



Institute for Trade and Transportation Studies

# SOUTHEAST TRADE AND TRANSPORTATION STUDY

Phase 1: Freight and Trade Profile

## EXECUTIVE SUMMARY





# SOUTHEAST TRADE AND TRANSPORTATION STUDY

## *Phase 1: Freight and Trade Profile*

### *Departments of Transportation*

Arkansas Department of Transportation

Florida Department of Transportation

Georgia Department of Transportation

Kentucky Transportation Cabinet

Louisiana Department of Transportation  
and Development

Mississippi Department of Transportation

Missouri Department of Transportation

South Carolina Department of  
Transportation

Texas Department of Transportation

Virginia Department of Transportation

### *Steering Committee*

Arkansas Department of Transportation

Georgia Department of Transportation

Texas Department of Transportation

Virginia Department of Transportation



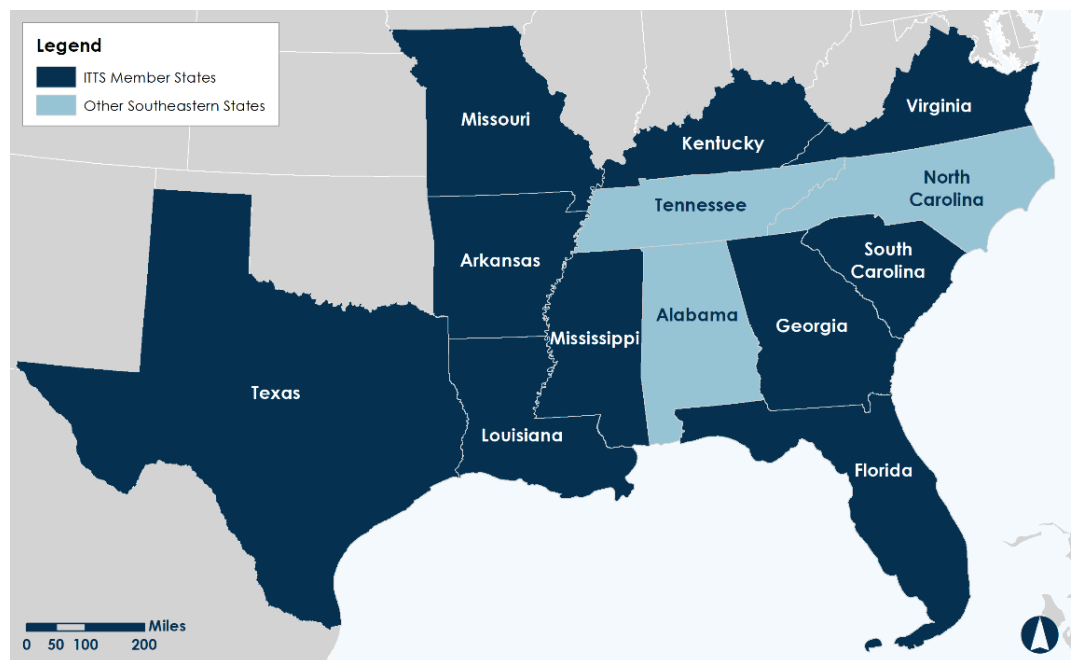


## PLAN PURPOSE AND OVERVIEW

In 2001, the Institute for Trade and Transportation Studies (ITTS) updated the 1996 Latin America Trade and Transportation Study (LATTS). The timing of the report came amid increased trade with Mexico seven years after the North American Free Trade Agreement (NAFTA) went into effect in 1994. By 2000, ships were being built that could not pass through the Panama Canal and discussion about its expansion had begun.<sup>1</sup> The purpose of 2001 LATTS was to “evaluate opportunities for trade with Latin America, and to determine transportation infrastructure investment needs for the Alliance to capitalize on such trade.”

The ITTS region once again faces a period of change and opportunity. Among other developments, the NAFTA has been replaced by the United States-Mexico-Canada Agreement (USMCA), advances in motor vehicle and communications technologies have opened new opportunities for addressing transportation challenges, changes in manufacturing and logistics practices have impacted land use and freight traffic patterns, and a global pandemic has transformed the way the supply chains and structured and managed.

**FIGURE 1 ITTS STATES AND OTHER SOUTHEASTERN STATES**



Source: Institute for Trade and Transportation Studies.

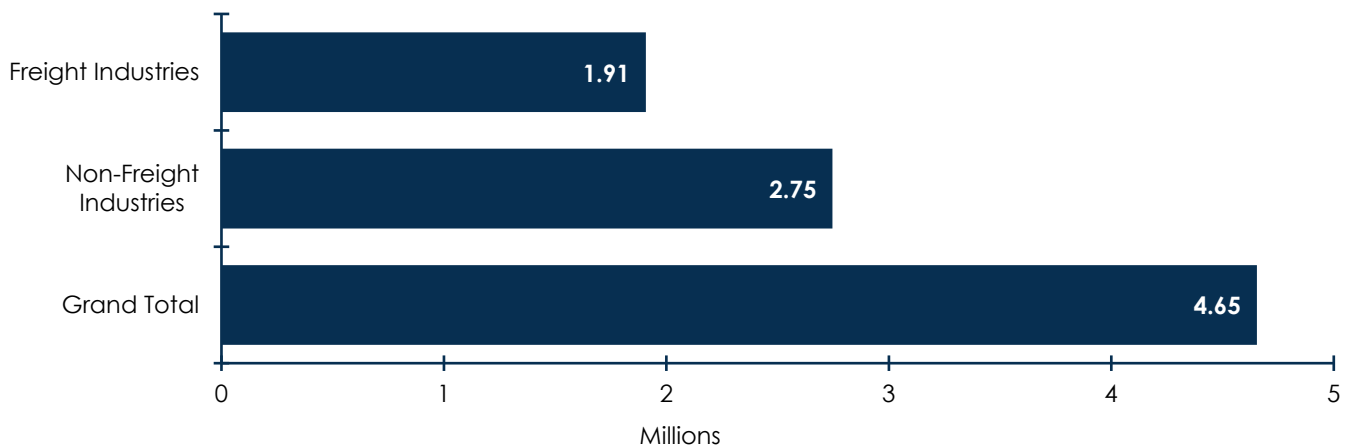
<sup>1</sup> New York Times. June 22, 2016. “The New Panama Canal: A Risky Bet.” <https://www.nytimes.com/interactive/2016/06/22/world/americas/panama-canal.html>.

Shifts in technology, trade, and geopolitics have recast the focus of the Southeast Trade and Transportation Study (SETTS). Phase I SETTS is a robust global trade profile of the member states as a trading bloc. Like the study in 2001, the timing of this study comes amid a new normal. In this case, the setting includes a diverse set of factors such as growth in e-commerce, the emergence of Asian nations as strong trading partners, and the globalization of supply chains. Phase I SETTS advances the profile of the region in updating current economic, industry, modal, and network data to set the stage for research on future regional opportunities in prioritization, funding, and planning.

## 1.1 Importance of Freight to the ITTS Region

The Phase I SETTS found that in 2019 about **8.3 billion tons of freight worth over \$7.6 trillion** were transported to, from, or within the ITTS region. International trade accounted for over 1.3 billion tons and nearly \$1.7 trillion in value. Exports account for a higher share of tonnage while imports comprise a greater share of value. In addition to investigating domestic and international trade, the 2023 SETTS also considered the economic impact of freight to ITTS member states. In 2020, total gross domestic product (GDP) for ITTS states was \$4.65 trillion of which \$1.91 trillion (41 percent) was associated with industries that consume goods, produce goods, or transport goods as shown in Figure 2.

**FIGURE 2 GDP (\$M) FREIGHT AND NON-FREIGHT, 2020**



Source: Analysis of U.S. Bureau of the Census data.

## ECONOMIC IMPACT

**Railroads, motor carriers, and other freight transportation service providers make a substantial contribution to the economies of ITTS states.**

- **2.7 million jobs**
- **\$137.3 billion in wages**
- **\$206 billion in GDP**

*Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages and Occupational Employment and Wage Statistics; U.S. Census Bureau, Non-Employer Statistics; U.S. Bureau of Economic Analysis, GDP by State; Association of American Railroads, State Data.*

Freight transportation service providers such as railroads and motor carriers contribute significantly to the economies of ITTS member states—**2.7 million direct jobs, \$137 billion in total wages, and \$206 billion in annual GDP**. In addition to freight transportation service providers, freight-generating industry sectors are also important to member states' economies and are drivers of domestic and international trade:

- **Agriculture** is an important sector across the region and represents one of the top 10 commodities imported and exported. It employs over 193,000 workers, generates almost \$25 billion in GDP, contributed more than \$8 billion labor earnings.
- **Construction** employs the most workers among freight-generating sectors—over 3.3 million. Additionally, it generated over \$206 billion in wages (more than any other freight-generating sector) and more than \$266 billion in GDP.
- **Energy and Petrochemicals** are the top export of the region. This sector produces nearly \$319 billion in GDP, over \$73 billion in labor earnings, and supports nearly 740,000 jobs across the ITTS region.

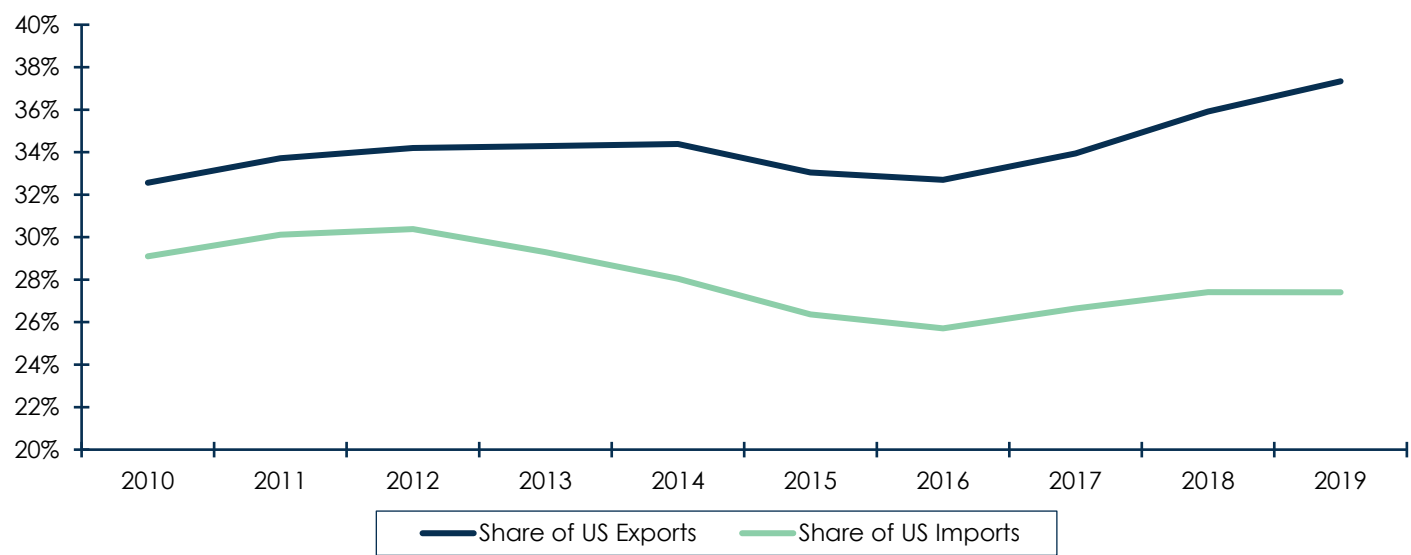
- **Manufacturing** represents the largest of freight-generating sector with nearly \$413 billion in GDP, over 2.8 million employees, and more than \$180 billion in wages.



# TRADE IN THE ITTS REGION

**The balance of imports and exports shows ITTS states at a trade surplus.** International trade was 57 percent export and 43 percent import by tonnage, and 55 percent import and 44 percent export by value, based on 2017 data. The value shares are projected to remain relatively stable through 2050, but the tonnage shares are expected to increasingly favor exports (growing from 57 percent to 63 percent), as the region continues to export more higher-weight goods than it imports. Figure 3 shows the proportion of U.S. trade that ITTS represents. Exports are on the rise and imports are on the decline. **Chemicals, transportation equipment, computers and electronics, and petroleum and coal products** are top commodities for import and export commodities in the ITTS region.

**FIGURE 3 ITTS SHARE OF U.S. TRADE, 2010–2019**



Source: U.S. Census Bureau, USA Trade Online Database; Cambridge Systematics, Inc. analysis.



Exports are growing and projected to grow in the region. As a percentage of U.S. trade to a specific region, ITTS is performing above its average (~35 percent) in exports to South America, Central America and Caribbean, Africa, and Asia-South. Imports have dramatically declined from several countries since 2012. The percentage of imports from South America, Asia—Near East, Africa and Central America and Caribbean, have all declined from ~50 percent or more to less than 50 percent.

Exports	Imports
<ul style="list-style-type: none"><li>Exports to South America increased from 57% in 2008 to 65% in 2020.</li><li>Exports to Central America and the Caribbean increased from 57% in 2008 to 64% in 2020.</li><li>Exports to Africa have risen slightly from 44% in 2012 to 46% in 2020.</li><li>Exports to South Asia rose to 44% in 2020.</li></ul>	<ul style="list-style-type: none"><li>South American imports dropped from 62% in 2012 to 45% in 2020.</li><li>Imports from Asia-Near East fell from 61% in 2012 to 34% in 2020.</li><li>Central American and Caribbean imports dropped from 54% in 2012 to 46% in 2020.</li><li>African imports fell to 18% in 2020.</li></ul>

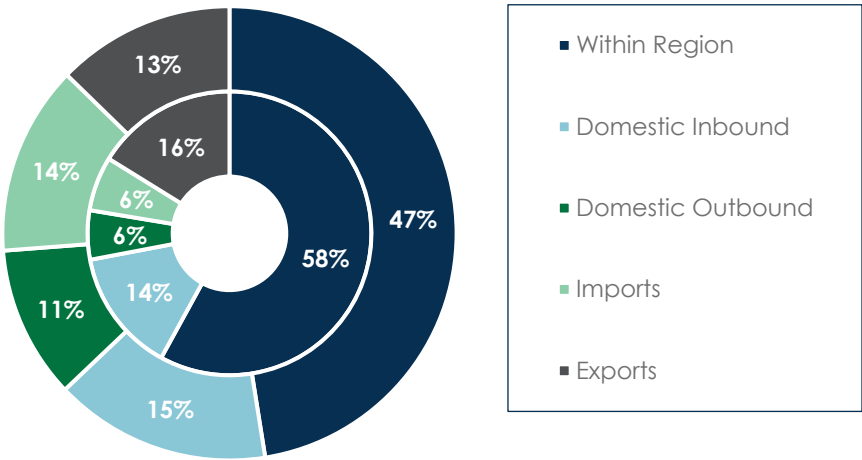
## 2.1 Freight-Generating Sectors

Freight-generating sectors are those that are major producers, consumers, or distributors of freight. They are also important to member states' economies and are drivers of domestic and international trade. Phase I SETTS investigated four freight-generating sectors essential to the ITTS region's economy: agriculture, energy and petrochemicals, construction, and manufacturing.

### 2.1.1 Agriculture

**Agriculture is one of the largest industries across the ITTS region.** As a result, the transport of food and farm goods over the multimodal freight network is essential to the economies of multiple ITTS member states. In 2019, **over 1.2 billion tons of agricultural goods worth nearly \$842 billion** were transported throughout the ITTS region. This represents about 31 percent of total tonnage in the U.S. and approximately 32 percent of total value.

**FIGURE 4     AGRICULTURAL TONS (INNER) AND VALUE (OUTER) BY TRADE TYPE IN THE SOUTHEAST, 2019**

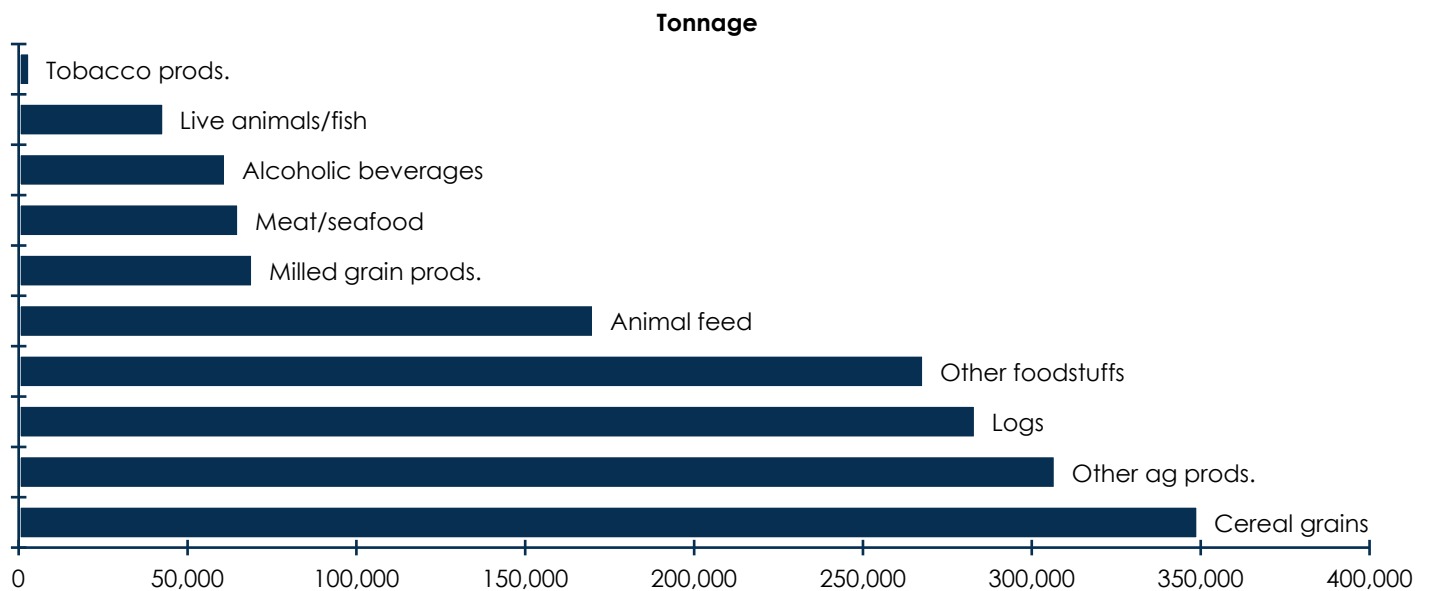


Source: FHWA, Freight Analysis Framework version 5.2; U.S. Census Bureau, USA Trade Online Database; Cambridge Systematics, Inc. analysis.

The flow of agricultural goods by tonnage and value across the Southeast in 2019 is shown in Figure 4. About 58 percent of total tonnage (representing 47 percent of total value) was moved within the region. Exports comprised the next highest share of total agricultural tonnage at approximately 16 percent. This corresponds to about 13 percent of total value. While exports comprise a greater share of total tonnage, on average imported agricultural goods are more valuable. Imports accounted for 6 percent of total agricultural tonnage, but 14 percent of total value.

Figure 5 shows the top agricultural commodities by total tonnage in 2019 for the Southeast. Cereal grains, other agricultural products, and logs were the largest agricultural commodity types shipped in the Southeast. Over 349 million tons of cereal grains were transported in the region, which accounts for about 27 percent of the total agricultural tonnage in 2019. Cereal grains were followed by other agricultural products with about 307 million tons—about 24 percent of total agricultural tonnage. Logs, other foodstuffs, and animal feed also comprised large shares of agricultural tonnage—about 13 percent to 22 percent each.

**FIGURE 5 TOP AGRICULTURAL COMMODITIES BY TOTAL TONNAGE IN THE SOUTHEAST, 2019**

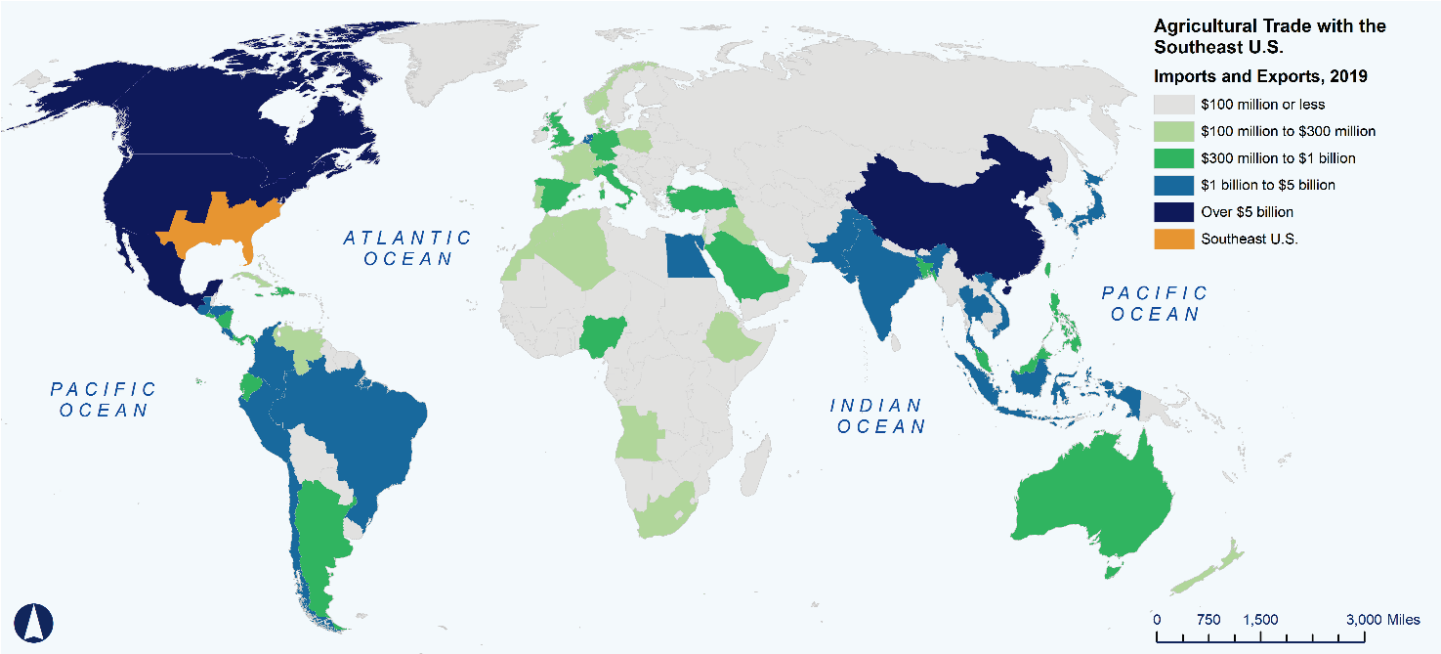


Source: FHWA, Freight Analysis Framework Version 5.2; U.S. Census Bureau, USA Trade Online Database; Cambridge Systematics, Inc. analysis.

About \$81.9 billion of agricultural goods were imported into or exported from the Southeast in 2019. This comprised nearly 42 percent of the U.S. total. Mexico, Canada, and China represent top trading partners for agricultural goods as shown in Figure 6. Those nations traded approximately \$15 billion, \$7.5 billion, and \$6.8 billion in agricultural goods with the Southeast in 2019.



**FIGURE 6 TOTAL AGRICULTURAL INTERNATIONAL TRADE WITH THE SOUTHEAST, 2019**



Source: FHWA, Freight Analysis Framework Version 5.2; U.S. Census Bureau, USA Trade Online Database; Cambridge Systematics, Inc. analysis.

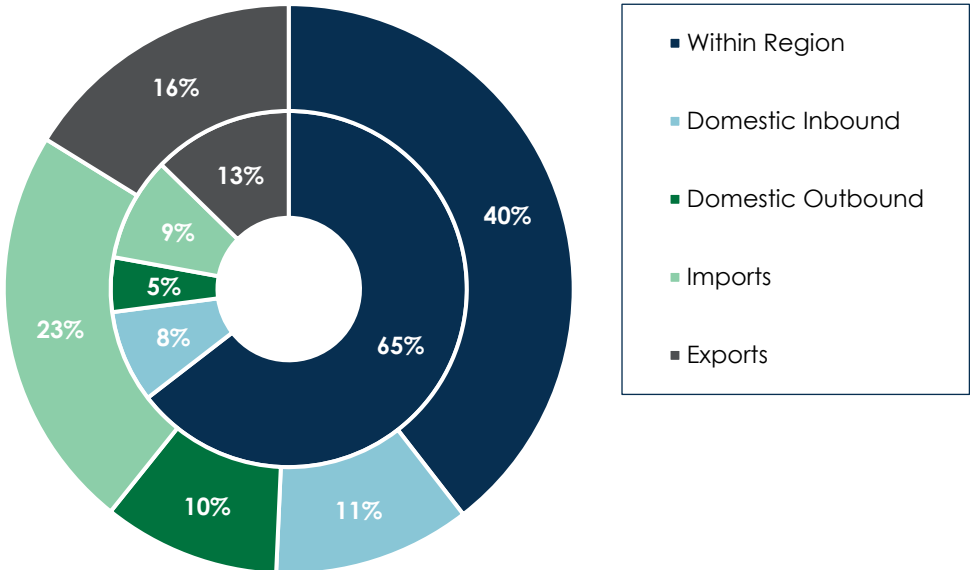
2.1.2 Construction

In 2019, over 8.3 billion tons of construction goods worth over \$7.6 trillion were transported to, from, or within the ITTS region.

This represents about 41 percent of total tonnage in the U.S. and approximately 40 percent of total value. Figure 7 shows the flow of goods by tonnage across the entire Southeast by direction in 2019. Almost 65 percent of all total construction goods tonnage (about 40 percent of total value) was moved within the region.

Exports comprised the next highest share of total tonnage by direction at

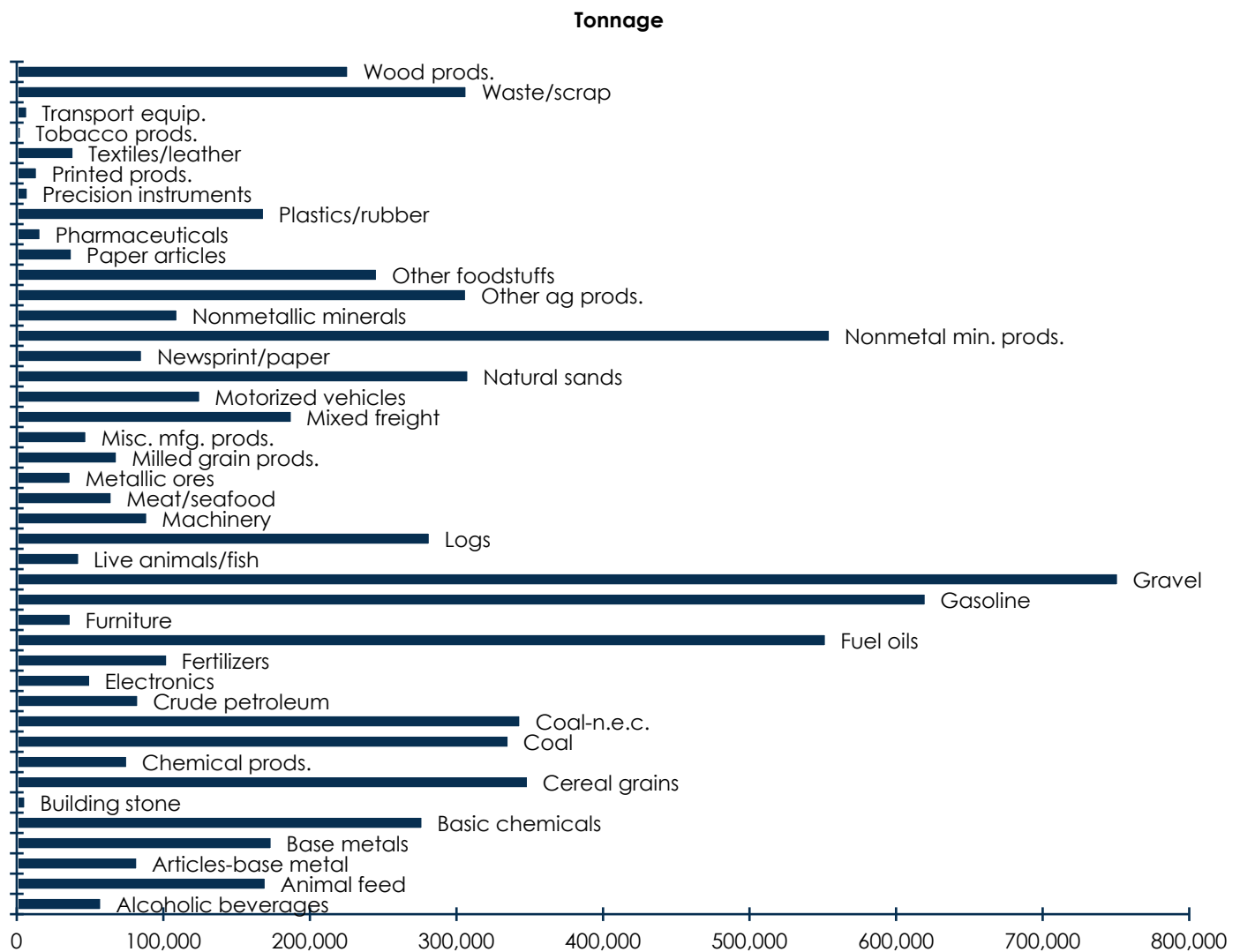
**FIGURE 7 CONSTRUCTION TONS (INNER) AND VALUE (OUTER) BY TRADE TYPE IN THE SOUTHEAST, 2019**



approximately 13 percent. Interestingly, imports accounted for 9 percent of total tonnage, but 23 percent of total value. This reflects the importance of the region's international gateways for freight.

The top construction commodities by total tonnage across all directions for 2019 are shown in Figure 8. Bulk goods including gravel, gasoline, nonmetal mineral products, and fuel oils were the largest commodity types shipped in the ITTS region. Nearly 752 million tons of gravel was transported in the region, which accounts for about 9 percent of the total tonnage in 2019. This is followed by gasoline with about 6.2 million tons, nonmetallic mineral products (e.g., sand) with nearly 5.6 million tons, and fuel oils with about 5.5 million tons. Many of these commodities can be linked to major industry sectors throughout the ITTS region. Examples include construction and energy production.

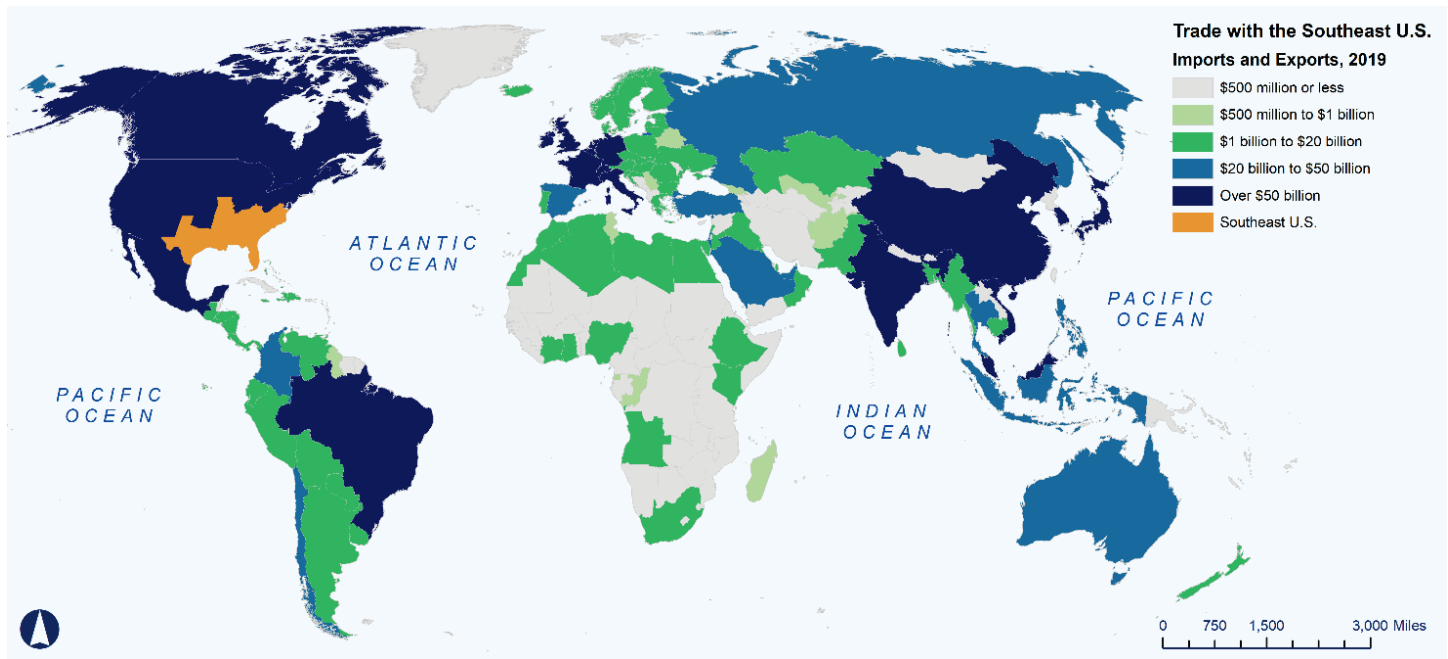
**FIGURE 8 TOP COMMODITIES BY TOTAL TONNAGE IN THE SOUTHEAST, 2019**



Source: FHWA, Freight Analysis Framework Version 5.2; U.S. Census Bureau, USA Trade Online Database; Cambridge Systematics, Inc. analysis.

Over **\$1.8 trillion in construction goods** were imported or exported to or from the Southeast comprising over 48 percent of the U.S. total. Figure 9 shows that Mexico, China, Canada, and Japan represent top trading partners for construction goods for the Southeast. Mexico was by far the largest trading partner. In 2019, it traded over \$307.6 billion in goods with the Southeast. China and Canada traded over \$179.2 billion and \$171.4 billion with the Southeast, respectively. Japan accounted for approximately \$145 billion in trade.

**FIGURE 9 TOTAL INTERNATIONAL CONSTRUCTION TRADE WITH THE SOUTHEAST, 2019**



Source: FHWA, Freight Analysis Framework Version 5.2; U.S. Census Bureau, USA Trade Online Database; Cambridge Systematics, Inc. analysis.

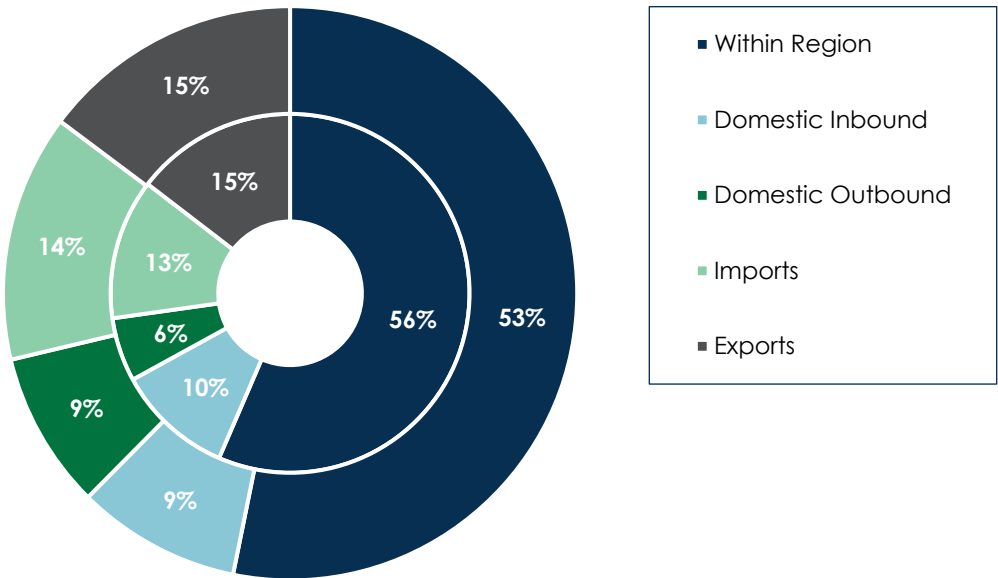
### 2.1.3 Energy and Petrochemicals

The ITTS region contains some of the largest sources of fossil fuels in the nation. Furthermore, Gulf Coast ports are essential to the international trade of energy products. In 2019, **over 4.3 billion tons of energy and petrochemical goods worth over \$2 trillion** were transported throughout the ITTS region. This represents about 50 percent of total tonnage in the U.S. and approximately 49 percent of total value.

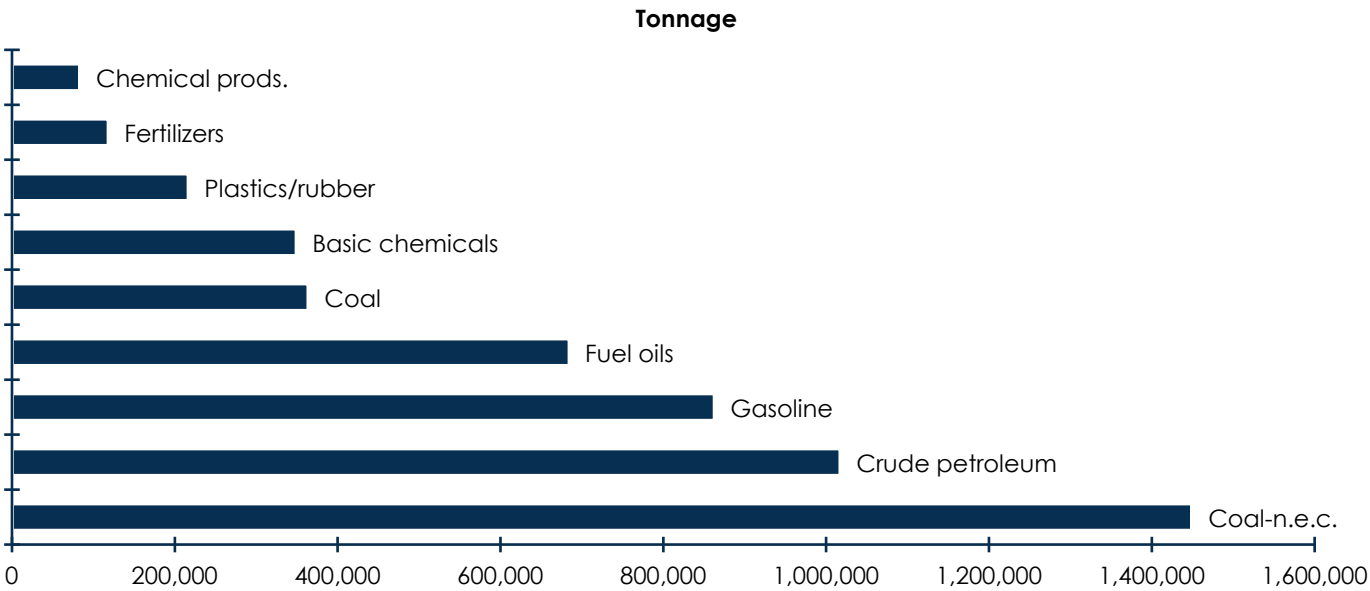
Figure 10 shows the flow of petrochemicals (tonnage and value) across the Southeast by direction in 2019. About 56 percent of petrochemicals (comprising about 53 percent of total value) were moved within the region. About 15 percent of petrochemicals, both tonnage and value, were exported from the Southeast. Approximately 13 percent of petrochemicals were imported into the region representing about 14 percent of total value.

The top petrochemical commodities by total tonnage for 2019 are shown in Figure 11. Coal-n.e.c., crude petroleum, and gasoline were the largest petrochemical commodity types shipped in the Southeast. Over 1.4 billion tons of coal-n.e.c. were transported in the region, which accounts for about 33 percent of the total petrochemical tonnage. This is followed by crude petroleum with over 1 billion tons (23 percent of total tonnage), gasoline with about 863 million tons (20 percent of total tonnage), and fuel oils with nearly 685 million tons (16 percent of total tonnage).

**FIGURE 10 PETROCHEMICAL TONS (INNER) AND VALUE (OUTER) BY TRADE TYPE IN THE SOUTHEAST, 2019**



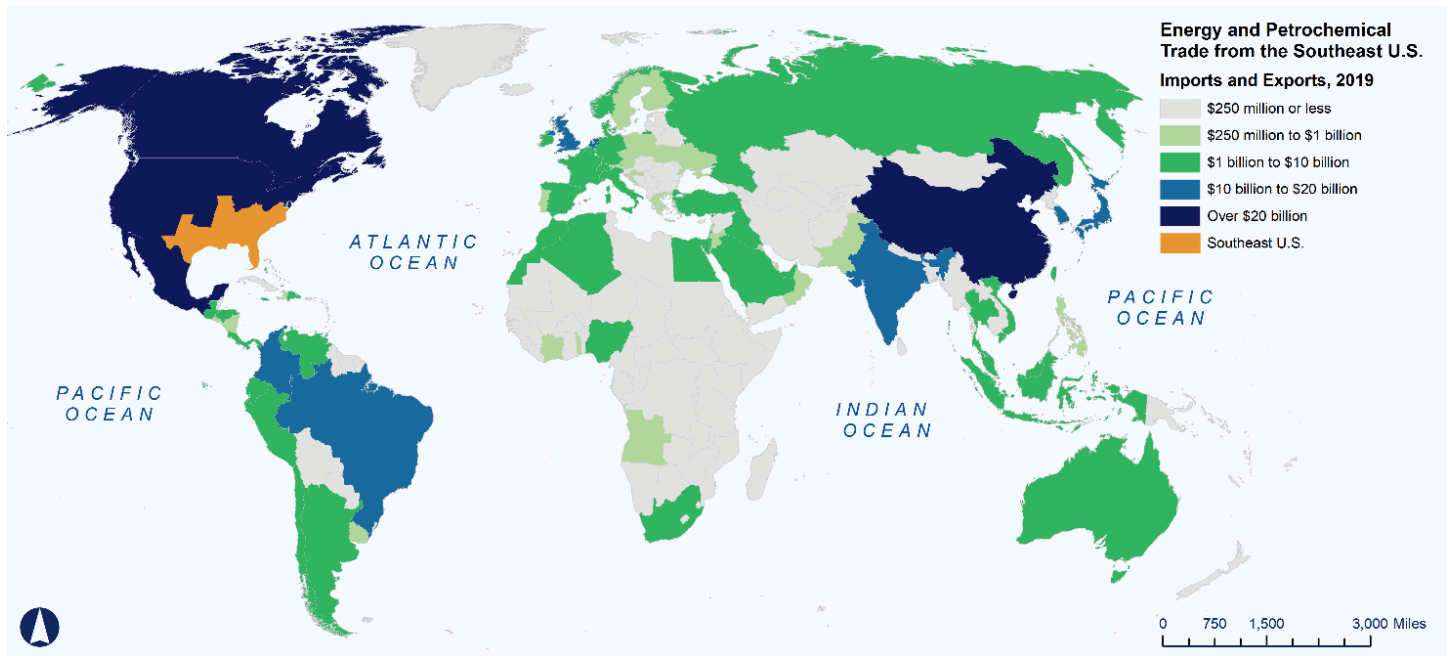
**FIGURE 11 TOP PETROCHEMICAL COMMODITIES BY TOTAL TONNAGE IN THE SOUTHEAST, 2019**



Source: FHWA, Freight Analysis Framework Version 5.2; U.S. Census Bureau, USA Trade Online Database; Cambridge Systematics, Inc. analysis.

About **\$395 billion in energy and petrochemical goods** were traded internationally with the Southeast, which represent approximately 56 percent of the national total. Mexico, Canada, and China are the Southeast's top trading partners for energy and petrochemicals by value, as shown in Figure 12. Those nations traded approximately \$66 billion, \$42 billion, and \$20.7 billion in petrochemical goods with the region in 2019, respectively. In addition to these nations, South Korea and Brazil also represent top trading partners.

**FIGURE 12 INTERNATIONAL PETROCHEMICAL TRADE WITH THE SOUTHEAST, 2019**



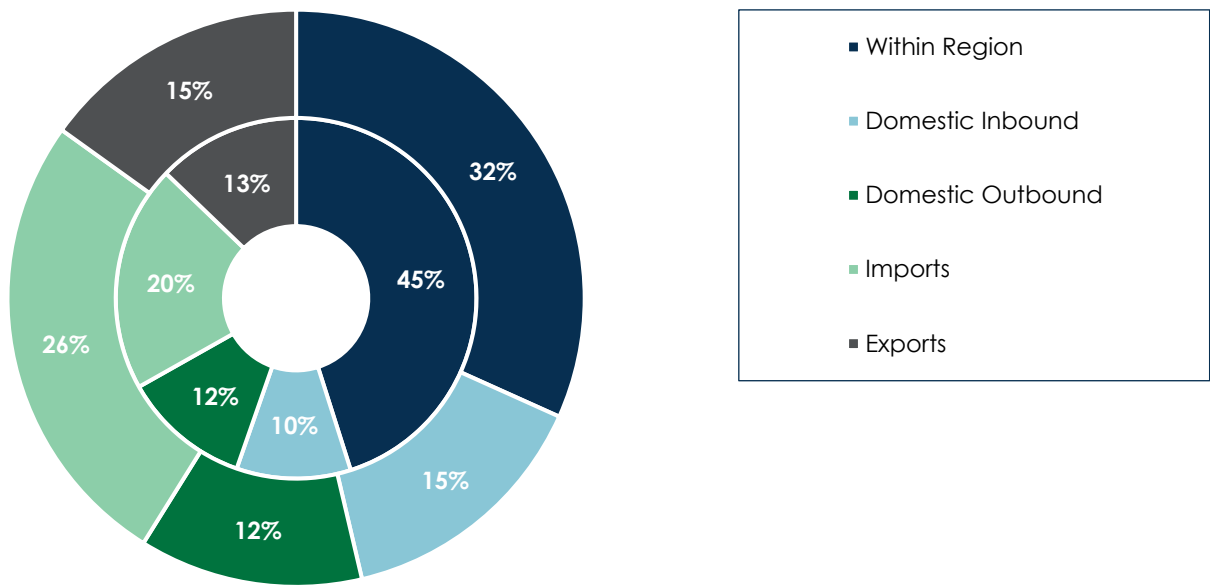
Source: FHWA, Freight Analysis Framework Version 5.2; U.S. Census Bureau, USA Trade Online Database; Cambridge Systematics, Inc. analysis.

#### 2.1.4 Manufacturing

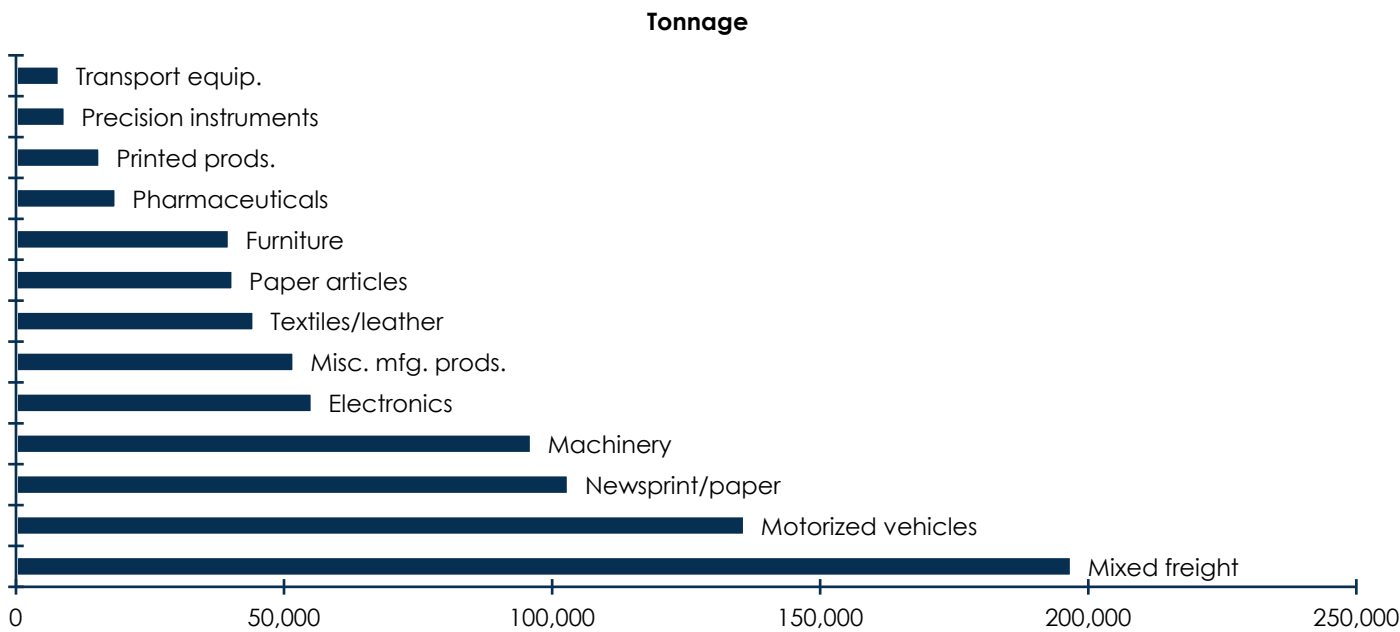
In 2019, **about 576 million tons of manufacturing goods worth nearly \$4 trillion** were transported throughout the ITTS region. This represents about 39 percent of total tonnage and value in the U.S. As shown in Figure 13, about 45 percent of manufacturing goods by tonnage were moved within the Southeast. This represents about 32 percent of total value. Imports was the next largest direction, comprising 20 percent of total tonnage and 26 percent of total value. Exports accounted for 13 percent of total tonnage and 15 percent of total value.

The top manufacturing commodities by total tonnage for 2019 are shown in Figure 14. Mixed freight, motorized vehicles, and newsprint/paper were the largest manufacturing commodity types shipped in the Southeast. Over 196 million tons of mixed freight were transported in the region, which account for about 34 percent of the total construction commodity tonnage. This is followed by motorized vehicles with nearly 136 million tons (about 24 percent of total tonnage) and newsprint/paper with over 103 million tons (about 18 percent of total tonnage).

**FIGURE 13 MANUFACTURING TONS (INNER) AND VALUE (OUTER) BY TRADE TYPE IN THE SOUTHEAST, 2019**



**FIGURE 14 TOP MANUFACTURING COMMODITIES BY TOTAL TONNAGE IN THE SOUTHEAST, 2019**

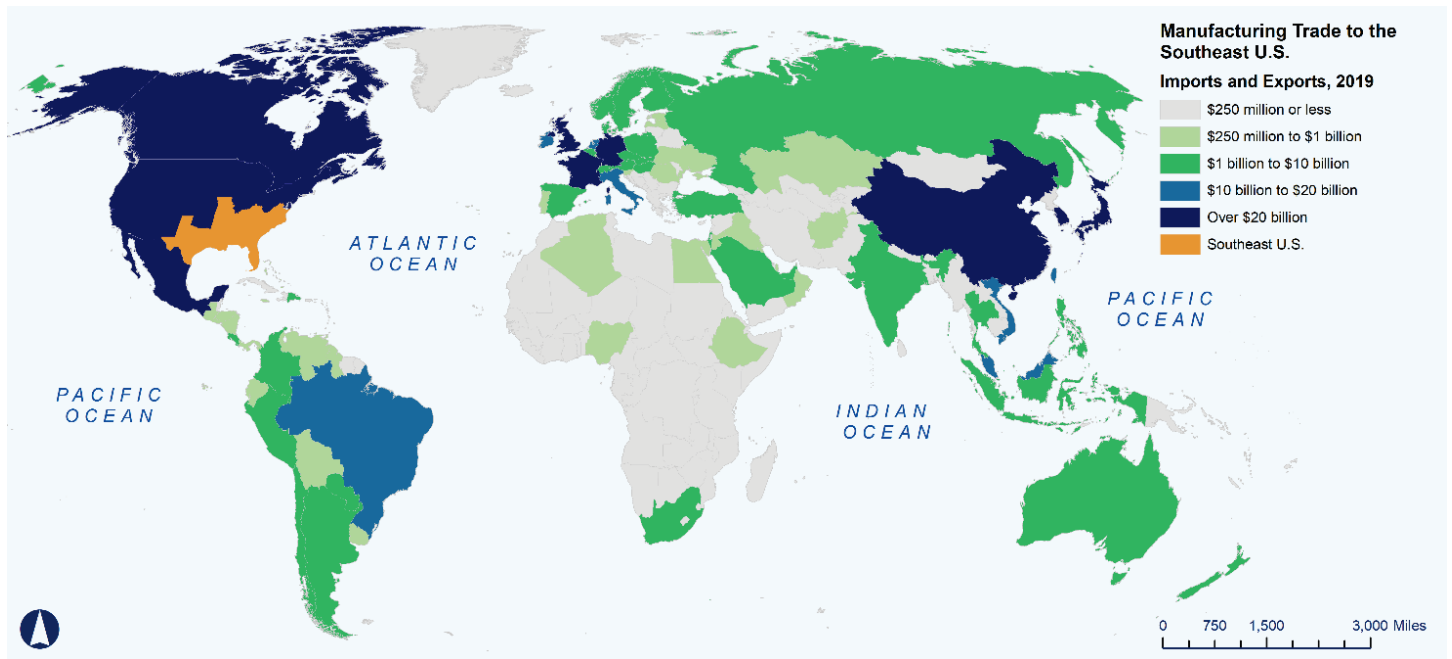


Source: FHWA, Freight Analysis Framework Version 5.2; U.S. Census Bureau, USA Trade Online Database; Cambridge Systematics, Inc. analysis.



**Manufacturing imports and exports in 2019 for the Southeast were valued at over \$1.1 trillion.** This represents about 49 percent of total international trade for energy and petrochemical goods for the U.S. In terms of value, these goods comprise over 43 percent of the national total. Figure 15 shows total international manufacturing trade by value for the Southeast. Top trading partners include China, Canada, and Mexico. Those nations traded approximately \$180 billion, \$98.7 billion, and \$65 billion in manufacturing goods with the Southeast in 2019.

**FIGURE 15 TOTAL MANUFACTURING INTERNATIONAL TRADE WITH THE SOUTHEAST, 2019**



Source: FHWA, Freight Analysis Framework Version 5.2; U.S. Census Bureau, USA Trade Online Database; Cambridge Systematics, Inc. analysis.

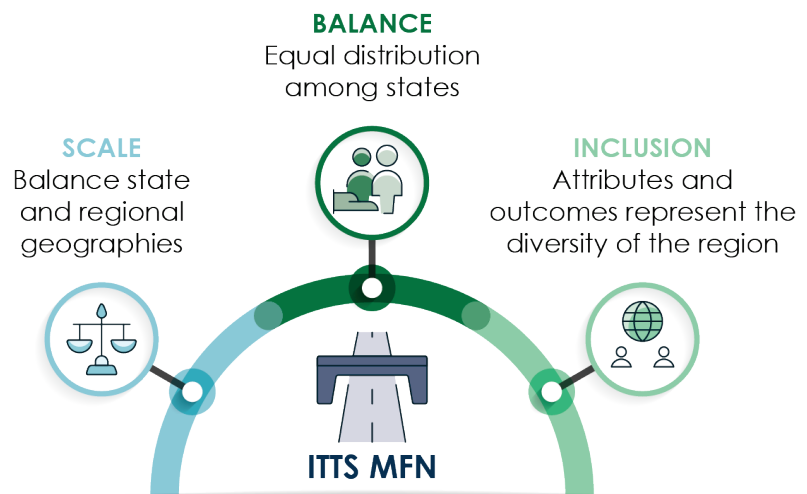
# 3

## STRATEGIC TRANSPORTATION SYSTEM

Identifying the key freight infrastructure of the ITTS region is foundational to considering freight movement across state lines and international borders. **A prioritized infrastructure dataset enhances freight planning within individual states and promote collaboration among the states.** Therefore, the Phase I SETTS performed an evaluation of modal infrastructure to define the key elements of the ITTS Multimodal Freight Network (MFN). The ITTS MFN is comprised of each of the surface freight modes: highways, railroads, waterways, airports, seaports, riverports, rail intermodal terminals, and border ports-of-entry.

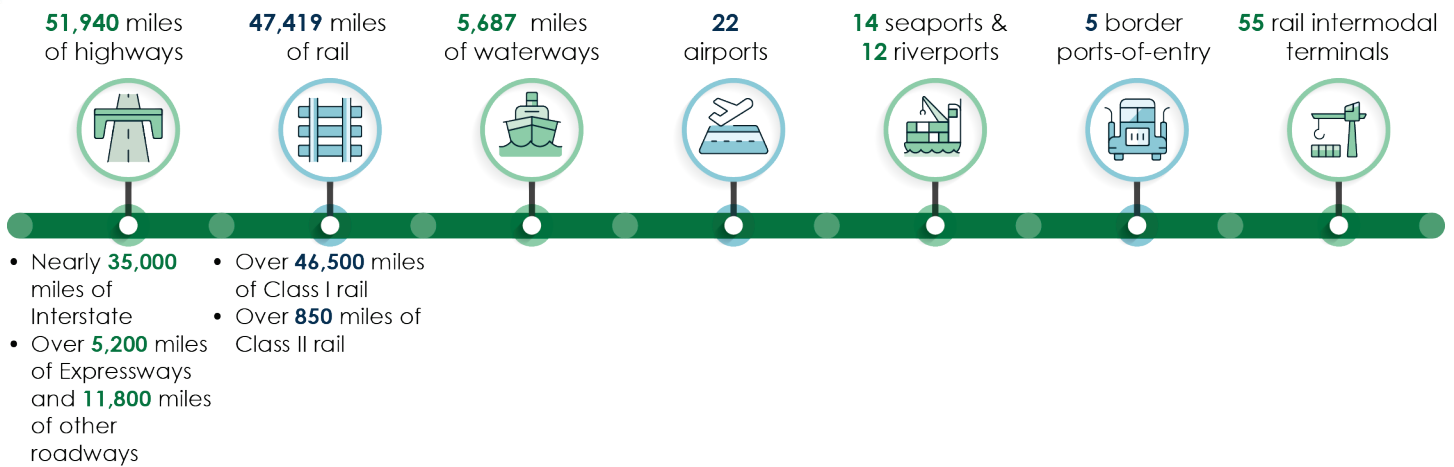
A process and set of criteria were developed for designating the ITTS MFN for each mode. Those processes and criteria reflected principles of scale, balance, and inclusion as shown in Figure 16. For example, for highways the process began with the Primary Highway Freight System (PHFS) and any Interstate Highway not included in the PHFS as the foundation for the ITTS Highway Freight Network as they are already prioritized through legislation and tied to the National Highway Freight Program. From there, National Highway System (NHS) corridors were considered for each state separately so that the highest-ranking corridors in individual states rise to the top rather than compete with corridors in other states. This reflects the principle of balance. To incorporate the principle of scale into the process, two criteria were applied to account for varying population densities within a state: (1) Annual Average Daily Truck Traffic (AADTT), emphasizing urban areas; and (2) Percent Truck, emphasizing rural areas. Lastly, reflecting the principle of inclusion steering committee input was taken into account to ensure the diversity of the region is represented across the network.

**FIGURE 16 ITTS MFN GUIDING PRINCIPLES**



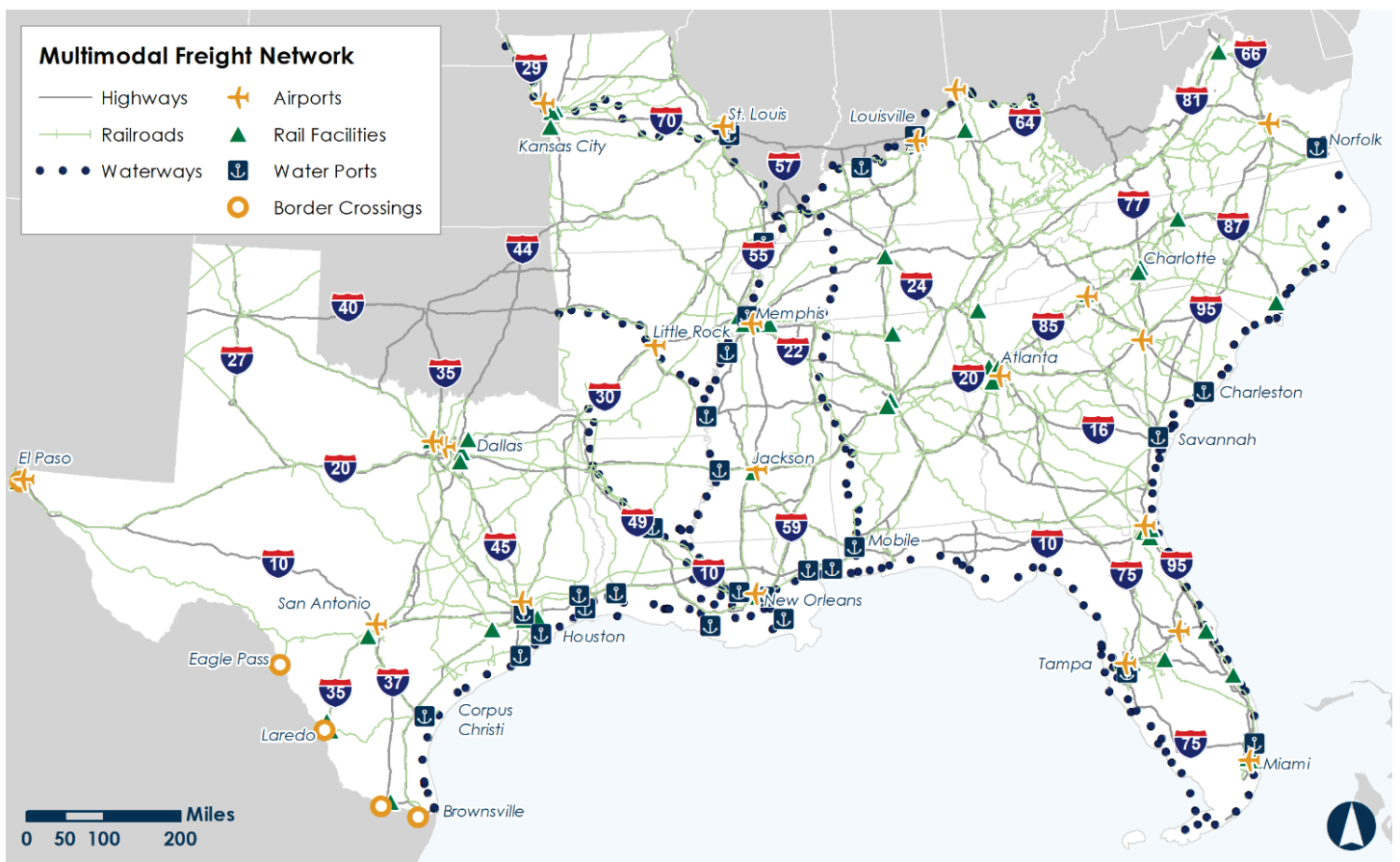
*Source: Institute of Trade and Transportation Studies.*

The final designated network is shown in Figure 17. It consists of the key corridors, terminals, and facilities that are essential for facilitating domestic and international trade in the ITTS region. Specifically, the ITTS MFN consists of nearly **52,000** miles of highways, over **47,000** miles of rail, nearly **5,700** miles of waterways, **22** airports, **14** seaports, **12** riverports, **5** border ports-of-entry, and **55** rail intermodal terminals.



In future phases of SETTS, the ITTS MFN may serve as the basis for assessing the conditions and needs of freight infrastructure in the ITTS region as well as the supply chains that rely on it. It also provides the foundation for collaboration among ITTS states. Challenges such as truck parking, supply chain disruptions, and extreme weather events are not limited to jurisdictional boundaries. The ITTS MFN provides a priority infrastructure network over which to address those challenges at a multi-state scale.

**FIGURE 17 ITTS MULTIMODAL FREIGHT NETWORK**



Source: Institute of Trade and Transportation Studies.



## TRENDS IMPACTING THE ITTS REGION

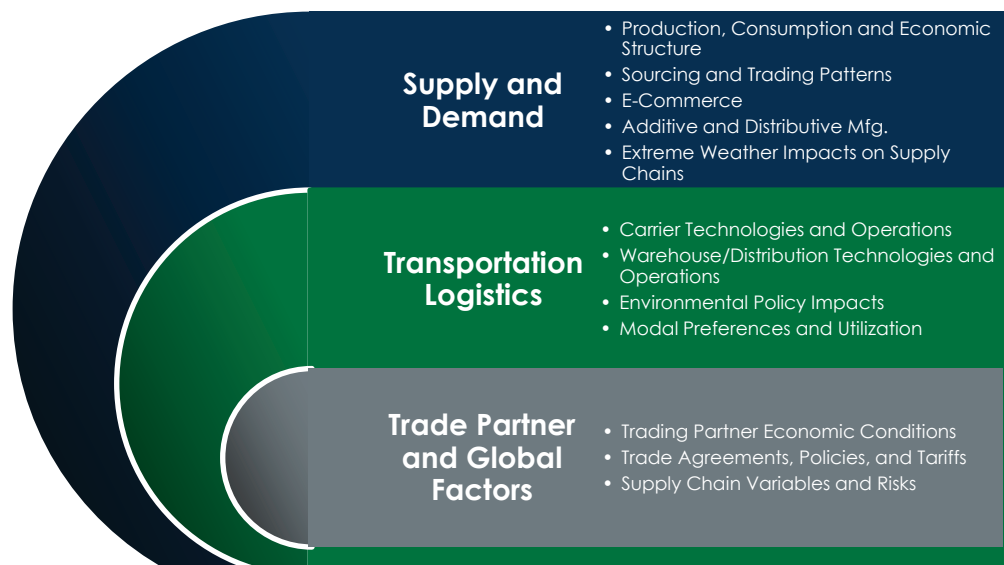
Economic and transportation conditions are changing rapidly in the ITTS states, the country, and the world at large, particularly in the areas of trade relationships and shifts, technology development and adaptation, and logistics practices including but not limited to the dramatic growth of e-commerce. One of the key investigations in SETTS was the evaluation of three primary trend “themes” that broadly impact trade trends for the member states—Supply and Demand, Transportation Logistics, and Global Factors.

- **Supply and Demand.**

Since 2010, the ITTS states have added 10.2 million residents which has impacted the production, consumption, and economic structure of the region. Along with this growth, changing business and consumer practices have altered land use and logistics practices in the region as e-commerce is

increasingly a preferred method for consuming goods and services. Climate change and variability is predicted to impact ITTS states' production of goods such as extreme weather interfering with crop and agricultural production and high value goods (such as electronics and machinery) being disrupted by utility outages and employee access issues. Critical transportation infrastructure—roads, rail, airport, and seaport—will be increasingly stressed by extreme temperatures, wind, flooding, and storm surge.

- **Transportation Logistics.** Trends impacting the ITTS region include changing logistics technologies and operations, environmental policy, and changes in modal preference and utilization. Technologies enabling the automation of certain aspects of maritime operations, railroad control systems, trucking, and warehouse operations are changing how the region's multimodal freight network is designed and operated. Regarding environmental policy, clean fuel requirements for ocean vessels and domestic





vehicles are likely to generate new types of fuel generation, fueling infrastructure, and transportation facilities. Particularly, vehicle electrification is expected to be widespread and generate significant demand for electric charging infrastructure. Shifts in modal utilization are anticipated to be spurred by higher or lower demand for certain commodities, each of which has an established level of affinity for certain transportation modes. For example, the projected decline in gasoline is expected to come at the expense of trucking modal share as that is the predominant mode for this commodity.

- **Trade Partner and Global Factors.** The ITTS states have established relationships with respect to the commodities they move internally (Within ITTS) and externally to and from other state trading partners. These trading patterns are likely to change in significant ways. Weather, climate, and related factors may increase or decrease the ability of ITTS states to produce certain goods for local consumption and for shipment to other states and countries, impacting their outbound flows of goods and creating new needs to receive inbound goods from other states and countries. Economic and environmental policies in ITTS states may actively influence market demand, and favor or discourage the production and consumption of certain types of commodities—fuels, building materials, etc. Conditions in trading states may favor or limit their ability to send goods to ITTS states or receive goods from ITTS states.







## OPPORTUNITIES AND A CALL TO ACTION

As at the dawn of the millennium, the ITTS region once again faces a period of change and opportunity: the North American Free-Trade Agreement (NAFTA) has been replaced by the United States-Mexico-Canada Agreement (USMCA); freight vehicle, infrastructure, and data technology have opened new opportunities; changes in manufacturing and logistics practices have impacted land use, transportation, and distribution patterns; a global pandemic has transformed the way the private sector, public sector, and general public understand supply chains; and while freight-dependent industries like agriculture have remained staples of the southeastern United States, industries such as advanced manufacturing have also emerged as regional strengths. The Phase I SETTS represents the region's first step to comprehensively address the challenges and opportunities brought by these trends at the multi-state level.

Overall, the Phase I SETTS established a common understanding of the freight and trade conditions alongside trends across its members and partners. As next steps in building upon the findings of the Phase I SETTS, ITTS should take the following actions:

- **Conduct Phase II of the SETTS Study** – The next step ITTS should take is to conduct Phase II of the SETTS Study. Phase II will perform a more detailed needs assessment for the region as well as advance the region's scenario planning capabilities by incorporating alternative freight flow forecasting functionality into version 2.0 of the SETTS tool. Overall, Phase II SETTS will enhance ITTS' ability to identify and develop multi-state strategies to support its freight-based economy as well as communicate those opportunities to decision-makers.
- **Identify and Pursue Multi-State Investment Opportunities on Major Highway Trade Corridors** – Some states are working collaboratively to make investments on shared corridors to improve freight performance and safety. For example, a coalition of Texas, New Mexico, Arizona, and California has started developing a truck parking availability system along I-10. The Mid-America Association of State Transportation Officials (MAASTO) conducted a feasibility study for dedicated truck lanes on I-70, a shared corridor across much of the MAASTO region. From a trade perspective, these types of investments lower supply chain costs for the region's existing freight-intensive industries and make the region more attractive for future private sector investment. The ITTS should identify a set of potential shared corridor investments that would enhance trade opportunities across the region, determine their feasibility and priority for implementation, and encourage its member state DOTs to adopt and pursue the chosen investment. Truck parking should be one of the considered investments as it is a challenge shared across the entire coalition and is amenable to multi-state investment strategies.



- Identify and Pursue Public-Private Investment Opportunities for Multimodal Assets** – The analysis of commodity flow data demonstrated that the region's non-highway freight assets, particularly the rail and waterway networks, are essential to supporting supply chains. Furthermore, several ITTS member states emphasized in their state freight plans the need for greater coordination and more partnerships among the public and private sectors to increase the capacity of agencies to deliver system improvements. Opportunities to improve rail operations and access, particularly short lines, were frequently provided as examples of an area for increased public-private partnership. The ITTS should identify and pursue public-private investment opportunities that benefit the region. Partnering with one of the region's railroads to construct sidings to improve capacity along shared rail corridors is an example.
- Identify and Pursue Growth Opportunities for Domestic and Global Trade** – Phase I SETTS quantified the economic contribution of the freight-generating sectors and investigated freight flows associated with those industries. As a next step, ITTS should identify supply chains that offer an opportunity for the region to increase its share of trade associated with the industries those supply chains support. Furthermore, ITTS should identify the actions and investments needed to capture those trade opportunities and define the risks and uncertainty associated with them. For example, as the share of Asia to U.S. trade via west coast ports has been declining, ports throughout the ITTS region can potentially benefit from this share shift given specific port, rail, and other investments. Railroads, port authorities, and state economic development agencies are some of the key stakeholders to include in this strategy.
- Develop and Conduct a Workshop Series on Supply Chain Impacts at the Local Level** – Though goods movement is an essential component of the ITTS region's economy creating widespread benefits in the including jobs and tax revenue, it also creates burdens that are often localized in communities. This can result in local pushback to logistics-related investments which may pose a risk for opportunities to grow trade. ITTS should develop and conduct a series of workshops with counties, metropolitan planning organizations (MPOs), and other local agencies aimed at mitigating supply chain impacts to local communities. The workshops would focus on local strategies for mitigating supply chain impacts such as conducting traffic impact assessments for distribution centers so that the appropriate transportation infrastructure investments are made. Another example would be a workshop focused on truck parking and strategies for limiting impacts to communities such as trucks parked in commercial lots or roadway shoulders. The Federal Highway Administration (FHWA) and ITTS member state MPOs are potential partners for implementing this recommendation.
- Conduct a Supply Chain Resiliency Study** – Freight resiliency entails the ability of the multimodal freight network to withstand disruptions with minimal impacts to safety and the economy. As large-scale disruptions to the freight network and associated supply chains have become more common, resiliency has become a much more important component of freight transportation planning. This observation was reflected in ITTS member states' freight plans as supply chain resiliency was a common theme. As a next step, ITTS should perform a supply chain resiliency and risk study that identifies the risks to which the region's key supply chains are exposed, the freight assets that are vulnerable to those risks, and strategies for mitigating those risks and minimizing supply chain disruptions.

