



North Carolina I-95 Economic Assessment Study

Task 7: Funding Options Analysis

prepared for

North Carolina Department of Transportation

prepared by

Cambridge Systematics, Inc.

with

Clary Consulting, LLC

May 2013



technical memorandum

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730 Peachtree Street, NE, Suite 1000
Atlanta, GA 30308

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1.0 Task 7: Funding Options Analysis - Technical Memorandum

Task 7 of the North Carolina I-95 Economic Impact Study is intended to evaluate potential revenue and financing options to advance the proposed corridor improvements on I-95 identified by the North Carolina Department of Transportation (NCDOT). In collaboration with NCDOT and the I-95 Advisory Council, potential revenue options were evaluated and screened based on a set of criteria that are generally applied to the analysis of transportation funding. This initial screening was qualitative and assisted in determining what funding options appear to be more “promising” to address the needs on the I-95 corridor. A subsequent assessment of a limited number of funding options resulting from the initial screening was further evaluated in terms of revenue potential, and how these can be applied to advance the proposed I-95 corridor improvements. The economic impacts of these funding options were evaluated and documented in a separate technical memorandum.

This technical memorandum summarizes the findings of Task 7, including:

- Description of current transportation funding in North Carolina;
- Benchmarking of transportation funding in comparison with neighboring states;
- Description of North Carolina’s transportation funding gap and funding needs for the I-95 corridor;
- Identification and description of potential funding options for the I-95 Corridor improvements;
- Definition and description of evaluation criteria for potential funding options;
- Initial screening of potential funding options; and
- Evaluation of revenue potential for funding options considered in the economic impact and finance analyses.

1.1 CURRENT FUNDING FOR TRANSPORTATION IN NORTH CAROLINA

Transportation in North Carolina is funded primarily from three sources: Federal funds and two different state funds (the North Carolina Highway Fund and the North Carolina Highway Trust Fund). Federal funds account for

approximately 25 percent of North Carolina’s annual transportation funding, while the remaining 75 percent comes from state revenues through taxes and fees that are deposited into both highway funds.

North Carolina Highway Fund

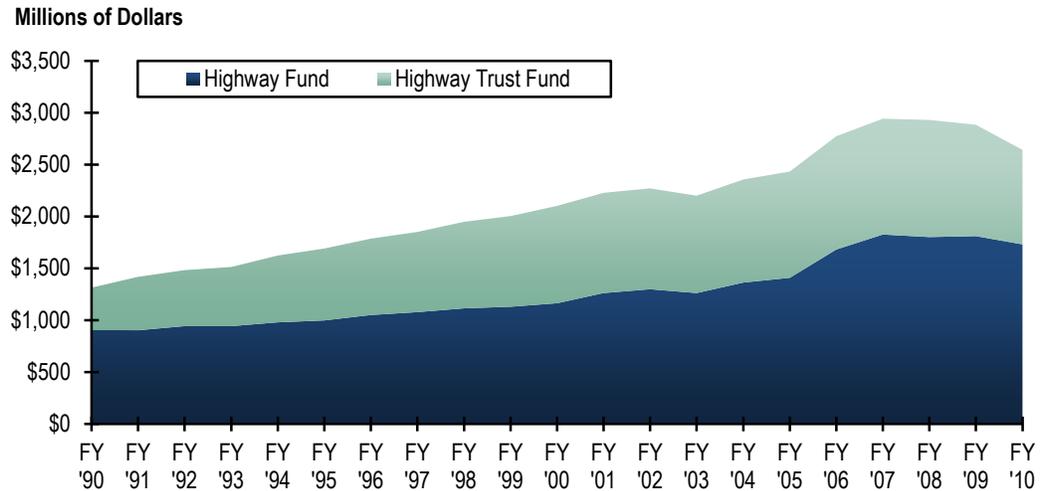
The Highway Fund dates back to 1921, when the North Carolina General Assembly first imposed the gasoline tax of one cent per gallon (cpg) on all motor vehicles fuels sold or distributed in the State. Highway Fund revenues are used to maintain the State roadway network and to fund the administrative operations of the Department of Transportation. The Highway Fund also supports multimodal programs such as air, rail, ferries, and bicycle and pedestrian programs, and provides funding for secondary road construction and maintenance.

The Highway Fund receives support from a variety of dedicated revenue sources, including state motor fuel taxes and vehicle registration and license fees (Table 1). Seventy-five percent of state motor fuel tax revenues are allocated to the Highway Fund, and these revenues account for nearly 70 percent of total annual fund revenues. Highway Fund revenues have increased from \$904 million in Fiscal Year (FY) 1990 to \$1,732 million in FY 2010 (Figure 1); however, revenues have been declining since 2007.

Table 1. Dedicated Revenue Sources for the Highway Fund and the Highway Trust Fund

	Highway Fund	Highway Trust Fund
Motor Fuels Excise Tax	●	●
Highway Use Tax		●
Title and Registration Fees	●	●
Lien Recording Fees		●
Driver’s License Fees	●	
Dealer and Manufacturer License Fees	●	
Financial Security Restoration Fees	●	
International Registration Tax	●	
Overweight/Oversize permits	●	
Penalties	●	
Safety Equipment Process Fees	●	
Vehicle Registration Fees	●	
Truck License Plate Fees	●	
Interest earned on cash balances	●	●

Figure 1. Highway Fund and Highway Trust Fund Revenues
 1990-2010



Source: The State of North Carolina, Governor’s Recommended Budget, 2011-2013, Tables 6 and 7.

North Carolina Highway Trust Fund

The North Carolina Highway Trust Fund, enacted by the North Carolina Legislature in 1989, was created to support the construction of 3,600 miles of the Intrastate Highway System and for the construction of Urban Loop highways around North Carolina’s largest cities. The Highway Trust Fund also provides funding to complete the paving of most of the State’s secondary roads as part of the Secondary Road Improvement Program and provides additional funding for the State’s cities and towns to adequately maintain their streets. The Highway Trust Fund is primarily funded from the Highway Use Tax, which is a 3 percent tax on motor vehicles when sold in the State or when the title is transferred into the State, and from the remaining 25 percent of the state motor fuels tax revenue collections. Other funding sources include vehicle registration and license fees and interest income earned by the Fund (see Table 1).

Prior to the Highway Trust Fund legislation, these state taxes were deposited into the State’s General Fund.¹ With establishment of the Highway Trust Fund, however, a statutory provision was created to continue some level of taxation support to the General Fund. General Statute (G.S.) 105-187.9 provides for the State Treasurer to annually transfer a portion of the taxes collected from the Highway Use Tax plus a variable amount to the General Fund.

Funds in the Highway Trust Fund are annually appropriated to NCDOT. Up to 4.8 percent of revenues deposited in the Highway Trust Fund may be used by

¹ Department of Transportation, North Carolina Highway Trust Fund, Performance Audit, 1998.

NCDOT for administration of the Fund. Other eligible uses of the Highway Trust Fund include operation and project development costs of the North Carolina Turnpike Authority, and annual payments dedicated to specific Authority projects as defined by legislation. The remaining funds are allocated and used as follows:²

- 61.95 percent to plan, design, and construct projects on segments or corridors of the Intrastate System;
- 25.05 percent to plan, design, and construct the urban loops;
- 6.5 percent to supplement the appropriation to cities for city streets under General Statutes; and
- 6.5 percent for secondary road construction.

The proposed improvements to the I-95 Corridor *are not eligible* for funding from the Highway Trust Fund as it currently exists. Funds allocated from the Highway Trust Fund for the Intrastate System are primarily intended to be used to complete the projects listed in G.S. 136-179. However, if allocations for the Intrastate System cannot be used in these specific projects, then the Highway Trust Fund allocations may be used for projects on other routes or corridors, as specified in G.S. 136-178 (including the I-95 Corridor from South Carolina to Virginia). A total of \$17,743 million has been deposited into the Highway Trust Fund since its inception in 1989 to 2010. Revenues into the state Highway Trust Fund also have declined over that last few years, as shown in Figure 1.

Highway Trust Fund's Equity Formula

The highway equity formula was developed in 1989 by the North Carolina General Assembly and applies to all funds expended under the State Transportation Improvement (STIP) Program. Urban loop, congestion mitigation and air quality funds, and competitive/discretionary Federal grants are exempt from the formula. Nearly one-third of the total NCDOT budget is subject to equity allocation.

The highway equity formula established seven funding regions within the State, each of which contains two highway divisions (Figure 2). The formula is updated annually and is applied to each seven-year update of the STIP. In any consecutive seven-year period, each region may receive between 90 percent and 110 percent of the amount established for it.³ Currently, the funding allocation method is as follows:

- Twenty-five percent is allocated based on the estimated number of miles remaining to complete the Intrastate System projects in that distribution

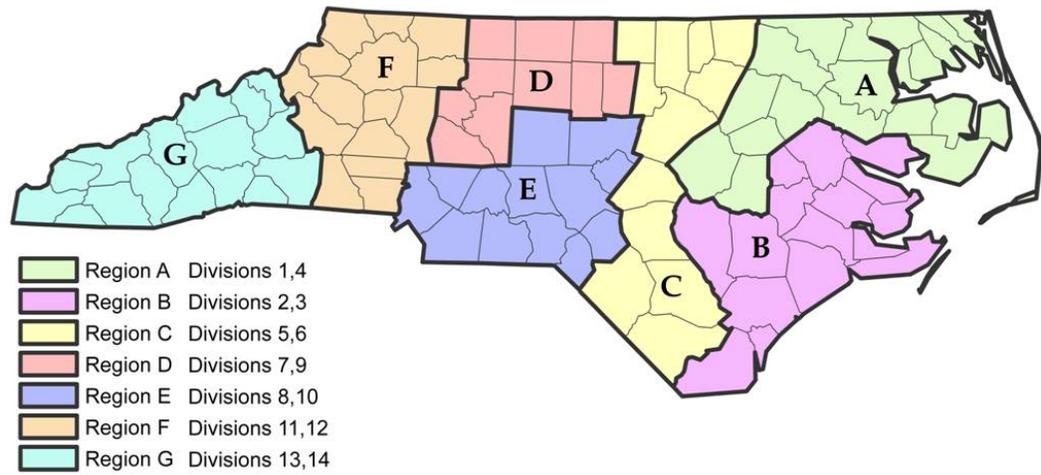
² NC General Statutes, Chapter 136, Article 14.

³ North Carolina general statute §136-17.2A.

region compared to the estimated number of miles to complete the total Intrastate System;

- Fifty percent is allocated based on the estimated population of the distribution region compared to the total estimated population of the State; and
- Twenty-five percent is equally distributed among regions.

Figure 2. North Carolina Regions for Equity Formula

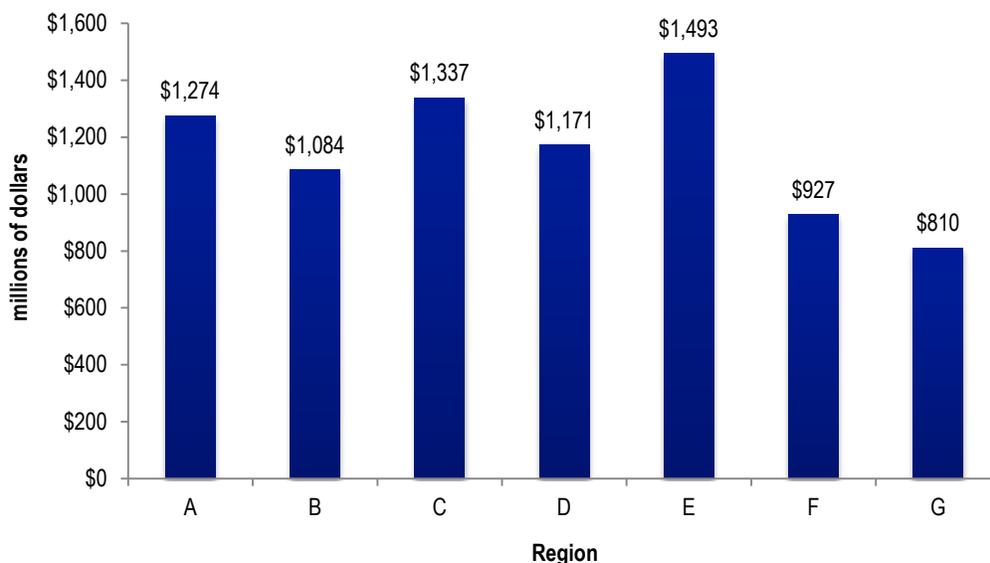


As of the final 2012-2018 STIP equity allocation, the intrastate highway system is 77 percent completed. Once the mileage of the system reaches at least 90 percent of the total planned, the fund allocation will be estimated as follows:

- Sixty-six percent will be allocated based on the estimated population of the distribution region compared to the total estimated population of the State; and
- Thirty-four percent will be equally distributed among regions.

The total amount programmed for allocation in accordance with the final 2012-2018 STIP for highway construction funds is \$8,097 million. The I-95 corridor runs through Regions A and C, which have been allocated \$1,274 and \$1,337 million of these funds, respectively (Figure 3).

Figure 3. Equity Formula Allocation
2012-2018 STIP



The equity formula plays an important role in assessing potential revenue sources to support I-95 corridor investments. If new revenue sources are subject to the equity formula, it would impact the eligibility of funding to pay for I-95 improvements and whether the additional funding allocated to the regions can free up resources that could be then reallocated to support the I-95 needs.

I-95 Corridor and NCDOT Needs/Funding Gap

NCDOT has estimated the cost of the proposed I-95 Corridor improvements at \$4,449 million (2011 dollars). About \$455 million (or roughly 10 percent of the funding needs in existing funding (programmed and anticipated funding) have been identified through the Statewide Transportation Improvement Program (STIP), NCDOT’s needs and funding availability, however, go far beyond the I-95 corridor.

North Carolina has the nation’s second largest road network in the U.S., with over 80,000 miles of state-maintained roads. The level of responsibility faced by NCDOT, combined with continued population growth, places significant demand on North Carolina’s transportation infrastructure. The Long-Range Transportation Plan, also known as the 2040 Plan, determined the modal needs by investment category for the next 30 years to develop future investment strategies (i.e., aviation, rail, bicycle/pedestrian, public transportation, ferries, ports, and highways), and the available resources to implement the State’s transportation needs. The revenue forecast of North Carolina’s Highway Fund and Highway Trust Fund indicate that current funding sources are not sufficient to maintain the systemwide condition through 2040. The 2040 Plan estimates that NCDOT needs \$86,300 million to maintain the current level of service, yet NCDOT’s baseline revenues are forecast at only \$54,030 million (2011 dollars).

1.2 REVIEW OF EXISTING STATE REVENUE SOURCES FOR THE NORTH CAROLINA HIGHWAY FUND AND HIGHWAY TRUST FUND

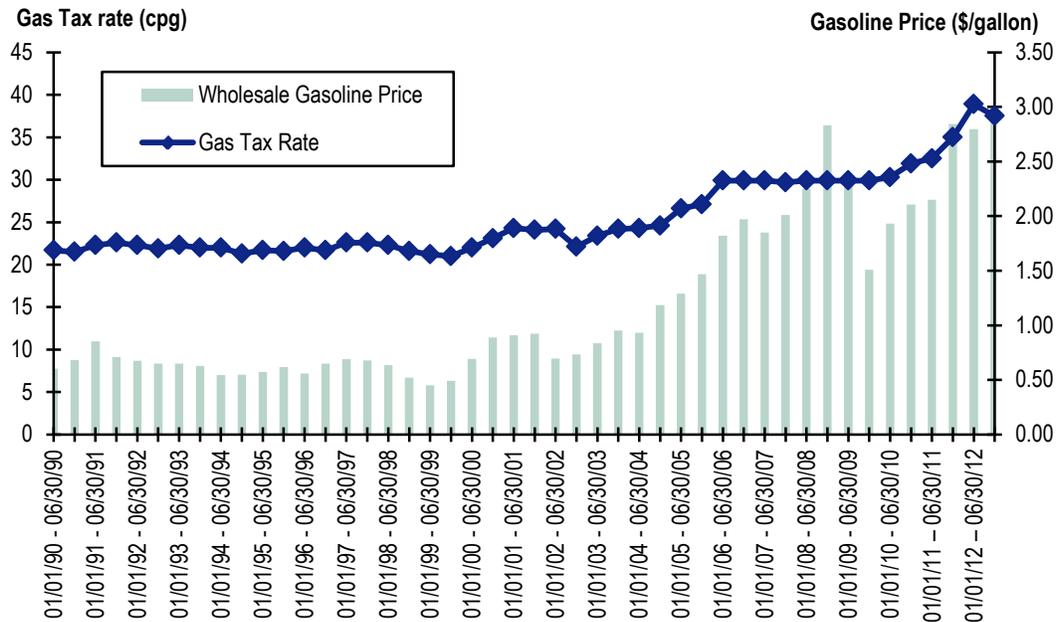
The following section discusses in detail the State revenue sources dedicated to both highway funds and their historical yield for the past 10 years.

Motor Fuel Tax

Similar to the Federal motor fuel tax, most states collect motor fuel tax on a fixed rate (for example, per gallon), and revenues are therefore dependent on consumption and not changes in price. As a result, inflationary effects have significantly eroded and will continue to erode the purchasing power of this funding source. The introduction of more fuel efficient vehicles also affects the revenue yield, as consumption declines on a per-mile-traveled basis.

North Carolina is one of few states adjusting the motor fuel tax rate based on price. The current excise motor fuel tax rate in North Carolina is 37.5 cents per gallon (cpg), and consists of two components: 1) a fixed tax rate of 17.5 cpg; and 2) a variable rate based on the average wholesale price of fuel, adjusted every six months. The variable wholesale component is either 3.5 cpg or 7 percent of the average wholesale price of motor fuel during the preceding six-month base period, whichever is greater. In July 2012, the North Carolina General Assembly adopted legislation to cap the motor fuel tax rate at 37.5 cpg through June 2013. The motor fuel tax rate has ranged between 21.3 cpg and 38.9 cpg over the last 20 years, with rates exceeding 30 cpg since January 2010 (Figure 4).

**Figure 4. North Carolina Motor Fuel Tax Rate and Wholesale Gas Price
 1990-2012**



Source: EIA, North Carolina Total Gasoline Wholesale/Resale Price by Refiners (Dollars per Gallon); Tax rate from North Carolina Department of Revenue.

Note: Wholesale gas price lagged by six months. The motor fuel tax rate was capped at 29.9 cpg for two years (2008 and 2009).

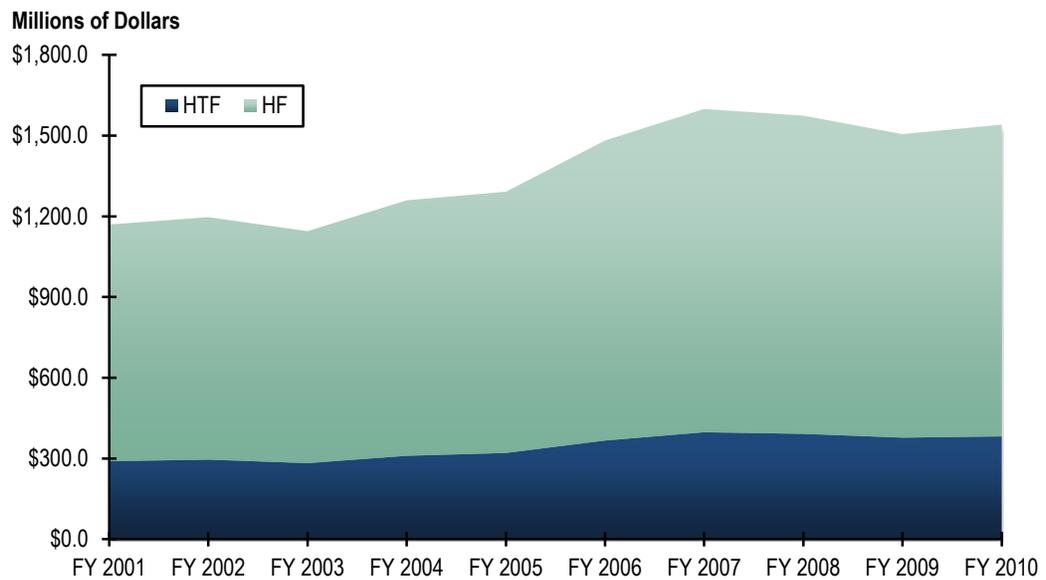
The revenue collected from the excise tax from all motor fuels sold, distributed, and used to power motor vehicles operating on public roads is split between the State Highway Fund and Highway Trust Fund. The Highway Fund portion is 75 percent of collections and the Highway Trust Fund receives the remaining 25 percent. Receipts from the motor fuel tax have increased from \$1,170.2 million in FY 2001 to \$1,541.5 million in FY 2010, growing at an average annual rate of 3.1 percent (Figure 5). The yield per penny of motor fuel taxes has declined from \$56.0 million in FY 2007 to \$53.7 million in FY 2011.

Over the long term, motor fuel tax revenues are susceptible to fuel efficiency improvements and higher penetration of alternative fuels into the market, leading to lower revenue yields. Since FY 2006, state gas tax receipts have remained stagnant due in part to the economic downturn, which resulted in less driving, and the introduction of more fuel efficient vehicles, which means more miles are driven on less gas. As shown in Figure 6, gasoline consumption has gradually increased since 2000, while diesel consumption grew significantly during the first half of the past decade, but declined significantly after 2007. It is anticipated that fuel consumption will decrease in the future as new Federal fuel efficiency standards are being implemented. In 2009, the President implemented a new national policy and set stringent Corporate Average Fuel Economy

(CAFE) standards to increase fuel efficiency and reduce greenhouse gas emissions for all new cars and trucks sold in the United States beginning in 2012 through 2016. This year, the President approved a new rule to further reduce greenhouse gas emissions and improve fuel economy for light-duty vehicles for Model Years (MY) 2017-2025. The new rule increases average fuel economy requirements for cars and light-duty trucks from 36.1 miles per gallon in 2017 to 54.5 miles per gallon by 2025.⁴

The 2040 North Carolina Statewide Transportation Plan estimates that motor fuel tax revenues will decrease from \$1,750 million (2011 dollars) in 2011 to nearly \$700 million (2011 dollars) by 2040 due to the implementation of new Federal efficiency standards (Figure 7).

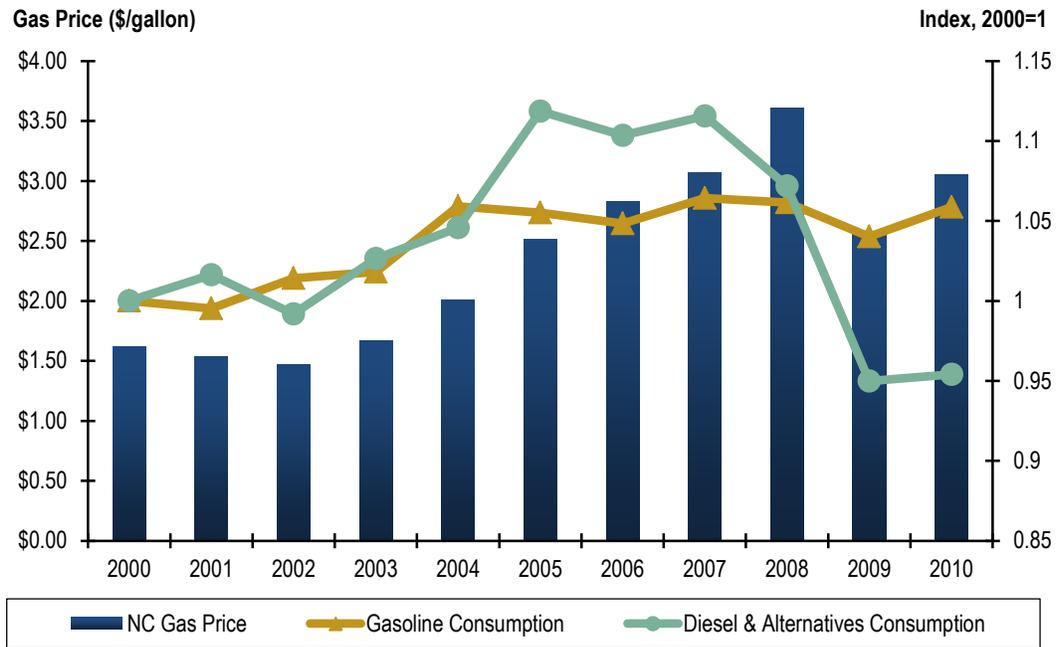
Figure 5. Motor Fuel Tax Revenue Allocations



Source: Office of State Budget and Management, North Carolina Tax Guide 2010.

⁴ The White House, Obama Administration Finalizes Historic 54.5 MPG Fuel Efficiency Standards, <http://www.whitehouse.gov/the-press-office/2012/08/28/obama-administration-finalizes-historic-545-mpg-fuel-efficiency-standard>.

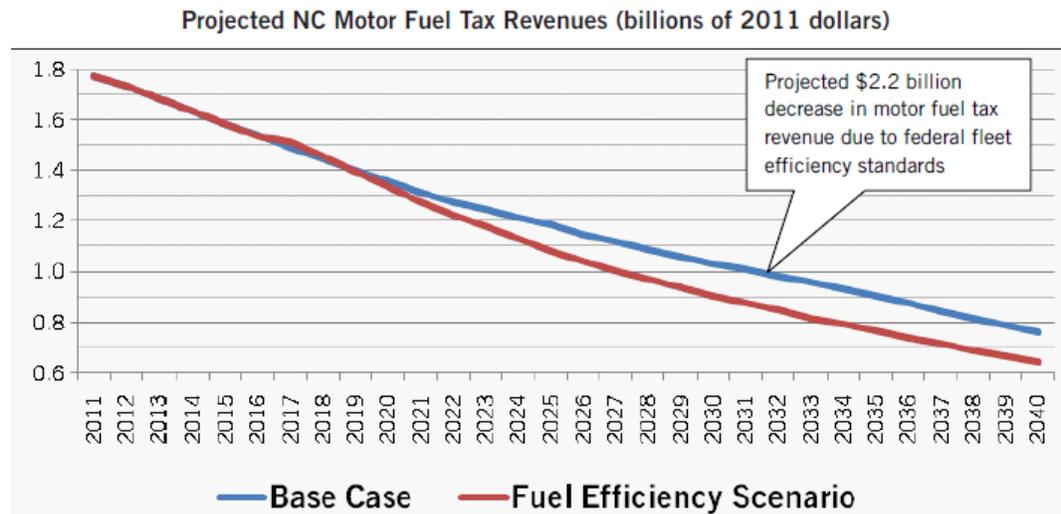
Figure 6. North Carolina Fuel Consumption (Gas and Diesel) and Gas Prices 2000-2010



Source: Gas Price from EIA; Gasoline and Diesel consumption from N.C. Department of Revenue.

Figure 7. Forecast Motor Fuel Tax Revenues

s



Source: 2040 Plan.

Note: The State's motor fuel tax rate is set at an average of 35 cpg throughout the study period.

Highway Use Tax

Contrary to many states where vehicle sales are subject to the state sales tax, North Carolina charges a Highway Use Tax every time a motor vehicle is sold in the State or the title is transferred into the State. All receipts from this tax are credited to the Highway Trust Fund. The Highway Use Tax is a three percent use tax levied on the retail sales and long-term leases of most noncommercial motor vehicles titled in North Carolina. The tax on commercial vehicles is capped at \$1,000. Motor vehicles purchased in other states and titled in North Carolina also are subject to the Highway Use Tax.

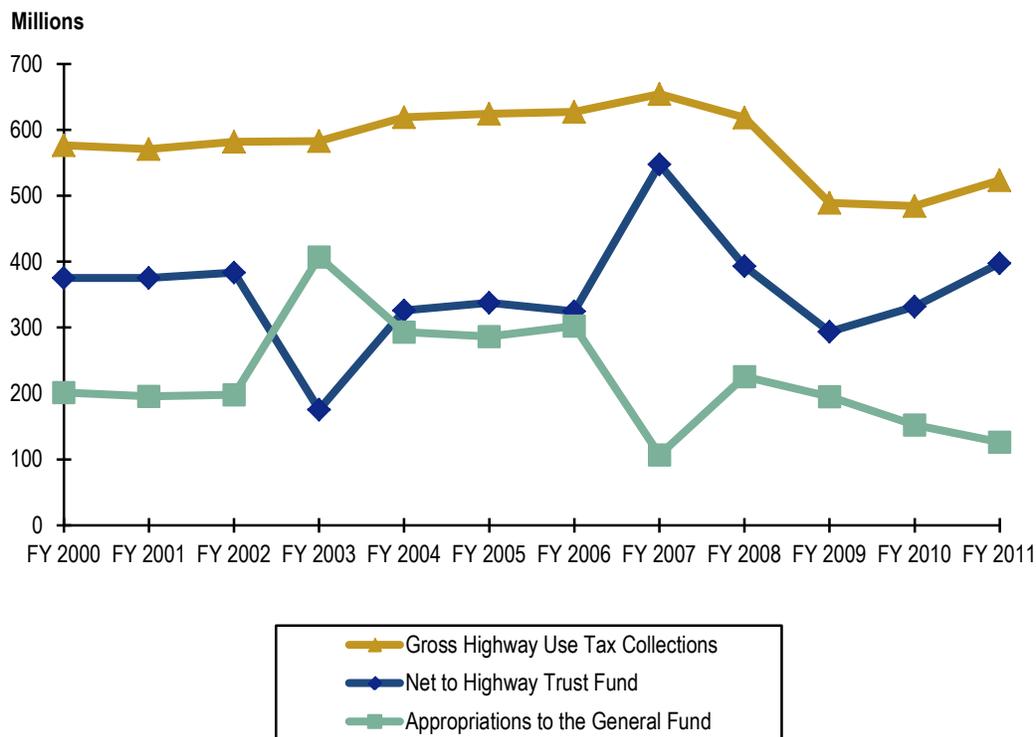
Prior to the creation of the North Carolina Highway Trust Fund in 1989, the sales and use tax on motor vehicles was collected under the General Fund. However, to compensate for the revenue loss to the General Fund, the Highway Use Tax law requires the State Treasurer to annually transfer a portion of the taxes to the General Fund.⁵ The current law requires transferring a fixed amount of \$26 million each fiscal year from the Highway Trust Fund to the General Fund, plus a variable amount that depends on 1) the tax collections from the previous 12 months and 2) the amount transferred in the previous year. However, effective July 1, 2013, annual appropriations to the General Fund from the three percent tax collections will no longer be required. By law, only \$27.6 million will be transferred to the General Fund in FY 2013.⁶

As shown in Figure 8, gross Highway Use Tax collections remained relatively stable from FY 2000 to FY 2007, increasing from \$576.5 million to \$654.2 million during this period. Since FY 2007, collections rapidly declined as a result of the economic downturn, reaching the lowest revenue numbers in recent history in FY 2010, with only \$484.3 million in revenue. Transfers to the General Fund have declined since FY 2003, resulting in an increase of net collections to the Highway Trust Fund.

⁵ NC General Statute §105-187.9.

⁶ North Carolina Department of Revenue, 2012 Tax Law Changes.

Figure 8. Highway Use Tax Revenues



Source: North Carolina Department of Revenue, Table 40, Highway Use Tax Collections.

Motor Vehicle Taxes

Motor vehicle taxes include vehicle registration fees, driver’s license fees, and vehicle title fees. North Carolina deposits vehicle registration and driver’s license fees in the Highway Fund while title fees are split between the Highway Fund and the Highway Trust Fund.⁷ Vehicle registration fees vary by vehicle-class and weight and are valid for a 12-month period. A fee of \$28.00 is levied on private passenger vehicles and a fee of \$31.00 is levied on private passenger vehicles of more than 16 passengers (Table 2). Through the International Registration Plan out-of-state motor carriers pay an apportioned fee based on fleet distance traveled in North Carolina. Vehicle registration revenues increased from \$255.1 million in FY 2001 to \$405.2 million in FY 2007 but have since declined due to a decrease in the number of vehicles registered (Figure 9).

⁷ Historically between three and four percent of title fee revenues have been deposited into the Highway Fund and the remainder into the Highway Trust Fund.

Table 2. Private Vehicle Registration Fees

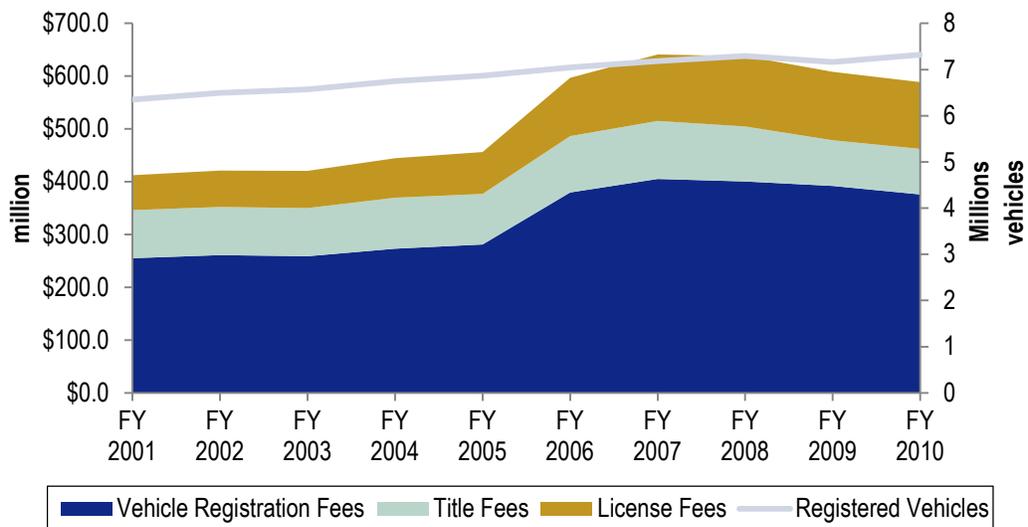
	Fee
Plate Fee, Private Passenger Vehicles	\$28.00
Plate Fee, Private Truck Under 4,000 pounds	\$28.00
Plate Fee, Private Truck Under 5,000 pounds	\$43.50
Plate Fee, Private Truck Under 6,000 pounds	\$51.60
Private Bus (16 Passengers and More)	\$31.00

Note: For schedule of weights and rates of commercial trucks refer to NCDOT, Division of Motor Vehicles.

Similar to other states, driver’s license fees in North Carolina vary according to the class of license. North Carolina licenses expire eight years after the date of issuance. The basic driver’s license - Class C - is issued for a fee of \$32.00 (an average of \$4.00 per year). Commercial licenses are issued for a fee of \$120 (\$15.00 per year). License fees and other charges are due at the time of purchase of the license or service. From FY 2001 to FY 2010, revenues from driver’s license fees have increased at an average annual rate of 7.5 percent (Figure 9).

Vehicle title fees are charges for certificates of title, registration cards, transfer of registration, and replacement of registration plate fees among other Division of Motor Vehicle (DMV) transactions. The fee for a certificate of title is \$40.00 while fees for other title-related transactions are \$15.00. Title fee revenues increased from \$91 million in FY 2001 to \$110 million in FY 2007, but have since declined.

Figure 9. Motor Vehicle Fees Revenues and Vehicle Registrations



Source: Cambridge Systematics analysis of data from the North Carolina Office of State Budget and Management (North Carolina Tax Guide 2010) and NCDOT.

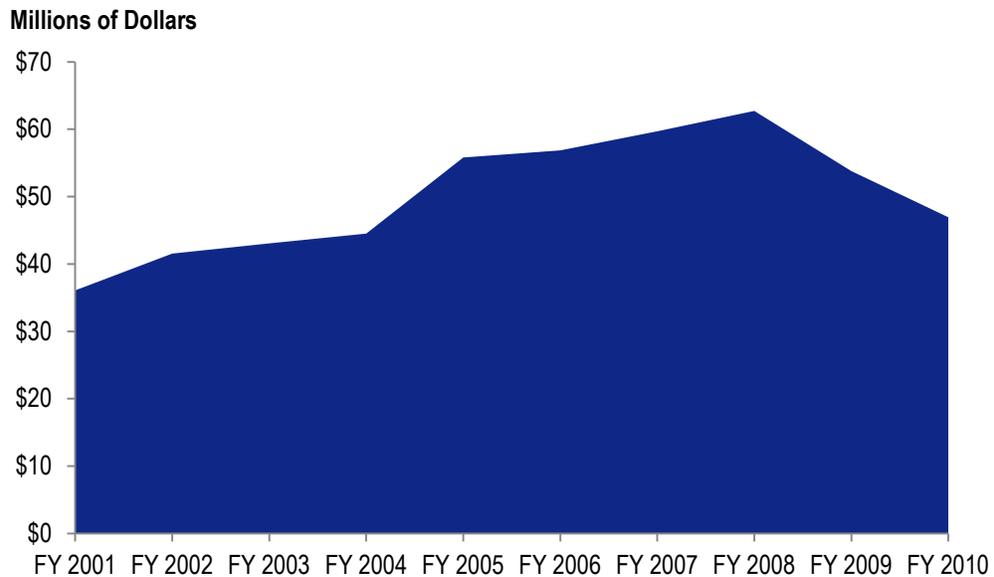
Other Vehicle Fees

North Carolina imposes a variety of other fees to vehicle operators that are dedicated to transportation. These fees include:

- **Lien Recording Fees** - A lien is placed on motor vehicles that fail to make scheduled payments on loans, for failure to pay for mechanic bills and for failure to make payments on any loan for which the registered vehicle serves as a security asset.
- **Dealer and Manufacturer License Fees** - Individuals, firms, and corporations that engage in the sale of new, used, and newly manufactured vehicles must obtain a license from the Division of Motor Vehicles.
- **Financial Security Restoration Fees** - Charged to vehicle owners as a penalty for failing to maintain liability insurance.
- **Overweight/Oversize Permits** - Vehicles that exceed the State's maximum size and weight standards to move or operate on public roads may apply for and be issued an overweight/oversize permit.
- **Penalties** - Motor vehicle operators are charged a penalty when state standards for the size and loads of vehicles operating on public roads are violated.
- **Safety Equipment Process Fees** - Annual safety inspections are required in certain counties. The fee is in addition to the emission inspection fee.

The collection of these taxes varies given that some are collected on an annual basis, while others occur at the time of vehicle inspections or when penalties are issued. Revenues generated from these sources are deposited in the Highway Fund, with the exception of lien recording fees, which are deposited in the Highway Trust Fund. Revenues from these sources increased from \$36 million in FY 2001 to \$47 million in FY 2010, although total revenues have declined since FY 2008 (Figure 10).

**Figure 10. Miscellaneous Transportation Revenues in North Carolina
2001-2010**



1.3 TOLLING IN NORTH CAROLINA AND NATIONAL TRENDS

Tolling is a broad term that refers to any kind of direct user fee on a highway facility. Traditional tolling typically involves the generation of revenue using a flat toll rate by vehicle type, whereas variable pricing uses tolling to achieve some other objective than generating revenue, usually congestion relief, or reliable traffic flow. As of July 2011, toll facilities in the U.S. accounted for over 5,300 miles of roads, bridges, and tunnels.

Tolls on Federal-aid highways have proliferated in recent years due in large part to the relaxation of toll policies introduced by SAFETEA-LU in 2005. Under SAFETEA-LU, states were provided the ability to use tolling on a pilot, or demonstration, basis, to finance Interstate construction and reconstruction, promote efficiency in the use of highways, and support and reduce congestion. Although tolls are often mainly viewed as a congestion management strategy, transportation officials also see tolls as an alternative revenue source that can be used to offset the declining revenues from traditional transportation financing sources, notably motor fuel taxes as discussed previously.⁸ The Interstate System Reconstruction and Rehabilitation Pilot Program (ISRRPP) allows up to three existing Interstate highways to be tolled to fund needed reconstruction or

⁸ Highway Finance, State's Expanding Use of Tolling Illustrates Diverse Challenges and Strategies, United States Government Accountability Office, 2006.

rehabilitation. The three available slots have been conditionally reserved for I-70 in Missouri, I-95 in Virginia, and I-95 in North Carolina. Virginia submitted an application for I-95 under ISRRPP in August 2012. In the northern portion of the Virginia's I-95 corridor, express lanes currently are under construction. South of the express lanes, VDOT is proposing to implement tolls on the general purpose lanes at milepost (MP) 20, in the southern portion of the corridor. The proposed toll rate is \$4.00, or \$0.02 per mile for the 179-mile corridor. Under this tolling proposal, tolls partially fund the corridor improvements, and VDOT provides the incremental state funding to close the funding gap. In February 2012, NCDOT also received a conditional reservation for I-95 under ISRRPP, and is in the process of preparing the additional information requested by FHWA as part of the program application. The total cost to construct the proposed project as a toll facility and operate/maintain it over a 45-year period is estimated at approximately \$11,028 million. Based on NCDOT analysis, the average toll rate would be \$0.106 per mile (potentially beginning in 2019) to support the required level of investment.

Studies show that the construction of new toll roads has expanded in recent years. Data indicates that the rate of toll road development has increased significantly from about 50 to 75 miles per year in the decade after ISTEA (1992) to over 180 miles per year expected in the next decade (based on all current projects in construction, design/finance, and planning phases).⁹ Recently, toll road development has occurred mainly in the most rapidly growing states, including Texas, California, Florida, and Colorado, due to greater capacity needs and declining revenues. In Florida, while construction of new toll facilities is still ongoing, another focus has been converting existing toll facilities to electronic collection facilities, as the national trend is shifting toward open-road, or cashless, collections, as opposed to traditional cash collection operations. Table 3 shows a sample of toll road developments that have occurred in the past eight years. Notably, significant developments have occurred in Texas.

⁹ Current Toll Road Activity in the U.S., Office of Transportation Policy, 2009.

Table 3. Sample of Toll Road Activity in the U.S. Since 2004
Two-Axle Rates; Cash/Pay by Mail Customers

Year	Facility	State	Length (Miles)	Toll (Dollars per Mile)
2004	Northwest Parkway	CO	8.0	\$0.412 ^a
2005	Beltway SH 429 Extension	FL	8.5	\$0.323 ^a
2006	Southern Beltway, Findlay Connector	PA	6.0	\$0.083
2007	183A	TX	11.6	\$0.31 ^a
2007	I-355 Extension	IL	12.5	\$0.304 ^a
2007	Dallas North Tollway Extension, Phase 3	TX	9.6	\$0.233 ^a
2009	SH 45 Southeast	TX	7.5	\$0.177 ^a
2011	895 Pocahontas Extension	VA	1.6	\$0.781 ^b
2012	SH-130 Extension	TX	41	\$0.200 ^a
2012	Manor Expressway, Phase 1	TX	1.4	\$0.478 ^a
2012	Island Parkway	SC	6.8	\$0.183

^a Discount rate with electronic transponders.

^b Rate for E-Zpass or Visa/Master Card credit/debit card; no cash option available.

New trends in terms of project types and characteristics have emerged in the tolling industry to ease congestion and raise revenues. Variable pricing refers to tolls that vary based on demand. Pricing applications include time-of-day and dynamic pricing. The former consists of toll rates that vary through a fixed time-of-day fee schedule based on historical traffic patterns, with the highest toll rates applied during the hours of highest demand. Toll rates can be adjusted periodically (e.g., quarterly) based on changes in traffic patterns. Dynamic pricing involves toll rates that vary in real time based on traffic conditions. While these pricing approaches generate revenue, a prime purpose is to manage congestion, environmental impacts, and other external costs occasioned by road users.

For example, variable pricing has been shown to ease traffic congestion on busy corridors and encourage motorists to travel outside peak hours. The Port Authority of New York and New Jersey (PANYNJ) introduced time-of-day-based toll price schedules in 2001 as a means for reducing congestion, increasing the use of mass transit and E-Zpass, and facilitating commercial traffic management on the Lincoln and Holland tunnels, the George Washington, Bayonne and Goethals bridges, and the Outerbridge Crossing.¹⁰

¹⁰Evaluation Study of Port Authority of New York and New Jersey's Time-of-Day Pricing Initiative (2005) by Dr. José Holguin Veras, Dr. Kaan Ozbay, and Dr. Allison de Cerreño.

The Maryland’s Intercounty Connector (ICC, also known as MD 200) in the northern suburbs of the Washington, D.C. region, which is partially open to users, applies time-of-day pricing with toll rates varying between \$0.10 per mile to \$0.25 per mile, depending on the time period (overnight, off-peak, and peak).

Pricing also has been applied on High-Occupancy Toll (HOT) or express lanes. HOT lane facilities charge Single-Occupant Vehicles (SOV) for the use of a High-Occupancy Vehicle (HOV) lane. Drivers have the option to pay to drive in uncongested toll lanes or drive for free in the untolled, but congested lanes. Access into the HOT lane remains free for transit, vanpools, and carpools. Existing HOT and express lane facilities in the U.S. apply both variable and dynamic pricing to set toll rates. Dynamic pricing, however, adds a level of traffic management sophistication over time-of-day pricing. Tolls for the HOT lanes change based on real-time traffic conditions to keep the lanes free-flowing. Table 4 includes some examples of recent application of HOT/express lanes in the U.S. A growing number of HOT/express lanes facilities are being constructed on Interstate highways.

Table 4. Examples of HOT/Express Lanes in the U.S.

Facility	Year
I-95 HOV/HOT Lanes, Northern Virginia	Under Construction
SR 52 HOT facility freeway extension, San Diego, California	2011
I-680 Southbound HOT Lane, California	2011
I-15 HOT Lanes (Extension)	2009
Katy Freeway I-10, Texas	2008
I-95 Express Toll Lanes, Miami, Florida	2008
SR 167 HOT Lanes, Seattle, Washington	2008
I-25 Express Lanes, Denver, Colorado	2006
I-15 Express Lanes, Salt Lake City, Utah	2006
I-394 MnPass Express Lanes, Minneapolis, Minnesota	2005

Tolling in North Carolina

The North Carolina Turnpike Authority (NCTA) was created in 2002 by the General Assembly in response to concerns about rapid growth, heavy congestion, and declining resources for transportation in the State. The Turnpike Authority is part of the NCDOT since 2010 and is authorized to “study, plan, develop, construct, operate, and maintain highway tolling projects in North Carolina.” Per North Carolina legislation, NCTA is allowed to undertake up to nine turnpike projects. NCTA recently completed the third phase of the Triangle Expressway and currently is developing the Monroe Connector-Bypass, the Mid-Currituck Bridge, the Garden Parkway, the Cape Fear Skyway, and the Triangle Expressway Southeast Extension. The Authority has statutory limitations on tolling, including:

- **Maintaining Nontoll Routes** - The Department shall maintain an existing, alternate, comparable nontoll route corresponding to each Turnpike Project constructed.
- **Conversion of Free Highways Is Prohibited** - The Authority Board is prohibited from converting any segment of the nontolled State Highway System to a toll facility. No segment may be converted to a toll route unless first approved by the Metropolitan Planning Organization (MPO) or Rural Planning Organization (RPO) of the area in which that segment is located.
- **Removing Tolls Once Debt Is Paid Off** - The Authority shall, upon fulfillment of and subject to any restrictions included in the agreements entered into by the Authority in connection with the issuance of the Authority's revenue bonds, remove tolls from a Turnpike Project
- **Authority to Toll Existing Interstate Highways If Approved by U.S. DOT** - The Authority may collect tolls on any existing Interstate highway for which the U.S. DOT has granted permission by permit, or any other lawful means, to do so. The revenue generated from the collected tolls shall be used by the Authority to repair and maintain the interstate on which the tolls were collected. These revenues shall not be used to repair, maintain, or upgrade any state primary or secondary road adjacent to or connected with the Interstate highways.
- **Equity Distribution Formula** - Only those funds applied to a Turnpike Project from the State Highway Fund, State Highway Trust Fund, or Federal-aid funds that might otherwise be used for other roadway projects within the State, and are otherwise already subject to the distribution formula under G.S. 136-17.2A, shall be included in the distribution formula. Other revenue from the sale of the Authority's bonds or notes, project loans, or toll collections shall not be included in the distribution formula.

North Carolina's first toll road opened in December 2011. The Triangle Parkway, a 3.5-mile section of the Triangle Expressway, connects the NC 147/I-40 interchange to NC 540 near Research Triangle Park. The second phase opened in 2012, and connects NC 540 between NC 54 and U.S. 64, a length of 9.4 miles. The third phase, which opened in December 2012, connects NC 540 between U.S. 64 in Apex to NC 55 Bypass in Holly Springs. Toll rates are charged depending on distance traveled through the toll zones. However, the current through trip cost per mile is \$0.155. Starting in 2013 the maximum through trip toll for passenger cars (Class 1 vehicles) with electronic transponders (NC Quick Pass) will be \$2.72 (\$0.153 per mile). The maximum rate for video tolls will be \$4.15 (\$0.233 per mile). Heavy vehicles will pay a higher toll (between two and four times the rate, depending on size).

Table 5 shows the rates that other neighboring states are currently charging to passenger car vehicles on some of their toll facilities. The Chesapeake Expressway in Virginia and the Southern Connector in South Carolina both have the same length and the same rate of \$0.187 per mile for their cash customers. The Southern Connector provides a 10 percent discount for customers who use

the PalPass electronic toll collection (ETC) device. On average, the toll rate per mile in the Triangle Expressway in North Carolina is two cents per mile lower when compared to the Chesapeake Expressway and the Southern Connector.

Table 5. Comparison of Current Toll Rates in Neighboring States
 November 2012

State	Facility	Through Trip, Miles	Passenger Car Vehicles, Cash	Passenger Car Vehicles, ETC
			(Dollars per Mile)	(Dollars per Mile)
NC	Triangle Expressway	18.8	N/A	\$0.153
GA	GA 400 Extension	6.2	\$0.080	\$0.080
VA	Chesapeake Expressway	16.0	\$0.187	\$0.187
VA	Pocahontas 895	8.8	\$0.312	\$0.312
SC	Southern Connector	16.0	\$0.187	\$0.168

1.4 TRANSPORTATION FUNDING IN OTHER STATES AND BENCHMARKING ANALYSIS

An investigation of transportation funding trends in North Carolina’s neighboring states (Tennessee, Georgia, South Carolina, and Virginia) was conducted to identify to what extent which each state depends on motor fuel taxes and vehicle fees, how these resources are dedicated to transportation, and to assess whether these states have enacted other revenue sources at the state and local levels to meet their transportation needs. A closer look at the transportation funding sources of the neighboring states is provided below.

Tables 6 and 7 summarize the findings on transportation taxes and fees at the state and local levels in North Carolina and its neighboring states. Overall, most state DOTs rely on similar taxes and fees (i.e., motor fuel taxes and vehicle fees) for transportation. Motor fuel tax rates and vehicle fees are generally higher in North Carolina as compared to its neighboring states. Both North Carolina and Virginia dedicate sales taxes on motor vehicles to transportation, while Virginia also relies on the state sales tax to fund transportation. The reliance on state taxes and fees by the North Carolina and Virginia DOTs appears to be related to the greater number of state-maintained roadways as compared to other states. The use of local taxes for highway purposes in North Carolina is limited. Current transportation tax laws mainly allow local option taxes for capital investments in public transit. Local governments in Georgia and Tennessee, however, play a major funding role as they are often responsible for their own highway infrastructure maintenance.

Table 6. Major Transportation Revenue Sources
State Level

	North Carolina	Virginia	Georgia	South Carolina	Tennessee
Motor Fuels Gasoline Tax (cpg)	37.5	17.5	16.6 ^b	16	20
Excise Tax on Vehicle Sales	3%	3%	4% ^a	6% ^a	7% ^a
Noncommercial Driver's License Fee (Dollars per year)	\$4.00	\$4.00	\$4.00	\$2.50	\$3.50
Annual Vehicle Registration Fee: 3,000-Pound Passenger Vehicle	\$28.00	\$40.75	\$20.00 ^a	\$12.00	\$26.00
Other	-	-	-	-	<ul style="list-style-type: none"> • 19% of soft-drink bottlers' gross receipts. • 12.8% of privilege tax collections for litter control.

^a Taxes not specifically dedicated to transportation.

^b Includes an excise motor fuel tax rate of 7.5 cpg plus a three percent approved prepaid sales tax dedicated to highways (frozen at 9.1 cpg until December 31, 2012).

Table 7. Local Option Transportation Taxes

	North Carolina	Virginia	Georgia	South Carolina	Tennessee
Vehicle Registration Fees	For public transportation (Up to \$7.00 by counties; \$8.00 by Regional Transportation Authorities)	Flat rate, not to exceed state's rate (\$5 to \$33 for passenger vehicles)		Flat rate (\$5 to \$30)	Flat rate (\$10 to \$85)
Property Taxes			For street repair (any rate for counties with population greater than 550,000)	Not to exceed \$1 per \$1,000	Any rate ^a
Sales Tax	Up to 0.5% for public transportation ^b		Special Purpose Local Option Sales Tax (SPLOST) 1% for 5 years ^c Transportation Special Local Option Sales Tax (T SPLOST) 1% for 10 years ^e	Capital Projects Tax Up to 1% for 7 years. Transportation Tax – Up to 1% for 25 years.	Up to 2.75% (1.25% to 2.75%) ^d
Business License Fee		Up to 1% of the gross receipts of coal or gas businesses ^f			Up to \$0.15 per ton ^g
Transportation District		19 districts with rates ranging from \$0.02-\$0.70 per \$100			
Gasoline Tax		2.1% sales tax on gasoline ^h			Up to 1 cent per gallon

^a Currently over 50 counties dedicate between \$0.01 and \$0.37 per \$100 for highway/public works projects.

^b The counties of Durham, Forsyth, Guilford, Mecklenburg, Orange, and Wake are authorized to levy up to one-half percent sales and use tax for public transportation upon voters' approval; other counties can levy up to one quarter percent for public transportation, also subject to approval by referendum.

^c For capital projects, including highways.

^d Half of the revenue is used to support schools while the other half can be used for any general purpose, including roads.

^e Only three regions approved the T-SPLOST in 2012.

^f Counties and cities are authorized to levy a license tax on every person engaging in the business of severing coal or gases from the earth. The tax is limited to no more than one percent of the gross receipts from the sale of coal or gases severed within the county.

- ^g Counties may levy a tax of up to 15 cents per ton on all sand, gravel, sandstone, and limestone severed from the ground within the county. As of June 2012, 58 counties allocate the proceeds to the county highway fund; 8 counties allocate the proceeds to the county general fund with one designating the funds for roads.
- ^h For transit, collected within the jurisdictions under the Northern Virginia Transportation Commission (NVTC) and the Potomac and Rappahannock Transportation Commission (PRTC).

Tennessee

State Funding

Transportation in Tennessee is funded by a combination of state highway user taxes and fees and Federal funding. No money from the State's General Fund, which relies on the sales tax, is used in any of TnDOT's programs. The following is the composition of fees and taxes that support transportation in Tennessee:

- **Gasoline Tax** - The gasoline excise tax in Tennessee is 20 cpg. Net receipts (after General Fund transfers for administration) are distributed among TnDOT and cities and counties.
- **Motor Fuels Tax** - Tennessee charges 17 cpg on diesel fuel and fuel other than gasoline, which is distributed among the General Fund, the Highway Fund, the Sinking Fund, and cities and counties.
- **Special Petroleum Tax** - Both gasoline and motor fuels are subject to a 1.0 cpg special petroleum tax. Net proceeds after administration and funding allocations to the Local Government Fund go into Tennessee's Highway Fund.
- **Vehicle Registration Fees** - Registration fees vary by vehicle type. This category includes: drive-out tags, temporary operators permits, fines, international registrations, personalized registration, handicapped registration, overweight truck fines, and annual vehicle registration fees. The vehicle registration fee for a typical passenger car is \$26 per year.
- **Business Taxes** - Tennessee levies taxes on the gross receipts of certain types of businesses operating in the State. One of these, a 1.9 percent tax on soft-drink bottlers provides modest funds to transportation. Approximately 19 percent of the bottlers' gross receipts tax goes to the Highway Fund for litter control.
- **Beer Taxes** - Tennessee imposes registration fees on beer wholesalers (\$20) and manufacturers (\$40), as well as a privilege tax of \$4.29 per each 31-gallon barrel of beer manufactured or sold in the State. Approximately 12.8 percent of the privilege tax collections goes to the Highway Fund for litter control.

Collections from these sources are split among the Highway Fund, the General Fund, and Tennessee's cities and counties. Other funding sources are the Transportation Equity Fund (TEF), established in 1987, and the State Tollway Fund. The TEF is used for projects in Tennessee's aviation, rail, and waterway transportation modes. TEF revenues are derived from a sales tax on petroleum

products used in these modes of transportation. The State Tollway Fund consists of toll revenues, proceeds from the sale of bonds, any grants or loans obtained from the Federal government, and any additional funds appropriated by the General Assembly. The State Tollway Fund may be used to pay for the construction and operation of Tollway projects; to be pledged as security for, and to pay off bonds or other indebtedness; and in any other manner in which the State Highway Fund may be used.

Local Funding

County and local governments are allowed to levy local option taxes to support different purposes, including transportation:

- **Vehicle Registration Taxes (Wheel Tax)** - Tennessee's general statute §5-8-102 allows counties to adopt a flat rate vehicle registration tax. As of June 2012, 58 counties impose the county tax with rates ranging from \$10.00 to \$85.25.¹¹ Thirty-one of these counties have rates of \$40.00 or greater. These taxes may be used for any purpose although some counties earmark at least some of the revenue for road and highway purposes.
- **Property Taxes** - General statutes §54-9 through §54-12 allow counties and road improvement districts to adopt property taxes for highway/public work purposes. As of June 2012, over 50 counties have earmarked some of the revenues for road purposes.
- **Sales Taxes** - General statute §67-6-701 allows counties to levy a sales tax up to 2.75 percent with voter approval. Half of the revenue is used for schools, and the other half can be used for other purposes, including transportation.
- **Mineral Severance Tax** - Counties may levy a tax of up to 15 cents per ton on all sand, gravel, sandstone, chert, and limestone severed from the ground within the county. According to general statutes §67-7-201 through §67-7-221 counties who levy the tax under the general law are required to distribute the tax to the county highway fund. Currently 58 out of the 95 counties allocate the proceeds to the county highway fund.¹²
- **Gasoline Tax** - General statute §67-3-1004 allows cities or counties to levy up to one cent on the sale of each gallon of gasoline with voter approval to support public transit services.

¹¹County Tennessee Assistance Service, "Tennessee County Tax Statistics," The University of Tennessee, County Technical Assistance Services, June 2012.

¹²Ibid.

South Carolina

State Funding

SCDOT operates and maintains 41,422 miles of roads and bridges, which ranks as the fourth-largest state-owned highway system in the nation according to FHWA's 2009 Highway Statistics. Like NCDOT, SCDOT receives the majority of its funding from motor fuel user fees on gasoline and diesel, Federal reimbursement, and a small amount of General Fund dollars. SCDOT also earns interest on its funds held by the State Treasurer. SCDOT does not receive any revenue from county property taxes, local option sales taxes, or capital improvement taxes.

Motor Fuel Tax - South Carolina's state excise tax on motor fuels is 16 cpg. Revenues from motor fuel excise taxes are distributed among SCDOT (10.34 cpg), the county transportation fund program (2.66 cpg), the State Department of Natural Resources (0.13 cpg), and the South Carolina Coordinating Council for Economic Development (first \$18 million generated from three cents of the user fee).¹³ The county transportation fund program (C-Fund) is a partnership between SCDOT and the 46 counties to fund the improvements to state, county, and city roads, and other local transportation projects. Funds are distributed based on a three part formula: 1) one-third based on the ratio of the land area of the county to the land area of the State; 2) one-third based on the ratio of the county population to the State population; and 3) one-third based on the ratio of rural road mileage in the county to the rural road mileage in the State.

Vehicle Registration fees - South Carolina is one of the states with the lowest fees in the nation. The vehicle registration fee for a typical passenger car is \$12 per year (biennial fee). Biennial fees for other carrier passenger vehicles and property carrying vehicles are determined based on gross weight. 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 vehicle registration revenues from commercial trucks, trailers, truck tractors, and farm trucks.

Local Funding

Local jurisdictions have a variety of optional taxes to pay for road maintenance, public transportation, and highway projects, including:

Sales Taxes - Under South Carolina law, local jurisdictions are allowed to levy a "Capital Projects sales tax" and a "Transportation Authority sales tax." Upon referendum approval, counties may impose a one-percent sales and use tax on

¹³South Carolina Code of Laws: S.C. Code §12-28-310, 12-28-2720, 12-28-2725, 12-28-2730, 12-28-2740, 12-28-2910, 12-28-2750.

top of the State rate on the gross proceeds of sales. The capital projects sales tax can be used for specific projects, including highway, bridge, and sidewalk projects.¹⁴ Nine counties currently levy this tax. The transportation authority sales tax, which is collected in three counties, can be used for highways, streets, and bridges. These special local sales taxes may be levied for a limited amount of time.^{15,16}

Motor Vehicle fees – Flat fees per vehicle may be levied to support general public works, including roads. Currently, 17 counties in South Carolina have adopted this tax, at rates ranging from \$5 to \$30 per vehicle to pay for road maintenance.^{17,18}

Property Taxes – A variety of property taxes to fund roads, sidewalks, bridges, and highways also are available to local jurisdictions. State statutes §57-19-10 and §57-19-20 allow counties and townships to levy annually a sum not exceeding 1-mill (\$1 per \$1,000 value) on all the taxable property for roads and highways within the jurisdictions. In addition, statute §57-21-10 allows the creation of paving districts in counties having a population of more than 70,000 according to the most recent official U.S. census. Property tax rates need to be approved by the majority of the popular vote.

Virginia

State Funding

Transportation infrastructure in Virginia is funded through a combination of state, Federal, and local revenues. State revenues are mainly derived from:

- State Motor Fuel Road Tax – 17.5 cpg tax;
- Motor Vehicle Sales Tax – 3 percent;
- Motor Vehicle License Fee – \$40.75 annual fee for passenger cars up to 4,000 pounds; \$45.75 for passenger cars and taxicabs over 4,000 pounds; \$51.75 for pickup trucks from 6,501 to 7,500 pounds; and \$28.75 for motorcycles; and
- General State Sales And Use Tax – 0.5 percent.

Taxes and fees from these sources are deposited into two funds: the Highway Maintenance and Operating Fund (HMOF) and the Transportation Trust Fund

¹⁴South Carolina Code of Laws: §4-10-300 (a.k.a. Capital Projects Sales Tax Act).

¹⁵South Carolina Code of Laws: S.C. Code §§12-28-310, 12-28-2720, 12-28-2725, 12-28-2730, 12-28-2740, 12-28-2910, 12-28-2750.

¹⁶Local Option Transportation Taxes in the United States by Todd Goldman, Sam Corbett, and Martin Woods, 2001.

¹⁷South Carolina Property Tax rates by County, December 2011.

¹⁸South Carolina §4-9-30.

(TTF). HMOF revenues are dedicated for the operation and maintenance of roads and the TTF is a multimodal fund that is distributed among aviation, ports, highways, and public transportation.

Tolls also have been used as a means to finance construction of, improvements to, and operation, and maintenance of highway facilities in Virginia. The Virginia Constitution, Article X, Section 9c provides that the General Assembly may authorize the creation of debt secured by a pledge of net revenues derived from rates, fees, or other charges. Tolls have been used as a vehicle to pay debt service payments when legislation has authorized the issuance of bonds for highway projects.

Local Funding

In the Northern Virginia Transportation District (NVTD)¹⁹ and in the Potomac and Rappahannock Transportation District (PRTD),²⁰ a motor vehicle wholesale fuel sales tax is imposed on sales of fuel to any retail dealer for retail sale. The tax rate is 2.1 percent of the sales price charged by the distributor and proceeds are used to fund public transit. Other local option taxes available to local governments include:

Motor vehicle taxes - Cities, counties, and towns in Virginia can levy up to the State's vehicle registration rate to support transit and transportation facilities, including highways, airport, and ports. This fee has been widely adopted and is levied in nearly every county and city in Virginia (in 90 counties out of 95; and in 37 cities out of 39).²¹ Also, cities, counties, and towns have the authority to levy personal property taxes on vehicles, but revenues typically go into the local government's General Fund. Personal property taxes have been adopted by all cities and counties, but are not specifically dedicated to transportation.

Transportation districts - Local governments also can create transportation service districts to finance road construction, including any new roads or improvements to existing roads; to rehabilitate and replace existing transportation facilities or systems; or to provide transportation services within the district, including public transportation systems and transportation management services. Districts may adopt special property taxes (i.e., special assessments) to finance transportation projects.²² There are several special assessment districts in Virginia that have been created for transportation improvements, including:

¹⁹NVTD: Counties of Arlington, Fairfax, and Loudoun and the Cities of Alexandria, Fairfax, and Falls Church.

²⁰PRTD: Counties of Prince William, Spotsylvania, and Stafford and the Cities of Fredericksburg, Manassas, and Manassas Park.

²¹Weldon Cooper Center for Public Service, University of Virginia, *2010 Tax Rates: Virginia's Cities, Counties and selected Towns*, 29th Edition.

²²§15.2-2400 through §15.5-2403.1.

- **Fairfax County** – State Route 28, the Dulles Rail Corridor;
- **Loudon County** – Route 28;
- **Prince Williams County** – Prince Williams Turnpike Transportation, and 234 Bypass Transportation District;
- **Spotsylvania County** – Massaponax Special Service, and Harrison Road; and
- **Town of Culpeper** – Lafayette Ridge Tax District, and Southridge Tax District.

In Fairfax and Loudon counties, landowners within the Route 28 special assessment district pay 18 cents per \$100 of property value. The revenues generated by the special assessments are pledged to pay the revenue bonds issued for the improvements on Route 28.

License tax – Counties and cities are authorized to levy a license tax on every person engaging in the business of severing coal or gases from the earth.²³ The tax is limited to no more than one percent of the gross receipts from the sale of coal or gases severed within the county. The revenues collected for each county or city from the tax imposed under this statute are paid into a special fund (called the Coal and Gas Road Improvement Fund) of such county or city, and must be spent for road improvements. However, the provisions of this statute will expire on December 31, 2014.

Georgia

State Funding

The Georgia Department of Transportation (GDOT) operates and maintains nearly 18,000 miles of public roads. State transportation funding comes almost solely from the Federal gas tax and the state motor fuel tax. In FY 2010, the Department's budget was over \$1,900 million; of that amount, over 99 percent came from the motor fuel tax, Federal funds and other sources, while less than 1 percent was provided from State General Funds.²⁴ The state motor fuel tax consists of two components:

- Motor Fuel Excise Tax – 7.5 cpg; and
- Gas Sales Tax – 4 percent gas sales tax, with 75 percent of the revenues deposited directly into the State Highway Trust Fund. The remainder goes into the General Fund.

Use of motor fuel tax revenues is limited to highway programs and projects. Therefore, GDOT receives annual appropriations from the General Fund to complement its Transportation Trust Fund revenue for intermodal programs.

²³Virginia general statute §58.1-3712.

²⁴Georgia Department of Transportation, FY 2011 Strategic Plan Update, 2010.

Local Jurisdictions

The following local option taxes can be levied by local jurisdictions for transportation purposes:

- **Sales Taxes** - Local jurisdictions rely mainly on Special Purpose Local Option Sales Taxes (SPLOST) to provide their share for Federal-aid and state projects and for local roadway projects. SPLOST is an optional one-percent county sales tax used exclusively to fund capital outlay projects, which include roads, streets, bridges, and other infrastructure projects.²⁵ SPLOST proceeds may not be used for operating expenses or maintenance of a SPLOST project or any other county or municipal facility or service. SPLOST may be levied for up to five years, at the end of which voters must decide whether the county will continue levying them to fund diverse infrastructure projects.

In 2010, Georgia's legislature passed the Transportation Investment Act (TIA) that allows voters to decide on a Transportation Special Local Option Sales Tax (T-SPLOST) of one percent for up to 10 years to invest in a specifically approved list of transportation projects.²⁶ In July 2012, a voter referendum resulted in only three regions approving the T-SPLOST. Beginning on January 1, 2013, the regions of Central Savannah, Heart of Georgia, and River Valley will start collecting the additional sales tax.

- **Property Taxes** - The Georgia Code²⁷ empowers counties having a population of 550,000 or more to assess property taxes for public road maintenance. Under the law, special property assessment districts also may be imposed upon private developers to cover the costs of repairing roads as a result of construction activity.

Benchmark Analysis

The following section provides a more detailed side-by-side comparison of the major revenue sources in North Carolina with those of its neighboring states. The analysis serves to inform policy decisions on how North Carolina compares to its peers. North Carolina has the highest motor fuel tax rate of the five states; ranks second after Virginia on annual vehicle registration fees of passenger cars; and the annualized noncommercial driver's license fee is above the average of the neighboring states. While the excise tax on vehicles sales is lower than in Georgia, South Carolina, and Tennessee, North Carolina dedicates the full collections of the three percent tax to NCDOT. Among the selected

²⁵§48-8-110.

²⁶Projects include airports, bridges, transit, freight, port, roads, terminals, and bicycle and pedestrian facilities as determined by each region.

²⁷§36-1-18.

characteristics of transportation finance, North Carolina has a better performance than their counterparts.

Public Road Ownership and Spending

North Carolina has the second largest state-maintained highway system in the nation; only the Texas system is larger. NCDOT is responsible for maintaining about 76 percent of public roads mileage in the State (see Figures 11 and 12). Local governments are responsible for 21 percent of the roads, while the Federal government is responsible for 3 percent. Among the neighboring states, the Virginia DOT also is responsible for the maintenance of a significant share of its roadway network, whereas in Tennessee and Georgia, most of the responsibility falls to the counties and local governments. The DOTs of these two states are responsible for maintaining only 15 percent of public roads.

Figure 11. Miles of Public Roads by Ownership
 2009

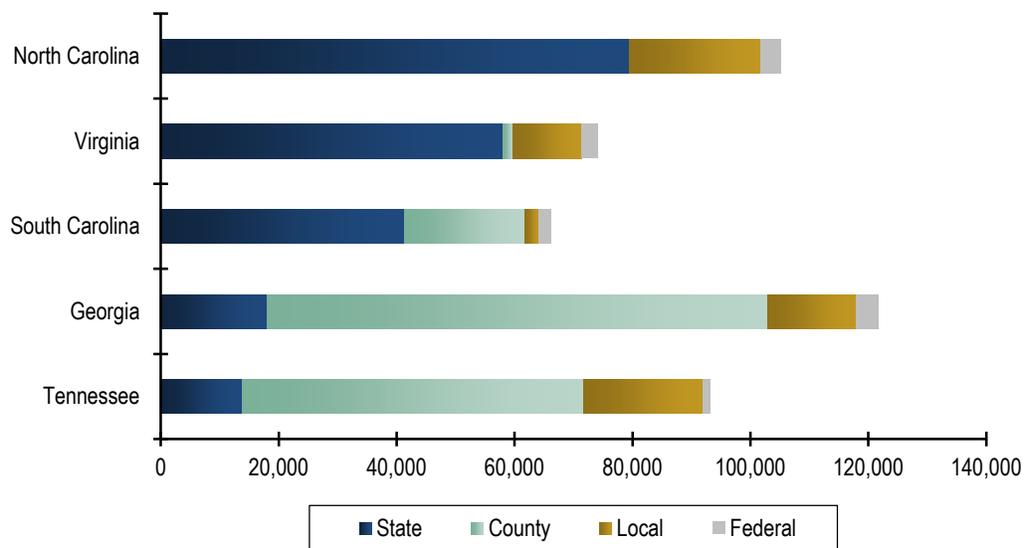
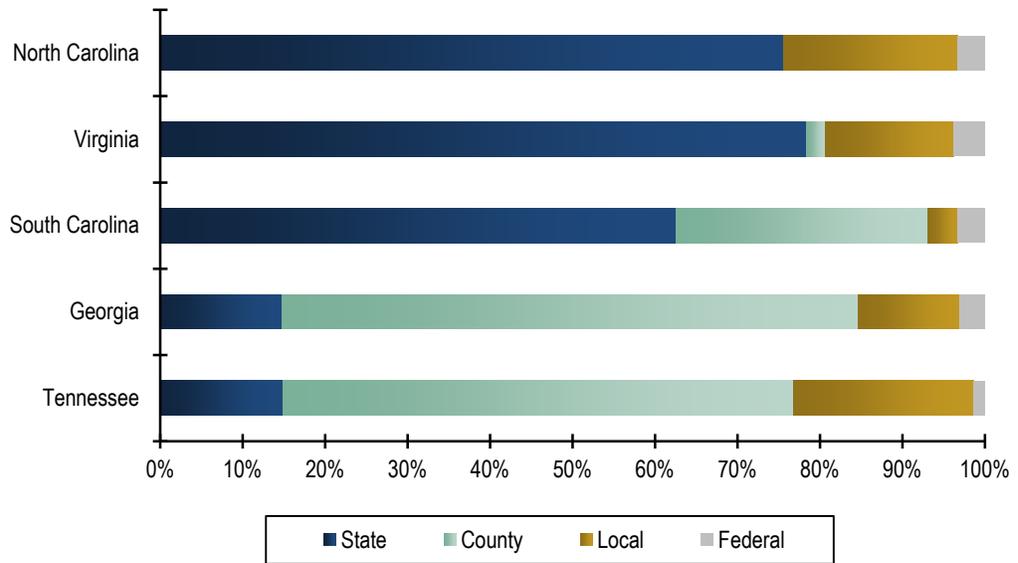


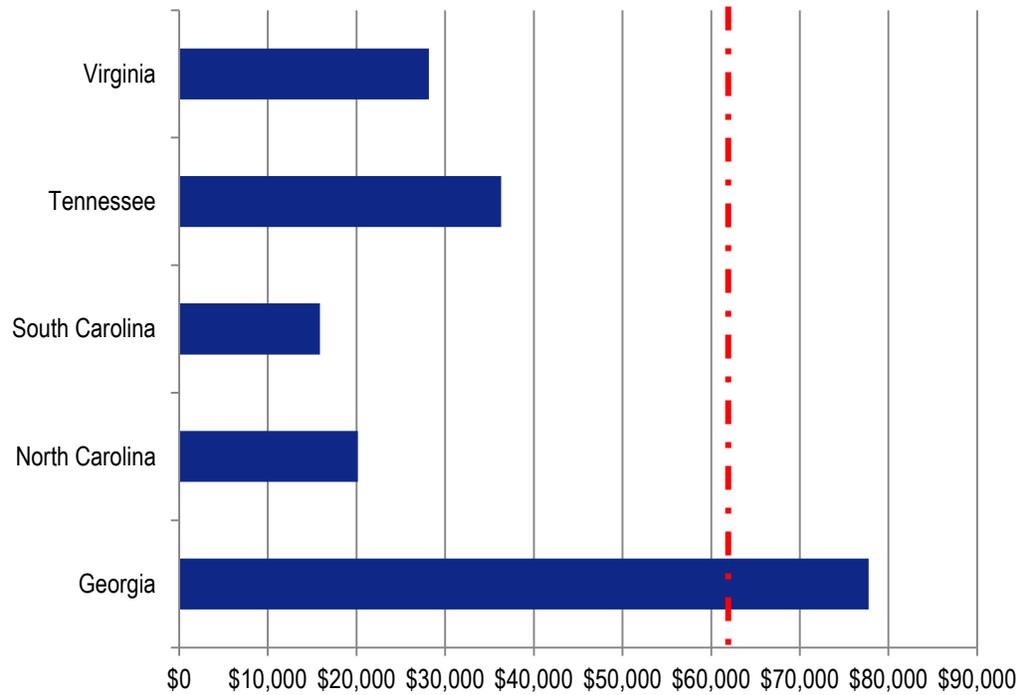
Figure 12. Share of Public Roads
2009



Source: U.S. Department of Transportation, Federal Highway Administration, Highway Statistics, 2009.

In terms of state funding spending on transportation, North Carolina ranks 48th in the nation and fourth among its neighboring states, as shown in Figure 13. In 2008, North Carolina spent approximately \$20,100 per lane-mile of state-owned roadways, compared to a national average of \$63,700 per lane-mile.

**Figure 13. State Investment in State-Owned Highways (\$ per lane-mile)
2009**

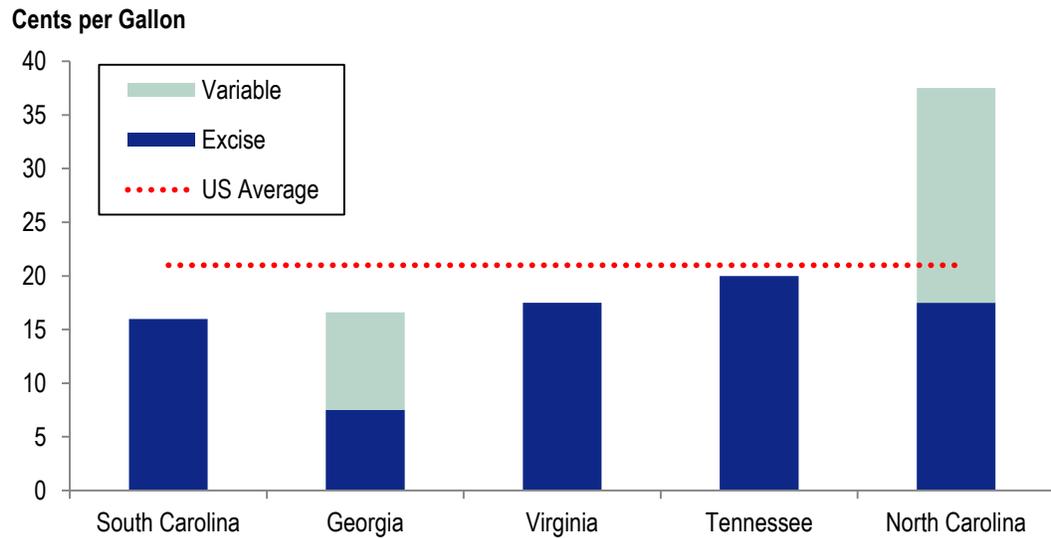


Source: NCDOT analysis of FHWA Highway Statistics, Tables HM-81 and SF-4 (2008).

Motor Fuel Tax

Motor fuel taxes are the main transportation revenue source in North Carolina and its neighboring states. States levy taxes on both gasoline and special fuels, which typically include diesel fuel and liquefied petroleum gas. Motor fuel excise tax varies by state; however, North Carolina's rate of 37.5 cpg is the highest among neighboring states (Figure 14) and higher than the national average (21 cpg). While North Carolina's excise tax is generally consistent with the rates applied in neighboring states, the variable wholesale price component increases the tax rate considerably when compared to other states.

Figure 14. Gasoline Tax Rates for North Carolina and Neighboring States



Source: State departments of revenue and American Petroleum Institute, rates effective October 1, 2012.

Note: Georgia tax includes the three percent approved prepaid state tax dedicated to highways (frozen at 9.1 cpg until December 31, 2012). Tax rates exclude local option fuel taxes and other taxes that may be levied at the state level (e.g., underground storage tank fees). For instance, the tax rate for Virginia excludes the two percent fuel sales tax collected in the localities that are part of the Northern Virginia Transportation District, and the Potomac and Rappahannock Transportation Commission; these revenues go to transit.

Excise Tax on Vehicle Sales

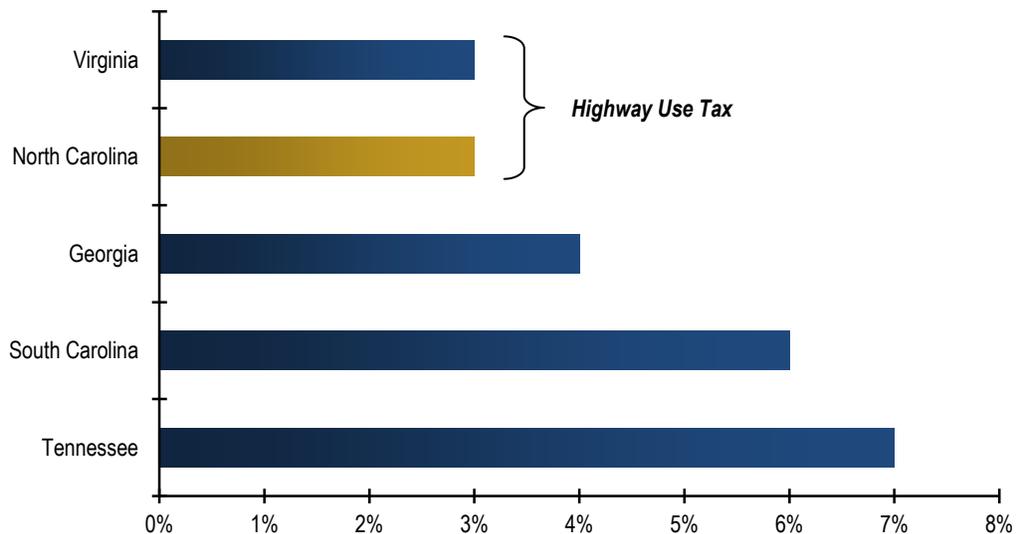
As described earlier, North Carolina collects a Highway Use Tax on vehicles of three percent on sales and leases of motor vehicles, capped at \$1,000 on commercial vehicles and at \$1,500 for recreational vehicles. Virginia also levies a three percent tax on the vehicle's gross sales price. Both states dedicate the revenues for transportation purposes.

Tennessee, Georgia, and South Carolina levy state sales and use taxes on the sale or trade of motor vehicles in lieu of a highway use tax (Figure 15). For example, in Tennessee, the state sales tax rate for vehicles is 7 percent. In addition to the state tax, local jurisdictions have the option of imposing local taxes which can range from 1.5 to 2.75 percent. In Georgia, the state sales tax applicable to vehicles is 4 percent, and most counties impose the maximum local option sales tax of 3 percent.²⁸ In South Carolina, the state sales tax rate is 6 percent, but it

²⁸Starting on March 1, 2013, vehicles will be exempt from the sales and use tax and the annual ad valorem tax. Instead, vehicles will be subject to a new, one-time title ad valorem tax that is based on the value of the vehicle. The one-time fee will be seven percent of the vehicle market value.

imposes a maximum sales tax of \$300 on the purchase of motor vehicles, including recreational vehicles, boats, motorcycles, and airplanes. Revenues from the sales and use tax are usually deposited in the State's General Fund and are not specifically dedicated to transportation.

Figure 15. Excise Tax on Vehicle Sales



Motor Vehicle Fees

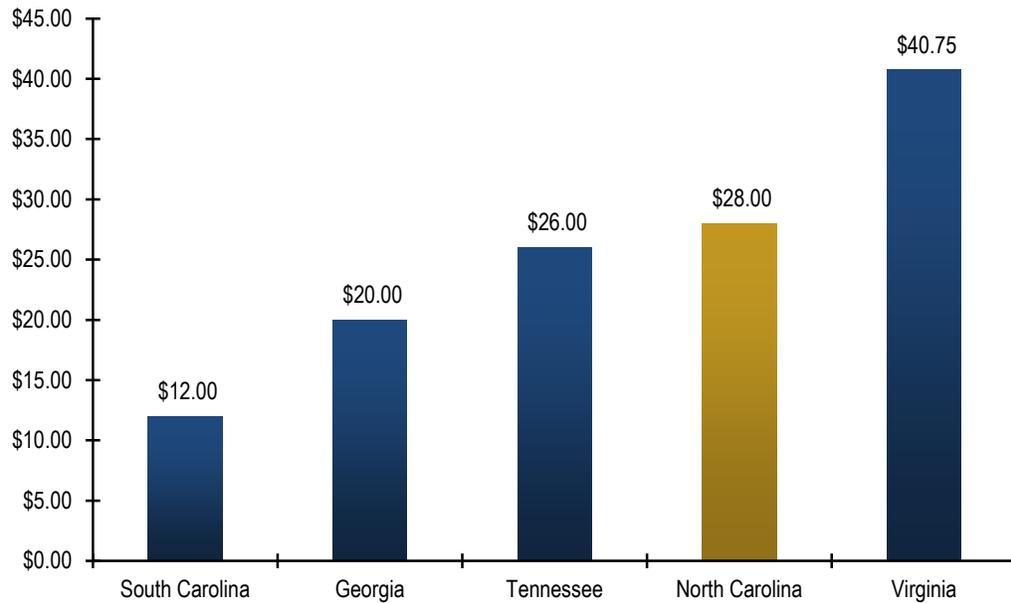
Vehicle registration fees are normally the second largest transportation revenue source after motor fuel taxes. Fees often vary significantly among states but generally are based on vehicle-class and weight. For light vehicles, many states have a flat fee, while others base the vehicle registration fee on weight or a combination of weight, age, horsepower, and value. A study conducted in 2011 by the Idaho Department of Transportation shows that annual registration fees for a typical passenger car of 3,000 pounds in the United States range from a low of \$9.75 in Arizona to a high of \$222 in Montana.²⁹

Figure 16 shows the annual registration fees for North Carolina and the four neighboring states for a typical passenger vehicle of 3,000 pounds. The average registration fee for the five states is \$25.35. North Carolina ranked second among the neighboring states and the fee levied is \$2.65 above the average. Virginia has the highest fee of \$40.75 per year while South Carolina has the lowest fee of \$12 per year. It is important to note that rates exclude additional fees that may be charged by counties or transportation districts. For instance, in North Carolina a vehicle registration fee of up to \$5 per registration is collected

²⁹State-by-State Comparison of Annual Motor Vehicle Registration Fees and Fuel Taxes, Idaho Transportation Department, 2011.

in Wake, Durham, and Orange counties by Triangle Transit to fund regional bus operations, vanpooling program, and program planning.

Figure 16. Annual State's Vehicle Registration Fee
Passenger Vehicle of 3,000 Pounds



Source: State Departments of Motor Vehicles, 2012.

Note: Excludes first-time fees, which can be higher; excludes annual property/*ad valorem* taxes; excludes annual safety/emission fees; excludes local option fees.

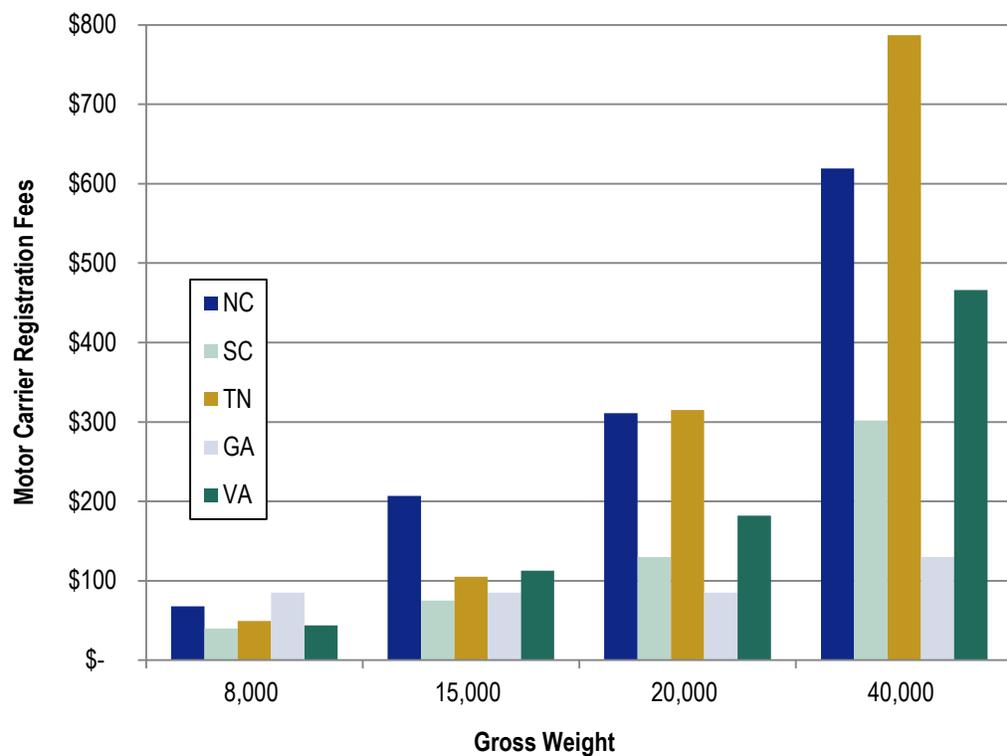
Registration fees for commercial vehicles are based on weight. Table 8 compares vehicle registration fees by gross vehicle weight (GVW) in North Carolina and neighboring states. Average fees range from \$57.26 with a GVW of 8,000 pounds to \$460.80 with a GVW of 40,000 pounds. North Carolina's vehicle registration fees on commercial vehicles are higher than the average and higher than Georgia, South Carolina, and Virginia (Figure 17). North Carolina also charges higher fees than Tennessee on vehicles with gross weights lower than 20,000 pounds, however, Tennessee charges the highest fees on vehicles over 20,000 pounds GVW. Through the International Registration Plan (IRP) out-of-state carriers that have a combined gross vehicle weight of at least 26,001 pounds or more annually pay apportioned fees to North Carolina. Vehicle registration fee allocations for the 48 states that are in the IRP are determined according to the weight of the vehicle and the distance driven in each jurisdiction for the preceding year.

Table 8. Sample of Trucks and Motor Carrier Fees by Gross Weight

Gross Weight	NC	SC	TN	GA	VA	Average
8,000	\$67.80	\$40.00	\$49.50	\$85.00	\$44.00	\$57.26
15,000	\$207.00	\$75.00	\$105.00	\$85.00	\$112.75	\$116.95
20,000	\$311.00	\$130.00	\$315.00	\$85.00	\$182.00	\$204.60
40,000	\$619.00	\$302.00	\$787.00	\$130.00	\$466.00	\$460.80

Source: International Registration Plan, Fees schedules.

Figure 17. Sample of Trucks and Motor Carrier Fees by Gross Weight



Source: International Registration Plan, Fees schedules.

Carriers who occasionally travel within a jurisdiction may purchase Trip Permits in lieu of apportioning with that jurisdiction. Trip Permits are good for inter-jurisdiction and intra-jurisdiction travel and have a temporary duration (Table 9). North Carolina and Virginia charge the lowest fee at \$1.50 per day.

Table 9. Sample of Trip Permit Fees

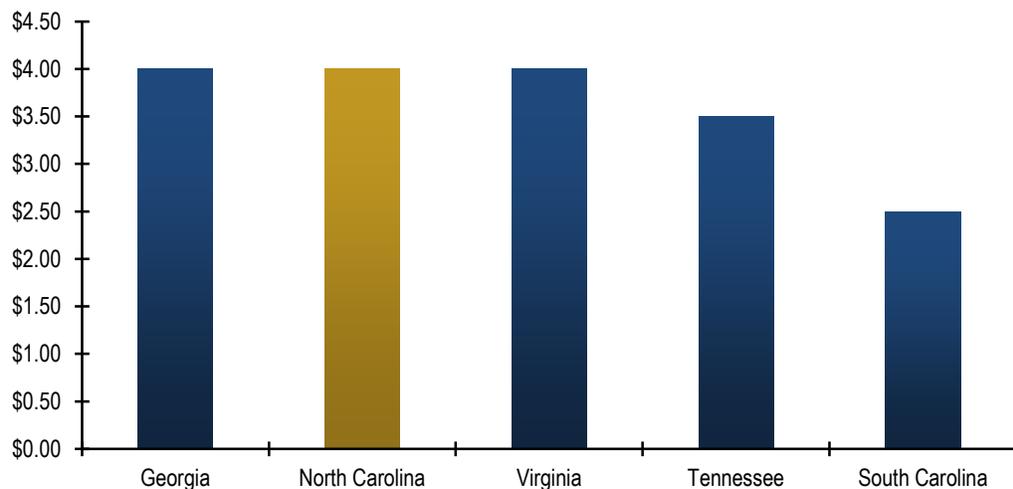
	Cost and duration of Trip permits	Cost/day
TN	\$30/72 hours	\$10.00/day
GA	\$30/72 hours	\$10.00/day
SC	\$15/72 hours	\$5.00/day
NC	\$15/10 days	\$1.50/day
VA	\$15/10 days	\$1.50/day

Source: South Carolina Department of Motor Vehicles – International Registration Plan Instructions Manual and State DOTs web sites.

Driver’s license fees in North Carolina account for approximately seven percent of annual revenue collections deposited in the Highway Fund. All 50 states levy driver’s license fees which vary according to the type and weight of vehicles that may be operated. Operator’s licenses are typically for a four-year period, with only a handful of states (including North Carolina) having a different license period. For instance, North Carolina licenses expire every eight years after the date of issuance. The basic driver’s license is issued for a fee of \$32.00 (\$4.00 per year). Commercial licenses are issued for a fee of \$15.00 per year.

Georgia and Virginia also charge \$4.00 per year for the issuance of a regular driver’s license. In Georgia, regular licenses are valid for 5 or 8 years. South Carolina has the lowest annual fee at \$2.50. Regular licenses can be issued for 5 or 10 years. Figure 18 summarizes the annual cost of a driver’s license in North Carolina and neighboring states.

Figure 18. Basic Driver’s License Fee
Regular Driver, Noncommercial



Source: State departments of motor vehicle, 2012.

Note: Exclude discounts and any other administrative fees. Driver’s license fees have been annualized for comparison.

Local Option Transportation Taxes

At the local level across the United States, transportation funding generally comes from general funding appropriations. Some local governments dedicate local option taxes (generally requiring voters' approval) to transportation; these are widely used in many states to support transit. The use of local option taxes also is subject to state enabling legislation that allows local governments to adopt different types of taxation. They can include mechanisms such as local option sales, income, property, and vehicle taxes and fees. Generally, state legislation determines what sources may be used and may put ceilings on rates or amounts or may specify that sources cannot be used without a referendum.

Dedicated local option transportation taxes in North Carolina are available for public transportation purposes (sales tax, vehicle registration fees, and car rental tax), but not for roadways and streets. In fact, legislation prohibits the implementation of local motor fuel taxes in North Carolina.

Of the neighboring states, sales taxes and vehicle registration fees seem to be levied commonly at the local level as part of the local transportation funding portfolio. Property taxes also are used in Georgia, South Carolina, and Tennessee for road improvements. The higher reliance on local taxes these states is a reflection of the local governments' responsibility to maintaining a significant share of the road network.

1.5 POTENTIAL FUNDING OPTIONS FOR THE I-95 CORRIDOR

The North Carolina Department of Transportation (NCDOT) has estimated the cost of the I-95 Corridor improvements at \$4,543 million (2011 dollars). The proposed improvements on this corridor include reconstruction of the existing roadway, adding additional capacity, and reconstruction of interchanges to improve traffic operation and safety. The Environmental Assessment (January 2012) included a tolled option, which would require investment in toll collection infrastructure. About \$455 million (roughly 10 percent of the funding need) in existing funding (programmed and anticipated funding) has been identified through the Statewide Transportation Improvement Program (STIP). The Environmental Assessment (EA) included the evaluation of five funding scenarios for the I-95 Corridor improvements.

In addition to the funding options considered by NCDOT for the I-95 Corridor, a list of potential funding options has been developed for this study. The potential funding options are divided in three main groups:

1. Funding options proposed in the EA, including tolling;
2. Increases to existing taxes and fees dedicated to transportation; and
3. New funding options at the state and local levels, including (but not limited to) those considered by NCDOT during the EA process and the 2040 Plan, and further divided in three subcategories:

- a. User fees;
- b. Special taxes; and
- c. Value capture.

Funding Options Proposed in the Environmental Assessment

NCDOT has evaluated five funding scenarios as part of the Environmental Assessment (EA):

- **Continued Project Programming through the STIP (Status Quo)** - Under this option, only 10 percent of the funding needed has been identified through 2020. NCDOT has estimated that with funding allocations of approximately \$46 million per year, it would take over 100 years to address the corridor needs.
- **Increased Appropriation of Current State Funds to I-95** - This option would require the transfer of existing NCDOT funding away from other programs to the I-95 Corridor. There are three factors affecting the feasibility of this option:
 - **Project Prioritization** - NCDOT's "From Policy to Projects" process is aimed at creating a transparent and strategic process to define the agency's investment policy based on long-term goals of safety, mobility, and infrastructure health. The process uses data regarding pavement condition, traffic congestion, and road safety, as well as input from local governments and NCDOT staff to determine transportation priorities. The process begins with the development of a 30-year Statewide Long-Range Transportation Plan (2040 Plan),³⁰ followed by the 10-year Program and Resource Plan,³¹ and concluding with the 5-year STIP. Regional needs (NCDOT's Highway Divisions 4 and 6) for the 2018-2022 period have been estimated at \$6,258 million, inclusive of I-95 needs over that period. Limited resources are distributed among competing priorities to achieve NCDOT's long-term goals.
 - **Current Funding Gap** - Based on the funding analysis of the 2040 Plan, NCDOT has estimated its needs over the next 30 years at \$114,110 million (2011 dollars), but existing funding sources are anticipated to cover only 47 percent of those needs. The 5-year STIP has programmed \$8,372 million in transportation projects through 2017, and draft STIP allocations for 2018-2022 are estimated at \$8,772 million. At that level of investment, only 14 percent of total needs over the 5-year period are funded. Funding available for Highway Divisions 4 and 6 would cover less than 11 percent of the region's needs (including projects beyond the I-95 Corridor) for the 2018-2022 period.

³⁰The 2040 Plan was adopted in August 2012.

³¹Draft Policy to Projects Plan, September 2012.

- **Equity Formula** - Another factor affecting increased appropriations is the equity formula, which requires that STIP funds be distributed equitably among regions of the State. STIP funds are distributed based on population (50 percent), on the number of miles of intrastate highways left to complete in a region (25 percent), and the remaining 25 percent is distributed equally among the regions. The funding distribution restrictions would limit additional funding allocations to the proposed I-95 Corridor improvements.
- **Special Federal Funding** - This option would rely on successfully obtaining special Federal appropriations through earmarks or discretionary grant programs. The new transportation bill signed into law in July 2012, Moving Ahead for Progress in the 21st Century (MAP-21), does not provide earmarks or special Federal funding to meet the funding needs for the I-95 Corridor.
- **Increased Local Funding** - This option would require local governments to fund portions of the improvement program from either existing revenue streams (e.g., property taxes) or from special assessments or new sales taxes. As noted earlier, most roadways in North Carolina are state-maintained; therefore, the role of local governments in transportation funding is limited, with most local option transportation taxes allowed by legislation targeted to public transportation (e.g., local options sales tax, vehicle rental tax, and vehicle registration fees). Property taxes and local sales taxes are levied locally and used for education, public health, public safety, and other general services. The counties in the corridor generated \$779 million in FY 2009 from both property and local sales taxes. Reallocating a portion of existing local revenues to the I-95 project needs would not be feasible without impacting other local needs. Furthermore, I-95 is a corridor of national and state significance, and placing the funding burden on local governments is likely to find opposition. NCDOT found that an additional one percent sales tax in the counties along the corridor may provide about \$40 million annually to match STIP funding apportionments for the I-95 Corridor.³²
- **Tolling** - This option would impose direct fees to users of the corridor. NCDOT's analysis of tolling in the I-95 Corridor estimated gross toll revenues of \$250 million in the first year (2020) and \$928 million in 2040, assuming phased implementation of tolling. Assuming all electronic tolling (AET) and the implementation of toll zones at 10-mile spacing on the mainline, the proposed I-95 Corridor improvements could be fully funded with toll revenues and debt financing. Toll revenues are anticipated to cover debt financing cost (principal and interest, and reserve requirements), operations and maintenance costs (O&M), and renewal and replacement costs (R&R).

³² I-95 Planning and Finance Study, Financial Plan (Draft 2). January 2013.

Of the funding options considered by NCDOT, tolling is anticipated to generate significant revenues that can be leveraged to finance the corridor needs. In February 2012, the Federal Highway Administration (FHWA) granted NCDOT a conditional reservation under the Interstate System Rehabilitation and Renewal Pilot Program to investigate the implementation of tolls on this corridor. For the purpose of the economic impact analysis, all funding options (in addition to tolling) will be considered and evaluated.

Increase Existing Transportation Funding

Under current state regulations, only funding from the Highway Fund can be used for the I-95 Corridor. The Highway Trust Fund is restricted to the completion of projects specified by legislation. If Highway Trust Fund allocations cannot be used in these projects, the funding may be used for projects on other routes or corridors, including the I-95 Corridor from South Carolina to Virginia. The most recent map for North Carolina's intrastate system shows uncompleted intrastate highway projects within Regions A and C. Only after completion of these projects could Highway Trust Fund allocations be diverted to other corridor needs in the region, including the I-95 Corridor.

It should be noted that any future increases to existing transportation fees would be distributed as specified by legislation and subject to the equity formula requirements. Furthermore, the I-95 Corridor improvements will compete with other regional needs for any potential increase in funding allocations to Highway Divisions 4 and 6.

Motor Fuel Tax

As indicated earlier, North Carolina has one of the highest fuel tax rates in the nation today, mainly as a result of higher fuel prices in recent years, which determine the variable portion of the motor fuel tax rate. Although the excise tax rate has not been adjusted since 1992, an increase to the excise tax rate may not be politically acceptable, given the current tax rate resulting from higher fuel prices. Even at these rates, motor fuel tax revenues fall short of addressing North Carolina's transportation needs.

Changes in fuel prices affect the stability of the fuel tax rate in North Carolina, as shown in Figure 4. Other options include adjusting the fixed portion of the motor fuel tax rate to some measure of inflation, such as the consumer price index (CPI) or to an inflation index gauging changes in highway construction and maintenance costs or state revenue needs.

NCDOT's 2040 Plan proposed eliminating current transfers from the Highway Fund to nontransportation uses, including the General Fund. The FY 2011/2012 budget included seven percent in transfers to other state agencies/programs. The STIP estimates \$1,924 million in transfers over the 2013-2017 period, with General Fund transfers estimated at \$112 million per year.

The net yield of one cpg in FY 2011 is estimated at \$52.4 million.³³ Based on STIP data, about seven percent of the available STIP funding for capital will be allocated to Highway Divisions 4 and 6 over the 2018-2022 period. Assuming that any increase in revenue will be dedicated to capital, an additional \$3.7 million per year could be available for the region by increasing the motor fuel tax rate by one cpg.

Motor Vehicle Registration and Title Fees

The 2040 Plan proposed adjusting vehicle registration fees by inflation every 5 years, starting in 2016. Assuming a three percent inflation rate, revenues from adjusting current vehicle registration fees could generate \$6,130 million (2011 dollars) over 25 years, per NCDOT's estimates for the 2040 Plan. Again, only a small portion of the additional revenues would be available for projects in Highway Divisions 4 and 6.

Highway Use Tax

Another proposal to raise additional revenues from the 2040 Plan consists of increasing the Highway Use Tax rate from three to four percent. The 2040 Plan estimated additional revenues at \$3,250 million (2011 dollars) over 25 years. Revenues from the Highway Use Tax are currently deposited into the Highway Trust Fund; therefore, additional revenues would have to be allocated outside the Highway Trust Fund for use on the I-95 Corridor project.

Another option to generate additional revenues through the Highway Use Tax is to increase the \$1,000 cap on commercial vehicles. The cap could be adjusted periodically based on inflation.

Eliminate Transfers to the General Fund

There are a number of annual transfers from NCDOT funds to other state agencies and into the General Fund. In 2012, a total of \$390 million were transferred out of NCDOT funds. Some of the major transfers are for the State Highway Patrol (\$199 million) out of the Highway Fund, and for reimbursing the General Fund for the revenue lost with the creation of the Highway Trust Fund and for the North Carolina Turnpike Authority (\$77 million). The 2013-2017 STIP estimates total transfers from \$380 million in 2014 to \$408 million in 2017.

Table 10 summarizes the estimated 5-year transfers from NCDOT funds to other agencies and into the General Fund for fiscal years 2013 through 2017. The 2040 Plan forecast transfers out of the Highway Fund at \$3,347.7 million over 28 years (2013-2040).

³³North Carolina Department of Revenue, Motor Fuels Tax Collection data through FY 2011 (Table 53).

Table 10. NCDOT Funding Transfers
FY 2013-2017

	Five-Year Total (millions)
Department of Crime Control and Public Safety – Highway Patrol	\$1,064
Department of Agriculture	\$26
Department of Revenue	\$26
State Treasurer	\$129
Office of the State Controller – Best Shared Services	\$2
Department of Public Instruction – Driver Education	\$144
Department of Public Instruction – Civil Penalties	\$0
Leaking Underground Storage Tank Trust Fund (LUST)	\$0
Department of Health and Human Services – Chemical Test	\$3
NC Global TransPark	\$5
Transfer to General Fund and North Carolina Turnpike Authority (NCTA)	\$525
Transfer Total	\$1,924

Source: NCDOT Statewide Transportation Improvement Program (STIP), 2013-2017.

New Revenue Options

The potential to fully finance the proposed I-95 Corridor improvements through increases in existing transportation funding sources is limited, given several factors, including restrictions in funding allocations and competing transportation investment needs. Based on funding strategies used in other states for transportation projects and input provided through stakeholder interviews, several new funding options will be explored. The new funding options were divided into three groups:

1. User fees;
2. Special taxes; and
3. Value capture.

The funding options described in this section represent a range of options to support transportation investment and which may be implemented by governing bodies at the local and state levels. Together, these approaches are intended to present a broad financial picture for North Carolina when considering potential funding sources, financial techniques, and tools to supplement existing revenue and financing tools in order to advance the I-95 Corridor improvements. The ability to fully finance the project cost will require a combination of funding sources and financing tools, and none of the revenue options presented here should be considered in isolation, but rather as part of a larger financial package.

New revenue options include taxes and fees that could be implemented statewide, as well as taxes and fee that could be implemented at the local level. Local option taxes have been widely adopted by local governments in most states (including North Carolina) to support transportation investments. They include mechanisms such as local option sales, income, property, and vehicle taxes and fees. The application and level of local option taxes could be at the local or regional level; revenues are often dedicated to specific transportation projects or programs. Transit agencies in North Carolina currently rely on local sales and vehicle rental taxes, and local vehicle registration fees to support transit capital and operating needs. The application of local funding to support highway needs is more limited, since most highways are state-maintained, with local funding responsibilities limited to some local roads and streets. FHWA Highway Statistics show most local funding for roads comes from General Fund appropriations (local sales and property taxes). The application of local option taxes to pay for improvements on the I-95 Corridor will require support from the counties where these new funding sources would be levied. The public acceptability of local funding dedicated to the I-95 Corridor is likely to be low given the national and regional significance of the corridor. Revenue sources such as local sales, income, and property taxes would generate more revenues compared to other local revenue sources given their broader tax base.

Therefore, not all of the transportation funding approaches described in this section may be appropriate for use in North Carolina. The implementation of some of the proposed revenue sources and financing tools may require legislative action, or the implementation of policies to ensure the use of these new sources for transportation needs. At the local level, some of the local option revenue sources that already are in place are used to support other local public services, and dedicating or allocating a higher share of existing resources to transportation needs means that their availability for other important public services (which also may have a growing need for funding) will be reduced.

User Fees

Express Toll Lanes. In addition to traditional tolling, another funding option related to direct user charges is the application of pricing such as managed lanes or tolls on new capacity only. For the most part, managed lane projects are built for their traffic management characteristics – the ability to maintain a free-flowing, reliable path at all times – rather than their ability to fund project construction. Most yield enough revenue to cover operating expenses, and also some contribute funds to corridor transit operations or to repay capital expenses. Drivers’ willingness to pay tolls is one of the most important factors when forecasting traffic and revenue for managed lanes. In addition, the feasibility of managed lanes in the corridor will depend on existing or anticipated congestion and the potential for significant travel-time savings and improved travel reliability. To the extent that portions of the I-95 Corridor exhibit these conditions, the implementation of high-occupancy toll (HOT) lanes or express toll lanes (ETL) on new capacity could be considered as potential revenue sources.

The implementation of tolling and pricing on existing roads generally faces both public and political opposition, largely based on considerations of double taxation. Also, some of the concerns expressed by different stakeholder groups³⁴ interviewed for this study include:

- Equity across the State with similar corridors remaining toll-free; tolling policy should be addressed statewide; and
- Financial burden on corridor residents.

Vehicle-Miles Traveled (VMT) Fees. The long-term sustainability of motor fuel taxes as the main source for transportation funding is a concern, given the anticipated erosion of revenue yield with long-term improvements in fuel efficiency and the introduction of alternative fuels. VMT fees have been identified as an alternative or supplement to fuel-based taxes. The fees would help states cope with declining revenues from state motor fuel taxes, which as described throughout this report have historically provided a substantial portion of state transportation funding. Presumably, fees could vary based on time of travel, the roadways traveled, and vehicle type. VMT fees are typically seen as a longer-term solution for transportation funding. The fees have a high-potential revenue yield, but currently are not being utilized by any state.

VMT fees have been the subject of several national studies, including the National Surface Transportation Infrastructure Financing Commission. While VMT fees have great potential to both efficiently manage the transportation system and generate significant revenues, there are a number of technical and transition challenges, as well as substantial public and political acceptance issues that will need to be overcome in order to replace motor fuel taxes with VMT fees as the foundation of the U.S. transportation financing system.

VMT on all functional classes of highway in North Carolina was estimated at 102.4 billion³⁵ in 2010, a slight decline from 2009 (0.2 percent). Based on this statistic, the annual yield of a one cent fee per VMT is close to \$1,024 million, compared to \$1,397 million³⁶ generated by motor fuel taxes in 2010.³⁷ The 2040 plan estimated the revenue potential of a two cents per VMT fee at \$26,640 million (2011 dollars) over 20 years.³⁸

³⁴The Public Outreach process for the North Carolina I-95 Economic Impacts Analysis study is documented in the I-95 Environmental Assessment report available at <http://www.driving95.com>.

³⁵2010 FHWA Highway Statistics, Table VM-2.

³⁶2010 FHWA Highway Statistics, Table SF-1.

³⁷MFT rates at 30.3 cpg (January-June 2010) and 31.9 cpg (July-December 2010).

³⁸The 2040 Plan assumes implementation by 2020, and 30 percent reduction of gross revenues to account for the cost of collection and evasion.

A disadvantage of VMT fees is that they also are susceptible to increases in fuel prices, as experienced nationwide in 2008 when VMT levels declined as fuel prices rose; however, VMT fees would fare better compared to motor fuel taxes, since improvements in fuel efficiency (a long-term effect of high fuel prices) would not erode their yield. In addition, VMT fees should be indexed over the long term to ensure that their purchasing power keeps pace with inflation and the growth in the cost of delivering transportation projects. In addition, VMT fees are likely to be implemented to replace motor fuel taxes. As such, current policy issues associated with funding allocation and restrictions on use would impact their potential use for the I-95 Corridor improvements.

Short-Term Vehicle Lease. Rental car taxes are in place in 30 states, and in some, the rental car tax is levied in lieu of a sales tax. Seven states dedicate all or a portion of vehicle rental taxes for roadways, including Florida, Hawaii, Iowa, Nevada, Oklahoma, South Dakota, and Utah. In North Carolina, revenues from an eight percent tax on short-term vehicle leases go into the General Fund.

The 2040 Plan proposed redirecting revenues raised by the short-term vehicle lease tax from the General Fund to NCDOT. The plan assumed that revenues would remain flat over the 2040 Plan period. Assuming this revenue source was redirected to NCDOT in 2016, total projected revenues are estimated at \$630 million (2011 dollars) over 25 years.

The yield of this potential revenue source is low, and redirecting the revenues to NCDOT implies the same allocation restrictions noted to funds deposited into the Highway Fund and the Highway Trust Fund.

Local Vehicle Registration Fees. In North Carolina, Regional Transit Authorities (RTA) and counties are authorized to implement local vehicle registration fees for transit. Similar to local sales taxes, local vehicle registration fees would require legislative action providing counties the ability to set their investment priorities.

Local Motor Fuel Tax. According to the AASHTO Center for Excellence in Project Finance, 15 states authorize local option motor fuel taxes, with widespread use in 5 states (Alabama, Florida, Hawaii, Illinois, and Nevada). For example, Florida has made extensive use of local option fuel taxes for transportation purposes, where counties can impose up to 12 cpg. In North Carolina, however, legislation prohibits the implementation of local motor fuel taxes.

Vehicle Property Tax. The 2040 Plan included increasing the vehicle property tax as a potential option to fund statewide transportation needs. This option assumes that a five percent increase in existing local property tax collections on motor vehicles would be dedicated for local road projects, assuming an average local tax rate of \$0.07 per \$100 of assessed valuation. If implemented in 2016, the 2040 Plan estimated revenues from this source at \$500 million (2011 dollars).

At the corridor level, vehicle property taxes will not generate significant revenues, based on the statewide estimates from the 2040 Plan.

Special Taxes and Fees

Sales Tax. Counties in North Carolina have the authority to levy up to 2.25 percent in local sales taxes for general use. Most counties levy 2 percent; among the counties in the I-95 Corridor, Cumberland, Halifax, and Robeson counties currently levy 2.25 percent.

Local option sales taxes for transportation are authorized in North Carolina for public transportation only. Currently, Mecklenburg County levies an additional 0.5 percent dedicated to transit. The counties of Durham, Forsyth, Guilford, Orange, and Wake may enact a 0.5 percent local sales tax to fund transit investments, upon voters' approval; other counties could implement a 0.25 percent local sales tax, subject to voters' approval. Both Durham and Orange counties approved a 0.5 percent sales tax for transit that will be collected starting in 2014.

New local option sales taxes for transportation would require legislative action providing counties the ability to set their investment priorities (e.g., roads, transit).

Property Tax. In North Carolina, property taxes are supervised by the state, while tax assessment and collection is administered by the counties and municipalities. Revenues from property taxes fund many local government services. Current county tax rates in the corridor range between \$0.67 and \$0.92 per \$100 valuation. County property tax rates statewide range between \$0.279 and \$1.03 per \$100 valuation. Some municipalities also levy property taxes.

Increasing current tax rates and dedicating a portion of new or existing property tax revenues levied in the counties served by the I-95 Corridor is a potential option for funding the proposed I-95 Corridor improvements.

Payroll Taxes and Income. Local governments in North Carolina do not have legislative authority to collect income or payroll taxes. In the United States, about 20 states authorize local income or payroll taxes, although only a few are dedicated to transportation, specifically to transit, including Indiana, Kentucky, Ohio, and Oregon. In Virginia, some counties³⁹ are authorized to levy, local income taxes for transportation, if approved by voters, but such taxes have not been adopted anywhere in the State.

Income taxes are considered equitable in that people with higher income generally pay more than those with lower income. When applied at the local level, however, geographic equity concerns arise, and it may encourage people to settle where local income taxes are lower or not collected. In the case of payroll taxes, it may encourage businesses to relocate outside the taxation locality/region.

³⁹ Arlington, Fairfax, Loudoun, and Prince William, and the Cities of Alexandria, Fairfax, Falls Church, Manassas, Manassas Park, Norfolk, and Virginia Beach.

Hotel/Room Occupancy Taxes. Hotel/Room occupancy taxes are common revenue generating mechanisms employed by municipal and county governments. These are applied either as a sales tax on the cost per room or as a daily fee per room, and revenues are often dedicated to tourism or to the development of tourism-related facilities. Its application to transportation is very limited, although some local governments have enacted this type of tax to support transportation investments where infrastructure improvements or transportation services are needed to enhance visitor experience, accessibility, and mobility.

In North Carolina, counties and municipalities may collect occupancy taxes, up to six percent, which must be used to promote tourism and travel (two-thirds of revenues) and tourism-related purposes (one-third). Two counties in the I-95 Corridor (Cumberland and Harnett) already levy the maximum tax rate. Any I-95 Corridor improvements funded with occupancy taxes must demonstrate tourism-related benefits, and revenues may not be sufficient to support a significant portion of the needs.

Billboard Fees (outdoor advertising), Logo Signs and Tourist-Oriented Directional Sign (TODS) Program. By legislation, NCDOT may levy an initial fee not to exceed \$120, and an annual renewal fee of \$60 per billboard,⁴⁰ with revenues going into the Highway Beautification Fund. The application fee for directional signs is \$60, with a renewal fee of \$30 annually. With over 7,000 billboards reported in the State,⁴¹ billboard fees generate about \$420,000 annually statewide (assuming a renewal fee of \$60). Some stakeholders have suggested increasing billboard fees as a funding option for the I-95 Corridor improvements. Outdoor advertising generated \$488,770 in FY 2010.

Logo and Tourist-Oriented Directional Signs provide information about services and tourist attractions along North Carolina roadways. The Logo signs (also known as the “blue signs”) are installed on access-controlled facilities (such as I-95) where space is available. The annual fee is \$300 per mainline, ramp, and trailblazer panel. The fee is set by the Board of Transportation based on the cost of installing and maintaining the logo signs. The TODS program provides signage for tourist attractions on state roads (non-freeway) in rural areas or cities and towns with a population of less than 40,000. The annual fee for TODS is \$200 per panel. The fee is set by NCDOT to cover the cost of installing and maintaining the sign, and administration of the program. The logo signs and the TODS program are revenue neutral. Logo signs generated \$3.8 million in FY 2010; revenues for TODS in FY 2010 were \$34,400.

⁴⁰Outdoor Advertising Control Act of 1967, Article 11, Chapter 136 of the General Statutes of North Carolina.

⁴¹<http://www.carolinapublicpress.org/2829/nc-electronic-billboard-bill-revised> (last accessed on January 16, 2013).

The revenue yield of these funding sources is low compared to funding needs on the I-95 Corridor, and dedicating revenues to the project may require legislation dictating the uses of new revenues levied in the corridor.

Value Capture

Value capture represents a beneficiary-based revenue source. Unlike a user-fee revenue source, such as VMT fees, a beneficiary-based revenue source levies fees or taxes on a defined and generally localized group(s) of beneficiaries that are expected to receive a benefit from a particular transportation facility or resource. In other words, value capture attempts to capture some portion of the *value* resulting from infrastructure improvements. For instance, special assessment districts have been created in some localities in Virginia to support roadway improvements (e.g., Route 28 special assessment districts in Fairfax and Loudon).⁴² The Transbay Transit Center in San Francisco, a \$4,185 million multimodal facility,⁴³ has pledged value capture revenues from real estate taxes on surrounding transit-oriented development for repayment of a Federal loan. The feasibility of using revenue from value capture for a multijurisdictional project like the I-95 Corridor may be limited due to the general low yield, and the scope and extent of revenues (mainly local). However, value capture revenues could be leveraged if considered as part of a funding package.

Impact Fees. Impact fees are a one-time charge to developers on new development. Revenues are used to pay for infrastructure improvements – such as schools, sewers, and roads – to support growth generated by development. These fees have been applied by municipalities and county governments. Impact fees have been widely used in California and Florida. In North Carolina, impact fees (known as facility fees) are authorized through special legislation for specific jurisdictions. Commonly, impact fees are not used to finance large-scale projects like the I-95 Corridor improvements. The revenue potential of impact fees is low, and since the fees are entirely dependent on new development, they are highly speculative, and not easily bondable.

Development Exactions. In addition to impact fees, development exactions can take the form of land donations or in-kind donations, such as construction of public infrastructure, parks, or the provision of public services. Development exactions are negotiated and agreed upon as part of the permitting process of development.

⁴²In Fairfax and Loudon counties, landowners within the Route 28 special assessment district pay 18 cents per \$100 of value. The revenues generated by the special assessments are pledged to pay the revenue bonds issued for the improvements on Route 28.

⁴³The Transbay Transit Center Project is a transit hub connecting eight Bay Area counties and the State of California through 10 transit systems: AC Transit, BART, Caltrain, Golden Gate Transit, Greyhound, Muni, SamTrans, WestCAT Lynx, Amtrak, and future High-Speed Rail from San Francisco to Los Angeles/Anaheim.

Special Assessments. Special assessments are levied on special property taxing districts, self-imposed by residents and/or business owners to support infrastructure needs. The cost of infrastructure is paid for by the properties that are deemed to benefit from the improvements.

In North Carolina, counties and municipalities can create special taxing districts. However, enabling legislation might be required to create a special taxing district to finance the I-95 Corridor project.

Tax Increment Financing. Tax increment financing (TIF) captures the increase in property value as a result of redevelopment attracted by infrastructure improvements. TIF is a common tool used by local governments to revitalize urban environments. The use of TIFs (known as project development financing) in North Carolina was authorized by voters in 2004. Eligible uses related to transportation include improvements on subdivision and residential streets, preservation of a railroad corridor, public transportation facilities, and parking facilities. A large-scale project like the I-95 Corridor improvements would not be eligible, based on eligible uses of project development financing per legislation.

1.6 POTENTIAL FINANCING AND PROJECT DELIVERY OPTIONS FOR I-95 CORRIDOR

Financing tools do not generate new revenue, but allow leveraging of existing resources to accelerate the construction of projects. Debt must be repaid over time, and the total cost increases by the discounted value of interest payments. Benefits of financing as opposed to “pay-as-you-go” include public and economic benefits (e.g., travel-time savings; reduced crashes; accessibility to jobs, suppliers, customers, and intermodal terminals; job creation; expanded tax base; etc.) realized by having the asset in place earlier. The use of these tools also recognizes the fact that the cost is being paid by future users over the life of the project. These benefits may be weighed against the higher costs of paying interest on the debt through a net present value analysis.

In recent years, there has been an increase in private equity investment in surface transportation through Public-Private Partnerships (P3), with financing packages that combine public and private debt, equity, and public funding.

Following are some of the common project finance techniques and project delivery tools used by DOTs to help advance their transportation priorities and that may be considered for the I-95 Corridor project. These financing techniques can be classified into two groups: credit assistance and bonds. Credit assistance allows project sponsors to borrow money or access credit from the Federal government. Bonds are debt instruments issued by state and local governments, providing access to the capital markets. This is not an exhaustive list of financing tools, and does not include municipal bond instruments, like general obligation (G.O.) or revenue bonds that are generally used in public financing.

Transportation Infrastructure Finance and Innovation Act

The Transportation Infrastructure Finance and Innovation Act (TIFIA) allows the Federal government to provide loans, loan guarantees, and lines of credit directly to public and private sponsors⁴⁴ of major surface transportation projects. TIFIA instruments are designed to fill market gaps and leverage limited Federal resources and substantial coinvestment by providing projects with supplemental or subordinate debt rather than grants. TIFIA financial assistance has helped to improve access to capital markets and offer flexible repayment terms and potentially more favorable interest rates than can be found in private capital markets for similar instruments.

Any type of project eligible for Federal assistance through existing surface transportation programs (both highways and transit) is eligible for TIFIA assistance. In addition, the following types of projects are eligible: international bridges and tunnels; intercity passenger bus and rail facilities and vehicles; public freight rail facilities or private facilities providing public benefit for highway users; intermodal freight transfer facilities; access to such freight facilities; and service improvements to such facilities, including capital investment for Intelligent Transportation Systems (ITS).

MAP-21 greatly expanded the TIFIA credit program. The amount of Federal credit assistance is increased to 49 percent of total eligible project cost for a TIFIA secured loan and 33 percent for a TIFIA standby line of credit. The project cost should be no less than \$50 million (the minimum cost for ITS projects is \$15 million and \$25 million for rural infrastructure). The program also requires senior debt to be rated investment-grade by two rating agencies, unless the project cost is less than \$75 million.

Currently, there are 32 TIFIA agreements, which have leveraged \$42,164 million in project investment. In North Carolina, the Triangle Expressway project received a TIFIA loan of \$386.7 million to finance the \$1,172 million toll road. NCDOT recently submitted letters of interest for the I-77 HOT Lanes and the Mid-Currituck Bridge projects.

Toll road projects have benefited from TIFIA credit assistance, due to its flexibility on repayment terms. TIFIA also has been instrumental in attracting private capital and advancing P3 projects, as well as transit projects. The I-95 Corridor improvements could be financed with TIFIA if the project exhibits any of these characteristics and meets the criteria established by FHWA, and if a stable and reliable repayment source has been identified. Over the last few years, requests for TIFIA loans have far exceeded the available resources, making it increasingly competitive and difficult to get financing. However, with changes made in MAP-21, it is anticipated that TIFIA investment could leverage

⁴⁴TIFIA project sponsors may be public or private entities, including state and local governments, special purpose authorities, transportation improvement districts, and private firms or consortia.

up to \$50 million over the next two years; that is, more than the program leveraged over the last decade.

State Infrastructure Banks

A State Infrastructure Bank (SIB) is a project financing mechanism for state governments that allows the creation of a revolving fund providing low-interest, subsidized loans, and bonds to public and private sponsors of Title 23 highway construction projects; and Title 49 transit and rail capital projects. SAFETEA-LU authorized all states to create and capitalize SIBs with transfers from Federal-aid highway funding allocations and the corresponding matching funds (e.g., 20 percent state match for National Highway System funds). States with active SIBs may continue to operate under MAP-21, but additional Federal-aid Highway funding from Fiscal Years 2013 and 2014 cannot be used to capitalize the SIBs.

In addition to capitalizing the SIB with Federal-aid highway funds, some states have used other revenues (beyond the matching requirement) to capitalize their SIB. Using non-Federal funding provides states with the flexibility of lending money for projects that are not eligible for Federal funding under Title 23 and Title 49. For instance, the South Carolina SIB (known as the Transportation Infrastructure Bank, SCTIB) was capitalized with General Fund allocations and with dedicated revenues from one-quarter-cent per gallon of motor fuel and truck registration fees. South Carolina also leverages its SIB capital through bonding.

Debt Instruments

Private Activity Bonds

Private activity bonds (PAB) are a debt instrument that allows private investors to access tax-exempt debt, which typically carries lower interest rates compared to taxable debt, thereby enhancing investment prospects. With approval from the U.S. DOT, PABs are issued by state or local governments on behalf of the private entity undertaking a project. The private entity finances and delivers the project and is responsible for debt service on the PABs.

According to FHWA's Office of Innovative Program Delivery, eight projects were approved by the U.S. DOT for a total issuance of \$3,154 million in PABs to date. In addition, as of January 2013, PAB allocations have been approved by the U.S. DOT for another six projects, totaling \$4,236 million in PABs.

PABs could be considered for the I-95 Corridor improvements if future projects are advanced as public-private partnerships (P3).

Grant Anticipation Revenue Vehicles

Grant Anticipation Revenue Vehicles, or GARVEEs, are bonds or any debt instrument secured with future Federal-aid funding. Projects financed by a GARVEE must be eligible for Federal-aid assistance under Title 23 of the United

States Code. In North Carolina, enabling legislation for GARVEEs passed in August 2005, authorizing the issuance of \$900 million. To date, NCDOT has issued \$855 million in GARVEE bonds. North Carolina designed its GARVEE program with an “evergreen” structure, which allows NCDOT to issue additional bonds over time, subject to certain legislative requirements. GARVEE bonds have allowed NCDOT to accelerate strategic projects, providing cost savings over the long term.

Public-Private Partnerships

Public-private partnerships (P3s) are contractual agreements between a public agency and a private entity, which allows greater private sector participation in the delivery and operation of transportation projects and facilities. P3s involve a sharing of responsibilities, risks, and rewards between public sector owners of transportation facilities and a private sector partner(s), but the public partner retains full ownership of the facility. In other words, P3s are a procurement strategy that allow for the transfer and/or sharing of risks associated with project delivery.

P3s have been extensively used by other industry areas to provide infrastructure such as utilities, water/wastewater, and health care. In the transportation sector, P3s can be applied across modes, including transit and structures (such as bridges), and are not exclusively used for roadways or toll roads. Typically, private sector participation involves taking on project risks, such as design, finance, long-term operation, and traffic revenue. North Carolina has enabling legislation for P3s, but projects must be approved individually by the legislature.

1.7 EVALUATION CRITERIA AND INITIAL SCREENING OF FUNDING OPTIONS (PHASE 1)

When considering potential revenue sources for transportation, there are common criteria that are employed to evaluate advantages and disadvantages of each source. These criteria may be used as a guide when determining the feasibility of these sources for application to the I-95 Corridor improvements in North Carolina:

- **Adequacy and Predictability** – This criterion refers to both the overall magnitude of funds a funding source is capable of generating and to how reliable this yield is predicted to be over time.
 - **Adequacy** – Strategies are given a “high” rating if they are capable of producing large amounts of revenue. In particular, fuel taxes have been the mainstay of transportation revenues for decades, receiving generally a “high” rating related to yield. Sources or strategies are given a “low” rating if the strategies are inherently short-term or low-yield. For example, a revenue source like an impact fee would rank “low” in adequacy, given its narrow tax base and the fact that it is a onetime charge.

- **Predictability** - A funding strategy with a “high” rating produces revenues that are predictably sustained over time, whereas a “low” rating refers to funding sources whose revenue generation potential over time is more uncertain. For example, motor fuel taxes may not be reliable over time because, if not indexed, the revenue degrades with both inflation and lower consumption as vehicles become more fuel efficient. If they are indexed, the inflation impact is removed, and revenues are only impacted by lower demand.
- **Economic Efficiency** - This criterion refers to the extent that a strategy provides clear pricing signals that encourage users and providers to minimize unproductive travel and maximize economic growth. Therefore, strategies with “high” economic efficiency are those that help to make the marginal prices of goods and services reflect their true costs. Strategies with “low” economic efficiency are those that distort the market by collecting fees that are unrelated to the services they help fund. For example, sales taxes would be considered “low” in economic efficiency, as these are not directly related to transportation and would not send direct signals of efficient use of the transportation network. A robust measure of economic efficiency includes the full network effects that are gained from completing a single segment of roadway.
- **Equity** - This criterion refers to the extent that each strategy places inequitable burdens on different groups of people financially, or unfairly restricts access to basic transportation services. Excise and sales taxes and user fees are all regressive, since they require those with lower incomes to expend a disproportionately higher share of their incomes to pay the tax or fee. The only funding strategies that are likely to receive a “high” rating are those that levy different fees *based on income levels*, including income or payroll taxes, property taxes, and vehicle personal property.
- **Administrative Effectiveness** - This criterion refers to the cost and ease of administering each fee or tax system; that is, minimizing evasion and minimizing the logistical difficulties imposed on the public in the process of paying the fee or tax in a cost-effective way. The easiest fee-collection systems, designated as having “high” administrative effectiveness are those that piggyback on other payments at the point of sale, including fuel taxes and sales taxes. Strategies are designated as “medium” if they require the user to make a unique payment solely for the purpose of paying fees or taxes, but where this process has been reasonably streamlined. New funding sources or those with high administrative costs are designated as “low.”
- **Political Feasibility/Public Acceptance** - Because all of the funding sources require the public to pay more, it is likely that they will all be generally unpopular. Funding sources that are somewhat removed from the transportation project or service they are supporting tend to be particularly unpopular, such as sales, property, and income taxes and general revenue.
- **Leverage Potential** - Most (if not all) large-scale projects require financing, since revenue streams are generally not sufficient to meet annual cash flow

needs to pay-as-you-go. The predictability of a revenue source plays a key role in determining a revenue source's leverage potential. Even some low-yield sources could have a "medium" leverage potential, if pledged in combination with other revenue sources. Ideally, the financial plan will include a combination of revenue streams that reduces risk and achieves good bond ratings, which in turn lowers financing costs.

- **Share of tax paid by state versus out-of-state residents/businesses** – I-95 is a corridor of national, regional, and statewide significance serving both interstate and intrastate travel. This criterion considers the potential to share the tax burden with out-of-state users, or if the tax burden is carried by North Carolina residents and businesses. Tolling would be rated "high" because out-of-state travelers would pay their share for using the corridor, whereas property taxes would be rated "low" because the tax is paid by residents and businesses where the additional property tax is imposed to pay for the project.

Revenue mechanisms with high adequacy and high stability/predictability are generally appropriate for capital spending and could potentially be leveraged through bonding or used as a repayment source for other financing tools. Revenue sources with lower yields, high to medium predictability, and that can be collected annually may be used to support ongoing expenses such as operations and maintenance, or can be combined with other revenues to be leveraged. Revenue sources with sunset provisions or one-time payments (e.g., impact fees) are not appropriate for ongoing operating and maintenance expenses, but can provide funding for capital improvements. Note that financing tools (e.g., debt instruments and loans) will not be evaluated against these criteria, and that the key to financing is to have viable revenue sources in place for repayment. Table 11 defines the rating ranges for the evaluation criteria.

Initial Screening of Funding Options (Phase 1)

The revenue options presented in Section 5.0 of this technical memorandum were evaluated based on the criteria described above. The ratings (from low to high) are intended to provide a qualitative assessment of the revenue options to inform decision-makers about the pros and cons of implementation. The ratings are subjective, and not intended to support or dismiss any of the revenue options, but these should help in narrowing down the universe of potential funding options.

The study team assigned ratings by criteria for all the revenue options based on existing research, professional judgment, and input from the stakeholders' surveys conducted for this study. Table 12 summarizes the ranking for all the revenue options.

The study team ranked the potential revenue options based on these criteria. The ratings are intended to provide a qualitative assessment of the revenue options to inform decision-makers about the pros and cons of implementation. The ratings are subjective, and not intended to support or dismiss any of the revenue options, but these should help in narrowing down the universe of

potential funding options. None of the revenue alternatives considered for the I-95 project ranked high in all criteria; therefore, the shortlist of potential revenue options focused on choosing alternatives that could be leveraged to support a major investment.

All revenue options and the ranking analysis were presented to the Advisory Council, and a shortlist of funding options was developed after consultation with the Council and NCDOT. The shortlist of potential funding options was further evaluated within the economic analysis framework developed for this study (see Section 1.8).

Table 11. Rating Definition for Revenue Evaluation Criteria (DRAFT)

Criterion	Low	Medium	High
Adequacy	Revenue streams are low and may not provide sufficient funding to support a project or program, or can only be implemented over the short term.	Revenue streams are close to or comparable to existing revenue options. Levies may partially support a project or program, and could be leveraged through finance.	Revenue streams are higher than existing revenue options. Levies can support a project and program over the long term.
Predictability	Revenue fluctuations are uncertain and highly volatile, making it difficult to predict future revenue streams. Fluctuations in revenues are highly variable year-to-year, and specific factors affecting stability cannot be identified.	Revenue fluctuations are generally consistent over time or more predictable, and the factors affecting stability are generally known, such as economic downturns.	Revenue streams are highly predictable, with a long history of receipts for which trends can be easily identified. Fluctuations in revenues are low or nonexistent.
Economic Efficiency	The revenue source and the use of the system are unrelated, thus it does not provide clear pricing signals, leading to inefficient use of the system.	The revenue source and the use of the system are indirectly related (e.g., motor fuel taxes), yet pricing signals are not clear and users are not encouraged to make efficient use of the system.	There is a strong relationship between the revenue source and the use of the system, sending clear pricing signals, and encouraging the efficient use of the system. The revenue option reflects the true cost of using the system.
Equity	Low-income populations have to spend a higher share of their income to pay the tax or fee compared to other groups, or are unfairly restricted from using basic transportation services.	The burden on low-income populations is lower, but they still spend a higher share of their income to pay the tax and fee compared to other groups.	The tax or fee is based on income levels.
Administrative Effectiveness	Administrative and compliance costs account for a significant share (e.g., over 50 percent) of total revenues, or require new collection systems and/or technologies.	Administrative and compliance costs account for a reasonable share (e.g., about 10 to 20 percent) of total revenues. The collection system is streamlined, reducing the administrative costs.	Administrative and compliance costs are low (e.g., less than 10 percent of total revenues), and collection and monitoring can be piggy-backed under existing collection systems.
Political Feasibility/ Public Acceptance	Highly unpopular and low support from public and decision-makers.	Medium support from public and decision-makers.	High support from public and decision-makers.

**Table 11. Rating Definition for Revenue Evaluation Criteria (DRAFT)
 (continued)**

Criterion	Low	Medium	High
Leverage Potential	Revenue streams are not appropriate for long-term debt due to factors such as low yield, high volatility, and uncertainty.	Revenue streams are generally predictable over time and could be leveraged in combination with other sources of revenue.	Revenue yields are sufficient to support financing, and rating agencies would generally consider the revenue source low-risk.
Share of tax paid by state versus out-of-state residents and businesses	Tax paid primarily in-state.	A portion of the tax burden is transferred out-of-state.	The tax burden is shared among in-state and out-of-state based on use (e.g., tolls) or significant share of the tax burden is transferred out-of-state.

Table 12. Potential Revenue Options for the I-95 Corridor
Preliminary Screening

Revenue	Adequacy	Predictability	Economic Efficiency	Equity	Administrative Effectiveness	Political Feasibility/ Public Acceptance	Leverage Potential	Fair Share of Tax Payment
<i>Funding Options Proposed in Environmental Assessment</i>								
Status Quo (STIP funding)	○	◐	◐	◑	●	●	○	◑
Additional State Funding for I-95	○	○	◐	◑	●	◐	○	◑
Federal Funding	○	○	○	◐	●	●	◐	◐
Tolling	●	◐	●	◐	◐	○	●	◐
<i>Existing Revenue Options</i>								
Motor Fuel Tax	●(statewide) ○(project)	◐	◐	◑	●	○	●	◑
Vehicle Registration Fees	◑	●	○	◑	●	◐	◐	◑
Highway Use Tax	◐	◐	○	◐	●	◑	◐	○
<i>New Revenue Options</i>								
Managed Lanes on I-95	○	○	●	◐	◐	○	○	○
VMT fees	●	◐	●	◑	◑	○	◐	◑
Short-term Vehicle Lease	○	◑	○	◑	◐	◐	○	◐
Billboard Fees	○	◐	○	◐	◐	◐	○	○
Sales Tax	●(statewide) ○(corridor)	◐	◑	◐	●	◐	●	◑
Local Vehicle Registration Tax	○	◐	○	○	●	◑	◐	○
Local Motor Fuel Tax	○	◐	◐	◑	●	○	◐	◑
Vehicle Property Tax (corridor level)	○	◐	◐	●	●	○	◐	○

Table 12. Potential Revenue Options for the I-95 Corridor
Preliminary Screening (continued)

Revenue	Adequacy	Predictability	Economic Efficiency	Equity	Administrative Effectiveness	Political Feasibility/ Public Acceptance	Leverage Potential	Fair Share of Tax Payment
<i>New Revenue Options (continued)</i>								
Property Tax	● (statewide) ○ (corridor)	○	○	○	●	○	○	○
Payroll/Income Tax	●	○	○	○	●	○	○	○
Hotel/Room Tax	○	○	○	○	●	○	○	○
Impact Fees	○	○	○	○	○	○	○	○
Development Exactions	○	○	○	N/A	○	○	○	○
Special Assessment	○	○	○	○	○	○	○	○
Tax Increment Financing	○	○	○	○	○	○	○	○

Funding Options Proposed in Environmental Assessment

1) STATUS QUO (CONTINUED PROJECT PROGRAMMING THROUGH STIP)

Adequacy: Low. The current level of funding available for the I-95 corridor in the STIP is about \$46 million annually, 10 percent of the needed amount over 10 years. It would take about 100 years to address all corridor needs at this level of funding, unless combined with other revenue sources.

Predictability: Medium. Highway funding in North Carolina relies on a combination of funding sources (Federal-aid highway funds, motor fuel taxes, highway user tax, and several vehicle-related fees). Although the recent recession impacted revenues from both the Highway Fund and the Highway Trust Fund, the impact has been reduced by growing motor fuel tax revenues due to a portion of the tax based on wholesale fuel price.

Economic efficiency: Medium. Revenues into North Carolina highway programs come primarily from indirect highway user fees (motor fuel taxes). Although the amount paid is based on use, motor fuel taxes do not provide clear price signals leading to efficient use of the transportation system, since the tax is generally hidden in the price of fuel.

Equity: Low-Medium.

- **Income: Low.** The motor fuel tax, highway use tax, and vehicle fees are generally regressive, in that low-income people spend a higher share of their income to pay the tax. The tax burden from the highway use tax may vary among income groups, as low-income individuals will generally spend based on their financial capacity.
- **Geographic: Medium.** STIP funds are distributed based on the equity formula, with a portion of the funds distributed based on population, which can be considered a proxy to geographical equity.

Administrative effectiveness: High. Revenues are currently collected; therefore, no new systems are needed in place for this option. Administrative cost of motor fuel tax collections is generally low compared to other highway user fees.

Political feasibility/public acceptance: High. No change to current status.

Leverage potential: Low. NCDOT's current debt includes GARVEE and General Obligation bonds issued by the State, but most of its program is funded pay-as-you-go. According to the North Carolina Department of State Treasurer, there is no debt capacity to issue additional bonds at current funding levels.

Fair share of tax payment: Low-Medium. Revenues into North Carolina highway programs come from indirect user fees paid primarily by North Carolina residents and businesses. However, to the extent they buy motor fuel in the State, they do pay some portion.

2) ADDITIONAL APPROPRIATIONS OF CURRENT STATE FUNDING TO I-95

Adequacy: Low. Transportation funding in North Carolina currently falls short of needs. The 2040 Plan estimates that only 47 percent of the statewide needs are funded with existing revenues. Over the short term, 11 percent of the regional needs (Highway Divisions 4 and 6) are funded in the STIP. Diverting funding to I-95 would divert resources from other statewide programs and funding allocations to other Highway Divisions. The equity formula also may restrict how funds are distributed. Based on STIP data, the 2018-2022 fiscally constrained STIP includes \$8,772 million in spending. Of that, \$669 million (about 7.6 percent of the available STIP funding for capital) will be allocated to Highway Divisions 4 and 6.

Predictability: Low. Diverting funds to support the I-95 Corridor project is not sustainable or feasible. Annual apportionments might be variable, year-by-year, depending on statewide needs.

Economic efficiency: Medium. Some of the revenues from the North Carolina Highway Fund are based on use (e.g., motor fuel excise tax) and some are not. These provide some, but not strong price signals to drivers about efficient use of the transportation network.

Equity: Low-Medium. Same as Status Quo.

Administrative effectiveness: High. Same as Status Quo.

Political feasibility/public acceptance: Medium. Diverting funding would find opposition from those affected by lower funding to meet regional needs.

Leverage potential: Low. Same as Status Quo.

Fair Share of Tax Payment: Low-Medium. Revenues into North Carolina highway programs come from indirect user fees paid primarily by North Carolina residents and businesses, but out-of-staters buying fuel in North Carolina pay a portion. In Fiscal Years 2010 and 2011, motor fuel taxes accounted for 68 and 42 percent of the Highway Fund and Highway Trust Fund revenues, respectively.

3) FEDERAL FUNDING (DISCRETIONARY/SPECIAL APPROPRIATIONS)

Adequacy: Low. Require special appropriations/earmarks, which seem optimistic given current fiscal situation at the national level. A special appropriation may cover a small share of the total project costs. Expecting an 80 percent Federal share would be unreasonable. For example, the total amount of funding awarded by U.S. DOT through TIGER grants in FY 2012 was \$500 million. TIGER I was the largest program, and awarded \$1.5 billion, split among 50 projects, with the largest grant being \$105 million.

Predictability: Low. It is difficult to predict whether an earmark will be successful, and it may still require Congressional action to appropriate funds.

Economic efficiency: Low. A Federal grant will not send a clear signal to drivers about efficient use of the transportation network.

Equity: Medium.

- **Income: Medium.** Depending on the source for Federal discretionary/special appropriation funds (e.g., Highway Trust Fund – Low because most revenues come from motor fuel taxes and vehicle fees; General Fund – High, because most revenues are from income and corporate taxes).
- **Geographic: Medium.** As a donee state, North Carolina pays more into the Federal Highway Trust Fund.

Administrative effectiveness: High. Through existing mechanisms.

Political feasibility/public acceptance: High. Especially from constituents along the corridor.

Leverage potential: Medium. While grant will not be eligible to support GARVEE debt or other financing, it would reduce the funding needed at the state and local level to implement the I-95 corridor improvements.

Fair Share of Tax Payment: Medium. Taxes paid by businesses and residents from all 50 states go into the Highway Trust Fund and General Fund. But, since North Carolina is a donee⁴⁵ state, it pays a higher share of the Highway Trust Fund than other states.

4) TOLLING

Adequacy: High. Gross revenues are forecast at \$250 million in 2020, increasing to \$928 million by 2040 (based on assumptions from Environmental Assessment) which could fund all of the project costs, in addition to maintenance and operation expenses over the life of the project. Actual toll revenue could vary considerably from the amounts forecast with different assumed toll rates, toll increases, and elasticity/diversion. Revenues would (presumably) be dedicated to corridor improvements/needs.

Predictability: Medium. Whereas toll revenue forecast for greenfield projects have proven to be highly uncertain in recent years, especially if driven by new development, the I-95 corridor is an existing corridor with a proven traffic stream. The main question is how much traffic will divert as a result of the tolls, which is uncertain, but not as uncertain as for a brand new road in a brand new corridor.

Economic efficiency: High. User pays and gets a direct price signal.

Equity: Medium.

- **Income: Medium.** Low-income users would pay a higher share of their income, than higher income users, but they could divert to alternate routes to

⁴⁵American Transportation Research Institute, based on FY 2009 Contributions to Federal Highway Trust Fund, http://www.atri-online.org/state/data/highway_trust_fund.htm. Last accessed January 28, 2013.

avoid toll. It also is possible to provide subsidies for low-income drivers, although these are rare.

- **Geographic: Medium.** In terms of geographic equity, this rates very high, as users pay, and non-users do not. However, this is the first application of tolling existing roads in North Carolina, and it may be perceived to corridor users as inequitable, when comparing to statewide policy on tolling and on funding Interstate corridor improvements.

Administrative effectiveness: Medium-High. Tolling generally has a higher cost of administration compared to motor fuel taxes, but implementation of all electronic tolling may provide operating cost savings. Also, the North Carolina Turnpike Authority could operate the toll system, leading to economies of scale.

Political feasibility/public acceptance: Low. There is considerable public and stakeholder opposition to tolls in this corridor, especially on existing free lanes.

Leverage potential: High. North Carolina could issue revenue bonds, repaid by toll revenue. Toll-backed revenue bonds are common.

Fair Share of Tax Payment: Medium. I-95 is a corridor of regional and national significance. In 2011, about 20 percent of the VMT consisted of thru trips (O-Ds outside North Carolina), and this proportion of thru-traffic VMT is forecast to remain consistent in 2020 and 2040. Non North Carolina users would pay in proportion to their use.

Options to Increase Existing Revenue Mechanisms

1) MOTOR FUEL TAXES

Adequacy: High at the statewide-level based on broad tax base and North Carolina tax rate; **Low** at the corridor⁴⁶ level, based on current funding allocations.

Total FY 2011 net revenues were \$1,678.6 million for a 32 cents per gallon tax, meaning that each penny of the gas tax generated \$52.4 million. An increase of approximately 6.1 cents per gallon would generate about \$320 million annually, which if dedicated to the I-95 corridor improvements could be pledged to issue bonds.

Over time, the revenue yield of this tax is expected to decline as vehicles become more fuel efficient. Based on the new CAFÉ standards for light-duty vehicles, North Carolina anticipates a decline of almost three percent in motor fuel consumption by 2040.⁴⁷

⁴⁶Corridor in this context refers to the counties through which I-95 traverses: Cumberland, Halifax, Harnett, Johnston, Nash, Northampton, Robeson, and Wilson.

⁴⁷Fuel Consumption (CAFÉ case), 2040 Plan revenue forecast.

Unless new legislation is created, additional revenues from motor fuel taxes would be distributed based on current formulas, yielding less than \$4 million in revenues per penny for the regions through which the corridor traverses.

Predictability: Medium-High. In general, motor fuel taxes are fairly predictable, but they are affected by economic conditions. Over time, the amount of revenue will decrease due to fuel efficiency, but this is predictable.

Economic efficiency: Medium. Motor fuel taxes are considered an indirect user fee because the tax is generally hidden in the price of fuel; therefore, it sends a weak economic signal to users.

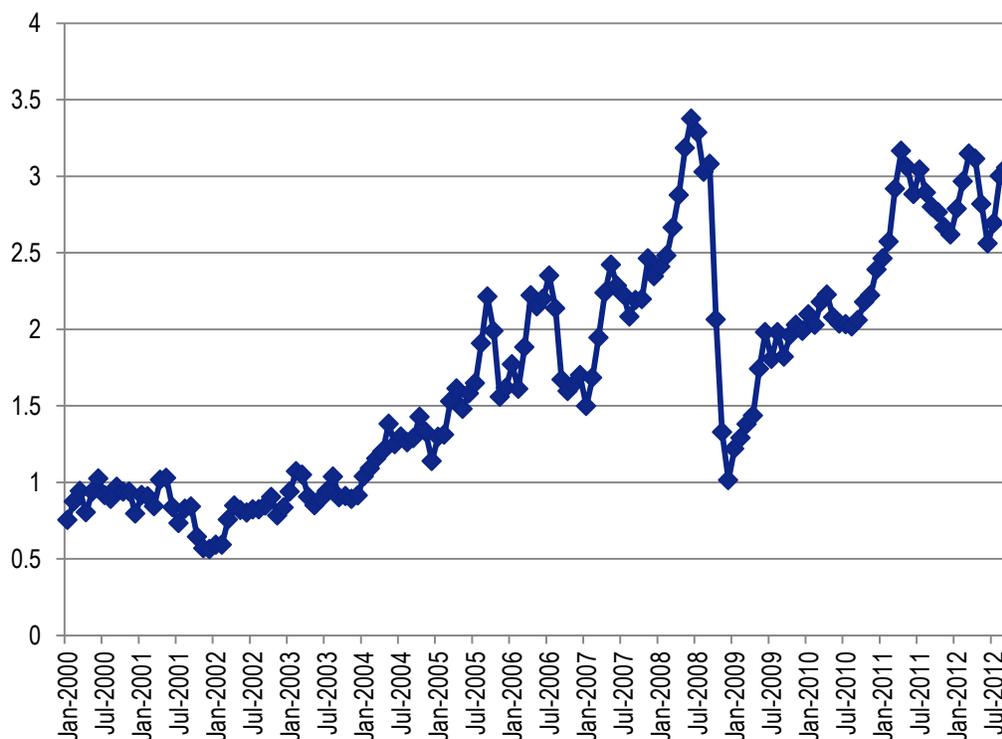
Equity: Low-Medium.

- **Income: Low.** The motor fuel tax is regressive, in that low-income people spend a higher share of their income to pay the tax. Motor fuel taxes are not based on income, but rather on fuel consumption.
- **Geographic: Low-Medium.** STIP funds are distributed based on the equity formula, with a portion of the funds distributed based on population, which can be considered a proxy to geographical equity. Motor fuel taxes are levied statewide; therefore, geographic equity could be low if a statewide increase is spent in the I-95 corridor only, instead of distributed equitably to NCDOT divisions.

Administrative effectiveness: High. Systems already in place to collect fuel taxes.

Political feasibility/public acceptance: Low. Especially with current high rate in North Carolina and the significant increases of wholesale fuel price over the past four years. The tax rate has remained at 37.5 cpg since July 2012. The highest motor fuel tax rate was levied from January through June 2012, at 38.9 cpg. Wholesale fuel prices in North Carolina have fluctuated between \$2.50 and \$3.00 per gallon since January 2011 (see Figure 19).

Figure 19. North Carolina Wholesale Gasoline Price
 January 2010 through October 2012



Leverage potential: High. If additional funding from existing sources can be dedicated to the I-95 project, General Obligation or Revenue bonds could be issued to leverage future revenues. However, under current equity distribution, only 1.6 percent of additional motor fuel tax revenues could fund the I-95 corridor improvements.

Fair Share of Tax Payment: Low-Medium. North Carolina residents and businesses are the primary tax payers, but out-of-staters buying fuel in North Carolina also pay a portion.

2) VEHICLE REGISTRATION FEES

Adequacy: Low-Medium at the statewide level. Vehicle registration fees (revenues from passenger and heavy vehicle combined) generated \$317.2 million in FY 2010 (excludes IRP contributions). With 7.3 million vehicle registered in North Carolina, a \$10 increase could generate about \$73.2 million. An increase of \$44 to the vehicle registration fees would generate about \$320 million annually, which if dedicated to the I-95 corridor improvements could be pledged to issue bonds. Higher fees, however, may reduce demand.

At the corridor level, the yield from increasing statewide registration fees might be low, given the current distribution of statewide highway funding to Highway

Divisions 4 and 6, unless the revenue increase is specifically dedicated to the I-95 corridor.

Predictability: High. Revenues from vehicle registration fees are generally stable during recessionary periods. Factors affecting revenues are related to population growth and income.

Economic efficiency: Low. Although this is an indirect user fee, it does not vary by use. It is a lump sum per vehicle.

Equity: Low-Medium.

- **Income: Low.** Vehicle registration fees for passenger cars are based on a flat rate; everyone pays the same fee regardless of income level.
- **Geographic: Medium.** Under current funding distribution requirements, a portion of highway funds are distributed based on population. However, geographic equity would be low if additional revenues are dedicated to the I-95 corridor.

Administrative effectiveness: High. Collection mechanism in place.

Political feasibility/public acceptance: Medium. The current vehicle registration fee for passenger cars is relatively small; an increase could face some public and political opposition.

Leverage potential: Medium. While this is a fairly stable revenue source, it is low yield and may require to be combined with other revenues to fully support bonds for the I-95 corridor improvements.

Fair Share of Tax Payment: Low-Medium. Currently, private vehicles and trucks fees account for about 84 percent of the vehicle registration revenues. About 16 percent comes from IRP apportionments for interstate trucks.

3) HIGHWAY USE TAX

Adequacy: Medium. Statewide, the Highway Use Tax generated \$470.1 million in FY 2011. An additional one percent statewide would generate about \$150 million. An increase of 2.2 percent would generate about \$320 million annually, which if dedicated to the I-95 corridor improvements could be pledged to issue bonds.

Similar to other existing state revenues dedicated to transportation, the yield from increasing the highway use tax might be low based on current equity formula distribution to Highway Divisions 4 and 6. In addition, legislation would be required to allow the use of Highway Use Tax revenues outside the Highway Trust Fund.

Predictability: Medium. Auto sales are relatively stable, but they are affected by economic conditions.

Economic efficiency: Low. Although an indirect user fee, it bears little relation to use of the transportation system.

Equity: Medium.

- **Income: Medium.** The Highway Use Tax is based on vehicle value, which will tend to be proportional to income, so low-income individuals would pay less in highway use taxes than high-income people.
- **Geographic: Medium.** Under current funding distribution requirements through the equity distribution formula, but it could be low if additional statewide revenues are dedicated to the I-95 corridor. Dedicating only those revenues levied in the corridor counties would improve geographic equity.

Administrative effectiveness: High. Collection mechanism in place.

Political feasibility/public acceptance: Low-Medium. Tax payers are subject to this tax only when purchasing a vehicle or transferring the title to North Carolina.

Leverage potential: Medium. Even if dedicating the additional revenues from increasing the Highway Use Tax to the I-95 corridor, revenues will have to be combined with other funding sources to fully support bonds for the I-95 corridor improvements. Under the current equity distribution formula, only 1.8 percent of additional revenues could be used to fund the I-95 project.

Fair Share of Tax Payment: Low. Levied on motor vehicles sold in the State or when the title is transferred into the State, so there is no opportunity for out of state drivers to contribute.

New Revenue Options – User Fees

1) EXPRESS TOLL LANES ON I-95.

Adequacy: Low. Express toll lanes require congestion in adjacent general purpose lanes to be effective. The congestion on I-95 in North Carolina is experienced only in certain portions of the corridor and for a limited time. Therefore, the revenue productivity of express toll lanes is likely to be limited.

Predictability: Low. Highly variable, depending on traffic conditions and toll rate setting.

Economic efficiency: High. User pays, and toll rates are set to maintain level of service, reflecting traffic conditions and speed.

Equity: Medium-High.

- **Income: Medium.** While low-income users would pay a higher share of their income, drivers can stay on general purpose lanes to avoid toll.
- **Geographic: High.** Revenues collected on the express toll lanes would be used to pay for improvements on the corridor.

Administrative effectiveness: Medium. Since toll collection could be done by the NCTA.

Political feasibility/public acceptance: Low. Similar to tolls.

Leverage potential: Low. Revenue is difficult to forecast well, meaning that high interest rates and/or debt service coverage ratios would be required.

Fair Share of Tax Payment: Low. To the extent that trips from out-of-state travelers use the express toll lanes, there could be some contributions by out-of-state travelers, but this is likely to be low.

2) VEHICLE-MILES TRAVELED (VMT) FEES

Adequacy: High. If implemented statewide. VMT in North Carolina was 103.7 billion in FY 2011. A rate of one penny per mile could generate about \$1.0 billion. By comparison, the average motor fuel tax of 33.8 cents per gallon in FY 2011 is the same as 1.7 cents per mile for a vehicle that achieves 20 miles per gallon.

Predictability: Medium-High. Driving amounts are relatively steady, but they are impacted by economic conditions and fuel price fluctuations.

Economic efficiency: High. User pays based on use of the system.

Equity: Low-Medium.

- **Income: Low.** Low-income users will pay a higher share of their income on fees, similar to the motor fuels tax.
- **Geographic: Medium.** It will depend primarily on whether the VMT revenues are subject to distribution under the equity formula, and if revenues dedicated to corridor improvements are directly proportional to the I-95 corridor VMT share of statewide VMT.

Administrative effectiveness: Low-Medium. New system. Method of collection could be as simple as odometer readings, or even an annual fee.

Political feasibility/public acceptance: Low. In general, VMT fees have not been well received in public polling around the country. Such fees have never been implemented in the U.S.

Leverage potential: Medium-High. It would be a reliable revenue stream, relatively easy to bond against.

Fair Share of Tax Payment: Low-Medium. It would depend on how it is implemented. Creating a VMT fee that captures revenue from out of state travelers would be a challenge, but not impossible.

3) SHORT-TERM VEHICLE LEASE TAX

Adequacy: Low. North Carolina currently levies an 8 percent tax on short-term leases (i.e., less than 365 days) that goes into the General Fund, and generated \$53.2 million in FY 2011. Raising the tax rate to 10 percent would generate an additional \$13 million annually, based on FY 2011 data.

Predictability: Low-Medium. Historical data shows large year-over-year fluctuations over the last 15 years (from -18 percent to 37 percent), although some of it relates to changes in legislation. Growth since FY 2004 has ranged between -10 percent and 21.4 percent.

Economic efficiency: Low. It does not vary with use.

Equity: Low-Medium.

- **Income: Medium.** Low-income users would pay a higher share of their income, still they may choose a lower value vehicle to minimize amount of tax paid.
- **Geographic: Low.** If statewide revenue collections are dedicated to the I-95 corridor, there would be low equity. If only corridor revenues were used, equity would be higher.

Administrative effectiveness: Medium. Tax already collected, no new systems or procedures required for collection. However, experience in other states (like Florida) has proven to be a challenge.

Political feasibility/public acceptance: Medium. The tax already is collected statewide. Alternatives to be considered include: increasing the current rate and dedicating the tax increment to transportation, or dedicating existing revenues to transportation.

Leverage potential: Low. Not a stable funding source.

Fair Share of Tax Payment: Medium. Depends to what extent revenues are generated by vehicle leases/rentals from out-of-state drivers for recreational/business purposes.

4) LOCAL VEHICLE REGISTRATION TAX

Adequacy: Low. Precise data on registered vehicles by county needs to be collected; however, assuming a \$10 annual fee and 730,500 of registered vehicles (proxy based on the 2007-2011 American Community Survey, ACS); \$7.3 million would be generated from this source.

Predictability: Medium-High. Revenues from vehicle registration fees are generally stable during recessionary periods. Factors affecting revenues are related to population and income.

Economic efficiency: Low. It bears no relation to use.

Equity: Low.

- **Income: Low.** Flat rate, so everyone pays same fee regardless of income level, so low-income people pay a larger share of their income.
- **Geographic: Low.** Fairly equitable geographically if additional revenues collected in the counties traversed by the corridor are dedicated to the improvements, countered with general concerns of additional tax burden on corridor residents given the national/statewide significance of the corridor. About 20 percent of the VMT is from through traffic, which will not be subject to the fee, in addition to the proportion of local trips from vehicles registered outside the corridor counties. Additional analysis would be required to determine the exact share of VMT that is generated by private and commercial vehicle registered in the corridor counties.

Administrative effectiveness: High. Collection mechanism in place.

Political feasibility/public acceptance: Low-Medium. A significant increase in current fee would be required to meet the funding needs for the I-95 corridor improvements. At the local level, legislation action will be required to allow for use on highway/roads. Local vehicle registration fees can be levied for transit.

Leverage potential: Medium. Similar to statewide. It is a predictable source. For the purpose of the I-95 corridor improvements, it would require to be combined with other revenue streams to be “bondable” such that project cost requirements are met.

Fair Share of Tax Payment: Low. Paid by private and commercial vehicles registered in the corridor counties.

5) LOCAL MOTOR FUEL TAX

Adequacy: Low. The statewide yield of motor fuel taxes was \$52.4 million in FY 2011. Using population as a proxy to consumption in the corridor, it is estimated that the motor fuel tax yield for the corridor counties is about \$5.5 million per penny.

Predictability: Medium-High. In general, motor fuel taxes are fairly predictable, but they are affected by economic conditions. Over time, the amount of revenue will decrease due to fuel efficiency, but this is predictable.

Economic efficiency: Medium. Indirect user fee; weak economic signal.

Equity: Low-Medium.

- **Income: Low.** Motor fuel taxes are regressive in that they are not based on income, but rather on fuel consumption.
- **Geographic: Medium.** If revenues levied at the county level are dedicated to I-95 corridor improvements, countered with general concerns of additional tax burden on corridor residents given the national/statewide significance of the corridor.

Administrative effectiveness: High. Systems already in place to collect fuel taxes.

Political feasibility/public acceptance: Low. Especially with current high rate in North Carolina (statewide) and raising fuel prices. Legislation currently prohibits local motor fuel taxes.

Leverage potential: Medium-High. Based on predictability of revenue stream. However, for the purpose of the I-95 corridor improvements, it would require being combined with other revenue streams to be “bondable” such that project cost requirements are met.

Fair Share of Tax Payment: Low-Medium. Potential to export may relate to the extent that interstate travelers refuel along the corridor. It may be difficult to estimate/forecast.

6) VEHICLE PROPERTY TAX (CORRIDOR)

Adequacy: Low. Vehicle property taxes are collected at the county/municipality level, and the tax rate is variable by county. For instance, Northampton County levied \$1.1 million in vehicle property taxes in FY 2011, based on a rate of \$0.87 per \$100 of valuation.

Predictability: Medium. Vehicle property taxes are less stable than real property due to annual depreciation of vehicle values and the turnover of the vehicle fleet may be affected by economic conditions.

Economic efficiency: Medium. Indirect user fee; weak economic signal.

Equity: High.

- **Income: High.** Since the tax is based on the value of the car, low-income individuals would generally be subject to lower tax payments than higher income individuals.
- **Geographic: High.** If this tax represented a local contribution to the corridor based on the value the corridor received, it would rank high with respect to geographic equity.

Administrative effectiveness: High. Systems already in place to collect vehicle property taxes.

Political feasibility/public acceptance: Low. Tax rate set at the local level, may find opposition to increase current tax rates and dedicating local taxes to support corridor of national/statewide significance. This type fee has been very unpopular across the nation.

Leverage potential: Medium. Based on predictability.

Fair Share of Tax Payment: Low. Paid by businesses and residents of the corridor counties.

New Revenue Options – Special Taxes and Fees

1) LOCAL SALES TAX

Adequacy: High at the statewide level; **Low** at the corridor level. Sales taxes have a broad tax base, and would generally have a “high” yield. Statewide, a one percent sales tax generated \$966.6 million in FY 2011. At the corridor level,⁴⁸ one percent sales tax generated about \$79 million. The low adequacy assigned here at the corridor level is based on comparison with other revenue sources under consideration.

Predictability: Medium. Sales taxes are reliable, but they are affected by economic conditions.

⁴⁸Includes the following counties: Cumberland, Halifax, Harnett, Johnston, Nash, Northampton, Robeson, and Wilson.

Economic efficiency: Low-Medium. No direct relationship between use of transportation system and payment of tax.

Equity: Medium.

- **Income: Low.** Sales taxes are one of the most regressive taxes (similar to fuel taxes) based on income.
- **Geographic: Medium-High.** Revenues from local sales taxes would rank higher in terms of equity compared to revenues from a statewide tax dedicated to the corridor, countered with general concerns of additional tax burden on corridor residents given the national/statewide significance of the corridor.

Administrative effectiveness: High. Systems already in place to collect and distribute sales tax revenues.

Political feasibility/public acceptance: Medium. Local sales taxes are widely accepted for transit, and North Carolina legislation allows local sales taxes dedicated to transit, not highways/roads. It may be difficult to justify local sales taxes to support corridor investments given its national/regional significance. Placing funding burden on local governments is likely to find opposition among certain stakeholders. It would require legislative action, and voter approval.

Leverage potential: High. Sales taxes are commonly pledged for debt financing.

Fair Share of Tax Payment: Low-Medium. Impact to residents and businesses within the corridor. Potential to export the tax is higher in areas where tourism activities attract significant out-of-state visitation.

2) PROPERTY TAX

Adequacy: High at statewide level; **Medium** at corridor level. Broad tax base. For example, Northampton County generated \$14.9 million in FY 2011. Property taxes statewide generated \$6.0 billion in FY 2011 (all property at county level, excluding municipal taxes, including motor vehicles); the counties in the corridor generated \$476.3 million. The property tax rates along the corridor vary between 67-cents to 87-cents per \$100 value. A tax rate increase of one cent per \$100 of property value would generate approximately \$6.4 million annually based on 2011 data.

Predictability: Medium. Property taxes are generally reliable, but they do fluctuate with economic conditions.

Economic efficiency: Low. No direct relationship between use of transportation system and payment of tax.

Equity: Medium.

- **Income: Medium.** Property taxes are moderately regressive. Not based on income, but based on property value. Only property owners pay, and there might be some correlation between income, property ownership and property value.

- As for geographic equity, if revenues levied at the county level are dedicated to corridor improvements, equity could be high. In particular, the equity is strong if the highway improvements lead to increased property values.

Administrative effectiveness: High. Systems already in place to collect property taxes.

Political feasibility/public acceptance: Low. An increase in property taxes may face local opposition, especially due to the national/statewide importance of the corridor.

Leverage potential: Medium. Property taxes are typically used to repay General Obligation bonds, but their value can fluctuate.

Fair Share of Tax Payment: Low. Paid by businesses and residents of the corridor counties.

3) PAYROLL/INCOME TAX

Adequacy: High, broad tax base; **Low-Medium** at the corridor level. In FY 2011, income taxes generated \$10.7 billion in North Carolina, accounting for 56 percent of total General Fund revenues. An increase of approximately 0.01 percent at the statewide level could generate about \$347 million annually, which if dedicated to the I-95 corridor improvements could be pledged to issue bonds.

Predictability: Medium. Income taxes would be affected by economic conditions, especially when unemployment levels rise significantly, as experienced nationwide during the recent economic recession.

Economic efficiency: Low. No direct relationship to transportation.

Equity: Medium-High.

- **Income: High.** Income taxes are progressive, as people with higher incomes pay more than those in lower income brackets.
- **Geographic: Medium.** If revenues levied at the county level are dedicated to corridor improvements, balanced with general concerns of additional tax burden on corridor residents given the national/statewide significance of the corridor. Payroll/income taxes can have good geographic equity if the investment is anticipated to improve job access and encourage economic development in particular parts of the corridor.

Administrative effectiveness: High. Mechanism for collection in place.

Political feasibility/public acceptance: Low. Increases in income tax rates to support investment on I-95 corridor may be subject to public opposition. It will require legislative action to allow local payroll/income taxes.

Leverage potential: Medium. Depending on how much revenue is generated in the corridor.

Fair Share of Tax Payment: Low. Paid by businesses and residents of the corridor counties.

4) HOTEL/ROOM TAX

Adequacy: Low. Smaller tax base compared to other types of taxes. The occupancy tax rates vary between three and six percent among the counties in the I-95 corridor. In FY 2010, collections from this source generated \$6.8 million.

Predictability: Low-Medium. Relies primarily on tourism activity, which can fluctuate considerably.

Economic efficiency: Low. No direct relationship to usage of transportation system.

Equity: Medium.

- **Income: Medium.** Not based on income, but tax payers would generally choose lodging based on their disposable income.
- **Geographic: Medium.** Most revenues will come from visitors rather than region residents, thus allowing those from outside the area to pay a share of the cost. Extent of geographic equity would depend on what share of the total need this tax was expected to pay.

Administrative effectiveness: High. When mechanism for collection is in place.

Political feasibility/public acceptance: Medium-High. Residents are not subject to taxation. However, it would require demonstration of tourism-related benefit.

Leverage potential: Low. Based on low predictability.

Fair Share of Tax Payment: Medium-High. To the extent that out-of-state visitors and businesses account for a significant share of hotel/room occupancy in the corridor.

5) FEES FOR BILLBOARD (OUTDOOR ADVERTISING) AND LOGO SIGNS

Adequacy: Low. Billboard revenues go into the Highway Beautification Fund. The logo and tourist-oriented directional signs (TODS) program are revenue neutral, providing funding to cover installation, maintenance, and administration of the program. Total revenues from the three programs in FY 2010 were less than \$4.4 million, with 88 percent generated by the logo signs.

Predictability: Medium. There is no historical data available to fully assess this criterion.

Economic efficiency: Low. Unrelated to usage of transportation system.

Equity: Medium.

- Income equity is N/A because fees are paid by businesses.
- Geographic equity will depend whether higher billboard fees apply only to those on the I-95 corridor, or if statewide revenues are dedicated to the project.

Administrative effectiveness: Medium. System already in place; however, there is no historical data available to fully assess this criterion.

Political feasibility/public acceptance: Medium. Difficult to assess based on current information. However, the fees would have to be increased significantly, if revenues were to provide a reasonable contribution to the project.

Leverage potential: Low.

Fair Share of Tax Payment: Low. Likely to be paid by local businesses and by national businesses with some local interest/presence.

New Revenue Options – Value Capture

1) IMPACT FEES

Adequacy: Low. One-time fees.

Predictability: Low-Medium. Highly dependent on development activity.

Economic efficiency: Medium. Not a direct user fee, but impact fees are aimed to capture the cost of new development on the transportation system.

Equity: Medium.

- **Income: Medium.** Impact fees are typically based on land use and property type (e.g., residential-single family, square footage of commercial property, etc.), and not on value.
- **Geographic: Medium.** Fees are passed onto property owners. Impact fees dedicated to the I-95 corridor would come from new development anticipated to impact the corridor. Impact fees might be appropriate to interchange projects, since there is a direct relationship to benefits received.

Administrative effectiveness: Medium. Depends on whether fees already are collected or not. Impact fees can be levied part of permitting process.

Political feasibility/public acceptance: Low. Authorized in North Carolina through special legislation. These are unpopular on the political scale, especially in more rural areas.

Leverage potential: Low. Depends on new development; therefore, revenues are highly speculative.

Fair Share of Tax Payment: Low. Impact fees are initially paid by developers, who eventually pass-on the cost to property buyers.

2) DEVELOPMENT EXACTIONS

Adequacy: Low. Land/in-kind donations.

Predictability: Low-Medium. Highly dependent on development activity. Negotiated as part of permitting process.

Economic efficiency: Low. Not a direct user fee, but development exactions may include infrastructure improvements that benefit the transportation network.

Equity:

- **Income:** N/A
- **Geographic:** Development exactions are typically used to fund local projects. To the extent exactions can contribute to interchange improvements, geographic equity can be high.

Administrative effectiveness: Medium. Part of permitting process.

Political feasibility/public acceptance: Medium. Negotiated directly with developers.

Leverage potential: Low.

Fair Share of Tax Payment: Low.

3) SPECIAL ASSESSMENTS

Adequacy: Low. Special taxing district encompasses a smaller tax base than property taxes. Only properties deemed to benefit from improvements pay. Typically, special assessments are used to help pay for interchange improvements of specific interchanges that benefit property owners.

Predictability: Medium. Similar to property taxes.

Economic efficiency: Medium. No direct relationship between use of transportation system and payment of tax. Special assessments are funding mechanism intended to capture the value/benefits generated through highway investment.

Equity: Medium-High.

- **Income: Medium.** Similar to property taxes.
- **Geographic: High.** Properties that benefit from corridor improvements pay.

Administrative effectiveness: Medium-High. Systems already in place to collect property taxes, although it would add an additional level of complexity in the collection and administration of property taxes.

Political feasibility/public acceptance: Medium. Property owners within assessment district must agree to pay additional property taxes. Generally accepted by business owners, but homeowners often oppose them.

Leverage potential: Medium-High. Leverage potential and yield depends on size of assessment district. Revenues could be used to pay for local improvements on I-95, such as access ramps.

Fair Share of Tax Payment: Low. Similar to property taxes, in that residents and businesses will pay for the special assessment.

4) TAX INCREMENT FINANCING

Adequacy: Low. Highly depends on redevelopment potential and increase in property value due to infrastructure improvements. Typically used for interchange improvements. The I-95 corridor project is not eligible per North Carolina legislation.

Predictability: Low. Although based on property value, the tax increment revenues depend on how new infrastructure spurs redevelopment. This can be very difficult to predict.

Economic efficiency: Low-Medium. No direct relationship between use of transportation system and payment of tax. However, TIFs are intended to capture the value/benefits generated through highway investment.

Equity: Medium-High

- **Income: Medium.** Similar to property taxes.
- **Geographic: High.** TIF revenues generated from properties that benefit (in the form of higher valuation) from the corridor improvements.

Administrative effectiveness: Medium-High. Systems already in place to collect property taxes, although it would add an additional level of complexity in the collection and administration of property taxes.

Political feasibility/public acceptance: Low-Medium. The increase in property values is a welcome benefit by property owners, but the increase in property taxes may displace low/fixed-income property owners. Current legislation would not allow TIF for I-95 corridor improvements.

Leverage potential: Low-Medium. TIF entails issuing bonds secured by TIF district revenues. It is difficult to leverage in today's financial markets and with slow economic growth. In addition, property values were affected in recent years due to the housing market bubble.

Fair Share of Tax Payment: Low. Similar to property taxes.

1.8 ALTERNATIVES ADVANCED FOR THE ECONOMIC ANALYSIS OF ALTERNATIVE FUNDING OPTIONS AND FINANCING EVALUATION (PHASE 2)

After presenting the preliminary evaluation of funding sources to the Advisory Council and NCDOT, a shortlist of potential revenue sources was developed to be advanced as part of the economic impact assessment of the I-95 corridor improvements. The revenue options evaluated include:

- Tolling:
 - Build Toll: As evaluated in the Environmental Assessment (EA); and
 - Build Toll with local mitigation (local trips get a 50 percent toll rate discount).

- Sales tax increase over 10 years to support transportation investments (including the I-95 corridor improvements).
- State motor fuel tax rate increase.
- Federal motor fuel tax increase.
- Statewide personal income tax rate increase.
- We also developed a funding package aimed at dividing the sources of revenues and not relying in a single source of funding (assuming 10-year and 30-year revenue streams). This funding package revenue from consisted of from:
 - Highway use tax;
 - Motor vehicle registration fees; and
 - Sales tax.

For the tolling options, the team used the toll revenue forecast⁴⁹ developed for the EA. The local mitigation strategy was tested with the travel demand modeling and economic impact analysis efforts. Based on travel demand modeling estimates of local and through traffic on I-95, we estimated the revenue impact of the toll mitigation strategy as a percentage of the build toll scenario, and applied this factor to the toll revenues from the EA. For the remaining revenue options, the team estimated annual revenue streams and the required tax rate increases for each funding source to finance the I-95 corridor improvements. We developed a financing tool to assess the best financing strategy, based on anticipated revenues for the toll scenarios (build toll and build toll with local mitigation). Table 13 summarizes the annual revenues generated by each funding option in 2015 and 2040.

⁴⁹North Carolina Department of Transportation, I-95 Planning and Finance Study - Draft 2 Financial Plan (January 2013).

Table 13. Summary of Revenues Estimates for the I-95 Project by Funding Option (millions, YOES)

Revenue Source	Rate	Share to I-95	2015	2024	2040	10-year revenues (2015-2024)	30-year revenues (2015-2044)
Build Tolls	\$0.0975 per mile (rural) \$0.195 per mile (urban)	100%	N/A	\$428	\$928	\$1,745	\$16,607
Build Tolls – Local Mitigation ^a	50% discount toll for local trips	100%	N/A	\$286	\$619	\$1,164	\$11,071
Increase State Motor Fuel Tax	\$0.071 per gallon	100%	\$368	\$361	\$354	\$3,691	\$10,771
Increase Federal Motor Fuel Tax	\$0.138 per gallon	33%	\$243	\$238	\$234	\$2,437	\$7,111
Statewide Sales Tax ^b	1.0%	33%	\$1,162	\$1,714	N/A	\$14,227	\$14,227
Statewide Personal Income Tax	0.039%	100%	\$164	\$264	\$536	\$2,108	\$10,814
Funding Package (30 years)							
Statewide Sales Tax	1%	15%	\$176	\$266	\$518	\$2,183	\$10,688
Vehicle Registration Fees	5% fee increase	100%	\$13	\$14	\$17	\$138	\$455
Highway Use Tax	1%	5%	\$9	\$10	\$14	\$93	\$345
Total (Combined)			\$198	\$291	\$548	\$2,415	\$11,488
Funding Package (10 years)							
Statewide Sales Tax	1%	60%	\$703	\$1,065	N/A	\$8,731	\$8,731
Vehicle Registration Fees	50% fee increase	100%	\$132	\$144	N/A	\$1,384	\$1,384
Highway Use Tax	1%	50%	\$90	\$103	N/A	\$934	\$934
Total (Combined)			\$925.6	\$1,312	\$0	\$11,049	\$11,049

^a Total revenues for the local mitigation scenario are about two-thirds compared to the base tolling scenario.

^b Total revenues from new sales tax dedicated to I-95 and other transportation projects, over 10 years (2015-2024).

Revenue Forecast of Funding Options

The study team developed revenue forecasts for the non-toll options based on the following assumptions:

- Collection of dedicated revenues for the I-95 project will begin in 2015, and will continue over 30 years, with a few exceptions where revenues are assumed to be dedicated to the project for only 10 years.
- Tax rates were set based on preliminary assumptions of project financing, based on the calculation of 30-year principal and interest requirements, assuming a five percent interest rate on financing for project costs. No O&M or rehabilitation and renewal expenses are included for the non-toll options, only capital investment. The rates should provide an idea of the magnitude of potential tax rate increases required to implement the project, and they will be applied to assess their economic impact. Detailed financial modeling would be required to determine revenue stream requirements of the financial structure to deliver the project.

Assumptions for the toll options are provided in the section immediately below. The remainder of this report provides the estimated revenue potential and refers back to the eight evaluation criteria used in Section 7.0 of this technical memorandum in tabular format.

Tolling on I-95

Adequacy	Predictability	Economic Efficiency	Equity	Administrative Effectiveness	Political Feasibility/ Public Acceptance	Leverage Potential	Fair Share of Tax Payment
High	Medium	High	Medium	Med-High	Low	High	Medium

NCDOT estimated toll revenues assuming a toll rate of \$0.0975 per mile (2020 dollars) in the rural segments of the corridor, and \$0.195 per mile (2020 dollars) in the urban areas. NCDOT assumed that tolls would be adjusted annually at an assumed rate of 2.5 percent to match inflation, and the revenue model accounts for leakage of 5 percent and traffic ramp up between 2020 and 2023. NCDOT estimated revenues starting at \$250 million in 2020, increasing to \$928 million by 2040 in year-of-expenditure dollars. The NCDOT financial plan indicates that toll revenues would be sufficient to finance 100 percent of the I-95 corridor improvements, in addition to corridor O&M expenses and rehabilitation and renewal.

The I-95 corridor is an existing corridor with a proven traffic stream. However, adding tolls will result in traffic diversion, which is uncertain. The travel demand model analysis conducted for the economic analysis shows that vehicle

miles traveled (VMT) on I-95 will decline 28 percent by 2020 under the “toll build” scenario, whereas VMT on I-95 is forecast to increase 13 percent by 2020 under the “no toll build” scenario (see Table 14). Understanding the potential for traffic diversion and other risks associated with tolling allows for the development of robust toll revenue forecasts.

Table 14. I-95 Vehicle Miles Traveled (VMT)

Scenario	I-95 VMT 2011	I-95 VMT 2020	I-95 VMT 2040	VMT % change 2011-2020	VMT % change 2011-2040	VMT % change 2020 No-Build	VMT % change 2040 No-Build
No-Build	7,274,284	8,148,403	10,227,700	12%	41%		
No Toll Build	N/A	8,188,883	10,553,714	13%	45%	1%	3%
Toll Build	N/A	5,218,202	7,018,845	-28%	-4%	-36%	-31%
Toll Build with Local Mitigations	N/A	6,857,715	8,723,697	-6%	20%	-16%	-15%

Tolling on I-95 with Local Mitigation

The local mitigation scenario assumed that local travelers would get a 50 percent discount on their tolls, which we estimate would result 16 percent of I-95 VMT diverting away in 2020, compared to 36 percent diverting away in the Toll Build scenario with no discounts. (see Table 14). Compare to the base (2011) VMT, the Toll Build with local mitigation would result in a VMT reduction of 6 percent by 2020, compared to a VMT decline of 28 percent for the Toll Build scenario. The discounted toll scenario would reduce expected toll revenue by almost 33 percent below that expected from the non-discounted scenario, since local trips are significant share of the I-95 traffic.

Statewide Sales Tax

Adequacy	Predictability	Economic Efficiency	Equity	Administrative Effectiveness	Political Feasibility/ Public Acceptance	Leverage Potential	Fair Share of Tax Payment
High	Medium	Low-Med	Medium	High	Medium	High	Low-Med

The statewide sales tax increase was modeled after the recently approved sales tax for transportation in Arkansas, and similar efforts in other states. This scenario assumed that a statewide sales tax increase of 1.0 percent will be in place for 10 years and that those revenues will be dedicated to transportation, including the I-95 corridor improvements.

We used the REMI model to forecast growth of annual tax receipts based on adjusted growth in taxable consumer expenditure used for the economic impact analysis. If sales tax collection began in 2015, it would generate about \$14,227 million over 10 years. Based on the financing model analysis, about \$5,900 million are needed to finance the I-95 project, or 41.5 percent of the 10-year receipts. The financial analysis described in the next section, assumed that 33 percent of the revenues are dedicated to the I-95 corridor improvements. However, at 33 percent of the total sales tax receipts, revenues fall short of funding needs for construction and debt service, and the project would not be financially feasible, unless other funding sources are identified to close the funding gap.

State Motor Fuel Tax Increase

Adequacy	Predictability	Economic Efficiency	Equity	Administrative Effectiveness	Political Feasibility/ Public Acceptance	Leverage Potential	Fair Share of Tax Payment
Low ^a	Med-High	Medium	Low-Med	High	Low	High	Low-Med

^a Based on current funding allocations through equity formula.

We estimated revenue streams from a motor fuel tax (MFT) increase based on NCDOT's 2040 Plan revenue forecasts. The initial analysis estimated the MFT rate increase required to finance the I-95 corridor improvements. However, under current legislation, motor fuel tax receipts are distributed among the Highway Fund and the Highway Trust Fund. NCDOT estimates that from an increase in MFT of \$0.01/gallon, only \$0.00016/gallon (or 1.6 percent) could be used for the I-95 project.

We applied NCDOT's forecast of motor fuel consumption to estimate the revenue yield of \$0.01/gallon in additional MFT. NCDOT's revenue model applied two fuel consumption scenarios from the Department of Energy (DOE): a reference case (based on the Annual Energy Outlook 2012), and the CAFÉ case, which assumed new CAFÉ standards of 54.5 mpg for cars and light-duty trucks by 2025. For the purpose of this analysis, the CAFÉ case was applied to account for this recently-adopted Federal policy on fuel efficiency standards for light-duty vehicles, which would impact long-term fuel consumption and revenue yield.

We estimated the net revenue yield of 1 cpg was estimated at \$51.8 million in 2015, declining to \$49.8 million by 2040. These values imply that an additional 7.1 cpg would be needed to finance the I-95 corridor improvements if all of the new revenue could be devoted to the project. However, assuming that current MFT revenue distribution to the Highway Trust Fund and the Highway Fund does not change, NCDOT would have to levy a motor fuel tax rate of over \$4.40 per gallon to fund the project over 30 years with Highway Trust Fund allocations to Divisions 4 and 6.

Federal Motor Fuel Tax Increase

Adequacy	Predictability	Economic Efficiency	Equity	Administrative Effectiveness	Political Feasibility/ Public Acceptance	Leverage Potential	Fair Share of Tax Payment
High	Med-High	Medium	Low-Med	High	Low	High	Low-Med

Based on input from the Advisory Council, we developed an estimate of how much should the Federal government increase the Federal motor fuel tax rate (currently at 18.4 cpg for gasoline and 24.4 cpg for diesel) to fund the I-95 corridor improvements. The following assumptions were applied to estimate the Federal MFT rate increase:

- North Carolina is a donor state, with a 96 percent return of the payments into the Federal Highway Trust Fund (HTF) since 1956.⁵⁰ It should be noted, however, that NCDOT’s funding apportionment and allocations of Federal HTF funds over the last few years have exceeded North Carolina’s payments into the fund.
- NCDOT should provide 10 percent match to additional Federal funds, assuming the standard Federal share of 90 percent for project on the Interstate system.
- One-third of the additional Federal funding to NCDOT over 30 years will be dedicated to the I-95 corridor improvement.
- Motor fuel tax yield is based on fuel consumption assumptions that account for recently-adopted CAFÉ standards for light-duty vehicles.

Based on this assumption, the Federal government should raise the motor fuel tax rate by 13.8 cpg to generate sufficient funds to finance the I-95 corridor improvements.

Statewide Personal Income

Adequacy	Predictability	Economic Efficiency	Equity	Administrative Effectiveness	Political Feasibility/ Public Acceptance	Leverage Potential	Fair Share of Tax Payment
High	Medium	Low	Med-High	High	Low	High	Low

⁵⁰ U.S. DOT, Federal Highway Administration, Highway Statistics 2011, Table FE-221b.

For this revenue option, we assumed that the additional revenues generated by the statewide personal income tax rates would be dedicated to the I-95 project. We also assumed that as a new revenue source for transportation, it would not be subject to the distribution formulas of the Highway Fund and the Highway Trust Fund. The income tax rate increase required to finance the I-95 corridor was estimated at 0.039 percentage points on the current personal income tax rate. If the income tax is raised and revenues are dedicated to transportation, it is likely that those revenues will not be fully dedicated to the I-95 corridor project, but rather used to fund other transportation needs. Assuming that one-third of the revenues are dedicated to the I-95 corridor improvements, the income tax rate increase is estimated at 0.12 percentage points.

We extracted personal income data for North Carolina from the REMI model used for the economic impact assessment to estimate the total revenues generated by the additional 0.039 percent income tax rate.

Table 15 summarizes the percent change on personal income tax rates from the additional tax. The statewide personal income tax rate would increase between 0.5 and 0.65 percent by adding the 0.039 percent rate across all income brackets. The 0.039 percent income tax would generate about \$10.8 billion over 30 years.

Table 15. Personal Income Rates and Percent Change for I-95 Corridor Improvements (Statewide)

Additional Income Tax Rate for I-95	Personal Income Tax Bracket	Additional Tax (0.039%)	Percent Change in Tax Rate
Earnings up to:			
\$12,750 (single)/\$21,250 (couple)	6%	6.039%	0.65%
Earnings between:			
\$12,750 to \$60,000 (single)/\$21,250 to \$100,000 (couple)	7%	7.039%	0.56%
Earnings over:			
\$60,000 (single)/\$100,000 (couple)	7.75%	7.789%	0.50%

Table 16 illustrates the tax impact for selected incomes within the three brackets for the assumed statewide tax rate increases.

Table 16. Illustrative Tax Impact for Selected Incomes (Statewide Tax)

Taxable Income (single)	Current Income Tax	Income Tax at +0.039% Statewide (I-95 only)	Additional Income Tax at +0.039%	Percent Change at +0.039	Income Tax at +0.12% Statewide	Additional Income Tax at +0.12%	Percent Change at +0.12%
\$10,000	\$600	\$604	\$4	0.65%	\$612	\$12	2.0%
\$30,000	\$1,973	\$1,984	\$12	0.59%	\$2,008	\$35	1.8%
\$80,000	\$5,623	\$5,654	\$31	0.55%	\$5,716	\$94	1.7%

Funding Package (Sales Tax, Highway Use Tax, and Vehicle Registration Fees)

Adequacy	Predictability	Economic Efficiency	Equity	Administrative Effectiveness	Political Feasibility/ Public Acceptance	Leverage Potential	Fair Share of Tax Payment
Medium	Medium	Low	Medium	Medium-High	Low-Medium	Medium-High	Low-Medium

We developed a funding package that combines:

- Increases to existing transportation revenues:
 - Highway use tax; and
 - Vehicle registration fees.
- Adoption of a new dedicated sales tax for transportation.

It should be noted that both the highway use tax and vehicle registration fees are restricted by the equity distribution formula, which would allow only about 1.8 percent of any tax increase to be dedicated to the I-95 corridor. We assumed that a portion of both the increase to existing vehicle-related taxes and the new sales tax would be dedicated to the I-95 to cover the funding needs for the project, albeit this share was not restricted by the equity formula. In reality, without changes in current legislation, the tax rates presented here would have to be much higher in order to satisfy both the equity formula requirements **and** fully funding the I-95 project.

Two periods for collection of new revenues were assumed: 10 and 30 years. We assumed revenue collection would begin in 2015. Figures 20 and 21 illustrate the assumptions applied to calculate 10- and 30-year revenue streams for the project, respectively.

Figure 20. Funding Package (10 years, YOE dollars)

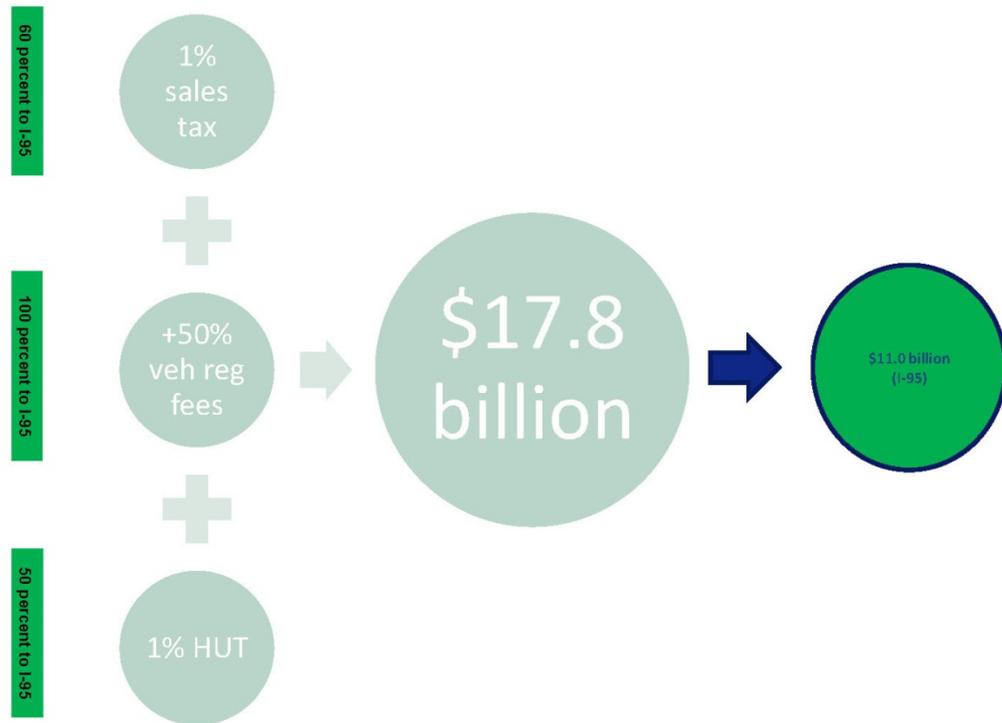
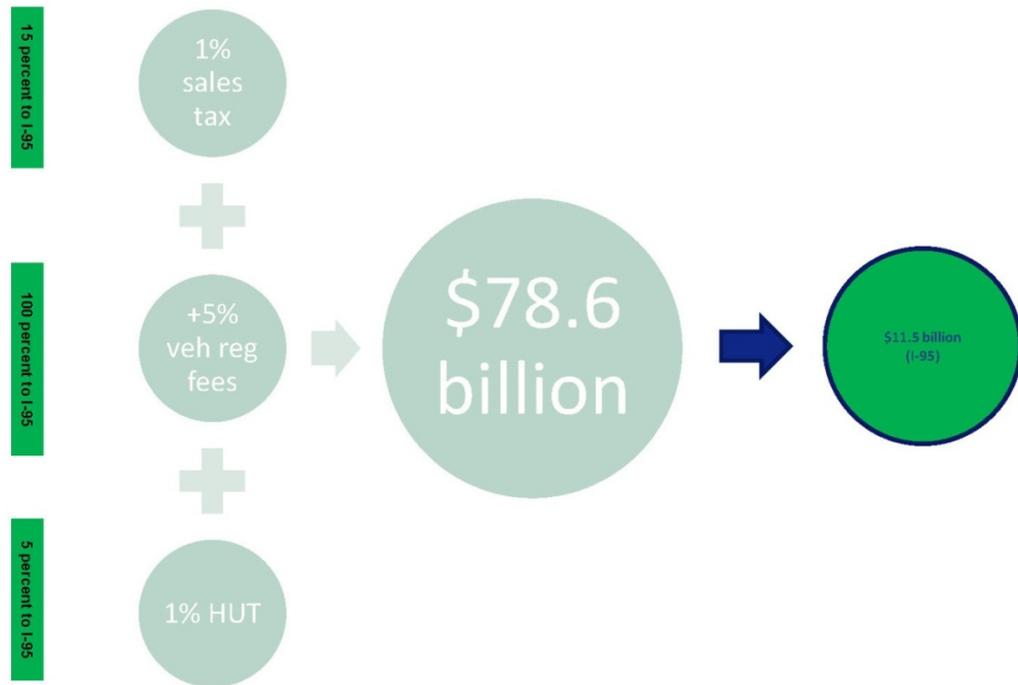


Figure 21. Funding Package (30 years, YOE dollars)



Revenue forecast from existing revenues sources were obtained from NCDOT 2040 Plan. Increases to existing revenue sources are assumed to leverage revenues from the new sales tax, such that surplus revenues (i.e., funds not dedicated to the I-95 corridor) can support other major transportation needs. The following assumptions were applied to estimate revenue streams for the 10- and 30-year scenarios.

- 10-year revenue streams:
 - New 1 percent sales tax - 60 percent of the revenues to I-95;
 - Fifty percent increase in vehicle registration fees - all revenues to I-95; and
 - Additional 1 percent highway use tax - 50 percent of the revenues to I-95.
- 30-year revenue streams:
 - New 1 percent sales tax - 15 percent of the revenues to I-95;
 - Fifty percent increase in vehicle registration fees - all revenues to I-95; and
 - Additional 1 percent highway use tax - 5 percent of the revenues to I-95.

Financial Feasibility Analysis for Proposed Funding Package Options

A high-level financial feasibility analysis was completed to assess whether the funding package scenarios provide sufficient revenue to fund the proposed improvements to the I-95 project and whether there might be excess revenues that can be applied to other projects. This analysis is intended only as a high-level comparison prior to a more comprehensive financial analysis. As such, this analysis cannot be relied upon for final market financial purposes and is intended solely for management decision-making purposes with respect to next steps.

Of the revenue scenarios, the following were advanced for a financial modeling, to assess the financial feasibility of pledging the revenues for long-term debt.

- Build with tolls.
- Build with mitigated tolls.
- Build with alternative funding sources.
 - Sales tax at one percent for 10 years.
 - Funding package – highway use tax + motor vehicle registration fees + sales tax (30 years).

Six financial scenarios were developed, based on these revenue options:

- Scenario 1 – Build with tolls, traditional procurement approach;
- Scenario 2 – Build with mitigated tolls, traditional procurement approach;
- Scenario 3 – 10-Year Sales Tax Increase – all revenues available for I-95 capital costs;
- Scenario 4 – 10-Year Sales Tax Increase – 33 percent of annual receipts dedicated for capital costs;
- Scenario 5 – Blended Tax Revenue Approach (30 years); or
- Scenario 6 – P3 Approach Assuming Tolls.

The following sections summarize the findings from the financial analysis. Additional details on the financial analysis are provided in Appendix A. The analysis found that based on projected revenue levels, under the current construction schedule and specific financial assumptions, Scenarios 1, 3 and 5 (i.e., tolls, sales tax and blended tax approach) are financially feasible. Both Scenarios 2 and 4 do not generate sufficient revenues to make the project financially viable under the set of assumptions applied in the analysis.

Scenario 1 – Build with Tolls, Traditional Procurement Approach

The *I-95 Planning and Finance Study*⁵¹ prepared as part of the I-95 EA was examined for this scenario. The financial analysis incorporated most assumptions developed as part of the EA, such as toll rates, toll revenue forecast, capital costs, life-cycle costs, and project construction schedules. The financial analysis included independent assumptions regarding the financing variables, including interest rates, bonds, and operating costs. Toll operating costs were adjusted in line with estimates from the Reason Foundation’s report “Toll and Fuel Tax Collection Costs in the 21st Century,”⁵² which states that “cost data for some AET operations in the United States demonstrate that the net collection costs of an AET operation can be in the vicinity of five percent of the revenue collected for a \$5.00 toll (or eight percent of revenue collected for a \$2.00 toll).”

The financial analysis assumed that the project would be financed with a combination of a TIFIA loan (33 percent of capital costs) and tax-exempt Revenue Bonds.

Similar to the I-95 EA financial analysis, tolls were assumed to be implemented on all of I-95 through North Carolina and collected from 2020 to 2056. The analysis indicated that the entire project could be funded from tolls based on the assumptions and data provided. By the end of construction in 2032, the toll revenue surplus was estimated at \$305.2 million. The project would continue to generate a yearly surplus and, if unspent through 2056, would grow to \$18,979 million.

Scenario 2 – Build with Mitigated Tolls, Traditional Procurement Approach

This scenario applies the same assumptions from Scenario 1 for project costs and financing variables, but assumes that toll rates for local trips on I-95 are reduced by 50 percent. The impact of a reduced toll rate of revenues is a 33 percent reduction compared to the EA toll revenue estimates. Because less revenue was generated from tolls, substantially more debt would be required to fund the costs of the project. Under this scenario, toll revenues would be insufficient to cover capital, maintenance, operating and renewal, and replacement costs until 2045. After 2045, revenues begin to exceed costs of debt, O&M and rehabilitation and renewal costs, generating a cumulative surplus of \$2,888 million 2045 and the end of the 2056 operating period. Because of the funding shortfall pre-2045, this financing structure would not be commercially acceptable, and thus, financially unfeasible.

⁵¹ I-95 Planning and Finance Study, Financial Plan (Draft 2). January 2013.

⁵² Reason Foundation, Policy Study No. 409: “Dispelling the Myths: Toll and Fuel Tax Collection Costs in the 21st Century.” November 2012.

Scenario 3 – 10-Year Sales Tax Increase – All Revenues Available for I-95 Capital Costs

This scenario applied the 10-year sales tax revenue estimates from a one percent sales tax dedicated to transportation. For this scenario, it was assumed that the revenues generated by the sales tax will be applied first to the I-95 project, and any available surplus could be used for other statewide transportation needs.

Capital costs for this scenario are slightly lower than the toll scenarios, because the cost of toll-related infrastructure was removed from the cost estimates. Also, it was assumed that maintenance and other life-cycle expenditures will be funded with existing revenues; the sales tax revenues would be dedicated to capital expenses (including debt service) of the I-95 corridor improvements and other transportation needs. Collection of the sales tax is assumed to begin in 2015; therefore, NCDOT would have to issue a 10-year \$86 million bond in 2013 to cover expenditures prior to 2015. Because of the anticipated annual revenue streams, debt service costs were kept at a minimum. By the end of the construction period in 2032, all debt would have been paid off and an accumulated balance of \$8,449 million would be available for other projects statewide.

The financial analysis assumed that the project would be financed with tax-exempt Revenue Bonds with a 10-year maturity.

Scenario 4 – 10-Year Sales Tax Increase – 33 Percent of Annual Receipts Dedicated for Capital Costs

This scenario is similar to Scenario 3, with the exception that only one-third of the sales tax revenues are assumed to be available for financing the I-95 corridor improvements. However, at this level of funding, sales tax revenues are insufficient to meet debt obligations and capital funding requirements. Negative cash balances rise to \$1,205 million dollars in 2032 by the end of construction. This is expected as one-third of the sales tax proceeds over the 10-year period are estimated at approximately \$4,690 million, whereas total cost of construction alone totals \$5,887 million.

A separate analysis was conducted to estimate the minimum required level of sales tax funding for the I-95 corridor improvements. Based on the sales tax forecast, the project would require about 41.5 percent of the sales tax revenues to be financially feasible.

Scenario 5 – Blended Tax Revenue Approach (30 years)

For this scenario, the 30-year revenue estimates for a combination of taxes (highway use tax + vehicle registration fees + sales tax) was assumed to be available for financing of project construction. As noted in the previous section, the 30-year revenue streams include:

- New 1 percent sales tax – 15 percent of the revenues to I-95;

- Fifty percent increase in vehicle registration fees – all revenues to I-95; and
- Additional 1 percent highway use tax – 5 percent of the revenues to I-95.

By the end of construction in 2032, a surplus of \$413 million was estimated. At the end of the analysis period in 2056, after all debt service has been paid off, a surplus of \$3,905 million would be available to fund other projects.

The financial analysis assumed that the project would be financed with a combination of a TIFIA loan and tax-exempt Revenue Bonds.

Scenario 6 – P3 Approach Assuming Tolls

A variation of Scenario 1 was utilized to assess the feasibility of using a Public Private Partnership (P3) to procure the project. The analysis assumed an equity contribution of 20 percent from the private partner, a 50-year concession term and a return on equity of 14 percent. The analysis indicated that the procurement could be successful, subject to acceptance of the assumptions the terms above. The excess revenue amount for the P3 model was not calculated, since a revenue sharing agreement between the operator and NCDOT could be a negotiated part of the contractual arrangement.

Conclusions

There are no simple solutions to address the funding needs for the implementation of the I-95 corridor improvements. Funding issues in North Carolina go beyond the I-95 corridor. Any proposal to increase existing revenues dedicated to transportation or to implement new taxes or tolls requires close examination and consider the following:

- How is transportation funded today;
- What additional revenues can realistically NCDOT receive by eliminating or minimizing current transfers;
- How equity distribution can be optimized such that NCDOT can invest limited resources wisely, while not investing disproportionately in certain parts of the State; and
- What are the benefits and impacts of increasing and/or implementing new revenue sources.

There are no perfect funding solutions, and to some extent all potential funding options will require tax payers and businesses to pay more. Findings from the revenue options analysis are:

- Tolling I-95 generates sufficient revenues to finance corridor need. However, assuming everything else constant (e.g., project construction schedule), the toll scenario with mitigated tolls for local trips would not generate sufficient revenues to fully finance the proposed improvements, and it would require other sources of funding to close the financing gap.

- New funding options, such as sales tax, income tax, and tolls, have broader tax bases and higher yields providing revenues that can be leveraged to finance the proposed I-95 corridor improvements. The policy implications and economic impacts of these options must be considered as NCDOT develops a financial strategy to implement the project.
- Increasing existing funding sources dedicated to transportation, such as the motor fuel tax, highway use tax and vehicle registration fees, to fully finance the I-95 improvements is not feasible based on current equity distribution formulas, unless tax rates are raised to unprecedented levels. Under current equity formula requirements, less than two percent of additional revenues can be used in the I-95 corridor. Based on this assumption, an increase of \$4.40 in the State MFT rate would be required to fund the I-95 corridor, while meeting equity formula requirements. Even without the equity formula restrictions, any increase in existing transportation taxes and fees will have to be distributed among other NCDOT needs. Therefore, the State would have to consider new taxes and fees to leverage increases to existing revenues and fund the I-95 corridor improvements.

A. Financial Feasibility Analysis



NC I-95 Economic Impact Study

Financial Feasibility Analysis for proposed Funding Package Options:

Purpose of the Analysis:

Clary Consulting, LLC (CCL) working with Cambridge Systematics, Inc. (CS) has been tasked with performing a base high level financial feasibility analysis for multiple funding package options being investigated as part of the North Carolina Department of Transportation (NCDOT) I-95 Economic Impact Study. The purpose of this analysis is to evaluate whether the funding package scenarios provide sufficient revenue to fund the proposed improvements to the I-95 project and whether there might be excess revenues that can be applied to other projects. This analysis relies heavily on prior analysis by others and is intended only as a high level comparison prior to a more comprehensive financial analysis. As such, this analysis cannot be relied upon for final market financial purposes and is intended solely for management decision-making purposes with respect to next steps.

Project Background:

The North Carolina Department of Transportation (NCDOT) has undertaken a detailed evaluation of the current condition of I-95. It has identified the need for specific major improvements throughout the entire one hundred and eighty-two miles of roadway including:

- Widen I-95 to eight lanes (four lanes in each direction) from exit 31 to exit 81;
- Widen the remaining sections of I-95 to six lanes (three lanes in each direction);
- Make necessary repairs to pavement;
- Raise and rebuild bridges;
- Improve interchanges; and
- Bring I-95 up to current safety standards for interstates.

NCDOT's *I-95 Planning and Finance Study*, released in January 2013, identified the costs for these needed improvement to be over \$4,000 M (2011 dollars). Obtaining funding for a project of such size is challenging. Funding however is only one of the challenges facing a project of this magnitude. These challenges, or risks, must be identified and mitigated to ensure the successful completion of the project. The *I-95 Planning and Finance Study* identified several risks and mitigation approaches. The table below incorporates and expands upon these.

Type	Description	Possible Mitigation Approaches
Planning and Design	Critical project needs will not be identified until project has begun	Independent design plan reviews and value engineering
Cost	Capital costs exceed estimate Maintenance costs exceed estimate Operating costs exceed estimate Life cycle costs not fully considered Design significantly exceeds demand needs Change orders significantly increase costs	Use of independent engineering firm to act as “Owner’s Representative” to ensure independent analysis and verification of needs, costs and schedules. Use of independent financial advisor for verification of costs calculations and assumptions Independent traffic engineer confirmation of traffic volumes used for design needs
Finance	Borrowing costs exceed estimate Failure to obtain TIFIA Financing Municipal bonds Issuance problems (costs/timing) Poor bond rating	Use of independent financial advisor for verification of financing plans and assumptions and for preparation and assistance with bond rating agency reviews
Tax Revenue	Tax revenues generate less than estimated Legislative changes reduce tax available	Use of independent financial advisor for verification of financing plans and assumptions
Toll Revenue (if utilized)	Toll revenue less than forecasted in early years Toll revenue less than forecasted over long term Diversion higher than anticipated Toll evasion higher than anticipated	Investment grade Traffic and Revenue (T&R) Study by internationally recognized T&R firm with a peer review by a second T&R firm Sufficient time and resources for toll equipment procurement/installation/testing

Procurement Approaches:

The final selection of a procurement approach typically is made later in the project development cycle, however, it is important at this early stage to be aware of the options and their potential impact on the project financing. In this section we discuss the implications of different procurement options.



Design-Bid-Build:

The traditional approach to highway construction in the United States has been Design-Bid-Build where the contracting agency either performs the design work in-house or hires an engineering design firm to prepare the drawings and specifications. The agency then separately contracts for construction through competitive bidding typically based on the lowest responsive price.

Pros:

- Well understood approach by all parties.
- NCDOT retains more control over design.
- Price transparency in bid process.
- Design changes more readily accommodated.

Cons:

- Typically has a relatively longer development cycle because design must be 100% complete prior to hiring the construction contractor.
- Typically restricted to traditional funding approaches.
- Multiple contracts to be managed and coordinated by NCDOT
- Lack of a single point of contact for project issues.
- NCDOT takes on the risk of changes such as difference in amounts, soil conditions, etc.

Design-Build or Design-Build-Finance:

An alternative contracting method called Design-Build (DB) engages a design/contractor team which is responsible for both design and construction under a single contract. Design Build Finance (DBF) brings a contractor financing approach into the equation and has been used in a number of states including North Carolina to allow for short-term bridge financing to be provided by the contractor in order to advance the delivery of the project.

Pros:

- Typically has a relatively shorter development cycle because construction can begin before design is 100% complete.
- Single contract to manage and coordinate.
- Single point of contact.
- Value engineering can be incorporated into overall scope.
- Change-in-condition exposure is reduced to NCDOT.
- Can provide a fixed price for the project.
- Can provide bridge financing to NCDOT for funding gaps if DBF approach is selected.



Cons:

- May require NCDOT to develop new procurement skills, depending on previous usage by NCDOT.
- NCDOT gives some level of design control to contractor.
- NCDOT initiated design changes may be more difficult as the project progresses.
- Not as common among industry participants.

Public Private Partnership (P3):

Public Private Partnerships (P3's) can be defined in many ways. For purposes of this project, we define it as an approach that combines project development components (such as Design-Build-Operate-Maintain) with a financing strategy. The intent is to allow the project sponsor to deliver the project earlier than could otherwise be allowed using traditional financing approaches. Fundamentally, a P3 structure combines a risk-sharing approach with a financial transaction that results in the design, build, operations and maintenance of a project over a specified term by a single-purpose private entity under contract with the project sponsor.

The P3 approach is best suited for large scale projects that cannot be funded from traditional revenue streams where the project itself can generate sufficient revenues streams to finance the effort over a non-traditional term, or projects whose construction or other risks are best handled by others.

Pros:

- Allows for a non-traditional funding term to spread the financial impact over a longer period of time.
- Single point of project control.
- Can deliver entire project in a shorter development period.
- Allows the project sponsor to determine the primary drivers of the project financing, such as revenue or construction risk allocation.
- Can result in innovative project delivery approaches, since the private partner is motivated to deliver the contractually obligated performance at the lowest cost, to maximize their profit.
- Provides a long-term “warranty” for the project during the term of the agreement.
- Provides a fixed price project delivery.

Cons:

- Process is new and less understood by all parties.
- Project sponsor has less direct project control.
- Long-term agreements can increase performance and other risk factors which tend to increase over time.



- Long term finance commitments increase default and other financing risk.
- Goals and objectives of the public and private partners may not completely align.

Financial Feasibility Model Development Approach:

In order to address the funding needs of the I-95 improvements various statewide taxes (including sales tax), fees and tolls were considered by Cambridge Systematics who provided forecasts of these to CCL for financial planning purposes. These included:

- Additional Sales Tax
- User Fees on I-95 (Tolls)
- Funding package including:
 - Increase in Highway Use Tax
 - Increase in Vehicle Registration Fees
 - New Sales Tax

CCL developed six separate financial scenarios:

- Scenario 1 – Tolls, traditional approach
- Scenario 2 – Tolls with Mitigation of Tolls for Local Trips, traditional approach
- Scenario 3 – 10 Year Sales Tax Increase – 100% dedicated for capital costs
- Scenario 4 – 10 Year Sales Tax Increase – 33% dedicated for capital costs
- Scenario 5 – Blended Tax Revenue Approach
- Scenario 6 – P3 Approach assuming Tolls

Detailed descriptions of each scenario are provided below, followed by a matrix with the key results. The revenues for Scenarios 1, 3, 5, and 6 appear sufficient to pay for the construction of the improvements. The amount of surplus revenue available for other projects after the I-95 project is completed is shown in the matrix. A detailed list of model assumptions can be found in Appendix A.

The scenario that included discounting toll rates for local travel and the scenario which assumed that only one-third of the additional sales tax would be available for I-95 failed to generate sufficient revenues to allow for the structuring of a commercially viable financial plan.

Caveats regarding Financial Scenarios

The financial models developed by CCL, were high level models which used assumptions found in published reports, primarily the *I-95 Planning and Finance Study*. The following cautions should be noted:

- Information regarding toll revenues was obtained from NCDOT's *I-95 Planning and Finance Study* completed as part of the I-95 Environmental Assessment (EA), and non-toll revenue streams were obtained from Cambridge Systematics, Inc.
- CCL did not verify the accuracy of the assumptions applied to generate the revenue forecast. CCL did review the key assumptions and found them to be reasonable for use in these models. CCL did make one change to the forecasted operating costs, reducing the operating costs used in the *I-95 Planning and Finance Study* (31 cents per transactions) to bring it more in line with costs commonly found on existing toll facilities today. In 2012 the Reason Foundation released a report on the costs of toll and fuel tax collections. Their report "Toll and Fuel Tax Collection Costs in the 21st Century" reported costs of \$.16 to \$.25 cents per transaction for toll entities using the latest technology of electronic toll collection. Operating costs used by CCL were in line with these amounts.
- The financial models are sufficient to give reasonable assurance as to the whether or not a certain level of financial resources was able to fund a project to its completion. However, they are not intended to be used for financing purposes.
- Even relatively minor changes to certain variables can produce significant differences in outcomes. For financing purposes each scenario would need to be refined and optimized with respect to costs, project phasing, financial structure, or implementation approaches.

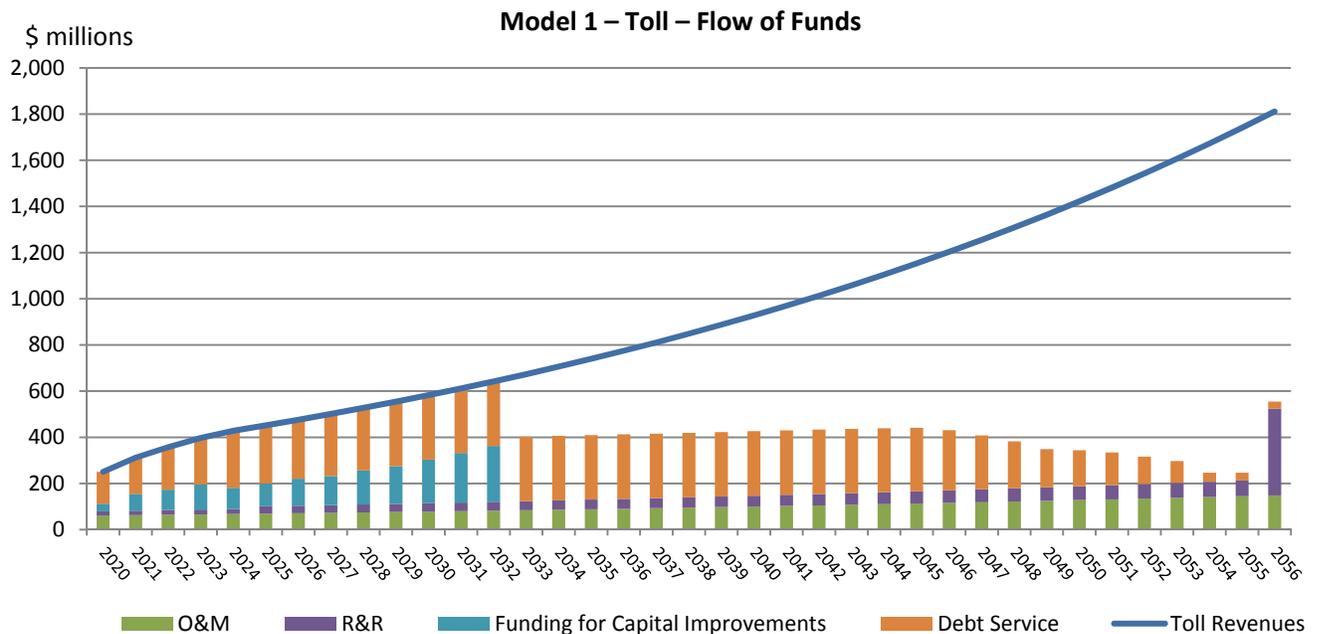


Financial Modeling Scenarios:

Financial Model 1 – Tolling

The *I-95 Planning and Finance Study* evaluated a variety of funding options with tolls becoming the recommended funding method in that report. CCL examined the report and utilized the same assumptions regarding toll rates, capital costs, schedules, etc. We then independently made assumptions regarding the financing variables including interest rates, bonds, and the operating costs. We considered the toll operating costs used in the *I-95 Planning and Finance Study* report to be high, especially for a new toll facility which has the ability to collect tolls electronically. The Reason Foundation’s report “Toll and Fuel Tax Collection Costs in the 21st Century” states “[c]ost data for some AET operations in the United States demonstrate that the net collection costs of an AET operation can be in the vicinity of 5% of the revenue collected for a \$5.00 toll (or 8% of revenue collected for a \$2.00 toll).” We used collection costs which are more in line with this report.

Similar to the 2013 report, tolls were assumed to be implemented on all of I-95 through North Carolina and collected from 2020 to 2056. Our analysis indicated that the entire project could be funded from tolls based on the assumptions and data provided. By the end of construction in 2032, there will be a surplus of \$305.2 million in future dollars. The project would continue to generate a yearly surplus and, if unspent through 2056 would grow to \$18,979 million in future dollars and be available to fund other improvements. The summary of the cash flow for Model 1 – Tolling is included at the end of the report and a graph of the flow of funds is shown below.

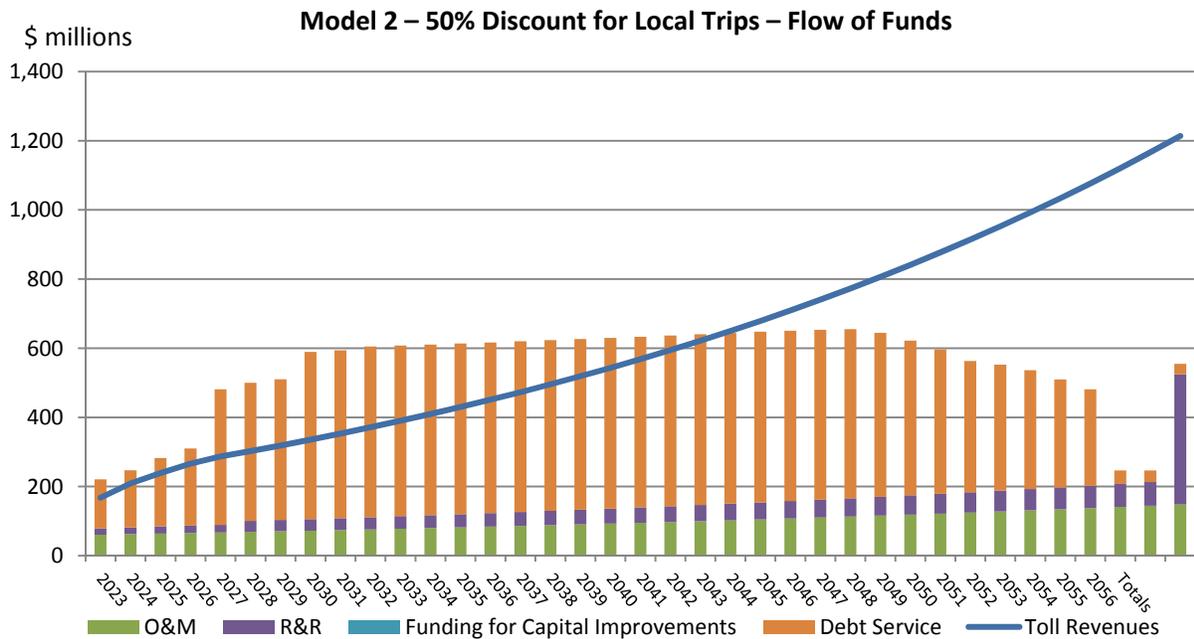


Total Project Cost: \$5,991M – Funded by: Cash Toll Revenues: \$1,692M; by Debt: \$4,299.



Financial Model 2 – Tolling with Mitigation of Tolls for Local Trips

The same assumptions used in Model 1 were used in this model; however the toll for local trips was reduced by 50%. The impact on the overall revenue from tolls was calculated. The result was approximately 33% less revenue than the full toll scenario. Because less revenue was generated from tolls, substantially more debt was needed to be issued to fund the costs of the project. Toll revenue from the reduced tolls would be insufficient to cover capital, maintenance, operating and renewal and replacement costs until 2045. While a calculated cash surplus of \$2,888 million would be generated between 2045 and the end of the 2056 operating period, this financing structure would not be commercially acceptable and the remaining cash balance is therefore shown as not applicable (N/A) in the following table. An analysis was run and found that approximately \$1,500 million would be needed during the construction period years 2013 to 2032 to support a financing structure that will adequately fund the project. The summary of the cash flow for Model 2 – Tolling with Mitigation is included at the end of the report and a graph of the flow of funds is shown below.

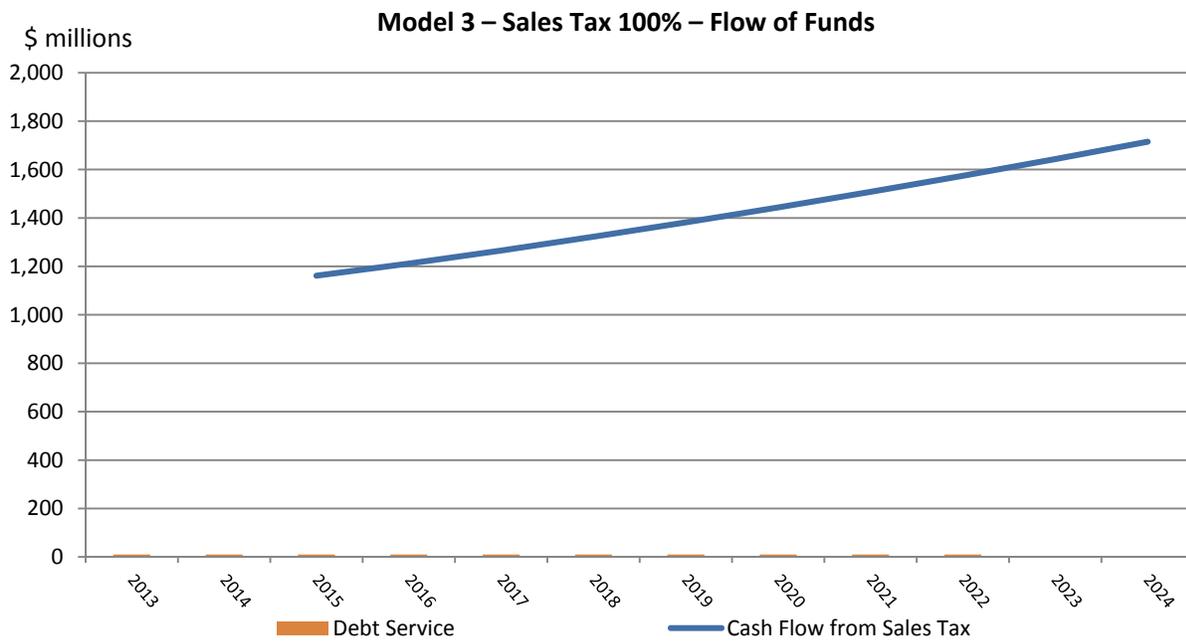


Total Project Cost: \$5,991M – Funded by: Cash Toll Revenue: **\$0M**; by Debt: \$5,991M.
However repayments are short by **\$1,500M**.



Financial Model 3 – 10 Year Sales Tax Increase – 100% dedicated for capital costs

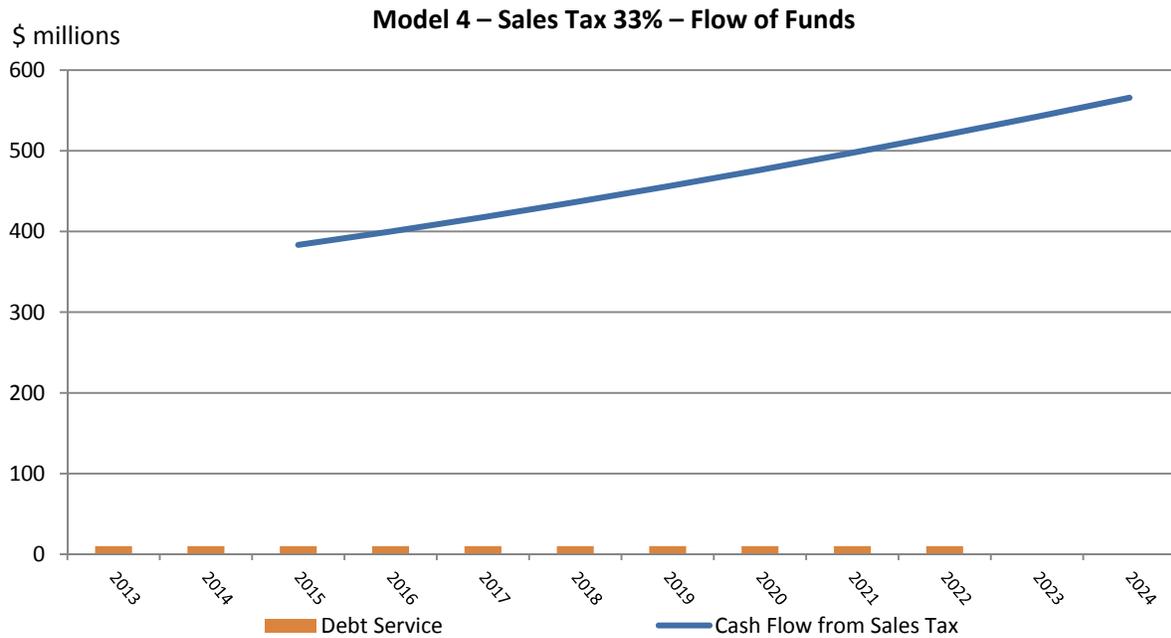
A one percent statewide sales tax increase was assumed beginning in 2015 and levied for ten years. All capital cost assumptions were consistent with the prior model however 100% of the sales tax proceeds were dedicated to the initial capital costs of the project and were not used to fund maintenance or periodic improvements. These expenses are funded today from current transportation revenue sources. It was assumed those funding sources would continue to be available in the future for these costs. The analysis includes an \$86 million ten year bond to pay for construction costs occurring in 2013 and 2014. Therefore, debt service costs were held to a minimum and could be reduced to zero if we assumed the sales tax increase to occur prior to construction start. By the end of the construction period in 2032, all debt would have been paid off and an accumulated balance of \$8,449 million in future dollars would be available for other projects statewide. The summary of the cash flow for Model 3 – Ten Year Sales Tax Increase is included at the end of the report and a graph of the flow of funds is shown below.



Total Project Cost: \$5,887M – Funded by Cash Sales Tax: \$5,801M; by Debt: \$86M.

Financial Model 4 – 10 Year Sales Tax Increase – 33% dedicated for capital costs

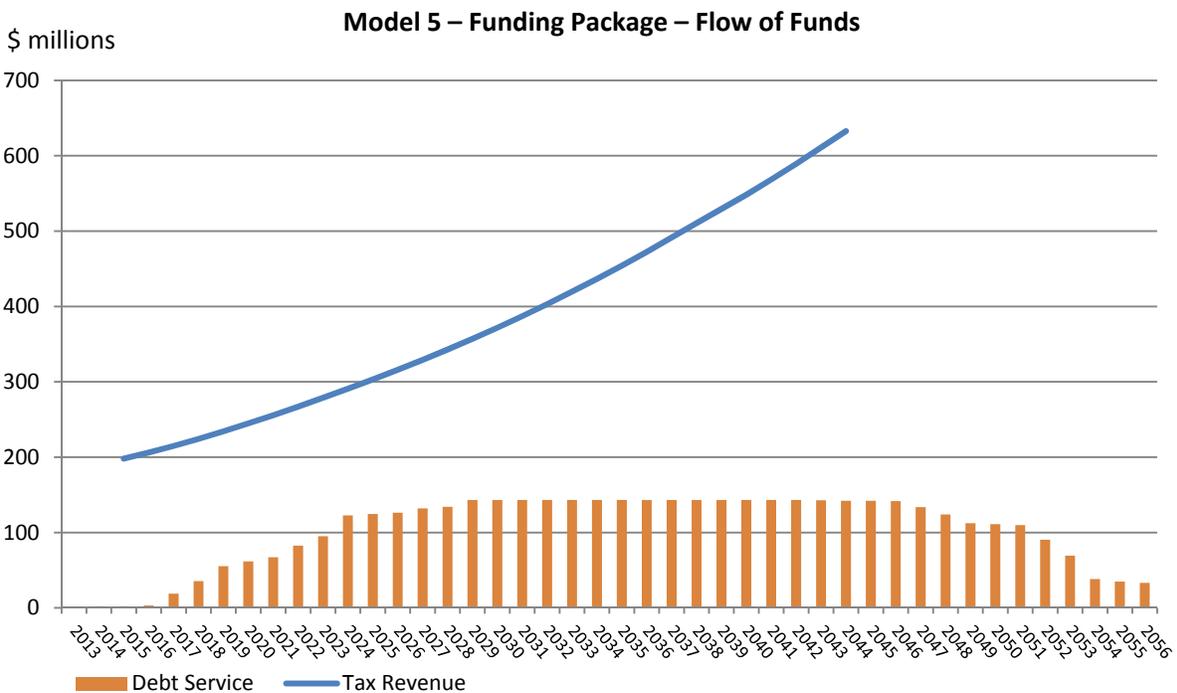
The same assumptions used in Model 3 were used in the model. However, only 33% of the increase in the Sales Tax proceeds was dedicated to I-95 improvements. This amount is insufficient to fund the overall I-95 project. Negative cash balances rise to \$1,205 million dollars in 2032 by the end of construction. This is logical as the total cash raised is approximately \$4,690 million and the total cost of construction alone totals \$5,887 million. The surplus revenues column is shown as N/A in the following table as this option is not feasible. An analysis was run and found that a minimum of 41.5% of the tax revenues were needed to fully fund the project. The summary of the cash flow for Model 4 – Sales Tax Increase 33% Dedicated for capital cost is included at the end of the report and a graph of the flow of funds is shown below.



Total Project Cost: \$5,887M – Funded by Cash Sales Tax: \$4,594; by Debt: \$86M.
 Shortfall: **\$1,205M.**

Financial Model 5 – Blended Tax Revenue Approach

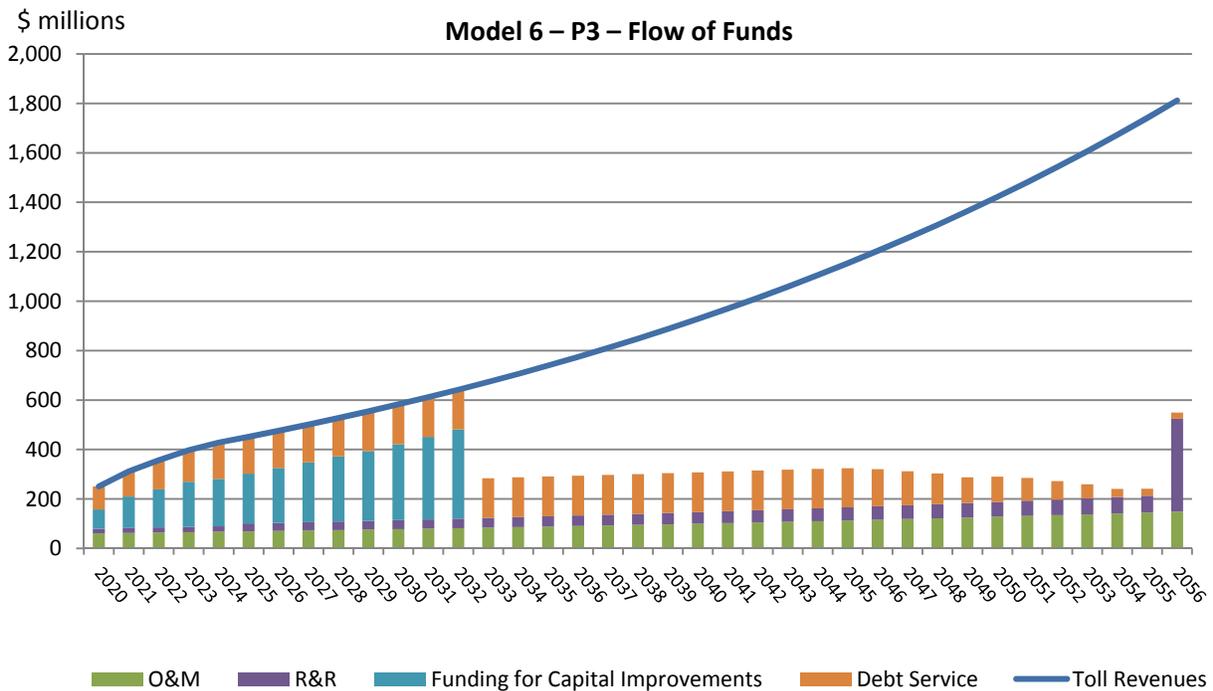
For this model a 1% sales tax was assumed which would be implemented for thirty years, with 15% of the proceeds used to fund the I-95 improvements. In addition, 5% increase in Vehicle Registration Fees and 5% of the total revenues from an additional 1% in Highway Use Taxes would be dedicated to the I-95 improvements. Debt issuances are approximately \$2,774 M, and by the end of construction in 2032, there would be a surplus of \$413 million in future dollars. At the end of the analysis period in 2056, after all debt service has been paid off, a surplus of \$3,905 million in future dollars would be available to fund other projects. The summary of the cash flow for Model 5 – Blended Tax Revenue Approach is included at the end of the report and a graph of the flow of funds is shown below.



Total Project Cost: \$5,887M – Funded by Cash Tax Revenues: \$3,590M; by Debt: \$2,297M.

Financial Model 6 – P3 Approach

In addition to the models shown in the Matrix, a variant of Model 1 was utilized to assess the feasibility of using a Public-Private-Partnership (P3) to advance the project. The analysis assumed an equity contribution of 20% from the private partner, a 50 year term and a return on equity of 14%. The analysis indicated that a P3 approach could be successful, subject to acceptance of the assumptions included in the analysis. The analysis does not include a calculation for excess revenue for the P3 model in that the approach is quite different and revenue sharing between the operator and the sponsor would be a negotiated part of the contractual arrangement. The summary of the cash flow for Model 6 – P3 Approach is included at the end of the report and a graph of the flow of funds is shown below. Note this flow of funds was limited to 2056 on the end time to be consistent with other tolling charts, however, the P3 would be anticipated to run through 2070 for the total term.



Total Project Cost: \$5,991M – Funded by Cash Toll Revenue: \$2,947M; by a combination of Equity and Debt: \$3044M.



**Financial Modeling Assumptions and Outcome Matrix
(Amounts in Millions in Future Dollars)**

	Model 1 Toll	Model 2 Tolling with Mitigation of Tolls for Local Trips	Model 3 10 Year Sales Tax Increase – 100% dedicated for capital costs	Model 4 Year Sales Tax Increase – 33% dedicated for capital costs	Model 5 Blended Tax Revenue Approach
Deficit		(\$1,500)M		(\$1,205)M	
Surplus Revenues – End of Construction (2032) <i>Note 1</i>	\$305M	N/A	\$8,449M	N/A	\$413M
Surplus Revenues – End of Analysis Period (2056) <i>Note 1</i>	\$18,979M	N/A	<i>Note 2</i>	N/A	\$3,905M

Note 1: Models 2 and 4 fail to generate revenues sufficient to finance the costs of the project and the Surplus Revenues are therefore shown as N/A.

Note 2: The Surplus Revenue amount noted in year 2032 does not increase subsequent to that year as sales tax collections are no longer collected after that date.

NC I-95 economic Impact Study

Appendix A

Model Assumptions:

Assumptions	Model 1 - Toll	Model 2 - Tolling with Mitigation for Local Trips - 50% Discount	Model 3 - 10 Year Sales Tax Increase - 100% Dedicated for Capital Costs	Model 4 - 10 Year Sales Tax Increase - 33% Dedicated for Capital Costs	Model 5 - Blended Tax Revenue Approach	Model 6 - P3 Approach
Construction Scheduleⁱ						
Phase 1	12/31/2013 - 12/31/2019	12/31/2013 - 12/31/2019	12/31/2013 - 12/31/2019	12/31/2013 - 12/31/2019	12/31/2013 - 12/31/2019	12/31/2013 - 12/31/2019
Phase 2	12/31/2014 - 12/31/2032	12/31/2014 - 12/31/2032	12/31/2014 - 12/31/2032	12/31/2014 - 12/31/2032	12/31/2014 - 12/31/2032	12/31/2014 - 12/31/2032
Construction Costs						
Phase 1	\$2,296 M	\$2,296 M	\$2,192 M	\$2,192 M	\$2,192 M	\$2,296 M
Phase 2	\$3,695 M	\$3,695 M	\$3,695 M	\$3,695 M	\$3,695 M	\$3,695 M
Total Construction Cost	\$5,991 M	\$5,991 M	\$5,887 M	\$5,887 M	\$5,887 M	\$5,991 M
Bond Proceeds plus Financing Cost	\$8,509 M	14,711 M	\$100 M	\$100 M	\$4,547	\$5,082 M
Inflation Rate	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Toll Rates (per gantry)						
Phase 1	\$1.95	\$1.95				\$1.95
Phase 2	\$0.98	\$0.98				\$0.98
Operations and Maintenance						
Cost of Maintenance	\$1,457 M	\$1,457 M				\$2,461 M ⁱⁱ
Cost of Operations	\$2,187 M	\$2,187 M				\$3,695 M
Total O&M	\$3,644 M	\$3,644 M				\$6,156 M
Renewal and Replacement	\$1,968 M	\$1,968 M				\$6,275 M
Project Fund Earnings Rateⁱⁱⁱ	0.11%	0.11%	0.11%	0.11%	0.11%	0.11%
Financing Assumptions						
TIFIA ^{iv}						
Percentage of Project Cost	33%	33%	0%	0%	33%	33%
Term	35	35			35	35
Rate	3.15%	3.15%			3.15%	3.15%
Amount	\$1,997 M	\$1,997 M			\$1,943 M	\$1,997 M
Debt Service	Straight Line	Straight Line			Straight Line	Straight Line
Capitalized Interest	5 yrs	5 yrs			5 yrs	5 yrs
Tax Exempt Revenue Bonds						
Percentage of Project Cost	47%	106% ^v	1%	1%	13%	
Term	30	30	10	10	30	
Rate	4.05% ^{vi}	4.05%	1.85% ^{vii}	1.85%	^{viii} 3.05%	
Amount	\$2,866 M	\$6,342 M	\$86 M	\$86 M	\$769 M	

Assumptions	Model 1 - Toll	Model 2 - Tolling with Mitigation for Local Trips - 50% Discount	Model 3 - 10 Year Sales Tax Increase - 100% Dedicated for Capital Costs	Model 4 - 10 Year Sales Tax Increase - 33% Dedicated for Capital Costs	Model 5 - Blended Tax Revenue Approach	Model 6 - P3 Approach
Debt Service	Straight Line	Straight Line	Straight Line	Straight Line	Straight Line	
Capitalized Interest	3 yrs	3 yrs	0	0	3 yrs	
Private Activity Bonds ^{ix}						
Percentage of Project Cost						15%
Term						30 yrs
Rate						4.75%
Amount						\$870 M
Debt Service						Straight Line
Capitalized Interest						3 yrs
Equity						
Percentage of Project Cost						20%
IRR						13%
Tax Increases ^x						
Sales Tax Increase			1%	1%	1%	
Sales Tax Duration			10 yrs	10 yrs	30 yrs	
Sales Tax Share			100%	33%	15%	
Vehicle Registration Fee Increase					5%	
Highway Use Tax Increase					1%	
Highway Use Tax Share					5%	

ⁱ Project schedule, costs, inflation rate, toll rates, O&M, and R&R values were all taken from the I-95 Financial Plan submitted by the North Carolina Department of Transportation

ⁱⁱ Model 6 – P3 Approach has higher Operations, Maintenance, and Renewal and Replacement costs due to a longer analysis period. From 2020 through 2056, these costs are equal to models 1 and 2.

ⁱⁱⁱ Project Funds Rate percentage is conservatively assumed equal to a 1 year T-Bill as of May 10, 2013

^{iv} TIFIA Interest Rate was taken from the published rate by the Federal Highway Administration as of March 13, 2013

^v As noted in the Finance Report, this financing structure would not be commercially acceptable as revenues are insufficient to cover capital, maintenance, operating and renewal and replacement costs

^{vi} Tax Exempt Revenue Bond rates for models 1 and 2 are based on 30 year, BBB rated bonds as of April 26, 2013

^{vii} Tax Exempt Revenue Bond rates for models 3 and 4 are based on 10 year, A rated bonds as of April 26, 2013

^{viii} Tax Exempt Revenue Bond rates for model 5 is based on 30 year, A rated bonds as of April 26, 2013

^{ix} PAB rates were applied based on similar BBB rated PAB issuances as of April 26, 2013

^x All tax revenue increase, duration, and share to I-95 data was provided by Cambridge Systematics, Inc.

**I-95 - Model 1 - Toll
Operating Period Cash Flow**

Fiscal Year	Gross Toll Revenue	Total O&M	Net Revenues	Total Debt Service	R&R Reserve	Funding for Capital Improvemen	Remaining Revenues	Senior Debt Service Coverage	Subordinate Debt Coverage	R&R Deposit Coverage
2020	\$250	\$61	\$189	\$138	\$18	\$33	\$0	2.0x	2.2x	2.8x
2021	\$312	\$63	\$249	\$157	\$20	\$73	\$0	2.3x	2.9x	4.7x
2022	\$357	\$64	\$293	\$184	\$21	\$88	\$0	2.3x	2.9x	5.2x
2023	\$397	\$66	\$332	\$202	\$21	\$109	\$0	2.5x	3.0x	6.1x
2024	\$428	\$67	\$361	\$247	\$22	\$92	\$0	2.3x	2.3x	5.2x
2025	\$452	\$69	\$383	\$252	\$32	\$99	\$0	2.4x	2.5x	4.1x
2026	\$476	\$71	\$405	\$256	\$33	\$117	\$0	2.5x	2.6x	4.6x
2027	\$501	\$73	\$429	\$269	\$34	\$126	\$0	2.4x	2.7x	4.7x
2028	\$527	\$74	\$453	\$271	\$35	\$147	\$0	2.6x	2.9x	5.3x
2029	\$554	\$76	\$478	\$279	\$35	\$163	\$0	2.7x	2.9x	5.6x
2030	\$582	\$78	\$504	\$279	\$36	\$189	\$0	2.9x	3.2x	6.2x
2031	\$612	\$80	\$532	\$279	\$37	\$215	\$0	3.0x	3.5x	6.8x
2032	\$642	\$82	\$560	\$279	\$38	\$242	\$305	3.2x	3.7x	7.3x
2033	\$673	\$84	\$589	\$279	\$39	\$271	\$271	3.3x	4.0x	7.9x
2034	\$706	\$86	\$620	\$279	\$41	\$300	\$300	3.5x	4.3x	8.4x
2035	\$740	\$88	\$651	\$279	\$42	\$330	\$330	3.7x	4.6x	8.9x
2036	\$775	\$91	\$684	\$279	\$43	\$362	\$362	3.9x	4.9x	9.5x
2037	\$811	\$93	\$718	\$279	\$44	\$395	\$395	4.1x	5.3x	10.0x
2038	\$849	\$95	\$753	\$279	\$45	\$429	\$429	4.3x	5.6x	10.6x
2039	\$888	\$98	\$790	\$279	\$46	\$465	\$465	4.5x	6.0x	11.1x
2040	\$928	\$100	\$828	\$279	\$47	\$502	\$502	4.7x	6.3x	11.7x
2041	\$970	\$102	\$868	\$279	\$48	\$540	\$540	4.9x	6.7x	12.2x
2042	\$1,013	\$105	\$908	\$279	\$49	\$580	\$580	5.1x	7.1x	12.7x
2043	\$1,058	\$108	\$951	\$278	\$51	\$622	\$622	5.4x	7.5x	13.3x
2044	\$1,105	\$110	\$995	\$277	\$52	\$666	\$666	5.7x	8.0x	13.8x
2045	\$1,153	\$113	\$1,040	\$275	\$53	\$712	\$712	6.1x	8.4x	14.4x
2046	\$1,203	\$116	\$1,087	\$260	\$55	\$773	\$773	6.9x	9.0x	15.2x
2047	\$1,255	\$119	\$1,136	\$233	\$56	\$847	\$847	8.7x	9.8x	16.2x
2048	\$1,309	\$122	\$1,187	\$204	\$57	\$926	\$926	11.7x	10.6x	17.2x
2049	\$1,364	\$125	\$1,239	\$165	\$59	\$1,015	\$1,015	19.4x	11.6x	18.3x
2050	\$1,422	\$128	\$1,294	\$156	\$60	\$1,078	\$1,078	23.4x	12.4x	18.9x
2051	\$1,481	\$131	\$1,350	\$142	\$62	\$1,147	\$1,147	27.2x	14.1x	19.6x
2052	\$1,543	\$134	\$1,408	\$118	\$63	\$1,227	\$1,227	33.6x	17.8x	20.4x
2053	\$1,607	\$138	\$1,469	\$94	\$65	\$1,310	\$1,310	43.2x	23.9x	21.2x
2054	\$1,673	\$141	\$1,531	\$39	\$66	\$1,426	\$1,426		39.5x	22.5x
2055	\$1,741	\$145	\$1,596	\$34	\$68	\$1,494	\$1,494		47.3x	22.9x
2056	\$1,811	\$148	\$1,663	\$30	\$376	\$1,257	\$1,257		54.7x	4.3x
Totals	\$34,169	\$3,644	\$30,525	\$8,191	\$1,968	\$1,692	\$18,979			

* Amounts are in Millions

* This Cash Flow page is part of a more comprehensive financial model and the entire model is necessary for a full understanding of the overall Finance Model that supports the Cash Flows.

I-95 - Model 2 Toll 50% Discount

Operating Period Cash Flow

Fiscal Year	Gross Toll Revenue	Total O&M	Net Revenues	Total Debt Service	R&R Reserve	Funding for Capital Improvements	Remaining Revenues	Senior Debt Service Coverage Ratio	Subordinate Debt Service Coverage Ratio	R&R Deposit Coverage
2020	\$168	\$61	\$107	\$142	\$18	\$0	-\$53	1.1x	0.2x	-1.9x
2021	\$209	\$63	\$146	\$165	\$20	\$0	-\$38	1.3x	0.6x	-1.0x
2022	\$239	\$64	\$175	\$197	\$21	\$0	-\$43	1.2x	0.6x	-1.1x
2023	\$266	\$66	\$201	\$223	\$21	\$0	-\$44	1.3x	0.7x	-1.0x
2024	\$287	\$67	\$220	\$392	\$22	\$0	-\$194	0.7x	-1.0x	-7.9x
2025	\$303	\$69	\$234	\$399	\$32	\$0	-\$198	0.8x	-0.9x	-5.2x
2026	\$319	\$71	\$248	\$407	\$33	\$0	-\$191	0.8x	-0.7x	-4.8x
2027	\$336	\$73	\$263	\$483	\$34	\$0	-\$254	0.7x	-1.4x	-6.5x
2028	\$353	\$74	\$279	\$485	\$35	\$0	-\$241	0.7x	-1.2x	-6.0x
2029	\$371	\$76	\$295	\$493	\$35	\$0	-\$233	0.8x	-0.9x	-5.6x
2030	\$390	\$78	\$312	\$493	\$36	\$0	-\$218	0.8x	-0.8x	-5.0x
2031	\$410	\$80	\$330	\$493	\$37	\$0	-\$201	0.8x	-0.6x	-4.4x
2032	\$430	\$82	\$348	\$493	\$38	\$0	-\$184	0.9x	-0.4x	-3.8x
2033	\$451	\$84	\$367	\$493	\$39		-\$166	0.9x	-0.2x	-3.2x
2034	\$473	\$86	\$387	\$493	\$41		-\$147	1.0x	0.0x	-2.6x
2035	\$496	\$88	\$407	\$493	\$42		-\$128	1.0x	0.2x	-2.1x
2036	\$519	\$91	\$428	\$493	\$43		-\$108	1.1x	0.4x	-1.5x
2037	\$543	\$93	\$451	\$493	\$44		-\$87	1.2x	0.6x	-1.0x
2038	\$569	\$95	\$473	\$493	\$45		-\$65	1.2x	0.8x	-0.4x
2039	\$595	\$98	\$497	\$493	\$46		-\$42	1.3x	1.0x	0.1x
2040	\$622	\$100	\$522	\$493	\$47		-\$19	1.3x	1.3x	0.6x
2041	\$650	\$102	\$547	\$493	\$48		\$6	1.4x	1.5x	1.1x
2042	\$679	\$105	\$574	\$493	\$49		\$31	1.5x	1.8x	1.6x
2043	\$709	\$108	\$602	\$492	\$51		\$59	1.5x	2.1x	2.2x
2044	\$740	\$110	\$630	\$491	\$52		\$87	1.6x	2.4x	2.7x
2045	\$773	\$113	\$660	\$489	\$53		\$118	1.7x	2.7x	3.2x
2046	\$806	\$116	\$690	\$474	\$55		\$162	1.9x	3.1x	4.0x
2047	\$841	\$119	\$722	\$447	\$56		\$219	2.1x	3.7x	4.9x
2048	\$877	\$122	\$755	\$418	\$57		\$280	2.4x	4.3x	5.9x
2049	\$914	\$125	\$789	\$379	\$59		\$351	2.8x	5.0x	7.0x
2050	\$953	\$128	\$825	\$364	\$60		\$400	3.1x	5.6x	7.6x
2051	\$992	\$131	\$861	\$344	\$62		\$456	3.4x	6.6x	8.4x
2052	\$1,034	\$134	\$899	\$312	\$63		\$524	3.8x	8.7x	9.3x
2053	\$1,076	\$138	\$939	\$279	\$65		\$595	4.3x	12.0x	10.2x
2054	\$1,121	\$141	\$979	\$39	\$66		\$874		25.2x	14.2x
2055	\$1,166	\$145	\$1,022	\$34	\$68		\$920		30.3x	14.5x
2056	\$1,214	\$148	\$1,065	\$30	\$76		\$659		35.1x	2.8x
Totals	\$22,893	\$3,644	\$19,250	\$14,393	\$1,968	\$0	\$2,888			

* Amounts are in Millions

* This Cash Flow page is part of a more comprehensive financial model and the entire model is necessary for a full understanding of the overall Finance Model that supports the Cash Flows.

I-95 - Tax Revenue Model 3

Cash Flow

Fiscal Year	Cash Flow from Sales Tax	Bond Proceeds	Cash Flow Revenue Deposit	Debt Service	Construction	Remaining Cash Flows
2013		\$86	\$86	\$10	\$30	\$46
2014			\$46	\$10	\$35	\$1
2015	\$1,162		\$1,163	\$10	\$51	\$1,102
2016	\$1,212		\$2,314	\$10	\$377	\$1,927
2017	\$1,266		\$3,195	\$10	\$685	\$2,500
2018	\$1,322		\$3,825	\$10	\$709	\$3,106
2019	\$1,382		\$4,491	\$10	\$795	\$3,686
2020	\$1,443		\$5,134	\$10	\$270	\$4,854
2021	\$1,508		\$6,367	\$10	\$229	\$6,128
2022	\$1,574		\$7,709	\$10	\$305	\$7,394
2023	\$1,643		\$9,045		\$327	\$8,718
2024	\$1,715		\$10,443		\$337	\$10,106
2025			\$10,117		\$401	\$9,716
2026			\$9,726		\$333	\$9,393
2027			\$9,404		\$261	\$9,143
2028			\$9,153		\$177	\$8,976
2029			\$8,986		\$193	\$8,793
2030			\$8,802		\$173	\$8,629
2031			\$8,639		\$133	\$8,506
2032			\$8,515		\$66	\$8,449
Totals	\$14,227	\$86		\$100	\$5,887	\$8,449

* Amounts are in Millions

* This Cash Flow page is part of a more comprehensive financial model and the entire model is necessary for a full understanding of the overall Finance Model that supports the Cash Flows.

I-95 - Sales Tax Model 4

Cash Flow

Fiscal Year	Cash Flow from Sales Tax	Bond Proceeds	Cash Flow Deposit	Debt Service	Construction	Remaining Cash Flows
2013		\$86	\$86	\$10	\$30	\$46
2014			\$46	\$10	\$35	\$1
2015	\$383		\$384	\$10	\$51	\$323
2016	\$400		\$723	\$10	\$377	\$336
2017	\$418		\$754	\$10	\$685	\$59
2018	\$436		\$496	\$10	\$709	-\$223
2019	\$456		\$233	\$10	\$795	-\$572
2020	\$476		-\$96	\$10	\$270	-\$376
2021	\$498		\$121	\$10	\$229	-\$118
2022	\$520		\$402	\$10	\$305	\$87
2023	\$542		\$629		\$327	\$302
2024	\$566		\$868		\$337	\$531
2025			\$532		\$401	\$131
2026			\$131		\$333	-\$202
2027			-\$202		\$261	-\$463
2028			-\$463		\$177	-\$640
2029			-\$640		\$193	-\$833
2030			-\$833		\$173	-\$1,006
2031			-\$1,006		\$133	-\$1,139
2032			-\$1,139		\$66	-\$1,205
Totals	\$4,695	\$86		\$100	\$5,887	-\$1,205

* Amounts are in Millions

* This Cash Flow page is part of a more comprehensive financial model and the entire model is necessary for a full understanding of the overall Finance Model that supports the Cash Flows.

1-95 - Model 5 Funding Package

Cash Flow

Fiscal Year	Cash Flow from Funding Package	Total Debt Proceeds	Cash Flow Deposit	Total Debt Service	Construction	Remaining Cash Flows
2013		\$31	\$31	\$1	\$30	\$0
2014		\$37	\$37	\$2	\$35	\$0
2015	\$198	\$0	\$198	\$2	\$51	\$145
2016	\$206	\$29	\$380	\$3	\$377	\$0
2017	\$215	\$489	\$704	\$19	\$685	\$0
2018	\$224	\$520	\$744	\$35	\$709	\$0
2019	\$234	\$616	\$850	\$55	\$795	\$0
2020	\$245	\$87	\$332	\$62	\$270	\$0
2021	\$256	\$40	\$296	\$67	\$229	\$0
2022	\$267	\$121	\$388	\$83	\$305	\$0
2023	\$279	\$143	\$422	\$95	\$327	\$0
2024	\$291	\$598	\$889	\$123	\$337	\$429
2025	\$303		\$733	\$125	\$401	\$207
2026	\$316		\$523	\$126	\$333	\$64
2027	\$329		\$393	\$132	\$261	\$0
2028	\$343		\$343	\$134	\$177	\$32
2029	\$357		\$389	\$143	\$193	\$52
2030	\$372		\$424	\$143	\$173	\$108
2031	\$387		\$495	\$143	\$133	\$219
2032	\$403		\$622	\$143	\$66	\$413
2033	\$420		\$833	\$143		\$690
2034	\$437		\$1,127	\$143		\$984
2035	\$454		\$1,439	\$143		\$1,296
2036	\$472		\$1,770	\$143		\$1,627
2037	\$491		\$2,120	\$143		\$1,976
2038	\$510		\$2,489	\$143		\$2,346
2039	\$529		\$2,878	\$143		\$2,735
2040	\$548		\$3,286	\$143		\$3,143
2041	\$569		\$3,715	\$143		\$3,571
2042	\$589		\$4,164	\$143		\$4,021
2043	\$611		\$4,637	\$143		\$4,494
2044	\$633		\$5,131	\$142		\$4,989
2045			\$4,995	\$142		\$4,853
2046			\$4,858	\$142		\$4,716
2047			\$4,721	\$134		\$4,588
2048			\$4,593	\$124		\$4,469
2049			\$4,474	\$112		\$4,361
2050			\$4,366	\$111		\$4,255
2051			\$4,260	\$110		\$4,150
2052			\$4,155	\$90		\$4,064
2053			\$4,069	\$69		\$3,999
2054			\$4,004	\$38		\$3,965
2055			\$3,970	\$35		\$3,935
2056			\$3,939	\$33		\$3,906
Totals	\$11,488	\$2,711		\$4,496	\$5,887	\$3,906

* Amounts are in Millions

* This Cash Flow page is part of a more comprehensive financial model and the entire model is necessary for a full understanding of the overall Finance Model that supports the Cash Flows.

I-95 - Model 6 P3
Cash Flows

Fiscal Year	Gross Toll Revenue	Total O&M	Net Revenues	Total Debt Service	R&R Reserve	Funding for Capital Improvements	Available to Equity	Senior Debt Service Coverage Ratio	Subordinate Debt Service Coverage Ratio	R&R Deposit Coverage
2020	\$250	\$61	\$189	\$93	\$18	\$79	\$0	4.1x	3.1x	5.3x
2021	\$312	\$63	\$249	\$102	\$20	\$127	\$0	4.9x	3.8x	7.5x
2022	\$357	\$64	\$293	\$118	\$21	\$154	\$0	5.2x	3.8x	8.3x
2023	\$397	\$65	\$332	\$128	\$21	\$182	\$0	5.9x	3.9x	9.5x
2024	\$428	\$67	\$361	\$147	\$22	\$192	\$0	6.3x	3.4x	9.8x
2025	\$452	\$69	\$383	\$149	\$32	\$201	\$0	6.6x	3.5x	7.3x
2026	\$476	\$71	\$405	\$151	\$33	\$222	\$0	7.0x	3.7x	7.8x
2027	\$501	\$73	\$429	\$153	\$34	\$242	\$0	7.4x	3.9x	8.2x
2028	\$527	\$74	\$453	\$155	\$35	\$264	\$87	7.8x	4.1x	8.6x
2029	\$554	\$76	\$478	\$161	\$35	\$282	\$89	8.3x	4.1x	9.0x
2030	\$582	\$78	\$504	\$161	\$36	\$307	\$134	8.7x	4.3x	9.4x
2031	\$612	\$80	\$532	\$161	\$37	\$334	\$201	9.2x	4.6x	9.9x
2032	\$642	\$82	\$560	\$161	\$38	\$361	\$295	9.7x	4.9x	10.4x
2033	\$673	\$84	\$589	\$161	\$39	\$389	\$389	10.2x	5.2x	10.9x
2034	\$706	\$86	\$620	\$161	\$41	\$418	\$418	10.7x	5.5x	11.3x
2035	\$740	\$88	\$651	\$161	\$42	\$449	\$449	11.3x	5.8x	11.8x
2036	\$775	\$91	\$684	\$161	\$43	\$481	\$481	11.8x	6.1x	12.3x
2037	\$811	\$93	\$718	\$161	\$44	\$514	\$514	12.4x	6.4x	12.8x
2038	\$849	\$95	\$753	\$161	\$45	\$548	\$548	13.0x	6.8x	13.2x
2039	\$888	\$98	\$790	\$161	\$46	\$584	\$584	13.7x	7.1x	13.7x
2040	\$928	\$100	\$828	\$161	\$47	\$620	\$620	14.3x	7.5x	14.2x
2041	\$970	\$102	\$868	\$161	\$48	\$659	\$659	15.0x	7.9x	14.7x
2042	\$1,013	\$105	\$908	\$161	\$49	\$698	\$698	15.7x	8.3x	15.1x
2043	\$1,058	\$108	\$951	\$160	\$51	\$740	\$740	16.6x	8.7x	15.6x
2044	\$1,105	\$110	\$995	\$159	\$52	\$784	\$784	17.6x	9.1x	16.1x
2045	\$1,153	\$113	\$1,040	\$158	\$53	\$829	\$829	18.8x	9.6x	16.6x
2046	\$1,203	\$116	\$1,087	\$150	\$55	\$883	\$883	22.9x	10.1x	17.2x
2047	\$1,255	\$119	\$1,136	\$138	\$56	\$943	\$943	32.6x	10.7x	17.9x
2048	\$1,309	\$122	\$1,187	\$124	\$57	\$1,006	\$1,006	54.9x	11.4x	18.6x
2049	\$1,364	\$125	\$1,239	\$104	\$59	\$1,076	\$1,076	406.3x	12.2x	19.3x
2050	\$1,422	\$128	\$1,294	\$102	\$60	\$1,131	\$1,131	586.2x	12.9x	19.8x
2051	\$1,481	\$131	\$1,350	\$92	\$62	\$1,196	\$1,196	917.1x	14.9x	20.4x
2052	\$1,543	\$134	\$1,408	\$75	\$63	\$1,271	\$1,271	1910.8x	19.1x	21.1x
2053	\$1,607	\$138	\$1,469	\$56	\$65	\$1,347	\$1,347	2054.1x	26.3x	21.8x
2054	\$1,673	\$141	\$1,531	\$33	\$66	\$1,432	\$1,432		45.9x	22.5x
2055	\$1,741	\$145	\$1,596	\$28	\$68	\$1,500	\$1,500		56.4x	23.0x
2056	\$1,811	\$148	\$1,663	\$25	\$376	\$1,262	\$1,262		65.9x	4.4x
2057	\$1,915	\$152	\$1,763	\$20	\$386	\$1,358	\$1,358		88.8x	4.5x
2058	\$2,024	\$156	\$1,869	\$16	\$395	\$1,458	\$1,458		119.5x	4.7x
2059	\$2,140	\$160	\$1,980	\$0	\$405	\$1,575	\$1,575			4.9x
2060	\$2,262	\$164	\$2,099	\$0	\$415	\$1,683	\$1,683			5.1x
2061	\$2,392	\$168	\$2,224	\$0	\$426	\$1,798	\$1,798			5.2x
2062	\$2,528	\$172	\$2,356	\$0	\$436	\$1,920	\$1,920			5.4x
2063	\$2,673	\$176	\$2,497	\$0	\$447	\$2,049	\$2,049			5.6x
2064	\$2,826	\$181	\$2,645	\$0	\$458	\$2,187	\$2,187			5.8x
2065	\$2,987	\$185	\$2,802	\$0	\$470	\$2,332	\$2,332			6.0x
2066	\$3,158	\$190	\$2,968	\$0	\$89	\$2,879	\$2,879			33.2x
2067	\$3,338	\$195	\$3,144	\$0	\$92	\$3,052	\$3,052			34.3x
2068	\$3,529	\$200	\$3,330	\$0	\$94	\$3,236	\$3,236			35.3x
2069	\$3,731	\$205	\$3,526	\$0	\$96	\$3,430	\$3,430			36.6x
2070	\$3,944	\$210	\$3,734	\$0	\$99	\$3,636	\$3,636			37.9x
Totals	\$73,617	\$6,156	\$67,461	\$4,886	\$6,276	\$2,947	\$54,157			

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