CAMBRIDGE SYSTEMATICS

Survey and Inventory of Freight Planning Activities in Tennessee

final

report

prepared for

Tennessee Department of Transportation

prepared by

Cambridge Systematics, Inc.

July 11, 2008

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Cambridge Systematics, Inc.
730 Peachtree Street, Suite 1050
Atlanta, Georgia 30308

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Executive Summary

The purpose of this report is to provide an inventory of freight planning efforts in the State of Tennessee. The inventory includes studies done within the Tennessee Department of Transportation (TDOT), as well as studies conducted by Tennessee MPOs, universities, regional and multistate coalitions, and economic development agencies. The inventory was developed using information from the TDOT planning department and the newly formed Office of Freight and Rail. Tennessee's 11 MPOs were contacted to compile information on freight planning activities conducted at the regional level throughout the state. The report summaries regional studies and multi-state coalitions undertaking freight planning activities. Tennessee borders eight other states. Each surrounding state DOT was contacted and a list of freight-related activities conducted by these states is also included in the inventory. University studies related to intermodal planning and freight movement were also reviewed. This report also reviewed freight data sources available at TDOT and other organizations conducting freight planning activities. The report identifies available national and state freight data sources. Each organization interviewed for the study also provided information on freight data sources used to conduct various studies.

The most common freight planning activities identified through the study included freight sections within larger long range transportation plans, stand-alone freight plans, freight projects included in the project selection process, and freight rail planning activities. A number of state agencies also own and analyze TRANSEARCH data as part of the analysis. This study also identified some areas of opportunity for the Tennessee DOT to expand upon current freight planning activities within the state. These opportunities include:

- Analysis of the relationship between freight and the economy to understand how freight transportation projects and policies impact the broader statewide economy. This can be done as a stand-alone activity or as part of a larger statewide freight plan.
- Development of statewide freight prioritization criteria that can be utilized by MPOs to develop consistent local versions of freight prioritization to assist in the local project selection process.
- Provide technical guidance to MPOs and other local communities to address specific freight needs as identified by the local governments. This will ensure that each of the regions conducts some level of relevant freight planning.
- Development of a multi-state coalition focused on regional freight rail planning to leverage information from the pre-existing state rail plans and to most effectively identify opportunities for truck-rail diversion.

- Consistent participation in a statewide or regional freight conference to educate the private sector on current planning activities, ensure that the private sector is engaged in freight planning, and to provide an opportunity for transportation planners to learn about the importance of transportation infrastructure and operations to the private sector.
- Collection of roadside truck origin-destination surveys to provide information that can be utilized in the Tennessee DOT corridor planning activities, to provide information for long range planning purposes at the state and MPO-levels, and to provide information that can be used to calibrate and validate statewide and regional truck travel demand models.
- Development of a stand-alone statewide freight plan to provide policy leadership, technical guidance and consistency to freight planning efforts within the state. This plan can incorporate several of the other recommendations that were developed as part of this study.

1.0 Overview

The purpose of this report is to provide an inventory of freight planning efforts in the State of Tennessee. The inventory includes studies done within the Tennessee Department of Transportation (TDOT), as well as studies conducted by Tennessee metropolitan planning organizations (MPOs), universities, regional and multistate coalitions, economic development agencies, and surrounding state DOTs. The conclusions of this report outline summary guidance in terms of potential next steps for the Tennessee DOT to pursue in regards to freight planning in the state and in the region.

Tennessee has a complex freight transportation system. Tennessee shares borders with eight other states. The geographic characteristics of the state give it a unique network of highway, railroad, aviation, and waterway systems that interact to move goods to support local production and consumption activities. There are a number of state, regional, and local agencies along with private sector entities and research institutions that have conducted some level of freight planning activity in Tennessee. This document summarizes a survey and inventory of recent, current, and future freight planning activities of these activities. This report also reviewed freight data sources available at TDOT. The report identifies available national and state freight data sources. Each organization interviewed for the study provided information on both freight planning activities and freight data sources used to conduct various studies.

The information in this report was compiled from data on agency websites, planning documents, and phone calls with staff responsible for freight planning activities. The majority of the agencies contacted responded with the requested information. Contact information for individuals that provided input to this study is provided in the Appendix Table 10.1.

2.0 Tennessee DOT

TDOT has conducted several freight planning studies in recent years. The studies involve truck, rail, air, and water freight activities. This section summarizes the recent, current, and planned freight planning efforts of the Long Range Planning Division and the Strategic Planning Office.

2.1 TENNESSEE LONG RANGE TRANSPORTATION PLAN (LRTP)

In 2005, the Tennessee LRTP Modal Needs Study highlighted the needs and deficiencies of each of the modes in the state's transportation system. The freight related modes included in this study were highways, railroads, waterways, and aviation. The modal analysis identified three basic investment categories: 1) maintenance and preservation, 2) safety and modernization, and 3) expansion and enhancement. Information to develop the modal needs were derived from pre-existing modal plans, recent MPO plans, the TDOT *Challenges and Opportunities* report, and the Public Involvement Process.

A key component of the LRTP process was the development and refinement of a truck component of the statewide travel demand model and a truck-rail diversion model for the state as well. The truck component of the travel demand model was developed through the use of TRANSEARCH freight flow data disaggregated to the county-level. Additionally, local socioeconomic data were used along with input-output models to conduct truck trip distribution between various regions The truck-rail diversion model includes a vast national rail network that is unparalleled in terms of its coverage. It also includes a mode choice component that routes rail freight trains based on shortest distance.

2.2 TENNESSEE RAIL SYSTEM PLAN

TDOT developed a comprehensive rail system plan. The plan provides policy, procedural, and system management guidance for freight planning activities. The rail plan identifies potential intercity passenger rail corridors, future demands on the freight rail system and funding needs. The tasks completed as a part of the study include:

- Public Involvement Plan
- Rail System Inventory
- Policy and Procedures Manual
- Short Line Program Review and Recommendations

- Potential Intercity Passenger Rail Corridors
- Freight Forecasting
- Rail Freight Intermodal Facility and Rail System Connections
- Strategic Project Evaluation Protocols and Procedures
- Evaluation of Rail Infrastructure Proposals
- Impact of Chickamauga Lock Closure
- Advance Planning Report
- Rail system Plan, Summary, Funding Options and Rail Program
- Summary of Interactions w/Tennessee Metropolitan Planning Organizations

The key components of the rail plan included analysis of the needs and deficiencies of the rail system in the state. It also analyzed the potential re-connection of a freight rail line extending from east-to-west across the entire state. It also was used to develop an estimate of costs of improvement alternatives for the freight rail mode.

2.3 CORRIDOR STUDIES

As part of the LRTP, TDOT identified a set of critical corridors in the state that required further study. These corridors included: I-40, I-81, I-75, and I-24. TDOT is in the process of concluding a study on I-40/I-81 and will be contracting consulting services to assist them to study I-75 in the summer of 2008. Both the current and the planned corridor studies have freight intensive activities. For the I-40/I-81 Corridor Study, the project refined a truck-rail diversion analysis tool for use in the study. It also identified freight-focused solutions such as truck-climbing lanes and improvements to locations with higher than normal truck-related accidents. The study also developed benefit-cost ratios that incorporated the higher value of time of trucks relative to passenger cars.

2.4 TOLL STUDIES

TDOT is exploring the potential use of tolls to advance needed projects that would otherwise be forced to wait for adequate funding to be allocated within the larger statewide programming process. Preliminary studies have been conducted on the following corridors:

- The Hadley Bend Connector
- The Intra County Parkway
- SR 475 in Nashville
- Toll System Feasibility Study Peer Review

Additionally, TDOT is in the process of contracting consulting services to conduct more in-depth studies of the Mississippi River Bridge and a toll road in Chattanooga. The Mississippi River Bridge is heavily trafficked by both automobiles and trucks.

2.5 OTHER STUDIES

Mississippi River Crossing Feasibility and Location Study

The purpose of this study is to determine the feasibility of providing a new Mississippi River Bridge Crossing in the Memphis area. The study evaluates the possible transportation solutions to help TDOT reach a decision on a preferred corridor alternative for proposed improvements for cross-river mobility.

Tennessee High Speed Rail Corridor Study

This study proposes the extension of the Southeast High Speed Rail Corridor to include Nashville, Chattanooga, and Atlanta. The Chattanooga Airport would be the connection point for the two segments. The study explores potential routes for the extension and the benefits of providing faster connection services between the three cities.

Tennessee Waterway Assessment Study

This study was prepared for the Tennessee DOT and the Nashville District of the U.S. Army Corps of Engineers. This study described the historic and current inland waterway system in the State of Tennessee including management of the Cumberland River and Tennessee River locks and dams, The Tennessee Valley Authority, and waterborne commerce movements on the Mississippi, Tennessee and Cumberland Rivers. It also included an inventory of river terminal systems in the state. Additionally, it identified and consulted with several of the important inland waterway stakeholders in the region. This study will be followed by another study to document the needs and deficiencies of the current system.

2.6 FREIGHT DATA AND ANALYTICAL TOOLS

TDOT has freight data and analytical tools spread across several activities. Current and historical truck count data is stored in the ADAM database. Truck safety data is included as part of the larger statewide accident database that is maintained by TDOT. There is also a statewide travel demand model which produces estimates daily truck (and auto) volumes on the interstates and major state highways in Tennessee. Forecasts of traffic volumes can also be generated by the model. There is also a statewide rail model which was developed by TDOT. This statewide rail model includes one of the most comprehensive national rail networks of any public sector model in the country. Finally, TDOT

has recently purchased the TRANSEARCH freight flow database which provides estimates on the amount of goods moved between counties in Tennessee by mode and commodity type. This database also includes flows between Tennessee counties and regions external to Tennessee. External regions are defined either as states or groups of states. These data and analytical tools were used as part of the studies mentioned earlier in this chapter.

3.0 Tennessee MPOs

MPOs 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 (LRTPs), and the inclusion of freight projects in transportation improvements programs (TIPs). The following sections summarize the freight planning activities of Tennessee's 11 MPOs.

3.1 BRISTOL MPO

A section of the MPOs LRTP is dedicated to goods movement and freight. The freight section was compiled using data available from TDOT and is not highly localized. The following operational improvements and new construction projects address freight movements by improving turning movements and access for trucking, are identified in the Bristol 2030 LRTP:

- Volunteer Parkway/Highway 11E access and median improvements from Weaver Pike to River Road
- West State Street/Highway 11W access and median improvements from Euclid Avenue to I-81
- Weaver Pike intersection and turn lane improvements from Edgemont Avenue to Highway 394
- Pennsylvania Avenue widening and realignment of Highway 421
- Virginia Avenue/Highway 421 widening to 3-lane
- Lee Highway widening from Bristol Corporate Limits to I-81 Exit 13
- Bonham Road widening to 5-lane facility between Lee Highway and Interstate 81

The Bristol MPO boundary covers parts of Tennessee and Virginia. The Executive Director expressed interest in better coordination with Virginia DOT. Obtaining data from both states has been difficult at best. To further complicate matters, the Tennessee portion of the MPO is located in Sullivan County and the Kingsport MPO boundaries also include part of Sullivan County. Therefore any Sullivan County data must be split to identify relevant regional freight data. The Bristol MPO does not have a freight plan. The MPO has not conducted a more in-depth freight study due to budget constraints, limited staff, and difficulties obtaining freight data.

3.2 CHATTANOOGA HAMILTON COUNTY RPA

The Chattanooga-Hamilton County North Georgia (CHCNGA) TPO recently completed Phase I of its Freight Transportation Study and Plan. The Phase I Study assesses the current state of freight planning at the metropolitan planning level nationally, identifies relevant freight planning data and resources available, and develops a conceptual framework for freight planning in the region. The conceptual framework is a "work plan" for moving forward with freight planning in the region. The work plan recommendations reflect the findings of the MPO Freight Study Benchmarking Report and the existing level of freight planning activities and data.

Phase II of the Freight Planning Study will identify and prioritize a more comprehensive set of regional freight system needs, goals, and objectives. An expanded stakeholder outreach program and the analysis of the freight related data identified in Phase I will be used to identify and prioritize freight needs. Phase II will also identify capital investments, operational improvements, and other initiatives that will improve the efficiency of goods movement in the region. Phase II has not begun. The MPO is exploring funding mechanisms for the next phase of the study.

The CHCNGA is currently updating its LRTP (2035). It is estimated that the LRTP will be completed in 2009. There are currently no planned rail projects included in TransPlan 2030. The plan does include four rail/safety projects that involve improving safety at railroad crossings by upgrading overpasses or other operational improvements. TransPlan 2030 identifies 11 transportation planning studies, four of which are freight and rail related. These studies include:

- Chattanooga Cross Radial Connectors Feasibility, Location and Freight Study
- Chattanooga to Atlanta Magnetic Levitation Study
- Waterway Transportation Plan
- Other Multimodal Transportation Studies

3.3 CLARKSVILLE-MONTGOMERY COUNTY RPC

The Clarksville-Montgomery County RPC does not have a freight plan, but the MPOs LRTP includes extensive rail, aviation, waterways and ports, and freight sections. The following studies have been conducted or are currently underway:

- Outlaw Field Relocation Feasibility Study
- Tennessee Statewide Aviation System Plan
- Intermodal Port Development Project: Port Issues and Market Potential
- In 2004, the MPO and the Clarksville-Montgomery County Chamber of Commerce conducted a survey of local manufacturing companies to better understand freight transportation needs within the MPO region.

Tables 1 and 2 contain a list of the aviation and rail improvements of the 2030 LRTP.

Table 3.1 2030 Aviation Planned Improvements

2030 Aviation Planned Improvements – By Horizon Year

Project Description	Air Quality (E)xempt (N)on-Exempt	Time Frame	Anticipated Funding Source*	Total Estimated Project Cost
Expansion of Airport Ramp and Aircraft Parking Area	E	2010	FED/STATE/LOCAL	$750,000
12,000 Gallon Above Ground Aircraft Fueling System	E	2010	FED/STATE/LOCAL	$78,000
Aircraft Maintenance Facility	E	2010	FED/STATE/LOCAL	$700,000
Instillation of a Precision Instrument Approach	E	2010	FED/STATE/LOCAL	$2,000,000
Construction of 2 Aircraft hanger Units	E	2010	FED/STATE/LOCAL	$400,000
Construction of an Air-Cargo/Freight Facility	E	2016	FED/STATE/LOCAL	$3,000,000
			Total	$6,928,000

* Anticipated funding of aviation projects would be a combination of federal, state, and local funds

Source: Clarksville-Montgomery County MPO LRTP

Table 3.2 2030 Rail Planned Improvements

2030 Rail Planned Improvements – By Horizon Year

Project Description	Air Quality (E)xempt (N)on-Exempt	Time Frame	Anticipated Funding Source*	Total Estimated Project Cost
Improvements at various at-grade railroad crossings	E	2010	STATE/LOCAL	$200,000
Railroad safety improvements	E	2010	STATE/LOCAL	$100,000
Rehabilitation of the Cumberland River railroad bridge	E	2016	STATE/LOCAL	$3,000,000
Rehabilitation of the Red River railroad bridge	E	2016	STATE/LOCAL	$800,000
Railroad safety improvements	E	2016	STATE/LOCAL	$100,000
Improvements at various at-grade railroad crossings	E	2020	STATE/LOCAL	$300,000
Railroad safety improvements	E	2020	STATE/LOCAL	$200,000
Improvements at various at-grade railroad crossings	E	2030	STATE/LOCAL	$300,000
Railroad safety improvements	E	2030	STATE/LOCAL	$200,000
			Total	$5,200,000

* Anticipated funding of railroad projects would be a combination of state, local, or private funds

Source: Clarksville-Montgomery County MPO LRTP

The Clarksville-Montgomery County RPC is in the process of updating its LRTP and travel demand model. The LRTP is scheduled to be completed in late 2008, but may not be completed until a later date. Due to budget constraints, the travel demand model does not address freight issues.

3.4 CLEVELAND AREA MPO

The Cleveland MPO does not have a freight plan but freight issues are identified in the LRTP. The plan identifies four facility-related improvements at the Hardwick Field. No rail projects are identified in the plan. An analysis of commodity flows in the metropolitan area was performed based on TRANSEARCH commodity flow data.

The MPO plans to conduct a freight study in the near future to address the evolving distribution business in Cleveland. The I-75 Exit 20 interchange is currently under study for a modification of the interchange to better accommodate truck traffic. An extension of the bypass to connect Stuart Road and I-75 Exit 25 APD 40 bypass is another area of concern. Stuart Road provides access to a number of industrial facilities.

3.5 JACKSON URBAN AREA MPO

The MPO completed a 2035 LRTP update in January 2008. The LRTP has a freight section for the first time. The plan identifies two freight and goods-related strategies – 1) Ensure open channels for truck movement by reducing traffic congestion and providing alternate truck routes and 2) Consider large vehicle needs in the design of new roadways. The MPO has incorporated freight into its project evaluation process. Projects receive points for providing enhanced or new capacity, accessibility, or mobility to the transportation system to move freight. Projects that enhance the range of freight service options available to local businesses or ameliorate size and weight restrictions for freight vehicles are assigned points toward the project selection process.

The freight section identifies major freight generators and truck traffic based on through truck volumes on principal arterials and truck volumes to and from major truck generators in the area. The section also identifies significant freight corridors based on truck volumes.

The Jackson MPO does not have a freight plan but the MPO is developing a truck travel demand model as a component of the region's travel demand model. The truck model will provide a platform for supporting metropolitan highway project development, improve the agency's planning level of service analysis, and provide a key element for conducting system-wide trip-based benefit cost and regional economic impact analysis.

The MPO conducted a survey of the largest trucking firms, manufacturers, wholesale businesses, retail businesses, and delivery services to provide the basis of external-internal/internal-external truck volumes. Truck volumes and counts at external stations will be used from the Tennessee State Travel Demand Model. The survey was also used to identify routes used by freight stakeholders.

3.6 JOHNSON CITY MPO

The Johnson City MPO LRTP includes an analysis of TRANSEARCH commodity flow data and the results of a survey of manufacturers. The following proposed projects are expected to improve freight and goods movement in the area and are located on facilities that are identified in the LRTP as either a heavy freight corridor or a location of difficulty for the freight community:

- I-26 from University Parkway to the Sullivan County Line (15.3 miles)-Widen from 4 to 6 lanes (2026-2030)
- ITS for I-26 in Washington County (15 miles)-Install permanent message signs, cameras and communications for traffic management (2007-2015)
- I-26 interchange at SR 354-Interchange reconstruction (2007-2015)
- I-26 interchange at SR 75-Interchange reconstruction (2007-2015)
- I-26 interchange at SR 67-Interchange reconstruction (2007-2015)
- I-26 interchange at SR 91-Interchange reconstruction (2016-2026)
- SR 34/U.S. 11E from Roan Street to SR 381 (0.8 miles)-Widen from 4 to 5 lanes (2007-2015)
- SR 34 Triangle Intersection (1.5 miles)-Intersection improvements (2007-2015)
- SR 34 intersection at Carroll Creek-Intersection improvement (2007-2015)
- SR 34 from Hillcrest to Jonesborough City Limits-Signalization and fiber optic upgrades (2007-2015)
- SR 67 from SR 359 to Siam Road-Traffic signal optimization with communications interconnecting signals (2007-2015)
- SR 36 from Sunset to Hemlock (0.7 miles)-Access improvements and additional turning/through lanes (2007-2015)

3.7 KINGSPORT MPO

The Kingsport MPO does not identify any rail-related projects in its LRTP. A freight chapter included in the plan identifies site-specific problems and analyzes patterns and trends regarding the nature of transport needs for freight goods and services.

CSX Corporation and the Eastman Chemical Company have ceased operation of an intermodal station located in Kingsport. The companies decided to transport chemicals from the plant by truck since the majority of the chemicals are being transported to Savannah, Georgia and Charleston, South Carolina. Both of these cities are less than 500 miles from Kingsport. More than 25,000 trucks per year have been added to the highways in Kingsport, since the closing of the Intermodal Station in 2007.

3.8 KNOXVILLE URBAN AREA MPO

The Regional Intermodal Transportation element of the Knoxville LRTP includes a section on Regional Freight and Goods Movement. The section provides some background information and identifies the existing freight industry in the region. Goals and objectives related to system maintenance, system efficiency,

environmental quality, mobility options, safety, and security are incorporated into the Freight and Goods movement section of the LRTP. The LRTP was updated in September 2007.

The Knoxville Regional Transportation Planning Organization, in coordination with the Lakeway Area Metropolitan Transportation Planning Organization (LAMTPO), has undertaken the development of the Knoxville Regional Freight Movement Plan. The plan covers Anderson, Blount, Hamblen, Jefferson, Knox, Loudon, and Sevier Counties. These counties have representatives on either the TPO or LAMTPO technical committee and are included in transportation planning activities of one or both organizations, major transportation routes pass through the counties, or the counties have facilities that handle freight.

The Knoxville Regional Freight Movement Plan provides understanding of existing freight transportation corridors, major freight generating facilities, freight activity areas, commodity flow, and problem areas that inhibit the movement of freight. The plan establishes strategies and recommendations to improve and enhance the movement of freight based on the existing conditions and forecasted outlook of the freight industry in the region.

The commodity flow data used in the study was derived from TRANSEARCH (2002). Data from the Freight Analysis Framework (FAF) developed in 1999 by FHWA was also used to identify and map current truck volumes on interstates and major highways throughout the region. Other data sources for the plan include the Bureau of Transportation Statistics (BTS), the Tennessee Department of Economic and Community Development, and the University of Tennessee Center for Business & Economic Research (CBER), Tennessee Department of Transportation, and the Tennessee Trucking Association.

The Knoxville MPO has also created a regional Freight Advisory Committee. The taskforce is derived of various freight stakeholders in the region and is charged with providing emphasis on regional freight issues and needs. Carriers, shippers, receivers, institutions, government agencies, planning and engineering departments, terminal operators, economic development agencies, and chambers of commerce are participating in the committee's activities. The MPO plans to improve its relationship with the freight community, gain understanding of its freight industry, and ensure that the interests of the freight community are represented in the transportation planning process. The Knoxville Regional Freight Advisory Committee held its first meeting in July 2006.

3.9 MEMPHIS MPO

The Memphis MPO completed its 2030 LRTP in March 2008. The plan includes chapter on freight element of the plan. The chapter discusses the relative impacts of freight logistics in the study area. Five types of freight transportation were studied – port, airport, rail, highway, and intermodal service. Capacity and

logistical constraints, as well as recommendations on how to improve freight in the region are incorporated into the chapter.

A 36-question survey was administered in person, by telephone or by email with representatives of each freight transportation mode. The survey questions pertained to hours of operation, number of employees, perceived capacity of the transportation network, number of shipments, size of loads, roadways or routes used, expected delivery time performance, challenges in meeting logistical needs, transportation system vulnerabilities, accessibility to rail, and destinations of cargo. The survey information, site visits, and visual inspections were used to identify needs concerning freight in the Memphis area.

The 2030 Memphis LRTP recommends the following air, rail, water, and truck projects:

- Conduct a feasibility study to determine the viability of a local short-line rail operator at the Port.
- Conduct a feasibility study to identify high-crash highway/rail grade crossings that can be economically converted into grade separated structures.
- Build I-69 and I-269 connecting Memphis on the transcontinental highway from Toronto, Canada to Monterey, Mexico.
- Build a new rail/highway bridge spanning the Mississippi River, with connections to existing infrastructure.
- Conduct a feasibility study to evaluate the potential to develop a Memphis Rail Bypass to route through-freight movements, including the movement of hazardous materials through less populated areas.

The Memphis MPO has established a Freight Committee. The committee advises and assists the Transportation Policy Board, and recommends to all other MPO committees transportation strategies that will aid in the movement of freight into, around and out of the region. The committee consists of 13 members from various private freight providers, citizens, and manufacturing/warehouse facilities.

The Memphis MPO is partnering with the Memphis Regional Chamber and the University of Memphis to conduct a Regional Infrastructure Study. The study includes air, rail, water, vehicle, and telecommunication infrastructure.

3.10 LAKEWAY AREA MTPO

The Lakeway Area MTPO (LAMTPO) partnered with the Knoxville TPO to conduct the Knoxville Regional Freight Movement Plan. The Knoxville Regional Freight Movement Plan provides understanding of existing freight transportation corridors, major freight generating facilities, freight activity areas, commodity flow, and problem areas that inhibit the movement of freight. The plan establishes strategies and recommendations to improve and enhance the

movement of freight based on the existing conditions and forecasted outlook of the freight industry in the region.

The commodity flow data used in the study was derived from TRANSEARCH (2002). Data from the Freight Analysis Framework (FAF) developed in 1999 by FHWA was also used to identify and map current truck volumes on interstates and major highways throughout the region. Other data sources for the plan include the Bureau of Transportation Statistics (BTS), the Tennessee Department of Economic and Community Development, the University of Tennessee Center for Business & Economic Research (CBER), Tennessee Department of Transportation, and the Tennessee Trucking Association.

Railroad Relocation Feasibility Study

LAMTPO has retained STV/Ralph Whitehead Associates, Incorporated to conduct a railroad relocation feasibility study and site development for an intermodal freight facility. The intent is to study the potential of relocating the Norfolk Southern "A" Line out of downtown Morristown in order to provide better grade crossing safety for motorists and rail operators. The study will also involve the investigation of potential intermodal locations for Norfolk Southern due to the close proximity to I-81, along with the "A" line being part of the NS Crescent Line. The study is expected to commence at the end of August or early September 2008.

3.11 NASHVILLE MPO

The Nashville Area MPO (NAMPO) inaugurated Phase I of the Freight and Regional Goods Movement Study in 2003. The study highlights the movement of freight and the role it plays in the local economy. A principal goal of the study is to institutionalize freight needs in to the overall NAMPO planning process, by modifying existing planning tools and priorities. The following projects were identified as a result of the freight study and are now included in the region's LRTP:

- Grade separate Beechcroft Road (SR 247) at CSX rail crossing (2025)
- Improve I-65/I-40 Junction at Fesslers Lane due to congestion (2016)
- Improve I-24/I-40 Split due to congestion (2016)
- Improve Murfreesboro Road due to congestion and signal timing (2016)
- Improve SR 109 in Gallatin due to congestion (2016)

Phase II of the Freight and Regional Goods Movement Study is currently underway and is expected to be complete in early 2010. This phase will develop a regional freight model with the goal of improving the MPOs ability to predict future freight-related demands on the network. The model results will show how estimated freight growth will be distributed and accommodated by the existing freight system. The model will also identify the location and severity of expected

freight transportation capacity constraints, bottlenecks, barriers, and deficient infrastructure. The model results will be used to identify and evaluate strategies that will provide needed capacity and operating flexibility. Specific long-range transportation projects and potential funding sources will be identified.

The Nashville MPO has established a Freight Advisory Committee to guide its freight planning efforts. The committee is responsible for helping public sector policy makers, planners, and engineers better understand the complexities associated with freight movement to more effectively guide public investment in transportation infrastructure. The committee consists of experts from trucking companies, rail transport companies, airports and aviation businesses, municipal and county planning and engineering departments, academia, large manufacturers and warehouses, federal and state planning and environmental agencies, and law enforcement agencies. The Freight Advisory Committee held a kick-off meeting on November 6, 2007.

4.0 Surrounding State DOTs

Freight trips are typically much longer than passenger vehicle trips. Freight trips are much more likely to cross state lines than other states. Therefore, an understanding of freight activity is by nature a multi-state process. Additionally, freight planning and policy activities outside of the state of Tennessee have the ability to significantly impact freight movement within the state of Tennessee. Additionally, freight planning efforts in other states can be leveraged to understand the nature of freight movement within Tennessee. Similarly, freight data collected in other states will be useful for freight planning activities within Tennessee. This chapter discussed the freight planning activities of each of the eight states that surround Tennessee. The research performed for this chapter included reviewing each state DOT's website to identify freight planning activities. Each DOT was contacted by phone for additional information. Planning documents provided by the states were reviewed. Additionally, electronic files of key reports were collected, as available from websites or representatives of the state DOT's.

4.1 ALABAMA

Freight planning activities are conducted through the Bureau of Multimodal Transportation at the Alabama DOT. The Bureau of Multimodal Transportation maintains rapport with various railroad companies in the planning and implementation of rail/highway safety projects. The Alabama DOT (ALDOT) has no funding or oversight responsibilities for the state's ports and waterways. However, ALDOT plays a role in furthering waterborne commerce and activities by providing and maintaining adequate intermodal connections.

The 2008 Alabama Statewide Transportation Plan addresses freight planning and identifies needs and deficiencies. Alabama has six high priority corridors, identified in federal legislation, and important to the state's freight movements and economic development program.

Alabama Rail Plan

The Alabama Rail Plan developed in 2001 incorporated major rail developments into the transportation process and provided recommendations for infrastructure improvements. The plan identifies several major rail developments proposed in Alabama, including expansion of the Huntsville Intermodal Terminal, expansion of the Port of Mobile and expansion of the ThyssenKrupp's Steel Plant. Each of these facilities relies heavily on the railroads to move their freight. In response, CSXT, BNSF, and Norfolk Southern plan to expand their freight services by the end of 2008. According to the January 2008 statewide transportation plan, an update to the statewide freight plan was underway at the time of this study.

Truck Forecasting and Simulation

The Alabama Department of Transportation (ALDOT) has retained the University of Alabama Huntsville to conduct a planning forecasting study of truck traffic in Alabama. The purpose of the study is to develop a methodology to forecast commodity groups by interstate and state highways. The forecasts are based on economic activity growth data.

ALDOT provided truck percentage estimates for US and state highways throughout the state and the Freight Analysis Framework 2 (FAF2) data from the Federal Highway Administration (FHWA) was used to forecast truck volumes. The team developed a forecast of truck traffic only. The project team has also developed an interstate traffic simulation model that predicts the impact of various transportation alternatives on interstate traffic including trucks. The team is currently performing model validation checks.

The next phase of the project will evaluate through traffic on I-20, I-10, I-86 and I-80. The model will also be adapted to forecast truck growth based on regions. It is intended that the model will be used by the state DOT and MPOs in freight forecasting. It is estimated that the study will be completed by September 2008.

4.2 ARKANSAS

The Arkansas State Highway and Transportation Department Planning and Research Division is responsible for freight planning and intermodal transportation planning. The Planning and Research Division manages transportation planning activities related to airports, highways, pipelines, railroads, waterways, and transit.

Arkansas State Rail Plan

The Arkansas State Rail Plan (2002) outlines the state's rail goals and objectives. The plan provides a description of the current railroad system serving Arkansas, identifies major issues confronting the state's railroads and users of rail transportation, and presents programs and activities to improve rail operations. Suggested funding options and strategies for developing the state's railroads are also included. Rail issues identified by the plan include rail abandonment, railroad viability, grade crossings, and access to rail freight transportation. The plan identifies freight development strategies designed to aid the state's railroads with infrastructure projects and service improvements. TRANSEARCH data was acquired to conduct this study.

Arkansas Statewide Long-Range Intermodal Transportation Plan

Arkansas' Statewide Long-Range Intermodal Transportation Plan includes an extensive freight component that was prepared in 2002. The plan identifies major freight corridors and intermodal freight facilities. Market areas and shipping patterns including commodity flow data are discussed in detail. County freight

movement data are also included. The plan presents development strategies and funding options.

The Long-Range Intermodal Transportation Plan was updated in 2007. The plan update identifies principal rail issues for both providers and users. The issues related to freight that were identified included at-grade railroad/highway at-grade crossings; insufficient funds to properly maintain rail lines; deteriorating equipment, tracks and bridges; and rail line abandonment.

Public Riverport Study and Needs Assessment

The Arkansas State Public Riverport Study and Needs Assessment provides an overall evaluation of the navigable system in Arkansas. The report analyzes existing commodities handled and potential cargo shipments. The needs assessment evaluates the infrastructure, equipment, and support facilities. The economic value of the public ports and harbors is also reviewed. The study identified the major issues related to port/harbor development and presented strategies to improve the state's public river terminals.

4.3 GEORGIA

The Georgia DOT Office of Intermodal Programs manages Georgia's planning and operations programs in support of the transit, rail, port, waterway and aviation systems. This office manages the statewide transportation planning process and the collection and sharing of transportation data, including vehicle volumes and the state route network. In addition, this Office researches, develops, and implements transit, port, freight, and passenger rail opportunities across the state.

Atlanta Regional Freight Mobility Plan

The Georgia Department of Transportation (GDOT) has conducted several freight planning studies. The most recent freight-related study was completed in 2008. The Atlanta Regional Freight Mobility Plan was sponsored by the Atlanta Regional Commission (ARC) and GDOT. The purpose of the plan was to conduct a comprehensive regional study of freight, goods, and services mobility needs; develop a framework to proactively address freight and goods movement mobility needs and challenges in our region; and examine all modes of freight transportation system with emphasis on air, rail and trucking. TRANSEACH data and survey data was used to conduct this study.

Atlanta Regional Truck Route Master Plan

ARC is in the process of developing the next phase of its freight planning activities. It has issued an RFP to retain consulting services to develop a regional truck route network. This will cover the entire 18-county ARC area.

Georgia Statewide Freight Plan (2005-2035)

The Georgia Statewide Freight Plan (2005-2035) provides information on all major modes of travel for freight and existing and future demand across the state of Georgia. The plan focuses on origin and destinations of freight inside and outside of Georgia. A commodity and modal analysis was also conducted. The report provides information on the flow of freight as a dollar value in order to better understand the importance of freight to the economy.

Statewide Truck Lanes Needs Identification Study

GDOT is also studying the need for Truck Only Lanes in Georgia. The 2006 Statewide Truck Lane Needs Identification Study identified roadway corridors in Georgia where Truck Only Lanes may be needed to improve travel conditions for trucks and the state highway network. The study identified where Truck Only Lanes may be feasible, examined where Truck Only Lanes can improve safety conditions, and discussed how improvements can be financed.

Georgia Statewide Rail Plan

In 2003, the Georgia DOT developed a statewide rail plan that inventoried the State's rail system, identified locations of over-capacity in the system and compiled a list of potential improvement alternatives for consideration by the State. The state rail plan also identified the amount of rail goods moving in the State as well as the commodities moving along each rail line.

Northwest Toll Expressway Value Pricing Study

The Georgia State Road and Toll Authority is conducting a study on a road connecting the Port of Savannah with I-95 to the north and I-16/I-516 to the south. The study is identifying alternatives to make this connection, generating toll and revenue estimates for the alternatives, and estimating the percent funded levels for each alternative based on cost and revenue streams.

High-Occupancy Toll (HOT)/Truck Only Toll (TOT) Study

The Georgia State and Road Authority conducted this study to determine the feasibility of HOT and TOT lanes throughout the state. The study forecast truck and auto volumes in 2030. It also estimated congestion savings and economic productivity that resulted from HOT and TOT lanes

4.4 MISSISSIPPI

The Office of Intermodal Planning is responsible for Planning, Freight, Rail, Ports and Waterways. The Freight, Rail, Ports and Waterways Division coordinates a

multimodal program to facilitate freight between and among local, national, and international markets.

Comprehensive Assessment of the Ports of Mississippi

The Comprehensive Assessment of the Ports of Mississippi addressed the physical attributes of each port, the needs of each, and the domestic and international markets available. The report identified specific capital budget projects to be funded and brought to completion. The report was completed in January of 2000.

Statewide Freight Study

Mississippi DOT is currently conducting a statewide freight study. Wilbur Smith and Associates has been retained to conduct Phase I of the study. Phase I identifies the freight movement types and commodities throughout the state. Corridors most impacted by freight movements were also identified. As a part of the study, stakeholder interviews were conducted to identify freight issues and deficiencies. Phase I of the study is scheduled to be completed by the end of 2008. Phase II will address the development of a freight model to forecast freight flows throughout the state. Strategies to address the freight issues identified in Phase I will also be included. Phase II will be completed in 2009.

4.5 KENTUCKY

Freight planning is conducted through the Division of Planning at the Kentucky Transportation Cabinet. The Office of Modal Programs manages the Air Quality, Congestion Management, Freight, Ferries, Rail, Riverports, and Aviation Programs.

Kentucky Statewide Intermodal Freight Plan

The Kentucky Transportation Cabinet completed a Statewide Intermodal Freight Plan in 2006. Highway, air, rail, water, and intermodal connections were addressed. The plan defines a freight focus network of high priority highway routes and primary freight facilities. Alternate modes of freight transport are analyzed and compared. The freight plan also provides strategies for plan implementation.

2007 Regional Freight Conference

The Kentucky Division of the Federal Highway Administration in conjunction with the Kentucky Transportation Cabinet hosted Kentucky's 2007 Freight Conference on May 15th, 2007. The conference provided planners, engineers, and decision makers the opportunity to participate in a variety of freight-related presentations and sessions. Topics on the conference agenda ranged from the Freight Analysis Framework to the private sector perspective.

4.6 NORTH CAROLINA

The North Carolina Department of Transportation (NCDOT) does not currently have a central point of contact for freight planning. These activities are conducted by separate modal divisions: highways, rail, and aviation.

North Carolina Statewide Transportation Plan

Freight has been considered as a part of the statewide transportation plan. The plan identifies providing infrastructure necessary to optimize mobility and reliability in the transportation of passengers and freight as a major goal. A 25-year freight needs plan is included. The plan involves Class I track improvements, short line rail improvements, and rail industrial access projects.

North Carolina Rail Plan 2000

The Statewide Rail Plan documents freight trends and issues related to rail line revitalization, intermodal traffic growth, and rail safety. The plan discusses existing passenger rail service and plans for western and eastern North Carolina service. NCDOT is currently in the process of updating this rail plan.

NCDOT is currently conducting a truck modeling study. No additional information related to the study was available at the time of this report.

Statewide Truck Network Model Study

NCDOT is developing a Statewide Truck Network Model. The commodity and trip-based model uses FAF2 data and trip-based data for local trips. The model will be used for intercity/inter-region and rural travel forecasting. The model will provide additional planning tools for intercity corridor studies and traffic forecasting for MPO models. The study is expected to be completed in June 2008.

4.7 MISSOURI

The Missouri Department of Transportation's (MoDOT) Multimodal Division and Freight Development Unit manages freight planning activities. The division has rail, aviation, and waterways sections responsible for specific modal freight planning activities.

Missouri Statewide Freight Study

Missouri's Statewide Freight Study (2005) includes an inventory of existing freight facilities and assets, analysis of current and projected commodity flows, outreach to industry and carrier stakeholders, economic impacts analysis, and a regional advantages, liabilities and opportunities analysis. The primary data sources for the study are MoDOT, the Federal Railroad Administration, the Bureau of Transportation TRANSTATS Database, and commercial sources of rail system data.

Freight Optimization and Development in Missouri: Ports and Waterways

The Freight Optimization and Development in Missouri Report (2008) inventories Missouri's existing infrastructure and operations and outlines strategies that capture freight development. The study analyzes the state's public and private ports and a baseline commodity flow. Several key strategies are proposed to increase the state's role in freight movements and accelerate or facilitate freight and logistics development.

Missouri Port Authority Assessment

The study focuses on public, commercial, multimodal access to waterways for public ports authorities that receive public funds. In person surveys of port authorities were conducted to compile the assessment. The study summarizes information related to waterway benefits, bio-fuels and their affects on transportation, containers-on-barges, and Missouri River Cargo. The study was completed in 2007.

Freight Passenger Rail Analysis

The primary objective of this study was to develop a prioritized list of rail enhancements addressing current passenger and freight rail performance on the Union Pacific line from St. Louis to Kansas City. The study examined the geographic conditions, maintenance processes, crew scheduling and the dispatching priority of the rail corridor. The final results identified rail alternatives for the project. The study was completed in 2007.

4.8 VIRGINIA

The Division of Transportation and Mobility Planning (TMP) manages freight planning activities for the Virginia Department of Transportation. The TMP is responsible for highway and long range planning related to freight. The Virginia Department of Rail and Public Transportation focuses on the movement of people and goods through Virginia by rail, public transportation, and commuter services. The Virginia Department of Aviation handles aviation planning and the Virginia Port Authority manages planning activities related to ports.

Virginia State Rail Plan

The Virginia Department of Rail and Public Transportation (DRPT) developed the Virginia State Rail Plan (2004) to provide a statewide rail planning document as a visionary approach to providing rail transportation services to meet passenger and freight demand. The plan places critical information about freight rail and passenger rail issues, needs, choices, costs, and benefits within a larger public policy context.

The plan addresses public and private rail system elements, system condition and investment needs, mobility, economic growth, and alternative investment needs. Rail goals, objectives, and strategies are outlined to address safety and security, preservation of infrastructure, system management, system capacity and reliability, intermodal connectivity, economic competitiveness, and public private partnership efforts.

I-81 Corridor Initiative

In 2004 Virginia conducted a study to quantify the potential for truck diversions from Interstate 81 at various rates of tolling, and to identify toll policy issues for the Commonwealth. The first major element of the study was a series of interviews and surveys of motor carriers operating nationally, and along the I-81 corridor. The survey was designed to determine what factors were important to motor carriers in determining route selection, and to estimate the impact of highway tolling in the evaluation of route alternatives. The second part of the study was the application of a diversion model that reflects the decision logic of motor carriers operating in the corridor. The model revealed that the number of vehicles diverted from I-81 increased linearly with the cost of tolls per mile. No significant difference in rates of diversion was noticed between commodity groups.

Virginia Statewide Multimodal Freight Study, Phase I

The Virginia Department of Transportation (VDOT) recently completed Phase I of their Statewide Multimodal Freight Study (2007). The study compiled available freight information, identified current needs and projected future needs for each mode, developed an understanding of the contribution that freight makes to Virginia's economy, and formed substantial freight planning and programming recommendations and solutions. The primary data source for the study was 2004 TRANSEARCH data. Supplemental data included international waterborne data.

Virginia Statewide Multimodal Freight Study, Phase II

The second phase of the Statewide Multimodal Freight Study is currently underway and due to be completed by the end of 2008. The major objectives of the study are as follows:

1. Data and analytical tools development – upgrade Virginia State Model truck analysis capability and develop enhanced version of Virginia's 2004 TRANSEARCH database.
2. Freight analyses and improvement projects for multimodal corridors and critical freight subregions.
3. Statewide program and policy recommendations – long list of potentially beneficial freight capital improvements, capital program alternatives, freight policy alternatives and tiered recommendations.

4. Agency, public, and other stakeholder outreach – critical issues report and action plan.
5. Institutional strategies to support multimodal and multi-state freight planning – conduct agency outreach and regional meetings.

5.0 Regional Studies/Multistate Coalitions

5.1 DELTA REGIONAL AUTHORITY (DRA)

DRA encompasses 240 counties and parishes in Alabama, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee. The Delta Development Highway System Plan (DDHS) was developed to improve the economy and transportation system in the Delta Region. There are 21 counties in Tennessee that are a part of the DRA region. There are a total of 442 DDHS miles identified in Tennessee, which constitutes nearly 11.5 percent of the total DDHS miles, of which 392 miles are 2-lane facilities. The Tennessee DDHS improvements consist of widening and upgrading portions of US 45E/SR 43, US 64/SR 15, US 412/SR20, I-69 and I-269.

The Commission is in the process of conducting an Assets and Needs Study for the Delta Region. The study will draw upon the freight stakeholders' knowledge and experience to identify the current multimodal infrastructure assets and determine the multimodal transportation needs of the region. The results of the study will be used to develop the Multimodal Strategic Plan for the region. The Assets and Needs Study should be complete in July or August of 2008.

5.2 SOUTHEASTERN TRANSPORTATION ALLIANCE

The Southeastern Transportation Alliance is an organization of the state transportation agencies in the states/commonwealths of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Puerto Rico, South Carolina, Tennessee, Texas, Virginia, and West Virginia, in cooperation with the United States Department of Transportation, Federal Highway Administration. The Alliance is an informal agreement between these partners to provide a means of financing and conducting the Latin America Trade and Transportation Study (LATTS).

The purpose of the LATTS is to evaluate the opportunities for trade with Latin America, and to determine transportation infrastructure investment needs for the Alliance to capitalize on such trade. The LATTS Tennessee report identifies the facilities included in the LATTS Strategic Transportation System. The LATTS trade database details traffic flows between the Alliance, Latin America, and other world regions. The base year of the data is 1996 with forecasts for 2020. Key data sources include the Journal of Commerce's Port Import Export Reporting Service (PIERS) and the Bureau of Transportation Statistics' Transborder Surface Freight Database.

5.3 APPALACHIAN REGIONAL COMMISSION (ARC)

The Appalachian Region follows the spine of the Appalachian Mountains from southern New York to northern Mississippi. It includes all of West Virginia and parts of 12 other states: Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, and Virginia.

The Appalachian Regional Commission has conducted four transportation studies from 2001 to 2004.

- Analysis of Global Competitiveness of Selected Industries and Clusters in the Appalachian Region
- Meeting the Transportation Challenges of the 21st Century: Intermodal Opportunities in the Appalachian Region
- Meeting the Transportation Challenges of the 21st Century: Intermodal Case Studies
- Meeting the Transportation Challenges of the 21st Century: Economic Benefits of Intermodal Efficiencies

The ARC is developing a plan to enhance the global reach of the Appalachian Development Highway System (ADHS) and strengthen Appalachia's access to the global marketplace. The purpose of the project is to identify opportunities to better coordinate and integrate the ADHS with other transportation modes to create a global reach. Key tasks to be addressed in the study include commodity flow patterns and trends, regional transportation and logistics network, network strengths and weaknesses, and global access. The study is expected to be completed in 2009.

5.4 MEMPHIS REGIONAL CHAMBER

The Memphis Regional Chamber, in conjunction with the Memphis MPO and the University of Memphis, is conducting a Regional Infrastructure Study. The study includes air, rail, water, vehicle, and telecommunication infrastructure.

6.0 University Research Studies

6.1 UNIVERSITY OF MEMPHIS

Center for Intermodal Freight Transportation Studies

The Center for Intermodal Freight Transportation Studies is conducting a Regional Infrastructure Study for the Memphis Regional Chamber. The results of the study are not yet available. The center is also collecting studies conducted in the Delta Region for the Delta Region Assets and Needs Study. The study should be available in 4 to 5 months.

6.2 UNIVERSITY OF TENNESSEE AT KNOXVILLE

The University of Tennessee recently conducted a mini conference for MPOs on Freight Planning and Regional Freight Activities in 2003. No conference proceedings or materials were available to review.

Professor Mark Burton is conducting an Evaluation of Intermodal Facilities for Norfolk Southern. Confidentiality agreements restricted the release of information at the time of this report.

6.3 VANDERBILT UNIVERSITY

Professor Mal Baird is leading or organizing three freight related projects at Vanderbilt University. The first project is a national scan of issues related to the capacity of the freight network. This was actually a TDOT project, with Dr. Baird assisting in the organizing. The second project is a national scan of safety and security issues related to freight. These studies will especially highlight the issues of the Mid South Region. The third project deals with the development of a network to be used to look at the intermodal aspect freight. The model will focus on intermodal connectivity.

7.0 Other

7.1 TENNESSEE DEPARTMENT OF ECONOMIC & COMMUNITY DEVELOPMENT

The Tennessee Department of Economic & Community Development has provided land use data and professional knowledge for several freight projects. The department provided information on policies of the department that hindered freight planning and information sharing. The department does not currently have any freight-related data for use in future studies. The department has received some data from CSX in the form of proposals for projects requesting funds. This information, however, is not public knowledge.

7.2 I-81 CRESCENT CORRIDOR

Norfolk Southern Corporation is proposing a $2 billion-plus rail corridor stretching from Louisiana to New Jersey to capture more cargo being moved by trucks on highways. The project, called the I-81 Crescent Corridor, would speed cargo shipments while reducing congestion on such highways as Interstate 81 in western Virginia, the Norfolk-based railroad said. The plan involves upgrading and expanding existing rail lines to accommodate more, faster trains; purchasing new locomotives and railcars; and building new terminals in Maryland and Tennessee and improving others.

7.3 TENNESSEE TRUCKING ASSOCIATION (TTA)

The President of TTA was contacted to discuss recent freight-related studies. The TTA has not conducted any freight-related studies recently. They did provide information to the Nashville Freight Study conducted in 2003.

8.0 Inventory of Freight Data

Many public and private organizations collect and maintain freight-related transportation data. One objective of this report is to identify the freight data available at the federal and state levels. The following sections summarize the national and state freight data sources identified.

8.1 NATIONAL DATA

Table 8.1 identifies major national freight data sources. The list of sources can provide a comprehensive look at freight transportation. Sources of data include individual shippers, forwarders, and carriers; private vendors and consultants; and public agencies. The sources include data such as volume and value of freight movements, freight infrastructure, freight vehicles, and economic data. Each of the datasets has issues and limitations.

Table 8.1 National Freight Transportation Data Sources

Data	Description	Website/Location
Freight Analysis Framework (FAF)	Commodity movements among states and metropolitan areas by value, weight, and mode.	www.ops.fhwa.dot.gov/freight/freight_analysis/faf
Commodity Flow Survey (CFS)	Origin and destination of commodities shipped in U.S. by mode, value, and weight.	www.census.gov/econ/www/cfsnew.html
Transborder Surface Freight Data	North American merchandise trade data by commodity and mode. Includes geographic detail for U.S. exports to and imports from Canada and Mexico.	www.bts.gov/transborder
U.S.-Canada and U.S.-Mexico Border Crossings	Number of trucks, truck containers, train, and rail containers crossing into the U.S. through land ports on U.S.-Canadian and U.S.-Mexican borders.	www.bts.gov/programs/international/border_crossing_entry_data
Carload Rail Waybill Sample	Origin and destination of commodities shipped by rail, weight, number of cars involved, and length of haul. Based on proprietary Carload Waybill Sample of Class I railroads.	www.stb.dot.gov
Waterbourne Commerce: Domestic	Tonnage and trips by commodity for major ports/waterways and origin and destination data on waterbourne cargo movements by waterways and harbors.	www.iwr.usace.army.mil/ndc
Waterbourne Commerce: Foreign	Value and weight of cargo by type of service for U.S. waterbourne imports and exports.	www.iwr.usace.army.mil/ndc/usforeign
Oil Pipeline	Oil movements by multistate regions.	www.eia.doe.gov/neic/a-z/petroleuma-z.htm#p

Data	Description	Website/Location
Air Traffic Statistics	Air traffic, tonnage, and revenue ton-miles data for large air carriers and by airport.	www.bts.gov/programs/airline_information
National Transportation Atlas Database (NTAD)	Geospatial attributes of infrastructure for all modes and facilities.	www.bts.gov/programs/geographic_information_services
Highway Performance and Monitoring System (HPMS)	Extent, condition, performance, use, and operating characteristics of U.S. highways.	www.fhwa.dot.gov/policy/ohpi/hpms
National Highway Planning Network (NHPN)	Miles of current and planned roadways.	www.fhwa.dot.gov/planning/nhpn
Railroad-Highway Grade Crossings	Grade crossing location and safety data and rail network characteristics.	http://gis.fra.dot.gov
U.S. Ports and Waterway Facilities Database	Physical characteristics of coastal, Great Lakes, and inland U.S. ports, terminals, and locks.	www.iwr.usace.army.mil/ndc
Vehicle Inventory and Use Survey (VIUS)	Physical and operational characteristics of private and commercial trucks registered/licensed in U.S., commodities hauled, truck configurations, trip mileage.	http://www.census.gov/econ/www/viusmain.html
FAF Highway Capacity Database	Truck flows at highway segment level for 1998 and forecasts for 2010 and 2020.	www.ops.fhwa.dot.gov/freight/freight_analysis/faf
VRIS-W	Number of trucks weighed and vehicle weight information by type of vehicle and highway functional class.	http://apps.fhwa.dot.gov/vtris
Highway Statistics	State truck registrations, motor vehicle and motor carrier tax receipts, and disposition of tax receipts.	www.fhwa.dot.gov/policy/ohim/hs02/mv.thm
Commercial Motor Vehicle Safety Data	Commercial motor vehicle crashes, fatalities, and injuries.	www.fmcsa.dot.gov/factsfigs/dashome.htm
Waterbourne Transportation Lines	Inventory of U.S. vessels moving waterbourne commerce.	www.iwr.usace.army.mil/ndc/veslchar/veslchar.htm

Data	Description	Website/Location
U.S. Economic Census	Economic data by sector, including number of establishments, sales, payroll, inventories, operating expenses.	www.census.gov/econ/census02
Regional Economic Accounts	Gross state product, personal income, population, and employment at state level.	www.bea.gov/bea/regional/data.htm
U.S. Census County Business Patterns	Economic activity at the county level by industry.	www.census.gov/epcd/cbp
Wages, Earnings, and Benefits	Data categorized by geographic area, occupation, and industry.	www.bls.gov/bls/productivity.htm
Freight Facts and Figures	Volume and value of freight flows, network characteristics, economic, safety, and energy use data, and environmental effects.	www.ops.fhwa.dot.gov/freight
National Transportation Statistics	Overview of the extent, condition, and performance of U.S. transportation system.	www.bts.gov/publications/national_transportation_statistics
North American Transportation Statistics	Information on transportation and related activities in Canada, the United States, and Mexico and between the three countries.	http://nats.inegi.gob.mx/nats/

Source: FHWA Freight Professional Development http://ops.fhwa.dot.gov/freight/fpd/Docs/freightdata.htm.

8.2 STATE DATA

This report compiles a list of freight data sources available throughout the state. The task included compiling information from the TDOT planning department and the newly formed Office of Freight and Rail. Freight data available for each of the different modes (truck, rail, air, and water) is included in this report.

The TDOT Project Planning Division is one of four divisions under the Chief of Environment and Planning. This Division is comprised of three offices: Short Range Planning Office, Conceptual and National Environmental Policy Act (NEPA) Planning Office and Safety Planning and Travel Data Office. It is primarily responsible for the management, development and planning of all Travel Data Operations and Short Range Planning, Conceptual Planning, NEPA Planning Guidelines, and all statewide project planning studies for State, Federal and local federal aid highways and the Highway Rail Grade Crossing Program.

Freight-related planning activities and data collection are conducted by the Office of Freight and Rail in the Multimodal Transportation Resources Office and the Long Range Planning Division. The Office of Freight and Rail provides grants for truck and bridge rehabilitation for Shortline Railroad Authorities who have applied for and have been accepted into the Shortline Rail Road Program.

Traffic Data

Annual Average Daily Traffic (AADT) data including average 24-hour, two direction, traffic volume at given locations is maintained by in Project Planning Division. Raw traffic volume is adjusted by an axel correction factor and a seasonal variation. City and county traffic maps are available on the TDOT website (http://www.tdot.state.tn.us/projectplanning/trafficmaps.htm).

Crash Data

The Safety Planning Section is responsible for collecting and maintaining crash data for the Department's Tennessee Roadway Information Management System (TRIMS) database and identifying and evaluating lists of potential safety projects for the Hazard Elimination Safety and High Risk Rural Roads Programs.

Rail Crossing Data

The Travel Data Section is responsible for maintaining the Highway-Rail Grade Crossing Inventory Program, collecting traffic volumes, conducting truck freight studies, travel time surveys and special counts. This section is also responsible for processing vehicle classifications and vehicle weights plus incorporating all traffic data into computer data bases. The Highway-Rail Grade Crossing Program is responsible for administrating safety funding and evaluating grade crossings. This section is responsible for monitoring and analyzing speed data for the Tennessee Speed Data Program.

GIS City and County Mapping

The GIS City and County Mapping Section of the Long-Range Planning Division is responsible for the accurate analysis and interpretation of legal city boundary ordinances, property tax maps, aerial photography, and Digital Raster Graphics (DRG). This section, in conjunction with the GPS Graphic Surveys Section and the GPS Data Collections Section, is responsible for collecting and linking data for all roads in Tennessee. To date, Interstates, State Routes, and Functional Routes have been collected and linked to the TDOT GIS spatial network.

Tennessee Rail System Inventory

The Tennessee Rail System Plan includes a Rail System Inventory. The document inventories Tennessee's existing rail freight, passenger, and intermodal infrastructure and services.

Shortline Railroad Directory

The Shortline Railroad Directory provides contact information for shortline railroads that provide service in Tennessee.

Tennessee Waterways Directory

This directory includes a listing of all known public and private businesses that provide recreational tourism and retirement, commerce and trade, industrial development, and environmental quality for the inland waterways of Tennessee; as well as local, state, and federal governmental agencies and associations.

American Trucking Research Institute Data Resources

The American Trucking Research Institute collects and distributes freight data both nationally and at the state level. Requests for data must be made by the state trucking association. Information available includes freight flow data, safety data (truck-related crashes, fatalities, and injuries), tax and revenue data, truck operator costs, trucking industry employment data, and commercial vehicle registration statistics.

9.0 Summary and Conclusions

9.1 General Freight Planning

This report demonstrates that there are a number of agencies and organizations involved in and conducting freight planning activities in the state of Tennessee. Table 9.1 summarizes the freight planning activities for each agency across a number of freight planning categories. As shown in the table, the most common freight planning activities was to include a freight planning component within LRTPs. This was feature of the Tennessee DOT LRTP. It was also a feature of 8 of the 11 MPOs in Tennessee as well. Only two DOTs of the eight states surrounding Tennessee had freight components of their long range transportation plan. However, five of the eight had stand-alone multi-modal freight plans.

Four MPOs have developed regional freight plans or conducted studies to assess regional freight needs. The Memphis, Chattanooga, Knoxville, and Nashville MPOs have incorporated major freight goals and objectives into their LRTPs. The smaller MPOs appear to need assistance in freight planning. Small staff, limited funding mechanisms, data challenges, and a shortage of freight planning experience were identified as the most common impediments to conducting freight planning. The Tennessee DOT should consider providing technical training to the MPOs. The Bristol and Cleveland MPOs requested assistance with collecting and analyzing freight data. The MPOs also need guidance in conducting freight-related project identification and prioritization. Freight training for MPOs could include data collection and analysis techniques, strategies for incorporating freight planning into MPO-level planning activities, and brainstorm sessions to discuss how to deal with specific local freight issues. While much of this information is available in nationally taught courses, including a Tennessee perspective on freight along with specific solutions to match the specific issues of the MPOs would be beneficial.

9.2 Freight Rail and Waterway Planning

Another feature that is common for the states in the southeast is conducting statewide rail plans. The Tennessee DOT completed a statewide rail plan in 2004 and six of the eight surrounding state DOTs have conducted statewide rail plan as well. There were two general reasons given for studying freight rail. The first reason was to ensure adequate capacity to support and grow each state's freight-related industries. The second reason was the desire held by many states to ship a higher percentage of goods on rail in the future, thereby reducing the demand for highway transportation. The multi-state nature of freight rail indicates that this is a topic area that could benefit from a multi-state approach for Tennessee and its surrounding states. The high number of already existing statewide rail

plans indicates that much of the background information on the freight rail system, needs and deficiencies has already been identified. A multi-state approach could be utilized to identify and develop solutions to relieve systemwide rail bottlenecks, develop truck-rail diversion strategies across regions that match desired origin-destination patterns, brainstorm methods to integrate freight rail planning into larger statewide transportation programs, and aggregate funding across states to address the most pressing rail needs in the region.

Given the inland nature of the region, a surprisingly high number of MPOs and surrounding state DOTs have conducted waterways and/or port studies. Along with Tennessee, the states that had conducted such an analysis included Mississippi, Arkansas and Missouri. Additionally, three of the 11 MPOs in Tennessee have conducted waterway studies. This is likely a topic that has been thoroughly covered in the region.

9.3 FREIGHT AND THE TENNESSEE ECONOMY

There was also a noticeable lack of information regarding the relationship of goods movement and the economy in Tennessee. The rail and waterway studies described the industries that are related to those specific modes, but there was not a comprehensive development of how the economy is impacted by goods movement. The Tennessee DOT should give consideration to a study that includes identification and analysis of the key goods-related industries in the state, the logistics chains of these industries, the key goods movement patterns of these industries, and the freight needs and deficiencies from the perspective of the industries. Additionally, the overall relationship between each mode and the overall economy should be described in depth. Additionally, this information should be disaggregated geographically, so that the key industries in each region can be identified. These types of analysis are often conducted as part of a larger statewide transportation plan, but can be conducted as stand-alone tasks as well.

9.4 FREIGHT DATA AND ANALYTICAL TOOLS

Several state DOTs own TRANSEARCH freight flow data. Including the Tennessee DOT, five of the nine state DOTs surveyed in this study own TRANSEARCH data. However, only four of the MPOs in Tennessee had conducted an analysis of the TRANSEARCH data as part of the local freight planning processes. Given that much of the freight in the MPOs is external and through by nature, it would be beneficial for the Tennessee DOT to conduct a statewide analysis of TRANSEARCH data that included analysis at the MPO geographic level. This analysis would show the relationship of freight trips between regions in terms of the producers and consumers of specific commodities. It will also quantify the extent of through freight trips for each

region for both truck and rail. It will also provide a ready packet of information that can be incorporated into MPO LRTPs and stand-alone freight plans.

A particularly noteworthy observation in terms of freight data in Tennessee is the absence of roadside truck survey data. These surveys are typically conducted at weigh stations and rest areas and involve pulling a small fraction of trucks out of the traffic stream and collecting information on city/state of origin, city/state of destination, land use at trip ends (e.g. warehouse, manufacturing, rail yard, and farm), commodity carried, and vehicle characteristics. Several of the surrounding state DOTs had collected this type of information and found it extremely useful. The Georgia DOT used these data in the statewide truck-only lane study. The Virginia DRPT and the Virginia DOT used these data to estimate truck-rail diversions and to develop the statewide freight plan. Additionally, the Atlanta Regional Commission used these data in the development of their regional freight plan. The roadside survey data have been found to complement TRANSEARCH data by providing truck trip information that is specific to a corridor of interest and based on actual field data. This can be contrasted with TRANSEARCH truck data which is based on extrapolations from economic data along with some limited field data. Additionally, given the Tennessee DOT's corridor planning approach that was adopted in the most recent LRTP, this would be particularly useful in conducting freight planning activities.

Some states have conducted establishment surveys. These surveys have had mixed results. While very specific information about select businesses can be captured in this study, generalizing this information to conduct freight transportation planning has proven more difficult. This is often due to low response rates in establishment surveys, the wide variety of freight-related establishments that exist, and the wide degree of variety in logistics chains that are utilized in the field.

9.5 FREIGHT PRIORITIZATION CRITERIA

A number of important freight planning activities were less commonly identified during this study. Only one MPO incorporates freight criteria in its project selection process. The incorporation of freight criteria in the selection process is a critical step towards fully integrating freight into the planning process because it ensures that consideration of project impacts on freight occurs. There is an opportunity for the Tennessee DOT to develop guidance on the types of freight criteria that are most critical for the state.

9.6 PRIVATE SECTOR PARTICIPATION

The incorporation of the private sector also seemed to be an area where several of the freight planning agencies were not active. Only three of the Tennessee MPOs have an active freight stakeholders group. One idea that was utilized by the Kentucky Transportation Cabinet to engage the private sector is the use of an

annual freight conference. This provides access to the private sector without consuming too much time from the private sector. Additionally, it provides the opportunity for transportation planners to determine the importance of infrastructure and operational characteristics of the roadways relative to other private sector concerns such as truck driver availability, the price of diesel, or regulation. The Tennessee DOT should consider hosting an annual freight conference to engage the private sector. Another consideration would be joining with the Kentucky Transportation Cabinet to host a joint regional freight conference.

Table 9.1 Freight Planning Activity

Agency	Freight-Intensive Corridor Study	Toll Study on Freight Corridor	Rail Plan	Rail-Highway Grade Crossings	Rail Relocation Study	Freight Section in LRTP	Freight-Focused Projects in LRTP	Freight Criteria Included in Project Selection	Waterways and/or Port Study	Owns TRANSEARCH data	Summary Analysis of TRANSEARCH Data	Roadside Truck Origin-Destination Surveys	Statewide or Regional Freight Plan	Best Practices Study	Aviation Plan	Truck Component of Travel Demand Model	Planned Freight Study in Future	Planned Truck Model	Establishment Survey of Freight Facilities	Active Freight Stakeholder Group	Statewide or Regional Freight Conference	Freight-Related Research
Tennessee DOT	●	●	●	●		●	●		●	●				●	●	●						
Bristol MPO						●	●															
Chattanooga TPO							●		●				●	●			●					
Clarksville RPC						●	●		●						●							
Cleveland Area MPO						●					●						●					
Jackson MPO						●		●										●	●			
Johnson City MPO							●				●								●			
Kingsport MPO						●																
Knoxville MPO						●	●				●		●							●		
Memphis MPO						●	●		●										●	●		
Lakeway Area MPO					●								●									
Nashville MPO						●	●				●		●					●		●		

Agency	Freight-Intensive Corridor Study	Toll Study on Freight Corridor	Rail Plan	Rail-Highway Grade Crossings	Rail Relocation Study	Freight Section in LRTP	Freight-Focused Projects in LRTP	Freight Criteria Included in Project Selection	Waterways and/or Port Study	Owns TRANSEARCH data	Summary Analysis of TRANSEARCH Data	Roadside Truck Origin-Destination Surveys	Statewide or Regional Freight Plan	Best Practices Study	Aviation Plan	Truck Component of Travel Demand Model	Planned Freight Study in Future	Planned Truck Model	Establishment Survey of Freight Facilities	Active Freight Stakeholder Group	Statewide or Regional Freight Conference	Freight-Related Research
Alabama DOT			●												●			●				
Arkansas DOT			●	●		●			●	●	●				●							
Georgia DOT	●	●	●							●	●	●	●		●	●			●			
Georgia State Road and Toll Authority	●	●										●							●			
Mississippi DOT									●	●	●		●		●			●				
Kentucky DOT													●		●						●	
North Carolina DOT			●				●								●	●						
Missouri DOT			●						●				●		●							
Virginia DOT/Virginia DRPT	●	●	●	●		●	●			●	●	●	●		●	●						
Delta Regional Authority													●									
Southeastern Transportation Alliance									●	●	●		●									
Appalachian Regional Commission			●	●													●					

Agency	Freight-Intensive Corridor Study	Toll Study on Freight Corridor	Rail Plan	Rail-Highway Grade Crossings	Rail Relocation Study	Freight Section in LRTP	Freight-Focused Projects in LRTP	Freight Criteria Included in Project Selection	Waterways and/or Port Study	Owns TRANSEARCH data	Summary Analysis of TRANSEARCH Data	Roadside Truck Origin-Destination Surveys	Statewide or Regional Freight Plan	Best Practices Study	Aviation Plan	Truck Component of Travel Demand Model	Planned Freight Study in Future	Planned Truck Model	Establishment Survey of Freight Facilities	Active Freight Stakeholder Group	Statewide or Regional Freight Conference	Freight-Related Research
Memphis Regional Chamber													●									
University of Memphis													●									●
University of Tennessee at Knoxville																					●	●
Vanderbilt University																						●
Tennessee Department of Economic and Community Development																						●
NS Crescent Corridor	●			●	●																	
Tennessee Trucking Association																						●
American Transportation Research Institute																						●
Total	5	4	8	5	2	11	10	1	8	6	8	3	13	2	10	4	3	4	5	3	2	6

10.0 Appendix

Table 10.1 Agency Contact List

Agency	Contact Name	Title	Phone	Email
Alabama DOT	Craig Thomas	Planner	334-353-6449	
American Transportation Research Institute	Dave Murray	Researcher	615-641-6162	dmurray@trucking.org
Appalachian Regional Commission	Ken Wester		202-884-7706	
Arkansas DOT	Cliff McKinney			Cliff.mckinney@arkansashighways.com
Bristol MPO	Rex Montgomery	Executive Director	423-989-5519	rmontgomery@bristoltn.org
Chattanooga Hamilton County RPC	Melissa Taylor	Director of Transportation Planning	423-757-0077	Taylor_melissa@mail.chattanooga.gov
Clarksville-Montgomery County RPC	Stan Williams	Transportation Planning Coordinator	931-645-7448	stanwilliams@cityofclarksville.com
Cleveland Area MPO	Greg Thomas	Transportation Planning Coordinator	423-479-1913	gthomas@cityofclevelandtn.com
Georgia DOT	Harvey Keepler	Director of Office of Intermodal Programs	404-651-9201	
Jackson Urban Area MPO	Keith Donaldson	Transportation Planning Coordinator	731-425-8275	kdonaldson@cityofjackson.net
Johnson City MPO	Glen Berry	Transportation Planning Coordinator	423-434-6272	glennberry@jcmpo.org
Kentucky Transportation Cabinet	Lynn Soporowski	Modal Programs	502-564-7183	
Kingsport MPO	Chris Campbell	Transportation Planning Coordinator	423-224-2670	Campbell@ci.kingsport.tn.us
Knoxville Urban Area MPO	Jeff Welch	Transportation Planning Coordinator	865-215-3790	Jeff.welch@knoxtrans.org
Lakeway Area MTPO	Rich DesGroseilliers	Transportation Planning Coordinator	423-581-6277	richd@mymorristown.com
Memphis MPO	Martha Lott	MPO Director	901-379-7860	Martha.Lott@shelbycountytn.gov
Memphis Regional Chamber	Dexter Muller		901-543-3543	dmuller@memphischamber.com
Mississippi DOT	Robby Burt	Office of Intermodal Planning	601-359-7910	rburt@mdot.state.ms.us
Missouri DOT	Machelle Watkins		573-526-1374	Machelle.watkins@modot.mo.gov
Nashville MPO	Max Baker	Planner-Freight	615-862-7204	baker@nashvillempo.org
North Carolina DOT	Dennis Pipkin	Research Engineer	919-508-1816	dpipkin@dot.state.nc.us

Agency	Contact Name	Title	Phone	Email
Tennessee Department of Economic & Community Development	Dan Hawk	Community Development Administrator	615-741-2211	Dan.hawk@state.tn.us
Tennessee Trucking Association	Dave Huneryager	President	615-777-2882	dhuneryager@tntrucking.org
University of Alabama Huntsville	Bill Killingsworth	Professor/Project Manager	256-824-4434	William.killingsworth@uah.edu
University of Memphis	Marty Lipinski	Professor	901-678-2171	mlipinski@memphis.edu
University of Tennessee at Knoxville	Mark Burton	Professor	865-974-3303	Mburton3@utk.edu
University of Tennessee at Knoxville	Jerry Everett	Professor	865-974-8275	jeverett@utk.edu
University of Tennessee at Knoxville	Arun Chatterjee	Professor	865-974-7714	arun@utk.edu
University of Tennessee at Knoxville	Dave Clark	Professor		dclark@utk.edu
Vanderbilt University	Mal Baird	Professor	615-322-6043	Malcom.baird@vanderbilt.edu
Virginia DOT	Marsha Fiol	Transportation and Mobility Planning Division Administrator	804-786-2985	Marsha.Fiol@virginiadot.org

Source: Cambridge Systematics, Inc.