

HIGHWAY FINANCE IN TENNESSEE



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HIGHWAY FINANCE IN TENNESSEE

Prepared by:

Stan Chervin, Ph.D.
Public Finance Consultant
(Principal Author)

Harry A. Green, Ph.D.
Executive Director

Cliff Lippard
Director of Fiscal Affairs
(Contributing Author, Project Manager, and Principal Editor)

Other TACIR Staff Contributors

Linda Joseph
Publications Assistant

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HIGHWAY FINANCE EXECUTIVE SUMMARY

The budget debate in Tennessee over the last several years has led some to call for a reevaluation of existing spending priorities. This reevaluation includes rethinking the merits of traditional earmarking of certain state revenues, especially motor fuel and vehicle registration taxes earmarked for highway construction and maintenance.

This paper on Highway Finance is designed as a brief review of the topic of highway finance and includes material on the following items:

- Relative size of the federal-state highway program in Tennessee, the Southeast, and the United States. Total highway funds available for spending by all levels of government in fiscal year 2000 totaled \$127 billion. Highway-user revenues from taxes and fees paid by vehicle owners and operators represent the most important source of revenue for highway use at \$102 billion in fiscal year 2000.
- While highway-user revenues represent the largest source of revenue for highway spending, general fund revenue, property taxes, and bond proceeds are also used to finance highway-related spending. The report provides data on the relative importance of all revenue sources for Tennessee, the Southeast, and the United States.
- Spending on highway-related items such as capital projects, maintenance, administration, etc. varies extensively from state to state. The report includes data on the distribution of such disbursements by state.
- The history of highway finance is reviewed from both a federal and state perspective. The Tennessee experience is drawn out in some detail.
- Detailed data is provided on both the current federal and state highway-user tax structure.

Findings

The purpose of the report was to provide general information on the nature of the federal-state highway program. The report provides some general conclusions:

1. The federal-state joint venture continues to be a significant program. The federal-state highway program is second only to the federal-state Medicare program in the level of combined spending.

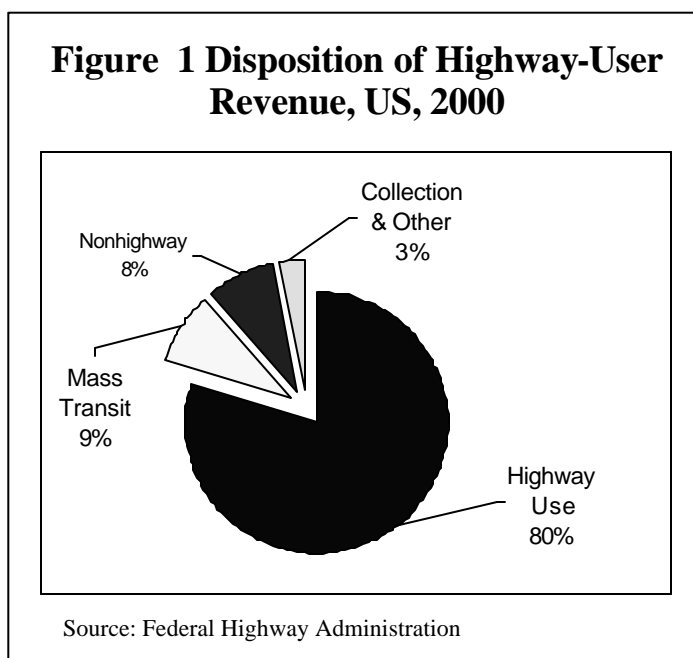
2. Highway-user revenues (taxes and fees on vehicle owners and operators for the use of the public roads) represent the largest source of revenue used to construct and maintain the nation's roads and highways.
3. Tennessee and Kentucky were more dependent on highway-user revenues for their road programs than other states in the Southeast according to 1999 data. In both states, highway user tax revenue represented over 87 percent of total highway receipts.
4. In a comparison of states with similar highway characteristics, a peer state comparison, Tennessee appears to spend more on maintenance than peer states. It must be noted that peer state comparisons are admittedly suspect because of the difficulty involved in properly identifying other states to include in peer comparisons.
5. The history of highway finance in Tennessee reflects some obvious excesses during the 1920s and early 1930s. Recognition of the excessive and dangerous use of debt for financing road and bridge construction projects back then is still being reflected today in Tennessee's reluctance to utilize debt financing for highway finance.
6. Despite what some believe to be relatively high highway-user taxes in Tennessee, Tennessee's highway-user tax burden on an average family is relatively low.

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INTRODUCTION

Total federal, state, and local highway-user revenues¹ for the United States totaled \$101.5 billion during fiscal year 2000.² Highway-user revenues include federal, state, and local taxes and fees paid by vehicle owners and operators for the use of the public roads and highways. They consist primarily of motor fuel and vehicle taxes, registration and licensing fees, and toll revenues. The federal government (36 percent) and state governments (60.6 percent) were the primary collectors of this revenue. Local governments collected the balance of 3.4 percent. The disposition of these funds during fiscal year 2000 is shown in Figure 1. While the majority of highway-user revenue is used for highway construction and maintenance, mass transit and other non-highway uses absorb meaningful shares of the revenue.



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In addition to highway-user revenues that are used for highway purposes, 80 percent of total highway-user revenues, state and local governments, and to a small extent the federal government, fund highway spending from several additional revenue sources. In fiscal year 2000, state and local governments supplemented highway-user revenues with \$6.4 billion in property taxes, \$17.1 billion in general fund appropriations, \$11.2 billion in bond issue proceeds, \$5.4 billion in other imposts (taxes and fees),³ and \$7.5 billion in investment income and other receipts. Highway funds available for disbursements by all federal, state, and local government agencies in fiscal year 2000 totaled \$126.7 billion.⁴

¹ All data used in report, unless otherwise noted, are from the publication *Highway Statistics 2000*, Federal Highway Administration, 2001.

² Table HF-10.

³ Varies substantially from state to state. Includes such non-highway-user items as rental car surcharges, severance taxes, casino revenue, cigarette taxes, general sales & use taxes, mineral lease and oil royalties, inspection fees on non-highway fuels, lubricating oil taxes and corporate income taxes.

⁴ Table HF-10. \$1.8 billion in available receipts were drawn down or placed in reserves.

Distribution of Highway Receipts By State

Highway-user revenues represent the largest source of revenue for highway use (63 percent in fiscal year 2000 for the U. S. as a whole), their importance as well as the importance of other revenue used for highway spending varies markedly from state to state. Table 1 shows the level of highway receipts, by source, for the United States, Tennessee, and southeastern states bordering Tennessee. Table 2 shows the percent distribution of such receipts by source.

Table 1 shows that Tennessee highway receipts totaled \$1.64 billion in fiscal year 1999.⁵ This level of receipts is comparable to the amounts reported by Alabama, Kentucky, and Mississippi. However, as both Table 1 and Table 2 make clear, both Tennessee and Kentucky depend more heavily on highway-user tax revenues⁶ than other southeastern states. Tennessee and Kentucky both relied on highway-user tax revenues for over 87 percent of their total highway receipts. This high dependence on highway-user tax revenue plus low usage of property taxes and debt make Tennessee and Kentucky somewhat unique amongst southeastern states.

Table 1 Highway Receipts (in \$1000s) for the U.S., Tennessee, and Surrounding Southeastern States, 1999 data

State	Total Receipts	Highway User Tax Revenue	Road and Crossing Tolls	From General Funds	Property Taxes	Bond Receipts	Other
United States	129,523,156	76,874,553	5,131,942	17,286,304	5,808,548	11,274,099	13,147,710
Tennessee	1,639,162	1,428,146	36	123,627	3,345	6,562	77,446
Alabama	1,621,264	1,096,041	0	201,297	162,008	1,637	160,281
Arkansas	958,174	737,843	0	40,062	42,228	28,876	109,165
Georgia	2,799,460	1,234,728	21,367	483,940	1,884	161,219	896,322
Kentucky	1,576,202	1,381,949	13,434	23,227	0	6,312	151,280
Mississippi	1,532,914	767,413	0	120,391	87,482	379,763	177,865
North Carolina	2,931,519	1,837,616	1,709	358,804	6,374	95,354	631,662
South Carolina	1,274,732	786,567	0	207,641	21,319	200,172	59,033
Virginia	3,643,160	2,041,195	105,434	459,272	13,368	514,285	509,606

SOURCE: *Highway Statistics 2000*, Table HF-1.

⁵ Some of the tables in *Highway Statistics 2000* provide data for fiscal 1999, while others provide more recent data (for fiscal year 2000).

⁶ Includes both federal and state/local highway-user revenues.

In comparison with all 50 states plus the District of Columbia, Tennessee's aversion to debt for financing highway-related expenditures left Tennessee with the fifth lowest ratio of bond revenue to total highway revenues and the second lowest amount of outstanding per capita highway debt in the country.⁷

It must be noted that the importance of highway-user revenue is somewhat understated in both Tables 1 and 2 for the following reason; namely states that use debt to fund certain highway expenditures (generally for construction purposes) often fund the debt (interest and principal repayments) with future highway-user revenues (such as motor fuel taxes and/or vehicle registration fee revenues). This process allows states to leverage future highway-user revenues to fund current highway needs such as road construction. Categorizing such debt revenue as other than highway-user revenue clearly understates or distorts the importance of highway-user revenues in a snapshot of highway finance.

Table 2 Distribution of Highway Receipts By Source for the U.S., Tennessee, and Surrounding Southeastern States, 1999

State	Total Receipts	Highway User Tax Revenue	Road and Crossing Tolls	From General Funds	Property Taxes	Bond Receipts	Other
United States	100.0%	59.4%	4.0%	13.3%	4.5%	8.7%	10.2%
Tennessee	100.0%	87.1%	0.0%	7.5%	0.2%	0.4%	4.7%
Alabama	100.0%	67.6%	0.0%	12.4%	10.0%	0.1%	9.9%
Arkansas	100.0%	77.0%	0.0%	4.2%	4.4%	3.0%	11.4%
Georgia	100.0%	44.1%	0.8%	17.3%	0.1%	5.8%	32.0%
Kentucky	100.0%	87.7%	0.9%	1.5%	0.0%	0.4%	9.6%
Mississippi	100.0%	50.1%	0.0%	7.9%	5.7%	24.8%	11.6%
North Carolina	100.0%	62.7%	0.1%	12.2%	0.2%	3.3%	21.5%
South Carolina	100.0%	61.7%	0.0%	16.3%	1.7%	15.7%	4.6%
Virginia	100.0%	56.0%	2.9%	12.6%	0.4%	14.1%	14.0%

SOURCE: *Highway Statistics 2000*.

⁷ The ratio of bond receipts to total receipts was .4% and per capita debt was only \$5. The respective average figures for the U.S. were 8.7% and \$411. Source: based on data in Table HF-1 and HB-2 in *Highway Statistics 2000*.

Distribution of Highway Spending By State

The distribution of state and local government highway expenditures by type of outlay, construction versus maintenance and other uses, also varies from state to state. Table 3 shows the distribution of disbursements for fiscal year 1999 by major category of spending, for the United States, Tennessee, and other southeastern states.⁸ The data show that, with the exception of Alabama, the largest category of spending is for capital outlays. Maintenance and other highway/traffic services represent the second major spending category, averaging almost 26 percent for the nation as a whole. Administration and highway law enforcement and safety expenditures account for an average of 17 percent, with interest and bond retirement expenses representing the balance.

The data for Tennessee show Tennessee highway expenditures are generally in line with those of other southeastern states, although the percent devoted for maintenance appears slightly high. However, part of the reason for this elevated amount for maintenance is a statistical result of Tennessee having little of its highway budget devoted to debt maintenance.

Table 3 Distribution of Disbursements, 1999 data

STATE	CAPITAL OUTLAY	MAINT-ENANCE & SERVICES	ADMINISTRATION & MISCELLANEOUS	HIGHWAY LAW ENFORCEMENT AND SAFETY	INTEREST	BOND RETIREMENT	TOTAL
U S.	49.3%	25.9%	7.9%	9.0%	3.7%	4.2%	100%
TENNESSEE	51.2%	33.7%	8.6%	5.5%	0.1%	0.8%	100%
Alabama	38.3%	47.4%	8.1%	5.2%	0.5%	0.6%	100%
Arkansas	52.5%	28.4%	10.7%	6.6%	0.2%	1.7%	100%
Georgia	60.8%	19.8%	4.7%	7.1%	2.5%	5.2%	100%
Kentucky	59.1%	18.5%	9.5%	3.5%	4.6%	4.8%	100%
Mississippi	59.7%	24.4%	3.3%	6.9%	1.7%	4.1%	100%
North Carolina	58.4%	23.0%	5.6%	9.8%	1.3%	1.8%	100%
South Carolina	53.8%	21.8%	8.5%	14.3%	0.7%	0.8%	100%
Virginia	43.7%	32.0%	8.4%	8.8%	3.6%	3.6%	100%

Source: Federal Highway Administration

⁸ Based on data in Table HF-2 in *Highway Statistics 2000*.

Relative Measures of Spending By State

Evaluating whether a state spends relatively more or less than other states on maintenance, or any other single category of highway-related expense, is problematic. The cost of road construction and maintenance varies from state to state as a result of differences in:

1. Climate and terrain (consider extremes of Colorado versus Florida);
2. The number of existing miles of highways and roads, by type of pavement;
3. Traffic intensity by vehicle class (automobiles versus heavy vehicles, especially interstate trucks);
4. Population density and the number of large cities;
5. The availability and usage of mass transportation.

As a result of wide differences in these factors, comparing state spending on a per capita or similar basis is inappropriate and misleading. While this brief report does not pretend to develop a single appropriate measure of relative state spending, it does make a few preliminary observations.

The most difficult step in comparing state spending is in choosing appropriate peer states with which to compare. The Federal Highway Administration echoes this warning in a “user beware” section in its official annual publication on highway statistics.... “If choosing to compare State data, the user must be prepared to thoughtfully select a set of peer states that have similar characteristics in relationship to the specific comparison being made. Improperly selected peer states are likely to yield invalid data comparisons.”⁹

With this warning in mind, the reader is directed to Table 4. A simple peer group of states was chosen for inclusion in Table 4 based on the simple criteria of having a percentage ratio of state highway urban to rural lane miles approximately similar to that for Tennessee’s 32.3 percent. The average cost of maintenance and service disbursements per lane-mile were calculated and are shown in the last column. With the dramatic exception of Washington, Tennessee had the highest calculated average cost per lane-mile for fiscal year 2000 of the peer states included in Table

⁹ *Highway Statistics 2000*, Chapter on Important Information.

4. Note that while the Tennessee figure was relatively high for its peer states, it was still slightly less than the national average. Again, care must be taken to interpret Table 4. Clearly more study and detail is needed to interpret spending differences that vary from a low of only \$2,596 in South Carolina to a high in Washington of \$15,457.¹⁰

Table 4 Comparative State Highway Disbursements, 2000

STATE	Lane Miles: Ratio of Urban To Rural	Maintenance & Service Disbursements (In \$1000s)	Total Rural & Urban Lane-Miles	Average Cost per Lane-Mile
U.S.	24.3%	12,794,515	1,812,843	\$7,058
TENNESSEE	32.3%	242,017	34,984	\$6,918
Alabama	31.5%	145,625	27,629	\$5,271
Georgia	32.6%	161,475	45,840	\$3,523
South Carolina	22.7%	231,833	89,320	\$2,596
Texas	23.3%	1,021,985	188,128	\$5,432
Utah	24.1%	88,079	15,079	\$5,841
Virginia	21.5%	777,712	126,345	\$6,155
Washington	32.8%	281,560	18,216	\$15,457

Source: *Highway Statistics 2000*, Lane Mile data from Table PS-1, Disbursements from SF-2.

¹⁰ More appropriate data and interpretation should come from officials of the Tennessee Department of Transportation who are much more knowledgeable about the subtleties of making such comparisons among states.

HIGHWAY FUNDING HISTORY AND SOURCES OF FUNDS

Federal Government

History

Federal aid to states for road construction dates back to the early 1900s when such a program was first considered. As automobile use began to grow in the early part of the century, demand increased for more highways and roads that could consistently handle the new form of transportation. Initial attempts to launch a federal-state partnership to improve our early highway system were unsuccessful, until 1916. After much debate and controversy, Congress passed the Federal Aid Road Act of 1916.¹¹

The Act provided for federal grants-in-aid for road construction. The original Act required a 50% matching requirement where states matched federal funds dollar for dollar. The federal funds were distributed on the basis of “three equally weighted criteria-area, population, and rural postal route mileage.”¹² States were required to create their own highway agency and be subject to federal oversight on projects that were funded with federal money. Federal funds could not be used to construct toll roads. The bill appropriated \$75 million over a five-year period. Only \$5 million was appropriated during the first year of the program. This first federal-state highway program initially focused on improving rural roads rather than construction of long distance interstate roads. While federal funding did increase, especially during the 1920s, it wasn’t until 1932 that Congress levied a federal tax on gasoline. The rate of this tax was one cent. Until 1956, such revenue was deposited into the general fund of the Treasury and not specifically earmarked for highways.

The Federal-Aid Highway Act of 1956: Federal Interstate Highway Program

The federal grant-in-aid program that began in 1916 generally favored rural states over more densely populated (especially northern) states. Cities were left out of the original program almost entirely. It wasn’t until 1944 that attention seriously turned to a national system of interstate and defense highways. The Federal-Aid Highway Act of 1944 authorized designation of an interstate highway system but

¹¹ Early controversy arose from a combination of limited amounts of revenue and the conflicting goals of building more long-distance interstate hard-surfaced roads versus more all-weather farm to market roads. See Weingroff (1996)

¹² Burch, p. 219.

did not make a commitment to construct or fund the program. While some modest progress on the interstate system occurred over the next 8 years, it wasn't until 1956 that a serious commitment to the project was undertaken.

Support for the interstate highway system had gained momentum in the early 1950's but various controversies had worked against its full funding. Finally in 1956, with the strong support of President Eisenhower and with the help of various compromises on both the funding mechanism (a gas tax increase instead of debt financing) and the method for distributing the funds among the states, the Federal-Aid to Highway/Interstate Highway Act of 1956 was passed in late June 1956.

The Act designated a 43,000-mile federal interstate highway system. The Act authorized \$25 billion through 1969. Funding was immediately provided by an increase in the federal tax on gasoline and diesel fuel of one cent. Because of the national importance given to the project and the vast amounts required to construct the interstate system, the traditional 50-50 matching requirement was replaced with a 90% federal-10% state-funding split. It was hoped that such an arrangement would allow all states to participate in the program regardless of their ability to raise matching funds. The Act created the Federal Highway Administration and the Federal Highway Trust Fund into which all federal highway-user taxes were to be deposited. This fund, coupled with increases in federal highway-user taxes,¹³ provided the revenue needed to fund both the existing and the new interstate highway construction program. While the nature of the federal highway program has changed over the years, and taxes dramatically increased, the highway trust fund continues as the means through which federal highway grants are channeled to state and local governments.

The federal highway program has changed somewhat over the years, as a result of changing priorities, demographics, politics, and technology. Significant changes include:

- Highway Beautification Act of 1965
- Establishment of the Department of Transportation in 1966 (PL 89-670)
- Federal Aid Highway Act of 1973 (permitted states to use portion of federal funds for mass transportation projects)
- Surface Transportation Assistance Act of 1982 (raised federal tax from four cents to nine cents effective in 1983, and for first time, dedicated part of federal highway tax funds to mass transit; one cent of five cent increase)

¹³ The 1956 Act increased the federal tax on gasoline and diesel fuel from 2 cents per gallon to 3 cents.

- Intermodal Surface Transportation Act (ISTEA) of 1991
- National Highway System Designation Act of 1995 (authorized, for first time, the use of federal highway funds for financing debt financing costs related to federal aid highway projects)
- Transportation Equity Act for the 21st Century (TEA-21) in 1998

Federal Funding Sources

The federal government first imposed taxes on gasoline in 1932 with a one cent per gallon tax. The tax increased to two cents per gallon in 1951 at which time it was also applied to diesel fuel. Tax rates and the size of the federal highway program

Table 5 Distribution of Trust Fund Account Revenues, for 1999

Fee Category	Amount (Millions)	Percent
Gasoline	\$20,800	61.5%
Gasohol	\$1,256	3.7%
Diesel and Special Fuel	\$7,719	22.8%
Truck and Trailer Sales	\$2,810	8.3%
Truck Tires	\$416	1.2%
Heavy Vehicle Use	\$814	2.4%
Fines and Other	\$8	0.0%
Total	\$33,823	100.0%

Source: FHA *YOUR STATE'S SHARE*

have increased ever since and as of 2001 stand at 18.4 cents on gasoline and 24.4 cents on diesel fuel. The Federal Highway Trust Fund is funded from several different federal highway user taxes and fees, with the taxes on motor fuels being the most productive. Table A1 in the Appendix shows the major sources of federal highway revenue and their current (2001) tax rates. The relative importance to the Federal Highway Trust Fund Account of each source of revenue is shown in Table 5.

State and Local Governments

History

Roads, such as they were in the 19th century, were considered a state and local government responsibility. In fact, cities and counties were responsible for most of what was spent on early roads, not state governments. As the number of motor

vehicles in use grew, states were the first to feel the pressure of calls for more and better roads. State governments began taxing gasoline much earlier than the federal government. They quickly appreciated the revenue potential of taxing highway motor fuels to help finance highway construction and maintenance. Earmarking such taxes for roads and highways gained early public acceptance as a legitimate taxing arrangement.

In 1919, Oregon imposed the first state impost on gasoline with a one cent per gallon tax. Other states quickly followed suit, and by 1929, all 48 states and the District of Columbia had imposed motor fuel taxes.¹⁴ Initially, states levied taxes of one to two cents per gallon. However by the time the federal government entered the game, state rates varied from two to seven cents per gallon. State tax rates continued to climb over time and were eventually extended to cover alternative highway fuels such as diesel fuel and propane. Current state taxes on motor fuels are shown in Table A2 in the Appendix.

The passage of the Transportation Equity Act for the 21st Century (TEA-21) by US Congress in 1998 created a new funding mechanism for state governments to use to provide for transportation infrastructure. TEA-21 allows for Grant anticipation revenue vehicles (GARVEEs), which allow states to secure their transportation bonds with the pledge of **future** federal aid funds. GARVEEs allow states to “leverage federal dollars,” giving “states more options.”¹⁵

Proponents of GARVEE bonds cite numerous advantages to their use:

- Inflation costs can be avoided by paying for the project at today’s cost;
- Projects can be completed sooner; and
- Costs of projects are spread across the life of the project.¹⁶

Although Tennessee has not yet used GARVEEs, 13 state legislatures have granted statutory authority to issue GARVEE bonds. Southeastern states with the statutory authority to issue GARVEE bonds include Alabama, Arkansas, Florida, Georgia, Louisiana, and Virginia. Five of the 13 states, including Arkansas, have already issued GARVEE bonds.¹⁷

¹⁴ Davis and Cunningham, p. 63.

¹⁵ Sundeen and Reed

¹⁶ Morris

¹⁷ Ibid.

Tennessee Highway Finance History

Early state as well as local government forays into transportation finance generally involved some type of credit pledge or direct investment, as was true with investments in railroad companies. Most proved to be financial disasters. As a result of failed ventures by the state and local governments in financial arrangements with railroad businesses, Tennessee's third Constitution (1870) placed significant restrictions to guard against any further financial abuses that involved railroads, turnpikes and other "internal improvements."¹⁸

Early roads and canals catered to those on foot, on horseback, in wagons, and on bicycles. Until the invention of the automobile, road construction and maintenance was generally a local responsibility. With the growth in the popularity of the automobile following the introduction of the relatively low-price Model T, and growing demands by farmers for better all-weather transportation methods for getting their products to market, the demand for better roads grew dramatically and broadened to include more state involvement.

The inspection fee is probably the oldest surviving highway-user tax still in use. It was first imposed on gasoline in 1899 to insure that gasoline sold in the state met certain minimum standards. The tax was originally set at 25 cents per barrel.¹⁹ The first automobile-related taxes/fees were levied in 1905. Automobile owners were required to register vehicles with the Secretary of State and pay a \$2 fee. The Secretary of State assigned a number. Owners were also required to register vehicles with county court clerks and pay an additional \$1 fee. Vehicle owners were required to make their own license plates. In 1907, privilege taxes were imposed on garages (tax varied depending on county population) and on autos for hire.

State government interest in roads surfaced in 1907 but little was done until 1915. Cognizant of the federal debate occurring on highway finance and the likelihood of federal aid for road construction, the state recognized the need for a formal state Highway Department and funding for it. In 1915,²⁰ a state highway commission and highway department were established. Their activities were funded from increases in registration fees and penalties from violations of highway laws. Registration fees for automobiles were increased to \$5-\$7.50 (varied by capacity), with the net proceeds after Secretary of State collection expenses earmarked to the Highway Department.

¹⁸ Thorogood, p. 19.

¹⁹ The tax is currently 1.4 cents per gallon, part of which is allocated to the highway fund.

²⁰ Chapter 100 of the Public Acts of 1915 (Thorogood, p. 97).

In 1917, responsibility for registering vehicles was shifted away from the Secretary of State to county court clerks. Registration fees became more variable, depending on horsepower, carrying capacity, purpose (private or for-hire), and vehicle type (automobile, motorcycle, truck, tractors trailers, etc). The state also imposed a 10-cent per \$100 property tax with the proceeds also earmarked to the state Highway Department. These additional funds were levied to allow the state to maximize their ability to receive federal highway funding. Generally a 50-50 match was required for road projects that used federal funds. By 1919, registration fee revenue was shared with county governments.

The first gasoline tax in Tennessee was imposed in 1923 at a rate of two cents per gallon. Governor Peay had proposed the tax. The tax produced \$1.5 million in 1924. While initially supporting a strict highway policy of “pay-as-you-go,” Peay himself responded ultimately to pressure from automobile owners and commercial transportation businesses, and by 1927, he supported limited borrowing to finance state highway construction.²¹ The original state gasoline tax was earmarked solely for the state Highway Department for highway construction and maintenance, but diversion to other uses slowly appeared. Diversion first appeared in the form of grants to local governments for road use, and later for non-highway bond retirement and even for current state government operating expenses. In 1925, the tax was increased to three cents, in 1929 to five cents. Part of the additional revenue from the 1929 tax increase was earmarked to local governments for use in paying interest and principal on their outstanding highway debt.

Following Governor Peay’s death, the state embarked on a period of raising capital expenditures, primarily for roads and bridges. The amounts spent were in excess of vehicle registration fees and gasoline taxes, and a growing volume of highway debt financed the balance. Between 1924 and 1930, total state expenditures rose from \$15.6 million to almost \$55 million. The gasoline tax increases of 1929, to five cents, and of 1931, to seven cents, were largely in response to the rapidly rising burden of interest and principal payments necessitated by the dramatic increase in highway debt. By 1933, less than one cent of the seven cent gasoline tax was available for current operating expenses of the Highway Department.

The combination of excessive state and local borrowing, onset of the Great Depression, and corruption and collusion between state officials and an investment banking firm that handled many bond issues for the state, ultimately led to the loss of millions of dollars of state funds deposited in failed banks and a loss of

²¹ Thorogood, p. 112.

confidence in the state and its officials. Impeachment proceedings were considered against then Governor Horton. By June 30, 1932, “Tennessee direct State debt was \$89,072,000, including \$47,200,000 of short-term Highway debt, and the “assumed debt” of County Highway Bonds was \$32,420,301.”²² Excessive borrowing, much of it for highway and bridge construction, along with the bad timing of the Depression, brought the State to the brink of financial collapse.

A period of fiscal retrenchment and budget reductions took place with state spending falling from almost \$65 million in 1930 to only \$44.3 million in 1936. Valuable lessons were learned about the ultimate consequences of excessive amounts of debt-financed expenditures.

In 1937, at the recommendation of Governor Browning, the General Assembly passed legislation that created a plan to fund and fully retire over \$128 million of debt for which the State had a direct or indirect obligation to repay. The plan included consolidation of various debt issues and the pledging of various revenue sources (to fund the plan), including 5 cents of the gasoline tax and half the revenue from motor vehicle registration fees. Ultimately, the State regained control over its debt problem and its finances and has never since engaged in excessive reliance on debt financing.

Tennessee’s close encounter with bankruptcy during the 1930s was the result of a combination of excessive amounts of debt issued to finance highway and bridge construction during the 1925-1931 period and budget deficits occasioned by the Depression of the 1930s. Plans to pay for such construction with recurring tax revenues and short-term borrowing eventually were discarded in favor of long-term debt issues, with the predictable financial pressures that ultimately resulted. It may very well be that a legacy of this desperate financial period in Tennessee’s past is partly responsible for today’s current highway finance policy that avoids long-term borrowing.

It must be noted that Tennessee did return to financing a substantial part of its road program through borrowing following passage of the Federal Interstate Highway Program in 1956. This was likely done to insure that Tennessee had sufficient revenue to leverage the federal highway trust funds that were made available to the state for building portions of the interstate highway system. From 1958 through 1977, the State of Tennessee issued \$317 million in state highway bonds.²³ Since

²² Thorogood, p. 129.

²³ FHA, Highway Statistics Summary to 1995, Table SB-2021.

then, no further bonds have been issued.²⁴ The bonds issued during the 1958-1977 period have been retired.

Pay As You Go Financing

While Tennessee's disastrous experience with debt-financed road and bridge construction during the 1920s and 30s helps partly explain Tennessee's current disdain for debt-financed highway construction, debt-avoidance is not a universally held gospel by all involved with highway finance. Philip Burch who wrote one of the seminal books on highway finance would disagree with today's popular interpretation of highway "pay-as-you-go financing" as construction financed with current tax dollars. His interpretation of "pay-as-you-go-financing" referred to highway construction financed by borrowing. His argument would be that through debt financing, funds for capital projects are obtained up front, capital projects are built and paid for when needed, and interest and principal payments from current tax revenue over the life of such projects would represent pay-as-you-go financing on a pay-as-you-use-up, or wear-out, the capital item. He categorized paying for highway construction projects with current tax money as a "paying-before-you-go-policy."

Even Governor Peay would partially support such a financing arrangement. In 1929, in supporting limited borrowing for highway construction, he noted... "A part of the cost going into permanent construction may be fairly passed to the future. That part of our roads which exhausts with use should be borne by the generation using them."²⁵

Debt financing can be troublesome if not related to the ability to pay interest and principal over time in the future. However, our country would be a mere shell of itself if limited only to pay-as-you-go investment spending. All major sectors of our economy invest in capital goods: government, business, and households. How could businesses quickly respond to growth opportunities if limited to investments from current income only? How many households would own their own homes if mortgage financing were not available? Growth itself depends on capital goods formation. The critical decision in most advanced economies is not whether to borrow and invest in capital goods, but how much can safely be borrowed and repaid in the future.

²⁴ Based on data from the Federal Highway Administration. Many of the issues in the 1970s, before highway bond issues were ended, did not involve the interstate highway system.

²⁵ Thorogood, p. 119.

Tennessee Tax Rate History

Table 6 provides the history of tax rate changes in Tennessee on gasoline and motor fuel (primarily diesel fuel).

State Funding Sources

States raise revenue for highway use from two primary highway-user tax sources: motor fuel excise taxes and vehicle registration fees.²⁶ Registration fees are generally referred to as

first structure taxes since they are generally levied as a flat fee, especially on autos and light trucks, that does not vary with road usage. Some states base registration fees on vehicle weight, or carrying capacity in the case of trucks and tractors. Such fees partially reflect the fact that road costs, both construction and maintenance, rise as vehicle weight and load rises.

Motor fuel excise taxes are referred to as second structure taxes. Such taxes rise as highway usage, measured by miles traveled, increases and therefore the tax does somewhat reflect the increased costs associated with increased usage. Four states (Kentucky, New Mexico, New York, and Oregon) impose third structure taxes. Such taxes are generally imposed only on heavy vehicles, and are intended to reflect the much higher costs associated with the construction and maintenance of roads designed for use by such vehicles.²⁷

Table A2 in the Appendix provides current state and local tax rates on gasoline, diesel fuel, and gasohol. Tables A3 and A4 provide detailed data on registration fees and taxes. Registration fees and excise taxes combine to establish the overall cost imposed on those using state roads.

A measure of the overall tax burden imposed on road-users by states has been estimated for individual vehicle owners in the largest city in each state. Table 7

Table 6 Tennessee Tax Rate History

Gasoline		Motor Fuel	
Tax (cents per gallon)	Effective Date	Tax (cents per gallon)	Effective Date
2	1923	7	1941
3	1925	8	1963
5	1929	12	6/1/81
7	1931	14	6/1/86
9	6/1/81	15	6/1/87
12	7/1/85	16	4/1/89
16	6/1/86	17	4/1/90
19	4/1/89		
20	7/1/89		

Source: TN Department of Revenue

²⁶ A few states also impose what is termed third-structure taxes.

²⁷ Excise taxes alone cannot properly reflect the costs imposed on the roads by such large vehicles and their loads. The per-mile cost responsibility of a typical truck operating at 80,000 pounds, for example, is **more than double that of a typical truck operating at 60,000 pounds**. The 80,000 pound truck, however, uses **only about five percent more fuel** for the same amount of travel. Source: Oregon Highway Cost Allocation Study July 1, 1999.

presents the estimated annual cost of vehicle ownership due to taxes and fees for a family of four with income of \$50,000. The family is assumed to own one car only. Taxes and fees included are: gasoline taxes, motor vehicle registration fees, and any special excise or personal property taxes levied. Fourteen of the cities included in the study levied a personal property tax.²⁸ The data show Memphis, Tennessee with the lowest level of taxes/fees in the southeast, ranking 45th out of the 51 cities investigated.²⁹

²⁸ See District of Columbia report for complete descriptions of method used to estimate annual vehicle taxes and fees. The study provides data for the largest city in each state.

²⁹ It does not appear that the study included “wheel taxes” in their calculations.

Table 7 Estimated Auto Taxes, 2000

CITY	STATE	ANNUAL AUTO TAXES	RANK	CITY	STATE	ANNUAL AUTO TAXES	RANK
Bridgeport	CT	\$691	1	Milwaukee	WI	\$217	27
Jackson	MS	\$600	2	Detroit	MI	\$211	28
Providence	RI	\$547	3	Philadelphia	PA	\$206	29
Columbia	SC	\$537	4	Fargo	ND	\$206	30
Kansas City	MO	\$434	5	Jacksonville	FL	\$206	31
Wichita	KS	\$371	6	Portland	OR	\$191	32
Los Angeles	CA	\$364	7	Oklahoma City	OK	\$191	33
Charleston	WV	\$361	8	Houston	TX	\$190	34
Virginia Beach	VA	\$351	9	Baltimore	MD	\$188	35
Las Vegas	NV	\$347	10	Phoenix	AZ	\$186	36
Louisville	KY	\$315	11	Columbus	OH	\$185	37
Charlotte	NC	\$302	12	Manchester	NH	\$181	38
Billings	MT	\$300	13	Seattle	WA	\$178	39
Little Rock	AR	\$295	14	Wilmington	DE	\$170	40
Salt Lake City	UT	\$294	15	Burlington	VT	\$167	41
Honolulu	HI	\$279	16	Cheyenne	WY	\$164	42
Atlanta	GA	\$278	17	New Orleans	LA	\$163	43
Minneapolis	MN	\$265	18	Albuquerque	NM	\$153	44
Des Moines	IA	\$251	19	Memphis	TN	\$152	45
Birmingham	AL	\$247	20	Sioux Falls	SD	\$147	46
Chicago	IL	\$235	21	Newark	NJ	\$142	47
Denver	CO	\$235	22	Anchorage	AK	\$124	48
Boise	ID	\$233	23	Indianapolis	IN	\$110	49
Boston	MA	\$219	24	Omaha	NE	\$84	50
Portland	ME	\$218	25	New York City	NY	\$75	51
Washington	DC	\$218	26		AVG	\$254	
					MEDIAN	\$218	

Source: TACIR

APPENDICES

Table A1. Federal Highway-User Fee Rate and Distribution Data, 2001

USER FEE	TAX RATE	EFFECTIVE DATE	DISTRIBUTION OF TAX				
			HIGHWAY TRUST FUND		LEAKING UNDER-GROUND STORAGE TANK TRUST FUND	GENERAL FUND	
			HIGHWAY ACCOUNT	MASS TRANSIT ACCOUNT			
Fuel Taxes (Cents per Gallon)							
Gasoline	18.3	01/01/96	12	2	-	4.3	
	18.4	10/01/97	15.44	2.86	0.1	-	
Diesel and Kerosene fuel	24.3	01/01/96	18	2	-	4.3	
	24.4	10/01/97	21.44	2.86	0.1	-	
Special fuels ^{1,2}	18.3	01/01/96	12	2	-	4.3	
	Liquefied Petroleum Gas	13.6	10/01/97	11.47	2.13	-	-
	Liquefied Natural Gas	11.9	10/01/97	10.04	1.86	-	-
	Other Special Fuels	18.4	10/01/97	15.44	2.86	0.1	-
Neat alcohol (85% alcohol) ^{2,3}	9.25	10/01/97	7.72	1.43	0.1	-	
Compressed natural gas ⁴	4.3	10/01/93	-	-	-	4.3	
	4.3	10/01/97	3.44	0.86	-	-	
Gasohol ⁵	10 percent gasohol made with Ethanol	12.9	01/01/96	3.4	2	-	7.5
		13	10/01/97	6.94	2.86	0.1	3.1
		13.1	01/01/01	7.64	2.86	0.1	2.5
	7.7 percent gasohol made with Ethanol	14.142	01/01/96	5.242	2	-	6.9
		14.242	10/01/97	8.782	2.86	0.1	2.5
		14.319	01/01/01	8.859	2.86	0.1	2.5
	5.7 percent gasohol made with Ethanol	15.222	01/01/96	6.322	2	-	6.9
		15.322	10/01/97	9.862	2.86	0.1	2.5
		15.379	01/01/01	9.919	2.86	0.1	2.5
	Other Taxes - All Proceeds to Highway Account						
	Tires	0-40 pounds, no tax					
		Over 40-70 pounds, 15 cents per pound in excess of 40					
Over 70-90 pounds, \$4.50 plus 30 cents per pound in excess of 70							
Over 90 pounds, \$10.50 plus 50 cents per pound in excess of 90							
Truck and trailer sales ⁶	12 percent of retailer's sales price for tractors and trucks over 33,000 pounds gross vehicle weight (GVW) and trailers over 26,000 pounds GVW						
Heavy vehicle use	Annual tax: Trucks 55,000-75,000 pounds GVW, \$100 plus \$22 for each 1,000 pounds (or fraction thereof) in excess of 55,000 pounds Trucks over 75,000 pounds GVW, \$550						

Source: Office of Highway Policy Information, Federal Highway Administration.

Notes for Table A-1:

¹ Special fuels include benzol, benzene, naphtha, liquefied petroleum gas, casing head and natural gasoline, or other liquid used fuel in a motor vehicle except diesel, kerosene, gas oil, fuel oil, or a product taxable under the gasoline tax provisions. Prior to October 1, 1997, most special fuels were taxed at a single rate. Exceptions were LPG, which was not subject to the LUST tax, and neat alcohols, which are taxed at various rates depending on type and source of alcohol. Beginning October 1, 1997, LPG and LNG are taxed based on their energy content relative to gasoline. Other special fuels, with the exception of neat alcohols, are taxed at the basic special fuels rate.

² Neat alcohol made with alcohol derived from petroleum products (M85) is taxed as a special fuel.

³ In 1996, only \$166,000 was collected by Internal Revenue Service for taxes on neat alcohol and some other miscellaneous sources. There is no accurate way to distribute miscellaneous taxes to specific funds or accounts.

⁴ Compressed natural gas is taxed 48.54 cents per thousand cubic feet (MCF), with the Mass Transit Account receiving 9.7 cents per MCF and the Highway Account receiving 38.83 cents per MCF. Roughly converting these amounts to cents per gallon results in the entries in the table above.

⁵ Section 1920 of the Energy Policy Act of 1992 expanded the definition of gasohol effective January 1, 1993. Prior to the Act, gasohol was defined as a blend of gasoline and at least 10 percent fuel alcohol (by volume), and blends containing less than 10 percent alcohol were taxed as gasoline. Under the Act, the product now called 10 percent gasohol corresponds to the old definition. Two additional types of gasohol are also defined. The term 7.7 percent gasohol includes gasoline-alcohol blends where the alcohol content is at least 7.7 percent but less than 10 percent. The term 5.7 percent gasohol includes gasoline-alcohol blends where the alcohol content is at least 5.7 percent but less than 7.7 percent.

⁶ Section 1401 of the Taxpayer Relief Act of 1997 replaced a mechanism by which the fair market value of tires exceeding 40 pounds was deducted from the fair market value of a truck and replaced it with a credit for the excise tax paid. This provision was effective January 1, 1998.

**Table A2. Motor Fuel Excise Tax Rates, U.S. States and District of Columbia
January 2001**

State	Type of Fuel									Notes
	Gasoline			Diesel Fuel			Gasohol			
	Excise Tax	Add'l Tax	Total Tax	Excise Tax	Add'l Tax	Total Tax	Excise Tax	Add'l Tax	Total Tax	
Alabama	16.0	2.0	18.0	17.0	2.0	19.0	16.0	2.0	18.0	Inspection fee
Alaska	8.0		8.0	8.0		8.0	0.0		0.0	
Arizona	18.0		18.0	18.0		18.0	18.0		18.0	⁵
Arkansas ⁸	20.5	0.1	20.6	22.5	0.1	22.6	20.5	0.1	20.6	Environment surcharge
California	18.0		18.0	18.0		18.0	18.0		18.0	Sales tax applicable
Colorado	22.0		22.0	20.5		20.5	22.0		22.0	
Connecticut	25.0		25.0	18.0		18.0	24.0		24.0	
Delaware	23.0		23.0	22.0		22.0	23.0		23.0	Plus 0.5% GRT ⁵
Florida ²	4.0	9.3	13.3	16.1	9.3	25.4	4.0	9.3	13.3	Sales tax added to excise ²
Georgia	7.5		7.5	7.5		7.5	7.5		7.5	Sales tax applicable (3%)
Hawaii ¹	16.0		16.0	16.0		16.0	16.0		16.0	Sales tax applicable
Idaho	25.0	1	26.0	25.0	1	26.0	22.5	1	23.5	Clean water tax ⁷
Illinois ¹	19.0	0.3	19.3	21.5		21.5	19.0		19.0	Sales tax appl., environ. fee ³
Indiana	15.0		15.0	16.0		16.0	15.0		15.0	Sales tax applicable ³
Iowa	20.0		20.0	22.5		22.5	19.0		19.0	
Kansas	20.0		20.0	22.0		22.0	20.0		20.0	⁸
Kentucky	15.0	1.4	16.4	12.0	1.4	13.4	15.0	1.4	16.4	Environmental fee ^{4, 5}
Louisiana	20.0		20.0	20.0		20.0	20.0		20.0	
Maine	22.0		22.0	23.0		23.0	22.0		22.0	
Maryland	23.5		23.5	24.25		24.3	23.5		23.5	
Massachusetts	21.0		21.0	21.0		21.0	21.0		21.0	
Michigan	19.0		19.0	15.0		15.0	19.0		19.0	Sales tax applicable
Minnesota	20.0		20.0	20.0		20.0	20.0		20.0	
Mississippi	18.0	0.4	18.4	18.0	0.4	18.4	18.0	0.4	18.4	Environmental fee
Missouri	17.0	0.05	17.05	17.0	0.05	17.05	15.0	0.05	15.05	Inspection fee
Montana	27.0		27.0	27.75		27.75	27.0		27.0	
Nebraska	23.9	0.9	24.8	23.9	0.9	24.8	23.9	0.9	24.8	Petroleum fee ²
Nevada ¹	24.0		24.00	27.0		27.0	24.0		24.00	
New Hampshire	18.0	1.0	19.0	18.0	1.0	19.0	18.0	1.0	19.0	Oil discharge cleanup fee
New Jersey	10.5	0.04	10.5	13.5	0.04	13.5	10.5	0.04	10.5	Petroleum Products Tax
New Mexico	17.0	1.0	18.0	18.0	1.0	19.0	17.0	1.0	18.0	Petroleum loading fee
New York	8.0		8.0	8.0		8.0	8.0		8.0	Sales tax applicable ^{3, 4}
North Carolina	24.3	0.25	24.55	24.3	0.25	24.55	24.3	0.25	24.55	⁴ Inspection tax
North Dakota	21.0		21.0	21.0		21.0	21.0		21.0	
Ohio	22.0		22.0	22.0		22.0	22.0		22.0	Plus 3 cents commercial
Oklahoma	16.0	1.0	17.0	13.0	1.0	14.0	16.0	1.0	17.0	Environmental fee
Oregon ¹	24.0		24.0	24.0		24.0	24.0		24.0	

**Table A2. Motor Fuel Excise Tax Rates, U.S. States and District of Columbia
January 2001 (continued)**

State	Type of Fuel									Notes
	Gasoline			Diesel Fuel			Gasohol			
	Excise Tax	Add'l Tax	Total Tax	Excise Tax	Add'l Tax	Total Tax	Excise Tax	Add'l Tax	Total Tax	
Pennsylvania	12.0	13.90	25.90	12.0	18.80	30.80	12.0	13.90	25.90	Oil franchise tax
Rhode Island	28.0	1	29.0	28.0	1	29.0	28.0	1	29.0	LUST tax
South Carolina	16.0		16.0	16.0		16.0	16.0		16.0	
South Dakota ¹	22.0		22.0	22.0		22.0	20.0		20.0	
Tennessee ¹	20.0	1.4	21.4	17.0	1.4	18.4	20.0	1.4	21.4	Petroleum Tax & Envir. Fee
Texas	20.0		20.0	20.0		20.0	20.0		20.0	
Utah	24.5		24.50	24.5		24.50	24.5		24.50	
Vermont	19.0	1.0	20.0	25.0	1.0	26.0	19.0	1.0	20.0	Petroleum cleanup fee
Virginia ¹	17.5		17.5	16.0		16.0	17.5		17.5	⁶
Washington	23.0		23.0	23.0		23.0	23.0		23.0	0.5% privilege tax
West Virginia	20.5	5.15	25.65	20.5	5.15	25.65	20.5	5.15	25.65	Sales tax added to excise
Wisconsin ²	26.8		26.4	26.4		26.4	26.4		26.4	³
Wyoming	13.0	1	14.0	13.0	1	14.0	13.0	1	14.0	LUST tax
District of Columbia	20.0		20.0	20.0		20.0	20.0		20.0	
Federal	18.3	0.1	18.4	24.3	0.1	24.4	13.0	0.1	13.1	⁷ LUST tax

SOURCE: Federation of Tax Administrators (http://www.taxadmin.org/fta/rate/motor_fl.html.)

Note: The tax rates listed are fuel excise taxes collected by distributor/supplier/retailers in each state. Additional taxes may apply to motor carriers. For information of carrier taxes, see the IFTA, Inc. Home Page.

¹ Tax rates do not include local option taxes. In AL, 1 - 3 cents; HI, 8 to 11.5 cent; IL, 5 cents in Chicago and 6 cents in Cook county (gasoline only); NV, 1.75 to 7.75 cents; OR, 1 to 2 cents; SD and TN, one cent; and VA 2%.

² Local taxes for gasoline and gasohol vary from 5.5 cents to 17cents. Plus a 2.07 cent per gallon pollution tax.

³ Carriers pay an additional surcharge equal to AZ-8 cents, IL-6.3cents (g) 6.0 cents (d), IN-11 cents, KY-2% (g) 4.7% (d), NY-22.21 (g) 23.21.

⁴ Tax rate is based on the average wholesale price and is adjusted quarterly. The actual rates are: KY, 9% and NC, 7%.

⁵ Portion of the rate is adjustable based on maintenance costs, sales volume, or cost of fuel to state government.

⁶ Large trucks pay a higher tax, VA-additional 3.5 cents.

⁷ Tax rate is reduced by the percentage of ethanol used in blending (reported rate assumes the max. 10% ethanol).

⁸ The Arkansas gasoline & gasohol tax rate will increase to 21.5 cents on July 1, 2001. Kansas tax will increase by 1 cent, July 1, 2001.

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Suite 508, 226 Capitol Boulevard, Nashville, Tennessee 37243

(615) 741-3012; FAX: (615) 532-2443

email: tacir@state.tn.us

website: www.state.tn.us/tacir