as well as the most valuable movements.

G.4.1 TOTAL MOVEMENTS

A combined total 80.1 million tons of freight moved across Florida rail lines in 2018, transported in 1.78 million units, valued at \$115.97 billion.

Directional Overview

Commodity movement and composite terms vary by direction.

- Inbound Movements – Dominate in terms of tonnage, units, and value, which is unsurprising given that Florida's economy is more service-oriented.
- Given that Florida is a peninsula, through movements logically constitute a marginal proportion (<5%) of the total Florida-related rail movements.

Notable Commodity Movements

The following notable commodity movements compare and contrast the associated units and value, as well as direction.

Nonmetallic Minerals – Nonmetallic minerals dominate tonnage movements with over 28.3 million (35.4%), comprised of mostly intrastate movements (19.2 million) and inbound movements (9.02 million). However, such movements are valued at a relatively low \$0.99 billion (0.9%).

- Chemicals or Allied Products – Directional movements and terms are notable in all directions for all three terms (tonnage, units and value). Clearly, the commodity importance spans many industries across the state.
- Coal – In tonnage terms (6.9 million or 8.26%), coal is the fourth highest commodity moved in Florida, most of which is inbound. However, its value (\$214 million) comprises only 0.2% of total rail commodity movement value.
- Miscellaneous Mixed Shipments – While tonnage comprises a modest 11.5% (9.2 million tons) of statewide totals, it led unit movements (532,363 or 29.85%) and value (\$46.5 billion or 40.1%).

Other Notable Commodities

Three other notable commodities moved in value terms:

- Transportation Equipment – Transportation equipment was the second most valuable commodity moved (\$24 billion or 20.7%), and primarily comprises inbound vehicles/parts sold to Florida residents, businesses, and government institutions.
- Food or Kindred Products – Similarly, the majority (\$4.6 billion) of the \$6.1 billion in food products are inbound, sold to Florida residents or supply the various service industries. A notable remaining share (\$1.2 billion) reflects outbound movements.
- Pulp, Paper or Allied Products – A majority (64%) of the pulp/paper product movements (\$2.4 billion) are outbound movements.



FREIGHT & RAIL

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