

Transportation Funding Options for the State of South Carolina 2003-2022

Transportation Funding Series
Special Report No. 3

October 2003

The Jim Self Center on the Future



THE STROM THURMOND INSTITUTE OF GOVERNMENT & PUBLIC AFFAIRS
Clemson University • Silas Pearman Boulevard • Clemson, SC 29634-0125 • 864-656-4700 • FAX 864-656-4780

Technical Report Documentation Page

1. Report No. FHWA-SC-03-05		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle FUNDING OPTIONS FOR MEETING TRANSPORTATION INFRASTRUCTURE NEEDS IN THE STATE OF SOUTH CAROLINA. Transportation Funding Series Special Report No. 3, Transportation Funding Options for the State of South Carolina: 2003-2022				5. Report Date October 2003	
				6. Performing Organization Code	
7. Author(s) James B. London, Ellen W. Saltzman, John C. Skinner and H. Günsel Günaydin				8. Performing Organization Report No.	
9. Performing Organization Name and Address The Jim Self Center on the Future The Strom Thurmond Institute of Government and Public Affairs Silas Pearman Boulevard Clemson University, Clemson, SC 29634-0125				10. Work Unit No. (TRAVIS)	
				11. Contract or Grant No. SPR 622	
12. Sponsoring Agency Name and Address South Carolina Department of Transportation PO Box 191 Columbia SC 29202-0191				13. Type of Report and Period Covered Final Report	
				14. Sponsoring Agency Code	
15. Supplementary Notes This study was conducted in cooperation with the U.S. Department of Transportation, Federal Highway Administration.					
16. Abstract This report is the third and final report in a series addressing transportation funding in the state of South Carolina prepared by the Jim Self Center on the Future at Clemson University's Strom Thurmond Institute of Government and Public Affairs. This final report examines current and alternative funding options and the potential of these options to meet projected transportation infrastructure needs. Current and alternative funding options are considered in terms of efficiency, equity, accountability, and stability criteria. To assess the potential of current and supplemental funding options to meet future needs, a series of six scenarios were evaluated to determine the potential of meeting the \$56.9 billion target of the <i>South Carolina Multimodal Transportation Plan</i> over the period from 2003 to 2022. The baseline scenario based on current funding sources at current rates projects a revenue stream of \$26.3 billion over 20 years, leaving a \$30.6 billion shortfall. Alternatives considered include two increased federal funding scenarios, supplemental funding sources, and initial rate increases in state fuel taxes and vehicle registration fees combined with inflation indexing. With all of those options included, revenue streams meet or exceed projected needs. Yet removal of supplemental sources from the revenue mix reestablishes a budget gap of \$12.7 billion to \$17.1 billion over 20 years, even with increases in current state and federal sources and indexing. Based on this assessment, it is clear that the state must expand and diversify its funding base for transportation infrastructure. The approach must be strategic in terms of multimodal expenditure commitments. Higher fuel taxes with indexing are recommended although supplemental funding sources are also necessary. Longer term, alternatives to the fuel tax are required, while shorter term the incorporation of value pricing and more local government participation should be pursued.					
17. Key Word transportation, state, finance, funding, infrastructure, revenue, expenditure, motor fuel tax, motor vehicle fee, tolls, innovative finance,			18. Distribution Statement No restrictions. This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161.		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 84	22. Price

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FOR THE
STATE OF SOUTH CAROLINA
2003-2022

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SPECIAL REPORT NO. 3

BY

JAMES B. LONDON
ELLEN W. SALTZMAN
JOHN C. SKINNER
H. GÜNSEL GÜNAYDIN

OCTOBER 2003

The Jim Self Center on the Future



Acknowledgments

The authors gratefully acknowledge the assistance of the following persons in the preparation of this report: at the South Carolina Department of Transportation, Robert Probst, Keith Bishop, Michael Covington, Angela Feaster, John Gardner, Susan Johnson, William McIlwain, Ron Patton, and Debra Rountree; at the South Carolina Department of Revenue, Portia Richardson; and at the South Carolina Transportation Policy and Research Council, Earle Morris, Jr., Frank Elmore, and Norma Hamer.

The views presented here are not necessarily those of the Strom Thurmond Institute of Government and Public Affairs or of Clemson University. The Institute sponsors research and public service programs to enhance civic awareness of public policy issues and improve the quality of national, state, and local government. The Institute, a Public Service Activity (PSA) of Clemson University, is a nonprofit, nonpartisan, tax-exempt public policy research organization.

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EXECUTIVE SUMMARY

INTRODUCTION

The *South Carolina Multimodal Transportation Plan* projects \$56.9 billion in state transportation needs for roads, bridges, transit, and passenger rail over the next twenty years. At current funding rates, a \$30.6 billion gap exists between projected transportation infrastructure needs and the revenue base. Although all states are facing funding shortfalls in meeting long-term transportation needs, the situation in South Carolina is particularly daunting.

Since 1965, real per capita expenditures on transportation infrastructure in South Carolina have declined by 36 percent, placing the state last in the Southeast and 48th in the U.S. in per capita revenue growth over that time period. Since 1987 when the state motor fuel tax was last raised to 16 cents per gallon (cpg), the purchasing power of that tax rate has fallen by 38 percent. The equivalent state fuel tax in 2003 dollars would be 25.8 cpg. Currently the state ranks 48th in per capita expenditures on transportation and last in expenditures per state-maintained road mile. Add to that the state's eroding revenue base, infrastructure needs driven by high projected growth rates, and an increasing level of urbanization in the state, and the funding gap for transportation is expected to widen in the future.

This report is the third in a series of reports addressing transportation funding issues in the state of South Carolina. The first report in this series identified key issues and discussed options in a survey of 1,000 state drivers. Safety, road maintenance, and congestion were deemed important issues, and respondents indicated that they would be willing to pay to make improvements in those areas. Respondents also indicated that users of the transportation network should bear the financial burden.

The second report examined driving forces affecting the demand for transportation infrastructure and historical trends in transportation finance. It also provided a comparative state assessment of transportation funding. Among the key findings were that South Carolina has the second highest dependency on motor fuel taxes in the country with 88 percent of total transportation revenues coming from combined state and federal fuel taxes—that despite having the sixth lowest overall fuel tax rate (base rate plus sales tax) in the country. The South Carolina Department of Transportation (SCDOT) estimates that 92 percent of its current state-source revenue comes from fuel taxes. That funding base has failed to keep pace with inflation and utilization rates. Other current funding sources for transportation are limited, and a portion of those revenues are earmarked for uses other than transportation infrastructure.

Because of budget constraints, the state has made substantial inroads in terms of innovative transportation finance. South Carolina has the most active State Infrastructure Bank in the country and SCDOT's *27 in 7 Peak Performance Program* is accelerating 27 years worth of projects (if using only pay-as-you-go financing) into only

seven years of construction. Still, innovative finance mechanisms creatively adjust cash flow but do not increase the funding base. To meet identified transportation infrastructure needs, the state must both expand and diversify its revenue base.

FUNDING OPTIONS

This third report examines current and alternative funding options and generates a series of scenarios to assess the potential of current and alternative funding sources and higher user fees to meet transportation infrastructure needs identified in SCDOT's *South Carolina Multimodal Transportation Plan*. Current sources of funding for state transportation infrastructure include:

- state and federal fuel taxes,
- vehicle registration and carrier fees,
- roadway tolls, and
- local fees and local sales taxes.

Supplemental funding sources addressed in this report include:

- vehicle miles traveled (VMT) tax,
- road damage or weight/distance tax,
- development impact fees,
- value pricing, including congestion and parking fees,
- alternative fuel taxes,
- environmental levies,
- privatization, and
- other local revenue options.

Each option is considered in terms of efficiency, equity, accountability, and stability criteria. A strong case is made on efficiency grounds for user fees to finance the construction and maintenance of roads and bridges. Fuel taxes are the primary source of revenue for funding transportation infrastructure. From an efficiency perspective, tax rates should be set to recover the full cost of the system from users who benefit from that system. Equity issues include income distribution, urban/rural and regional geographic differences, and intergenerational concerns. Other transportation modes must be addressed with both fuel taxes and a diversified funding portfolio that includes a wider array of both state and local funding options.

Accountability in government program delivery has become still more important in recent years given increased demands and tight budget constraints. With transportation systems, accountability relates to assurance that public monies are put to their highest use, that programs are efficiently executed, and that expenditures meet with public acceptance. The final criterion addressed is stability in terms of the resource base. Transportation revenue bases have been eroded in recent years given the infrequency

of rate adjustments at both state and federal levels. Heavy reliance on static per-gallon fuel tax rates leaves states vulnerable to a widening budget wedge.

REVENUE PROJECTIONS

To assess the potential of current and supplemental funding options to meet future transportation infrastructure needs, a series of six scenarios were evaluated to determine their potential for meeting the \$56.9 billion revenue target of the *South Carolina Multimodal Transportation Plan*. Future transportation system utilization rates were estimated based on projected vehicle registrations, VMTs, and fuel consumption. Those utilization rates were used to project annual revenue streams.

The baseline scenario assumes that South Carolina continues to rely only on existing revenue sources at current rates. This scenario generates \$26.3 billion in revenues over the next 20 years, which represents a \$30.6 billion shortfall in funding for the state’s identified transportation infrastructure needs (Table S.1, Figure S.1). Closing the \$30.6 billion gap with the state fuel tax alone without increases in other funding sources would require an average fuel tax rate of 56.8 cpg over that time period, a 255 percent increase over the current rate of 16 cpg. This second scenario clearly shows that the funding gap is wide and that to close the gap using state fuel taxes alone is unrealistic.

Figure S.1
The South Carolina Transportation Infrastructure Funding Gap, 2003-2022:
Current Revenue Sources at Current Rates
(Billions of 2002 dollars)

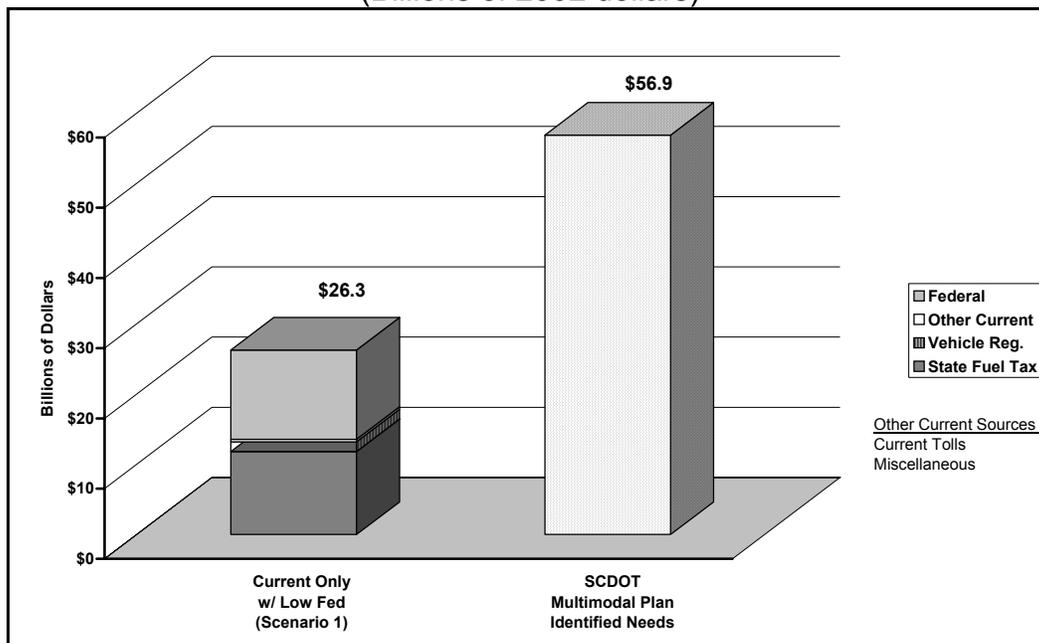


Table S.1
Six Scenarios for Transportation Infrastructure Funding: 20-Year Revenue Summary
(Billions of 2002 dollars)

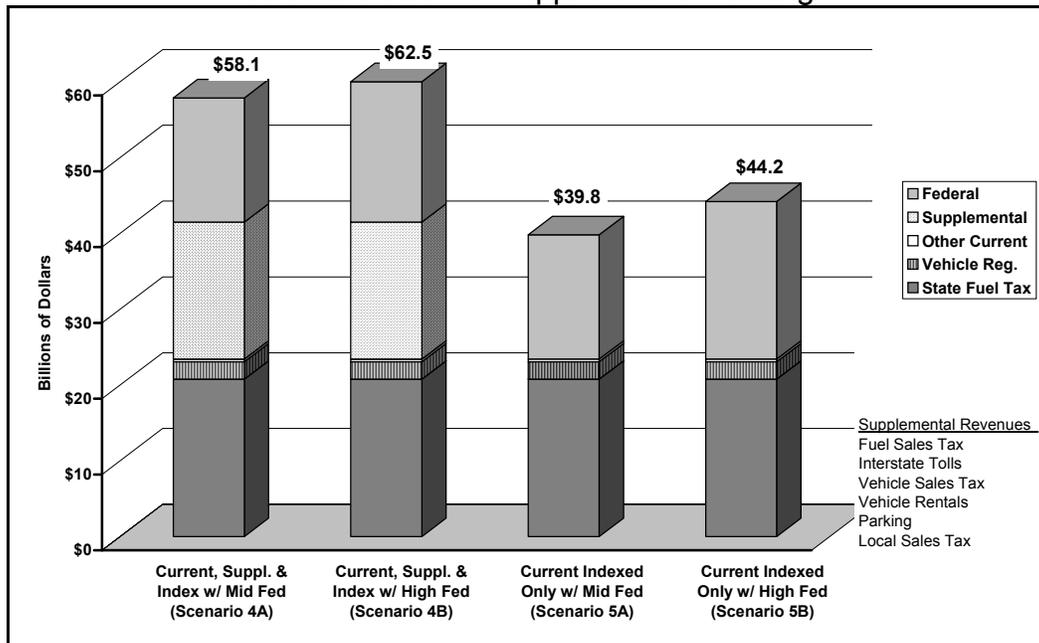
Revenue Sources	Scenario Number	Federal Funding	Total Revenue	Revenue Target	Surplus/ (Shortfall)
Scenario 1					
Current sources & rates only with current federal funding	1	Low	\$26.3	\$56.9	(\$30.6)
Scenario 2					
Current sources & rates with increased federal funding	2a	Moderate	\$30.0	\$56.9	(\$26.9)
Current sources & rates with increased federal funding	2b	High	\$34.3	\$56.9	(\$22.6)
Scenario 3					
Current & supplemental sources with increased federal funding	3a	Moderate	\$48.3	\$56.9	(\$8.6)
Current & supplemental sources with increased federal funding	3b	High	\$52.7	\$56.9	(\$4.2)
Scenario 4					
Current & supplemental sources with inflation-indexed fuel taxes and vehicle fees, and increased federal funding	4a	Moderate	\$58.2	\$56.9	\$1.3
Current & supplemental sources with indexed fuel taxes and vehicle fees and increased federal funding	4b	High	\$62.5	\$56.9	\$5.6
Scenario 5					
Current sources only with indexed fuel taxes and vehicle fees and increased federal funding	5a	Moderate	\$39.8	\$56.9	(\$17.1)
Current sources only with inflation-indexed fuel taxes and vehicle fees and increased federal funding	5b	High	\$44.2	\$56.9	(\$12.7)
Scenario 6					
Business Alliance For Transportation recommendations with increased federal funding	6a	Moderate	\$43.3	\$56.9	(\$13.6)
Business Alliance For Transportation recommendations with increased federal funding	6b	High	\$47.7	\$56.9	(\$9.2)

Subsequent scenarios introduce a series of enhanced revenue options including: increased federal funding, increased rates on current revenue sources, and supplemental revenue sources. Uncertainty exists concerning future federal funding levels as reauthorization of the federal transportation program is currently under consideration. To address this issue, federal funding projections were generated under two alternative funding assumptions. Introduction of moderate and high levels of federal support over current levels increases the state's transportation revenue potential to between \$30.0 billion to \$34.3 billion, respectively. Despite the injections of increased federal funding, a gap of between \$22.6 billion and \$26.9 billion remains.

Supplemental funding sources introduced include: a fuel sales tax, an interstate toll, removal of the cap on vehicle sales taxes and the exemption on car rental surcharges, local option sales taxes, and urban parking fees. A full allocation of these supplemental revenue sources generates an estimated \$20.5 billion in revenues for the state. Adjusting for previous legislative commitments, current and supplemental sources together are projected to generate from \$48.3 billion to \$52.7 billion, depending on the level of federal funding. In these scenarios, the funding gap is closed to between \$4.2 billion and \$8.6 billion. It is important to note that these figures assume enactment of all of the supplemental funding sources minus previous commitments and reasonable expectations on federal funding levels.

Despite the importance of the state motor fuel tax in meeting revenue targets, the fuel tax rate has been static since the last increase in 1987. Given the infrequency of rate increases, critical elements of the state’s funding strategy must include both initial rate increases and inflation indexing to mitigate further erosion of the funding base. With an initial bump in vehicle registration fees and indexing of both vehicle registration fees and state fuel taxes, revenues are projected to increase to between \$52.9 billion and \$57.2 billion without an initial fuel tax rate increase. By also adding an initial five cpg increase in the state motor fuel tax rate, revenues are projected to increase to between \$58.2 billion and \$62.5 billion, depending on the level of future federal funding received by the state (Figure S.2).

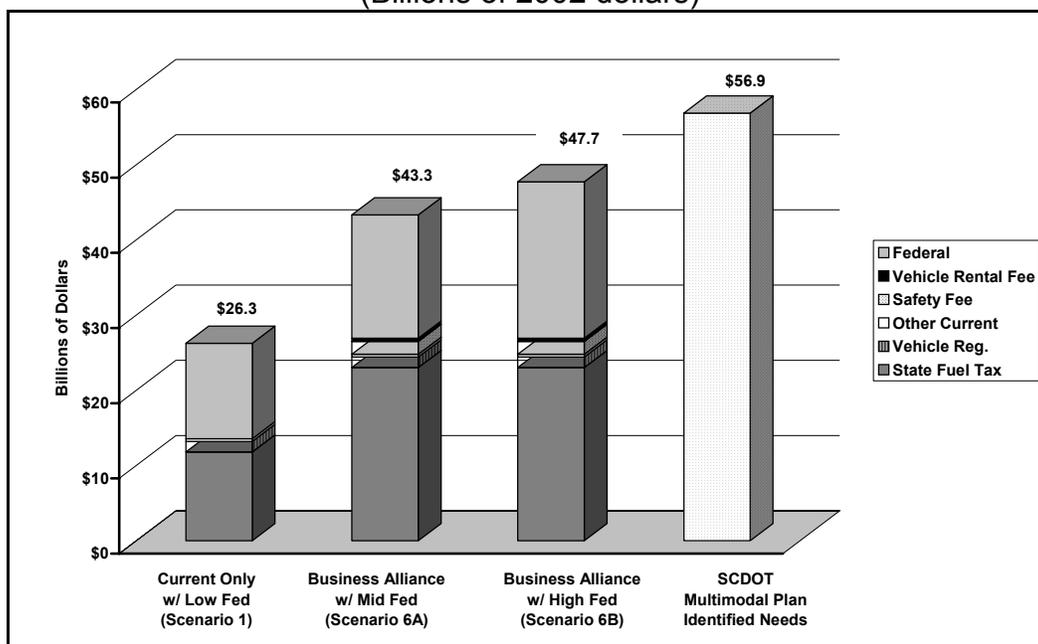
Figure S.2
The South Carolina Transportation Infrastructure Funding Gap:
Current and Indexed Revenue Sources
With and Without Supplemental Funding



The above scenarios come close to meeting—or at the high end exceeding—the state’s transportation infrastructure revenue requirements. Yet all of the supplemental sources included in these scenarios will be politically contentious to at least some segments of the population whether the revenue sources are sales taxes on fuel, interstate tolls, or local option sales taxes for urban infrastructure. Removal of all of the supplemental sources from the revenue mix reduces projected revenues to between \$39.8 billion and \$44.2 billion and creates a revenue shortfall of between \$12.7 billion and \$17.1 billion, even with initial increases in both fuel taxes and vehicle registration fees and inflation indexing of both (Figure S.2). To fully close that gap with state fuel tax revenues would require an average state motor fuel tax rate of between 44.1 cpg and 49.9 cpg over the 20-year period. These figures suggest that it is very important to not only increase the funding base but also to diversify the funding base to meet projected transportation requirements.

The final scenario is based on recommendations of the Business Alliance for Transportation, a working group of the South Carolina Transportation Policy and Research Council. The Business Alliance released recommendations in January 2003 calling for an additional \$326 million per year in increased revenue sources to meet transportation infrastructure needs (Figure S.3).

Figure S.3
 The South Carolina Transportation Infrastructure Funding Gap:
 Business Alliance for Transportation Policy Recommendations*
 (Billions of 2002 dollars)



*Business Alliance recommendations applied to STI model.

When the Business Alliance's policy recommendations were applied to the revenue projection model used in this report, their numbers generated an additional \$13.4 billion in revenue over current sources over the next twenty years. Total revenue with alternative federal assumptions ranges from \$43.3 billion to \$47.7 billion, leaving a shortfall of between \$9.2 billion and \$13.6 billion, depending on the future level of federal aid received. To be fair to the Business Alliance, the group's primary interest is in highway improvements. Its recommendations have won strong support in diverse sectors of the business community and move the state in the right direction, but some additional revenue sources will be required to fully close the funding gap.

RECOMMENDATIONS

Given the current state budget crisis, meeting significant general revenue shortfalls in the new fiscal year will dominate the General Assembly's political agenda. Yet, a transportation funding crisis is looming on the horizon. To address this issue with a viable transportation funding strategy will require a thorough assessment of funding options and the political will to implement a long-term funding program. There is no genie in the bottle.

It is hoped that this report and the other two reports in the series help to shed light on the magnitude of the transportation infrastructure problem in South Carolina and offer some insight on how it might be addressed. As the state moves toward meeting long-term transportation needs, the following recommendations are strongly suggested:

- The state must expand and diversify its funding base to close a significant and widening transportation funding gap over the next twenty years. To address this funding gap, a detailed financial plan should be developed to meet long-term infrastructure needs. Short-term stopgap measures will not solve the problem.
- The financial plan must address multimodal transportation needs as well as highways and bridges. Highways continue to be the dominant element of the state's surface transportation system, but intermodal connections with both passenger and freight transfer facilities will be increasingly important to meet South Carolina's projected demographic and economic demands.
- Given significant transportation needs and tight budget constraints, it is important that the state be strategic in terms of transportation infrastructure investments. High priority needs that address safety, economic development, and congestion must be identified. Then, objective funding criteria should be used to make sure that available funds are targeted to highest priority construction and maintenance expenditures.
- The transportation funding mix should promote efficiency in system delivery and utilization with heavy reliance on user fees and full cost accounting principles. At

the same time, funding options must incorporate equity, accountability, and stability criteria.

- The state motor fuel tax will continue to be South Carolina's primary funding source for transportation infrastructure in the immediate future. Since the last state fuel tax increase in 1987, the purchasing power of the state fuel tax has been reduced by 38 percent. The equivalent tax rate in 2003 dollars is 25.8 cents per gallon (cpg), or 9.8 cpg higher than the current rate. The fuel tax first must be raised to capture lost purchasing power and then be indexed for inflation to prevent future revenue erosion. Stabilization of the fuel tax base is essential.
- Greater reliance on other current revenue sources should be developed, with higher shares of these revenues used to support transportation infrastructure improvements. Increased utilization of state general fund revenues will be necessary to address transportation expenditures that cannot be fully covered by user fees.
- New supplemental funding sources must be developed to broaden the transportation funding base. Even with increased federal funding, sole dependence on the state fuel tax would require an immediate jump to an average state fuel tax rate of between 46 cpg and 52 cpg to close the projected funding gap over the next 20 years. If federal funding does not increase over current levels, the fuel tax rate would need to be as high as 57 cpg to close the funding gap. These rates are politically unacceptable and require that additional funding sources be introduced.
- Over the long term, the state will need to consider alternatives to the fuel tax to address revenue losses associated with expected technological change and greater fuel efficiency in vehicles. Smart odometer and privacy sensitive Global Positioning Satellite (GPS) units are in development and should be operational within the next decade. The state should be proactive in terms of an eventual transition to a vehicle miles traveled (VMT) and/or a weight/distance-based funding system.
- Value pricing and congestion fees should be introduced to deal with increasing congestion in the state's urban areas and tourism destinations. By promoting greater efficiency in the use of existing infrastructure, new capital expenditures may be delayed or in some cases become unnecessary.
- Local government participation in meeting transportation priorities will be increasingly important. That participation may involve greater cost sharing on priority projects, but doing so also will require more funding options for local governments to meet expanded obligations.

CHAPTER ONE

INTRODUCTION

The *South Carolina Multimodal Transportation Plan* (SCDOT 2003e) identifies \$56.9 billion in transportation needs for roads, bridges, mass transit, and passenger rail over the next twenty years. Yet a significant funding gap exists between these needs and the state's current transportation revenue base. Although all states are facing funding shortfalls with respect to transportation needs, the situation in South Carolina is particularly daunting given the state's low funding levels per capita and per road mile, high projected growth rates, and increasing level of urbanization.

This report is the third in a series of reports addressing transportation funding issues in the state of South Carolina. The first report in this series identified key issues and discussed options in a survey of 1,000 state drivers (London et al. 2001). Safety, road maintenance, and congestion were deemed important issues, and respondents indicated that they would be willing to pay to make improvements in those areas. Respondents also indicated that users of the transportation network should bear the financial burden.

The second report examined driving forces affecting the demand for infrastructure and historical trends in transportation finance. It also provided a comparative state assessment of transportation funding. Among the key findings were that South Carolina has the second highest dependency on fuel taxes with 88 percent of total transportation revenues coming from combined state and federal fuel taxes. This high dependency rate occurred despite the state having the fifth lowest overall fuel tax rate in the country. The funding base for transportation infrastructure has failed to keep pace with inflation and rates of system utilization. Since 1965, real per capita expenditures on roads, highways, and bridges in South Carolina declined by 36.1 percent, putting the state last in the Southeast and 48th in the U.S. in revenue growth over this time period (London et al. 2002).

This report examines the role of current and supplemental revenue options in funding future state transportation infrastructure needs. Each option is considered in terms of efficiency, equity, accountability, and stability criteria.

To assess the potential of current and supplemental revenue options to close the funding gap, a series of six scenarios were examined to determine their potential for meeting the \$56.9 million target of the *South Carolina Multimodal Transportation Plan*. The first scenario begins with current funding options and current rates. Successive revenue projections incorporate mid- and high-level federal funding assumptions, supplemental revenue sources, and higher rates for current revenue sources. Individual scenarios illustrate funding gaps that remain to be closed and the average state fuel tax rates required to generate the revenues needed to fill those gaps. Revenue projections

are based on underlying annual estimates of system utilization, including registered vehicles, vehicle miles traveled (VMT), and fuel consumption.

Based on the findings of these three reports, implications of the state's current and future funding transportation situation are discussed. A series of recommendations are presented to address immediate and longer-term transportation funding issues in the state of South Carolina.

CHAPTER TWO

FUNDING CRITERIA AND FUNDING INSTRUMENTS

FUNDING CRITERIA

Revenue sources for state transportation infrastructure should be evaluated in terms of a number of criteria including in particular efficiency, equity, accountability, and stability.

EFFICIENCY

Under efficient conditions, resources are allocated to their highest and best use, and net benefits are maximized. In the private sector, efficiency is achieved through market transactions with price as the equilibrating medium. Prices relay signals to buyers and sellers about resource shortages, technological change, and consumer demand.

With public expenditures, user fees are used to mimic market forces with beneficiaries of services paying to support that service provision. Road and bridge tolls and motor fuel taxes are user fees that serve as a proxy for transportation system use and roadway damage. Indeed, many of the nation's early toll roads were private endeavors with users fully supporting the road system. The major impediment to tolls today is the high cost of toll collection that makes them unfeasible except on high volume, limited access roadways and bridges.

From an efficiency perspective, the key is to send the right signals with fees (or prices) set to reflect full costs. Private as well as public markets are distorted when full costs are not included in transactions. Resources that are underpriced are overused, and revenues will fall short of meeting the full cost of service provision.

In the case of transportation systems, nonmarket costs are associated with safety and congestion issues. If it is collectively determined that safety is a priority, the state may set performance standards that take priority. Market forces might then be used to promote efficiencies within that context.

For example, congestion imposes costs on transportation system users in terms of time, vehicle wear and fuel inefficiency, and it is becoming more acute in urban and suburban areas of the state. Congestion also imposes more generalized costs on residents of the state by increasing the level of environmental damage caused by vehicles, particularly air quality. In areas of high congestion, greater attention is being given to *value pricing* transportation systems to reflect the increasingly scarce capacity of congested facilities.

Transportation is a multiobjective infrastructure program. Efficiency is one of the primary objectives that can help maximize benefits to transportation system users within fiscal constraints. Market-like transactions can help to promote system efficiencies, but within

the context of public sector programs they are a means to an end rather than an end in themselves.

EQUITY

An equitable allocation system is one that is fair to all parties in terms of access and financial burden. There are many dimensions to equity in transportation delivery. Perhaps the most significant equity issue in terms of all public services is that of ability to pay. Some public services are provided at no or low cost to disadvantaged groups that are less able to pay than other segments of society. Some affordable transportation options include public transit services and bicycle and pedestrian facilities.

In transportation, equity also applies to the distribution of the payment burden between sectors in the economy. The most clearly defined split is between individuals and businesses. Within the business community, the split is between manufacturers, agriculture, services, and trucking and other transport sectors. All of these economic sectors are dependent in varying ways on a dependable transportation system.

Equity issues apply to different transportation modes as well. Transportation modes more closely aligned with benefits-based funding such as highways should be more self sufficient than modes such as transit that also have ability to pay and nonmarket benefit attributes.

Revenue collections and expenditures should be equitable in terms of geographic regions. In South Carolina, ability to pay and transportation needs vary considerably between urban and rural areas of the state and between upstate, midlands and coastal regions. Geographic equity assumes that the payment burden also is shared fairly between in-state and out-of-state users of the transportation system. Particularly in a state with a large tourism sector and pass-through interstate utilization, in-state users prefer that out-of-state users pay their fair share of infrastructure costs.

Intergenerational equity implies that the financial burden for transportation infrastructure is spread fairly between current and future users. The use of debt financing to advance construction and spread payments over two or more decades enhances intergenerational equity. Transportation infrastructure is a long-term investment. If it is well built and maintained and still serving users effectively, transportation infrastructure provides long-term benefits. Indeed, failure to adequately provide transportation infrastructure may leave the next generation constrained in terms of development potential. At the same time, excessive debt financing for highways or transit systems may pass on disproportionate debt service obligations to the next generation of users.

ACCOUNTABILITY

In a period of tight budgets when state agencies are being asked to do more with less, new program initiatives and funding options are viewed increasingly in terms of accountability. Are the programs addressing perceived needs; are transportation funds

being targeted to priority transportation needs? To enhance accountability, new funding for transportation must show a clear connection between revenue sources and program expenditures. That is, an increase in transportation taxes or fees should be earmarked specifically for transportation system improvements that are deemed to be priority issues.

Funding alternatives should also be viewed in terms of administrative efficiency. Currently, the overall administrative cost (including research and planning functions) for South Carolina's system of highways, roads and bridges is comparatively low at \$1,885 per state-maintained road mile in 2001, or less than 30 percent of the average level of administrative expenditures per mile of \$6,574 nationwide. State spending on highway administration ranged from a low of \$1,425 per mile in Arizona to a high of \$94,535 in New Jersey (Hartgen 2003). Further funding alternatives must be considered in terms of administrative efficiency and collection costs. High collection costs associated with individual revenue sources reduce net revenues for system support.

New funding alternatives must also meet with public acceptance. A survey of 1,000 households conducted in 2001 as part of this project indicated that respondents were tax averse, preferring fees—including development impact fees and tolls—to taxes. Property taxes and fuel taxes rated particularly low on the list of preferences. At the same time, respondents strongly endorsed the concept of beneficiaries paying to support transportation infrastructure. Furthermore, despite their aversion to taxes, respondents indicated that they would be willing to pay higher taxes and fees to support safety improvements, road maintenance, and reduced congestion. In each case, favorable responses were registered by better than 70 percent of respondents (London et al. 2001).

State and local referendums to support transportation improvements have had mixed success across the country with more being defeated than approved (Ernst, Corless, and McCarty 2002). Referendums were more likely to be approved where the referendum was tied to a detailed plan indicating exactly what will be provided from the new revenues. Voters want to know what they are paying for; as a result, vague capital projects are likely to be defeated.

STABILITY

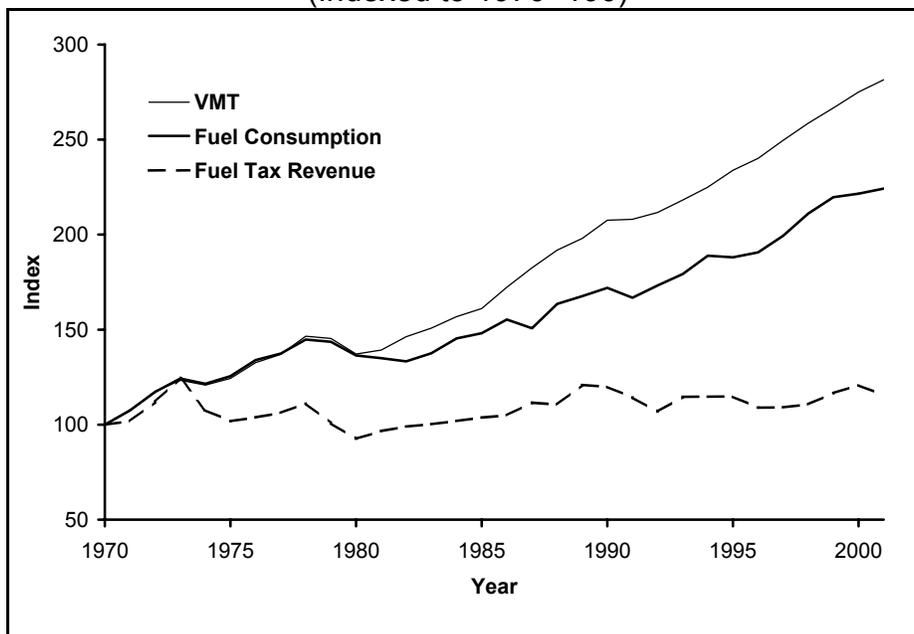
Revenue streams need to be stable and predictable. Although taxpayers dislike property taxes, property taxes are a stable revenue source because periodic reassessments capture increases in property value and millage rates adjust to meet budget requirements. Sales and income taxes are somewhat more volatile and fluctuate with national and regional economic conditions.

The stability of revenue from the motor fuel tax is problematic because of the way the tax is levied. The motor fuel tax base—gallons consumed—continues to expand as VMTs have outdistanced fuel economy gains in recent years. Thus tied to fuel consumption, current dollar receipts from the state motor fuel tax have increased

steadily in recent years, but since 1990 they have only increased at about half the rate of growth in overall road construction prices (Figure 2.1).

Even more troubling, because the state motor fuel excise tax rate of 16.0 cents per gallon (cpg) has remained constant since 1987, inflation-adjusted (constant dollar) revenues from the fuel tax decreased by 12 percent between 1990 and 2001. Because of the effects of inflation, South Carolina's motor fuel tax in 2003 is only 62 percent of its 1987 value. Put another way, to be equivalent to 16 cpg in 1987 the state fuel tax would need to be 25.8 cpg in 2003.

Figure 2.1
Vehicle Miles Traveled, Motor Fuel Consumption and Fuel Tax Revenue
(Indexed to 1970=100)



Source: London et al. 2002.

Finally, transportation revenue sources must be structured in a way that they don't negatively impact interjurisdictional competitiveness. Decidedly different fuel tax rates reflected in fuel prices may cause drivers to fill up in adjacent jurisdictions. For example, New York's tax rate on gasoline is the nation's highest at 32.35 cents per gallon (London et al. 2002). Some New York residents may be willing to go out of their way to buy gasoline in the neighboring states because of substantially lower fuel tax rates in these states. Local taxes or fees to support specific projects like mass transit systems may also become a problem if the perceived difference is enough to change consumer buying habits.

TRADITIONAL FUNDING INSTRUMENTS

The majority of transportation revenue needs in the foreseeable future will be met with traditional funding instruments. The amount of revenue collections and relative mix of options may shift to meet new funding requirements. The following section assesses the rationale, relative effectiveness, and current contribution of each of these funding options.

MOTOR FUEL TAX

The motor fuel tax conforms to the benefits principle in that users pay to support transportation system construction and maintenance. Although not a perfect fit, the fuel tax is a proxy for road use tied to mileage driven, vehicle weight and vehicle technology. From an efficiency perspective, road users should pay full costs including nonmarket costs such as safety, congestion, and air pollution.

Fuel taxes are regressive because lower income individuals who drive may pay a higher share of their income in fuel expenditures. They also strike disproportionately among consumers in different economic sectors and using different transportation modes. Some transition to allow market adjustments may be appropriate, but holding costs artificially low will reinforce long-term transportation inefficiencies.

Fuel taxes are easy to administer because the system is already in place and generating additional revenues is merely a matter of changing rate schedules. Although not yet a significant issue, increased fuel efficiencies and alternative fuels will cut into revenue capacity over time. Recent technological improvements have targeted horsepower rather than fuel efficiency, and modest fuel efficiency gains in vehicle fleets have been more than offset by increased VMTs. Over the longer term, hybrid engines, fuel cell technology, and alternative fuels have the potential to reduce traditional fuel consumption enough to require a reassessment of fuel-based revenue collections.

The state of South Carolina has the second highest motor fuel tax dependency in the U.S. Currently, the fuel tax accounts for 79.8 percent of state-generated transportation revenue. Combining federal and state motor fuel taxes, fuel taxes account for 88.0 percent of total transportation revenue collections in South Carolina (Table 2.1).

Despite this high fuel tax dependency, only five states have a lower adjusted fuel tax rate than South Carolina and the tax rate has not been increased since 1987.¹ As the state looks to expand transportation revenues, fuel taxes will continue to be a major part of the mix. Fuel tax adjustments should be indexed to deal with the loss of purchasing power between infrequent rate changes. Issues relating to technological change will need to be addressed. Expectations are that “smart” odometers or privacy sensitive GPS (global positional system) units will be available for implementation as early as the year 2010.

Revenue from the state's 16.0 cent per gallon (cpg) motor fuel excise tax is distributed among several state agencies: the South Carolina Department of Transportation (SCDOT), county transportation funds, the State Department of Natural Resources, and the South Carolina Coordinating Council for Economic Development.² SCDOT estimates that the state highway fund will receive only about 79 percent of total state motor fuel tax collections in 2002-03.³

Table 2.1
State Motor Fuel Tax Rates and Fuel Tax Dependency by Geographic Area: 2000

	Motor Fuel Excise Tax Rates		Fuel Tax Revenue Shares	
	Excise Tax Only	Adjusted Rate (incl. sales tax)	State + Federal as % of Total	State as % of State-Source
National Average	19.20 cpg	21.85 cpg	62.8%	49.4%
Southeastern Average	17.10 cpg	19.66 cpg	66.3%	52.0%
South Carolina	16.00 cpg	16.75 cpg	88.0%	79.8%

Source: London et al. 2002

VEHICLE REGISTRATION AND MOTOR CARRIER FEES

The rationale for vehicle registration fees stems most directly from the basic per-vehicle administrative cost of transportation system operations. These fees are used to offset administration and record keeping for driver's licenses, vehicle registrations, vehicle inspections, and for some roadway enforcement. It can be argued that those fees should fully recover costs associated with those operations. Vehicle registration fees also allocate costs of system use more heavily on owners of larger commercial trucks and motor carriers, which cause significant highway wear and tear.

Equity may be an issue with owners of a large number of vehicles. To the extent that vehicle registration fees are used exclusively for the administration and recordkeeping operations described above, they will remain defensible. But if these fees are used for road construction and maintenance in addition, it can be argued that some fee reduction should be given beyond a certain threshold per licensed driver, especially for noncommercial passenger vehicles.

In South Carolina, vehicle registration fees for a typical passenger car are \$12 per year (biennial fee; annualized), the 3rd lowest rate in the nation and well below the regional and national averages of \$22 and \$33 in 2001, respectively. For commercial trucks (e.g., five axle motor carriers), South Carolina's average annual registration fee was \$810 (biennial fee; annualized) in 2001. The state ranked 41st in the country and was exceeded by both the regional and national averages of \$1,132 and \$1,210, respectively. In 2001 the state of South Carolina generated \$67.0 million in vehicle registration fees (drivers' licenses and other miscellaneous vehicle fees excluded) (USDOT FHWA *Highway Statistics 2001*).

The revenues generated by vehicle registration and motor carrier fees in South Carolina are distributed as follows. Revenues from registration fees for passenger vehicles, buses, motorcycles and other specialized noncommercial vehicles are shared between SCDOT (20 percent) and the South Carolina General Fund (80 percent). The South Carolina Transportation Infrastructure Bank receives 100 percent of revenues from commercial trucks, trailers, truck tractors, and farm trucks.⁴

ROAD AND CROSSING TOLLS

Like motor fuel taxes, the rationale for road and crossing tolls is based on the benefits principle. Efficiencies are realized as the users of a given highway segment or bridge crossing pay to support that facility. Because of collection costs associated with toll facilities, tolls work best on heavily traveled roads and bridges where traffic volume warrants the costs incurred. Intelligent transportation system technology (ITS) that scans vehicles rather than making them stop at tollbooths is helping to reduce both costs and delays of toll facilities.

Road tolls are not used extensively in South Carolina and the state has no crossing tolls. In 2000, \$4.7 million was generated from the Cross Island Parkway on Hilton Head with about \$5.5 million expected in 2003. The new Southern Connector in Greenville County is a privately financed toll road and its toll receipts are not state revenues. At least 29 other states make use of toll revenues. In Delaware, 37.1 percent of state own-source revenues were derived from tolls in 2000. South Carolina generated less than one percent of its own source revenues used for highways from tolls in 2000 compared to regional and national averages of 5.6 and 8.2 percent, respectively (London et al. 2002).

For large capital projects with heavy traffic utilization, road and crossing tolls may be an appropriate way to raise revenue. This may be particularly true given tourism-driven transportation demands along the South Carolina coast. For example, time conscious vacationers may be willing to pay going in and out of beach destinations to avoid heavy congestion. The state of Florida has made heavy use of tolls to support its road network and a large share of those revenues come from nonresidents. Under those circumstances, Florida helps defray infrastructure costs with a user fee on out-of-state beneficiaries who would have otherwise underpaid for road use. Adjustment can be made with coupon books or electronic scanning for frequent users (Florida Department of Transportation 2002).

Changes to federal legislation during the 1990s eased prohibitions on the use of tolls on federally funded non-interstate highways. Previously states only were allowed to use tolls to support state highways, bridges, or tunnels that did not receive federal funds. Today federal-aid highway funds can be used by states, with certain restrictions, to construct new toll roads and to reconstruct existing facilities and convert them to tolled facilities. Federal highway funds also may be used to support the reconstruction of existing toll roads, bridges, or tunnels. Federal law governs the use of toll revenues from these facilities, which is restricted to debt service, operations, and maintenance. Where

toll roads are developed in public-private partnerships, toll revenues also may be used to support a reasonable return on private investment (USDOT FHWA 2002a).

With only two exceptions, federal law has continued to prohibit the use of tolls by states on interstate highways. States are allowed to convert bridges and tunnels on interstate highways into toll facilities and use the money collected to finance the facility's reconstruction or replacement. The Transportation Equity Act for the 21st Century (TEA-21), the multiyear legislation authorizing the federal government's current highway program, also established the Interstate Reconstruction and Rehabilitation Pilot Program. This program allows the U.S. Department of Transportation (USDOT) to designate up to three pilot projects in which interstate segments may be converted into toll roads. To meet the selection criteria, the cost of interstate improvement or reconstruction must exceed available funding. In addition, the toll revenue must be required for the project to move forward (USDOT FHWA 2002a). To date no states have applied for this program and it remains open to applicants.

The potential for the future implementation of toll facilities in South Carolina is good. Federal funds now can be used to develop new non-interstate toll facilities, and the state's two major north-south interstates have the traffic volumes and reconstruction needs that are likely to make them good candidates for an interstate toll pilot project (SCDOT 1999, 2003b). The proposed interstate tying into Myrtle Beach may be a very good candidate as a toll road. But tolls are never popular revenue-raising devices and public opposition may be the largest obstacle to their implementation.

GENERAL FUND APPROPRIATIONS

General fund appropriations can be justified in large part by the public goods aspect of transportation systems. These public goods include economic development benefits from the transportation system that accrue to the state as a whole and extend beyond individual users. Such benefits are stimulated through increased development capacity or the removal of development constraints.

Also of primary concern is the issue of transportation system safety, where some minimum level of safety should be maintained. It may be appropriate to support safety programs in part through charges to individual users but once safety programs are in place they are a collective good. Programs to reduce congestion or air pollution to minimum thresholds also provide collective benefit. Much of the cost associated with peak hour roadway congestion or transportation-generated air pollution can be captured with user fees. To the extent that does not occur, public appropriations may be necessary. From an equity perspective, general funds are appropriate to use to provide transportation alternatives for those unable to afford other options. Public subsidy of mass transit and paratransit systems meets this criterion.

Surveys of South Carolina households indicated less aversion to general fund appropriations funding than most other transportation funding alternatives in part because payments are less direct (London et al. 2001). A less favorable response was

given for the use of state income tax receipts, yet income taxes are the primary source of general fund revenues. Over reliance on state general fund appropriations will lead to transportation system inefficiencies because individual users are distanced from revenue requirements.

In recent years the state general fund contributed about \$500,000 per year to SCDOT's budget, although it no longer does so. These revenues were earmarked for mass transit and amounted to only about one tenth of one percent of SCDOT's own-source revenues. In comparison, median contributions from the state general fund were 2.8 percent nationally and 2.1 percent in the Southeast in 2000 (London et al. 2002). In the future, safety issues and expanded transit needs to address accessibility, congestion and air quality requirements may warrant greater reliance on general fund appropriations in South Carolina.

SPECIAL LOCAL SALES TAXES

Unlike the fuel tax, sales taxes are not tied to road use and are inappropriate as a primary funding source for highways. Yet sales tax levies may make sense as a supplemental revenue source for transportation in the state's larger counties that serve as regional commercial and employment centers. These counties bear a disproportionate transportation burden. As urban areas in South Carolina continue to grow, they will incur heavy capital costs for transportation infrastructure such as expressways, transit systems, and nonvehicular improvements. For that reason, a local option sales tax earmarked for significant urban infrastructure investments may be justified.

In addition to the state's regional population centers, special local sales tax levies may make particular sense for tourism destinations like Charleston, Myrtle Beach, and Hilton Head Island. In these locations, a significant portion of retail sales are derived from nonresidents that might otherwise not pay an appropriate share of the cost of an infrastructure base designed to meet peak tourist season traffic and ridership volumes.

South Carolina's state sales and use tax is set at five percent. The first four percent goes to the state's general fund and the fifth penny is earmarked for primary and secondary education. Since 1990, 27 of the state's 46 counties have also elected to impose an additional one percent local option sales tax, most of which is used for property tax rollbacks.

Under current state law, counties may add an additional special local sales tax for education, capital projects (which may include transportation infrastructure), or transportation projects.⁵ These special local sales taxes require approval by referendum and end when the project is completed or a specified date is reached. To date only two counties—Beaufort and York—have adopted special local sales taxes for transportation. Four additional counties (Chester, Jasper, Newberry, and Orangeburg) have adopted special local sales taxes for capital projects. The South Carolina Supreme Court recently threw out Charleston County's November 2002 half-cent sales tax election after

language on the ballot was contested. Revenues from the tax were pledged in part to support public transportation and congestion mitigation, including three major road projects and the new Cooper River Bridge.

With limited revenue options for transportation available it is likely that more special local sales tax ballot initiatives will appear. Successful initiatives will require clear identification of perceived needs, a detailed list of projects and associated costs, and a delineation of the geographic distribution of payments.

A one percent special local sales tax for transportation in the state's 13 most urbanized counties is estimated to generate about \$350 million per year that could be earmarked for urban transportation infrastructure improvements.

MOTOR VEHICLE SALES TAXES

Sales tax revenues are generated from both new and used motor vehicle sales and from car rentals. The rationale for imposing taxes on new and used motor vehicle sales is that a part of transportation infrastructure costs are tied to vehicle loading on the roadways; thus some initial fixed cost expenditure per vehicle may be warranted. Vehicle sales are not a good indicator of actual road use.

Motor vehicle sales taxes in South Carolina were capped at \$300 in 1984.⁶ The argument for maintaining this cap has been that motor vehicle sales are a stimulus to the state's economy and that dealers may lose their competitive advantage if the cap is lifted. Although the subsidy for motor vehicle sales was more modest 20 years ago, it is substantial today. In 1984 the average price of a new car was \$11,375; in 2001 it was \$21,605 (USDOT OTT 2002). In 1984 the \$300 sales tax cap was 2.6 percent of the average new car price; today it is likely nearing one percent.

A restructuring of the sales tax on motor vehicles offers revenue potential in a tight state budget. The sales tax on motor vehicles currently generates an estimated \$86.6 million in revenue per year. The South Carolina Budget and Control Board has estimated that removal of the \$300 cap would generate an additional \$92.6 million in annual revenue for the state.⁷ Under current state law all of the revenues are earmarked for the state general fund and education.

Restructuring the sales tax on motor vehicles also would bring South Carolina closer in line with its neighboring states. Georgia provides no exemption from the sales tax for motor vehicles. The state's sales tax rate is four percent and the top rate including local sales taxes may be as high as seven percent.⁸ North Carolina exempts vehicles sales from state and local sales taxes and imposes a Highway Use Tax instead.⁹ The tax paid on most passenger vehicles is set at three percent of the purchase price with no cap on the amount of tax paid. Commercial vehicles over 26,000 pounds and recreational vehicles have a cap on the tax of \$1,500. In comparison, North Carolina's sales tax rate is 4.5 percent, with local sales taxes up to an additional 2.5 percent.

RENTAL CAR SALES TAXES AND SURCHARGES

In South Carolina, rentals of passenger motor vehicles are subject to both the general sales tax and to a transaction surcharge. The surcharge is applied in the same way as the sales tax but is in addition to the basic tax. From the perspective of financing transportation infrastructure, the use of revenue from rental car sales taxes and surcharges can be justified as recouping the fixed cost of turning a fleet of rental cars onto the transportation system. In tourism destinations and commercial centers in particular, revenues from rental car sales taxes and surcharges could be used to offset in part the incremental demand of transient users.

Currently, the surcharge on motor vehicle rental transactions is set at five percent, the same rate as the state sales tax, and revenue from both goes to the state's general fund. The surcharge's annual revenue yield at that rate should be about \$13.6 million based on the reported value of transactions in 2001. Yet because rental car companies are allowed to credit property tax payments against the surcharge, the net revenue yield to the state from the surcharge was a considerably lower \$540,500.¹⁰ Thus the lost revenue potential to the state is approximately \$13 million per year.

Although rental customers are paying a combined 10 percent on their transaction, the state receives only about 5.2 percent of sales tax and surcharge levies.¹¹ With increased tourism and business travel, the revenue potential from rental car sales taxes and surcharges is likely to grow and their role in transportation finance should be reconsidered.

OTHER REVENUE SOURCES

There are a number of additional revenue sources for transportation infrastructure that are not being used at this time in the state of South Carolina. Some may never be implemented, but variants of others may need to be considered in intermediate or longer-term time frames. Although all of the options discussed below offer revenue potential, some of the options are as much if not more a means of transportation demand management. "Pricing" the use of currently unpriced transportation infrastructure can send consumers the right signals and promote a more efficient utilization of the transportation system.

VEHICLE MILES TRAVELED TAX

The VMT tax is a user fee that, like the fuel tax and road and crossing tolls, is tied to the benefits principle. The VMT tax offers an alternative to the fuel tax in the coming years as fuel efficiencies again begin to rise and alternative fuels become a larger share of the energy mix. This tax assesses individual transportation system users for road use based on the actual number of miles driven and bills accordingly. The technology exists to implement a VMT tax using "smart" odometers or satellite GPS units that are now

available in some new car models and used to provide positional information. But two major concerns will need to be resolved before VMT taxes can come on line.

The first concern is that of revenue collection. With the motor fuel tax, revenues are collected from most users at the pump where tax avoidance is impossible. Tax avoidance is a problem with truck traffic levies that are tied to VMT readings. A VMT tax might require a new billing system. The current thinking is that mileage readings would be downloaded at the pump and billed when fuel is purchased. The assumption is that tamper resistant units similar to the hub odometers used on large commercial trucks can be successfully installed and maintained on new vehicles. Because of the cost of retrofitting, it is expected that existing vehicles will continue to pay a standard fuel tax at the pump.

Privacy is the second concern that must be addressed. Drivers will not like the idea of someone knowing details of their travel movements. GPS units could be set up to read only travel distances or other information relevant for pricing. Travel distances could then be disaggregated to individual states for revenue sharing. Information could be sorted by time of day and location to offer differential rates for peak hour or congested location travel. The VMT tax will be pilot tested in the state of Oregon using both odometer and GPS-based systems. It is expected that a VMT based system can be operational nationwide by the year 2010 (Buckeye and Whitty 2003).

ROADWAY DAMAGE LEVY

A variation on the VMT tax is a roadway damage levy. The levy is assessed based on projected wear and tear on roadways; weight and mileage driven are the principal factors used in assessments. Commercial carriers are already assessed based on both weight and distance traveled.

If wear and tear on roadways is the principal concern, a roadway damage assessment is a reasonable revenue source. The same collection and privacy issues would need to be resolved as with the VMT tax. Relative to the motor fuel tax, the roadway damage levy appears to be somewhat neutral in addressing equity issues. It does not address the nonmarket issues of safety and congestion and is less effective than the fuel tax in addressing environmental issues because fuel efficiency is not rewarded. These issues could be addressed with alternative adjustments, such as an environmental levy (discussed below).

DEVELOPMENT IMPACT FEES

Development impact fees are a development exaction typically imposed by local governments to recoup the capital costs associated with new development. The rationale for impact fees is that new development should pay its fair share of capital costs required to maintain a given level of service. That level of service is subject to a rational nexus test to assure that no more than relative shares are being assessed. Operating costs are specifically prohibited.

The South Carolina Development Impact Fee Act sets criteria for the imposition of development impact fees.¹² Local governments must have a Capital Improvements Plan in place, and transportation impact fees are allowed. Most South Carolina communities have been somewhat timid in their application of impact fees, fearing that those fees might be challenged in court. Respondents to the survey conducted earlier in this project indicated a relatively high level of acceptance of impact fees with a mean rating of 3.53 (out of 5) and 53.5 percent favorable responses compared to an only 16.9 percent unfavorable response rate (London et al. 2001).

VALUE PRICING

Value pricing may be more a means of highway demand management than a significant revenue-generating instrument. The principle is akin to peak hour pricing on urban transit systems in that users pay more to use transportation facilities at times of day when demand and traffic congestion is high. At less congested times of day, prices are lower or free. Value pricing can also be used in other applications, such as congestion and parking fees.

Variable tolling on existing and new highways. In places like Orange County, California, Lee County, Florida, and the New York City region that have significant peak hour congestion problems, fees have been imposed on High Occupancy Toll (HOT) lanes and other restricted access lanes with the price varying by time of day and the congestion level of the roadway. The key is to set the price in such a way that drivers account for the value of their travel time without overloading the fee-based lane(s). Ease of use is facilitated by the use of vehicle transponders that record and assess the fee in the same way that toll road use is now recorded.

Value pricing is not likely to provide state or local governments with high revenue potential because such facilities are often limited to single lanes and have associated operating costs. In addition, there are equity concerns associated with a revenue system that is based on ability to pay to avoid congestion. Still, demand management can result in cost avoidance by more efficiently using current infrastructure so that large capital investments are postponed until a later date. A recent study estimates that using value pricing associated with the addition of one new lane to an existing heavily traveled 10-mile roadway could bring in between \$11 million and \$19 million in net revenue per year (DeCorla-Souza 2003).

Congestion fees. The fee that is generating a great deal of interest worldwide is one recently implemented by the city of London, England. Under this program, every vehicle driven into the city of London is assessed a £5 fee per trip (about \$8). License plates are scanned electronically and vehicle owners billed later. The fee is an attempt to deal with the traffic congestion caused by a large numbers of vehicles in a tight urban space. To give some sense of scale, Greenville County has 59,715 workers commuting into the county from elsewhere, according to the 2000 Census. At \$5 per roundtrip for 220 workdays per year, the county would generate \$65.7 million per year in revenues for internal transportation improvements.

Although cities in South Carolina have not crossed London's critical threshold as yet, continued growth in the state's larger urban areas will likely lead to more serious congestion problems in the future. As these problems increase, some value pricing options might be considered for both demand management and revenue generation purposes.

Parking fees. Supplemental parking fees are also a type of value pricing. Individuals bringing vehicles into a congested downtown area are assessed a parking fee, which is added as a surcharge to their daily or hourly bill at a city parking garage or parking meter. Surcharge receipts then could be invested in transportation infrastructure improvements required to meet center city mobility demands. For example, a dollar per day surcharge on parking spaces (on-street meters excluded) in Greenville, Columbia, and Charleston would net \$162 million per year to support downtown infrastructure.

Supplemental parking fees should not be set so high that they encourage avoidance. There is no benefit to drivers or local governments if high fees force people to park in adjacent neighborhoods or, in the extreme, drive businesses out of the downtown. At the same time, as cities become more congested, less than full cost pricing for parking will encourage over utilization of urban roadways and retard movement to alternative transportation modes.

ALTERNATIVE FUEL TAXES

With the introduction of alternative fuel vehicles, transportation funding that is heavily tied to the motor fuel tax becomes increasingly vulnerable. In most states including South Carolina, the issue is only now beginning to surface but will need to be addressed. Liquid fuels including methanol, ethanol, and liquid petroleum gases can be taxed in the same way that conventional fuel is taxed. Natural gas and electricity will require a new tax structure. A transition to a VMT and/or weight-distance fee will address these inequities in the long term. In the near future, care should be taken with large upfront charges for alternative fuel vehicles so that they do not create disincentives to the transition to alternative fuel vehicles.

ENVIRONMENTAL LEVIES

As South Carolina cities approach federal Clean Air Act nonattainment status for ozone levels, the connection between transportation and air quality will need to be addressed. Options may include the introduction of cleaner burning fuel and the reinstatement of vehicle inspections. Other options also may include pollution levies to help address the environmental costs associated with vehicle use. The rationale is that there will be costs incurred in addressing air quality issues. The logical source of funding is from those parties generating emissions. Revenues would not necessarily be used for transportation infrastructure exclusively, but would also help mitigate air quality issues associated with traffic congestion in individual municipalities or regional airsheds.

Currently, six states have an environmental fee that is collected on a per-gallon basis along with the motor fuel tax. Rates range from 0.4 cpg to 1.4 cpg. At least 18 states also have petroleum facility inspection or leaking underground storage tank cleanup fees added to the fuel tax (USDOT FHWA *Highway Statistics 2001*) In South Carolina, the environmental levy is 0.5 cpg and the petroleum inspection fee is 0.25 cpg. An additional one-cpg fee would generate approximately \$29.2 million per year statewide. Revenues generated from such a fee would be somewhat less if applied only in nonattainment areas, although likely areas to fall under this designation (the Interstate 85 corridor and the Columbia metro area) contain a significant portion of the state's population.

PRIVATIZATION

Privatization offers the potential for additional funding through lease arrangements for right-of-way access or for commercial space along interstates or other highway access points. Public-private partnerships and private infrastructure investments also offer the potential for funding infrastructure requirements. These investments are most likely to result in toll roads to recoup investment that may make sense on high volume roadways.

The privately financed Southern Connector toll road in Greenville County has been less-than-successful because of low traffic volume, and private investors may have difficulty waiting for the service area to ripen. At the same time, care should be taken in allocating privatization rights as private investment is likely to gravitate to roadway sections where economic surplus is generated leaving public resources to address less profitable sections.

BONDS AND THE TIMING OF INFRASTRUCTURE DEVELOPMENT

States, local governments, and other public authorities may issue debt instruments in the municipal bond market. Most municipal debt is federally supported in that debt purchasers enjoy tax-free returns through federal exemptions. School bonds, higher education bonds, capital facilities bonds, transit capital equipment bonds, and state highway bonds are common debt instruments. Some of these bonds may contain a pledge of certain revenues for debt repayment while others may simply be backed by the full faith and credit of the issuing entity. State highway bonds are commonly backed by a pledge of state motor fuel tax revenues. Because transportation (including transit rolling stock) infrastructure assets are capital intensive and have long useful lives, bonds are an appropriate part of the state financing mix.

Proceeds from the sales of bonds are not new money. And like any other loan, bonds must be repaid. So why do states and other public entities issue tax-exempt revenue or general obligation bonds to help finance transportation infrastructure? It is because bonds have several important features:

- Bonds allow governments to spread the cost of transportation infrastructure over time so that both present and future users share in the cost.
- Bonds allow governments to get large projects constructed more quickly than if financed through pay-as-you-go methods. If governments had to wait until all federal and state funds necessary for a particular multiyear project were available, large amounts of money would be underutilized and construction would move slowly. Bonding allows governments to capitalize future cash flows today in order to obtain needed funds up front and then slowly repay them over the project's lifetime.¹³
- By obtaining and spending large portions of project financing at one time, governments can avoid the problem of project budgets increasing in response to rising construction prices. This strategy frees up future funds for use on other projects.

The state of South Carolina has the authority to issue tax-exempt highway bonds for the purpose of financing transportation infrastructure. After a hiatus of about 20 years in which the state relied completely on pay-as-you-go financing, in the mid-1990s the state again began to use highway bonds as a component of transportation finance. Today the state issues highway bonds as needed to obtain revenues for selected SCDOT projects. This strategy allows the state to significantly accelerate construction on large, multiyear projects and spread the responsibility for repayment over the lifetime of the facility.

In South Carolina, the total debt service on all outstanding highway bonds may not exceed 15 percent of SCDOT's expected state motor fuel tax revenues.¹⁴ Today the state has over \$700 million in outstanding state highway bonds, and SCDOT's debt service runs about \$50 million per year, or around 5 percent of SCDOT's expenditures (South Carolina Office of State Treasurer 2003). One private sector financing strategy that does not appear to be used in major state bond issues is that of securitizing the stream of repayments to recover their value so that those funds can be reused for other projects.

FEDERAL INNOVATIVE FINANCE INITIATIVES

Since the early 1990s the federal government has enhanced the states' flexibility in using federal transportation funds. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) allowed for more state and local control over decision-making, encouraged a greater emphasis on public transportation, and shifted emphasis toward maintaining and repairing existing roads before building new ones. The National Highway System Designation Act of 1995 (NHS Act) changed federal-aid highway financing rules and allowed states to issue bonds where the debt service is paid by future federal revenues. The NHS Act and subsequent legislation also allowed 38 states to use federal highway funds to capitalize state infrastructure banks, which act as revolving loan funds for major transportation projects.

In 1997 TEA-21 continued the federal government's expansion of state flexibility in the use of federal-aid highway funds. Along with TEA-21, the Transportation Infrastructure Finance and Innovation Act (TIFIA) provided states with access to \$10.6 billion in credit assistance for major infrastructure projects. Reauthorization in 2003 of the nation's federal highway and transit programs will likely see continuation and expansion of these and other federal innovative finance initiatives.

While federal finance innovations have had a large impact on the way state transportation agencies schedule and finance their projects, in themselves they have not added significant dollars to state coffers. Although federal highway funding to states expanded significantly with TEA-21, the increased federal dollars meant that states had to come up with additional funds to meet their required state match. Federal innovative finance mechanisms instead are focused on increasing the ability of states to utilize existing federal funds. Below is a brief description of three major programs—GARVEES, State Infrastructure Banks, and TIFIA Loans. The state of South Carolina has significant involvement in the latter two programs.

GRANT ANTICIPATION REVENUE VEHICLES (GARVEES)

Grant Anticipation Revenue Vehicles, or GARVEES, are pledges of future federal-aid highway revenues against debt service (both principal and interest) on bonds, much as states already pledge state motor fuel taxes or other dedicated revenues toward debt service on state highway bonds. Before the NHS Act of 1995, the use of federal highway funds to pay debt service on state highway bonds was limited. (USDOT FHWA 2002a). GARVEES are negotiated with the Federal Highway Administration and the state issues the bond as a GARVEE bond separate from other state highway bonds. Because future federal funding is somewhat uncertain over the long term, GARVEE bonds may carry shorter terms than the typical 20-30 year state highway bond.

GARVEES have several benefits. First, they allow states to use federal funds to pay for the costs of bond issuance, which can be considerable. Second, if a GARVEE bond contains only a pledge of federal revenue with no state funds involved, then the GARVEE may allow the state to exceed its legal ceiling on bonded indebtedness (USDOT FHWA 2002b). Such ceilings may be related to the state's overall debt ceiling or as in the case of South Carolina, to a percentage of state revenues available for debt service on state highway bonds.

Third, because federal revenues are a significant funding source for states GARVEES have the potential to advance large amounts of construction, even when only a small fraction of future federal revenues is pledged for repayment. This feature may make GARVEES more palatable than regular state highway bonds in states where bond referendum are required and large issuance amounts may require an increase in state motor fuel taxes or other fees. The two primary downsides to GARVEES are that they may only be used on projects eligible for federal highway funding and that they reduce the amount of future federal funds available for pay-as-you-go project financing.

A number of states have issued GARVEE bonds since the late 1990s. New Mexico used GARVEES to finance 118 miles of improvements on a major state route. Arizona used GARVEES to speed up construction of portions of a major freeway system in the Phoenix area. The state of Arkansas achieved a high rate of voter approval of a large transportation funding package that included GARVEE bonds after defeat of a conventional state highway bond proposal several years earlier (USDOT FHWA 2002a). To date South Carolina has not used GARVEES as a financing alternative.

STATE INFRASTRUCTURE BANKS

The NHS Act in 1995 authorized State Infrastructure Banks (SIBs) as revolving loan funds that states could use for highway and transit programs. They were initially capitalized by federal (and matching state) highway funds and can use additional state or local government or private funds and loan repayments to advance projects that are eligible for federal highway or transit funding. SIBs can partner with public and private entities on projects and are not restricted to any specific minimum or maximum level of financial participation. Most SIB activity is in the form of loans, but SIBs may also provide credit enhancements to projects with other primary funding, such as private initiatives and projects funded using tax-exempt bonds (USDOT FHWA 2002a).

South Carolina was one of the first 10 states in the country to create a SIB. State law established the South Carolina Transportation Infrastructure Bank (SCTIB) in 1997 for the purpose of

. . . providing loans and other financial assistance to government units and private entities for constructing and improving highway and transportation facilities necessary for public purposes including economic development.¹⁵

The SCTIB selects projects using defined criteria, with strong consideration going to those projects that have significant public benefit, a strong financial plan, and significant local funding participation.

The SCTIB was initially capitalized at the level of \$66 million by one-time federal and state funds but the state earmarked annual registration fees from commercial trucks and motor carriers for the bank as well as annual transfers from SCDOT at the level of one cent of the state motor fuel tax on gasoline. In only six years SCTIB has leveraged its initial capitalization and ongoing revenues into about \$3 billion worth of projects when revenues from all participants are included (Rountree 2003). A board of directors governs the SCTIB. The bank contracts with SCDOT to provide administrative support for bank operations.

Today the SCTIB is the most successful SIB in the country. It has extended funding for projects in Aiken, Anderson, Beaufort, Charleston, Greenville, Horry, Lexington, Spartanburg, and York Counties. It has also provided funds for the statewide Median Barrier Project, which is enhancing motorist safety on dangerous portions of the state's interstate highways. The bank has issued over \$1.5 billion in revenue bonds and \$60

million in state general obligation bonds and was the first issuer of transportation revenue bonds in the state (Rountree 2003). It has also played a strategic role in the financing of the Cooper River Bridge replacement project by recycling loan repayments for other projects from Horry County into a federal TIFIA loan repayment pledge for the bridge project (Sullivan 2003).

TIFIA LOANS AND CREDIT ENHANCEMENTS

The Transportation Infrastructure Finance and Innovation Act, a part of TEA-21, allowed the federal government to make direct loans and extend other credit enhancements to large projects of national importance. Eligible projects include those in highways, transit, passenger rail, and intermodal facilities where overall costs exceed \$100 million. TIFIA loans are designed to be used in conjunction with other funding sources and may only fund up to one-third of project costs. TIFIA is a recent and notable change to the federal government's traditional surface transportation funding program, which is designed around grants rather than loans. TIFIA is also notable because the loans *add* to state federal funding obligations (USDOT FHWA 2002a).

Through the TIFIA program the USDOT has taken the position of the "patient investor". TIFIA loans are structured to be subordinate to other project debt and have flexible repayment terms, which help to enhance the borrower's credit position and thus keep bond interest rates low. The TIFIA program may also provide states with other credit enhancements such as loan guarantees and lines of credit. These enhancements act as a fallback for project finance in case other revenue sources fall short of projections and jeopardize private market participation in the project. To date six states have received TIFIA loans for projects with a combined value of \$6.6 billion (Sullivan 2003).

South Carolina was one of the first six states in the nation to receive a TIFIA loan. The \$215 million loan is part of the financing package for the Cooper River Bridge replacement project.

INNOVATIVE FINANCE IN SOUTH CAROLINA

SCDOT and SCTIB have demonstrated a high level of competence in the innovative use of financing techniques to advance major projects of importance to large areas of the state. These two state agencies have done this in the *27 in 7 Peak Performance Program* through the strategic use of general obligation and revenue bonds to accelerate project construction schedules and the retention of large design-build contractors to manage these projects and hold down agency costs (SCDOT 2003f).

LOCAL GOVERNMENT FUNDING OF TRANSPORTATION INFRASTRUCTURE

Local governments are partners with the state and federal governments in the funding of transportation infrastructure. South Carolina is unusual because the state government has responsibility for a very high share of all public road miles in the state.

The current state-maintained highway system (41,518 miles) is 65 percent of total non-federal road miles in the state. The state's counties and municipalities maintain the other 35 percent of the total, or 22,395 miles. The national averages are nearly the reverse, with state governments maintaining only 22 percent of total state road miles on average and local governments responsible for 78 percent (London et al. 2002).

South Carolina's local governments use mostly general funds (i.e., property taxes) and parking fees to support transportation expenditures. Other local governments around the country use a much wider variety of revenue instruments, including local fuel, sales, and (earmarked) property taxes, and vehicle fees (Table 2.2). They also use parking fees and transit fares. For example, in 16 states local governments use local fuel taxes to fund transportation projects. Local sales taxes are also popular with 25 states reporting their use (Goldman, Corbett and Wachs 2001a and 2001b).

Table 2.2
Number of States Using Local Government Transportation Funding Sources, 1999

	Fuel & Vehicle Taxes			Property Taxes & Assessments			Sales & Other Taxes		
	County	City	Other	County	City	Other	County	City	Other
Level of Use									
Limited (L)	9	10	5	8	10	16	13	10	3
Widespread	7	3	0	10	3	8	12	7	3
Legal Authority									
Adopted (A)	4	4	2	12	10	5	4	4	2
Authorized/Not Adopted (a)	10	11	3	7	6	7	3	5	2
South Carolina	L	L	a	A	A	0	A	A	0

Source: Goldman, Corbett, and Wachs 2001b.

CHAPTER THREE

FUNDING PROJECTED TRANSPORTATION NEEDS

PROJECTED NEEDS: THE SOUTH CAROLINA MULTIMODAL TRANSPORTATION PLAN

The *South Carolina Multimodal Transportation Plan* projects surface transportation infrastructure needs over the next 20 years at \$56.9 billion (SCDOT 2003e). That figure was determined by a working group coordinated through SCDOT. This group conducted a bottoms-up planning process, which included the coordinated inputs from the ten Councils of Government, ten Metropolitan Planning Organizations, the Federal Highway Administration, and other transportation interests.

The *South Carolina Multimodal Transportation Plan* identifies infrastructure maintenance and improvement needs for major state-funded surface transportation systems: highways (including bicycle and pedestrian facilities), passenger rail, and mass transit. Over one-third of needs identified in the *Multimodal Plan* are for highway resurfacing, safety, and maintenance, an area in which a current backlog exists (Table 3.1).

Table 3.1
Statewide Multimodal Transportation Needs
Twenty-Year Total

	Identified Needs (\$ Billions) ^a
Interstate Upgrades and Maintenance	\$6.58
Bridge Replacement	\$2.95
Highway System Upgrades	\$16.80
Resurfacing, Safety & Maintenance	\$19.80
Administration	\$1.60
Capital Improvements	\$0.25
Passenger Rail	\$8.49
Mass Transit	\$0.40
Total	\$56.87

Source: SCDOT 2003e. ^a2002 dollars.

Collectively, road and bridge upgrades and maintenance account for \$46.13 billion in transportation infrastructure needs, or 81.1 percent of the total. The largest share of the remaining items is for passenger rail, which has no current funding (Amtrak is the only passenger rail operating in the state). Mass transit, which is less than one percent of the total, receives significant revenue for operations and capital purchases from non-state

sources. Because the *Multimodal Plan* only deals with surface transportation needs it does not include aviation or port needs. It also does not include freight rail transport. Although a critical component of the surface transportation mix, freight rail is characterized by private ownership.

Funding the transportation infrastructure needs identified in the *Multimodal Plan* presents the state with significant challenges under its current revenue system, which is highly dependent on the motor fuel tax. As indicated in the introduction to the Multimodal Plan,

“ . . .[S]uccess requires commitment by the state’s citizens and leadership to invest in transportation. Additional funds from diversified sources are essential to meeting the goals and needs identified in the Plan.”

This study determines how revenues sufficient to meet the state’s \$56.9 billion in identified transportation infrastructure needs might be generated over the next 20 years. All revenue projections discussed below are for the period from 2003-2022, which parallels the time frame in the *Multimodal Plan*.

REVENUE PROJECTION METHODOLOGY

In fiscal year 2002-03, the state of South Carolina expected to generate \$981.2 million in state and federal revenues that are used to support expenditures on surface transportation infrastructure as defined in the *Multimodal Plan* (SCDOT 2003d). Nearly 85 percent of that total, or \$828.1 million, are revenues to SCDOT, but some are also directed to the SCTIB. Those expenditures may be used for operations, maintenance, and improvements to highways, bridges, and mass transit.

Nearly all state revenues used for expenditures on transportation infrastructure in South Carolina are from user fees such as the motor fuel tax and vehicle registrations. For the purpose of this report, only cash flows specifically earmarked for transportation systems and infrastructure that meet needs identified in the *Multimodal Plan* are considered (Table 3.2).

Motor fuel taxes (gasoline and diesel combined) and gross vehicle registration fees are the two largest sources of state-generated transportation revenues in South Carolina. Together these funding sources are expected to generate about \$555 million in 2002-03 based on available budget information, of which an estimated \$519 million remains to support transportation related infrastructure after non-transportation related items (e.g., General and Watercraft Funds and a Division of Motor Vehicles (DMV) earmark) are allocated for purposes other than transportation infrastructure. In any event, fuel tax revenues and vehicle registration fees are expected to increase over the 20 year planning horizon due to increases in fuel consumption and the number of vehicles on the road, even without a change in the tax rate or fee structure.

Table 3.2
Revenues for South Carolina Transportation Infrastructure:
SCDOT FY 2003 Adapted Budget

	FY 2003 (\$ Millions)
SC Department of Transportation	\$828.1
<i>Net State Revenues</i>	\$392.1
State Motor Fuel Tax	\$467.1
Less: Total non-SCDOT Earmarks	(\$96.2)
<i>Net State Motor Fuel Tax to SCDOT</i>	\$370.9
Interest	\$5.0
Tolls	\$5.5
Miscellaneous	\$15.0
Motor Vehicle Fees (autos-20%)	\$7.0
General Fund--Mass Transit	\$0.5
Less: Interest Expense	(\$11.8)
<i>Federal Revenues</i>	\$436.0
Transit Grantees	\$8.0
Federal	\$428.0
Non-SCDOT Multimodal Plan Funding	\$153.1
Gas Tax to Counties	\$60.8
Transfer to Counties	\$9.5
State Economic Development	\$18.0
Motor Vehicle Fees to SCTIB	\$53.0
SCDOT Debt Service	\$11.8
Total Multimodal Plan Funding	\$981.2

Source: Adapted from SCDOT 2003d.

The number of registered vehicles and VMTs from 2000 to 2025 were projected using a standard econometric technique to determine the bases for these two revenue sources (Appendix A). Passenger cars, trucks, and other vehicles were disaggregated to take into account different average mileage and fuel consumption rates. (Unfortunately, vehicle registrations by type were not available from the DMV.) The number of vehicles by type for the base year was estimated using federal highway statistics for South Carolina and national VMT data from the U.S. Department of Energy (USDOE). The mix of vehicles by type was projected based on historical trends with the number of trucks further disaggregated based on a USDOT profile for the state of South Carolina (USDOT BTS 2003). Final projections by type also include growth variations based on the application of fuel efficiency by vehicle type (e.g., auto, bus, truck) and vehicle growth rates (Appendix B).

Growth in VMTs was allocated by vehicle type based on current ratios of VMTs per vehicle and the projected number of vehicles by type. Fuel consumption was projected using projected VMTs and applying fuel efficiencies by vehicle type. All projections were performed annually from 2003-2022 and then summed in constant dollars to compare to

needs identified in the *Multimodal Plan*. Additional detail on data sources and methodology is found in Appendix C.

The projections of registered vehicles, VMTs, and fuel consumption calculated for this report compare favorably to other projections (Table 3.3). Using the Strom Thurmond Institute (STI) growth scenarios for the period from 2000 to 2025, the number of registered vehicles in the state is projected to increase by 44.8 percent to 4.48 million vehicles, while VMTs are expected to increase by 67.4 percent over the same time period to 76.3 billion miles. Annual growth rates over this time period average 1.5 percent per year for vehicle registrations and 2.1 percent per year for VMTs. In comparison, the average annual VMT growth rate for the state of South Carolina is 2.0 percent per year over the same period, as calculated by SCDOT. The USDOE estimates VMT growth at 2.3 percent per year for the nation through 2025 (USDOE 2003).

Table 3.3
Projected Population, Registered Vehicles, Vehicle Miles Traveled,
And Fuel Consumption: South Carolina, 2000-2025

	2000	2010	2015	2025	Avg. Annual Growth
Population					
US Census/SC	4,012,012	4,446,240	4,674,050	5,129,630	1.0%
Number of Vehicles					
STI	3,094,729	3,638,718	3,919,287	4,480,403	1.5%
Vehicle Miles Traveled					
SCDOT (millions)	45,189	56,100	61,696	73,246	2.0%
USDOE (millions)	2,631,000	3,351,000	3,777,000	4,632,000	2.3%
STI (millions)	45,538	58,073	64,132	76,249	2.1%
Fuel Consumption					
USDOE (quad. Btu)	20.3	26.01	29.03	34.17	2.1%
STI (1,000 gals.)	2,874,339	3,609,194	3,958,910	4,523,936	1.8%

Sources: SCBCB 2003, SCDOT 2003b, USDOE 2003, Census, and authors' calculations.

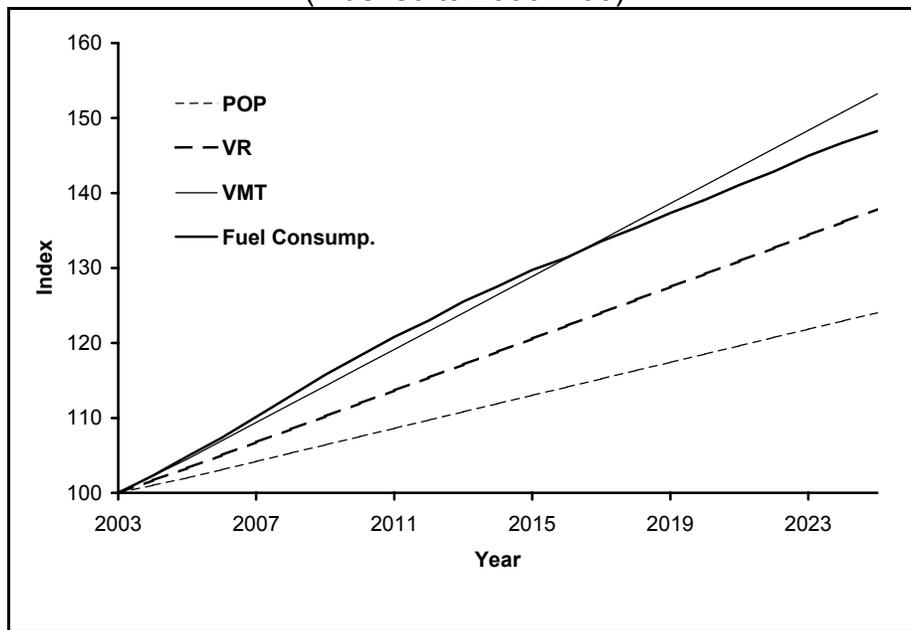
In this report, a 20-year planning horizon (2003-2022) is used to conform to the *South Carolina Multimodal Transportation Plan*. Over this 20-year period VMTs increase at a faster rate than the number of vehicles (Figure 3.1). Fuel consumption increases slightly faster than VMTs in the early years, but by the second half of this period, growth in fuel consumption tapers off due to anticipated fuel efficiency gains in new vehicles. According to the USDOE, much of the technology gains of recent years have been directed to larger, more powerful vehicles. The expectation at this time is that the next round of technology gains will direct more attention to fuel efficiency improvements.

In Table 3.4, gross annual fuel tax and vehicle registration fees for South Carolina are shown based on projected utilization and current rate structures. At current rates the state fuel tax is projected to generate \$11.8 billion and the federal fuel tax is projected to

generate \$12.7 billion in revenues over the 20-year planning period. Vehicle registration fees are projected to generate \$1.4 billion in revenues over the same period. Table 3.4 shows gross receipts prior to the deduction of vehicle registration and fuel tax earmarks. For example, vehicle registration earmarks allocate 100 percent of truck fees to the SCTIB and 80 percent of auto fees to the DMV.

The *Multimodal Plan* provides total costs by category over a 20 year planning horizon and does not time sequence expenditures. Although revenue estimates are projected annually over that same time period, they are aggregated in the scenarios that follow in order to be comparable to the *Multimodal Plan*. Because projected needs are not annualized, only aggregate comparisons can be made and no basis exists for determining annual variations between expenditures and revenues. Consequently, no discounted cash flow analysis was performed.

Figure 3.1
 Projected Population, Vehicle Registration, Vehicle Miles Traveled,
 And Fuel Consumption Over the Next Twenty Years
 (Indexed to 2003=100)



**SCENARIO 1:
 CURRENT FUNDING SOURCES AND RATES**

The first scenario assumes that the number of vehicles and fuel consumption increase as discussed in the previous section, but that current rates for taxes and fees remain constant. This scenario provides a baseline for determining how large a funding gap needs to be closed over the 20-year planning period. Assumptions used to develop revenue projections for current funding sources are detailed in Appendix D.

Revenues under Scenario 1 amount to \$26.3 billion over the next 20 years. These revenues are the summation of annual revenue streams (Table 3.4). The primary sources for revenue are the state fuel tax (\$11.8 billion), reimbursements from the federal fuel tax (\$12.7 billion), and vehicle registration fees (\$1.4 billion). Other much smaller revenue sources include tolls and general fund transfers for transit, which together bring in \$360 million (Table 3.5).

Table 3.4
Projected Gross South Carolina Fuel Tax and Vehicle Registration Revenues
Under the Current Rate Structure

Year	Fuel Tax Revenues (\$ Thousands)				Vehicle Registration Revenues (\$ Thousands)			
	Auto	Bus	Truck	Total	Auto	Bus	Truck	Total
2003	446,076	3,312	38,856	488,244	22,987	504	45,567	69,058
2004	456,408	3,386	39,660	499,453	23,040	509	47,268	70,817
2005	468,173	3,460	40,461	512,093	23,092	515	48,968	72,575
2006	479,274	3,539	41,325	524,138	23,190	521	50,619	74,330
2007	491,910	3,619	42,186	537,714	23,288	527	52,270	76,084
2008	504,634	3,698	43,044	551,376	23,385	533	53,921	77,840
2009	517,497	3,778	43,898	565,173	23,483	539	55,573	79,595
2010	528,867	3,857	44,748	577,471	23,580	545	57,226	81,351
2011	540,276	3,936	45,594	589,806	23,677	551	58,879	83,107
2012	550,071	4,015	46,437	600,523	23,774	557	60,532	84,863
2013	561,545	4,095	47,277	612,916	23,871	563	62,184	86,619
2014	571,351	4,105	47,324	622,781	23,968	570	63,838	88,376
2015	581,100	4,183	48,142	633,426	24,065	576	65,492	90,133
2016	589,093	4,192	48,167	641,452	24,161	582	67,147	91,889
2017	598,853	4,268	48,965	652,086	24,257	588	68,802	93,647
2018	606,780	4,344	49,760	660,885	24,355	594	70,455	95,404
2019	616,397	4,350	49,749	670,496	24,451	600	72,111	97,161
2020	624,220	4,425	50,524	679,169	24,547	606	73,766	98,919
2021	633,932	4,429	50,493	688,855	24,643	612	75,422	100,677
2022	641,694	4,503	51,250	697,447	24,739	618	77,077	102,434

Scenario 1 generates 46.2 percent of projected *Multimodal Plan* revenue needs and results in a \$30.6 billion shortfall over the 20 year planning horizon (Figure 3.2). The mix of revenue sources over that period is 48.4 percent federal, 45.0 percent state fuel tax, and 5.2 percent vehicle registration fees with only 1.4 percent from other sources (Figure 3.3).

To date, much of the discussion to close the state's transportation infrastructure funding gap has focused on increasing the state motor fuel tax. Even though the state is heavily dependent on motor fuel tax revenues, its current rates are comparatively low with only nine states having lower excise taxes on motor fuel (London et al. 2002).¹⁶ Although it is likely that state fuel taxes will rise gradually over time, to fully close the funding gap over the next 20 years with state motor fuel tax collections alone would require a 259 percent

increase in state fuel tax revenues from \$11.8 billion at current rates to \$42.4 billion. To raise that amount of revenue with a one-time rate increase would require state fuel taxes to increase from the current rate of 16.0 cpg to an average rate of 56.8 cpg and remain at that rate for the next 20 years.

Scenario 1: Current Funding Sources at Current Rates		
Assumptions		
<ul style="list-style-type: none"> • <i>Current funding sources at current rates</i> • <i>Federal funding at current (low) level</i> 		
Results		20-Year Total
Revenue raised		\$26.3 billion
Percent of needed funds		46.2%
Funding gap		\$30.6 billion
Tax & Fee Rates		
	Year 1	Year 20
State fuel tax	16.0 cpg	16.0 cpg
Vehicle registration fee	\$12 per year	\$12 per year

Table 3.5
 Projected Revenues for Scenario 1:
 Current Revenue Sources at Current Rates^a

	Revenues (\$ Billions)	Percent of Total
Current Revenue Sources	\$26.3	100.0%
State Fuel Tax	\$11.8	45.0%
Vehicle Registration Fees	\$1.4	5.2%
Tolls	\$0.1	0.6%
Miscellaneous ^b	\$0.2	0.8%
Federal	\$12.7	48.4%

^aRevenue projections and distributions in 2002 dollars for 20 year planning horizon.

^bIncludes general fund appropriations.

Note: Detail may not sum to totals due to rounding.

A rate increase of that magnitude is not particularly palatable, but is suggested here to demonstrate the level of tax rate that might be required to fully fund transportation infrastructure in the state if other revenue sources are not forthcoming. The scenarios that follow introduce the prospect of additional federal revenues, supplemental state funding sources, and increased revenues from current funding sources through rate adjustments.

Figure 3.2
 Scenario 1:
 Twenty-Year Revenue Projection Compared to Identified Needs

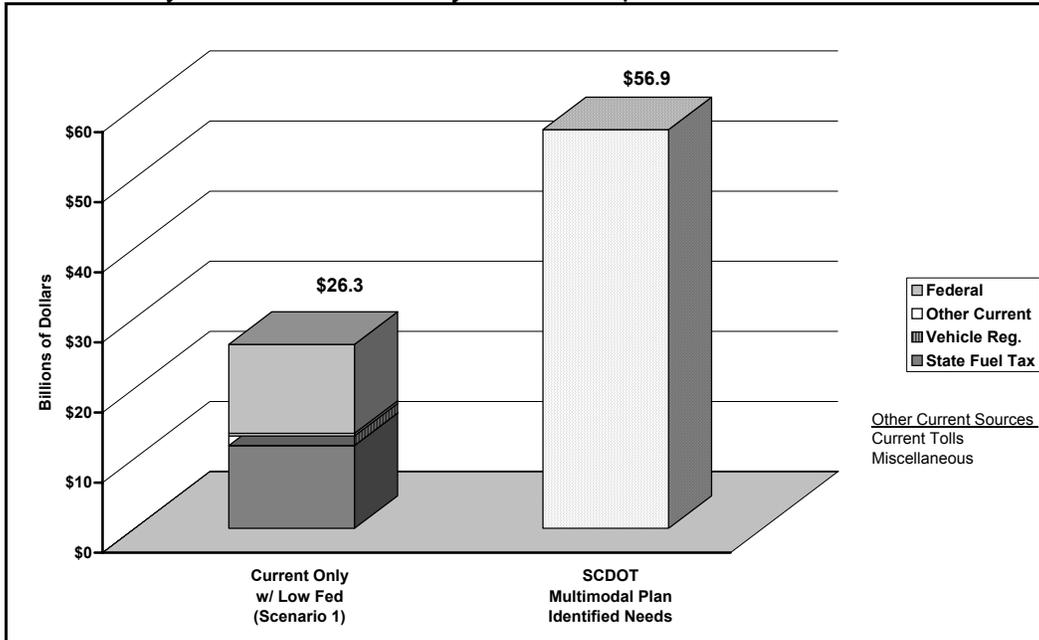
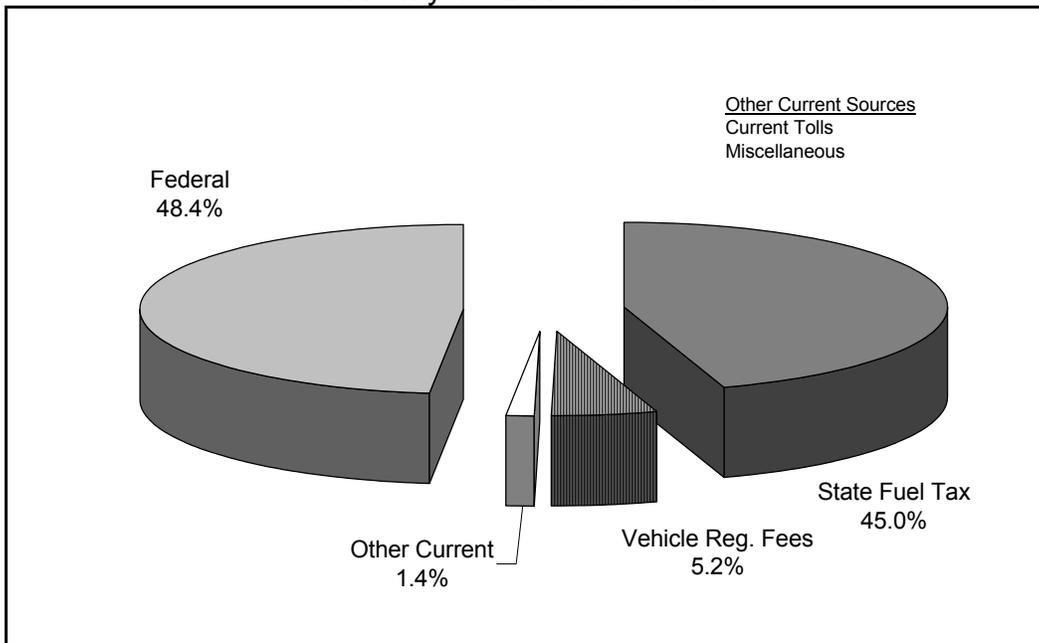


Figure 3.3
 Scenario 1: Current Revenue Sources at Current Rates
 Twenty-Year Revenue Mix



**SCENARIO 2:
CURRENT SOURCES WITH INCREASED FEDERAL REVENUES**

In the first scenario, the revenue stream was projected from current sources at current rates. Among the revenue sources held constant were appropriations from the federal Highway Trust Fund, which is supported by the federal fuel tax of 18.4 cpg. Congress currently has several bills under consideration for reauthorization of the federal surface transportation program for fiscal year 2004. Annual budget authorization may be enacted if six-year reauthorization legislation is not passed before October 1, 2003.

Speculation is that with reauthorization, the federal surface transportation program will receive a significant increase in funding, but the amount is uncertain at this time. It also now seems likely that any increase in the federal fuel tax is unlikely until after the 2004 election. Current plans are to increase federal spending by moving funds rather than increasing fuel taxes.

To account for the anticipated increase in future federal funding, two additional scenarios are introduced. The high growth scenario assumes that the federal fuel tax is increased by five cpg with the next reauthorization and that it is increased by a similar amount during each six-year federal reauthorization cycle. In this scenario the federal fuel tax would increase from 18.4 cpg to an average of 29.5 cpg over the next 20 years.

Scenarios 2a and 2b: Current Sources and Rates With Moderate & High Federal Revenues		
Assumptions		
• <i>Current funding sources at current rates</i>		
• <i>Federal increased to \$16.4 billion or \$20.8 billion over 20 years</i>		
Results (20-Year Total)	2a: Mid Federal	2b: High Federal
Revenue raised:	\$30.0 billion	\$34.3 billion
Percent of needed funds:	52.7%	60.4%
Funding gap:	\$26.9 billion	\$22.6 billion
Tax & Fee Rates		
	Year 1	Year 20
State fuel tax	16.0 cpg	16.0 cpg
Vehicle registration fee	\$12 per year	\$12 per year

The moderate growth scenario assumes that the initial federal fuel tax increase is 2.5 cpg. In this scenario the federal fuel tax would average 23.5 cpg over the next 20 years. The low or no growth scenario assumes no growth in the federal fuel tax rate as reflected earlier in Scenario 1.

With the three alternative tax assumptions, federal fuel tax revenues increase from \$12.7 billion in the no growth scenario (Scenario 1) to \$16.4 billion in the moderate

growth scenario (Scenario 2a) and to \$20.8 billion in the high growth scenario (Scenario 2b). These alternate federal revenue levels for South Carolina are consistent with the range of funding levels contained in the reauthorization bills pending before Congress, assuming that the state receives a proportional share of the nationwide increase.

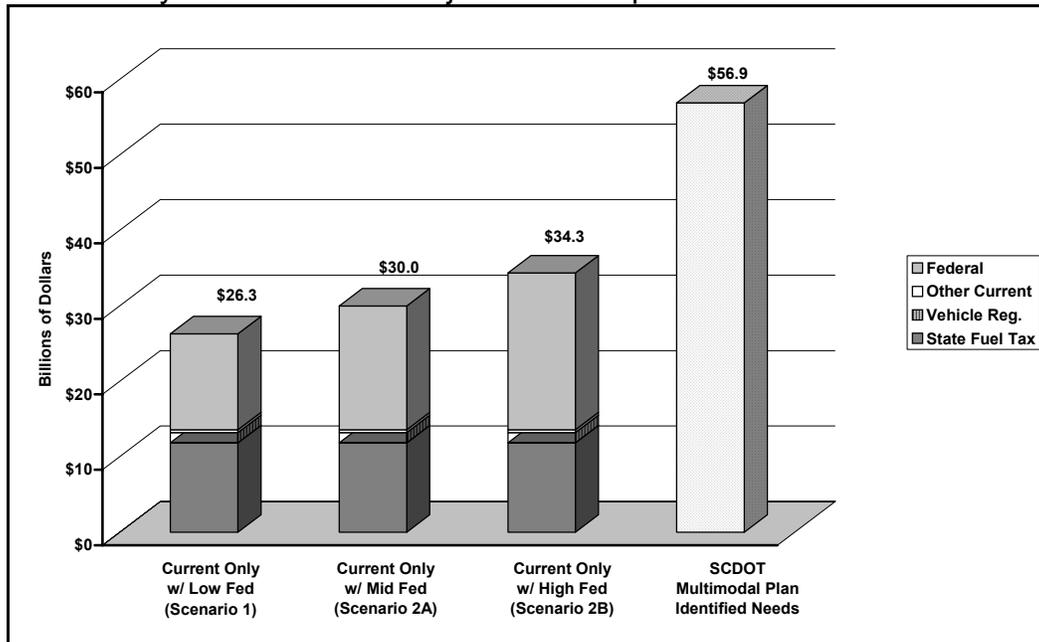
With increased federal funding, projected revenues for transportation infrastructure increase to \$30.0 billion and \$34.3 billion depending on the level of federal commitment. The revenue shortfall decreases to between \$26.9 billion and \$22.6 billion (Table 3.6, Figure 3.4). The average state fuel tax rate required to close the remaining funding gap falls from 56.9 cpg in Scenario 1 to 51.8 cpg and 46.0 cpg in Scenarios 2a and 2b, respectively. Because some increased level of federal funding seems likely, all subsequent funding scenarios are considered for the moderate and high federal funding assumptions exclusively.

Table 3.6
Projected Revenues for Scenarios 1, 2a and 2b:
Current Sources and Rates With Increased Federal Funding^a

	Scenario 1	Scenario 2a	Scenario 2b
	Current Revs & Rates w/ Low Federal	Current Revs & Rates w/ Mid Federal	Current Revs & Rates w/ High Federal
(Billions of 2002 Dollars)			
Current Revenue Sources	\$26.3	\$30.0	\$34.3
State Fuel Tax	\$11.8	\$11.8	\$11.8
Vehicle Registration Fees	\$1.4	\$1.4	\$1.4
Current Tolls	\$0.1	\$0.1	\$0.1
Miscellaneous ^b	\$0.2	\$0.2	\$0.2
Federal	\$12.7	\$16.4	\$20.8
(Percent of Total Revenues)			
Current Revenue Sources	100.0%	100.0%	100.0%
State Fuel Tax	45.0%	39.5%	34.4%
Vehicle Registration Fees	5.2%	4.6%	4.0%
Current Tolls	0.6%	0.5%	0.4%
Miscellaneous ^b	0.8%	0.7%	0.6%
Federal	48.4%	54.8%	60.5%

^aRevenue projections and distributions for 20 year planning horizon. ^bIncludes general fund appropriations.
Note: Detail may not sum to totals due to rounding.

Figure 3.4
 Scenarios 1, 2a, and 2b:
 Twenty-Year Revenue Projections Compared to Identified Needs



**SCENARIO 3:
 CURRENT AND SUPPLEMENTAL REVENUE SOURCES**

Scenario 3 examines the potential revenue contribution from supplemental funding sources while maintaining current funding sources and keeping current tax rates and fees unchanged. The lone exception is increased federal revenues introduced in the last scenario. Inclusion in the supplemental funding list does not necessarily imply that these options are financially or politically viable. But this scenario does at least give some measure of the potential revenue base associated with an array of new revenue options.

The supplemental sources considered here include:

- placement of a sales tax on fuel (gasoline and diesel),
- tolling on an interstate highway (Interstate 85),
- removal of the sales tax cap on new and used car sales,
- removal of property tax deductions for rental car surcharges,
- imposition of a parking surcharge for parking garages in metropolitan areas, and
- imposition of a one cent local option sales tax in urban counties to pay for transportation infrastructure.

Assumptions used to develop revenue projections for supplemental funding sources are detailed in Appendix D.

SALES TAX ON MOTOR FUEL

Nine states levy a sales tax on gasoline—six at the pump and three using a per-gallon sales tax factor (London et al. 2002). The sales tax is sensitive to changes in the price of fuel, unlike per gallon excise taxes that stay constant despite price increases over time.

The use of a sales tax can be revenue neutral when sales and excise taxes are combined to produce the same initial revenue target as the current stand-alone excise tax. Growth rates in subsequent periods will vary with the tax rate and are expected to more closely parallel cost of living increases.

Sales taxes are applied to different components of the retail fuel price, depending on the individual state. For example, Georgia applies the sales tax to the pre-tax and federal tax components of fuel price only; the state fuel tax is not included in the base. For the purpose of this study, a five percent sales tax is applied only to the distributed price of fuel, which includes the wholesale fuel price plus distribution costs, as adapted from USDOE sources. On that basis, the tax on fuel would generate \$3.8 billion in new revenue over the next 20 years at current and projected fuel prices. That figure represents 32.3 percent of projected state fuel tax collections at current rates.

INTERSTATE TOLLS

The placement of new tolls along interstate highways is currently limited by federal law to prevent states from funding their highway systems on the backs of pass-through traffic. Still, TEA-21 established the Interstate Reconstruction and Rehabilitation Pilot Program, which allows USDOT to authorize three state toll projects to raise revenue to support rehabilitation and reconstruction of existing interstate highways. Reauthorization of the federal transportation program in 2004 may further extend interstate tolling options.

A study of interstate tolling options conducted by SCDOT estimated that Interstate 85 would generate the highest revenue of any interstate segment in the state at \$1.83 billion over a 20 year time period (SCDOT 1999). This figure is used in the present study and is over 12 times projected revenues from the Cross Island Parkway on Hilton Head Island, the state's sole publicly operated toll road.

TAXES ON VEHICLE SALES AND RENTALS

Sales tax revenues from car sales and rentals in South Carolina are currently constrained, which limits their funding potential. State sales tax revenues from vehicle sales were capped at \$300 in 1984. Removal of the \$300 cap would raise current sales tax collections from vehicle sales to a total of \$5.9 billion in revenues over the 20-year planning period, of which \$4.0 billion is new money.

Although the average price of passenger vehicles has risen from \$11,375 to \$21,605 over that time period, car dealers have successfully argued that removal of the cap would put them at a competitive disadvantage and negatively affect economic development in the state. Thus purchasers of vehicles priced \$6,000 and over pay only \$300 per transaction at South Carolina's five percent state sales tax rate. In 1984 the sales tax cap exempted a little less than half of the average vehicle's value from the tax. Today, the same \$300 cap exempts 72 percent of the average vehicle's value from the sales tax.

Restructuring the manner in which the state taxes vehicle sales would bring South Carolina closer in line with its neighboring states. In Georgia the full amount of all state and local sales taxes combined—which may be as high as seven percent—are applied to both passenger and commercial vehicles. North Carolina imposes a three percent Highway Use Tax on vehicle sales in lieu of a sales tax. There is no cap on the amount paid for passenger vehicles, but a \$1,500 cap remains on the amount paid on larger commercial trucks and recreational vehicles.

Rental car transactions are subject to both a sales tax and a surcharge—both at five percent—for a total of 10 percent. While the full five percent sales tax is remitted to the South Carolina Department of Revenue (DOR), the DOR does not receive the majority of the five percent surcharge. Rental car companies are permitted to deduct property taxes paid to local governments and only remit the difference to the DOR. Thus while customers pay a full 10 percent on rental car transactions, the state only receives a net of 5.2 percent due to property tax deductions allowed under the surcharge.

Removal of this deduction is estimated to generate new money in the amount of \$350 million, which when added to current surcharge collections of \$14 million, equal an annual total rental car surcharge of \$364 million at current utilization rates. Together, new money from vehicle sales and rentals could total \$4.35 billion over 20 years.

PARKING FEES

Congestion levies have been considered in various localities around the country. The two options considered here are parking fees and local option sales taxes to fund highway improvements and mass transit. In both cases, fees and taxes are imposed only in urban areas where congestion is a more serious issue.

Based on the number of parking garage spaces and utilization rates in the cities of Charleston, Columbia, and Greenville, it is estimated that a one-dollar per day levy on parking garage spaces would generate a combined \$162 million over the next 20 years. Although this figure is small compared to infrastructure needs, it may offer some means of addressing congestion issues in urban centers.

SPECIAL LOCAL SALES TAXES

Using local sales taxes to fund urban transportation infrastructure is another approach to congestion mitigation. A one percent increase in the sales tax in 13 urban counties would generate \$8.2 billion over 20 years. That money might be used for transit systems, roadway projects, or nonvehicular improvements. Local sales taxes would require local referenda. Opponents may argue that such taxes are not fair to residents of adjacent counties. Yet congestion costs are likely to be greatest at regional employment and commercial centers, and commercial sales are a proxy for transportation demand. Thus, transportation infrastructure costs in regional centers might be addressed in this way.

THE IMPACT OF SUPPLEMENTAL FUNDING

Collectively, these supplemental funding sources would generate \$20.5 billion over the next 20 years. Some of these revenues are purely local (parking fees and local sales taxes). Other supplemental revenues are already committed to other uses. The current sales tax on vehicles (\$1.9 billion) and the sales and surcharge collections on vehicle rentals (\$379 million) are committed, with most of that money going to education.¹⁷ Because education revenues are scarce at this time, pulling away current funding is not an option unless another source is identified. Removing these previous commitments reduces the potential supplemental revenue stream by \$2.2 billion to \$18.3 billion (Table 3.7).

Scenarios 3a and 3b: Current and Supplemental Revenue Sources With Moderate & High Federal Funding		
Assumptions		
<ul style="list-style-type: none"> • Current funding sources at current rates • Six new supplemental sources added • Federal funds increased to \$16.4 billion or \$20.8 billion over 20 years 		
Results (20-Year Total)	3a: Mid Federal	3b: High Federal
Revenue raised:	\$48.3 billion	\$52.7 billion
Percent of needed funds:	84.9%	92.6%
Funding gap:	\$8.6 billion	\$4.2 billion
Tax & Fee Rates	Year 1	Year 20
State fuel tax	16.0 cpg	16.0 cpg
Vehicle registration fee	\$12 per year	\$12 per year

Deducting previous commitments, new supplemental revenue sources added to moderate and high federal revenue scenarios and to current revenue sources increase total revenues to between \$48.3 billion and \$52.6 billion, respectively. Those revenue

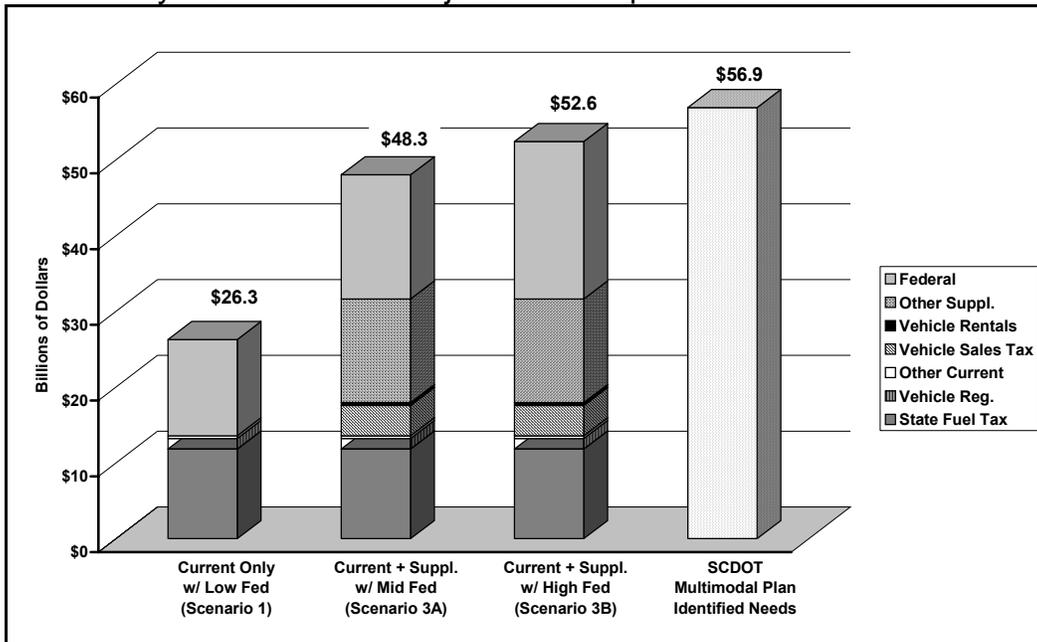
projections amount to between 84.9 and 92.6 percent of the revenue target, leaving a funding gap of between \$4.2 and \$8.6 billion (Figure 3.5). To close the remaining gap from these revenue options would require average state fuel taxes of 27.3 cpg or 21.5 cpg over 20 years, depending on whether the moderate or high federal funding scenarios are used. Although the remaining gap is substantially reduced, it is important to note that this scenario assumes supplemental funding including a sales tax on fuel, and the availability of increased federal funding.

Table 3.7
Projected Revenues for Scenarios 1, 3a and 3b:
Current and Supplemental Sources With Increased Federal Funding^a

	Scenario 1	Scenario 3a	Scenario 3b
	Current Revs. & Rates w/ Low Federal	Current & Supplemental w/ Mid Federal	Current & Supplemental w/ High Federal
<i>(Billions of 2002 Dollars)</i>			
Current Revenue Sources	\$26.3	\$30.0	\$34.3
State Fuel Tax	11.8	11.8	11.8
Vehicle Registration Fees	1.4	1.4	1.4
Current Tolls	0.1	0.1	0.1
Miscellaneous ^b	0.2	0.2	0.2
Federal	12.7	16.4	20.8
Supplemental Revenue Sources	\$0.0	\$18.3	\$18.3
Vehicle Sales Tax ^c	0.0	4.0	4.0
Vehicle Rental Fee ^c	0.0	0.3	0.3
Fuel Sales Tax	0.0	3.8	3.8
Interstate Tolls	0.0	1.8	1.8
Parking Fee	0.0	0.2	0.2
Local Sales Tax for Transp.	0.0	8.2	8.2
Total	\$26.3	\$48.3	\$52.7
<i>(Percent of Total Revenues)</i>			
Current Revenue Sources	100.0%	62.0%	65.2%
State Fuel Tax	45.0%	24.5%	22.4%
Vehicle Registration Fees	5.2%	2.8%	2.6%
Current Tolls	0.6%	0.3%	0.3%
Miscellaneous ^b	0.8%	0.4%	0.4%
Federal	48.4%	34.0%	39.5%
Supplemental Revenue Sources	0.0%	37.9%	34.8%
Vehicle Sales Tax ^c	0.0%	8.3%	7.6%
Vehicle Rental Fee ^c	0.0%	0.7%	0.7%
Fuel Sales Tax	0.0%	7.9%	7.2%
Interstate Tolls	0.0%	3.8%	3.5%
Parking Fee	0.0%	0.3%	0.3%
Local Sales Tax for Transp.	0.0%	16.9%	15.5%
Total	100.0%	100.0%	100.0%

^aRevenue projections and distributions for 20 year planning horizon. ^bIncludes general fund appropriations. ^cPrevious commitments excluded. Detail may not sum to totals due to rounding.

Figure 3.5
 Scenarios 1, 3a, and 3b:
 Twenty-Year Revenue Projections Compared to Identified Needs



**SCENARIO 4:
 INITIAL RATE INCREASES AND INDEXING OF
 STATE FUEL TAX AND VEHICLE REGISTRATION FEES**

Scenario 4 introduces initial increases in vehicle registration fees and state fuel taxes and inflation indexing. In this scenario, vehicle registration fees include an initial bump from \$12 to \$17.50 per year (assessed bi-annually) and state fuel taxes increase by five cents per gallon. All supplemental revenue sources are included with the exception of existing car sales taxes and rental car receipts that are already committed. By introducing initial increases in vehicle registration fees and state fuel taxes with inflation indexing of these two key revenue sources, projected revenues are sufficient to either meet or exceed projected needs depending on the federal funding assumption.

Inflation indexing alone can make a big difference in revenues from the fuel tax over time. Starting at the current tax rate of 16 cpg, indexing state fuel taxes at 2.5 percent per year generates an additional \$4.0 billion in revenue over the next 20 years, a 33.0 percent increase over current rates without indexing. With inflation indexing alone, total revenues available to support transportation infrastructure would increase to between \$52.9 billion and \$57.2 billion, depending on the level of federal funding. The index applied corresponds to the average rate of increase in the Consumer Price Index (CPI) over the past decade. This growth rate may seem high in today’s deflationary economy, but it seems reasonable as a real rate of return over the long term. In any event, the index should have a built-in annual adjustment factor to reflect changes in the CPI.

With an initial rate increase to 21.0 cpg and indexing applied thereafter, state fuel taxes would generate \$20.8 billion in revenue over 20 years at an average fuel price of 27.5 cpg. Vehicle registration fees based on an initial rate increase and indexing would generate \$2.3 billion over this time period. Depending on the level of federal revenue, total revenues are projected at between \$58.2 or \$62.5 billion (Table 3.8, Figure 3.6).

Scenarios 4a and 4b: Current and Supplemental Sources With Rate Increases & Indexing With Moderate or High Federal Funding		
Assumptions		
<ul style="list-style-type: none"> • All current funding sources included • Six new supplemental sources added • State fuel tax increased to 21 cpg then indexed at 2.5% per year • Auto registration fee increased to \$17.50 per year then indexed (2.5% per yr) • Truck registration fees increased proportionately then indexed (2.5% per yr) • Federal funds increased to \$16.4 billion or \$20.8 billion over 20 years 		
Results (20-Year Total)	4a: Mid Federal	4b: High Federal
Revenue raised:	\$58.2 billion	\$62.5 billion
Percent of needed funds:	102.3%	110.0%
Funding gap:	None	None
Tax & Fee Rates	Year 1	Year 20
State fuel tax range	21.0 cpg	34.4 cpg
Avg. fuel tax over 20 yrs.	27.5 cpg	27.5 cpg
Auto registration fee	\$17.50 per year	\$28.68 per year

Although this scenario meets or exceeds the revenue target, it is important to note that the scenario continues to rely on full funding of the supplemental revenue sources (minus previous commitments), an initial increase in vehicle registration fees and state fuel taxes, increased federal support, and finally indexing of state fuel taxes and vehicle registration fees. With those inclusions, the mix of funding sources changes significantly compared to current funding sources. This alternative funding mix is indicated in Figure 3.7, which is shown with the high federal fuel revenue assumption.

Table 3.8
 Projected Revenues for Scenarios 1, 4a and 4b:
 Current and Supplemental Sources Including Indexed State Fuel Tax
 And Vehicle Registration Fees With Increased Federal Funding^a

	Scenario 1	Scenario 4a	Scenario 4b
	Current Revs & Rates w/ Low Federal	Current & Supplemental w/ Indexing & Mid Federal	Current & Supplemental w/ Indexing & High Federal
(Billions of 2002 Dollars)			
Current Revenue Sources	\$26.3	\$39.8	\$44.2
State Fuel Tax	11.8	20.8	20.8
Vehicle Registration Fees	1.4	2.3	2.3
Current Tolls	0.1	0.1	0.1
Miscellaneous ^b	0.2	0.2	0.2
Federal	12.7	16.4	20.8
Supplemental Revenue Sources	\$0.0	\$18.3	\$18.3
Vehicle Sales Tax ^c	0.0	4.0	4.0
Vehicle Rental Fee ^c	0.0	0.3	0.3
Fuel Sales Tax	0.0	3.8	3.8
Interstate Tolls	0.0	1.8	1.8
Parking Fee	0.0	0.2	0.2
Local Sales Tax for Transp.	0.0	8.2	8.2
Total	\$26.3	\$58.2	\$62.5
(Percent of Total Revenues)			
Current Revenue Sources	100.0%	68.5%	70.6%
State Fuel Tax	45.0%	35.7%	33.2%
Vehicle Registration Fees	5.2%	3.9%	3.7%
Current Tolls	0.6%	0.3%	0.2%
Miscellaneous ^b	0.8%	0.4%	0.3%
Federal	48.4%	28.2%	33.2%
Supplemental Revenue Sources	0.0%	31.6%	29.3%
Vehicle Sales Tax ^c	0.0%	6.9%	6.4%
Vehicle Rental Fee ^c	0.0%	0.6%	0.6%
Fuel Sales Tax	0.0%	6.6%	6.1%
Interstate Tolls	0.0%	3.2%	2.9%
Parking Fee	0.0%	0.3%	0.3%
Local Sales Tax for Transp.	0.0%	14.0%	13.0%
Total	100.0%	100.0%	100.0%

^aRevenue projections and distributions for 20 year planning horizon. ^bIncludes general fund appropriations.

^cPrevious commitments excluded. Detail may not sum to totals due to rounding.

Figure 3.6
 Scenarios 1, 4a, and 4b:
 Twenty-Year Revenue Projections Compared to Identified Needs

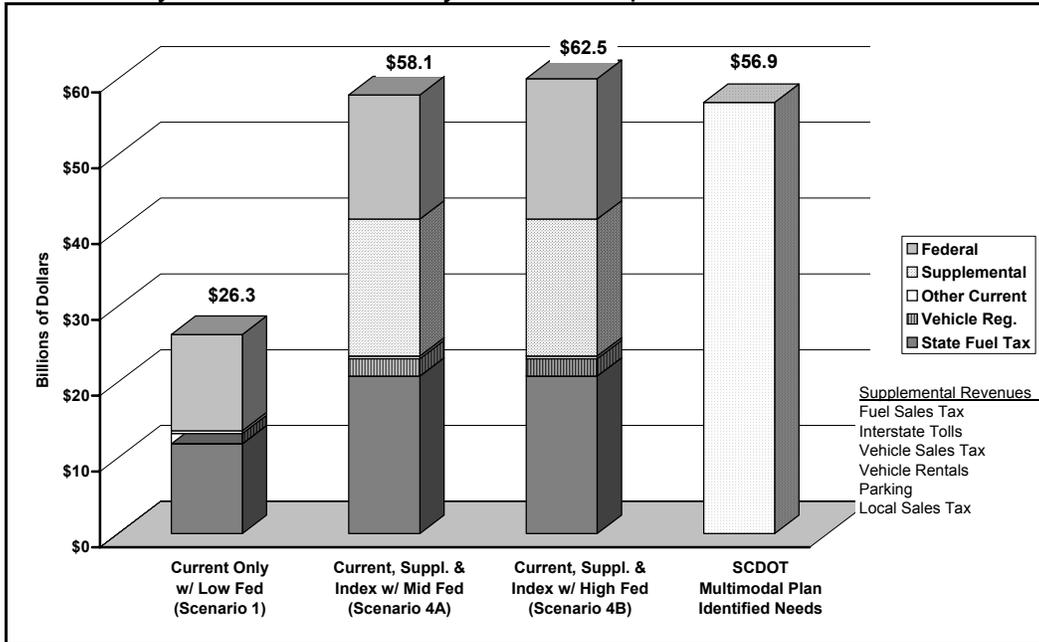
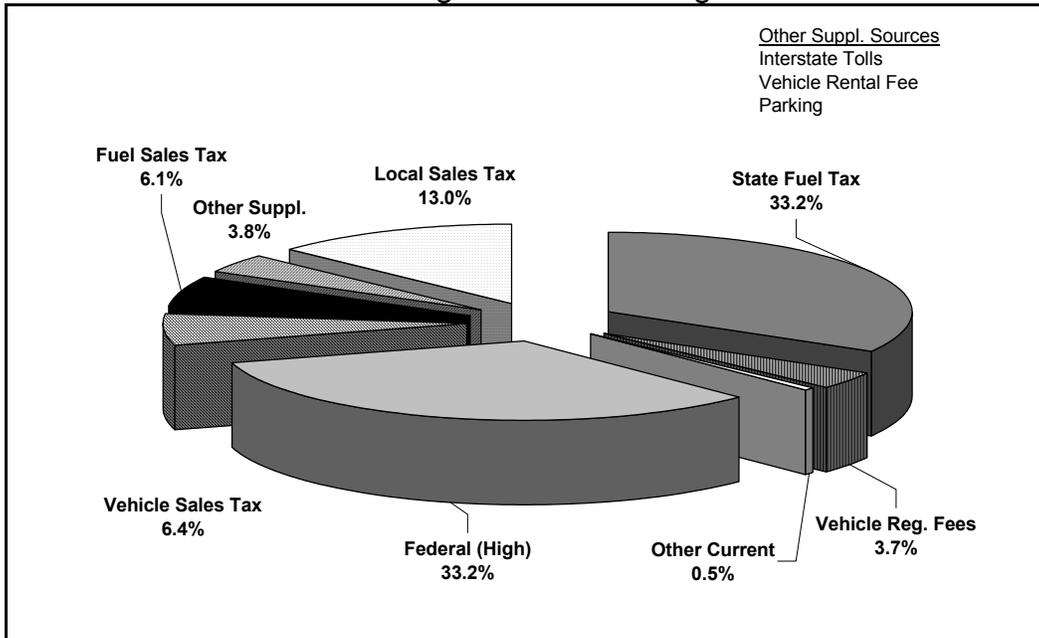


Figure 3.7
 Scenario 4b: Twenty-Year Revenue Mix:
 Current and Supplemental Revenues With Indexing
 and High Federal Funding



**SCENARIO 5:
INDEXED STATE FUEL TAX AND VEHICLE REGISTRATION FEES
WITH SUPPLEMENTAL SOURCES EXCLUDED**

The new supplemental revenue sources introduced in Scenario 5 will be politically contentious whether they involve the removal of the sales tax cap on vehicles, the introduction of local option sales taxes, tolling on interstates, or a sales tax on fuel purchases. With all of the supplemental sources (minus previous legislative commitments) in place, initial rate increases and inflation indexing of state fuel tax rates and vehicle registration fees close or exceed the initial funding gap. On the other hand, failure to enact all or most of these supplemental revenue options will once again leave a substantial shortfall.

Scenario 5 examines the impact of removing these supplemental revenues from the funding mix while preserving initial increases and inflation indexing of the state fuel tax rate and vehicle registration fees. Both Scenarios 5a and 5b include an initial increase in vehicle registration fees from \$12 to \$17.50 (annualized) and an initial five cpg increase in the state motor fuel tax as introduced in Scenario 4.

With those initial rate hikes and indexing, projected revenues range from \$39.8 billion and \$44.2 billion, depending on the level of federal support or between 70.0 percent and 77.7 percent of identified infrastructure needs. These adjustments without supplemental

Scenarios 5a and 5b: Current Revenue Sources Only With Rate Increases & Indexing With Moderate & High Federal Funding		
Assumptions		
<ul style="list-style-type: none"> • All current funding sources included • All supplemental sources excluded • State fuel tax increased to 21 cpg then indexed at 2.5% per year • Auto registration fee increased to \$17.50 per year then indexed (2.5%/yr) • Truck registration fees increased proportionately then indexed (2.5%/yr) • Federal funds increased to \$16.4 billion or \$20.8 billion over 20 years 		
Results (20-Year Total)	5a: Mid Federal	5b: High Federal
Revenue raised:	\$39.8 billion	\$44.2 billion
Percent of needed funds:	70.0%	77.7%
Funding gap:	\$17.1 billion	\$12.7 billion
Tax & Fee Rates	Year 1	Year 20
State fuel tax	21.0 cpg	34.4 cpg
Average fuel tax (20 yrs.)	27.5 cpg	27.5 cpg
Auto registration fee	\$17.50 per year	\$28.68 per year

funds leave a funding gap with the projected shortfall estimated at between \$12.7 billion and \$17.1 billion. The average state fuel tax rate under this scenario amounts to 27.5 cpg that includes indexing and an initial increase to 21 cpg (Table 3.9, Figure 3.8).

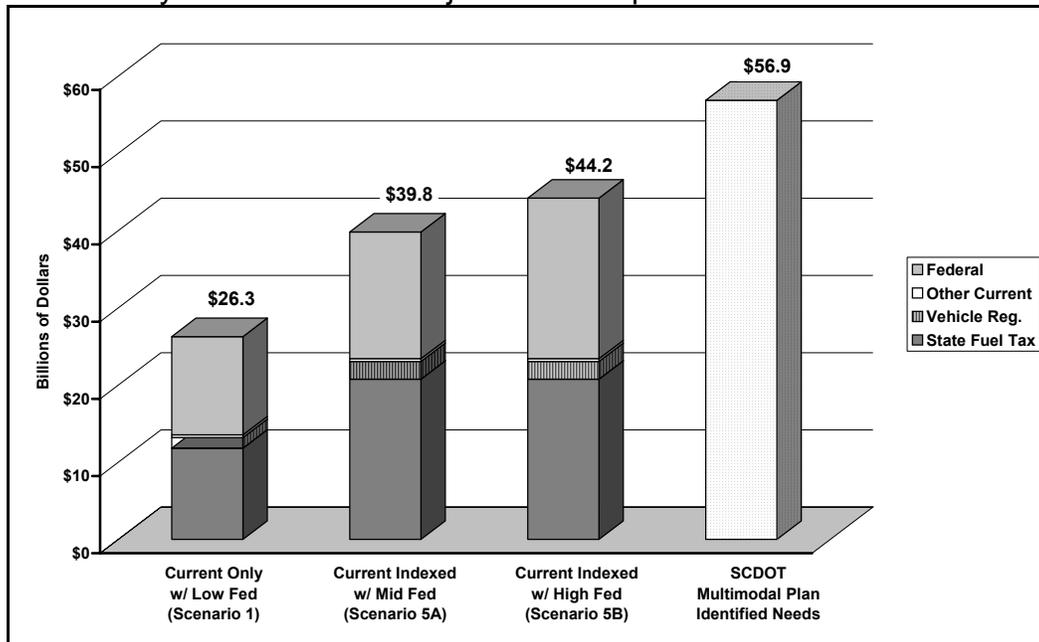
Table 3.9
Projected Revenues for Scenarios 4 and 5:
Current Revenues With Indexing and Increased Federal Funding
(Supplemental Sources Excluded)^a

	Scenario 4a	Scenario 4b	Scenario 5a	Scenario 5b
	Current & Supplemental w/ Indexing & Mid Federal	Current & Supplemental w/ Indexing & High Federal	Current Only w/ Indexing & Mid Federal	Current Only w/ Indexing & High Federal
<i>(Billions of 2002 Dollars)</i>				
Current Revenue Sources	\$39.8	\$44.2	\$39.8	\$44.2
State Fuel Tax	20.8	20.8	20.8	20.8
Vehicle Registration Fees	2.3	2.3	2.3	2.3
Current Tolls	0.1	0.1	0.1	0.1
Miscellaneous ^b	0.2	0.2	0.2	0.2
Federal	16.4	20.8	16.4	20.8
Supplemental Revenue Sources	\$18.3	\$18.3	\$0.0	\$0.0
Vehicle Sales Tax	4.0	4.0	0.0	0.0
Vehicle Rental Fee	0.3	0.3	0.0	0.0
Fuel Sales Tax	3.8	3.8	0.0	0.0
Interstate Tolls	1.8	1.8	0.0	0.0
Parking Fee	0.2	0.2	0.0	0.0
Local Sales Tax for Transp.	8.2	8.2	0.0	0.0
Total	\$58.1	\$62.5	\$39.8	\$44.2
<i>(Percent of Total Revenues)</i>				
Current Revenue Sources	68.5%	70.6%	100.0%	100.0%
State Fuel Tax	35.7%	33.2%	52.2%	47.0%
Vehicle Registration Fees	3.9%	3.7%	5.8%	5.2%
Current Tolls	0.3%	0.2%	0.4%	0.3%
Miscellaneous ^b	0.4%	0.3%	0.5%	0.5%
Federal	28.2%	33.2%	41.2%	47.0%
Supplemental Revenue Sources	31.6%	29.3%	0.0%	0.0%
Vehicle Sales Tax	6.9%	6.4%	0.0%	0.0%
Vehicle Rental Fee	0.6%	0.6%	0.0%	0.0%
Fuel Sales Tax	6.6%	6.1%	0.0%	0.0%
Interstate Tolls	3.2%	2.9%	0.0%	0.0%
Parking Fee	0.3%	0.3%	0.0%	0.0%
Local Sales Tax for Transp.	14.0%	13.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%

^aRevenue projections and distributions for 20 year planning horizon. ^bIncludes general fund appropriations.
Note: Detail may not sum to totals due to rounding.

To fully close the gap once again without including supplemental revenues requires an average state fuel tax of either 49.9 cpg or 44.1 cpg, depending on the level of federal revenues. Under those scenarios, state fuel tax revenues would account for between 66.5 percent and 58.8 percent of the transportation budget compared with 45.0 percent of the budget for transportation infrastructure at the present time.

Figure 3.8
 Scenarios 1, 5a, and 5b:
 Twenty-Year Revenue Projections Compared to Identified Needs



**SCENARIO 6:
 REVENUE PROJECTIONS RECOMMENDED BY THE
 BUSINESS ALLIANCE FOR TRANSPORTATION**

The final scenario is based on funding recommendations from the South Carolina Transportation Policy and Research Council’s Business Alliance for Transportation (South Carolina Transportation Policy and Research Council 2003). The Business Alliance for Transportation recommended new funding of \$326 million per year for transportation infrastructure improvements (Table 3.10). An immediate increase in the user fee on gasoline (eight cpg) and diesel (five cpg) are included with inflation indexing. Also included are a highway safety fee on the sale of new (\$300) and used (\$75) vehicles, a rental car fee (\$6 per day), and increased automobile registration and drivers license fees. In aggregate, the fully implemented recommendations called for an additional \$326 million in annual funding to meet transportation needs with the focus of their effort being on highway funding. Appendix D describes how the Business Alliance for Transportation’s recommendations were fit to the 20-year analysis period.

Table 3.10
Business Alliance for Transportation Proposal:
New Revenues for Transportation Infrastructure

	Rate	2003 (\$ millions)
Motor Fuel User Fee		\$206.0
Gasoline User Fee	8 cpg	
Diesel User Fee	5 cpg	
Highway Safety Fee		\$72.0
New Vehicle Purchase	\$300 per vehicle	
Used Vehicle Purchase	\$75 per vehicle	
Rental Car Fee	\$6 per day	\$17.0
Auto Registration Fee	\$17.50 per yr.	\$15.8
Alternate Fuel Vehicle Fee	\$200 per yr.	n.a.
Drivers License Fee	\$25 per yr.	\$15.2
Total		\$326.0

n.a. = not available.

Source: South Carolina Transportation Policy and Research Council 2003.

**Scenarios 6a and 6b:
Business Alliance for Transportation Recommendations
With Moderate & High Federal Funding**

Assumptions

- Adapted from Business Alliance for Transportation report, January 9, 2003
- State gasoline tax increased to 24 cpg then indexed at 2.5% per year
- State diesel tax increased to 21 cpg then indexed at 2.5% per year
- Fuel price shown below is a weighted average of gasoline and diesel
- Auto registration fee increased to \$17.50 per year then indexed (2.5%/yr)
- Drivers license fee increased to \$25.00 (increase only for transportation)
- Federal funds increased to \$16.4 billion or \$20.8 billion over 20 years

Results (20-Year Total)	6a: Mid Federal	6b: High Federal
Revenue raised:	\$43.3 billion	\$47.7 billion
Percent of needed funds:	76.2%	83.9%
Funding gap:	\$13.6 billion	\$9.2 billion
	Year 1	Year 20
State fuel tax (wgtd. avg.)	23.9 cpg	38.2 cpg
Average fuel tax (20 yrs.)	31.0 cpg	31.0 cpg
Auto registration fee	\$17.50 per year	\$28.68 per year
Average reg. fee (20 yrs.)	\$22.91 per year	\$22.91 per year

To put these figures in a 20-year time frame, the Business Alliance recommendations were run following the methodology used in the previous scenarios. Adjustments were made for committed earmarks, registration fees were made biennial, and only

incremental drivers license fees were included as current fees are already committed (Table 3.11). Under this scenario, new revenues are projected to amount to \$13.4 billion. Total revenues are projected to increase to \$43.3 billion or \$47.7 billion, depending on the federal revenue assumption. The funding gap remains between \$13.6 and \$9.2 billion (Figure 3.9). To be fair, the Business Alliance for Transportation focused solely on road and bridge needs although that is only 85 percent of the state's identified transportation infrastructure needs.

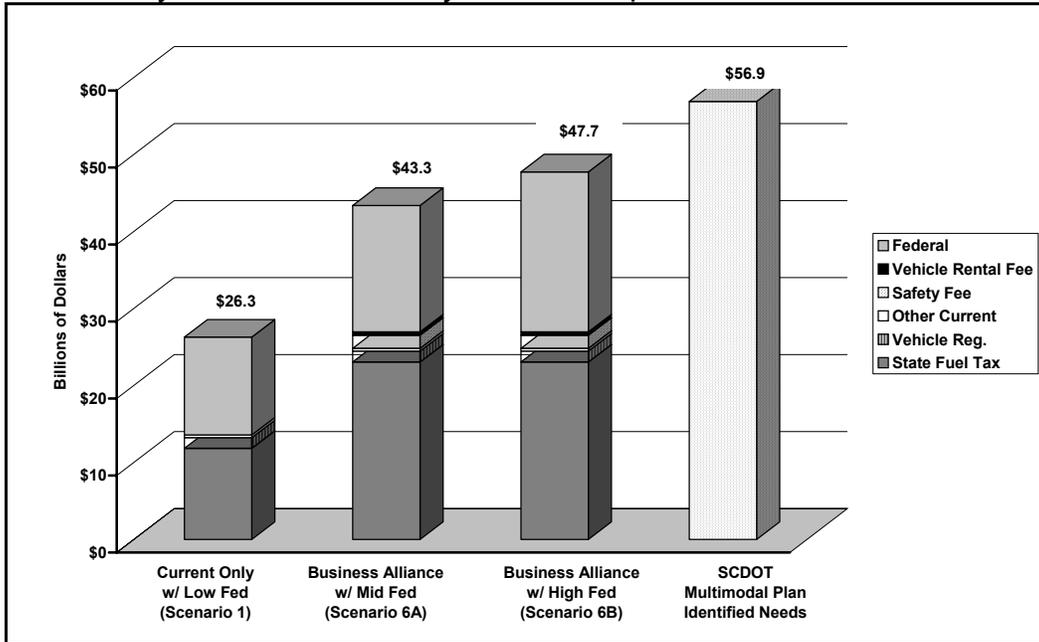
This extension of the Business Alliance for Transportation's policy recommendations into a 20-year revenue estimate only closes between 76.2 percent and 83.9 percent of the transportation infrastructure funding gap, depending on the level of federal support. While the Business Alliance for Transportation's recommendations have generated support from the business community, they have not as yet been fully embraced by the General Assembly. These recommendations are a good start but other funding options will be required to meet long-term needs.

Table 3.11
Revenue Projections Based on Recommendations from the
Business Alliance for Transportation^a

	Scenario 1	Scenario 6a	Scenario 6b
	Current Revs & Rates w/ Low Federal	Business Alliance For Transportation w/ Mid Federal	Business Alliance For Transportation w/ High Federal
(Billions of 2002 dollars)			
Proposed Revenue Sources	\$26.3	\$43.3	\$47.7
State Fuel Tax	11.8	23.0	23.0
Vehicle Reg. & Driver Fees	1.4	1.4	1.4
Current Tolls	0.1	0.1	0.1
Miscellaneous ^b	0.2	0.2	0.2
Highway Safety Fee	0.0	1.7	1.7
Vehicle Rental Fee	0.0	0.4	0.4
Federal	12.7	16.4	20.8
(Percent of total revenues)			
Proposed Revenue Sources	100.0%	100.0%	100.0%
State Fuel Tax	45.0%	53.1%	48.3%
Vehicle Reg. & Driver Fees	5.2%	3.3%	3.0%
Current Tolls	0.6%	0.3%	0.3%
Miscellaneous ^b	0.8%	0.5%	0.4%
Highway Safety Fee	48.4%	3.9%	3.6%
Vehicle Rental Fee	0.0%	1.0%	0.9%
Federal	0.0%	37.8%	43.5%

^aRevenue projections and distributions for 20 year planning horizon. ^bIncludes general fund appropriations.
Note: Detail may not sum to totals due to rounding.

Figure 3.9
 Scenarios 1, 6a, and 6b:
 Twenty-Year Revenue Projections Compared to Identified Needs



CHAPTER FOUR

IMPLICATIONS

This report identifies a \$30.6 billion funding gap between South Carolina's identified transportation infrastructure needs over the coming 20 years and the current revenue base. All states are facing funding shortfalls, but the situation in South Carolina is particularly daunting given the state's low revenue base per capita and per road mile, high projected population growth rates, and increasing level of urbanization.

South Carolina is highly dependent on motor fuel tax revenues to fund transportation infrastructure. The state has the second highest level of fuel tax dependency in the country despite having the sixth lowest fuel tax rate. Other current funding sources for transportation are limited, and portions of those revenues are earmarked for uses other than transportation infrastructure.

Because of budget constraints, the state has made substantial inroads in terms of innovative transportation finance with the most active State Infrastructure Bank in the country and its aggressive *27 in 7 Peak Performance Program*. Still, innovative finance mechanisms creatively adjust cash flow but do not increase the funding base. To meet identified transportation infrastructure needs, the state must expand and diversify its revenue base.

This report projects that at current rates for taxes and fees, with increased system utilization the state will generate \$26.3 billion in revenues for transportation infrastructure over the next 20 years. This figure represents a \$30.6 billion shortfall in funding for infrastructure needs identified in the *South Carolina Multimodal Transportation Plan*. Even with increased federal funding assumptions, the funding gap remains at \$22.5 billion to \$26.9 billion.

Given the current state budget crisis, meeting significant revenue shortfalls in the new fiscal year will dominate the General Assembly's political agenda. Yet, a transportation funding crisis is looming on the horizon. To address this issue with a viable transportation funding strategy will require a thorough assessment of funding options and the political will to implement a long-term funding program. There is no genie in the bottle.

It is hoped that this report and the other two reports in the series help to shed light on the magnitude of the transportation funding problem in South Carolina and offer some insight on how it might be addressed. As the state moves toward meeting long-term transportation infrastructure needs, the following recommendations are strongly suggested:

- The state must expand and diversify its funding base to close a significant and widening transportation funding gap over the next 20 years. To address this

funding gap, a detailed financial plan should be developed to meet long-term infrastructure needs. Short-term stopgap measures will not solve the problem.

- The financial plan must address multimodal transportation needs as well as highways and bridges. Highways continue to be the dominant element of the state's surface transportation system, but intermodal connections with both passenger and freight transfer facilities will be increasingly important to meet South Carolina's projected demographic and economic demands.
- Given significant transportation needs and tight budget constraints, it is important that the state be strategic in terms of transportation infrastructure investments. High priority needs that address safety, economic development, congestion, and road maintenance must be identified. Then objective funding criteria should be used to make sure that available funds are targeted to highest priority construction and maintenance expenditures.
- The transportation funding mix should promote efficiency in system delivery and utilization with heavy reliance on user fees and full cost accounting principles. At the same time, funding options must incorporate equity, accountability, and stability criteria.
- The state motor fuel tax will continue to be South Carolina's primary funding source for transportation infrastructure in the immediate future. Since the last state fuel tax increase in 1987, the purchasing power of the state fuel tax has been reduced by 38 percent. The equivalent tax rate in 2003 dollars is 25.8 cpg, or 9.8 cpg higher than the current rate. The fuel tax first must be raised to capture lost purchasing power and then be indexed for inflation to prevent future revenue erosion. Stabilization of the fuel tax base is essential.
- Greater reliance on other current revenue sources should be developed with higher shares of these revenues used to support transportation infrastructure improvements. Increased utilization of state general fund revenues will be necessary to address transportation expenditures that cannot be fully covered by user fees.
- New supplemental funding sources must be developed to broaden the transportation funding base. Even with increased federal funding, sole dependence on the state fuel tax would require an immediate jump to an average fuel tax rate of between 44 cpg and 52 cpg to close the projected funding gap over the next 20 years, depending on the level of federal funding and whether or not vehicle registration fees are increased and inflation indexed. If federal funding does not increase over current levels, the fuel tax rate would need to be as high as 57 cpg to close the funding gap. All of these tax rates are politically unacceptable and require that additional funding sources be introduced.

- Over the long term, the state will need to consider alternatives to the fuel tax to address revenue losses associated with expected technological change and greater fuel efficiency in vehicles. Smart odometer and GPS units are in development and should be operational within the next decade. The state should be proactive in terms of an eventual transition to a VMT and/or weight/distance-based funding system.
- Value pricing and congestion fees should be introduced to deal with increasing congestion in the state's urban areas and tourism destinations. By promoting greater efficiency in the use of existing infrastructure, new capital expenditures may be delayed or in some cases become unnecessary.
- Local government participation in meeting transportation priorities will be increasingly important. That participation may involve greater cost sharing on priority projects, but doing so also will require more funding options for local governments to meet expanded obligations.

ENDNOTES

¹ Adjusted fuel tax rate includes an estimate for state sales tax applied to the purchase. The five states with lower adjusted motor fuel tax rates than South Carolina are: Kentucky, New Jersey, Wyoming, Georgia, and Alaska.

² S.C. Code §§ 12-28-310, 12-28-2720, 12-28-2725, 12-28-2730, 12-28-2740, 12-28-2910, 12-28-2750.

³ SCDOT, <http://www.dot.state.sc.us/inside/revenues.html>.

⁴ S.C. Code §§ 56-3-610 through 56-3-920.

⁵ S.C. Code §§ 4-10-300 et seq., "Capital Project Sales Tax Act."

⁶ S.C. Code §12-36-2110.

⁷ South Carolina Budget and Control Board. 2003. Personal communication.

⁸ Georgia Department of Revenue, Sales and Use Tax Division. 2003. Personal communication.

⁹ North Carolina Department of Revenue. Section 35-1 Highway Use Tax. (viewed at: <http://www.dor.state.nc.us/practitioner/sales/bulletins/section35.html>)

¹⁰ South Carolina Department of Revenue. 2003. Personal communication.

¹¹ Estimated by authors. See Appendix C.

¹² S.C. Code §§ 6-1-910 et seq.

¹³ This report explicitly ignores the impact of the timing of transportation infrastructure projects on the cash flows required to support them.

¹⁴ Because these bonds are further backed by a pledge of the state's full faith and credit, these bonds are considered general obligation bonds although they do not contribute to the state's constitutional general obligation debt ceiling.

¹⁵ S.C. Code § 11-43-120 (C).

¹⁶ South Carolina's motor fuel excise tax on gasoline and diesel is 16 cpg. When additional per gallon and ad valorem taxes are added to the excise tax, South Carolina has the fifth lowest tax rate in the country, 16.75 cpg.

¹⁷ The state sales tax is remitted to the general fund. In the 2003 legislative session, the South Carolina General Assembly enacted legislative to raise the sales tax cap on motor vehicles from \$300 to \$2,500, with the revenues directed to education.

APPENDICES

APPENDIX A

PREDICTIVE EQUATIONS FOR VEHICLE REGISTRATIONS AND VEHICLE MILES TRAVELED

Equation with t-s8tatistics	2022 Estimate	R ²	Root MSE	Durbin- Watson
<p>Vehicle Registration Vehicle Registration = $-61122049 + 0.55\text{Population} + 31000\text{Time}$ (-2.60) (1.91) (2.52)</p>	4,312,049	0.99	48,923	0.99
<p>Vehicle Miles Traveled Vehicle Miles Traveled = $-43152 + 0.01518\text{Population} + 0.00927\text{Vehicle Registration}$ (-6.67) (4.13) (3.49)</p>	72,613	0.99	661.45	0.90

APPENDIX B

PROJECTED ANNUAL ESTIMATES FOR VEHICLE REGISTRATIONS, VEHICLE MILES TRAVELED, AND FUEL CONSUMPTION

Year	Vehicle Registration (in thousands)				Vehicle Miles Traveled (in millions)				Fuel Consumption (in millions)			
	Auto	Bus	Truck	Total	Auto	Bus	Truck	Total	Auto	Bus	Truck	Total
2003	1,916	17	1,318	3,251	48,165	143	1,457	49,765	2,788	21	243	3,052
2004	1,920	17	1,367	3,304	49,256	146	1,487	50,889	2,853	21	248	3,122
2005	1,924	17	1,417	3,358	50,348	149	1,517	52,014	2,926	22	253	3,201
2006	1,932	17	1,464	3,414	51,523	153	1,550	53,225	2,995	22	258	3,276
2007	1,941	18	1,512	3,470	52,699	156	1,582	54,437	3,074	23	264	3,361
2008	1,949	18	1,560	3,526	53,876	159	1,614	55,650	3,154	23	269	3,446
2009	1,957	18	1,608	3,583	55,052	163	1,646	56,861	3,234	24	274	3,532
2010	1,965	18	1,656	3,639	56,228	166	1,678	58,073	3,305	24	280	3,609
2011	1,973	18	1,703	3,695	57,404	170	1,710	59,284	3,377	25	285	3,686
2012	1,981	19	1,751	3,751	58,581	173	1,741	60,496	3,438	25	290	3,753
2013	1,989	19	1,799	3,807	59,759	177	1,773	61,709	3,510	26	295	3,831
2014	1,997	19	1,847	3,863	60,936	180	1,804	62,921	3,571	26	296	3,892
2015	2,005	19	1,895	3,919	62,113	183	1,835	64,132	3,632	26	301	3,959
2016	2,013	19	1,943	3,975	63,290	187	1,866	65,343	3,682	26	301	4,009
2017	2,021	20	1,990	4,031	64,467	190	1,897	66,554	3,743	27	306	4,076
2018	2,030	20	2,038	4,088	65,646	194	1,928	67,767	3,792	27	311	4,131
2019	2,038	20	2,086	4,144	66,822	197	1,959	68,978	3,852	27	311	4,191
2020	2,046	20	2,134	4,200	68,000	200	1,989	70,190	3,901	28	316	4,245
2021	2,054	20	2,182	4,256	69,177	204	2,020	71,401	3,962	28	316	4,305
2022	2,062	21	2,230	4,312	70,356	207	2,050	72,613	4,011	28	320	4,359

APPENDIX C

REVENUE PROJECTIONS: DATA SOURCES AND METHODOLOGY

1. Population

- Historical population for United States and South Carolina is from the U.S. Census Bureau (Census).
- National population projections are by the U.S. Census Bureau. State population projections were provided by the Division of Research and Statistics, South Carolina Budget and Control Board (SCBCB 2003).

2. Projected Vehicle Miles Traveled (VMTs) in South Carolina

- Total historical VMTs were regressed as a function of population and the number of registered vehicles in the state. This relationship was used to project future VMTs in South Carolina.
- Projected future VMTs in South Carolina were disaggregated using national vehicle fleet distributions by vehicle type (USDOE 2003).

3. Projected Vehicle Registrations in South Carolina

- Vehicle registration projections in South Carolina were regressed as a function of population and time for the data series corresponding to total, auto, bus and truck classes (USDOT FHWA *Highway Statistics 2001*, Tables MV-1 and MV-9).
- The authors were unable to obtain the following data from the South Carolina Division of Motor Vehicles (DMV): a) collections from vehicle registration fees by detailed vehicle type, and b) the distribution and quantity of registered vehicles by detailed vehicle type. Thus the authors were required to approximate the current number of registered vehicles in the state by vehicle type in order to develop state-level projections of vehicles by type and their associated registration fee revenues.
- The number of registered vehicles by type was approximated using the distribution of registered vehicles in 1997 provided in the USDOT's *South Carolina Transportation Profile* (USDOT BTS 2003). Vehicle type classes were approximated to the total, and trucks were disaggregated using data in Table 5-3 in the report.

4. Motor Fuel Consumption by Motor Vehicles

- Motor fuel consumption was estimated for each year in the 2003-2022 study period by dividing disaggregated vehicle miles traveled (VMTs) by individual vehicle class fuel efficiencies. Vehicle fuel efficiencies were taken from Table 96, *Components of Selected Petroleum Product Prices, East South Central*, in the supplemental tables to the U.S. Department of Energy's Annual Energy Outlook 2003 (USDOE 2003).
- Vehicle classes considered were autos, autos-light trucks, buses, and trucks.

5. Financial and Legal Information

- SCDOT historical revenues and expenditures for fiscal years 1990 to 2002 (including partial budgeted year for 2003) were taken from the department's internal publication *Comparative Statements, Net Receipts and Expenditures, State Highway Fund and Strategic Highway Program Fund*, Tables 1001-A and 101-B (SCDOT selected years).
- SCDOT Estimated Revenues and Expenditures for fiscal year 2002-03 taken from data provided on the department's Website:
<http://www.dot.state.sc.us/inside/revenues.html>.
- South Carolina state indebtedness, including highway bonds was taken from *Outstanding Debt-Detail by Issuer-As of 1/31/03* (South Carolina Office of State Treasurer).
- Annual reports and other information from the South Carolina Department of Revenue were used to develop revenue estimates associated with changes to current policies on rental car taxation.

APPENDIX D

CURRENT AND SUPPLEMENTAL REVENUE BASE ASSUMPTIONS

A. CURRENT REVENUE SOURCES IN PLACE IN SOUTH CAROLINA

1. Motor Fuel

- State motor fuel revenues are from a 16 cent per gallon (cpg) excise tax collected at the wholesale distribution point on a per gallon (volume) basis.
- Projected annual revenue from the state motor fuel tax was computed by multiplying a given tax rate by projected fuel consumption (in gallons) for each year in the 2003-2022 study period.
- For current fuel revenue, motor fuel is defined as a combination of gasoline and diesel, which are taxed at the same rate in South Carolina.
- For revenue from a supplemental fuel sales tax, motor fuel was disaggregated into gasoline and diesel so that different fuel sales prices could be applied in order to generate a more suitable “total sales” figure.

2. Vehicle Registration Fees

- Registration fees in South Carolina for autos, trucks and buses are collected biannually.
- This report utilizes six annualized vehicle registration fees and assigns one fee to autos, one to buses and four to trucks, which were disaggregated into light, medium, light-heavy and heavy-heavy.
- In each year of the twenty year study period from 2003-2022, annual vehicle registration fees for each of the six vehicle classes were multiplied by the corresponding number of vehicles projected for each class and then summed over 20 periods.
- SCDOT’s financial statements report miscellaneous fees together with vehicle registration fees. Thus revenues to SCDOT from the following programs are also included as vehicle registration fees: Keep South Carolina Beautiful license plates, driver license reinstatement, and oversize and overweight vehicles. These miscellaneous fees were projected for the period 2003-2022 as follows: SCDOT’s financial statements were reviewed for the period from 1997 to 2002 and base year revenues for each category were developed. Then, total South Carolina vehicle growth rates were applied to base year revenue in the case of the Keep South Carolina Beautiful and driver reinstatement programs. The vehicle growth rate for trucks alone was applied to base year revenue for the oversize and overweight vehicle program.

3. Toll Collections (Cross Island Parkway)

- Existing historical toll revenue data was obtained from SCDOT for March 1998-February 2003 (SCDOT 2003a).

- Historical and projected VMTs for Beaufort County were obtained from SCDOT and then a growth factor based on urban arterial VMT growth was applied to historical toll revenues in order to create projections for 2003-2022 (SCDOT 2003b).

4. General Fund (Mass Transit)

- SCDOT's historical receipts were reviewed in order to develop a base for this revenue source, which was grown annually over the study period by a factor of 1.6%, which was intended to reflect the real economic growth rate in South Carolina.
- Although in recent years the General Assembly provided SCDOT with a small amount of funding for public transit from the state general fund, no general funds are currently in the state's budget for this purpose.

5. Miscellaneous Revenue

- SCDOT's historical receipts, which are carried in SCDOT's financial statements as "miscellaneous", were reviewed in order to develop a stable base, which was grown over the study period by a factor of 1.6% per year, which was intended to reflect the real economic growth rate in South Carolina.

6. Federal Funds

- Federal funds were computed on an annual basis and then summed over the twenty-year study period.
- A federal fuel tax rate of 18.4 cents was multiplied by annual state fuel consumption projections. That product was multiplied by the fraction of these funds that South Carolina is expected to receive back in revenues from the federal government. The current ratio, which is a weighted average among all federal transportation programs in the state, is approximately 92%.

B. PROPOSED SUPPLEMENTAL REVENUE SOURCES

1. Motor Fuel Sales Tax

- Motor fuel sales tax revenue was computed annually by multiplying the distributed price by a fuel quantity then by a given tax of 5%, the current base sales tax rate.
- Fuel price projections for gasoline and diesel were from Table 96 in the supplemental tables to the USDOE's Annual Energy Outlook 2003 (USDOE 2003).
- Gasoline and diesel prices were applied to total fuel consumption, which was disaggregated using a historical gas and diesel sales ratio developed through data found in the SCDOT's financial statements, Table 101B (SCDOT selected years).

2. Toll Collections (Interstate 85)

- Toll collections are sourced to Attachment C of SCDOT's *Interstate Toll Feasibility Study, Draft Report*, which assumes one toll station each in Cherokee and Anderson counties charging tolls on vehicles entering South Carolina from North Carolina and leaving the state at the Georgia border (SCDOT 1999).

3. Vehicle Sales

- Motor vehicle sales categories include SIC codes 5511 (New Car Dealers), 5521 (Used Car Dealers), 5571 (Motorcycle Dealers), and 5599 (Boats and Other Recreational Vehicles).
- Gross sales data was obtained from annual reports of the South Carolina Department of Revenue (SCDOR). This data was adjusted to reflect taxable sales only by using sales information from the National Association of Automotive Dealers (NADA 2003).
- Historical trends in SCDOR's net tax receipts from vehicle sales (with the current cap on vehicle sales taxes in place) and gross receipts from vehicle sales were used to develop a ratio.
- This ratio was applied to gross projected sales from 2003-2022 in order to approximate a base upon which net tax receipts could be calculated.
- Revenue from gross vehicle sales was projected by applying a growth factor of 2.5 percent per year to historical gross vehicle sales revenue from 2001 and 2002.

4. Vehicle Rental Contract Sales

- Gross sales data for SIC 7512 (Rental Car Sales) was obtained from SCDOR annual reports. Rental surcharge collections from South Carolina Income Tax Form ST-394 were obtained directly from the SCDOR.
- Base year revenues were developed using ratios of net to gross sales and the analysis of historical trends. This amount was inflated annually over the twenty-year study period using an estimate of the future Consumer Price Index.

5. Parking

- Revenue from in-town parking spaces was estimated for Greenville, Columbia and Charleston based on available online sources and phone interviews with city parking administrators.
- Numbers of spaces, typical utilization rates and occupancy were used to develop estimated base year revenues, which were grown at 1.6% per year, the state's real economic growth factor, then summed over 2003-2022.

6. Local Sales Tax

- Base year revenues were estimated using data on Local Option Sales Tax distributions for fiscal year 2000-01 (South Carolina Office of State Treasurer 2002) as applied to 13 urban counties in the state.

- Base year revenue for a local sales tax for transportation was grown at a rate approximating the long-term real economic growth in the state to develop projections for the period from 2003 to 2022.

C. BUSINESS ALLIANCE FOR TRANSPORTATION

This scenario was developed using recommendations for changes to taxes and fees found or adapted from the January 2003 report of the South Carolina Transportation Policy and Research Council's Business Alliance for Transportation (BAT 2003).

- **User Fee:** Fees of 24 cents on gas and 21 cents on diesel were applied to the authors' motor fuel use projections for 2003-2022, which were disaggregated into fuel types using historical SCDOR gas and diesel revenues. An inflation index of 2.5% per year was applied to the fees. Earmarks in the amount of \$182 million for general fund transfers and watercraft, per the authors' scenarios, were deducted from 20-year summed revenue totals.
- **Safety Fee:** Fees of \$300 per new car and \$75 per used car were applied to sales transactions on annual basis for 2003-2022. The number of base year transactions was estimated by using the ratio between receipts for new and used auto sales from SCDOR annual reports to the Business Alliance's \$72 million estimate for 2003. Base year transactions were grown annually using the projected growth rate in state vehicle registrations. The annual number of vehicle transactions was then multiplied by the associated fees and then summed over 20 periods.
- **Rental Car Fee:** The Business Alliance's 2003 estimate of \$17 million was grown annually by 2.5% then summed over twenty periods.
- **Registration Fee:** The Business Alliance's recommended automobile registration fee of \$17.50 per year was applied to the authors' projected number of registered automobiles and then summed over 20 periods. Fees for trucks and buses were not changed.
- **Driver's License Fee:** Base year revenues were set at \$8.753 million (USDOT FHWA *Highway Statistics 2001*, Table MV-2). This base was grown at 2.5% annually as an inflation index and summed over 20 periods.
- **Registration Fee for Alternative Fuel Vehicles:** Not included.

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Number of Reports Printed:	70
Total Printing Cost:	\$293.30
Cost Per Report:	\$4.19