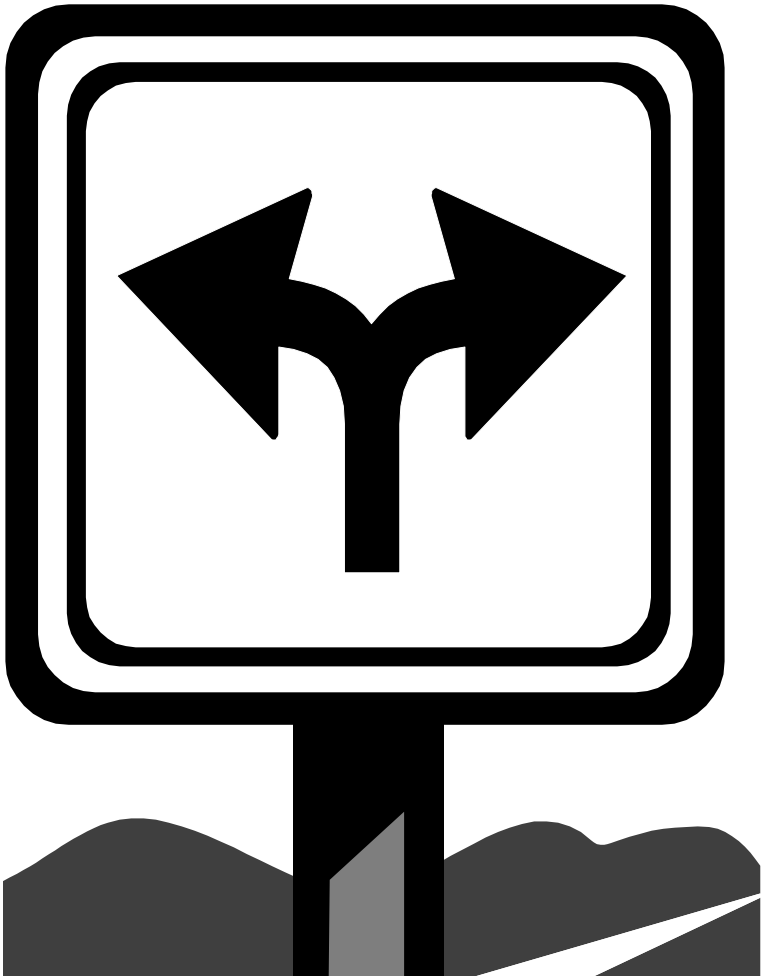
Where Are We Going?

A Look at Transportation Planning in Tennessee



John G. Morgan
Comptroller of the Treasury
Office of Research
July 2003

STATE OF TENNESSEE
COMPTROLLER OF THE TREASURY
State Capitol
Nashville, Tennessee 37243-0260
(615) 741-2501

July 15, 2003

The Honorable John S. Wilder
Speaker of the Senate
The Honorable Jimmy Naifeh
Speaker of the House of Representatives
and
Members of the General Assembly
State Capitol
Nashville, Tennessee 37243

Ladies and Gentlemen:

Transmitted herewith is a study prepared by the Office of Research in response to concerns over the last several years regarding Tennessee's transportation system, including spending on transportation compared to other needs, and questions about effects of past transportation decisions on the environment. The study examines transportation policy in Tennessee and the Department of Transportation's process for making funding decisions. It analyzes and makes recommendations in several areas, including long-range planning, alternative modes of transportation, diverting transportation funds to other purposes, and considering the environmental impacts of transportation decisions.

Sincerely,

John G. Morgan
Comptroller of the Treasury

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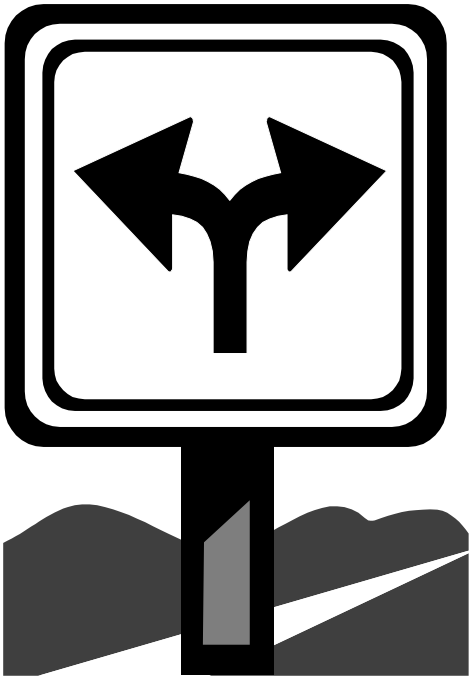

Greg Spradley, Senior Legislative Research Analyst

Ethel R. Detch, Director
Douglas W. Wright, Assistant Director
Office of Research
505 Deaderick St., Suite 1700
Nashville, TN 37243
615/401-7911
www.comptroller.state.tn.us/orea/reports

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Comptroller of the Treasury
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Executive Summary

To meet the transportation demands of a rapidly growing population, Tennessee has invested heavily in building and maintaining its highway system. Even so, environmental organizations, other state agencies, and local transportation representatives assert that the state puts too much public money into building roads at the expense of education, the environment, and other high priority responsibilities. Also, a recent survey by the Nashville Area Chamber of Commerce indicated that traffic and transportation moved ahead of crime as the top concern of Nashville area residents. Although several areas in the state will not meet new air quality standards when they become effective, and traffic congestion continues to increase despite the investment in new roads, Tennessee appears to lag behind other states in its investment in mass transit infrastructure, such as light rail, commuter rail, and other mass transit alternatives.

The report concludes:

Several factors suggest that Tennessee may need to revise its transportation planning process (see page 17):

- Tennessee's population grew faster than the national average from 1990 to 2000, according to the 2000 Census, increasing the need for efficient, multimodal transportation systems, especially in urban areas. U.S. Census Bureau data indicate that population growth in Tennessee was 14th in the nation from 1990 to 2000, when the state's population grew by 812,098 people, or almost 17 percent.[1] Therefore, several areas in Tennessee may not meet new federal air quality standards when they become effective, and mobile source emissions continue to rise as vehicle travel increases with the population and new roads are built to meet the demand (see page 17);

- Traffic congestion continues to increase in Tennessee's urban areas despite the state's investment in new roads (see page 18);

- Urban sprawl and the development of open space and agricultural land is progressing rapidly in Tennessee, but growth planning laws address sprawl in a very limited fashion, and do not address population densities or integrate transportation into growth planning (see page 18); and

- TDOT apparently does not consult the local growth plans required by Public Chapter 1101 of 1998, as a part of statewide transportation planning (see page 19).

The department has not revised its long-range plan since 1994. TCA §4-3-2206(13) requires the commissioner of TDOT to prepare a "long-range and coordinated statewide

transportation plan with specific plans, goals, and performance criteria for all transportation modes," and revise that plan every two years. The most recent long-range plan department officials provided to Office of Research staff was dated September 1994. The department has contracted with an engineering firm to develop a comprehensive transportation plan for the state for the next 25 years, beginning Phase I of the process in May 2002. However, failing to revise the long-range plan regularly makes it more difficult for TDOT to stay abreast of and plan for changing transportation needs, priorities, and limitations (see page 20).

To improve its planning processes, the department might

- establish State Highway System priorities based on a documented decision-making process. Lack of documentation makes it difficult to evaluate past planning decisions (see pages 20-21);

- better integrate planning for all transportation modes, including highways, mass transit, rail, air and bicycle/pedestrian (see page 21); and

- improve communication with development districts and local transportation agencies (see page 24).

Tennessee has not taken advantage of the extensive flexibility granted to states under federal law to spend federal transportation dollars on transit and alternative modes of transportation. Nationally, from 1992 to 2000 approximately 5.6 percent of flexible highway funds were utilized for modes of transportation other than roads. Tennessee, however, has utilized less than one percent of available flexible federal transportation funding for transportation alternatives that could help relieve traffic congestion and improve air quality. In fact, Tennessee's use of federal funds for alternative transportation modes actually declined from 1990-91 to 1998-99. Despite several indicators of increasing traffic congestion and potential air quality violations, Tennessee spent only about 64 percent of available federal Congestion Mitigation and Air Quality (CMAQ) funds and 63 percent of available federal Transportation Enhancement Program funds, two sources of flexible funding. Over the same period, Tennessee spent nearly all available National Highway System funds. The Department of Environment and Conservation has reported that Tennessee faces air pollution problems unless it reduces the growth in vehicle travel. (See page 25.)

If funds were diverted from the Highway Fund to non-transportation purposes, funding for mass transit, as well as other transportation types would suffer. Because Tennessee invests so little in mass transit, mass transit capital funding would probably suffer more than highway funding. TDOT officials report that though mass transit funding has doubled in the last decade, it becomes more difficult each year to find state matching funds for transit spending approved through the Metropolitan Planning Organization and other processes. Other TDOT officials say that the most likely cuts, if highway funds were diverted, would be new construction and capital projects, which would include any new transit spending. MPO coordinators report that cutting funding

should not impact any transit plans, but could reduce the state matching dollars available, requiring amendments and other changes to their Transportation Improvement Programs and long-range transit and road plans. (See page 29.)

Unlike other state transportation departments, TDOT does not always follow federal environmental guidelines on highway projects funded solely with state funds. Environmental staff from transportation departments in Arkansas, Georgia, Mississippi, Missouri, and North Carolina reported to state auditors in 2001 that they follow National Environmental Policy Act (NEPA) guidelines for all road projects, whether they receive federal funds for the projects or not. Kentucky transportation officials indicated a transition toward NEPA guidelines for all projects. However, if a project in Tennessee is funded solely with state funds, TDOT can choose not to conduct a study or to prepare a technical report. TDOT management decides project-by-project, with no written policies or procedures on which to base the decision. Without such policies and procedures, these decisions appear to lack consistency and the public may question whether or not decisions are based on clear and fair principles and processes. (See page 30.)

Recommendations:

The General Assembly may wish to:

- Amend TCA §4-3-2303 to require that transportation funding decisions in Tennessee incorporate some measures based on objective analyses of the costs and benefits of various alternatives for solving transportation problems, in addition to other criteria. Some states include appointed or elected transportation decision-making bodies independent of state transportation departments, moving more of the decision-making responsibilities to the local level. Some transfer decision-making authority to regional "councils of governments" and provide a portion of funding based on population or some other criteria, and others have implemented data-gathering information systems to guide transportation planners in making funding decisions.
- Amend TCA, Title 54 to specify procedures for working with local governments to assess needs, goals, and objectives of counties, cities, and regions in Tennessee, as well as Metropolitan Planning Organizations, and require that TDOT review local growth plans required by Public Chapter 1101.
- Amend TCA, Title 67 requiring TDOT to flex a minimum portion of available federal funding to alternative transportation modes designed to reduce traffic congestion and improve air quality.

The Department of Transportation should:

- Regularly revise the long-range plan, as required by TCA §4-3-2206(13) to better stay abreast of and plan for changing transportation needs, priorities, and limitations.
- Include documented, objective analysis of needs, costs, and benefits of particular projects as a part of the process of transportation planning and in making

individual funding decisions, in addition to documenting other important criteria that may affect funding decisions.

- Work with local governments and MPOs to determine the state's transportation needs, incorporating all modes (roads, transit, water, rail, and air), and establish goals and objectives to meet those needs.
- Evaluate and consider county municipal growth plans (required of counties by Public Chapter 1101) during the planning process, and consult the plans of affected local governments when planning transportation projects.
- Take advantage of the extensive flexibility granted to states under federal law to spend federal transportation dollars on transit and alternative modes of transportation, and examine ways to take full advantage of available federal transportation dollars intended to reduce traffic congestion and improve air quality.
- Regularly evaluate progress toward achieving goals and objectives, and adjust strategies as needed.
- Document the decision-making process including the strategies embodied by particular projects; how particular projects will help to achieve goals; why one project may be placed ahead of others that might achieve the same goals; the environmental impacts of particular projects compared with others; how projects integrate with the transportation system and how they impact future decisions; and the particular objective to be achieved by each project.
- Work with local entities to better integrate the plans of MPOs and local governments into the state's overall transportation system, and work with these entities to ensure that local and state plans are integrated efficiently. Also, work with local land use planners to assess future transportation needs, and integrate future land use plans with long and short-term transportation plans in order to better predict future transportation needs and effectively meet those needs.
- Integrate planning (not necessarily one division or section within the department) so that those divisions working with one transportation mode know the goals, objectives, and strategies of the others, and the entire planning process examines how the state can more effectively integrate highways, mass transit, rail, air, and water.
- Discard thinking of transportation needs as "either roads or mass transit," instead focusing on the most efficient way to transport people and goods. Discard the notion that mass transit in Tennessee strictly involves buses, and investigate other options to reduce traffic congestion, move workers to jobs, improve air quality, transport tourists to destinations, and move travelers from airports to lodging.
- Follow National Environmental Policy Act guidelines for all projects, regardless of the transportation mode or funding source.

Tennessee Department of Transportation Response

The Department of Transportation responded to this report and provided a detailed explanation of its efforts to address the issues raised. (See Appendix A on page 33.)

Table of Contents

Introduction 1

Methodology 2

Background – TDOT 2

TDOT Budget 3

Where Does TDOT's Money Come From? 4

Who makes Transportation Planning/Funding Decisions in Tennessee? 5

Project Selection: State Highway System 5

State Transportation Improvement Program (STIP) 7

Planning Mass Transit Projects 8

The Transportation Equity Act for the 21st Century 8

Project Selection: MPOs 10

Federal Highway Administration Involvement 11

Considering Air Quality 11

Mass Transit Needs vs. Funding 12

Other States' Funding Decision Processes 15

Analysis and Conclusions 17

Recommendations 31

Appendices 33

Appendix A: Department of Transportation Response 33

Appendix B: State Motor Fuel Tax Rates 42

Appendix C: TDOT Expenditure and Positions Trend Data 44

Appendix D: Federal Transportation Funding Programs 46

Appendix E: An Assessment of Future Demands for and Benefits of Public Transit Services in Tennessee (Highlights) 48

INTRODUCTION

Tennessee has been widely recognized for having some of the highest quality roads in the nation. Even so, environmental interests, other state agencies, and local transportation representatives report that the state puts too much public money into building roads at the expense of education, the environment, and other high priority responsibilities. Also, a recent survey by the Nashville Area Chamber of Commerce indicated that traffic and transportation moved ahead of crime as the top concern of Nashville residents, and Tennessee appears to lag behind other states in its investment in mass transit infrastructure, such as light rail, commuter rail, and other mass transit alternatives. In recent years, the Tennessee Department of Transportation (TDOT) has implemented programs and projects to reduce traffic congestion and limit emissions of air pollutants. These include the HELP[2] program; HOV lanes in major urban areas; and Intelligent Transportation Systems (ITS), which employ video cameras, message boards, and other technologies to detect traffic tie-ups and help motorists avoid traffic congestion. Still, others argue that money would be better spent exploring and implementing more efficient intermodal transportation systems that include mass transit options other than buses and multi-passenger cars.

This report seeks to answer the following questions:

- Is TDOT's transportation planning process adequate, and does it give adequate consideration to alternative modes of transportation, such as commuter rail and others?
- How well does TDOT integrate local transportation plans into the State Transportation Improvement Program?
- What are the state's alternative transportation needs, and what funding will be required to meet those needs?
- Are state officials considering the level of growth and congestion?
- How well do the Metropolitan Planning Organizations (MPOs) implement the Transportation Equity Act for the 21st Century (TEA-21), and channel residential growth into new areas or areas already equipped to handle the growth?
- Is mass transit in Tennessee's future? If so, what options would work best? What are some side benefits to alternative transportation, such as facilitating tourism or channeling growth to limit urban sprawl?
- What would be the consequences for the future of alternative transportation in Tennessee if highway funds were diverted to some other purpose?

[2] HELP is a program TDOT established in urban areas of the state to assist motorists involved in wrecks or with disabled vehicles to keep traffic moving in congested areas.

Methodology

To attempt to answer these questions, Office of Research staff:

- Reviewed relevant statutes;
- Reviewed *The Budget for the State of Tennessee*, FY 2001, FY 2002, and FY 2003;
- Reviewed the Tennessee Comprehensive Annual Financial Report (CAFR), FY 2001;
- Reviewed TDOT's Annual Work Programs for FY 1998 to FY 2002, State Transportation Improvement Program 2002-2004, and the September 1994 State Transportation Plan – or Long-Range Plan;
- Reviewed the Transportation Improvement Programs and 20-Year Plans for all nine of Tennessee's Metropolitan Planning Organizations;
- Reviewed Federal Law pertaining to Transportation Planning, including code sections commonly referred to as "The Intermodal Surface Transportation Equity Act," or "ISTEA" and "The Transportation Equity Act for the 21st Century," or "TEA-21";
- Reviewed academic journal articles and other research conducted by various governmental and transportation agencies including the U.S. General Accounting Office, the American Public Transportation Association, the American Association of State Highway and Transportation Officials, the Tennessee Advisory Commission on Intergovernmental Relations, the National Conference of State Legislatures, and others;
- Interviewed Federal Highway Administration officials;
- Interviewed officials with the Tennessee Department of Transportation, the Tennessee Department of Environment and Conservation, and Tennessee County Highway Officials Association;
- Interviewed officials with several local transportation agencies, development districts, and each of the nine Metropolitan Planning Organizations (MPOs) in Tennessee; and
- Reviewed information on relevant state and federal web sites.

BACKGROUND

The Tennessee Department of Transportation (TDOT) is responsible for all aspects of transportation in Tennessee, including highways, public/mass transit, aviation, rail, and waterway transportation. The department is directly responsible for almost 14,000 miles of state highways, including construction, maintenance, operation, and improvement to ensure safe and comfortable travel. The department works with local governments, county road departments, public transit agencies, airport authorities, and other

organizations, public and private, to coordinate transportation facilities and services in Tennessee.[3]

Although private contractors perform much of TDOT's work, the department employs over 4,900 people across the state. About 30 percent of department employees work at the central offices in Nashville, while the rest work in Regional, District, and County offices. On its website, TDOT describes its mission as follows:

> *At its core, the purpose of Tennessee's transportation system is to provide access and mobility so that Tennessee can enjoy economic prosperity and a superior quality of life. TDOT's goal for the future is to be the acknowledged leader in providing transportation services and facilities and to always deliver more than the public expects. For us this means:*
>
> *Transportation makes a difference in Tennessee. Businesses move to Tennessee because of our superior transportation system. People move to Tennessee because of our superior transportation system. Businesses and people stay in Tennessee because our transportation system meets their needs better than anywhere else.*[4]

TDOT Budget

Tennessee funds Department of Transportation expenditures through appropriations from the State Gasoline, Motor Fuel, and other taxes; motor vehicle registration fees; and federal funding. No money from the state's general fund, which relies primarily on the sales tax, is used in any of the programs of the Tennessee Department of Transportation.[5]

Exhibit 1: TDOT Budget, FY 2001-2003

Budgeted Positions	**Actual 2000-2001**	**Estimated 2001-2002**	**Recommended 2002-2003**
Full-Time	5,207	4,935	**4,935**
Part-Time	0	0	**0**
Seasonal	31	0	**0**
Total	**5,238**	**4,935**	**4,935**
Budgeted Funding			
Payroll	$166,522,600	$191,434,700	**$187,949,500**
Operational	1,095,365,000	1,255,177,300	**1,367,100,500**
Reallocated	0	0	**0**
Funding Source			
State Appropriations	$743,661,600	$747,220,000	**$746,750,000**
Federal	484,600,900	664,125,000	**772,656,000**
Other	33,625,100	35,267,000	**35,644,000**
Total	**$1,261,887,600**	**$1,446,612,000**	**$1,555,050,000**

Source: *The Budget, FY 2002-2003.*

[3] http://home.tdot.state.tn.us/strategic planning/2001_Plan/organization.htm, accessed Nov. 20, 2001.
[4] http://home.tdot.state.tn.us/strategic planning/2001_Plan/organization.htm, accessed Nov. 20, 2001.
[5] http://www.tdot.state.tn.us/GasTax/TDOT_budget.htm, accessed Nov. 13, 2002.

Where Does TDOT's Money Come From?

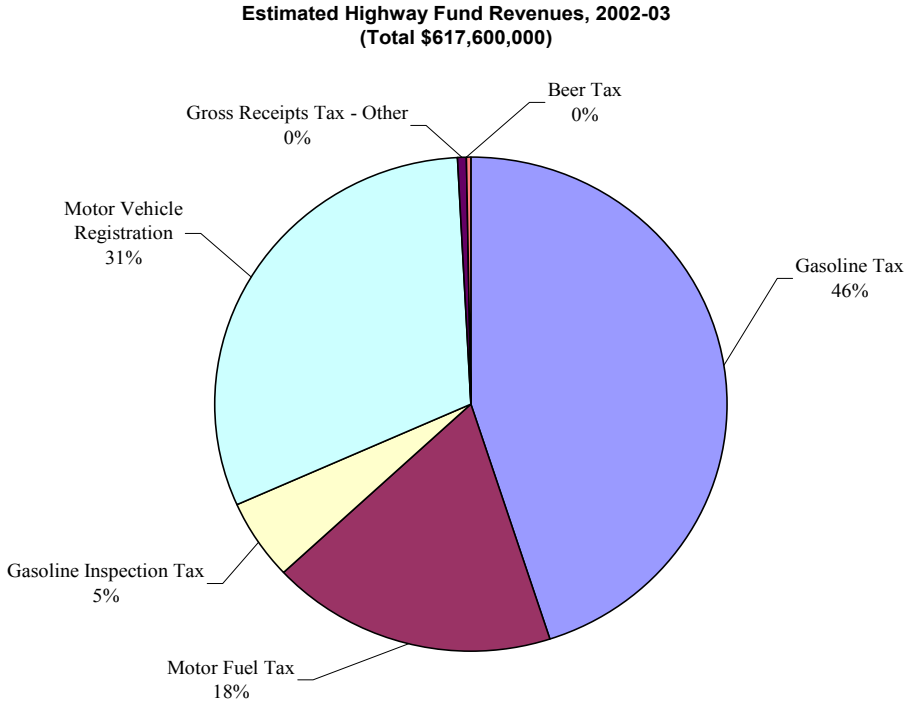
Most of the state Highway Fund comes from Tennessee's Gasoline Tax of 21.4 cents per gallon (27th highest nationally, see Appendix B). Additional Highway Fund revenues come from the state Motor Fuel tax of 18.4 cents per gallon on diesel fuel, vehicle registration fees, and other taxes. When federal funding, other taxes, and bonds are included, TDOT budgeted over $1.5 billion in FY 2002-2003.[6]

Exhibit 2: The Highway Fund, FY 2001-2003

Source	FY 2000-2001	Estimated FY 2001-2002	Estimated FY 2002-2003
Gasoline Tax	$253,976,500	$269,500,000	$277,700,000
Motor Fuel Tax	124,742,400	107,300,000	111,200,000
Gasoline Inspection Tax	31,650,300	31,700,000	32,600,000
Motor Vehicle Registration	176,896,400	183,300,000	191,100,000
Gross Receipts Tax - Other	2,431,600	2,700,000	2,900,000
Beer Tax	1,947,000	2,100,000	2,100,000
Total	**$591,644,200**	**$596,600,000**	**$617,600,000**

Source: *The Budget, FY 2002-2003.*

Exhibit 3:



Source: ***The Budget, FY 2002-2003.***

[6] State of Tennessee Finance, Ways and Means Committees, *Fact Book - 2002-03*, pp. 5, 44.

Who Makes Transportation Planning/Funding Decisions in Tennessee?

TDOT's **Transportation Planning Office's** responsibilities include rural, small urban, and metropolitan transportation planning; highway systems planning; highway need studies; and a comprehensive statewide master transportation planning process.[7] The office is divided into three sections: the Facilities Planning Section, the Systems Planning Section, and the Metropolitan Planning Organization (MPO) Section. The Facilities Planning and Systems Planning Sections address engineering and design work more than "planning" as discussed in this report.

The **Metropolitan Planning Organization (MPO) Section** of the office is responsible for the statewide coordination of the long-range transportation planning process in Tennessee's nine urban areas. The basic planning process revolves around the nine Metropolitan Planning Organizations. [8] Under federal law, MPOs are responsible for comprehensive transportation planning in urban areas (50,000+ population, densities greater than 1,000 persons per square mile according to the latest Census Bureau numbers).[9]

TDOT's **Office of Public Transportation** (OPT) resides within the Public Transportation, Waterways & Rail Division of TDOT, and is generally responsible for transit, planning and promotion, research, and technical assistance.[10] The office functions as a support system for all the public transportation agencies in the state, providing state operating assistance to urban systems (from formulas based on population, up to 40 percent of any system's operating budget), and applying for federal funds for rural systems (except Congestion Mitigation and Air Quality funds, which flow through the Planning Office).[11] The office provides operating funds for 23 public transportation systems serving all counties in the state. The Office of Public Transportation serves as the recipient and administrator of federal transit assistance funds for all small urban and rural systems, and of federal planning and technical assistance funds for urban areas and statewide projects. To receive federal funds, the OPT submits applications to the Federal Transit Administration (FTA), administers contracts with state providers, and monitors their compliance with federal regulations.

Project Selection: State Highway System

The **Program Development and Administration Division** of TDOT develops the department's annual schedule of State Highway System projects to be funded in the coming year. The Commissioner, the Governor's Office, and General Assembly approve this schedule as a part of the department's Budget Proposal. The Program Development Office bases the list of State Highway System projects on the amount of projected

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[7] http://home.tdot.state.tn.us/, accessed Nov. 20, 2001; § 4-3-2303(13).

[8] Interview with Ralph Comer, Planning Director, Tennessee Department of Transportation, December 18, 2001.

[9] 23 U.S.C., § 135(f).

[10] http://home.tdot.state.tn.us/, accessed Nov. 20, 2001.

[11] Interview with Ben Smith, Director of Public Transportation, Rail, and Waterways, Tennessee Department of Transportation, January 18, 2002.

available funding and the number of projects to be funded, assigning top priority to continuing projects already underway. TDOT sets aside funding for projects that have been proposed by Metropolitan Planning Organizations and approved as part of the State Transportation Improvement Program (STIP), as well as those funded through the Public Transportation, Rail, and Waterways Division through the Metropolitan Planning Organization process based on a federal formula. This formula establishes a minimum number, although TDOT has the option of providing more than the minimum. After they set aside the Metropolitan Planning Organization allocation, management in the Program Development and Administration Division decide what projects go on the list of State Highway System Projects. TDOT refers to this list as the Annual Work Program.[12]

The **Program Development Office** provides a list of State Highway System projects, mostly in areas not covered by the MPOs and some funded 100 percent by the state. According to Program Development Office management, most of these projects are geared toward completing a legislative highway initiative in 1986, and the ongoing effort to connect every county seat in the state to an interstate with a four-lane highway,[13] as well as projects in rural areas receiving federal assistance. The office sets priorities for these projects based on:

- geographic distribution,
- creating and improving major travel corridors,
- relieving traffic congestion,
- input from local governments and state legislators, and
- traffic count and road condition data from the Planning Office.

The office does not consider any projects related to mass transit, as local governments, MPOs, and the Office of Public Transportation handle all transit-related funding issues. Following is the basic process for developing the Annual Work Program:

- The Director of Program Development and Administration, the Director of Program Development and Scheduling, TDOT's Chief Engineer, and data specialists from the Planning Office discuss the merits of the various potential projects.
- The Program Development Office sends the resulting list to the TDOT Commissioner for approval.
- The Commissioner seeks the approval of the Governor's Office.
- The commissioner inserts the resulting project list into TDOT's Budget Proposal for approval by the General Assembly.

The Governor's Office or the Commissioner may rearrange the listed priorities and/or remove and replace projects on the list before it becomes final and a part of the Budget

[12] Interview with John Tidwell, Director of the Program Development and Administration Division, and Jim Moore, Programming Director, Tennessee Department of Transportation, May 24, 2002.
[13] §54-5-102(b), *Tennessee Code Annotated.*

Proposal. Exhibit 4 shows State Highway System budget figures for FY98 through FY02.[14]

Exhibit 4: TDOT State Highway System (Non-MPO) Transportation Improvement Program Funding Estimates, FY98-FY02

Fiscal Year	Roads Funded 100% by State	Non-MPO Road Projects Receiving Federal Funding
1997-98	$94,000,000	$428,000,000
1998-99	166,200,000	248,700,000
1999-00	145,200,000	374,800,000
2000-01	129,200,000	375,800,000
2001-02	68,100,000	342,600,000
Total FY98-FY02	**$602,700,000**	**$1,769,900,000**

Source: Project lists for FY-98 through FY-02 obtained from TDOT's Program Development and Administration Division

State Transportation Improvement Program

Once MPOs have submitted their Transportation Improvement Programs to TDOT, the Planning Office incorporates them into a State Transportation Improvement Program (STIP) that also includes rural and other state-initiated projects for which the planning and programming offices are responsible. The STIP must be fiscally balanced, and lists all the MPO approved projects, funding sources, available funding, and projected costs of each project. The planning office reportedly receives input from the nine development districts in Tennessee, as well as groups representing local governments, concerned citizens, and others requesting planning reports or improvements on sections of highway they feel are inadequate, or other improvements to the transportation system. The Forest Highway/Public Lands and rural public transit entities with jurisdiction in Tennessee also include project listings in the STIP. The department also allocates Congestion Mitigation and Air Quality (CMAQ) funds from the federal government to the Metropolitan Planning Organizations that contain either air quality non-attainment areas or maintenance areas of Nashville, Knoxville, and Memphis. The department takes Congestion Mitigation and Air Quality funds off the top to fund the HELP[15] program in those cities before allocating funds to those Metropolitan Planning Organizations.[16] State Highway System Projects are not subject to this process.

Maintenance activities are not funded or scheduled through the State Transportation Improvement Program, but the General Assembly appropriates approximately $275 million from state highway funds annually for maintenance. The State Transportation Improvement Program defines maintenance as "activities that occur primarily in reaction to situations that have an immediate or imminent adverse impact on the safety or

[14] Ibid.
[15] HELP is a program TDOT established in urban areas of the state to assist motorists involved in wrecks or with disabled vehicles in order to keep traffic moving around these obstructions in congested areas.
[16] State of Tennessee Transportation Improvement Program, 2002-2004, pp. 1-4

availability of transportation facilities," such as snow removal, pavement resurfacing and marking, bridge repair, and guardrail and sign replacement.[17]

Planning Mass Transit Projects

Mass transit projects generally originate at the local level. The four largest Metropolitan Planning Organizations plan in conjunction with TDOT, while the five smaller MPOs rely on the Governor's Office to allocate state and federal funds for public transportation based on a TDOT formula that considers population.

Some of the money that flows through the office is intended to fund only mass transit planning and technical assistance (the federal 5313B program). Also, federal 5303 program funds are sent to all cities with a public transit system. Some of those cities divide the money between their transit authorities and the Metropolitan Planning Organization, so at least a portion will go toward mass transit planning. Other cities allocate all of the money to their transit authorities for capital needs or to the local MPO.[18]

The Transportation Equity Act for the 21st Century (TEA-21) authorizes federal funding to support mass transit/public transportation, highway, and highway safety programs through 2004, and the Federal Highway Administration allocates funds to the state in numerous categories for different purposes, including preparing long-range plans; intermodal planning; transit operation and capital assistance; technical studies; elderly and disabled transit services; demonstration projects; management training; and cooperative research activities.

In addition to the programs specifically designed to encourage and promote transportation alternatives, TEA-21 also provides increased flexibility in the way states spend federal transportation dollars, and approximately 40 percent more money to spend than the previous federal transportation act, the Intermodal Surface Transportation Efficiency Act of 1991, or ISTEA.[19] Nationally, approximately $129 billion in federal spending could have been flexed from road construction to transit in the last ten years, providing states a funding source to move toward a more balanced transportation system incorporating roads as well as other transportation modes.[20] Another purpose of this flexibility is embodied in the act's "enhancements" program, which encourages states to invest in various alternative, community-based transportation-related projects such as bike paths, greenways that incorporate walking trails, or renewing old railroad stations as transportation hubs.[21] At its core, the act mandates that state transportation departments work with local governments and regions (through Metropolitan Planning Organizations)

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[17] Ibid., p. 4.

[18] Interview with Ben Smith, Director of Public Transit, Rail and Waterways, Tennessee Department of Transportation, January 18, 2002.

[19] Jonathan Walters, "The TEA Generation," *Governing*, May 2002, p. 70; David Burwell and Hank Dittmar, "The Transit Renaissance: Flexing To Transit," *Progress: Surface Transportation Policy Project*, October 2002, p. 3.

[20] David Burwell and Hank Dittmar, "The Transit Renaissance: Flexing To Transit," *Progress: Surface Transportation Policy Project*, October 2002, p. 3.

[21] Jonathan Walters, "The TEA Generation," *Governing*, May 2002, p. 75.

to incorporate local needs into states' transportation programs through the process of long-and short-range planning, and by the fact that some federal funds go directly to Metropolitan Planning Organizations representing populations of 200,000 or more people.[22] Nationally, states flexed approximately 5.6 percent of flexible highway funds from highways to alternative modes of transportation between 1992 and 2001.[23]

TEA-21 contains some specific planning requirements for MPOs, including:

- **A Long-Range Transportation Plan (LRP):** A 20-year plan of long- and short-term strategies and actions designed to lead to an integrated intermodal transportation system that facilitates the efficient movement of people and goods. Federal law requires MPOs to update LRPs every three years in air quality nonattainment and maintenance areas, and every five years in other areas.

- **A Transportation Improvement Program (TIP):** A three- to five-year schedule of federally-funded and regionally significant transportation projects planned for the urban area covered by the MPO. MPOs are required to update TIPs at least every two years. The Planning office compiles the State Transportation Improvement Program from these, and includes planning for rural areas completed by TDOT.

- **A Unified Planning Work Program (UPWP):** A one-year schedule of all urban transportation planning activities. It documents work supported by federal planning funds. Tennessee requires MPOs to update this plan annually, while other states allow multi-year UPWPs.[24]

The state's nine MPOs are Bristol, Chattanooga, Clarksville, Jackson, Johnson City, Kingsport, Knoxville, Memphis, and Nashville. An Executive Board administers MPO responsibilities at the local level, and an MPO Coordinator serves the board as well a staff of engineers, planners, and members from other technical fields. The MPO Coordinator is typically a staff member of the local municipal or regional planning commission, and is responsible for conducting studies, developing plans and programs, and chairing all MPO subcommittees. The coordinator is also the liaison between the MPO and the Federal Highway Administration, the Federal Transit Administration, the Tennessee Department of Transportation, local governments, and other groups or the general public.[25]

The federal government has established numerous funding programs within TEA-21 under which states and MPOs may plan and fund transportation projects. The table in Appendix D lists these programs and matching fund requirements, as defined in the State Transportation Improvement Program.

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[22] Jonathan Walters, "The TEA Generation," *Governing*, May 2002, p. 76.
[23] David Burwell and Hank Dittmar, "The Transit Renaissance: Flexing To Transit," *Progress: Surface Transportation Policy Project*, October 2002, p. 3.
[24] http://home.tdot.state.tn.us/, accessed Nov. 20, 2001.
[25] http://home.tdot.state.tn.us/, accessed Nov. 20, 2001.

Project Selection: MPOs

Most of the Metropolitan Planning Organizations in Tennessee use some sort of objective ranking/scoring system to select projects to place in their Transportation Improvement Programs (TIPs).[26] In most cases, the process is based on federal guidelines from TEA-21. The major elements of transportation planning in metropolitan areas outlined in federal law are:

Exhibit 5: MPOs with Objective Ranking/Scoring Processes

MPO	Objective Criteria/Ranking Process?
Memphis	Yes
Nashville	Yes
Knoxville	Ranked subjectively by Tech. Committee
Chattanooga	Yes
Johnson City	Yes
Jackson	Yes
Kingsport	Yes
Bristol	No, decisions based on relief of traffic congestion and improving safety
Clarksville	Yes

Source: Correspondences with the coordinators of the nine MPOs in Tennessee, including phone interviews and e-mails exchanged between January 22, 2002 and August 9, 2002.

- A proactive and inclusive public involvement process;
- Consideration of seven broad areas: 1) support economic vitality of the metropolitan area; 2) increase safety and security; 3) increase accessibility and mobility for people and freight; 4) protect and enhance the environment, promote energy conservation, and improve the quality of life; 5) enhance the integration and connectivity of the transportation system; 6) promote efficient system management and operation; and 7) preserve the existing transportation system;
- Studies to address significant transportation problems in a corridor or subarea that might involve the use of federal funds;
- Development of financial plans for implementing the transportation plan and TIP; and
- Assurance that the transportation plan and TIP in air quality nonattainment and maintenance areas conform to the State Implementation Plan as required by the Clean Air Act Amendments.[27]

[26] Correspondences with the coordinators of the nine MPOs in Tennessee, including phone interviews and e-mails exchanged between January 22, 2002 and August 9, 2002.
[27] http://www.fhwa.dot.gov/tea21/htm

Federal Highway Administration Involvement[28]
The Federal Highway Administration does not select or set priorities for state or local transportation projects. The state and local entities make these decisions. The federal government also does not require that projects be selected based on any objective ranking or scoring procedures.

When considering transportation projects in urban areas, state departments of transportation must only work with the Metropolitan Planning Organizations on projects receiving federal funds, or projects with regional significance. For projects in rural areas, TDOT must simply inform local elected officials and transportation planners, and work with them to resolve any differences.

Projects of regional significance, or those planned in an air quality non-attainment area must either be included in the local Metropolitan Planning Organization's Transportation Improvement Program, or be listed in the air quality conformity statement in the MPO's long-range plan.

For projects that are totally funded with state dollars, the department could ultimately lose federal transportation funds if it goes forward with such projects that MPOs do not include in their Transportation Improvement Programs or air quality conformity statements. According to FHWA staff in Nashville, this most often happens as a result of someone involved in the process being unfamiliar with the requirements. Typically they are allowed to go back and fulfill these requirements, and the Federal Highway Administration rarely, if ever, withholds federal funds in such cases.[29]

Considering Air Quality
According to department staff, the department has not considered air quality much during the planning process, because most mass transit in Tennessee involves buses, which department staff perceive to emit a great deal of air pollution. Department management report that it has been difficult to sell putting more money into transit to protect air quality because many people feel that spending the money on buses pollutes more than cars. However, they point out that new buses that pollute less, such as Chattanooga's hybrid electric buses, may help to make that case.

Contrary to the above perception, however, an analysis by the National Conference of State Legislatures (cited from the American Public Transportation Association) indicates that transit buses emit significantly less of three major pollutants (nitrogen oxides, carbon monoxide, and hydrocarbons) per passenger mile than do single passenger cars. In other words, multiple passengers using transit buses to commute emit less pollution than if each of those passengers were to drive automobiles to commute.[30] Highway vehicles, not

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[28] All information in this section from telephone interview with Gary Corino and Theresa Hutchins, Tennessee Division, Federal Highway Administration, March 21, 2002.
[29] Ibid.; and James E. McCarthy, Congressional Research Service, *Highway Fund Sanctions for Clean Air Act Violations*, (Washington, D.C., The National Council for Science and the Environment, October 22, 1997), p. 1.
[30] Frank Kreith, Dena Sue Potestio, Chad Kimbell, *Ground Transportation for the 21st Century*, (National Conference of State Legislatures, 1999) p. 116.

including railroad equipment, marine vessels, construction equipment, and aircraft, contributed 30 percent of the total nitrogen oxide emissions and almost 28 percent of volatile organic compound emissions, largely due to the increase in the number of miles traveled in personal vehicles.[31] Addressing the growth in vehicle miles traveled may require multiple tactics, including investing in alternative transportation modes, growth planning, and educating citizens about benefits from reducing vehicle miles and air pollution. It is clear, however, that reducing the number of miles of vehicle travel by investing in and encouraging the use of mass transportation is one way to effectively address air pollution.

Mass Transit Needs vs. Funding

Office of Research staff found few resources quantifying mass transit needs in Tennessee. TDOT itself has not examined long term mass transit capital needs (outside of the Metropolitan Planning Organization process) since the department completed its last long-range plan in 1994. Determining the funding needed to build and operate mass transit systems in the state is, at best, problematic because various entities and groups assess needs differently. One group might place a dollar value on the funding required to maintain current levels of service, which might include replacing aging buses or upgrading maintenance facilities. Another might look at funding needed to ensure that low income or elderly residents have adequate access to jobs, medical care, and retail outlets. This approach would probably entail establishing new transit routes in addition to the items mentioned previously to serve a growing population. Still other groups might place a higher priority on reducing the growth in vehicle miles traveled to improve air quality and reduce congestion, which would require allocating more funding (that could otherwise be used to build roads) toward new transit construction, as well as spending money to promote mass transit to segments of the population that have traditionally been less likely to use it.

Office of Research staff were unable to locate sufficient data or research that contained estimates of funding required for Tennessee to effectively reduce vehicle miles traveled or improve quality of life by reducing traffic congestion and moving toward a more multimodal transportation system. However, the tables below compare Tennessee's projected capital investment in mass transit from 2002-2004 with State Highway System funding for a similar three year period from FY-98 through FY-00. However, TDOT developed a 20-year plan in 1994 that estimated capital needs through 2014, including "periodic capital replacement costs, as well as capital for additional facilities." Exhibit 6 shows the department's 1994 20-year estimate of capital transit needs for the state.

[31] http://www.scorecard.org/env-releases/cap/state.tcl?fips_state_code=47.

Exhibit 6: Tennessee's Transit Systems Capital Needs 1995-2014

Systems	Admin./ Maintenance Facilities	Intermodal/ Parking Facilities	Buses	ADA Lift Equipped Vehicles	Other	HOV Lanes	Light Rail, Commuter Rail	Total
Large Urban	$20,800,000	$43,768,000	$207,500,000	$13,140,000	$54,008,000	$27,000,000	$505,561,000	$871,777,000
Small Urban	$5,600,000	$1,450,000	$38,510,000	$5,280,000	$6,385,000	$0	$0	$57,225,000
Rural	$2,150,000	$0	$46,556,000	*	$1,588,000	$0	$0	$50,294,000
Total	**$28,550,000**	**$45,218,000**	**$292,566,000**	**$18,420,000**	**$61,981,000**	**$27,000,000**	**$505,561,000**	**$979,296,000**

Source: *Tennessee Department of Transportation State Transportation Plan, September 1994, Exhibit X-3, page X-6.*
*Approximately 50% of the vehicles operated by Tennessee's Rural Systems meet the Americans with Disability Act regulations and are also used to serve the general public. Also, the rural vehicles are primarily vans and van conversions, as opposed to the 30- to 40-foot buses operated by urban systems.

For comparison purposes, Exhibit 7 shows (from data collected by TDOT's Public Transit, Rail and Waterways Division) federal, state, and local funding for mass transit – statewide – in Tennessee from FY-98 through FY-00.

Exhibit 7: Transit Funding, FY 98 Through FY 00

Fiscal Year	State Operating Assistance	State match of Federal Funds	Total State Funding	Federal Funding	Local Funding, In-Kind and Revenue	Total Funding
FY 1997-98	12,547,612	2,191,572	**14,739,184**	26,083,491	61,225,271	**102,047,946**
FY 1998-99	11,834,785	4,086,773	**15,921,558**	32,232,612	61,667,326	**109,821,496**
FY 1999-00	17,257,799	6,142,023	**23,399,822**	38,548,621	66,999,940	**128,948,383**
Total	$41,640,196	$12,420,368	**$54,060,564**	$96,864,724	$189,892,537	**$340,817,825**

Source: TDOT Office of Public Transportation, Rail and Waterways.

Exhibit 8 shows projected funding for planning and capital needs related to mass transit for the three-year period covered by the most recent STIP, 2002-2004. These figures represent only projected funding needs for areas represented by Metropolitan Planning Organizations, not the whole state.

Exhibit 8: STIP 2002-2004 Projected Mass Transit Planning and Capital Funding by Source (Includes Rural Transportation Funds)

Fiscal Year	Federal	State	Local	Total
FY-2002	$14,774,492	$6,348,743	$9,316,734	$30,439,969
FY-2003	42,417,103	9,798,210	12,767,201	64,982,514
FY-2004	10,813,233	5,849,477	8,818,468	25,481,178
Total, FY-2002-2004	**$68,004,828**	**$21,996,430**	**$30,902,403**	**$120,903,661**

Source: *State of Tennessee Transportation Improvement Program, 2002-2004; Transit System Section.*

To provide a comparison of Tennessee's investments in mass transit with investments in roads, Exhibit 9 shows state and federal funding budgeted only for State Highway System

projects, FY-98 through FY-00. These figures do not include roads or highways funded through the Metropolitan Planning Organization process.

Exhibit 9: Budgeted State Highway System Funding, FY-98 through FY-00

Fiscal Year	Roads Funded 100% by State	State Highway System Road Projects Receiving Federal Funding
1997-98	$94,000,000	$428,000,000
1998-99	166,200,000	248,700,000
1999-00	145,200,000	374,800,000
Total FY98-FY02	**$405,400,000**	**$1,051,500,000**

Source: Data compiled from State Highway System Annual Work Programs, FY-98 through FY-2000, obtained from the Program Development and Administration Division of TDOT.

The department recently contracted with Oak Ridge National Laboratories (ORNL) to conduct a study of *Future Demands for and Benefits of Public Transit Services in Tennessee*. In the resulting study, researchers projected potential benefits from public transit based on continuation of current levels of service,[32] and then expanded those projections based on both a five and ten percent increase in public transit services through 2020. Projected benefits in each scenario indicate similar increases in public transit benefits, such as job access, improved air quality, congestion relief, and safety and security benefits; all based on previously estimated benefits per trip, per vehicle mile, and per passenger mile.[33] Projected baseline, five percent increase, and ten percent increase benefits are located in the tables contained in Appendix E.

The study also concluded that urban transit services return between $2.00 and $2.50 to Tennessee's economy for every $1.00 invested,[34] and investments in rural transit services also have a positive benefit-cost ratio, even though the cost per trip is much higher than that of urban transit services.[35] In addition, the study determined that 70 to 90 percent of Tennessee's urban public transit demand is driven by particularly transit-dependent populations with limited mobility, such as elderly, low-income, and disabled citizens.[36] Another conclusion suggests that Tennessee's elderly population will grow by 70 percent by the year 2020, greatly increasing future demand for public transit.[37]

Finally, demand for public transit is dependent on the quality and frequency of services offered, so demand will increase more with investment in quality public transportation services.[38] This study did not address needs for additional mass transit alternatives, particularly construction of new mass transit systems that potentially would result in more efficient mutli-modal transportation systems in urban and urbanized areas of the

[32] Frank Southworth, David P. Vogt, T. Randall Curlee, Oak Ridge National Laboratory; Arun Chatterjee, Frederick J. Wegman, University of Tennessee, *An Assessment of Future Demands for and Benefits of Public Transit Services in Tennessee,* (Oak Ridge National Laboratory, June 2002) p. 4.39.
[33] Ibid., p. 4.42.
[34] Frank Southworth, *et al*, Executive Summary, p. 4.
[35] Ibid., p. 6.
[36] Ibid., p. 2.
[37] Ibid., p. 1.
[38] Ben Smith, Director of Public Transit, Rail and Waterways Division, cover letter for Executive Summary of *Demands for and Benefits of Public Transit Services in Tennessee*, June 10, 2002, p. 2.

state, and did not examine the level of investment required to reduce air pollution and the growth in vehicle miles traveled.[39] The study also did not examine potential side benefits of increasing Tennessee's investment in mass transit, such as improving tourist access, social benefits, economic benefits to lower income residents, urban redevelopment, transit-oriented development, and reducing employer investments in parking.

Other States' Funding Decision Processes

Office of Research staff contacted 12 other states (including eight either in the Southeast or on Tennessee's borders) about their decision-making processes and the criteria they use to help decide whether to fund specific projects. Most reported that they do not use any type of objective system to evaluate projects for state funding. Georgia Department of Transportation officials reported that they prefer a fluid system in which they review annually each project in short- and long-range plans internally so they can drop some projects from the plan and move others up based on changing needs. They did not comment on why a system based on objective scoring and ranking might be less fluid, when it would appear that an objective system could reflect changing needs.[40] Alabama and South Carolina reported similar processes, while each reported that many of their Metropolitan Planning Organizations employ some sort of objective process.[41]

South Carolina, in addition to relying on MPOs to make transportation decisions for urban and urbanized areas, asked rural Councils of Government (COGs) in 1998 to make transportation decisions for rural areas. Each Council of Government is composed of about ten counties, each of which appoints representatives to a Council of Government technical committee. Technical committees then rank projects from wish lists submitted by each county and submit these rankings to the state for approval, removing some state politics from the process and pushing it down to the local level.[42]

Louisiana's "Transportation Enhancement Program," on the other hand, uses a set of "Project Selection Criteria" at the state level on which to base funding decisions for these types of projects.[43] These criteria include items such as determining whether the project:

- Improves quality of life, quality of transportation systems, and/or quality of the environment,
- Shows rarity, uniqueness, or significance compared to existing resources of its type, and
- Is multimodal and/or demonstrates connectivity.[44]

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[39] Frank Southworth, *et al*, pp. v, 4.39-4.42.

[40] Telephone interview with Herman Griffin, Financial Management Administrator, Georgia Department of Transportation, March 27, 2002.

[41] Telephone interview with Ray Barron, Project Management System Coordinator, Alabama Department of Transportation, March 27, 2002; and telephone interview with Ron Patton, Director of Planning, South Carolina Department of Transportation, April 2, 2002.

[42] Telephone interview with Ron Patton, Director of Planning, South Carolina Department of Transportation, April 2, 2002.

[43] Phone interview with Elizabeth Ann Wills, Enhancement Program Manager, Louisiana Department of Transportation & Development, March 21, 2002.

[44] LaDOTD Project Selection Criteria checklist.

Then the Louisiana Department of Transportation and Development (LaDOTD) Enhancement Committee (composed of members of the Enhancement Unit in Road Design, the Landscape Unit in Maintenance, one person from the LaDOTD Environmental Section, and the Enhancement Program Administrator) evaluates projects based on these somewhat subjective criteria. The Louisiana STIP includes an appendix containing project grades.[45]

Florida has the most extensive, objective system for transportation funding decisions of all the states that responded to questions. The "Florida Intrastate Highway System Decision Support System" is a software system into which planners enter details of specific transportation projects, such as total average daily traffic, truck average daily traffic, intermodal connectivity, projected traffic in the next 20 years, pavement condition, and safety factors. Each factor is weighted based on its contribution toward reaching state goals for air quality, congestion mitigation, and transportation efficiency, among others. The software then scores the project and assigns it a ranking both within the district and statewide. The Florida Department of Transportation then uses the resulting scores to support funding decisions.[46] Also, a provision in Florida law requires that a certain percentage of their transportation budget be devoted to modes of transportation other than roads.[47]

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[45] Phone interview with Elizabeth Ann Wills, Enhancement Program Manager, Louisiana Department of Transportation & Development, March 21, 2002.
[46] Phone interview with James Golden, Florida Department of Transportation, March 21, 2002; and the Florida Intrastate Highway System Decision Support System.
[47] *Section 206.46(3), Florida Statutes*.

ANALYSIS AND CONCLUSIONS

To meet the transportation demands of a rapidly growing population, Tennessee has invested heavily in building and maintaining its highway system. Even so, environmental organizations, other state agencies, and local transportation representatives assert that the state puts too much public money into building roads at the expense of education, the environment, and other high priority responsibilities. Also, a recent survey by the Nashville Area Chamber of Commerce indicated that traffic and transportation moved ahead of crime as the top concern of Nashville area residents. Although several areas in the state will not meet new air quality standards when they become effective, and traffic congestion continues to increase despite the investment in new roads, Tennessee appears to lag behind other states in its investment in mass transit infrastructure, such as light rail, commuter rail, and other mass transit alternatives.

Changing Factors Affect Transportation

Several factors suggest that Tennessee may need to revise its transportation planning process:

- Tennessee's population grew faster than the national average from 1990 to 2000, according to the 2000 Census, increasing the need for efficient, multimodal transportation systems, especially in urban areas. U.S. Census Bureau data indicate that population growth in Tennessee was 14th in the nation from 1990 to 2000, when the state's population grew by 812,098 people, or almost 17 percent.[48] Therefore, several areas in Tennessee may not meet new federal air quality standards when they become effective, and mobile source emissions continue to rise as vehicle travel increases with the population and new roads are built to meet the demand;

- Traffic congestion continues to increase in Tennessee's urban areas despite the state's investment in new roads;

- Urban sprawl and the development of open space and agricultural land is progressing rapidly in Tennessee, but growth planning laws address sprawl in a very limited fashion, and do not address population densities or integrating transportation into growth planning; and

- TDOT apparently does not consult the local growth plans required by Public Chapter 1101 of 1998, as a part of statewide transportation planning.

Air Quality/Population Growth

If the department does not adequately plan for road travel growth, several areas in Tennessee will be out of compliance with federal air quality standards. The Tennessee Department of Environment and Conservation (TDEC) has reported that unless Tennessee reduces the growth in vehicle miles traveled, several areas of the state

[48] U.S. Census Bureau, *Census 2000 PHC-T-2: States Ranked by Percent Population Change: 1990 to 2000,* April 2, 2001.

will be out of compliance with new federal air quality standards as soon as they become effective.[49] According to a recent Tennessee Department of Environment and Conservation report, Tennessee did not meet the new standard for ozone (recently upheld in federal court) at most monitoring stations.[50] Because industrial, government, and other air pollution sources must meet these standards at the time they are constructed, the only pollution reductions available to the state will be reductions in mobile source emissions. Failure to reduce mobile source emissions could prevent the state from permitting new industries, power plants, or other air pollution sources, significantly limiting opportunities for economic growth.[51] Also, unless Tennessee takes measures to curb the growth in vehicle travel, the state may lose federal highway funds or face other sanctions.

Traffic Congestion

Overall traffic congestion has increased according to several sources. Federal Highway Administration records indicate that vehicle miles traveled (VMTs) in Tennessee have increased from over 18 billion in 1967, to more than 64.7 billion in 1999. Between 1997 and 2000, vehicle miles traveled increased 8.6 percent in Tennessee. [52] Vehicle miles traveled per lane-mile increased almost 6.5 percent over the same time, indicating an increase in overall congestion.[53] Also, according to the Texas Transportation Institute (TTI), the annual hours of delay per peak road traveler in the Nashville area has increased by 17 hours from 1994 to 2000 (from 27 hours in 1994 to 44 hours in 2000), and the same measure has increased by 15 hours in the Memphis area (from 19 hours in 1994 to 34 hours in 2000). The TTI also reports that the percent of peak-period travel in congested conditions increased by six percent in the Nashville area from 1994 to 2000, and by seven percent in the Memphis area over the same time. Finally, TTI data indicate that the number of hours per day when the transportation system is congested has increased in the Nashville area from 4.4 hours in 1990 to 5.8 hours in 2000, and in the Memphis area from 4.8 hours in 1990 to 6.0 hours in 2000.[54]

Urban Sprawl

Urban sprawl and development of open space has progressed rapidly in Tennessee. Tennessee is among the ten top states in conversion of farmland to development. Between 1982 and 1992, 436,000 acres were developed - approximately four percent of the state's total farmland. Of the land converted during this period, more than one-third was prime or unique farmland.[55] Also, according to the U.S. Department of Agriculture, approximately 401,000 acres of open space were developed statewide between 1992 and

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[49] Tennessee Department of Environment and Conservation press release online, accessed at http://www.state.tn.us/environment/epo/hotlist.htm#ozone, May 22, 2002.

[50] Tennessee Department of Environment and Conservation press release online, accessed at http://www.state.tn.us/environment/epo/hotlist.htm#ozone, May 22, 2002.

[51] Interview with Alan Jones, Transportation & Smart Growth Administrator, Tennessee Department of Environment and Conservation, December 18, 2001.

[52] http://www.fhwa.dot.gov////ohim/hs97/vm2.pdf, accessed 10/24/02; http://www.fhwa.dot.gov////ohim/hs00/vm2.pdf, accessed 10/24/02.

[53] *The Clean Air Challenge: Improving Tennessee's Air Quality By Addressing the Contribution of Motor Vehicle Miles Traveled to Ozone Pollution*, July 2002, p.3.

[54] http://mobility.tamu.edu/ums/study/appendix_A/, accessed 10/23/02.

[55] http://www.state.tn.us/tacir/Portal/Understanding%20Growth_Facts%20to%20Consider.htm.

1997 for projects such as new homes, businesses, roads, and parking lots. In fact, between 1982 and 1997, development in Middle Tennessee increased almost three times as fast as population.[56]

While many of the effects of growth are positive, such as expanding business, low unemployment, and increasing property values; such rapid growth brings adverse consequences as well. Regarding transportation, land development that outpaces population growth lengthens commutes and increases traffic congestion, as a population that is more spread out increases dependence on motor vehicles which, in turn compete for space on roads leading to work, retail, and other business centers. Such reliance leads to increasing costs to build and maintain roads and other infrastructure, and increases air and water pollution. In monetary terms alone, it can cost government much more to provide infrastructure and municipal services for low-density "sprawl" development than for compact "infill" development.[57] Still, Tennessee's growth planning laws address sprawl only in that they require municipalities within a county to designate areas in which the county might reasonably expect high-density development in the next 20 years. However, the law does not require comprehensive planning, and municipalities may annex territories outside of these boundaries under certain conditions and after complying with provisions in the law, limiting its effectiveness at controlling sprawl. Some participants in the growth planning process described the county growth plans as resulting from political agreements among jurisdictions that put lines on a map, with little actual planning.[58] Plans of service required under the law must include plans to provide streets to serve proposed annexations, but would mainly involve local roads and would not necessarily address impacts on state-maintained roads serving those areas.

Growth Planning

TDOT does not consult countywide growth plans required by Public Chapter 1101 of 1998 when planning transportation projects. As mentioned above, PC1101 calls for a comprehensive growth policy plan in each county that outlines anticipated development during the next 20 years. Each county's plan should identify three distinct types of areas:

- "Urban growth boundaries," or regions which contain the corporate limits of a municipality and the adjoining territory where growth is expected;
- "Planned growth areas," or compact sections outside incorporated municipalities where growth is expected and where new incorporations are possible; and
- "Rural areas," or land not included in one of the other two categories to be preserved for agriculture, recreation, forest, wildlife, and uses other than high-density commercial or residential development.

When developing advance planning reports for proposed transportation projects, information in the county growth policy plans might prove useful to TDOT planners. For

[56] Southern Environmental Law Center, *Where Are We Growing? Land Use and Transportation in Middle Tennessee,* p. 7.
[57] James C. Nicholas, Arthur C. Nelson, and Julian C. Juergensmeyer. 1991. A Practitioner's Guide to Development Impact Fees. Chicago, IL; American Planning Association, p.1.
[58] http://www.state.tn.us/tacir/Portal/Impact%20of%20PC1101.htm.

example, the urban growth boundary designated by a municipality near a proposed project might indicate a need to upgrade specifications for that project. Conversely, planners might see the need to relocate a project proposed to traverse one of a county's designated rural areas.

Coordinated Planning

The department has not revised its long-range plan since 1994.[59] TCA §4-3-2206(13) requires the commissioner of TDOT to prepare a "long-range and coordinated statewide transportation plan with specific plans, goals, and performance criteria for all transportation modes," and revise that plan every two years. However, the department has instead funded State Highway System projects from year to year based on internal priority-setting discussions among the Chief Engineer, Director of Program Development and Administration, and the Program Development Director. TDOT's Commissioner and the Governor then decide on the final State Highway System Work Program to present to the General Assembly.[60] The department has contracted with an engineering firm to develop a comprehensive transportation plan for the state for the next 25 years, with Phase I of the process beginning in May 2002.

By failing to revise the long-range plan regularly:

- TDOT may have failed to stay abreast of and plan for changing transportation needs, priorities, and limitations, and may not be able to connect current projects with up-to-date planning documents that account for changing needs over time.

- TDOT has established some state transportation needs with little documented, objective analyses, and neglected to consider other alternatives and their costs and benefits.

- TDOT leaves itself open to criticism from elected officials and the public that decisions are based purely on political objectives rather than actual need, and to accusations that it does not spend transportation funds in the most effective manner.

- Tennessee decision-makers and citizens cannot determine whether or not the department spends transportation funds in the most effective manner, and the department has not effectively assured citizens that it has addressed their concerns.

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[59] The most recent long-range plan department officials provided to Office of Research staff was dated September 1994.

[60] Interview with John Tidwell, Director of the Program Development and Administration Division, and Jim Moore, Programming Director, Tennessee Department of Transportation, May 24, 2002; Interview with Ralph Comer, Planning Director, TDOT, May 21, 2002.

- Tennessee's lack of a thoughtful, inclusive, long-range planning process, and a comprehensive general development plan for the state, hinders Tennessee's ability to achieve the cultural, societal, and population density changes necessary for mass transit to be successful, as well as the department's ability to identify transportation needs throughout the state.

While a purely objective, cost/benefit based planning process might have drawbacks such as concentrating transportation spending in the larger urban areas of the state, department management does not document the reasons, either objective or subjective, for funding particular projects as opposed to others, or for investing significantly less in alternative transportation modes in favor of more traditional modes. Because the state lacks adequate funding to complete requested, needed, and planned road projects in any given year, the department must rely on some level of subjectivity in funding decisions. However, under the previous administration, the department did not support transportation funding decisions with analyses of the costs and benefits of various alternatives, and often did not consider more than one solution to transportation issues. In fact, department officials did not consider other transportation alternatives or priorities when they established State Highway System plans each year.

Need to Integrate Transportation Planning

Lack of integrated planning prevents Tennessee from fulfilling the federal law's intent that overall transportation planning lead to an integrated, intermodal transportation system that facilitates the efficient movement of people and goods, "while minimizing transportation-related fuel consumption and air pollution."[61] Title 23, §135, United States Code states that "the plans and programs for each state shall provide for the development and integrated management and operation of transportation systems and facilities that will function as an intermodal transportation system for the state and an integral part of an intermodal transportation system for the United States." State law created a "Department of Transportation," not a "highway department," charged in TCA § 4-3-2303(9) with "programs of transportation related to investigation, research and operation of safe, adequate and efficient *transportation modes*, including, but not limited to aeronautics, waterways, rails, *highways and mass transit*;" and in §4-3-2303(13) with preparing "a long-range and coordinated statewide transportation plan with specific plans, goals, and performance criteria for *all transportation modes*." (Emphasis added.)

TDOT's lack of integrated transportation planning appears to be a major factor contributing to Tennessee's limited transportation alternatives compared with other states, precluding comparisons of the costs and benefits of various transportation solutions. For example, because department officials plan State Highway System projects independently of public transportation, rail, or other modes, they fail to examine whether or not new roads near urban areas will provide more benefits per unit of cost than extending rail service, adding new mass transit alternatives, or upgrading existing roads.[62]

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[61] Title 23, §135(a)(1), United States Code.

[62] Interview with John Tidwell Director of the Program Development and Administration Division, and Jim Moore, Programming Director, Tennessee Department of Transportation, May 24, 2002.

Unless TDOT begins to evaluate various transportation alternatives as part of an interconnected transportation system and plan for an efficient, multimodal transportation system, the state will have difficulty determining if transportation dollars are spent in the most effective manner.

TDOT could improve transportation planning in Tennessee by engaging in comprehensive, long-range planning examining transportation needs of local areas, environmental issues, land use plans, and the suitability of various alternative transportation modes to solve transportation issues. Such comprehensive planning should include local transportation agency involvement and public comment at the earliest stages in order to address citizens' concerns at the outset and environmental issues from the standpoint of both short- and long-term impact.

While the Metropolitan Planning Organizations in Tennessee's major urban areas appear to consider all transportation modes and plan from a "systems" perspective, the department may undermine those efforts by failing to consider multiple alternatives to solving transportation issues or providing additional funds to MPOs for projects that might provide greater benefits than planned State Highway System projects.

TDOT's planning process is likely to change in the next couple of years, as the department has contracted with an engineering firm to develop a comprehensive transportation plan for the state for the next 25 years. During Phase I of the effort (which began in May 2002), the department will assess the current status of transportation in Tennessee and develop a detailed scope for Phase II, assess allocation of resources and administrative processes for transportation projects. Phase II will involve the engineering firm implementing the scope of the plan from Phase I, including public involvement. According to TDOT's Director of Planning, this effort could result in significant changes in TDOT's planning process.[63]

Also, TDOT (through a private contract) recently completed a *Tennessee Rail System Plan*, including rail infrastructure proposals evaluating costs and benefits of a basic east-west freight rail connection, as well as a multi-state east-west rail connection and potential intercity passenger rail corridors. The proposals each analyze costs and benefits, indicating that making the east-west rail connection, whether for freight, passenger rail, or a combination thereof, shows positive benefit to cost ratios.[64] Such studies certainly point to a different direction transportation investments in Tennessee could go.

Some groups perceive that Tennessee has lagged behind other states in its investment in alternative modes of transportation because the planning and decision-making system allocates most funding to highways. However, it is a matter of opinion whether the state's transportation system is inefficient or ineffective. While congestion in urban areas is

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[63] Interview with Ralph Comer, Planning Director, Tennessee Department of Transportation, May 21, 2002.
[64] *Tennessee Rail System Plan: Potential Intercity Rail Corridors,* September 2002, pp. 58-61; *Evaluation of Rail Infrastructure Proposals: Basic Freight Rail Connection Project 1, Scenario A, East-West Rail Connection,* September 2002, pp. 18-19; *Evaluation of Rail Infrastructure Proposals: Project 1, Scenario B, Planning Horizon Scenario for Multi-state East-West Rail Connection,* September 2002, pp. 35-37.

increasing, it is still well below that in other major urban areas. Also, society, culture, and population density play major roles in whether or not various forms of mass transit are successful. Transportation planners and some environmental organizations agree that densities in Tennessee's urban areas have not, for the most part, reached a level that will support major investments in some forms of alternative transportation.

The Case of I-840

Several people interviewed cited the I-840 project as an example of a project for which TDOT failed to consider alternatives. Because TDOT funded I-840 through the State Highway System program, department management did not consider whether the funds used for this project would be better spent on some other alternative designed to reduce traffic congestion in the Nashville area or facilitate economic development in the region.

The Nashville Metropolitan Planning Organization, charged with planning the transportation system for Davidson and surrounding counties, did not initiate I-840, nor did the organization determine a need for an outer loop highway such as I-840 in their short or long-range plans.[65] Instead, TDOT planned the highway with the stated purpose of encouraging economic development in the counties surrounding Davidson, and moving some traffic away from the downtown Nashville area.[66] After TDOT officials decided to build I-840, they approached the MPO and asked the organization to include the highway in their Transportation Improvement Program (TIP) because, under federal guidelines, it is considered to be a project of regional significance. Under these guidelines, projects of regional significance in air quality non-attainment areas or maintenance areas must be included in the MPO's Transportation Improvement Program, or the Federal Highway Administration may withhold funding for other projects.

Despite the fact that the 840 project had not been evaluated under the MPO's decision-making process, the organization included each section of the highway in their Transportation Improvement Program at the department's request, up until they developed the most recent Transportation Improvement Program in the Fall of 2001. The MPO's board removed the next section of 840 from the Transportation Improvement Program covering the years 2002-2004 until the plan came up for final approval. Several people interviewed for this report indicated that TDOT's commissioner and other representatives petitioned the MPO's board extensively leading up to the final vote. The board ultimately included the disputed section of 840 in the 2002-2004 Transportation Improvement Program.[67] However, because TDOT has not completed an environmental impact statement, the MPO board voted not to move the estimated completion date of the north route of 840 from 2025 to 2015, as TDOT officials requested.[68]

[65] Interview with Jeanne Stevens, Nashville MPO Coordinator, January 22, 2002.
[66] Interview with John Tidwell, Director of the Program Development and Administration Division, and Jim Moore, Programming Director, Tennessee Department of Transportation, May 24, 2002; Interview with Ralph Comer, Planning Director, Tennessee Department of Transportation, December 18, 2001.
[67] Interview with Jeanne Stevens, Nashville MPO Coordinator, January 22, 2002; Interview with Alan Jones, Administrator, Transportation & Smart Growth, Tennessee Department of Environment and Conservation, December 18, 2001.
[68] Jeanne Stevens, Nashville MPO Coordinator, "Re: A question," E-mail to the author, October 16, 2002.

Communication with Development Districts and Local Transportation Agencies

TDOT could also improve communication with development districts and local transportation agencies. TDOT's State Transportation Improvement Program was developed ". . . through a cooperative process between the Tennessee Department of Transportation, the Metropolitan Planning Organizations, and the Tennessee Development Districts." The plan also states that "various groups representing local governments, concerned citizens, etc." approach the department each year requesting the preparation of planning reports or consideration for improvements on sections of highway they feel are inadequate. It also reports that "Outside of MPOs, projects are selected in consultation with affected local transportation officials and transit operators," and that the department distributes the rural portion of the plan to the nine development districts in Tennessee for public review and comment, which serve as the collective representative of their respective local agencies to obtain input and comments concerning transportation issues.[69]

Development Districts

All the development district staff members contacted for this report said that their interactions with department employees have been cooperative and helpful. However, several development district officials reported a much more informal, limited relationship with the department than that which is described in the STIP. Some were unaware that they had any role in the transportation planning process at all. Most reported that they felt comfortable calling TDOT regional offices if they have questions, and they periodically receive lists of projects the department has planned in their districts. Others reported that department officials regularly attend district board meetings, but interactions have been geared more toward informing board members about TDOT's plans, rather than seeking input on transportation needs in the district. Some said they would like more input into the plans much earlier in the process so that they could better take advantage of economic development opportunities. Still others commented that they would like to see the department build projects that will remain adequate further into the future, rather than building two-lane roads that will be inadequate soon after they are complete.[70]

Local Transportation Officials

Similarly, local transportation officials reported overall satisfaction with communication and cooperation with TDOT through the regional offices. Some, however, reported feeling "left out of the process" when the department plans a project that will impact county roads with intersections, or affect traffic flow in ways that could have an adverse effect, and feel that they should be notified earlier in the planning process so their concerns can be addressed, rather than receiving notification that TDOT has planned a project after the decision has been made. Some reported that they do not communicate with the department at all, other than receiving lists of projects affecting their counties. Some commented that certain funding mechanisms appear to depend on the whims of TDOT's central office, and that if the local government does not have funds to match state grants in the year they are offered, it is often a long time before the grants are

[69] State of Tennessee Transportation Improvement Program, 2002-2004, pp. 1-2.

[70] Phone interviews with officials of four rural Development Districts, conducted by Office of Research staff from Sept. 4, 2002 to Sept 10, 2002.

offered again. Local transportation officials mentioned that State Aid Bridge grants, in particular, are not offered in subsequent years if the local government does not have matching funds readily available. These same officials reported that the department appears to choose the bridges to receive grants based on legitimate use and deterioration data. Other local officials expressed concern that setting their budgets is difficult because they must wait for the General Assembly to pass a state budget before TDOT gives them an estimate of State Aid funds they will receive for the year. Though they realize it is difficult for the department to give them much information without an approved state budget, they feel that the department could provide better estimates based on revenue projections, before the General Assembly actually passes a budget.[71] Also, TDOT does not consult local government growth plans mandated by Public Chapter 1101 when planning transportation projects, a tool potentially useful for TDOT planners to avoid conflicts with local entities and to better assess future transportation needs.

Metropolitan Planning Organizations

Metropolitan Planning Organization coordinators expressed satisfaction, for the most part, with the communication and cooperation they receive from TDOT. Several MPO contacts reported that TDOT's planning process has improved recently.[72] Most reported that the department's planning process is adequate, in that it complies with federal guidelines and ensures a steady flow of state and federal funding for major road and mass transit projects. They expressed some concerns that TDOT sometimes asks the MPOs to include regional projects in Transportation Improvement Programs that the MPO has not evaluated through their selection processes, so as not to endanger federal funds. Some stated that there should be a stronger link between justification and implementation, or needs-based funding to eliminate some perceived political decision-making. Most of the MPOs schedule projects based on needs, costs, and benefits; and TDOT sometimes asks to include or move projects up on the priority list that the MPO has not evaluated based on these criteria, or that did not warrant a higher priority according to the MPO's analyses. Some felt that MPOs might receive more funding for their high priority projects if the department did not spend as much on State Highway System projects not subjected to objective decision-making processes. They also reported that local officials sometimes bypass the MPO process by going directly to TDOT, complicating the MPOs' job of planning transportation systems for the areas they cover. Others mentioned difficulty establishing budgets similar to the counties' concern mentioned in the preceding paragraph.

Flexibility of Federal Funds

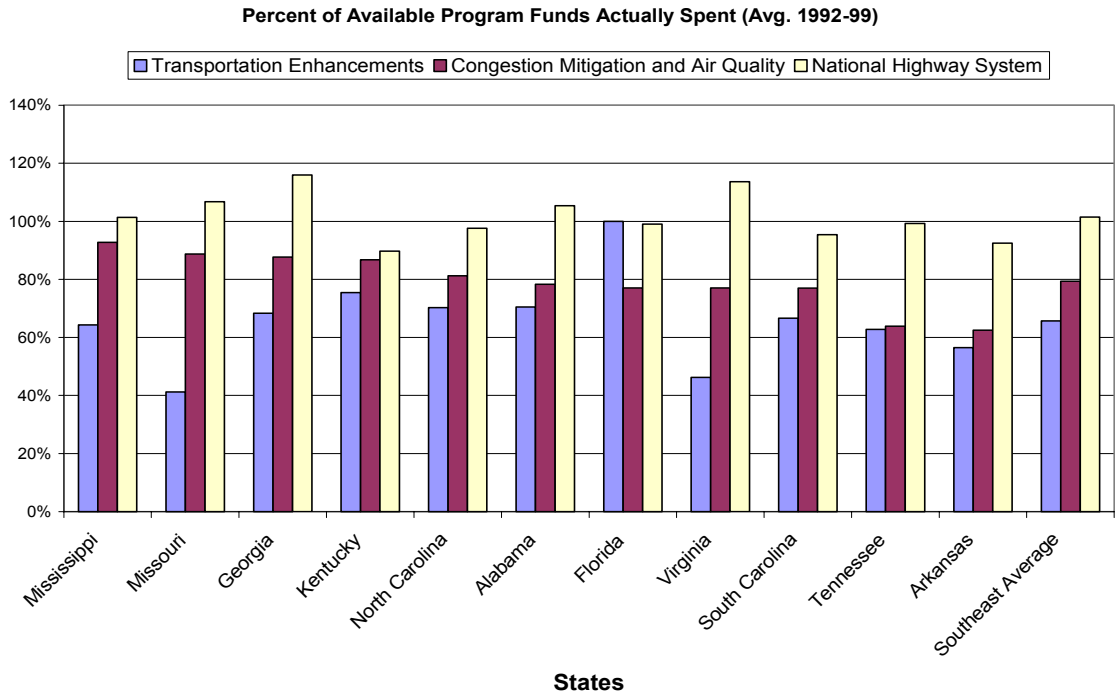
Tennessee has not taken advantage of the extensive flexibility granted to states under federal law to spend federal transportation dollars on transit and alternative modes of transportation. Nationally, approximately 5.6 percent of flexible highway

[71] Phone interviews with transportation officials from ten rural Tennessee counties, conducted by Office of Research staff between September 10, 2002 and September 23, 2002.

[72] Correspondences with the coordinators of the nine MPOs in Tennessee, including phone interviews and e-mails exchanged between January 22, 2002 and August 9, 2002.

funds were flexed to modes of transportation other than roads from 1992 to 2000.[73] However, Tennessee has flexed less than one percent of available federal transportation funding to transportation alternatives that could help relieve traffic congestion and improve air quality.[74] Despite several indicators of increasing traffic congestion and potential air quality violations, Tennessee spent only about 64 percent of available federal Congestion Mitigation and Air Quality (CMAQ) funds and 63 percent of available federal Transportation Enhancement Program funds, two sources of flexible funding. Over the same period, Tennessee spent nearly all available National Highway System funds. (See Exhibit 10.) Tennessee's use of federal funds for alternative transportation modes actually declined from 10.35 percent to 8.94 percent from 1990-91 to 1998-99. (See Exhibit 12.)

Exhibit 10:



Source: Surface Transportation Policy Project, http://transact.org/state/cd.asp?s, accessed 10/7/2002.

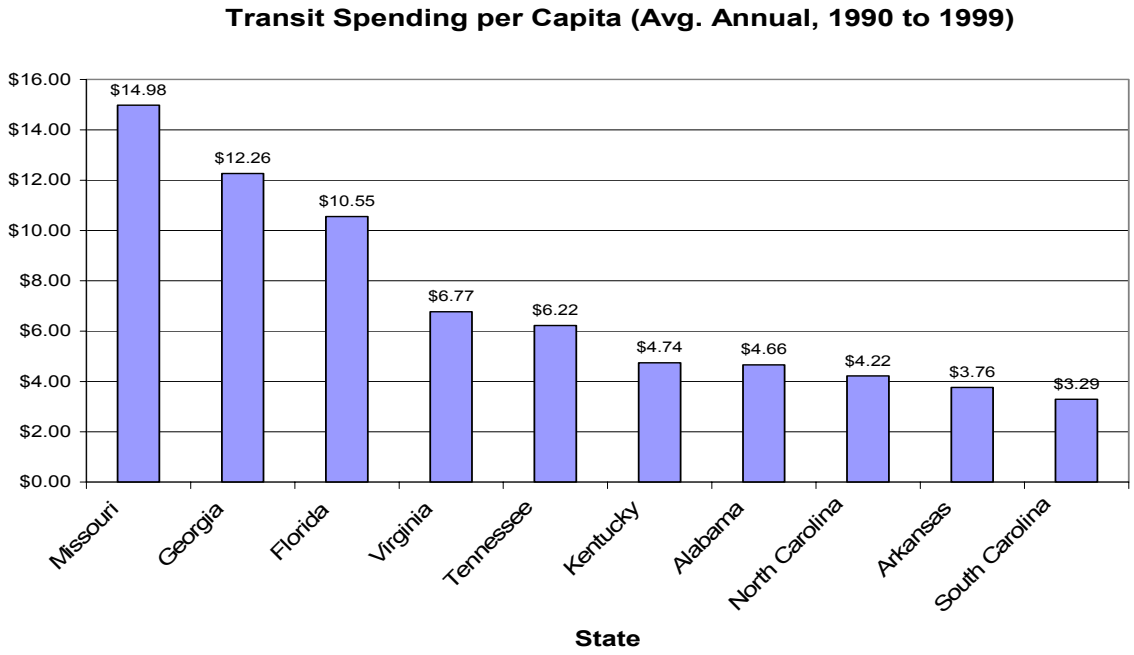
As stated previously, the purpose of the Congestion Mitigation and Air Quality (CMAQ) Improvement Program is to provide funding for transportation projects or programs that will help reduce traffic congestion and contribute to attainment or maintenance of the National Ambient Air Quality Standards (NAAQS) for Ozone and Carbon Monoxide.

[73] David Burwell and Hank Dittmar, "The Transit Renaissance: Flexing to Transit," *Progress: Surface Transportation Policy Project,* October 2002, p.3.
[74] http://transact.org/state/cd.asp?s, accessed 10/7/2002.

In addition:

- Tennessee spent only $6.22 per capita on mass transit, less than half as much as Georgia and Missouri, two states on Tennessee's border. (See Exhibit 11.)
- In FY-02, projected state funding for transit capital needs[75] accounted for less than .5 percent of TDOT's total budget.[76]
- The state spent $3.00 on transit capital expenditures for every $100 budgeted for roads built with 100 percent state funds.
- When compared with state dollars budgeted for highway maintenance, state construction, Interstate, Forest, and State Highway Construction,[77] state dollars projected for mass transit capital needs[78] amount to just over one percent.

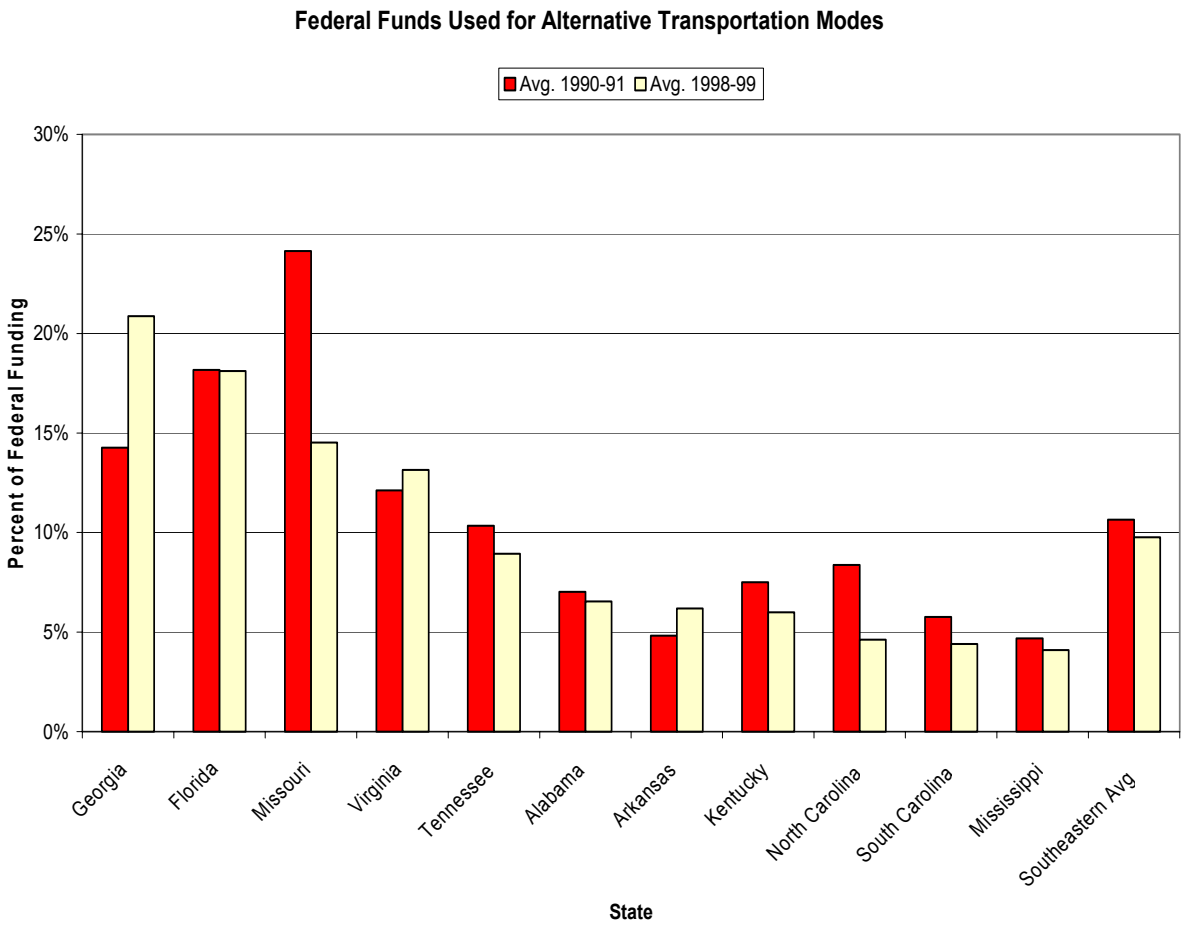
Exhibit 11:



Source: http://transact.org/state/cd.asp?s, accessed 10/7/2002.

[75] *State of Tennessee Transportation Improvement Program, 2002-2004; Transit System Section.*
[76] ***The Budget, FY 2002-2003,*** p. B-365.
[77] *Tennessee Department of Transportation Work Program*, Fiscal Year 2002.
[78] *State of Tennessee Transportation Improvement Program, 2002-2004; Transit System Section.*

Exhibit 12:



Source: http://transact.org/state/cd.asp?s, accessed 10/7/2002.

Other States' Spending on Transit vs. Roads

Office of Research staff contacted several other states to try to compare their capital spending for mass transit vs. roads with the same data from Tennessee. However, differences in departmental structure and reporting expenditures made such state-to-state comparisons difficult. For example, Missouri's transportation department provides operating assistance to public transportation agencies in the state, but provides no capital assistance through the state budget. However, the Missouri legislature passed legislation enabling local governments to enact a .5 percent local option sales tax to support public transportation in its largest cities, generating between $19 million and $30 million a year in Kansas City and St. Louis.[79] Similarly, the state of Georgia has added one cent to the sales tax rate of two counties served by the Metro Atlanta Regional Transportation Authority (MARTA) in the Atlanta air quality non-attainment area to help pay for new mass transit system construction and operating costs intended to help counties in the air

[79] Michelle Kuhlman, *State Funding Profiles,* Community Transportation, November/December 1999, p. 34.

quality non-attainment area achieve air quality goals.[80] Other areas in Georgia have established Community Improvement Districts (CIDs), essentially special tax districts enabled under recent state legislation, in which non-residential property owners within a specified boundary can agree to an extra tax to pay for infrastructure improvements within their boundaries. While CIDs can choose to focus their efforts on various types of infrastructure improvements, several have chosen to focus on transportation infrastructure, including improving intermodal transportation.[81] While officials in Virginia could not provide a breakdown of transit capital expenditures vs. road construction expenditures, they explained that two separate entities deal with transportation in the state: the Virginia Department of Transportation, with a 1999-2000 budget of approximately $2.6 billion,[82] and the Virginia Department of Rail and Public Transportation, which spent approximately $80.6 million in state dollars out of a total agency budget of over $191 million in FY 2001-02. However, these numbers include all expenditures rather than just capital, and the agency is also responsible for intercity rail in the state, which is operated by Amtrak but receives state and federal funds. The department also allocated part of these funds (approximately $15.5 million) to the Washington Metropolitan Area Transit Authority (WMATA) for its Infrastructure Renewal Program.[83] The state of Maryland ($21.6 million) and the District of Columbia ($26.1 million) also contributed funding to this program.[84] Illinois provided FY2001 expenditure data indicating that they spent approximately $171 million in transit capital expenditures compared to $3.483 billion in their highway construction-related budget, or almost $5 on transit for every $100 spent on road construction.[85]

Effects of Diverting Highway Funds

If funds were diverted from the Highway Fund to non-transportation purposes, funding for mass transit and all other transportation modes would suffer. Because Tennessee invests so little in mass transit compared to road projects, mass transit capital funding would probably suffer more than highway funding. TDOT officials report that though mass transit funding has doubled in the last decade, it becomes more difficult each year to find state matching funds for transit spending approved through the Metropolitan Planning Organization (MPO) process.[86] Other department officials say that the first thing that would be cut from the budget if funds are diverted would be new construction and capital projects, which would include any new transit projects such as the Memphis commuter rail project and the Nashville to Lebanon commuter rail

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[80] http://www.state.ga.us/services/newleg/legsearch.cgi?year+2001&bill=HB1245, accessed 11/19/02.

[81] *Community Improvement Districts Sprouting in Fulton County,* Fulton County Comprehensive Transportation Plan Newsletter, November 1999, p. 2.

[82] Organizational Guide: *Virginia Department of Transportation*, http://www.virginiadot.org/infoservice/resources/2000a10162000.pdf, accessed July 26, 2002.

[83] Phone interview with John Thaniel, Fiscal and Information Technology Director, Virginia Department of Rail and Public Transportation, July 26, 2002.

[84] *FY2002 Approved Budget Regional Funding Summary, Metro Fiscal 2001 Annual Report and Fiscal 2002 Approved Budget,* available at http://www.wmata.com/about/board_gm/01report/section14-regional.cfm, accessed July 26, 2002.

[85] Phone interview with Neil Forari, Bureau Chief, Northeastern IL Program Area, Division of Public Transportation, Illinois Department of Transportation, July 15, 2002.

[86] Interview with Ben Smith, January 18, 2002.

project.[87] Metropolitan Planning Organization coordinators report that cutting funding should not impact any transit plans, but could reduce the state matching dollars available, requiring amendments and other changes to their Transportation Improvement Programs and long-range transit and road plans.[88]

Others indicate that diverting revenues from the Highway Fund should not impact mass transit funding at all at the state level, because the department could simply pull funds from unpopular State Highway System projects, such as I-840, the Knoxville Beltway, and others.[89] Critics complain that the state-funded projects do not have to be approved or planned through objective processes, are not subject to the same environmental scrutiny as projects that receive federal aid, and are often planned and built with little public input, and sometimes despite public opposition.

Environmental Concerns

Unlike other state transportation departments, TDOT does not always follow federal environmental guidelines on highway projects funded solely with state funds. Environmental staff from transportation departments in Arkansas, Georgia, Mississippi, Missouri, and North Carolina reported to state auditors that they follow National Environmental Policy Act (NEPA) guidelines for all road projects, whether they receive federal funds for the projects or not. Kentucky transportation officials indicated a transition toward using NEPA guidelines for all projects.[90] When a Tennessee highway project receives federal funding, the department must follow the guidelines in the National Environmental Policy Act of 1969 (NEPA), contained in the *Code of Federal Regulations* (CFR) 23, Section 771. However, if the project is funded solely with state funds, the department can choose not to conduct a study or to prepare a technical report. TDOT management makes such decisions project-by-project, without written policies or procedures. Without such policies and procedures, these decisions appear to lack consistency and the public may question whether or not decisions are based on clear and fair principles and processes. Such perceptions may have resulted in various legal actions against TDOT relating to environmental concerns, and might have been avoided or minimized if written policies and procedures had been established and followed.[91]

The General Assembly's Government Operations Joint Subcommittee on Commerce, Labor and Transportation held a public hearing to discuss the findings of the July 2002 Sunset Audit of TDOT, and the department responded to this finding explaining that TDOT has not started a major project with 100 percent state funding in the last five years, contending the finding is a moot point.[92] However, the funding situation could change,

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[87] Interview with Ralph Comer, December 18, 2001; and interview with Ben Smith, January 18, 2002.
[88] Correspondence with the coordinators of the nine MPOs in Tennessee, including phone interviews and e-mails exchanged between January 22, 2002 and August 9, 2002.
[89] Correspondences with the coordinators of the nine MPOs in Tennessee, including phone interviews and e-mails exchanged between January 22, 2002 and August 9, 2002.
[90] Comptroller of the Treasury, Division of State Audit, *Performance Audit: Department of Transportation, July 2002*, pp. 39-40.
[91] Ibid., pp. 39-40.
[92] Notes from TDOT Sunset Hearing, 1:00 p.m., September 17, 2002, Government Operations Joint Subcommittee on Commerce, Labor and Transportation.

making it necessary or desirable to pay for major projects with 100 percent state funds. In such instances, TDOT may avoid costly legal action and public relations problems by having and following clear and fair written policies and procedures in place.

RECOMMENDATIONS:

The General Assembly may wish to:

- Amend TCA §4-3-2303 to require that transportation funding decisions in Tennessee incorporate some measures based on objective analyses of the costs and benefits of various alternatives for solving transportation problems, in addition to other criteria the department may deem equally important. Some other states include appointed or elected transportation decision-making bodies independent of state transportation departments, moving more of the decision-making responsibilities to the local level. Some transfer decision-making authority to regional "councils of governments" and provide a portion of funding based on population or some other criteria, and others have implemented data-gathering information systems to guide transportation planners in making funding decisions.
- Amend TCA Title 54 formalizing procedures for working with local governments to assess needs, goals, and objectives of counties, cities, and regions in Tennessee, as well as MPOs, and requiring that TDOT review local growth plans required by Public Chapter 1101 during the planning process. While the local entities should maintain the responsibility for planning local transportation systems, the General Assembly may wish to direct TDOT to provide leadership, guidance, and technical assistance regarding various transportation alternatives.
- Amend TCA Title 67 requiring TDOT to flex a minimum portion of available federal funding to alternative transportation modes designed to reduce traffic congestion and improve air quality.

The Department of Transportation should:

- Regularly revise the long-range plan, as required by TCA §4-3-2206(13) to better stay abreast of and plan for changing transportation needs, priorities, and limitations.
- Include documented, objective analysis of needs, costs, and benefits of particular projects as a part of the process of transportation planning and in making individual funding decisions, in addition to documenting other important criteria that may affect funding decisions.
- Work with local governments and MPOs to determine the transportation needs of the state, incorporating all modes (roads, transit, water, rail, and air), and establish goals and objectives to meet those needs.
- Evaluate and consider county municipal growth plans (required of counties by Public Chapter 1101) during the planning process, and consult the plans of affected local governments when planning transportation projects.
- Take advantage of the extensive flexibility granted to states under federal law to spend federal transportation dollars on transit and alternative modes of

transportation, and examine ways to take full advantage of available federal transportation dollars intended to reduce traffic congestion and improve air quality.

- Regularly evaluate progress toward achieving goals and objectives, and adjust strategies as needed.
- Document the decision-making process including the strategies embodied by particular projects; how particular projects will help to achieve goals; why one project may be placed ahead of others that might achieve the same goals; the environmental impacts of particular projects compared with others; how projects integrate with the transportation system and how they impact future decisions; and the particular objective to be achieved by each project.
- Work with local entities to better integrate the plans of MPOs and local governments into the state's overall transportation system, and work with these entities to ensure that local and state plans are integrated efficiently. Also, work with local land use planners to assess future transportation needs, and integrate future land use plans with long and short-term transportation plans in order to better predict future transportation needs and effectively meet those needs.
- Integrate planning (not necessarily one division or section within the department) so that those divisions working with one transportation mode know the goals, objectives, and strategies of the others, and the entire planning process examines how the state can more effectively integrate highways, mass transit, rail, air, and water.
- Discard thinking of transportation needs as "either roads or mass transit," instead focusing on the most efficient way to transport people and goods. Discard the notion that mass transit in Tennessee strictly involves buses, and investigate other options to reduce traffic congestion, and move workers to jobs, improve air quality, transport tourists to destinations, move travelers from airports to lodging.
- Follow National Environmental Policy Act guidelines for all projects, regardless of the transportation mode or funding source.

Tennessee Department of Transportation Response

The Department of Transportation's response to this report is included as Appendix A.

Appendix A

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
SUITE 700, JAMES K. POLK BUILDING
NASHVILLE, TENNESSEE 37243-0349
(615) 741-2848

GERALD F. NICELY
COMMISSIONER

PHIL BREDESEN
GOVERNOR

July 9, 2003

Ms. Ethel Detch, Director
Comptroller of the Treasury
Office of Research
505 Deaderick Street, Suite 1700
Nashville, Tennessee 37243-0268

Re: Comptroller Report on Transportation Planning in Tennessee

Dear Ms. Detch:

I appreciate the additional time provided by your office for the Tennessee Department of Transportation (TDOT) to fully review and consider the findings and recommendations of your report on transportation planning in Tennessee.

The report is very well written and provides a comprehensive assessment of an extremely important topic. Many of the report findings are consistent with the issues that many state DOTs across the country are confronted with. Issues raised in the report concerning greater mobility options, improved environmental stewardship, and overall accountability are essential to our Department in meeting the transportation needs in Tennessee and are areas that I am committed to personally.

Since my appointment in January 2003, I have made significant changes in the Department's organizational structure to align key functions within the agency to improve the overall delivery of transportation products and services. These actions are consistent with the report recommendations, and are just my initial steps in transforming TDOT into a responsive multimodal transportation organization.

A second area that I am moving forward on is the development of the state's first long-range multimodal transportation plan. A draft request for proposal (RFP) has recently been forwarded to Finance and Administration (F&A) for approval to procure professional services to undertake this planning effort. Many of your report recommendations will be addressed through this extensive planning effort.

Re: Comptroller Report – TDOT
July 8, 2003
Page 2 of 2

In your report, a total of fourteen recommendations were identified with three directed to the General Assembly and eleven directed to TDOT. Attached is the Department's responsive report, which provides comment and intended actions by the Department based on the findings and recommendations of your report.

I appreciate the Comptroller's strides for improving accountability in government in Tennessee and look forward to a positive long term working relation. Should you have any further questions or need clarification of the Department's responses to the report, please contact Ed Cole, Chief of Environment and Planning at 741-2848.

Sincerely,

Gerald F. Nicely
Commissioner

GFN: EC/PJE
Attachment

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

RESPONSE TO THE COMPTROLLER OF THE TREASURY REPORT CONCERNING TRANSPORTATION PLANNING IN TENNESSEE

JULY 8, 2003

Introduction

This responsive report has been prepared to provide comment and actions that the Tennessee Department of Transportation (TDOT) intends to pursue in response to the Comptroller of the Treasury report regarding transportation planning in Tennessee. In total, fourteen recommendations were identified in the Comptroller report with three directed to the General Assembly and eleven directed to TDOT. Many of the report findings are consistent with issues that many state DOTs across the country are confronted with.

In May 2002, the State obtained professional planning and engineering services to undertake an assessment of the State's long range transportation planning process. The overall objective of the Planning Assessment was to identify and provide through recommendations to the State on the tools, actions, and processes required to prepare, support, and maintain a statewide long range multimodal transportation plan and process. The assessment included:

- An identification of the State's current planning practices
- A listing of "Critical Issues" to the State and other stakeholders in transportation planning for Tennessee
- An understanding of the State's internal capabilities in planning
- A review of other State Department of Transportation practices, and
- A recommended plan of action for an improved transportation planning process.

The timing of the Comptroller's report and that of the Planning Assessment compliment one another as the findings of each effort are supportive of one another. The timing of the Planning Assessment allows the Department to seriously move forward on the recommendations of the Comptroller's report given the enriched understanding of the state of transportation planning in Tennessee.

The following section contains the Department's comments and intended actions relative to the fourteen recommendations provided in the Comptroller's report.

Comptroller Recommendations and Intended Actions by TDOT

This section provides the Comptroller's recommendation, as stated in the report, with a responsive comment/action intended by TDOT. Responses are provided for those recommendations directed to TDOT as well as those directed to the General Assembly.

Comptroller recommendations to the *General Assembly*:

- *The General Assembly may wish to amend TCA 4-3-2303 to require that transportation funding decisions in Tennessee incorporate some measures based on objective analyses of the costs and benefits of various alternatives for solving transportation problems, in addition to other criteria.*

  Response: For nearly a year, TDOT has been involved in a complete assessment of the Department's transportation planning process in an effort to

develop and sustain a long range transportation planning process in Tennessee. One of several recommendations identified in the Planning Assessment is the need for the Department to undertake the development of a long range multimodal transportation plan (LRTP) that creates a needs-based transportation decision-making structure.

The statewide multimodal plan will serve as a blueprint for the State in guiding future transportation investments in highways, public transportation, rail, aviation, bicycle and pedestrian, and waterways throughout Tennessee. As part of development of the LRTP, TDOT will be establishing project selection and performance measurement criteria to be used to program projects.

A draft request for proposal (RFP) has recently been forwarded to Finance and Administration (F&A) for approval to procure professional services to undertake this planning effort. TDOT has established a start date of mid-October 2003 and a completion date of October 2005. It is intended that this plan, with project selection criteria and performance measures, will guide the development of the State's fiscal year 2006 transportation budget.

- *The General Assembly may wish to amend TCA Title 54 relative to consideration of Public Chapter 1101 by TDOT*

Response: TDOT envisions making greater utilization of land use and development information in the planning process. A stronger link between TDOT's planning and Public Chapter 1101 is welcomed.

In fact, TDOT has been working with the Nashville Area Metropolitan Planning Organization (MPO) and the University of Tennessee (UT) to explore greater linkages in the planning process and Public Chapter 1101 growth boundaries. This partnership is in the initial stages, but has the potential to establish statewide standards that could be applied throughout Tennessee. TDOT is also participating with five other states in a policy project sponsored by the National Governors' Association to develop strategies for more closely linking transportation planning tools with land use planning, especially in areas of rapid growth.

Additionally, the LRTP will have a strong link with growth data as TDOT will be developing a statewide travel demand model that will utilize the same data parameters that cities and counties used in the development of their growth boundaries. The model will be used in an iterative process allowing TDOT and those responsible for land use decisions to see the tradeoff between various land use and transportation decisions.

Appendix A (cont.)

- *The General Assembly may wish to amend TCA Title 67 requiring TDOT to flex a minimum portion of federal funding to alternative transportation modes*

  Response: As part of the LRTP, performance criteria are to be established which will aid in directing financial resources. The intent is to create a process that allows transportation investments to be advanced based on those investments that provide the greatest return and meet specific performance objectives. These objectives will include all transportation modes.

  TDOT will have the capability through this planning process to establish required funding levels based on performance criteria and need rather than purely subjective judgements. The success of this process will be demonstrated in the development of the fiscal year 2005-2006 transportation budget.

Comptroller recommendations to *TDOT*:

- *TDOT should regularly revise the long range plan, as required by 4-3-2206(13) to better stay abreast of and plan for changing transportation needs, priorities, and limitations.*

  Response: As part of the LRTP, TDOT will establish a formal plan development and update process.

  This TCA should be amended to allow the LRTP to be updated every four years with an annual performance report submitted to the Legislature. By having a four year cycle, the LRTP would be on a schedule that would allow greater coordination between the Department's annual project listing and federally mandated state transportation improvement program (STIP). This will also allow better coordination with local land use and transportation plans, including transportation planning reviews undertaken by the MPO's across the state.

- *TDOT should include documented, objective analysis of needs, costs, and benefits in transportation decision-making*

  Response: TDOT concurs with this recommendation and believes the LRTP project will allow the Department to pursue such objective criteria in its decision-making process. An "audit" of this analysis will be included with the record of decision-making for new projects.

- *TDOT should work with local governments and MPOs to determine project needs*

  Response: TDOT concurs with this recommendation and believes the LRTP project will open the door to such dialog early on in the planning process. Consultation with local governments and the MPO's will be a high priority. Such consultation will include early establishment of project needs as well as

coordination of project planning and implementation. Additionally, TDOT is working on establishing a consultation process with non-metropolitan areas as required by newly passed federal legislation.

- *TDOT should consider Chapter 1101 in the planning process*

  Response: As previously stated, TDOT concurs with this recommendation and believes that the LRTP project and ongoing revisions to TDOT project level planning process will make greater use of Chapter 1101 boundary and planning data. TDOT will actively participate in discussions about future evolution of Chapter 1101, including the acknowledgement that transportation planning is a critical element in effective planning for growth.

- *TDOT should take advantage of the extensive flexibility in the use of transportation planning funds provided under federal law*

  Response: TDOT has taken some advantage of flexible funds over the last two federal transportation re-authorizations. TDOT concurs that greater leveraging of federal funds needs to be achieved to maximize current and future state funds and to develop a truly multi-modal transportation system for Tennessee.

  TDOT believes that the LRTP project will give the Department a better understanding of the limitations and capabilities of financial resources to the state. A component of the LRTP includes the development of a financial forecasting tool and long range funding plan. These tools and data will better position TDOT to make greater decisions when it comes to flexing funds to other modes and/or other program areas. With the pending reauthorization of the federal transportation funding legislation, TDOT will use its growing interaction with local officials, MPO staff, and the state Congressional delegation to seek maximum benefit from the multi-modal flexibility anticipated to be a part of this legislation.

- *TDOT should regularly evaluate progress toward achieving goals and objectives*

  Response: TDOT concurs with this recommendation and believes that as part of the LRTP project and long range planning process this item can be achieved. TDOT envisions an annual reporting of performance to the Legislature to demonstrate progress of the LRTP and its goals, objectives, and performance measures. Through this reporting greater understanding of the Department's priorities, actions, and challenges will be known to all stakeholders. This reporting will be incorporated in the department's "Performance Measures…Charting a Course to Success," that is being prepared by the Office of Strategic Planning.

- *TDOT should document decision-making process*

  Response: The LRTP will be a formal process and provide the foundation for such documentation. As previously mentioned, an "audit" of decision-making for projects will be prepared as a part of the LRTP. An important feature of this audit will be its availability to the public for easy review.

- *TDOT should work with local entities to better integrate plans*

  Response: TDOT will be using the formal LRTP process to establish greater working relations with local entities including transportation agencies. This will improve not only the planning for projects but also the programming of projects. Earlier comments about coordination with local governments and the MPO's underscore this point.

  Additionally, TDOT has already begun to improve communications with local entities at the project planning level with the recently created Division of Community Relations. This, along with the LRTP, will create a continuous communication and involvement process that should foster greater integration of plans and decisions.

- *TDOT should integrate its planning process so that all modes are given consideration*

  Response: TDOT concurs with this recommendation and believes that the development of the LRTP will facilitate such integration. By developing a truly multimodal plan, transportation needs will be more systematically integrated into the planning and decision-making process. As mentioned previously, transportation system performance measures will include all modes.

- *TDOT should discard thinking of transportation needs as "either roads or mass transit"*

  Response: As previously stated, the LRTP will be a multimodal plan. The development of such a plan will gravitate the Department toward a planning approach that looks at the mobility and transportation needs of citizens and visitors and aligns decisions with the most appropriate transportation investments. An important component of the LRTP will be inclusion of freight movement as a part of the transportation system.

  Organizationally, TDOT will be evaluating the integration of modal planning units. This will be facilitated by the institutional management report components of the LRTP contract. Particular focus will be placed upon the experiences of other states in establishing such planning organizational structures.

- *TDOT should follow National Environmental Policy Act (NEPA) guidelines for all projects, regardless of the transportation mode or funding source*

  Response: TDOT concurs with this recommendation. NEPA not only provides specific procedures for analysis of environmental impacts, but also establishes an excellent model for project decision-making. This analysis includes the review of alternatives, including "doing nothing." These guidelines also provide for extensive public involvement and a record of decision-making. Use of the NEPA guidelines will not be based upon mode or funding source. The guidelines will be incorporated into the generic project planning process.

Updates to this response

As a part of this response to the Comptroller's report, TDOT commits to provide an annual update of progress on each of the recommended actions and the commitments made in the preceding comments. The Comptroller's report provides benchmark recommendations for improvements to the transportation planning and project development process. Annual updates will assist the public, as well as TDOT, in measuring progress in this important work.

Appendix B

State Gasoline and Motor Fuel Tax Rates as of March 31, 2002

RANK	STATES	TAX RATE	RANK	STATES	TAX RATE
1	WISCONSIN	30.30	1	PENNSYLVANIA	31.80
2	RHODE ISLAND	29.00	2	WISCONSIN	30.30
3	MONTANA	27.75	3	RHODE ISLAND	29.00
4	NEW YORK	26.67	4	MONTANA	28.50
5	PENNSYLVANIA	26.60	5	ILLINOIS	28.05
6	IDAHO	26.00	6	NEVADA	27.75
7	MICHIGAN	25.88	7	ARIZONA	27.00
8	CALIFORNIA	25.85	8	FLORIDA	26.40
9	ILLINOIS	25.55	9	IDAHO	26.00
10	NEBRASKA	25.40	10	VERMONT	26.00
11	WEST VIRGINIA	25.35	11	WEST VIRGINIA	25.35
12	CONNECTICUT	25.00	12	NEW YORK	24.87
13	NEVADA	24.75	13	UTAH	24.75
14	UTAH	24.75	14	NORTH CAROLINA	24.55
15	NORTH CAROLINA	24.55	15	NEBRASKA	24.50
16	OREGON	24.00	16	MARYLAND	24.25
17	SOUTH DAKOTA	24.00	17	OREGON	24.00
18	WASHINGTON	23.62	18	SOUTH DAKOTA	24.00
19	MARYLAND	23.50	19	MAINE	23.75
20	MAINE	23.25	20	WASHINGTON	23.62
21	DELAWARE	23.00	21	IOWA	23.50
22	KANSAS	22.02	22	KANSAS	23.00
23	COLORADO	22.00	23	ARKANSAS	22.70
24	MINNESOTA	22.00	24	DELAWARE	22.00
25	OHIO	22.00	25	MINNESOTA	22.00
26	ARKANSAS	21.70	26	OHIO	22.00
27	TENNESSEE	21.40	27	MICHIGAN	21.88
28	NORTH DAKOTA	21.03	28	NORTH DAKOTA	21.03
29	IOWA	21.00	29	INDIANA	21.00
30	MASSACHUSETTS	21.00	30	MASSACHUSETTS	21.00
31	INDIANA	20.08	31	COLORADO	20.50
32	LOUISIANA	20.03	32	DIST. OF COL.	20.00
33	DIST. OF COL.	20.00	33	HAWAII	20.00
34	HAWAII	20.00	34	LOUISIANA	20.00
35	TEXAS	20.00	35	TEXAS	20.00
36	VERMONT	20.00	36	NEW MEXICO	19.88
37	ARIZONA	19.00	37	ALABAMA	19.00
38	NEW HAMPSHIRE	19.00	38	NEW HAMPSHIRE	19.00
39	NEW MEXICO	18.88	39	CALIFORNIA	18.60
40	MISSISSIPPI	18.40	40	MISSISSIPPI	18.40
41	ALABAMA	18.00	41	TENNESSEE	18.40
42	VIRGINIA	17.70	42	CONNECTICUT	18.00
43	MISSOURI	17.04	43	NEW JERSEY	17.54

Appendix B (cont.)

RANK	STATES	TAX RATE	RANK	STATES	TAX RATE
44	OKLAHOMA	17.00	44	MISSOURI	17.00
45	SOUTH CAROLINA	16.75	45	SOUTH CAROLINA	16.75
46	KENTUCKY	16.40	46	VIRGINIA	16.20
47	NEW JERSEY	14.54	47	OKLAHOMA	14.00
48	FLORIDA	14.03	48	WYOMING	14.00
49	WYOMING	14.00	49	KENTUCKY	13.40
50	GEORGIA	12.50	50	GEORGIA	12.50
51	ALASKA	8.00	51	ALASKA	8.00

This information provided by the Arkansas Highway and Transportation Department

NATIONAL AVERAGE	
Gasoline	**21.38**
Diesel	**21.68**

Source: http://www.tdot.state.tn.us/GasTax/ranking.htm.

Appendix C

From *Analysis of Expenditures and Positions and Selected Fiscal Data, FY 1995-96 through 2000-01,* p. 44.

Current State Dollars

Fiscal Year	Amount	Amount Change	% Change	% of Total
1995-96	$593,786,000	-	-	10.09
1996-97	638,975,600	$45,189,600	7.6	10.48
1997-98	657,217,900	18,242,300	2.9	10.24
1998-99	669,435,600	12,217,700	1.9	9.77
1999-00	717,045,200	47,609,600	7.1	9.88
Est. 2000-01	732,520,000	15,474,800	2.2	9.13
Change from 1995-96 to 2000-01		$138,734,000	23.4%	

Current All Source Dollars

Fiscal Year	Amount	Amount Change	% Change	% of Total
1995-96	$1,023,220,600	-	-	8.29
1996-97	1,077,830,800	$54,610,200	5.3	8.44
1997-98	1,147,100,100	69,269,300	6.4	8.55
1998-99	1,157,319,800	10,219,700	.9	8.06
1999-00	1,260,934,000	103,614,200	9.0	8.09
Est. 2000-01	1,414,943,000	154,009,000	12.2	7.99
Change from 1995-96 to 2000-01		$391,722,400	38.3%	

Authorized Positions

Fiscal Year	Total Positions	Number Change	% Change	% of Total
1995-96	5,609	-	-	8.08
1996-97	5,605	(4)	(0.1)	8.04
1997-98	5,605	-	-	8.22
1998-99	5,341	(264)	(5)	7.83
1999-00	5,238	(103)	(2)	7.56
Est. 2000-01	5,238	-	-	7.42
Change from 1995-96 to 2000-01		(371)	(6.6%)	

Appendix C (cont.)

Constant State Dollars

Fiscal Year	Amount	Amount Change	% Change	% of Total
1995-96	$593,786,000	-	-	10.09
1996-97	621,692,547	$27,906,507	4.7	10.48
1997-98	628,375,466	6,682,919	1.1	10.24
1998-99	629,168,797	793,331	0.1	9.77
1999-00	655,554,215	26,385,418	4.2	9.88
Est. 2000-01	648,592,173	(6,962,042)	(1.1)	9.13
Change from 1995-96 to 2000-01		$54,806,173	9.2%	

Constant All Source Dollars

Fiscal Year	Amount	Amount Change	% Change	% of Total
1995-96	$1,023,220,600	-	-	8.29
1996-97	1,048,677,564	$25,456,964	2.5	8.44
1997-98	1,096,758,868	48,081,304	4.6	8.55
1998-99	1,087,706,579	(9,052,289)	(0.8)	8.06
1999-00	1,152,801,243	65,094,664	6.0	8.09
Est. 2000-01	1,252,827,165	100,025,922	8.7	7.99
Change from 1995-96 to 2000-01		$229,606,565	22.4%	

Appendix D

Federal Transportation Funding Programs

Program	Description	Funding Ratio
Appalachia Development Highway System Projects	Provides funding for routes with remaining work deemed eligible as approved by the Appalachian Regional Commission in the most recent APD Cost Estimate.	80% Federal, 20% State
Bridge Replacement and Rehabilitation (Local)	Provides funding for off-system bridge replacement, or to rehabilitate aging or substandard bridges based on bridge sufficiency ratings.	80% Federal, 20% Local
Bridge Replacement and Rehabilitation (State)	Provides funding for on-system bridge replacement, or to rehabilitate aging or substandard bridges based on bridge sufficiency ratings.	80% Federal, 20% State
Congestion Mitigation and Air Quality (CMAQ)	Provides funding for transportation projects in air quality non-attainment or maintenance areas. CMAQ projects are designed to contribute toward meeting national ambient air quality standards.	80% Federal, 20% State
Enhancement Activity Set Aside of the STP	Provides funding for 12 exclusive activities such as pedestrian facilities, rehabilitation and restoration of historic transportation-related structures and mitigation of pollution due to highway runoff.	80% Federal, 20% Local
Forest Highway/Public Lands Projects	Provides funding for improvements on any roads serving Federal and Indian lands. There are five programs funded under this category: Park Roads/Parkways, Indian Reservation Roads, Public Lands Highways, Forest Highways, and Refuge Roads.	100% Federal or 80% Federal, 20% State
High-Priority Projects Set-Aside of TEA-21	Provides designated funding for specific projects identified by Congress.	80% Federal, 20% State and/or Local
Interstate Maintenance Projects	Provides funding to rehabilitate, restore, and resurface the Interstate System. Reconstruction is also eligible if it does not add capacity, and High-Occupancy-Vehicle (HOV) lanes can be added.	90% Federal, 10% State
National Corridor Planning & Development	Provides funding for coordinated planning, design, and construction of corridors of national significance, economic growth, and international or interregional trade.	80% Federal, 20% State
National Highway System	Provides funding for major roads including the Interstate System, a large percentage of urban and rural principal arterials, the Strategic Defense Highway Network, and strategic highway connectors.	80% Federal, 20% State
Recreational Trails	Provides funding for the creation, rehabilitation, and maintenance of multi-use recreational trails.	80% Federal, 20% State
Projects Currently Slated for State Funds	Provides 100% state funding for various projects on the State Route Highway System.	100% State
Surface Transportation Program (STP)	Provides funding for roads not functionally classified as a local or minor collector. They may be utilized on projects in rural areas, urbanized areas, small urban areas, enhancement, safety, and rail-highway crossings.	80% Federal, 20% State

Appendix D (cont.)

Program	Description	Funding Ratio
Local-Surface Transportation Program Allocation (small urban areas)	Allocates funding to areas of 5,000 to 50,000 population for improvements on routes functionally classified as urban collectors or higher capacities.	80% Federal, 20% State and/or Local
Safety Set Aside of the STP Program	Provides funding for making high-hazard improvements on state highways.	90% Federal, 10% State or Local
Federal Transit Program	Provides funding for planning, capital and operating assistance, major capital needs such as light or commuter rail system development, large bus or rail fleet purchases, construction of transit facilities, passenger equipment for special needs, intercity bus programs, and state administration of projects of a transit nature.	Percentage varies among Federal, State, and Local

Source: State of Tennessee Transportation Improvement Program, 2002-2004

Appendix E

An Assessment of Future Demands for and Benefits of Public Transit Services in Tennessee, Frank Southworth, David P. Vogt, and T. Randall Curlee, Center for Transportation Analysis, Oak Ridge National Laboratory

This study is very limited in its assessment of actual future demands for and benefits of public transportation in Tennessee because it does not attempt to quantify the potential effects of introducing light rail or commuter rail systems or the operation of express bus, transit or HOV lanes in the state's largest metropolitan areas. Still, it mentions other studies that suggest that expenditures on public transit systems have consistently resulted in positive and significant net economic benefits over expenditures (p. 2.32). The study also found generally positive results held throughout the population spectrum, from rural to urban transit systems. These benefits arise from two perspectives: 1) the infusion of dollars to support transit capital and operating expenditures produces demands for goods and services which translate into jobs and sales, stimulating not only direct employment with transit operations, but also spending within and outside the region; and 2) greater business accessibility, travel time and other cost savings result from efficient and well-placed transit services.

B) Economic Impact of Transit System	**Expenditure-Based Value Added: Fed. Funds**	**State Funds**	**Local Funds**	**Trans. Efficiency Impacts (000's $)**	**Total Economic Impact (000's $)**
Chattanooga	$2,079.90	$1,293.60	$5,386.60	$504.30	$9,264.50
Knoxville	958.20	1,147.00	7,791.80	365.30	10,262.30
Memphis	6,462.40	3,715.30	22,519.80	3,293.60	35,991.20
Nashville	744.00	2,224.90	14,570.50	859.60	18,399.00
Small Urban Systems	1,418.60	676.50	3,329.00	412.80	5,836.80
Total	**$11,663.10**	**$9,057.30**	**$53,597.70**	**$5,435.60**	**$79,753.70**

Baseline Urban Transit Ridership Benefits Forecasts (ORNL, p. 4.39)

	Small Urban	**Chattanooga**	**Knoxville**	**Memphis**	**Nashville**	**Total**
2000	$12,729,037	$15,368,159	$10,959,525	$90,147,380	$43,725,590	$172,929,691
2005	$13,636,442	$15,198,495	$11,330,372	$90,840,822	$44,624,439	$175,630,570
2010	$14,948,258	$15,105,605	$11,689,722	$90,159,839	$46,035,138	$177,938,561
2015	$16,488,716	$15,075,005	$12,110,498	$92,320,370	$47,845,378	$183,839,967
2020	$18,311,779	$15,114,081	$12,545,534	$94,815,254	$49,912,569	$190,699,218

Appendix E (cont.)

Baseline and Two Increased Expenditure Forecasts: Benefits Forecast (in 1998 dollars)(ORNL, p. 4.42)

	Baseline	5% Increase	10% Increase
2000	$172,929,691	$172,929,691	$172,929,691
2005	$175,630,570	$179,026,661	$182,154,724
2010	$177,938,561	$183,216,377	$186,401,438
2015	$183,839,967	$189,537,577	$192,821,061
2020	$190,699,218	$197,102,579	$200,502,563

Offices of Research and Education Accountability Staff

Director
◆Ethel Detch

Assistant Director (Research)
◆Douglas Wright

Assistant Director (Education Accountability)
Jason Walton

Principal Legislative Research Analyst
Phillip Doss
◆Kim Potts

Senior Legislative Research Analysts
Denise Denton
◆Richard Gurley
Margaret Rose
◆Greg Spradley
Emily Wilson

Associate Legislative Research Analysts
Bonnie Adamson
Brian Doss
Kevin Krushenski
Russell Moore
Alisa Palmisano
Melissa Jo Smith

Legislative Research Interns
Bintou Njie
Amanda Spears

Executive Secretary
◆Sherrill Murrell

◆indicates staff who assisted with this project

Note: Former Office of Research employees Karen Tolbert and Emily Ogden also contributed to this project.