

TENNESSEE STATEWIDE MULTIMODAL FREIGHT PLAN



Executive Summary

Prepared for:

Tennessee Department of Transportation

Prepared by:

AECOM

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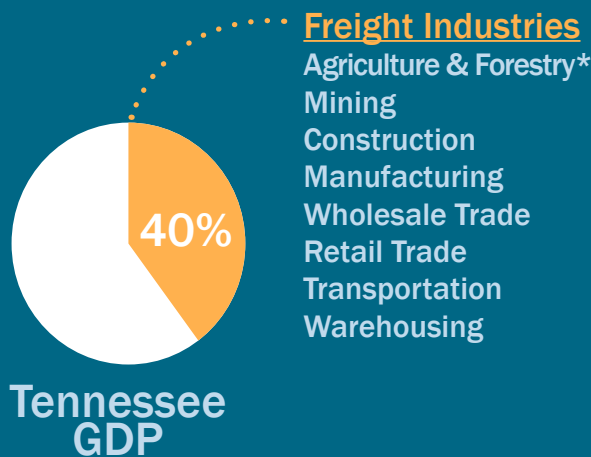
Cambridge Systematics

Tennessee Statewide Multimodal Freight Plan

WHY DOES FREIGHT MATTER TO TENNESSEE? Freight transportation, including road, water, rail, and air systems, is a critical part of economic development, job creation, and growth for the state of Tennessee within the global marketplace. The Tennessee Department of Transportation (TDOT) recognizes the importance of planning, designing, constructing, and maintaining freight-related facilities to sustain mobility and accessibility for the growth of the state's population and industries.

The State Gross Domestic Product (GDP) for the **key freight industry sectors accounts for nearly 40% of Tennessee's total GDP**, which is higher than the percent of total GDP in the U.S. for the same industry sectors (35%).

A large portion of Tennessee's economy is considered goods-dependent industry meaning that they rely on freight transportation to receive material and ship goods. In Tennessee, these sectors account for 36% of all jobs in the state. **By 2040, the state of Tennessee is expected to see total employment grow by 32%.** A large portion of this growth is expected to occur in the State's mostly urban counties.



*Agriculture & Forestry also includes Fishing & Hunting

WHY IS TDOT PREPARING THIS FREIGHT PLAN?

In July 2012, when Moving Ahead for Progress in the 21st Century (MAP-21) was signed into law, the importance of freight transportation planning on the national level was more formally acknowledged. The requirements of MAP-21 responded to the increasing number of trucks on the roadway and the need to plan for a freight transportation system that is inclusive of all modes. Under MAP-21 the United States Department of Transportation (USDOT) is authorized to increase the Federal share for freight projects if the project is listed in the State Freight Plan and if the project improves the efficient movement of freight.

WHAT IS THE PURPOSE?

1) Define strategic goals for the Tennessee freight system

2) Establish a strategy to achieve freight-related goals that align with TDOT's Guiding Principles

3) Fulfill the requirements of MAP-21

The plan identifies current and potential freight initiatives, potential freight policies for TDOT, and next steps, as well as documents the on-going stakeholder outreach. The Statewide Multimodal Freight Plan culminates with a list of short- and long-term projects that address future needs of the Tennessee freight system.

HOW DOES THIS FREIGHT PLAN FIT WITH OTHER TDOT PLANNING EFFORTS?

TDOT is currently preparing a new 25-Year Long Range Transportation Plan, with a target completion date by early 2016. This Statewide Freight Plan has been developed concurrently to most efficiently coordinate freight information between the two plans. The state is also preparing a Statewide Rail Plan with an expected completion in early 2016. Information gathered during the Freight Plan process will help support the Statewide Rail Plan.

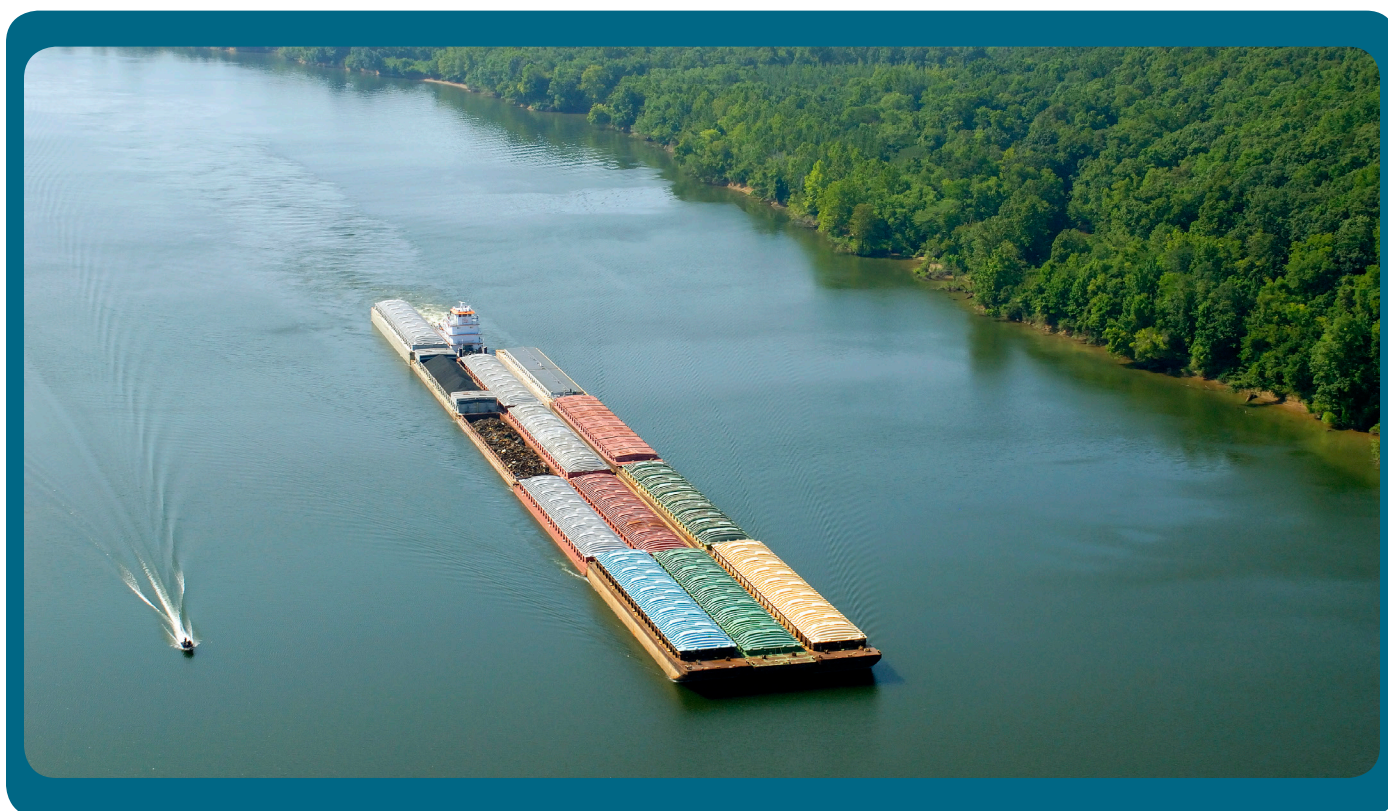
HOW WERE STAKEHOLDERS INVOLVED?

Building on input from public and private freight stakeholders, this plan inventories the existing assets of the freight transportation system, evaluates the economic benefits of the system, anticipates future trends and economic growth, and identifies implementable strategies for Tennessee to improve freight movement across all modes of transportation, as well as the equally important connections between modes.

FREIGHT ADVISORY COMMITTEE

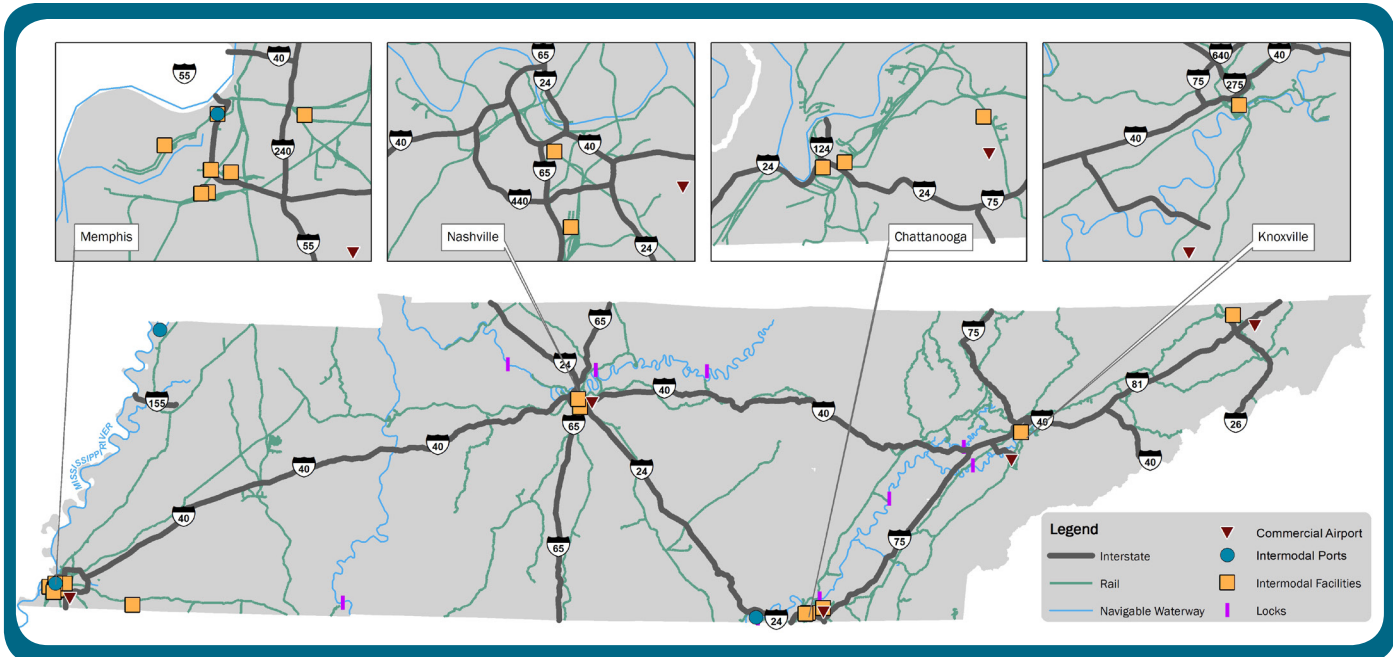
TDOT recognizes the importance of coordination with all stakeholders involved in the freight industry.

With this in mind TDOT established a Freight Advisory Committee (FAC) for the state of Tennessee that is made up of public representatives from TDOT, Metropolitan Planning Organizations (MPOs), counties, cities, chambers of commerce, port authorities, airports, and universities. The private industry representatives include rail, trucking, waterway, air freight distribution and logistics, and industrial manufacturing and processing companies.



State Freight Transportation Assets

WHAT ARE TENNESSEE'S TRANSPORTATION ASSETS?



Tennessee has **approximately 95,500 miles of roadway**, 15% of which is maintained by the state. This includes Interstates, as well as U.S. and State Highways. First mile/last mile roadways are local connector facilities that link freight-intensive land uses to main freight routes. Generally, they are the shortest portion of a freight trip; however, often they are the most difficult to travel.

Tennessee's freight rail system consists of **approximately 3,780 miles of track** across the state. Six Class I railroads own approximately 2,768 miles, which is 73.2% of the total track mileage in the state. Twenty-four shortline railroads consist of approximately 1,011 track miles.

There are **949 miles of navigable waterways** in Tennessee (11th in the nation for mileage). Of this length, 887 miles (93%) exist on the three main rivers in Tennessee: Tennessee (401 miles), Cumberland (310 miles), and Mississippi (176 miles). Four public ports and nine locks also make up the state's commercial waterway system.

Tennessee is home to **79 public use airports**. This includes five commercial service airports: Memphis International Airport, Knoxville's McGee Tyson Airport, Nashville International, Chattanooga Metropolitan, and Tri-Cities Regional in Sullivan County.

There are over **6,000 miles of pipelines** in Tennessee, which transport several different gas and liquid commodities.

Tennessee has **several intermodal facilities** around the state, with the majority located in and around urban areas.

Strategic Goals

WHAT ARE TDOT’S STRATEGIC GOALS FOR FREIGHT PLANNING? As transportation planning captures more performance-based metrics, goals are defined in a manner to measure success of the transportation system as it grows from existing conditions. The Federal Highway Administration’s (FHWA’s) national goals for freight movement align closely with TDOT’s Guiding Principles. These national goals are intended to guide future needs of a national freight system including Tennessee roads, rail lines, waterways, and air freight movements.

Similarly, TDOT’s Guiding Principles are intended to focus the transportation system improvements on areas of importance to the residents and economy in Tennessee. Aligning Tennessee’s Guiding Principles with the national freight goals reinforces the direction of freight planning and projects for efficient movement of people and goods. Stakeholder outreach efforts resonated with these goals while adding emphasis to multimodal system efficiency and system resiliency based on operational experiences.

Goals of National Freight Policy	TDOT Long Range Plan: Guiding Principle
Improving the contribution of the freight transportation system to economic efficiency, productivity, and competitiveness	Support the State’s Economy
Reducing congestion on the freight transportation system	Preserve and Manage the Existing System
Improving the safety, security, and resilience of the freight transportation system	Maximize Safety and Security
Improving the state of good repair of the freight transportation system	Preserve and Manage the Existing System
Using advanced technology, performance management, innovation, competition, and accountability in operating and maintaining the freight transportation system	Provide for the Efficient Movement of People and Freight
	Preserve and Manage the Existing System
Reducing adverse environmental and community impacts of the freight transportation system	Protect Natural, Cultural, and Environmental Resources
	Building Partnerships for Sustainable and Livable Communities

The three goals that are mentioned as a high priority to address current and future needs of the Tennessee freight transportation system are:

- Improving the safety, security, and resilience of the freight transportation system
- Improving the state of good repair of the freight transportation system
- Reducing congestion on the freight transportation system

Economic Context of Freight Transportation Planning

HOW DOES FREIGHT INFLUENCE TENNESSEE'S ECONOMY?

Tennessee's economy has experienced **steady expansion over the last 15 years.**

Between 1997 and 2012, the economic output of the Tennessee economy **increased from just over \$150 billion to approximately \$280 billion--an 87% expansion.** A large portion of Tennessee's economy is considered goods-dependent industry, relying heavily on freight transportation to receive material and ship goods. This includes the sectors of **manufacturing, construction, agriculture, and mining.**

The service-providing industry also includes sectors that rely on freight transportation. This includes the sectors of wholesale, retail, and transportation and warehousing. The size of the **freight-reliant industry portion of Tennessee's economy has grown** from approximately \$70 billion in 1997 to over \$110 billion in 2012, **a 57% increase.**

By the year 2040, it is expected that 1.2 billion tons of commodities will be moved by the Tennessee freight system. The top 20 commodities by tonnage on Tennessee's transportation infrastructure are anticipated to remain the same.

Tennessee Economic Output by Sector 1997-2013



WHAT TYPE OF FREIGHT IS MOVING IN TENNESSEE NOW AND IN THE FUTURE?

A total of approximately 770 million tons of freight was moved via Tennessee's infrastructure in 2012. It equates to approximately \$1 trillion worth of goods.

The transportation infrastructure is most heavily used by key freight industry supply chains in Tennessee: Automotive, Advanced Manufacturing, Chemical Products and Plastics, and Agriculture.

Gravel is the top commodity by tonnage moved on the system. Interestingly enough, almost the same tonnage of gravel is exported as is imported.

Coal is a top commodity moved on the Tennessee freight system; over two-thirds of the amount is through traffic.

With three automotive plants located in Tennessee, **vehicles** are the top commodity shipped on Tennessee's infrastructure based on freight value.

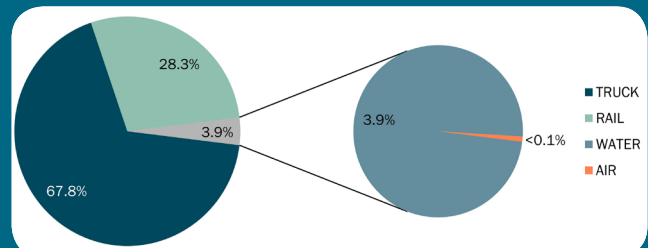
Farm products (**agricultural products** and other **food products**) make up the third and fourth largest commodities accounting for over 10% of the total flows for the state.

Other key commodities for Tennessee include **miscellaneous transported products**, cereal grains, chemical products, electronics, machinery, and plastics.

HOW DOES FREIGHT GET TO ITS DESTINATION?

Trucking currently dominates the transport of freight and is expected to remain the dominant mode in the future. However, freight rail, marine, and air movements play integral roles in Tennessee's system. Commodities carried along waterways are generally lower value, heavy commodities, whose bulk delivery is not time-sensitive (e.g., gravel). Air freight tends to be used for commodities that are higher value (e.g., pharmaceuticals) and/or require time-sensitive delivery. For this reason, air cargo has a much higher value per ton than cargo moved by other modes.

Modal Distribution by Tonnage of Commodity Movement in Tennessee (770 million tons)



Modal Value per Ton of Tennessee Commodity Movement

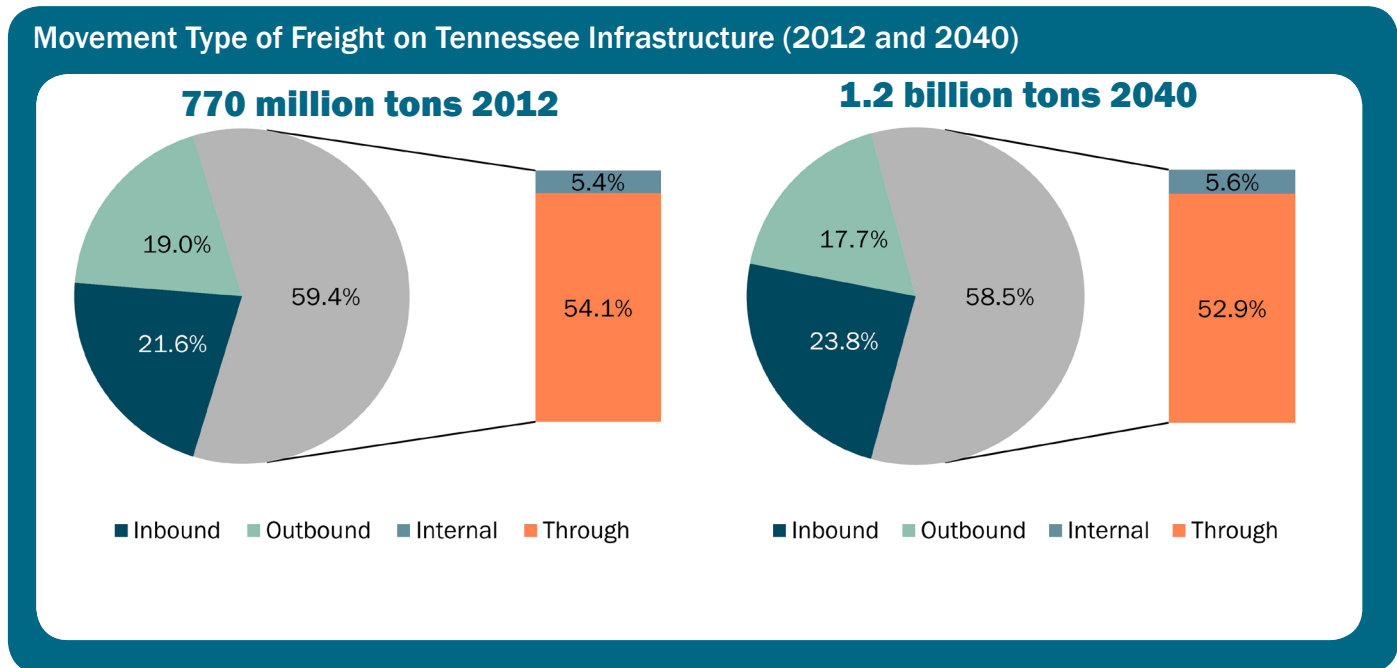
Modes	Value per Ton
TRUCK	\$1,840
RAIL	\$1,080
WATER	\$330
AIR	\$105,060

With the increase in intermodal facilities recently opened and planned, there may be an increased demand for trucks to and from these facilities, part of an approximately 90% increase in intermodal tonnage carried by trucks forecasted by 2040. Although a significant shift in the modes being used to move freight is not expected by 2040, each of these modes should be prepared to handle the expected freight throughout the state of Tennessee to maintain the reliability and efficiency of the system.

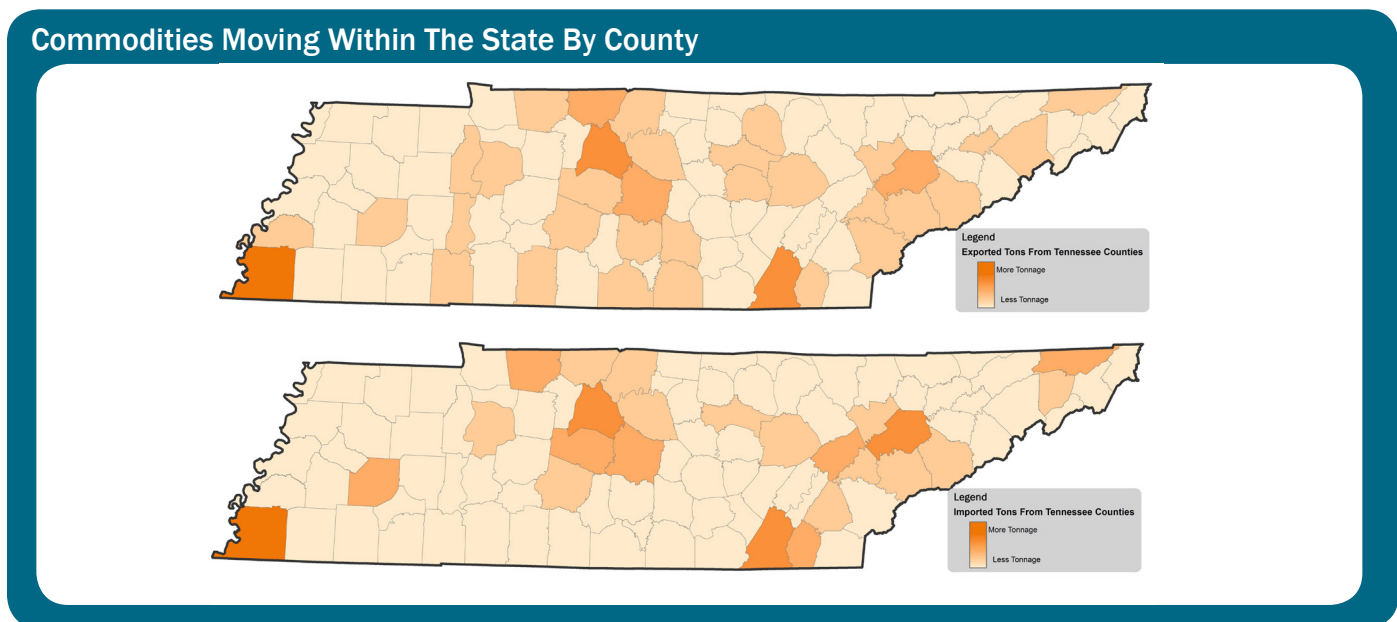
WHERE IS FREIGHT MOVING?

Within Tennessee, the goods moving are imported, exported, moving between locations in the state, or are simply passing through. Of the approximately 770 million tons of freight moving on Tennessee infrastructure, 5% is moving within the state.

In 2012 freight was moved throughout all of the counties in the state, but several counties show up as both a top importer and exporter. Looking to 2040, the distribution of movement types changes little. The expected freight increases from around 770 million to about 1.2 billion tons in Tennessee.



The more urban counties of Shelby, Davidson, Hamilton, Knox, and Rutherford are projected to import and export the largest quantities of these goods in 2040, as well. This is consistent with the expected population and total employment growth to occur more prominently in the urban areas of the state.



WHERE IS FREIGHT MOVING?

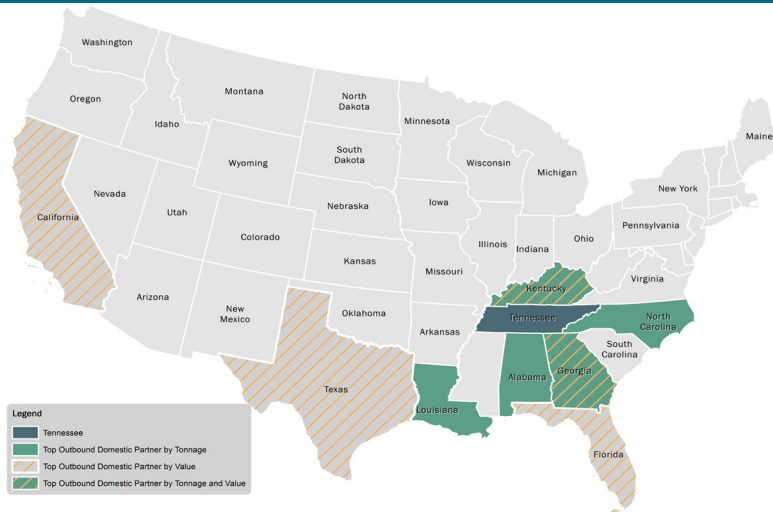
Tennessee Inbound and Outbound

In 2012, Tennessee shipped 143 million tons of goods, valued at approximately \$158 billion, to its domestic partners. From among the top inbound domestic trading partners, coal is the dominant commodity. Almost 30 million tons of coal were destined to Tennessee from these states alone. The large majority of the coal was from Wyoming and Illinois. By 2040, the majority of Tennessee's top domestic trading partners are expected to remain the same when compared to 2012.

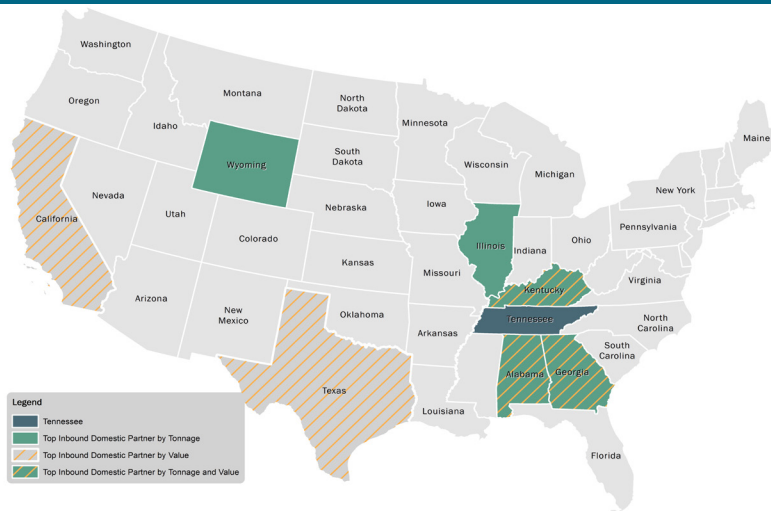
2012 Tennessee's Outbound Domestic Movements based on Tonnage

Outbound Commodity	Tonnage (in millions)
Gravel	36.5
Coal	12.5
Nonmetal Minerals	9.1
Waste/scrap	7.5
Other agricultural products	7.4
Outbound Commodity	Value (in billions)
Miscellaneous Transported Products	\$19.7
Motorized Vehicles	\$19.3
Machinery	\$9.2
Chemical Products	\$7.3
Plastics/Rubber	\$7.3

Tennessee's Domestic Outbound Partners

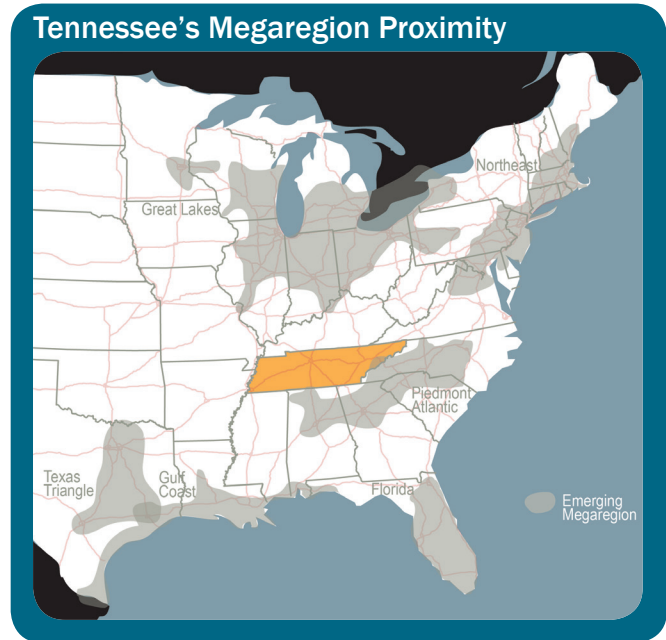


Tennessee's Domestic Inbound Partners



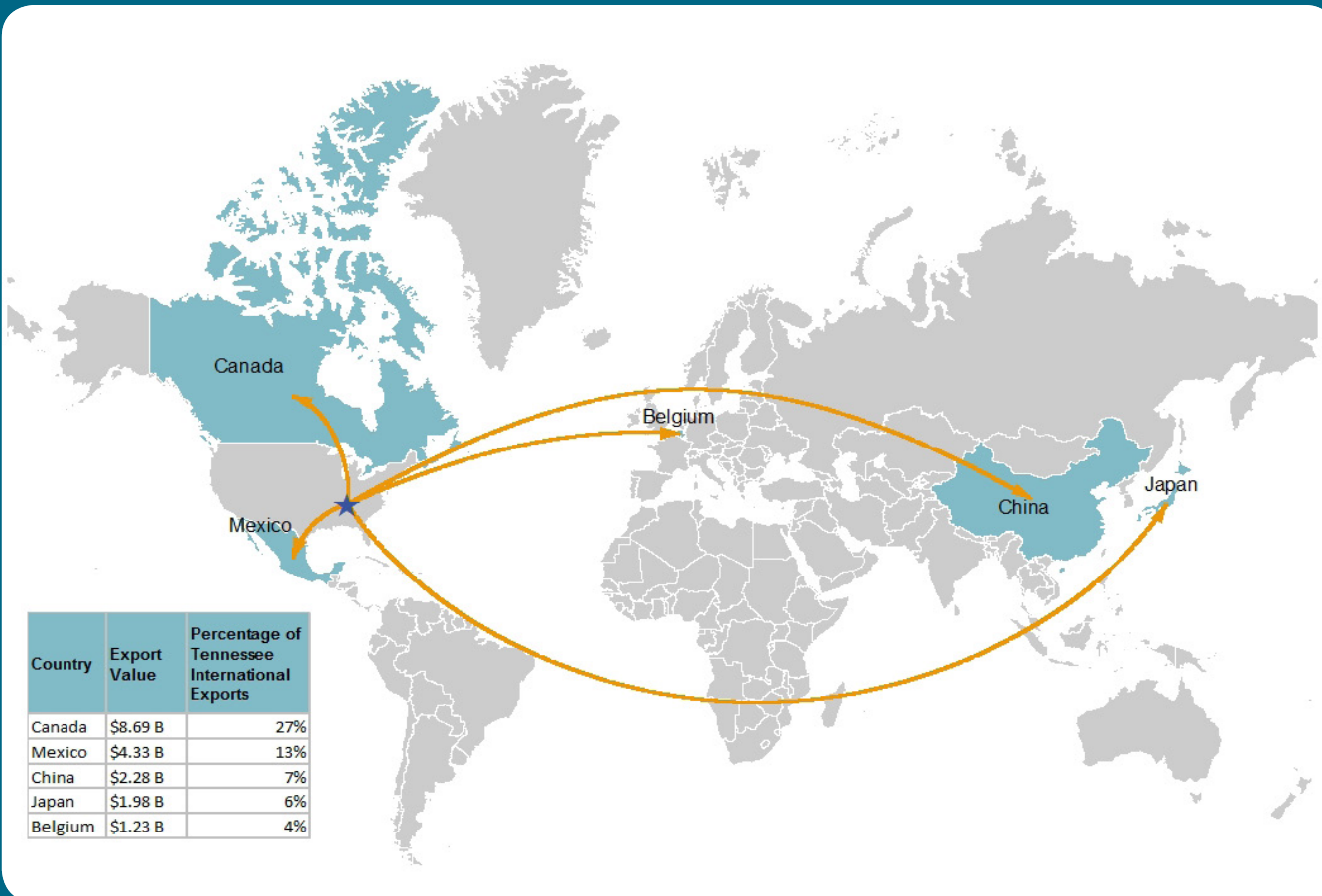
WHERE IS FREIGHT MOVING?

Tennessee's participation in the global economy also takes place on a more local level, joining adjacent states in shaping the Piedmont Atlantic region. The freight movement with other states is also influenced by the continued growth and development of these regional clusters, including the Northeast, Florida, Gulf Coast, Texas Triangle and the Great Lakes. **Internationally** Tennessee has substantial trading links with other countries worldwide. According to the U.S. Department of Commerce, Tennessee exported over \$32 billion in goods worldwide to 231 countries in 2013. In 2040, Canada and Mexico are forecast to continue to be dominant international trading partners with Tennessee, accounting for one-third of Tennessee's future international exports.



Data Source: America2050.org

Tennessee's Top 5 International Export Partners



Freight Policies, Strategies, and Institutions

HOW DOES FREIGHT INFLUENCE TENNESSEE'S ECONOMY?

The State of Tennessee has a history of success with attracting and retaining industries from diverse freight sectors, such as automotive, manufacturing, and transportation industries.

To support strategic investments in freight-related infrastructure, Tennessee has several steps underway:

- Preparation of a Long Range Transportation Plan
- Update of Statewide Travel Demand Model, which will include a freight component
- Development of a Statewide Rail Plan
- Organization of a Statewide Freight Advisory Committee (FAC)
- Environmental Policies to protect communities and the environment

Grant and Loan Programs for Freight-Related Infrastructure: Grant programs in Tennessee at the state-level for freight-related infrastructure improvements are limited. In addition to the few state-level programs, there are also regional funding opportunities for freight-related improvements. Tennessee does not have any loan programs for freight-related transportation infrastructure.

WHO IS RESPONSIBLE FOR FREIGHT TRANSPORTATION INFRASTRUCTURE IN TENNESSEE?

TDOT is involved in all aspects of multimodal freight within the state, including highways, railways, waterways, and air transport. Several government and private entities compliment TDOT's role in owning, building and maintaining freight transportation infrastructure across the state. These include, but are not limited to, port authorities and terminals, airport authorities or commissions, Class I and shortline railroads, pipeline companies, as well as trucking, marine, and airline transport operators.

Participation in Regional Freight Planning and Coordination with Freight Stakeholders

TDOT and Tennessee's MPOs have conducted several multimodal freight planning studies in recent years involving truck, rail, air, and water freight activities. Some MPOs and Rural Planning Organizations (RPOs) conduct freight planning activities to develop a regional perspective for freight issues and needs. Regional freight planning activities can include stand-alone freight studies and plans, the inclusion of freight planning as a component within long range transportation plans, and the inclusion of freight projects in transportation improvements programs (TIPs). MPOs, RPOs, and local municipalities also influence land use decisions through planning, zoning, and building codes.

Multi-State Public Private Partnership Initiative: Norfolk Southern Rossville Facility and Roadway Improvements

The NS intermodal facility in Rossville, just east of Memphis, was constructed as part of the Crescent Corridor. The initiative from NS (a Class I railroad) involving 13 states improved the connection between the southeastern and the northeastern portions of the U.S. This intermodal facility has created economic and development opportunities in southwest Tennessee and in Mississippi. As a result, this facility has also created a need to improve US 72 which crosses the Tennessee/Mississippi state line as a means to connect to regional roadway networks. Coordination between the states has occurred so that the highways around the intermodal yard are adequate for both states.

WHAT INSTITUTIONAL CHALLENGES DOES TDOT FACE?

New, upgraded, and replaced transportation improvements are increasingly expensive. The historical funding landscape is also changing with less funding available to complete transportation improvements. Freight movement brings TDOT directly in contact with the private sector, transportation owners, operators, and users. As a result, there will be opportunities and challenges to managing transportation investments consistent with Tennessee’s policies while capitalizing on multi-state and multi-party investments. The balance of strategies and participants may vary by mode. For example, a Tax Increment Financing (TIF) District may be used to subsidize improvements by using future tax gains resulting from the improvement.

Historically TDOT has exclusively utilized “pay-as-you-go” strategies, which has served the Department well to this point. However, **the Tennessee Motor Fuel Tax has not been increased since 1990, nor has the Gas Tax been increased since 1989 – causing revenues to fall well behind inflation.** Federal funds are a major source for Tennessee’s infrastructure improvements. There has been considerable concern over the last several years about declining revenues for the Highway Trust Fund and other Federal modal funding programs. With the current funding outlook, there may come a day when the current strategies do not meet Tennessee’s growing transportation demands.



System Performance

WHAT IS THE CONDITION OF THE STATE'S ASSETS AND HOW ARE THEY PERFORMING?

Highway. In relation to other states, Tennessee is outperforming in the delivery of highway-related services. According to 2010 Highway Performance Monitoring System (HPMS) data, **63.9% of Tennessee's roads are ranked as either good or very good, while the corresponding national value is only 40.3%.** Limited funding for preserving and improving Tennessee's transportation infrastructure may, however, affect the quality of Tennessee's

transportation infrastructure over time.

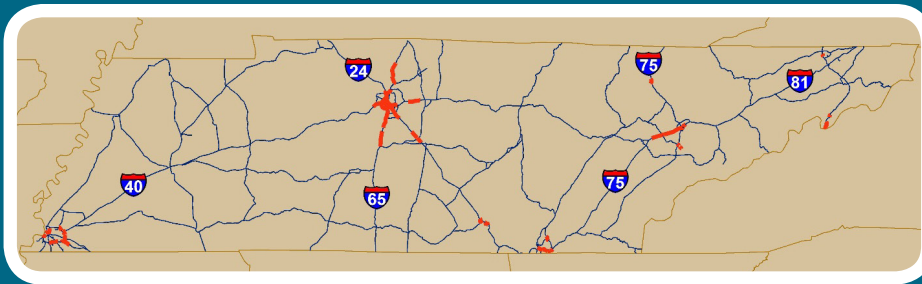
Truck Parking

Changes in "hours of service" regulations require additional driver breaks and rest, administration, and driver logs. In response to these requirements and an increase in truck traffic in general, additional or expanded facilities and truck parking rest areas will be needed.

Air Quality

Proactive strategies will be needed to mitigate air quality impacts arising from increased congestion.

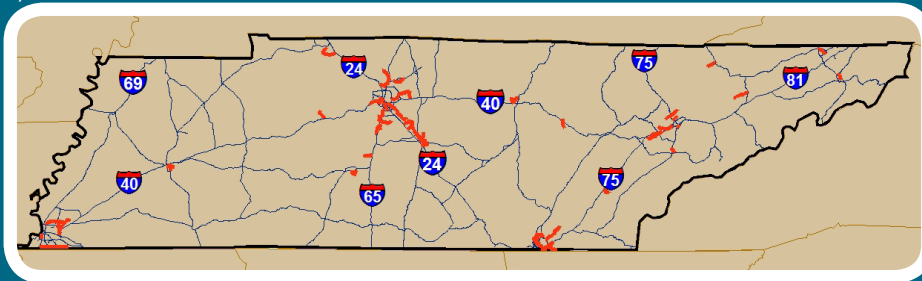
Potential Bottleneck Locations



Truck Freight Bottlenecks

While performance measures for bridge and pavement give a good indication of the physical quality of the system, perceived quality is subjective and oftentimes related to congestion and the induced delay users experience on the system. Identifying bottlenecks can assist in selecting projects to improve the efficiency of Tennessee's multimodal freight system. Thirty-two highway bottleneck locations are identified in the plan for potential improvements. Most of these locations are concentrated in and around the four major urban areas of the state.

Potential First Mile / Last Mile Locations



First Mile/Last Mile

Freight traffic accesses the major network infrastructure through lower-classified facilities. Identification of first mile/last mile conditions are important to the movement of freight and can be used to address these elements of the transportation system that may inhibit freight mobility.

Rail. Each railroad examines their network for capacity, connectivity, and freight flows across their respective networks seeking opportunities for improvement. As Class I railroads have upgraded their track for 286,000 pound rail cars, the Class II (Regionals), and Class III railroads (shortlines) have had to respond to this change in order to continue to serve their customers. **With shortline railroads comprising approximately one-fourth of the railroad track miles in Tennessee, upgrading shortline track to 286,000 pound track capacity is important to Tennessee’s freight transportation system.** As of 2011, 39% of shortline track had been retrofitted for this standard.

Air. Adequate airport area may limit the freight aviation system’s ability to accommodate projected growth for freight activities at major airports.

Airports need to frequently re-evaluate traffic and the implications for landside, airport and airside infrastructure which often results in changing land and facility needs.

Water. The US inland waterways lock and dam system continues to age and accumulate more deferred maintenance. This is causing an increased concern for its future effectiveness. One specific concern to stakeholders is the Chickamauga Lock on the Tennessee River, seven miles northeast of Chattanooga. **If conditions of the Chickamauga Lock deteriorate to the point where it needs to be closed, it would eliminate 318 miles of commercial navigation waterways.** In addition to the Chickamauga Lock, annual dredging at the Port of Memphis and the Port of Nickajack are necessary for sustaining the ports’ viability.



Trends, Needs, and Issues

Freight movement is influenced by private investments and market demands as well as public investment, policy and regulations. Understanding changes in freight trends, needs, and issues, in addition to communicating the effects of these attributes to stakeholders, will guide Tennessee's path forward.

FREIGHT AND LAND USE

COMPATIBILITY One important freight finding from TDOT's 2013 Customer Survey (residents, agency partners, and elected officials) was that two of the three survey groups identified **commercial truck traffic as one of the top five transportation priorities over the next 25 years.**

The trend towards more intermodal freight may also have impacts on the local areas surrounding these facilities; intermodal facilities are still dependent on trucks to complete the first mile/last mile transport to distribution facilities or the customer's door.

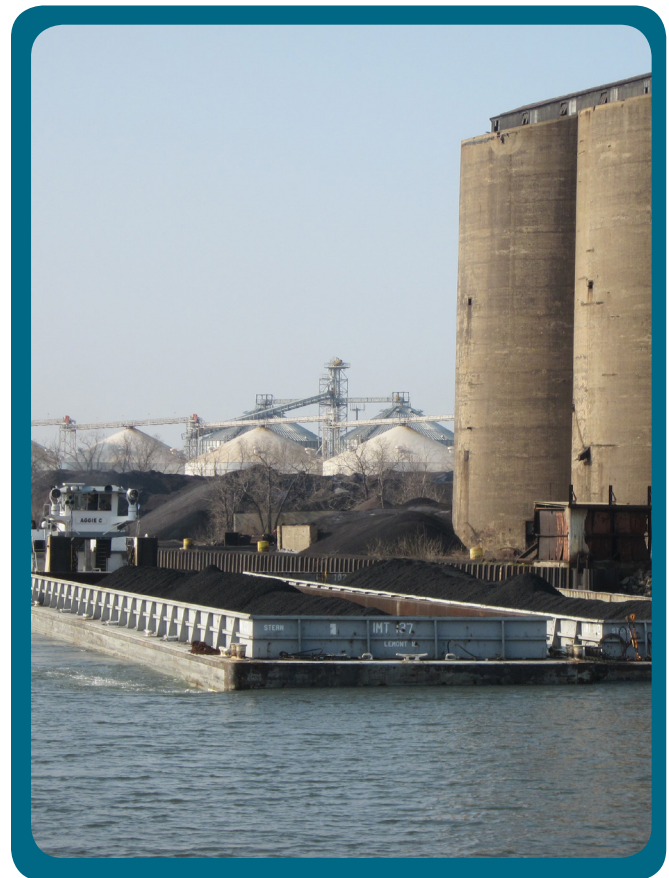
MANUFACTURING AND RE-SHORING

Within the last 15 years, manufacturing has become an increasingly additive process, expanding the supply chains in terms of distance and quantity. This is most evident by the movement of manufacturing from domestic to international locations as a means of reducing costs. However, some firms have started moving manufacturing back to North America as a result of increased costs (labor and transportation), rapid labor turnover, and unstable supply chains overseas. While Mexico was the primary beneficiary of this trend through 2012, manufacturing re-shoring in North America has implications for freight trends and movements in the US and Canada.

AUTO SECTOR IMPLICATIONS

One result of the recession of 2009 was the geographic retreat of the auto industry back towards its core, anchored by the I-75 and I-65 corridors. With these corridors located within Tennessee, the state has attracted automakers such as the Nissan Corporation, Volkswagen, and General Motors along with a number of automaker suppliers.

“From 2010 to 2012, Tennessee's share of North American motor vehicle manufacturing employment increased from 2.9 percent to 3.3 percent” and “in 2012, U.S. auto sales grew by over 13 percent—the fastest rate in two decades—and created over 250,000 jobs” .-The Brookings Institution, 2013.



INFRASTRUCTURE TRENDS

Panama Canal: The Panama Canal Expansion is scheduled for completion in early 2016. The project includes a new parallel set of longer locks with a greater draft and deeper navigational channels at a cost of approximately \$5.25 billion. The improvements will allow significantly larger ships to pass through the canal, creating potential savings and opening up new markets. This has the potential to create more shipments on the waterways in Tennessee, especially at the Port of Memphis as most of its cargo currently moves to and from the Port of New Orleans.

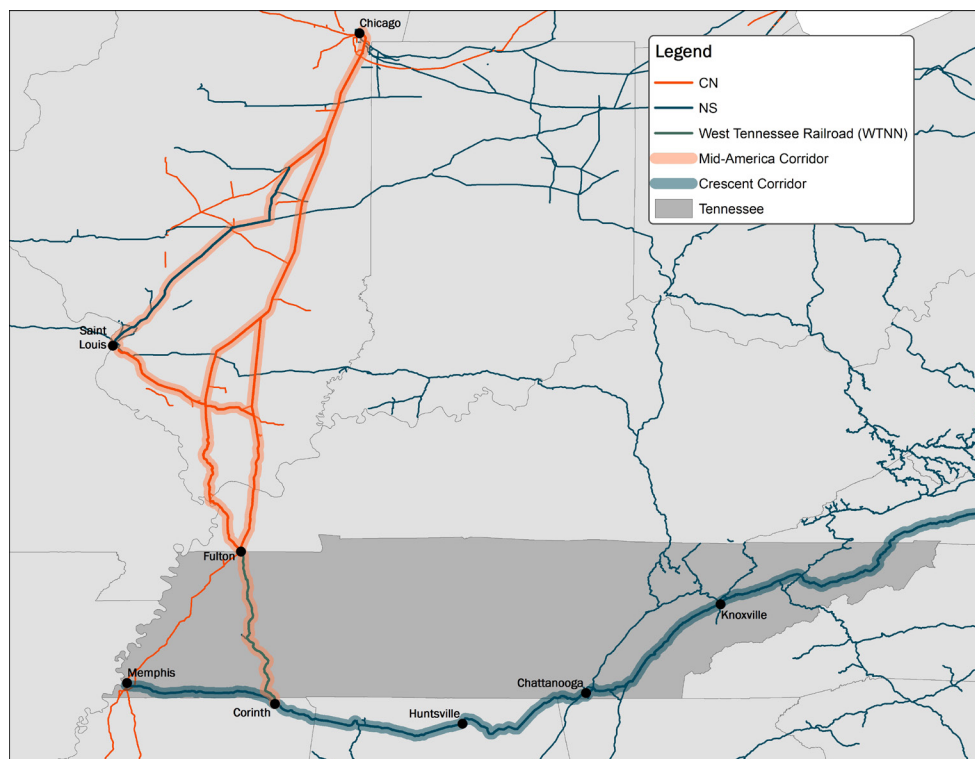
NAFTA Connections: The increase in manufacturing in Mexico is influencing the movement of freight through North America. The USDOT recognized the importance of the connection between Mexico, the U.S., and Canada when it identified I-69 as a 'Freight Corridor of the Future'. The I-69 corridor, which will eventually connect the Canadian border with Michigan and the Mexican border with Texas, is being constructed in sections (e.g. in Indiana and Kentucky). The portion of I-69 through Tennessee, once it is completed, will traverse the western portion of the state.

Rail Infrastructure Improvements: Class I Railroads are investing in infrastructure and capacity, either through direct capital outlay or through public private partnerships. Important rail corridor improvements for Tennessee include:

- Norfolk Southern's Crescent Corridor improves the connection between the southeastern and the northeastern portions of the U.S.
- Norfolk Southern's and Canadian National's Mid-America Corridor shares track between Chicago, St. Louis, and Memphis and will reduce transit time between these cities.
- Corridor improvements will result in the need for new intermodal facilities.

Waterway Connections: With respect to the waterway system, there is a growing need to improve the lock system. Stakeholders expressed an expectation of an increase in truck movements on I-75 between Chattanooga and Knoxville if the Chickamauga Lock closes. The new Chickamauga Lock expansion project is expected to be completed in 2021, but is dependent on sufficient, available funding.

NS Crescent Corridor and NS/CN Mid-America Corridor



TRANSPORTATION COSTS

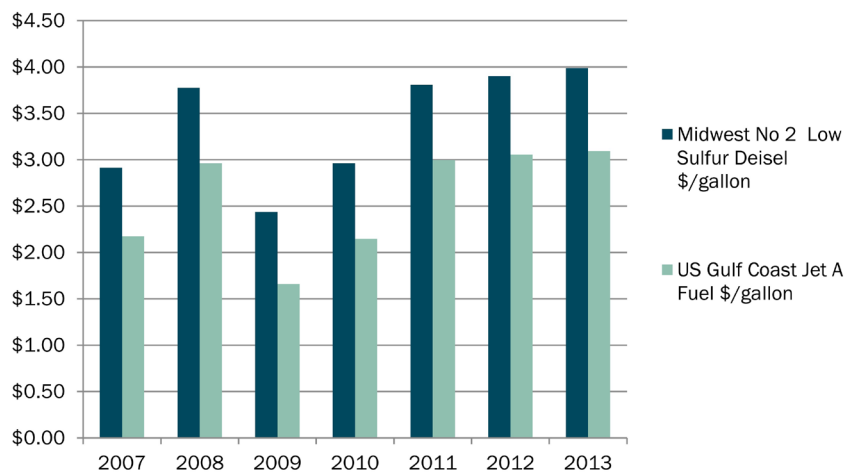
Manufacturers and retailers face continued pressure to keep shipping costs as low as possible as transportation has consistently absorbed the largest share of logistics costs for companies. Higher costs are driven by labor as well as fuel, the latter of which has grown at rates well above the rate of inflation since 2007.

While costs per gallon for low-sulfur diesel have grown at a rate of about 5.4% (annualized), rates for jet fuel have grown faster (about 6%). Increasing costs of jet fuel are one reason why air cargo growth has recently slowed and cargo has diverted to expedited ground transportation.

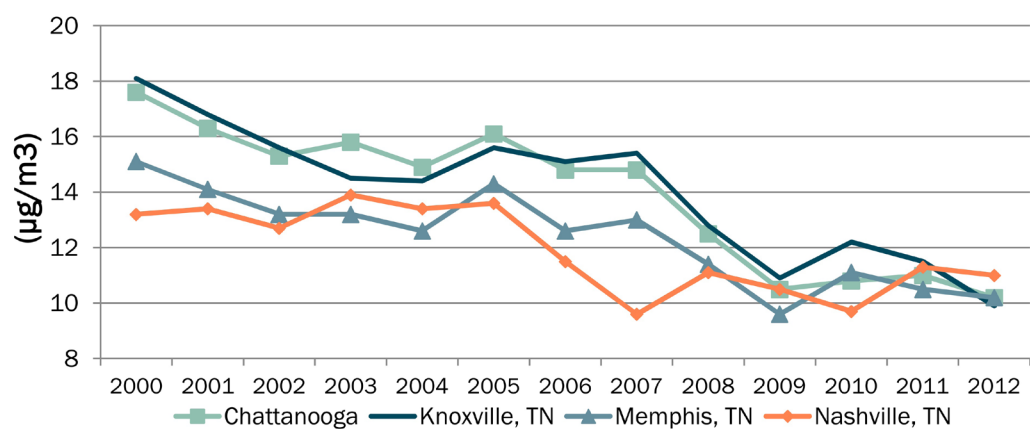
REGULATIONS

The trucking sector has been undergoing changes resulting from additional regulations including the Compliance Safety Accountability (CSA) initiative, hours-of-service regulations, and use of electronic logging devices. Meanwhile, the rail industry is currently struggling with the technology needed for implementation of Positive Train Control (PTC). PTC institutes technology to monitor and control train movements as a means to improve railroad safety. Air quality regulations continue to impact transportation. Growth in freight traffic will increase the use of diesel fuel and related air emissions of fine particulate matter (PM 2.5) and oxides of nitrogen, which contributes to the formation of ozone.

Fuel Price Comparisons, \$/Gallon



PM 2.5 Average Annual Emissions by Metro Area, micrograms per cubic meter

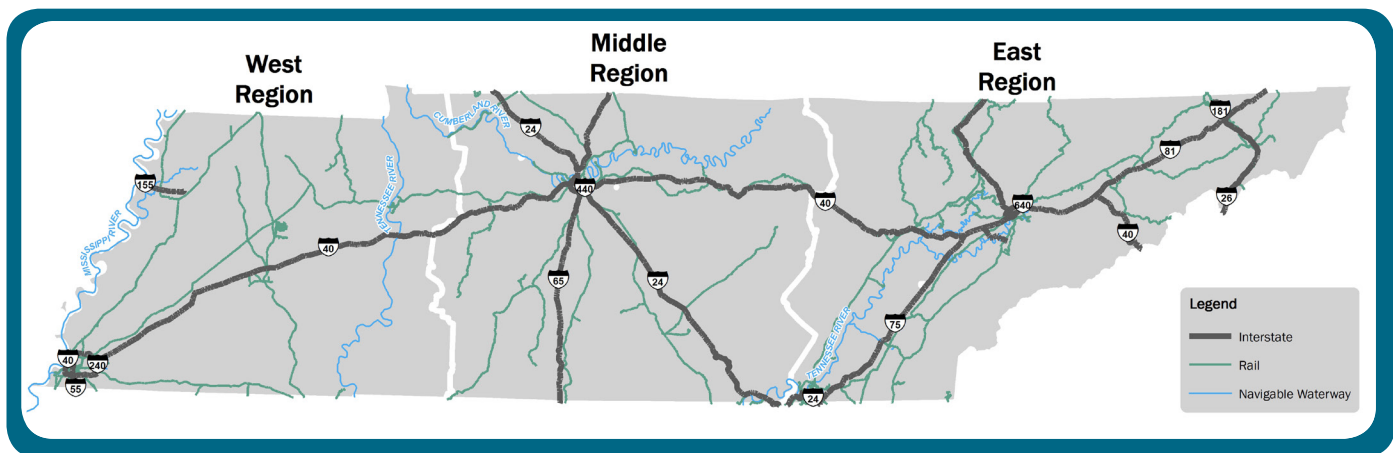


Note: Chattanooga and Knoxville are PM 2.5 non attainment areas xvi

Tennessee's Freight Transportation System Strengths and Challenges

WHAT ARE THE STRENGTHS OF TENNESSEE'S FREIGHT TRANSPORTATION SYSTEM?

Tennessee's geographic location between the north and Midwest and ports along the East Coast and the Gulf leads to the need for a strong freight transportation system. The freight system is enhanced by the six Class I railroads in the state and 21 shortline railroads serving industrial sites and intrastate freight movement. The ports, airports, and intermodal facilities strategically located throughout the state provide important connections to corridors and industrial centers outside of the state that complete the freight system.



WEST REGION

- Key intrastate corridors: I-40 (east-west corridor) and I-55 (north-south freight corridor between Chicago and New Orleans).
- Memphis International Airport is one of the busiest cargo airports in the world and home to FedEx.
- International Port of Memphis services 122 tenants, which utilize the Mississippi River to move freight north and south.
- Cates Landing public port (northwest corner of the state) is the only developable site along the Mississippi River, between Memphis and Cairo, Illinois.
- Tennessee River offers 215 miles of navigable waters connecting the Tennessee-Tombigbee Waterway to the Ohio River (corridor serving Pennsylvania and the Gulf Coast.)
- There are five Class I railroads in Memphis: Burlington Northern Santa Fe, Canadian National, Norfolk Southern, Union Pacific, and CSX. BNSF, CN, CSX, and NS have intermodal facilities in the Memphis area.

MIDDLE REGION

- I-40, I-65, and I-24 are key intrastate freight corridors converging in Nashville. I-440, S.R. 840, S.R. 109 and S.R. 155 (Briley Parkway) support freight movement in the Nashville area.
- CSX has several facilities in the Nashville area: Radnor Yard (intermodal facility), an intermodal and TRANSFLO terminal, and CSX has Total Distribution Services Inc. (TDSI) auto distribution terminals. Shortline railroads move freight east from Nashville to Monterey.
- Nashville International Airport houses the Nashville Air Cargo all-cargo complex.
- Cumberland River supports barge traffic moving coal, oil, and gravel.
- Within middle Tennessee, military equipment to and from Fort Campbell moves by truck on I-24 and Highway 72, and by rail along CSX lines.

EAST REGION

- Key intrastate corridors: I-75 (north-south corridor between Atlanta and Detroit), I-81 (linking I-40 to the Northeastern US and Canadian border).
- NS's Crescent Corridor travels through east Tennessee, from the Tri-Cities area to Chattanooga. Currently, NS is conducting research for a potential intermodal truck/rail facility in east Tennessee. CSX lines travel north-south, provide connections between Chattanooga and the Kentucky state line, as well as from Erwin to Kingsport. CSX has TRANSFLO Terminal Service Bulk Transfer Terminals in Chattanooga and Knoxville.
- Three major airports with cargo shipments: Knoxville's McGhee Tyson Airport (a U.S. Customs port of entry), Tri-Cities Regional Airport, and Chattanooga Metropolitan Airport.

WHAT ARE THE CHALLENGES FACING TENNESSEE'S FREIGHT TRANSPORTATION SYSTEM?

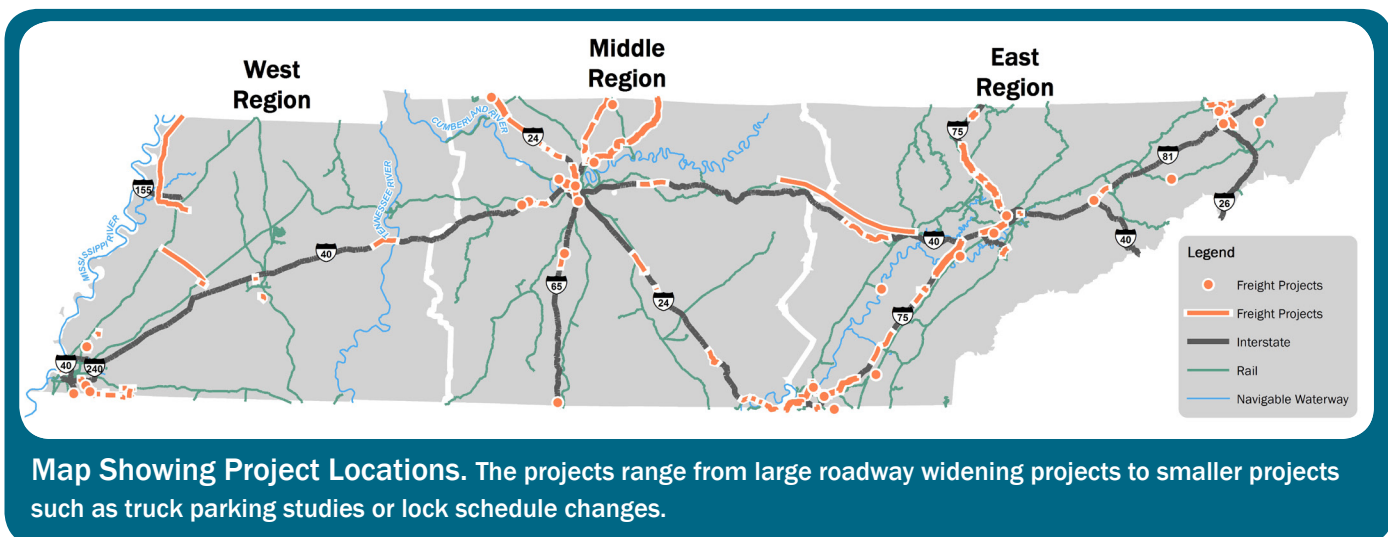
- Congestion
- Safety and Resiliency
- Maintenance and Deterioration of Rail lines, Bridges, and Locks
- Truck Parking Availability
- Federal and State Funding Constraints
- Land Use and Infill in Urban Areas around Airports, Ports, and Rail Yards

The State's Decision-Making Process

HOW WILL TENNESSEE DECIDE WHICH PROJECTS TO IMPLEMENT?

The complex logistics to move freight require coordination between public and private stakeholders to ensure sufficient infrastructure exists to support current and future freight movements. All of the projects identified in this plan, once implemented, would benefit Tennessee and improve Tennessee's transportation system. They support the three high-priority objectives either through capital investments, operational investments, or additional use of innovative technology. Funding constraints limit the number and scope of projects which can be implemented at any one time. To identify short-term and long-term projects, a prioritization process was developed based on the following criteria:

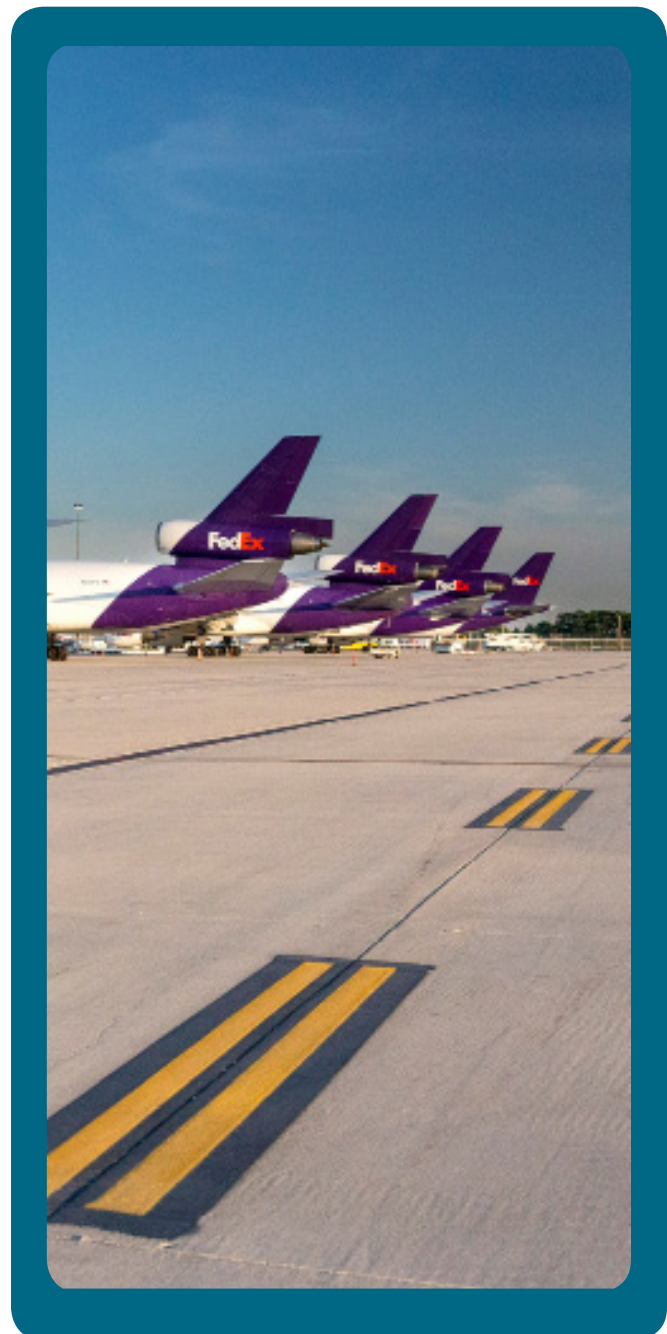
- Safety, Security, & Resilience
- Improves State of Good Repair
- Reducing Congestion
- Improve Contribution of Freight Transportation System to Economic Efficiency, Productivity, & Competitiveness
- Advanced Technology, Performance Management, Innovation, Competitiveness, & Accountability
- Reduce Adverse Environmental & Community Impacts
- FAC Input



Tennessee's Freight Improvement Strategy

Based on the identified strengths and challenges and a review of peer state programs, a set of recommended state-level freight initiatives and policies were developed and focused on:

- Reaffirming and expanding Tennessee's **Strategic Corridors** to include rail, water, and intermodal facilities
- Establishing a **multimodal freight funding program** with a dedicated revenue source
- Expanding the **State Industrial Access Program** to allow for non-road improvements
- Establishing a **freight and logistics office within TDOT** to further advance freight planning and investments in Tennessee
- Increasing **TDOT's capabilities** to assist communities and freight partners in best practices considering freight land use
- Continuing **coordination with the statewide FAC**
- Continuing to **increase TDOT's technical resources** in freight decisions
- Sustaining the **transportation support for industrial land use development**, including re-use of former industrial areas



Implementation Plan

The Statewide Freight Plan has brought together stakeholders from all modes, geographies, and types of sectors in Tennessee and initiated a dialogue among them. The next steps for freight planning and transportation infrastructure improvements in Tennessee include:

NEXT STEPS

Continuing the Freight Discussion with the FAC and other Stakeholders

Collecting and Tracking Freight-Related Data

Maintaining a Statewide Travel Demand Model with Freight Components

Enabling Legislative and Funding Priorities

Integrating Transportation Planning and Economic Development

Implementing Freight Transportation Infrastructure Projects and Tracking Progress

