

draft report

Progress Report on the National Capital Region's Short-Term Transportation Capital Funding Needs

prepared for

National Capital Region Transportation Planning Board

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■ Introduction

The 2004 report *Time to Act: The National Capital Region's Six-Year Transportation Capital Funding Needs 2005-2010* detailed the region's capital needs and brought attention to a looming crisis that threatens the region's mobility, safety, and economic vitality. The study highlighted critical transportation needs, such as:

- Maintaining the safety, condition, and efficiency of the existing transportation infrastructure; and
- Implementing the capital enhancements and service improvements that are immediately needed to serve existing travel demand and projected growth.

The study reported that of the \$25.4 billion required to address these critical needs over the next six years, \$11.9 billion was expected to be available from funding sources that were already in place. The remaining \$13.5 billion corresponded to unfunded needs that would not be addressed unless additional funding was found and dedicated. These regional funding needs comprised the sum of the immediate funding needs identified for the District of Columbia, Suburban Maryland, and Northern Virginia, and the funding needs of the Washington Metropolitan Area Transit Authority (WMATA).

The goal of this progress report is to:

- Document what has happened since the 2004 report *Time to Act: The National Capital Region's Six-Year Transportation Capital Funding Needs 2005-2010*;
- Recognize the remaining financial challenges within the region; and
- Identify long-term financing options for the region.

■ What has Happened Since *Time to Act...*

The region has made some progress since the 2004 report. Under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the region on average is receiving more in Federal aid than it has in the past, due to an increase of 22 percent over previous authorized funding levels.

Critical programs such as Metro Matters are now being funded by the Metro Board for the short term, and vehicle fees have been adjusted in Maryland. Funding sources have been identified for the Intercounty Connector (ICC) in Maryland and for the Dulles Corridor in Virginia. Other proposed regional transportation revenue initiatives include new toll lanes on the Beltway and a new proposed dedicated Federal/regional funding source for Metro needs after Metro Matters¹: the “Davis Bill².”

Progress on Project Actions and Needs Reported in *Time to Act*

Several projects that were listed as critical unfunded needs from the 2004 report *Time to Act* are now underway or have been completed. Table 1 summarizes the status of some of the needed actions identified in *Time to Act*.

Table 1. Unfunded Needs as Reported in *Time to Act* and their Current Status

Unfunded Needs	Status
<i>District of Columbia</i>	
The District's share of the Metro Matters and other WMATA needs	Funding has been approved for the Metro Matters critical short-term needs
New transit services, including the light-rail starter line in Anacostia and a circulator transit service to ease downtown congestion	Downtown circulator service was initiated in the summer of 2005
Safety improvements to pedestrian crossings on major roadways	Expanded pedestrian safety program; plans are underway to install countdown signals at every signalized intersection

¹ WMATA's proposed Capital Improvement Program (FY 2005-2010) budget identified \$1.5 billion of unfunded critical capital needs for the WMATA system. To address this, participating jurisdictions agreed to provide the sufficient revenues through 2010.

² The Davis Bill would identify an additional \$3 billion for WMATA capital over the 10 years between 2007 through 2016. Under the bill, federal funds of \$1.5 billion and matching funds of another \$1.5 billion would come from dedicated funding sources in Maryland, Virginia, and District of Columbia.

Table 1. Unfunded Needs as Reported in *Time to Act* and their Current Status (continued)

Unfunded Needs	Status
Suburban Maryland	
A K Street Busway to ease the congestion caused by the closing of Pennsylvania Avenue and E Street	Downtown circulator on K Street was initiated in the summer of 2005; K Street Transitway alternatives and planning are nearing completion; design and construction is unfunded
Maryland's share of Metro Matters and other WMATA needs	Funding has been approved for the Metro Matters critical short-term needs
Completion of the ICC	The ICC has moved forward on a fast track for approvals and received the ROD (the official end of the project planning phase) on May 30, 2006; funding has been identified by the Maryland Transportation Authority (MdTA) and the remaining phases are underway or will be underway shortly
Improvements to major arterials and the Capital Beltway	Added construction phase for the MD 5 interchange on the Capital Beltway
Bi-County and Corridor Cities Transitways	Added funds for the Bi-County and Corridor Cities Transitways
Northern Virginia	
Virginia's share of Metro Matters and other WMATA needs	Funding has been approved for the Metro Matters critical short-term needs
New rail service in the Dulles Corridor	A Memorandum of Understanding was signed on March 27, 2006, between the Commonwealth of Virginia and the Metropolitan Washington Airports Authority (MWAA) to operate the Dulles Toll Road and to complete the Dulles Corridor Metrorail Project by constructing rail to Dulles Airport and beyond to Loudoun County
Service expansion, locomotives, and cars for the Virginia Railway Express (VRE)	<p>The VRE <i>Gainesville-Haymarket Extension Implementation Plan</i> to extend service west from Manassas was completed in 2005. VRE has received state funding to initiate preliminary engineering and environmental studies for the Gainesville-Haymarket Extension.</p> <p>State funding has been approved for preliminary engineering and environmental studies for the addition of an infill station in Prince William County and construction of a 3rd track in Prince William and Stafford Counties.</p> <p>Federal and state funding has been approved for the purchase of new rail cars to be put in to service beginning in 2007.</p>

Table 1. Unfunded Needs as Reported in *Time to Act* and their Current Status (continued)

Unfunded Needs	Status
Reconstruction of the I-66/U.S. 29 (Gainesville) interchange	The project design and planning is underway. The right of way phase is anticipated to get underway in the fall of 2007. The project is scheduled to be advertised for construction in 2013 with construction complete in 2017. The current project cost estimate is \$182 M including preliminary engineering, right of way, and construction. The project has about \$33M in allocations, with the balance of funding anticipated to be allocated in VA's future Six Year Programs.
Addition of a fourth lane on I-95 south of the Capital Beltway	The project design phase has been completed and the right of way is being acquired. The project is scheduled to be advertised for construction around July 2007 and construction is to be completed by summer of 2010. The project is estimated to cost about \$62M and is fully funded.
Reconstruction of Washington Boulevard and Arlington Boulevard bridges.	Reconstruction of this bridge is scheduled to be complete in July 07. Total cost of the project is \$7.8 million and is completely funded.
A new Alexandria DASH bus maintenance facility	The Alexandria Transit Company (ATC) has already acquired 10 acres of land and is planning to build a new bus facility, which will allow for significant expansion of transit services
WMATA	
Metro Matters program: <ul style="list-style-type: none"> • Rehabilitation and replacement of existing buses and railcars, and rehabilitation and upgrades of passenger facilities, electrical/mechanical systems, track and structures, and maintenance facilities • 185 more buses and 122 more railcars, with associated maintenance and support facilities, for immediate capacity enhancements • Safety and security improvements (\$150 million) 	With the Metro Matters Funding Agreement signed in October 2004, these critical needs have been taken care of through commitment from WMATA and the local jurisdictions
Improved pedestrian connections	Developed WMATA Station Area Planning and Access Guidelines
Improved customer facilities	Enhanced customer facilities with real-time information, new bus maps system and SmartTrip amenities

Progress on Other Projects Since 2004

Other projects have been completed or initiated since 2004. These projects were included in the categories shown in the *Time to Act* but were not discussed individually in the report.

Regional Projects

- On October 19, 2005, the Transportation Planning Board (TPB) amended the Fiscal Year (FY) 2006 Transportation Improvement Program (TIP) to include \$2.0 million over five years to initiate the Regional Transportation Coordination Program (RTCP, previously referred to as “CapCom”). The RTCP is guided by a Steering Committee which includes members from WMATA and the Departments of Transportation (DOT) in the District of Columbia (DDOT), Maryland (MDOT), and Virginia (VDOT). The intent of the RTCP is to facilitate coordination and information sharing among the region’s transportation agencies, as well as public information dissemination, during both everyday transportation incidents and regional emergencies.

District of Columbia Projects

- DDOT increased local road repaving has increased from 30 miles/year in FY 2003 to an average of 130 miles/year in 2005 and beyond;
- DDOT completed the \$7.5 million Eighth Street/Barracks Row streetscape from Pennsylvanian Avenue to the Navy Yard, including new brick sidewalks, Washington globe-style lighting, and a complete repaving and restriping of the street;
- DDOT completed the renewal of the historic M Street business corridor in Georgetown, from Key Bridge to Pennsylvania Avenue in 2004;
- DDOT coordinated with WMATA to open the first “infill” station on the Red Line between Union Station and Rhode Island Avenue in the spring of 2005;
- DDOT implemented the Downtown Circulator in 2005; and
- DDOT developed the Tunnel Management System (TMS), the first-in-the-nation comprehensive inventory of a jurisdiction’s tunnel assets, including structural, electrical, and mechanical components allowing for a reliable and optimized maintenance and rehabilitation schedule; and
- DDOT has cut the number of series circuits streetlights from 1,400 to less than 300, with plans to eliminate them completely in the next two years.

Maryland Projects

- Added the construction phase for MD 124 from Airport Road to Fieldcrest Road;

- Added the construction phase for a new interchange at MD 4 and Suitland Parkway;
- Added funds to replace the bridge on MD 450 over the CSX Railroad;
- Added the construction phase for extension of the MD 475 from South Street to Monocacy Boulevard;
- Added the construction phase for MD 35 interchange at Randolph Road/Montrose Parkway;
- Added additional funding to study managed lanes on I-270 and the Capital Beltway;
- Continued construction progress on the Woodrow Wilson Bridge. The first span was dedicated in May 2006 and the first phase project completion is expected by the early summer of 2006, with the second span to open in summer 2008;
- Continued funding of all WMATA commitments;
- Provided funds for the Takoma/Langley Park Transit Center; and
- Provided the Silver Spring Metro Station with state and local funding and a Federal earmark for a complete enhancement of the intermodal station and its area.

Virginia Projects

- Plans to add high-occupancy toll (HOT) lanes to the Beltway in Northern Virginia are moving forward. On January 20, 2005, the Commonwealth Transportation Board (CTB) approved High Occupancy Toll (HOT) lane concept as the preferred alternative for the Capital Beltway corridor. The project is based on a public-private partnership (PPP) agreement to build and operate Beltway HOT lanes in Northern Virginia, and is to be funded via toll revenues, private sector investments, and non-recourse bonds (on the basis of toll revenues).
- Four interchanges along Route 28 have been completed;
- The Springfield Beltway/I-95 interchange project (“the mixing bowl”) is nearing completion;
- The new Woodrow Wilson Bridge’s first span opened in summer of 2006, with the second span to open in summer 2008;
- A second railroad bridge at Quantico Creek, parallel to the existing crossing, is under construction and projected to be completed in 2007. The bridge is a pre-requisite to constructing a third track from Washington, DC to Fredericksburg, VA and expanding VRE service on the Fredericksburg line;
- VRE has initiated a phased program of station canopy extensions and platform extensions/additions;

- Design of additional parking facilities is underway for VRE's Burke Centre and Manassas stations. Construction of the Burke Centre parking garage is scheduled to begin in late 2006 while construction of the Manassas station parking garage is projected to begin in 2007; and
- Design of an expanded VRE maintenance facility and rail storage yard in Spotsylvania County is in progress. Construction is projected to begin in late 2006.

WMATA Projects

- The New York Avenue Station was opened for service;
- The Largo and Morgan Boulevard MetroRail Stations were opened in Prince George's County;
- SmartTrip fare media were introduced;
- Riders Advisory Council established; and
- Real-time information at transit stations/stops has been installed.

Finance Actions Since 2004

Listed below are specific finance actions taken by each of the jurisdictions since 2004. As mentioned previously, all jurisdictions committed to funding Metro Matters in order to meet WMATA's most critical short-term capital needs.

District of Columbia

- The District has committed to funding of the Davis Bill, but is contingent on similar actions to be taken in Maryland and Virginia;
- Dedicated some specific new funding sources to transportation; and
- DC achieved higher Federal funding under the new SAFETEA-LU legislation.

Maryland

- In 2004, Maryland implemented its first revenue increase for transportation in 12 years through modest increases in vehicle registration fees, which added new funding, 75 percent of which will be allocated to highways and 25 percent to public transportation;
- The record of decision for the ICC was issued on May 30, 2006. An additional \$18 million in Federal funding was made available for the ICC, with \$10 million dollars

of the \$18 million coming from funds that are beyond Maryland's normal share of Federal formula highway funds;

- ICC funding sources were identified and committed for the design and construction phases;
- Montgomery County significantly increased the local revenues committed to its critical transportation needs; and
- Maryland achieved higher Federal funding under the new SAFETEA-LU legislation.

Virginia

- Agreement was reached by the State and MWAA for the authority to complete all phases of the Dulles Corridor Metrorail Project;
- Agreement was reached between the State and private firms for a PPP to build and operate Beltway HOT lanes in Northern Virginia, funded via toll revenues, private sector investments, and non-recourse bonds (on the basis of anticipated toll revenues); and
- Virginia achieved higher Federal funding under the new SAFETEA-LU legislation.

WMATA

- The Metro Matters Funding Agreement was signed in October 2004;
- The Davis Bill (H.R. 3496) would authorize \$1.5 billion over 10 years in Federal capital funds for WMATA; would require an equivalent state or local match; and, among other actions, would enable 100 percent eight-car train operations; and
- WMATA achieved increased federal funding under the new SAFETEA-LU legislation.

Federal

Under SAFETEA-LU, the region is receiving more in Federal aid than in the past due to an increase level of authorized funding levels. However, the balances in the highway trust fund accounts, which provide funding for Federal-aid highways and public transportation, are being drawn down. The highway account of the trust fund is projected to be in deficit by 2009 when SAFETEA-LU is up for reauthorization and the transit account is expected to be in deficit shortly thereafter. There will still be revenue to fund the Federal programs, but more revenue will be needed in order to maintain the 2009 program levels into the future.

The potential decrease from current levels of Federal aid (unless new revenues are found) and the recent increase in transportation construction costs means that states and regions

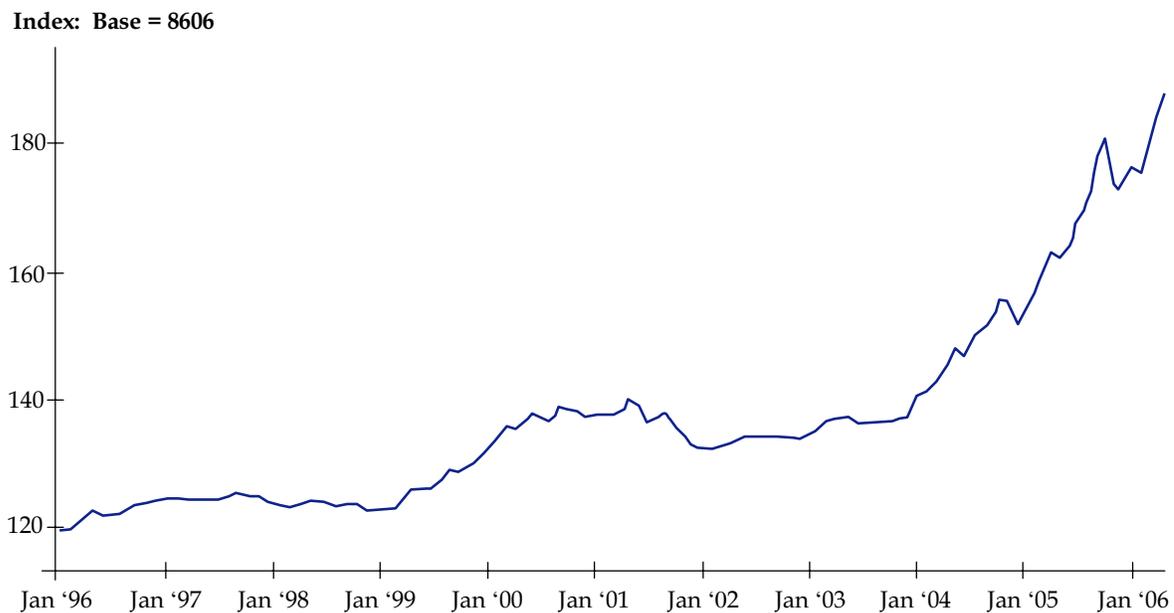
must reduce planned construction activities or must find ways to generate the needed revenues.

■ Challenges Remaining

Construction Costs are Increasing

Street and highway construction costs have increased drastically over the past few years. The escalation in costs can be attributed to several factors, such as increases in oil, asphalt, steel, and cement. The cost increases are approximated by Bureau of Labor Statistics (BLS) industry Producer Price Indexes (PPI), which weigh the producer prices of construction material by the proportions used by that industry segment. Figure 1 shows the PPI for Highway and Street Construction for the years 1996 to 2006. The index was relatively stable until 2004, but has increased dramatically since then. A *Time to Act* issues was issued just prior to this rapid increase in construction costs.

Figure 1. PPI Highway and Street Construction
Index 1996-2006



Source: U.S. Department of Labor Statistics, Bureau of Labor Statistics.

Congestion Continues to Grow

Transit

Metrorail ridership has continued to grow steadily at an average annual growth rate of four percent. The transit ridership capacity constraint that determines when ridership demand will exceed system capacity is set to 2010. New funding, such as the proposed Davis Bill, provides the necessary funds to increase system capacity and to meet forecasted ridership demands.

Highway

The TPB recently completed a study of the levels of congestion on freeways in the Washington region. This study concluded that the total lane miles of congestion have increased significantly since 2002 throughout both the AM and PM peak periods, with the greatest increase (64 percent) in the first hour of the PM peak period (4:30 to 5:30 p.m.). Table 2 lists the top 10 locations for congestion within the region.

Table 2. 2006 Constrained Long-Range Plan (CLRP) Projects and Studies on the 10 Most Congested Segments on the Freeway System

	Route	Period	From	To	Current Status
1	I-495 Inner Loop	PM	I-270	Connecticut Avenue	Beltway Study ongoing
2	I-395 Northbound	PM	VA 110	George Washington Parkway	HOV improvements New HOV/HOT lane study 14 th Street Bridge EIS to start
3	I-95 Northbound	AM	Dale Boulevard	Prince William Parkway	HOV improvements New HOV/HOT lane study
4	I-495 Inner Loop	AM	St. Barnabas Road	I-295	New Woodrow Wilson Bridge open 2006/2008
5	Frederick Douglass & 11 th Street Bridges Westbound	AM	Anacostia Bridges		Bridge improvements submitted for 2006 CLRP
6	I-395 Northbound	AM	VA 110	George Washington Parkway	HOV improvements New HOV/HOT lane study 14 th Street Bridge EIS to start
7	I-295 Northbound	AM	Suitland Parkway	11 th Street Bridge	11 th Street improvements submitted for 2006 CLRP
8	George Washington Parkway	AM	Spout Run	Key Bridge	No study or project
9	I-66 Eastbound	PM	Dulles Toll Road	Westmoreland Street	Idea 66 Study (WB only) suggested future studies
10	U.S. 50 Eastbound	PM	I-95/I-495	Martin Luther King Jr. Boulevard	No study or project

Source: National Capital Region Transportation Planning Board.

Conclusions

There have been many positive actions, but major challenges still remain. The region must examine new sources of possible future funding and must identify the critical steps needed to achieve more adequate funding for the unfunded maintenance, rehabilitation, and expansion needs of the transportation system. While specific project-based funding agreements such as HOT and toll lanes are important steps in the right direction, they are not substitutes for enhanced broad-based funding sources such as fuel taxes, vehicle fees, sales taxes, or other major dedicated sources. Although motor fuel taxes and other current user fees are feasible short- and mid-term sources, they may not necessarily be the best long-term solution.

Since the last time that Maryland or Virginia raised their state motor fuel tax rates, three-fourths of the other states have raised their motor fuel tax rates. Several states have indexed some or all of their motor fuels taxes to inflation or to petroleum prices, including Kentucky, Georgia, Maine, Nebraska, New York, North Carolina, Pennsylvania, and West Virginia. VMT fees (fees on vehicle miles of travel) are being considered in states such as Oregon as long-term options and could be considered as a viable future option for the region. Technologies are now being tested in Oregon for collecting VMT fees at the pump.

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■ Long-Term Financing Options for the Region

The National Capital Region needs additional revenues and new revenue sources in order to support its critically needed future transportation programs and projects. The vast majority of available future transportation revenues will be devoted to the maintenance and operations of the current transit and highway systems. Many desirable projects were identified during the 2000 and 2003 updates and in the 2004 publication “*Time to Act*” that could not be included in the CLRP under the funding constraints. This progress report on unfunded needs and revenues summarizes some promising revenue options for consideration by the region and its constituent jurisdictions.

The region must continue to examine new sources of possible future funding and identify the critical steps needed to achieve more adequate funding for the unfunded maintenance, rehabilitation, and expansion needs of the transportation system. Although the region is in the process of implementing HOT and toll lanes, these are only appropriate in particular circumstances and for specific corridors. While specific project-based funding agreements such as HOT and toll lanes are important steps in the right direction, they are not substitutes for broad-based funding sources such as enhanced taxes, vehicle taxes, or broad-based fuel taxes. In addition, although fuel taxes and other current user fees are feasible short- and mid-term sources, they may not necessarily be the best long-term solution. VMT fees are being considered elsewhere as long-term option and could also be considered as a potential long-term option for the region.

Potential Funding Sources for Evaluation

The greatest challenge to the region is the existence of multiple jurisdictions at several levels, each with its own tax base, tax structure, and tax policy. There are opportunities in each jurisdiction to develop new or enhanced revenue sources that can be part of an overall regional solution. Based on a recent report released by the American Association of State Highway and Transportation Officials (AASHTO) titled *Metropolitan-Level Transportation Funding Sources*, there is also the potential for developing metropolitan-level funding sources for planning and implementing regional transportation projects.

Successful transportation revenue-raising initiatives in other states and major metropolitan areas provide valuable lessons in how to successfully bring about new or enhanced revenue sources. A wide range of potential revenue sources is available to the region. Table 3 provides an overview of strategies for expanding existing highway and transit funding. The strategies are grouped by their primary purposes (e.g., to generate new revenue, to leverage current revenue, or to improve the efficiency of investment through better management) and are described in the first column. The columns in the center of the table show to what kind of needs the strategies can be applied. The table is not exhaustive, but provides a reasonably current and comprehensive overview of sources and applications. In some cases, legal restrictions on existing sources would have to be removed in some of the area’s jurisdictions.

Table 3. Candidate Revenue Sources

Specific Tool Primary Purpose	Modes			Scope		
	Highway/Bridge		Transit	Capital	Program	Project
	Preservation & Maintenance	New Capacity	Operations & Maintenance			
I. Revenue Generation						
Fuel Taxes						
Raising the motor fuel excise (per gallon) tax	X	X	X	X	X	
Indexing of the motor fuel tax (can be indexed to inflation or to other factors such as program costs)	X	X	X	X	X	
Sales tax on motor fuel	X	X	X	X	X	
Other motor fuel-related taxes	X	X	X		X	
Registration and Vehicle Fees						
Raising registration or related fees	X	X			X	
Vehicle personal property taxes	X	X			X	
Excise tax on vehicle sales	X	X			X	
Tolling and Pricing, and Other User Fees						
Tolling new roads and bridges		X				X
Tolling existing roads	X	X				X
HOT lanes, express toll lanes, truck toll lanes		X				X
VMT fees	X	X	X	X	X	
Transit fees (fares, park-and-ride fees, other)			X		X	
Local Option and Beneficiary Charges						
Beneficiary charges/value capture (special assessment impact fees) and tax increment financing		X	X	X		X
Permitting local option taxes for highway improvements	X	X			X	X
• Local option vehicle or registration fees	X	X			X	
• Local option sales taxes	X	X			X	
• Local option motor fuel taxes	X	X			X	
Permitting local option taxes for transit			X	X	X	
• Local option sales taxes			X	X	X	
• Local option income or payroll taxes			X	X	X	
General Revenue Sources						
General revenue	X	X	X	X	X	
Property taxes	X	X	X	X	X	
II. Financing Techniques						
Federal Initiatives						
Leveraging of Federal Grants						
GARVEE bonds		X		X	X	X
SIBs					X	X
Section 129 loans		X				X
Leveraging of User Fees or Tax Revenues with Credit Instruments						
TIFIA/RRIF assistance		X		X		X
Leveraging of User Fees and/or Tax Revenues with Tax Subsidies						
Private activity bonds		X		X		X
Tax credit bonds	X	X	X	X	X	X
State/Local Initiatives						
Leveraging of tax revenues (shadow tolls/availability payments)		X				X
Leveraging of user fees (asset leases)	X	X			X	

Provided below is information and case studies on some of the tools provided in Table 3.

Vehicle Miles of Travel (VMT) Fees – Some states are anticipating a time when the fuel tax may not be adequate to fund transportation improvement needs, and are researching alternative fees based on VMT. The University of Iowa conducted a study on the viability of such a system using global positioning systems (GPS) in 2002.³

- Oregon is also currently field-testing technologies for collecting mileage fees. The Oregon DOT (ODOT) is conducting a pilot test designed to demonstrate the technical and administrative feasibility of implementing an electronic collection system for mileage-based user fees and congestion tolls. The on-board technology was demonstrated in May 2004. Twenty trial vehicles were to be equipped with the on-board devices and undergo preliminary tests during 2005. After verifying successful functionality, 280 trial participants in Eugene, Oregon, are to have the on-board equipment added to their vehicles. For a period of one year, all participants will pay distance charges rather than the fuels tax (when they fill up at the station, the fuels tax will be deducted from the bill and the mileage charge will be added). At the conclusion of the study, ODOT expects to have demonstrated the feasibility of both mileage-based user fees and congestion pricing. ODOT intends to draft model legislation that will enable the Oregon State Legislature to consider adopting these programs on a statewide basis beginning sometime in 2007.

Gasoline or Motor Fuel Tax (Per Gallon) – The motor fuel tax is the most important source of highway revenue. This is comprised of the taxes on motor fuels such as gasoline, diesel, liquefied petroleum gas, and gasohol. Currently, each jurisdiction collects varying levels of all taxes including the gasoline tax:

- Virginia: 17.5 cents per gallon with a two percent tax in localities that are part of the Northern Virginia Transportation District (last adjusted in 1992);
- Maryland: 23.5 cents per gallon (last adjusted in 1992); and
- District of Columbia: 22.5 cents per gallon (last adjusted in 2004).

Indexing the fuel tax can protect existing fuel tax revenues from the impacts of inflation. Through indexing, fuel tax rates can be adjusted automatically with changing rates of inflation or other factors. Currently, several states adjust fuel tax rates based either on the consumer price index (CPI) or on changes in fuel prices. Florida, Maine, and Wisconsin adjust their fuel tax rates annually based on inflation; however, legislation authorizing Wisconsin to adjust the motor fuel tax rate has been rescinded. Other states, such as Kentucky, Nebraska, North Carolina, New York, Pennsylvania, and West Virginia, have a variable component that is adjusted based on the price of motor fuel. Therefore, the variable component is subject to fluctuations in fuel prices. If Virginia were to index the

³ Forkenbrock, David J., and Jon G. Kuhl. "A New Approach to Assessing Road User Charges." Iowa City, Iowa: Public Policy Center, The University of Iowa, July 2002.

gasoline fuel tax rates based on the CPI since the last change, it would yield 24 cents; Maryland's would be 33 cents. Figure 2 illustrates the cumulative gasoline taxes collected at all levels. As shown, Maryland, the District of Columbia, and Virginia fall well below the national average.

The revenue options related to motor fuel taxes, reviewed in this task as potential sources of additional revenue for transportation investments, include: 1) raising the motor fuel excise tax; 2) indexing the motor fuel tax; 3) sales tax on fuel; and 4) other taxes such as an oil company franchise tax (Pennsylvania) or a petroleum business tax (New York). Local option motor fuel taxes, along with other local option taxes, are addressed below.

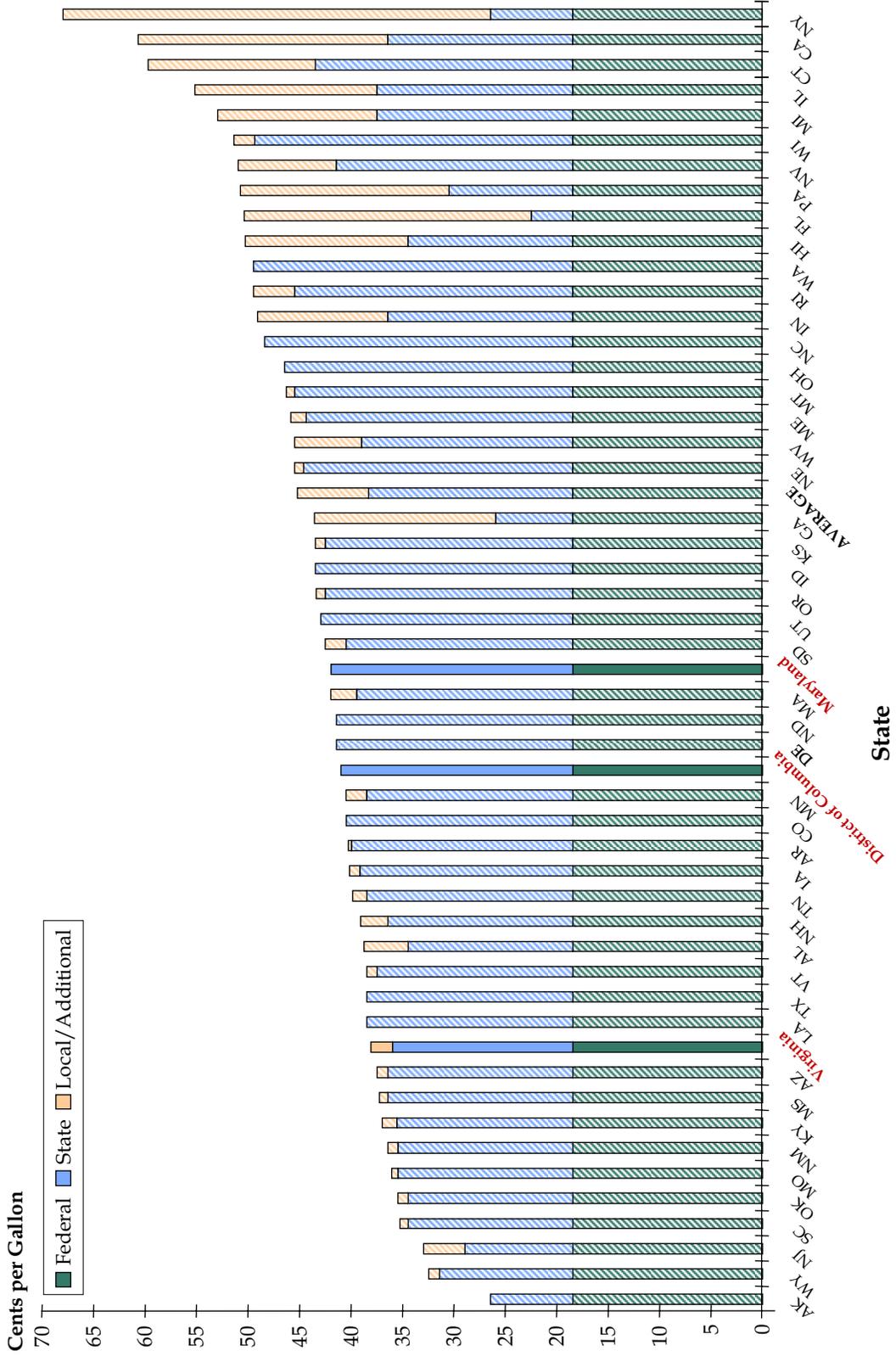
Motor fuel taxes account for most of the Federal revenues used for highway and transit programs and for almost half of the revenues used by states to fund highway needs. In 2004, \$29.2 billion in motor fuel tax levies were spent at the state level for highways. Furthermore, motor fuel tax revenues exceed two-thirds of the funding used for highways in Arkansas, Indiana, Mississippi, Montana, South Carolina, and Wisconsin. Motor fuel tax revenues are typically dedicated to transportation by statute and, in some states, these revenues are restricted for highways. In addition to being one of the main revenue sources for state highway expenditures, state motor fuel tax levies are also commonly distributed to local governments and are used to pay debt service on bonds issued for transportation projects.

At the local level, locally generated motor fuel taxes account for a smaller share of the funding used for highways. Highway Statistics reported that locally generated motor fuel taxes accounted for approximately three percent of the total local revenues for highways. Similarly, motor fuel taxes account for a small share of the revenue used for transit expenditures, accounting for two percent of the state and local revenues. At the local level, motor fuel tax revenues include those levies dedicated at state level but that are directly transferred to counties and municipalities, and local option gas taxes (LOGT) approved by voters at the local level.

Examples - Ohio and Washington State are among the states that have increased the motor fuel excise tax in recent years.

- **Ohio.** In 2002, the Ohio Legislature designated a task force to evaluate the status of the state gas tax and to provide recommendations on how to meet the State's transportation needs. As a result, the motor fuel tax rate was increased by six cents per gallon to 28 cents per gallon. The motor fuel tax rate was increased gradually, over a period of three years. Other changes enacted in association with the motor fuel tax increase included the elimination of motor fuel tax allocations to the Ohio State Highway Patrol. These revenues are now redirected to local governments.

Figure 2. Gasoline Taxes (Federal, State, and Local) as of April 2006



Source: American Petroleum Institute, 2006.

- **Washington.** Motor fuel tax rates have been increased twice during the last five years. First, the motor fuel tax rate was increased by five cents per gallon in 2003, as part of the 2003 “Nickel” Funding Package. This funding package also included an increase of 15 percent in gross weight fees on heavy trucks and a 0.3 percent increase in the sales tax on motor vehicles. The 2003 “Nickel” Funding Package will fund 158 projects over a 10-year period, for a total investment of \$3.9 billion. The five cent per gallon increase will expire when the projects are completed and when related debt is retired.

A second motor fuel tax rate increase of 9.5 cents per gallon was enacted in 2005 as part of the 2005 Transportation Package. This program will fund 274 projects (\$7.1 billion) over a 16-year period. The funding package consists of an increase to the motor fuel tax rate of 9.5 cents per gallon over four years, and other revenue tools, including a new vehicle weight fee on passenger cars. It should be noted that there is a continuing effort to repeal the second fuel tax increase.

Indexing the Fuel Tax to Inflation or Prices – Indexing the fuel tax can protect existing fuel tax revenues from the impacts of inflation. Through indexing, fuel tax rates can be adjusted automatically with changing rates of inflation or with other factors. Currently, several states adjust all or a portion of motor fuel tax rates based on either the CPI or changes in fuel prices. Florida, Maine, and Wisconsin adjust their fuel tax rates based on inflation annually; however, legislation authorizing Wisconsin to adjust the motor fuel tax rate has recently been repealed. Other states, such as Kentucky, Nebraska, North Carolina, New York, Pennsylvania, and West Virginia, have a variable component that is adjusted based on the price of motor fuel. Therefore, the variable component is subject to fluctuations in fuel prices.

Examples – Florida and North Carolina have indexed motor fuel taxes.

- **Florida.** Florida’s motor fuel tax is adjusted annually in proportion to annual changes in the CPI. While the motor fuel tax rate has been subject to adjustments since the early 1980s, the procedure to adjust the motor fuel tax rate was last modified in January 1997. The “tax floor” of 6.9 cents per gallon (in 1989 dollars) is indexed annually to the CPI. The state motor fuel tax rate was 10.5 cents per gallon in 2005, and increased to 10.9 cents per gallon in 2006.

Florida also levies a further gasoline tax surcharge called the State Comprehensive Enhanced Transportation System (SCETS) tax, which is also adjusted to the CPI. The SCETS tax was enacted in 1990, and varies by county. The tax rate is equivalent to two-thirds of all local option fuel taxes, not to exceed four cents per gallon (1990 dollars). Because all counties in Florida levy at least six cents in local option fuel taxes, the SCETS tax rate is now constant in all counties. The SCETS tax was 5.8 cents per gallon in 2005, and increased to 6.0 cent per gallon in 2006. The proceeds of the SCETS tax are not shared directly with local governments, but must be spent in the respective Florida DOT (FDOT) district and, to the extent feasible, in the county in which the funds were collected.

- **North Carolina.** The motor fuel tax rate in North Carolina has two components: 1) a fixed rate of 17.5 cents per gallon; and 2) a variable rate based on seven percent of the

average wholesale price of motor fuel, adjusted every six months. Because the variable rate is dependent of the average wholesale price of motor fuel, the variable rate has decreased when gasoline prices have dropped. In July 2002, the motor fuel tax rate went from 24.2 cents per gallon to 22.1 cents per gallon. The new motor fuel rate, effective January 2006, is 29.9 cents per gallon.

Sales Tax on Motor Fuel - In addition to the traditional motor fuel excise taxes, some states also collect sales taxes on motor fuels, including California (6.0 percent), Georgia (4.0 percent), Hawaii (4.0 percent), Illinois (6.25 percent), Indiana (6.0 percent), Michigan (6.0 percent), and New York (4.0 percent). These rates do not include any county or local taxes that may be also levied on motor fuel in these states. In some instances, revenues from sales taxes on motor fuel are not completely dedicated for transportation, as is the case of California and Georgia, where a portion goes to the general fund. In Indiana, none of the receipts of sales taxes on motor fuels is dedicated for transportation.

Examples - California and Georgia have sales taxes on motor fuels.

- **California.** California levies a motor fuel tax of 18 cents per gallon that goes into the Transportation Tax fund. In addition to the excise tax on motor fuel, sales taxes on fuel are collected at the state, county, and local levels. The state sales tax rate is 7.25 percent, of which 0.25 percent goes into Local Transportation Funds of counties and 2.0 percent goes to the counties General Fund. Revenues from the remaining 5.0 percent sales tax on gasoline and diesel go into the Transportation Investment Fund (TIF) and the Public Transportation Account (PTA), providing funding for state and local highways and public transportation. The transfer of motor fuel sales tax levies from the General Fund into transportation-related accounts was first introduced in the Transportation Congestion Relief Act of 2000, and made permanent through the passage of Proposition 42 in March 2002. However, the transfer of sales tax revenues into the TIF has been suspended as an emergency measure due to General Fund shortfalls in the past few years. Proposition 42 allows for the suspension of sales tax revenue transfers upon a two-thirds vote by the state Legislature and by the Governor. The 2006 State Transportation Improvement Program (STIP) assumes that sales tax revenues will be transferred into the TIF and PTA over the next five years.
- **Georgia.** Georgia levies a four percent sales tax on motor fuels for highway investments, in addition to a motor fuel excise tax of 7.5 cents per gallon. Only the revenues from three percent of the sales tax are dedicated to transportation, with the remaining levies going into the State's general fund. Starting on January 2004, instead of collecting the sales tax at the pump, motor fuel distributors and suppliers must collect a pre-paid state tax on all motor fuel sold. The pre-paid tax is calculated every six months, based on the average retail sales price of motor fuel. The pre-paid tax was estimated at 5.9 cents per gallon in January 2006.

Vehicle Sales Tax - Many states, regions, and local governments levy a sales tax on all goods or on most goods sold. The proceeds from the sales of vehicles most often accrue into the general funds of the states and the tax is levied as a percentage of the purchase price. Vehicle sales taxes could be dedicated to transportation.

Raising Vehicle Registration or Related Fees – Vehicle taxes include registration and related fees and are an important source. In 2004, states collected \$14.4 billion in vehicle registration fees. Highway Statistics data show that 90 percent of California’s motor vehicle-related revenues came from motor vehicle registrations.

Vehicle registration fees vary by vehicle class. For light vehicles, many states have a flat fee, whereas other states base the vehicle registration fee on weight or a combination of weight, age, horsepower, and value. For heavy vehicles, most vehicle registration fees are based on weight and are graduated based on each state’s unique, legislatively defined schedule for vehicles of different weights. The heavy vehicle fee categories are specific to each state.

License and title fees generated approximately \$2.5 billion in 2004. License and title fees generate modest revenues for transportation and, where dedicated for transportation, are mainly used to cover administrative costs, rather than provide a net source of revenue for capital projects or maintenance expenditures.

Property Taxes – Property taxes play an important role for funding highway needs at the local level. In 2004, about 21 percent of the total local highway funding in the nation came from property taxes. For example, local governments in Massachusetts and Vermont rely significantly on property tax revenues to support their highway-related investments.

Property tax revenues represented only 1.4 percent of total transit revenues.

Personal Property Taxes on Vehicles – Some states and localities levy a personal property tax on vehicles. These fees are in effect registration fees based on the value of the vehicle. These fees have been highly responsive to inflation, because the value of the vehicles owned has continued to increase. These fees have the strong advantage for vehicle owners in that they are deductible for those who itemize when filing their Federal income taxes. Motor fuel taxes, traditional registration fees, and sales taxes, which are also major sources for transportation, are not deductible. Thus, if a state wishes to raise revenues under the existing Federal tax structure but with minimal impact on net taxes for its citizens, personal property taxes on vehicles are a very attractive source.

Despite the advantages of such fees to a state and its citizens, opponents of such fees have recently mounted campaigns to reduce or eliminate these fees in Virginia and Washington State. These fees were targets at least partially because of their visibility. An individual taxpayer has to write a separate check for these fees, whereas a motor fuel tax collected at the pump may be relatively less visible and is paid over many purchases of motor fuel each year.

Excise Tax on Vehicle Sales – Vehicle sales taxes are normally levied as a percentage of the sales price of a vehicle when it is purchased or first registered in a state. Currently, a few states collect vehicle sales taxes that are dedicated for transportation, including Nebraska, Minnesota, Missouri, Kansas, North Carolina, and South Dakota.^{4,5}

Examples – Nebraska and Missouri tax vehicle sales.

- **Nebraska.** Sales tax collected on the purchase of motor vehicles are dedicated to transportation. The sales tax revenues on motor vehicles are collected by the counties and deposited into the Highway Trust Funds. The Highway Allocation Fund for local governments receives 46.7 percent of the revenues, and the Nebraska Department of Roads (NDOR) receives the remaining 53.3 percent. In FY 2005, \$143.0 million were deposited into Nebraska’s Highway Trust Fund.
- **Missouri.** In Missouri, a portion of the vehicle sales and use taxes are dedicated for transportation needs. Half of the revenues from the four percent sales tax on motor vehicles is distributed among the Missouri DOT (MoDOT) (75 percent), cities (15 percent), and counties (10 percent) for transportation expenditures, including public transportation (from MoDOT’s share). Amendment 3, which was approved by voters in November 2004, redirects the sales tax levies that were deposited into the General Fund to the State Road Bond Fund, which will be used primarily to pay debt service through FY 2009. The transfer of sales tax revenues will be phased over a four-year period, starting in July 2005. After FY 2009, excess revenue in the State Road Bond Fund (after debt service payments are met) can be redirected to the State Road Fund to cover other transportation-related needs.

A use tax of four percent on the purchase is collected on vehicles that are not subject to the Missouri sales tax at the time of purchase. From the four percent use tax on motor vehicles, MoDOT receive all levies from three percent of the use tax on motor vehicle, and 75 percent of the remaining one percent use tax. Cities and counties receive 25 percent of the revenues from the one percent use tax. MoDOT received \$177.7 million in FY 2004 and \$181.5 million in FY 2005 from the vehicle sales and use tax.

Value Capture (Land Taxes and Special Assessment Districts) – Value capture seeks to return to jurisdictions some of the increase in property value due to the improvement of publicly funded transportation facilities and services. This can be accomplished through taxes on assessed land values. Special Assessment Districts are special property taxing districts where the cost of infrastructure is paid for by properties in identified areas that

⁴ U.S. Department of Transportation, Federal Highway Administration. *Highway Taxes and Fees – How are they Collected and Distributed?* Washington, D.C., 2001. Table S-106. Available at <http://www.fhwa.dot.gov/ohim/hwytaxes/2001/index.htm>.

⁵ In Minnesota, Motor Vehicle Sales Tax transfers from the General Fund for highway and transit expenditures were restored in 2003, after being entirely eliminated in 1991. More information available at <http://www.house.leg.state.mn.us/hrd/issinfo/ssmvst.htm>.

are deemed to benefit from the infrastructure. Value capture taxes should be applied to assessed land values that reflect infrastructure-created value – but are often applied to the assessed value of land and buildings combined. The District of Columbia used a special assessment district to finance one-third of the cost of a new Metrorail Station at New York and Florida Avenues, NE. Virginia has used special assessment districts to help finance road and highway improvements.

Tax Increment Financing (TIF) – TIF is a technique for segregating and dedicating a portion of property tax revenues for the finance of particular infrastructure investments. Bonds are issued to finance public infrastructure improvements, and repaid with dedicated revenues from the increment in property tax revenue increases that occur after such improvements are made. This technique is based on the assumption that all increments in property value (and property tax revenues) are due to an infrastructure investment. This assumption is generally false but has been accepted as a way to justify dedicating a portion of property tax revenues to infrastructure in such a way that the infrastructure being financed does not have to compete for funds with other public expenditure needs.

Adequate Public Facilities – The flip side of “impact fee” legislation is “adequate public facilities” legislation. This legislation prohibits development where the development would create conditions that exceed the capacity of the existing public infrastructure to accommodate potential users. Capacity is calculated for key public facilities such as schools, roadways, water and sewer systems, etc. Montgomery County has an adequate public facilities ordinance.

Parking Taxes and Fees – The District of Columbia imposes a 12 percent sales tax on commercial parking transactions. Some parking escapes this tax because it is provided for free. The District enacted the Clean Air Compliance Fee Act in 1995, but Congress repealed it before implementation. The National Capital Planning Region Transportation Board (TPB) has calculated the revenue and pollution reduction impacts of a \$1.00 per day parking fee in the region. Parking meters also are a potential source of revenues.

Local Option Taxes – Local options taxes have been adopted in one form or another in at least 46 states.⁶ They include mechanisms such as state-authorized local options sales, gasoline, income, and vehicle taxes and fees. The application and level could be at the local or regional level. These taxes are often dedicated to specific transportation projects or programs. Listed below are specific examples of local option taxes.

- **Transportation User Fee.** The City of Austin, Texas, has an innovative way of financing transportation infrastructure that rewards households that reduce their vehicle ownership. City utility bills include a “Transportation User Fee” (TUF), which averages \$30 to \$40 annually for a typical household (City of Austin Code 14-10). This charge is based on the average number of daily motor vehicle trips made per property, reflecting its size and use. The City provides exemptions to residential properties with

⁶ University of California at Berkeley. *Local Options Taxes in the United States*. March 2001.

occupants that do not own or regularly use a private motor vehicle for transportation, or if the user is 65 years of age or older.

- **Local Option Gas Taxes (LOGT) - Florida.** Local governments in Florida have the option of implementing up to 11 cent per gallon on local gas taxes for funding transportation improvement projects, including transit. There are three types of LOGT: the First LOGT (up to six cents on gasoline and diesel), the Second LOGT (up to five cents on gasoline only), and the Ninth-Cent Gas Tax (one cent on gasoline and diesel). Since 1994, the Ninth-Cent gas tax is no longer optional for diesel. Of the 67 counties in Florida, 16 counties levy the maximum rate (i.e., 11 cents per gallon) of local gas tax. Most counties levy at least six cents per gallon from the First LOGT. However, the First LOGT rate is five cents per gallon in Franklin and Union counties, although Union County also collects the Ninth Cent gas tax, which brings its local gas tax to six cents per gallon.
- **Vehicle Taxes - Ohio.** Local governments in Ohio can levy up to \$20.00 in vehicle license registration fees, in increments of \$5.00. Revenues from the local motor vehicle license fees must be used for roadway and bridge projects. A study conducted in 2000 by the Ohio Legislative Budget Office found that 67 percent of the counties, 52 percent of the municipalities, and 23 percent of the townships had enacted vehicle license fees.
- **Sales Taxes - Missouri.** Local governments in Missouri have the authority (subject to voters' approval) to implement local sales taxes, ranging from one-eighth percent to one percent, for capital improvements and transportation-specific improvements (including roadways, bridges, and transit capital and operations).
- **Property Taxes - Michigan.** Michigan legislation allow for the implementation of property taxes dedicated to public transportation. In 2004, 13 counties in Michigan voted to continue or increase property taxes to support public transportation investments. In 2005, six property tax proposals were approved by voters, including a three mills renewal in the City of Saginaw that was defeated in 2004.
- **Income or Payroll Taxes - Oregon.** Lane County Transit and the Tri-County Metropolitan Transportation District of Oregon (TriMet) levy 0.6 percent and 0.6418 percent, respectively, in payroll and self-employment taxes, which are dedicated to public transportation. In the Lane County Transit District, payroll taxes generated approximately \$21.3 million in 2005. For TriMet, payroll taxes accounted for almost 52 percent of the operating revenues, levying \$157.3 million in 2005. In 2003, the Oregon Legislature authorized TriMet to increase the payroll tax rate by 1/100 percent every year, over a 10-year period.

Tolling, Pricing, and Other Direct User Fees

As of December 2005, toll facilities in the United States accounted for approximately 5,100 miles of roads, bridges, and tunnels.⁷ In 2004, state and local governments used \$6.6 billion in tolls for highway investments or approximately seven percent of total revenues used for highways at the state and local level. Many states are using the promise of tolls as a way of generating new revenue. The most promising candidates for future toll facilities are for new roads or when adding additional lanes to existing roads. Texas has all but made the policy decision to fund new limited-access highway capacity at least partially through tolls, and to refrain from tolling of existing lanes. A number of states are considering the idea, and yet others are not ready to embrace such policies.

Tolling New Roads or Bridges - Users incur a toll for use of new roads, bridges, and special lanes. The toll rate typically does not vary by time of day or day of week. Listed below are some examples of toll road projects from Texas and Florida.

Examples - Texas and Florida have extensive programs to toll new roads.

- **Texas.** In Texas, tolling is currently used primarily in the two large metropolitan areas of Dallas and Houston. The amount of revenue from tolling at all levels of government in Texas ranged from 2.5 to 5.0 percent in recent years, according to Highway Statistics Tables SF-1 and HF-1. In Dallas, the Metroplex Toll Financing System (MTFS) allows the Texas DOT (TxDOT) and/or the North Texas Tollway Authority (NTTA) to make toll projects available for investment by other entities that would then receive returns on their investments, as well as benefit through accelerated project development and completion. Candidate MTFS projects would be those toll projects that can reasonably be expected to generate toll revenues beyond the level necessary to pay debt and expenses. These candidates could be designated MTFS projects and represent an opportunity for local entities to partner in the investment, thereby sharing in any surplus revenues generated by the toll project. For example, if City A were to contribute 10 percent of the funding for Project X, then that city would receive 10 percent of the surplus revenues from Project X. This surplus revenue could provide an ongoing funding source for the city to use in other transportation projects. In keeping with the premise of regional project support, first choice to invest in a MTFS toll project would belong to those cities and counties directly affected by a project. Contributions are not limited to cash, but include donated rights-of-way, design, or other contributions to the value of the total project. Also in Texas, the Texas Mobility Fund is a revolving fund that is designed to back bonds that are pledged towards the construction of highway projects. The proceeds from the sale of these bonds could be used to finance construction on state-maintained highways, publicly

⁷ U.S. Department of Transportation, Federal Highway Administration. "Toll Facilities in the United States," 2005. Available at <http://www.fhwa.dot.gov/ohim/tollpage.htm>.

owned toll roads, and any other project that is eligible for the State's Highway Fund.⁸ As of December 2005, nine toll projects were under construction or underway in Texas, of which the largest is the State Highway 130 (SH 130) around Austin.

The Trans Texas Corridor is an ambitious Texas initiative designed to relieve current congestion problems throughout the State while also establishing transportation corridors for the future. Four corridors have been identified as priority segments, all of which run parallel to existing or planned Interstate highways. These corridors would parallel I-35 and I-37, sections of I-45, and I-10, and serve as the new I-69 corridor. The plan calls for a network of corridors up to 1,200 feet wide with six lanes for passenger vehicles and four separate lanes for trucks. In addition, the corridor will include six rail lines, with dedicated tracks for high-speed passenger service, high-speed freight service, and shared lines for conventional commuter and freight service. Finally, a 200-foot-wide strip alongside the road lanes and rail lines will be included for the placement of utilities. The total length of the corridors is 4,000 miles, with preliminary construction costs estimated at \$125 billion and total project costs considerably higher. Funding for the project will be derived from a variety of sources, including tolls, PPPs, and government funding. Comprehensive Development Agreements (CDA) will likely be used to reduce the time required for the completion of individual segments. A CDA is currently in negotiation with an international consortium for I-35 development.

- **Florida.** Florida, which has an extensive network of toll roads, derived between 8.2 and 11.2 percent of its annual highway revenue for all levels of government from tolling in recent years according to Highway Statistics. Since 1990, Florida's Turnpike opened nine new system interchanges, added 39 lane-miles of widening projects, and made substantial improvements to toll plazas, service plazas, and other facilities. The Turnpike also made substantial investments in electronic toll collection (ETC) and intelligent transportation systems (ITS). The current 10-year finance plan, covering the period FY 2003 through FY 2012, has a number of significant widening and improvement projects. These will produce a total of 150 lane-miles of widening and 11 interchange improvement projects.⁹ Florida also has a system whereby it encourages the development of new toll projects by leveraging the revenue stream of the Turnpike Enterprise. It does this by providing loans from the Toll Facilities Revolving Fund, and also by providing revenue support for the early years of toll operation for new projects, with flexible and liberal payback terms.

Tolling Existing Roads - Tolling existing facilities is a much more challenging undertaking and is prohibited on the Interstate System with a few exceptions. Although the Transportation Equity Act for the 21st Century (TEA-21) had provision for three states to test putting tolls on existing Interstate's for reconstruction, no state successfully advanced a project. In early March 2003, VDOT requested approval to toll I-81 from the

⁸ Texas Department of Transportation, Texas Mobility Fund, <http://www.dot.state.tx.us/txdotnews/txmobilfundplan.htm>.

⁹ Florida's Turnpike, <http://www.dot.state.fl.us/turnpikepio/NewWebPages/future.html>.

U.S. Secretary of Transportation and submitted an application for tolling. A toll impact study was conducted to determine the effects of traffic diversion from I-81 to other roadways as a result of implementing different toll scenarios. A Draft Environment Impact Statement (EIS) has been completed as of the spring of 2006; the decision for tolling will be made after the Final EIS is submitted to the Federal Highway Administration (FHWA) for approval.

The Interstate reconstruction toll pilot provision was extended in SAFETEA-LU, with changes intended to make it easier for states to take advantage of the provision. Also, a new program to allow three Interstate highways to be constructed as toll roads was added in SAFETEA-LU. Several states are now looking seriously at these provisions of SAFETEA-LU.

Special Lanes (Express Lanes/FAIR Lanes, Truck Lanes)

High-Occupancy Toll (HOT) Lanes - These are lanes for which single-occupancy vehicles (SOV) buy the right to use the excess capacity available in exclusive lanes that are otherwise reserved for high-occupancy vehicles (HOV) that pay no tolls. HOT lanes allow an SOV to pay a toll to use HOV lanes that have excess capacity. The first conversion of HOV lanes to HOT lanes opened in San Diego in the mid-1990s, and an extension of that project is now being planned.

In May 2005, the first lanes on I-394 in Minneapolis opened to traffic, and the I-25 HOT lane is due to open in Denver summer 2006. Each of these is described below.

- **Minnesota - I-394 HOT Lane (MnPASS).** The first HOT lane to open for quite awhile just opened recently in Minneapolis, where the existing HOV lane on I-394 was converted to a HOT lane. The project extends for nine miles in one direction (11 in the other), with part of the project a single lane in each direction and the remainder two lanes reversible. I-394 is different from previous HOT lane projects in these ways:
 - Most of it is a single lane in each direction, with only a double-white stripe separating the HOV/HOT traffic from the general purpose traffic. There are zones where there are breaks in the striping to allow drivers to enter or exit the facility. This is in contrast to the single on- and off-points on previous projects.
 - There are two tolling zones, and prices change dynamically every three minutes, based on traffic density in the HOT lanes. Drivers are shown the price to use either one or both tolling zones at the beginning of their trips, with the price at entry guaranteed, regardless of any price changes by the time they get to the new sections.
 - Enforcement of the HOV and tolling is done by roving patrol vehicles. Some patrol cars are equipped with enforcement transponders that allow them to query the transponders of vehicles in the toll lane that do not have more than one occupant.¹⁰

¹⁰Minnesota Department of Transportation, MnPASS, <http://www.mnpass.org/>.

- **Colorado - I-25 HOT Lanes.** The I-25 HOT Lane Project in Colorado is scheduled to open in the summer of 2006. This project is a conversion of the existing I-25 HOV facility. State law currently maintains free access for HOV 2+ vehicles, motorcycles, Inherently Low Emission Vehicles (ILEV), and hybrids. The Colorado DOT (CDOT) is currently seeking a change in state statutes for the hybrids to become tolled. The important constraints on this project are as follows:
 - The full funding grant agreement between the Federal Transit Administration (FTA) and the Regional Transportation District (RTD) specifies that net revenues must go to transit;
 - Bus travel times take precedence over all others using the facility, meaning that the addition of SOV traffic should not impact bus operations; and
 - Entering and exiting loading constraints for the facility into the downtown Denver grid network mean that the pricing for this facility will be on a published toll schedule to be updated periodically, rather than with dynamic pricing.

The revenue priorities for this project are to cover operations, maintenance, enforcement, and rehabilitation. The project is not anticipated to generate additional net revenue within the first 10 years of operation.¹¹

HOT lanes are not always conversions of existing HOV lanes. The 91 Express Lanes that opened in Orange County, California, in the mid-1990s was a public-private venture that involved building four new toll lanes in the median of an existing freeway. On these lanes, HOV 3+ vehicles can drive for free during most hours, and must pay 50 percent of the full toll at the busiest times.

Other toll express lane projects are under consideration around the country, and are being encouraged through SAFETEA-LU with an Express Lanes Demonstration Program. Although these are toll facilities, in many cases, the tolls may not be adequate to pay for the cost of construction. However, such facilities are being considered for their effectiveness at providing congestion-free travel at all times of day, despite the fact that all capital costs may not be paid for by tolls.

The National Capital Region's current long-range transportation plan includes four new HOT lanes along 15 miles of the Capital Beltway in Virginia, and six new variably priced lanes along 18 miles on the Inter-County Connector in Montgomery and Prince George's Counties in Maryland. Virginia is also exploring the possibility of converting existing HOV lanes along the I-95/395 corridor into HOT lanes. Maryland is studying express toll lanes along I-495, I-95 and I-270, as well as along other facilities.

Truck-Only Toll (TOT) Lanes - TOTs are toll roadways or lanes for exclusive truck use. TOT lanes have been studied in the Los Angeles region on SR 60 and I-710, both of which are heavily utilized by trucks accessing the Ports of Los Angeles and Long Beach. The preliminary Los Angeles region studies found that urban TOT lane facilities would need

¹¹Colorado Department of Transportation, North I-25 HOT Lanes Study, <http://www.i25hotlanes.com/>.

to overcome challenges that include truck trips of short lengths, limited travel time savings during off-peak periods, and significant construction costs and geometric constraints related to adding lanes in an urban environment.

Another TOT lane concept involves urban corridors, which do not necessarily allow longer or heavier vehicles. Such a system of TOT lanes has been recently studied in the Atlanta metropolitan areas, with the findings that TOT lanes had a high potential for relieving congestion, potentially even more so than HOV or HOT lanes. Some of the scenarios studied involved the conversion of existing and planned HOV lanes to TOT lanes. Such a policy would be unprecedented, and politically very difficult to implement. However, the study does point the way towards the potential for TOT lanes in dense urban regions with heavy truck demands.¹²

Transit Fares and Other Fees - Transit fares and other operating revenues were reported at \$10.9 billion in 2004, accounting for 28 percent of the total revenues used for transit expenditures at all levels of government. Although most agencies dedicate these revenues to transit Operations and Maintenance (O&M) costs, a few agencies use transit fares to support their capital programs. Other operating revenues also include parking fees, investment income, advertising revenues, leases, and concessions, to mention a few. While these revenues sources represent additional opportunities for agencies to generate additional resources, the revenue potential is limited in comparison to other sources, such as dedicated taxes.

- **Chicago Metra.** Since 1989, Metra has dedicated the farebox revenues from a five percent fare increase to its capital program. In 2004, the capital farebox financing revenue was \$9.1 million. In addition, Metra is required by statute to have an operating ratio (i.e., operating revenues/operating expenditures) of 55 percent.
- **New York Metropolitan Transportation Authority (MTA).** The New York MTA operates the bus, rapid transit, and commuter rail services in the New York Metropolitan Area. In addition, it operates seven bridges and two tunnels under the Triborough Bridge and Tunnel Authority. MTA toll revenues are used to pay for the operating expenditures and debt service of these bridges and tunnels, and the excess toll revenues are dedicated to support public transit needs (including debt service).

Financing Techniques

Federal Initiatives

Grant Anticipation Revenue Vehicle (GARVEE) Bonds - The GARVEE borrowing tool was created in 1995 as part of the National Highway System (NHS) Designation Act and is now codified as Section 122 in Title 23, U.S. Code. A GARVEE can be any “bond, note,

¹²Georgia State Road and Tollway Authority. *Truck-Only Toll Facilities: Potential for Implementation in the Atlanta Region*, July 2005. Available at <http://www.georgiatolls.com/>.

certificate, mortgage, lease, or other debt financing instrument issued by a state or political subdivision,” whose principal and interest is repaid primarily with Federal-aid funds. The NHS Act allowed debt-related costs, including interest to be eligible. It also eliminated provisions that restricted the amount and timing of advance construction authorizations. Together, these modifications enable state and other grant recipients to issue long-term bonds to fund a Federal-aid eligible project, and annually “convert” the Federal share of the debt service payment as a reimbursable cost. The FHWA program regulations allow the state or other project sponsor to cash-fund its matching share through a discounted up-front contribution, so that the entire debt service payment is Federal-aid eligible.

GARVEE bonds effectively allow state/local project sponsors to monetize a portion of their anticipated future years’ Federal-aid in order to accelerate large projects. By doing so, states avoid either having to defer the project until funds are accumulated on a pay-as-you-go basis or bump other projects. The bonds payable from Federal-aid reimbursements may be issued on a stand-alone basis (i.e., not additionally secured by state resources). An important consideration for any state contemplating a GARVEE issuance is the extent to which the state is willing to place claims on future Federal funding, as a GARVEE issued today means debt service payable tomorrow – and commitment of Federal monies that would otherwise be available to fund pay-as-you-go projects. Some states may need enabling legislation to issue GARVEEs that may include clauses that place limits on the volume of GARVEE debt that can be issued. Fourteen states plus Puerto Rico and the Virgin Islands have issued GARVEE bonds, totaling \$4.8 billion.

- **Oklahoma.** Oklahoma’s first GARVEE issue of \$50 million was sold in March 2004. In August 2005, the State issued an additional \$48.9 million in GARVEE bonds as part of the financing for the Governor’s 12 identified corridors of “economic significance.” These issues are part of an anticipated \$799 million program authorized by the legislature in 2000, of which \$500 million is expected to be funded with GARVEE bonds. Within these corridors, the State is anticipating issuing a total of \$300 million of GARVEE bonds by October 2007, with an additional \$200 million planned after that date. It is expected that improvements within these identified corridors will enhance the business climate throughout the State. Examples of the proposed projects include U.S. 77 Broadway Extension in Oklahoma City, I-44 in Tulsa, and U.S. 183 from U.S. 70 to I-40 in Southwest Oklahoma.
- **Kentucky.** In May 2005, the State issued \$139.6 million in GARVEE notes that have maturities ranging from 2005 through 2017. This issue was the first tranche of a phased GARVEE program that focuses on the widening of the I-65, I-75, and I-74 from three to six lanes. The notes are insured by MBIA Insurance Corporation and received underlying ratings of AA- from Fitch Ratings and Standard & Poor’s and Aa3 from Moody’s Investors Service. The Kentucky General Assembly has approved a total program of \$400 million for these three widening projects that will increase the state highway system’s ability to accommodate freight and people movement. Future bonds will have to be individually authorized.

State Infrastructure Banks (SIB) – SAFETEA-LU establishes a new SIB program under which all states, Puerto Rico, the District of Columbia, American Samoa, Guam, the Virgin Islands, and the Commonwealth of the Northern Mariana Islands are authorized to enter into cooperative agreements with the Secretary to establish infrastructure revolving funds eligible to be capitalized with Federal transportation funds authorized for FY 2005-FY 2009. SIBs authorized by the NHS Designation Act and TEA-21 may continue to operate. States participating in the new SIB program may capitalize the account(s) in their SIBs with Federal surface transportation funds for each of FY 2005-FY 2009 as follows: Highway account – up to 10 percent of the funds apportioned to the state for the National Highway System Program, the Surface Transportation Program, the Highway Bridge Program, and the Equity Bonus; Transit account – up to 10 percent of funds made available for capital projects under Urbanized Area Formula Grants, Capital Investment Grants, and Formula Grants for Other Than Urbanized Areas; Rail account – funds made available for capital projects under Subtitle V (Rail Programs) of Title 49, U.S. Code. The state must match the Federal funds used to capitalize the SIB on an 80:20 Federal/non-Federal basis, except that for the Highway Account, the sliding scale provisions apply.

The new program gives states the capacity to increase the efficiency of their transportation investments and significantly leverage Federal resources by lending, rather than granting, Federal-aid funds, and attracting non-Federal public and private investment. Among the advantages to borrowers are that funds may be loaned on a low-interest basis, and they may be secured by a junior lien on pledged revenues, facilitating loans by other entities. From the state's perspective, loan repayments may be recycled as received into new projects.

There are currently 33 states participating in the NHS and TEA-21 SIB programs. These states have issued more than \$5.0 billion in authority. No states have entered into cooperative agreements for SAFETEA-LU SIBs to date.

- **Florida.** To date, Florida's SIB portfolio consists of 50 loans with a value of approximately \$87 million. In June 2005, FDOT issued \$62.3 million in revenue bonds secured solely by the repayment stream of the existing loan portfolio. There continues to be a strong market for the SIB with the expansion of program eligibility to include all modes of transportation. The demand for the program is expected to continue with a broader application of loans to many new modes of transportation during future award cycles. As part of growth management legislation passed in 2005, Florida's SIB received a one-time capitalization of \$100 million to be applied to projects of regional impact. With the additional lending capacity, the size and duration of the loan portfolio will likely shift to borrowers with larger projects and more diverse repayment sources.
- **Arizona.** Arizona's Highway Expansion and Extension Loan Program (HELP) has been one of the nation's most active SIBs, ranking third nationally in loan activity. A seven-member HELP Advisory Committee accepts loan applications, reviews and evaluates requests for financial assistance, and makes recommendations to the State Transportation Board on loan and financial assistance requests. To date, the Transportation Board has approved 49 loans totaling \$564 million. The program has

been used throughout Arizona with loans in 14 of Arizona's 15 counties, benefiting both rural and urban areas. Each of the three major regional areas of the State – Maricopa County, Pima County, and statewide (the other 13 counties) – have received substantial assistance from HELP. Loans have ranged from an \$80,000 loan to the Town of Miami for two street widening and resurfacing projects to a \$100 million loan to the Arizona DOT (ADOT) for the purchase of right-of-way for the Regional Freeway System in Maricopa County.

Section 129 Loans – Section 129 loans were enacted as part of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The loan provisions, as amended, are codified at Section 129(a)(7) of Title 23 and, for this reason, loans under this program are commonly referred to as Section 129 loans. Funds from a state's annual apportionment are used to fund Section 129 loans. Any Federal-aid highway project is a potential candidate for a Section 129 loan. States may make loans to public or private project sponsors. The project sponsor must pledge revenues from a dedicated source to repayment of the loan. Dedicated revenues may include, but are not limited to, tolls, excise taxes, sales taxes, property taxes, motor vehicle taxes, and other beneficiary fees. Federal funds cannot be used as a revenue source. Loans can be in any amount, up to 80 percent of the project cost, provided that a state has sufficient obligation authority to fund the loan. Proceeds from Section 129 loans can fund the costs of engineering, right-of-way acquisition, and physical construction. However, only those costs incurred after the date the FHWA authorizes the loan may be funded by the loan; no costs incurred prior to the loan authorization can be reimbursed retroactively with loan proceeds.

One of the key advantages to Section 129 loans is the opportunity for states to get more mileage out of their annual apportionments. States benefit because every loaned dollar is repaid and recycled into further investment in the transportation system. From a project sponsor's perspective, loans are useful in offsetting up-front capital requirements that might otherwise have to be borrowed in the open market at higher rates. Further, Section 129 loans can serve a credit enhancement function by reducing the cost of other borrowing.

To date, only Texas has used a Section 129 loan, which was issued for the construction of the George Bush Turnpike. Through a combination of a Section 129 loan and partial conversion of advance construction, TxDOT structured a finance plan for this project that responded to the State's debt and cash flow constraints, allowing this and other important projects throughout the State to proceed more quickly than would otherwise be possible. The financial benefits of the Section 129 loan include the following: 1) the loan's subordinated status improved the credit quality of the senior bonds; 2) the North Texas Tollway Authority, which was a project partner in addition to TxDOT, obtained below-market interest rates on their revenue bonds, reducing the debt burden on the project; and 3) the loan repayments will provide the foundation for a self-sustaining revolving fund.

Transportation Infrastructure Finance and Innovation Act (TIFIA) – The TIFIA program, which was enacted in 1998 as part of TEA-21 and expanded in SAFETEA-LU, provides credit assistance in the form of direct loans, loan guarantees, and lines of credit to large surface transportation projects of “national or regional significance.” TIFIA eligibility

includes highway, transit, passenger rail, intermodal, and ITS projects. Both public and private project sponsors may apply for TIFIA assistance. Selection criteria include economic significance, private participation, environmental protection, project acceleration, and credit risk, among other factors. TIFIA assistance is limited to 33 percent of eligible project costs, and the minimum project size is now \$50 million. The cost threshold is lower in some states and, for ITS projects, the minimum size is \$15 million. The project sponsor/borrower must pledge user fees or other dedicated revenues to repay TIFIA assistance.

Large, complex projects that require bond financing often encounter investor concerns about “ramp-up” risk, particularly when the revenues pledged to repay the debt represent new or untested sources of security. Through the TIFIA program, the U.S. DOT can act as a patient project investor, lending funds with final maturities as long as 35 years after substantial completion of the project. The program also allows the TIFIA assistance to have a claim on revenues subordinate to other debt, and gives the U.S. DOT flexibility in structuring deferrals of loan repayments. For direct loans, the TIFIA rate is set at five basis points over the published Treasury State and Local Government Series (SLGS) rate at the day of closing for obligations of similar term.

Total TIFIA assistance extended to date is approximately \$3.2 billion. Under SAFETEA-LU, there is a \$122 million annual authorization to fund the government’s cost (loan loss reserve for the government’s default risk) of providing credit assistance for a given fiscal year for a given project. However, there is no separate limit on the amount of credit assistance that can be provided to borrowers in a given fiscal year. TIFIA is being currently used in California, Florida, Louisiana, Maryland, Nevada, New York, Puerto Rico, South Carolina, Texas, and Virginia. Two examples follow:

- **Nevada.** The Reno Transportation Rail Access Corridor (ReTRAC) program consists of the construction of a 33-foot-deep trench below existing tracks to separate auto traffic from rail traffic in downtown Reno. The project also includes the reconstruction of 11 bridges to provide crossing over the trench and an access road. Total project cost is \$280 million. A \$50.5 million TIFIA direct loan agreement and senior lien bonds (approximately \$114 million), both secured by a pledge of county sales taxes and City of Reno hotel room taxes, for the project were closed simultaneously on June 28, 2002. Two additional loans, \$17 million to be repaid from tax revenues from a special assessment district and \$5.0 million to be repaid from lease income, will be negotiated. In total, the ReTRAC project was approved for up to \$73.5 million in credit assistance. This was the first TIFIA deal subordinate to publicly offered senior securities. The \$50.5 million loan was prepaid in 2006 with the proceeds of a tax-exempt refunding bond issue.
- **California.** The \$455 million SR 125 South project involves development of a new 9.5-mile toll highway alignment in San Diego County, California, by California Transportation Ventures, Inc., a private consortium. The facility is being financed through a combination of taxable bank debt, private equity, and a \$94 million TIFIA loan. It will be linked to the regional freeway network by a two-mile locally funded non-tolled segment, known as the San Miguel Connector. Toll revenues to be levied on

the facility are pledged to repay the TIFIA loan. Repayment of the TIFIA loan has second priority in the flow of funds, subordinate to the project's debt service payments to senior bondholders. Interest earnings on the debt service reserve fund and other accounts provide a secondary pledge to the TIFIA obligations.

Railroad Rehabilitation and Improvement Financing (RRIF) Program - This U.S. DOT program was enacted in 1998 as part of TEA-21 and was reauthorized and expanded under SAFETEA-LU in 2005. RRIF provides credit assistance in the form of direct loans and loan guarantees. The funding may be used to acquire, improve, or rehabilitate intermodal or rail equipment or facilities. RRIF can refinance debt previously incurred for these purposes and can also be used to establish new intermodal or railroad facilities. Eligible borrowers include state and local governments, railroads, government-sponsored authorities, and joint ventures that include a railroad partner. Direct loans can fund up to 100 percent of a railroad project with repayment terms of up to 25 years and interest rates equal to the cost of borrowing to the government.

There are currently 13 RRIF-assisted projects with an aggregate loan amount of approximately \$517 million. Under SAFETEA-LU, the program is authorized to issue up to \$35 billion in direct loans and loan guarantees. Up to \$7.0 billion is reserved for benefiting freight railroads other than Class 1 carriers. RRIF currently does not have an appropriation to cover the risk cost of the project to the government. This credit risk cost must be paid by the applicant at the time of the loan or loan guarantee.

States where RRIF is presently being used include: Arkansas, Illinois, Iowa, Maine, Minnesota, Missouri, Nebraska, North Carolina, Ohio, Oklahoma, Oregon, Tennessee, Texas, South Dakota, Vermont, West Virginia, and Wisconsin.

- **Iowa.** The Iowa Interstate Railroad (IIR) received a \$32.7 million Federal loan to help it improve service to rural areas that rely on trains to ship corn, soybeans, steel, chemicals, and other products to market. The loan will pay for track improvements needed to haul heavier freight cars and get products to key shipping points faster and safer. Specifically, the funds from the RRIF program will improve 266 miles of track, replace 180,000 crossties, lay thousands of tons of new ballast, and rebuild 95 highway-rail grade crossings between Council Bluffs, Iowa, and Bureau, Illinois. A portion of the loan also will be used to purchase a rail line that IIR is currently leasing and refinance debt incurred from previous infrastructure improvement projects.
- **Illinois.** The Riverport Railroad, a short-line located in Northwestern Illinois, received a more than \$5.5 million loan to rehabilitate rail related infrastructure and facilities that were once part of the Savanna Army Ordnance Depot. The loan will be used to improve and consolidate about six miles of existing track to make operations more efficient and install new, heavier track to handle the industry standard 286,000-pound railcars. In addition, yard storage capacity will be increased by 33 percent (from 3,000 to 4,000 railcars) and real estate will be acquired to support its planned business expansion.

Private Activity Bonds (PAB) for Highway and Intermodal Projects - The newly-expanded PAB program allows sponsors of highway and intermodal projects with

substantial private participation in terms of ownership or operation to borrow at lower tax-exempt rates. A new class of PABs is established under the Internal Revenue Code for “qualified highway or surface freight transfer facilities.” This tax code change was enacted in 2005 as Section 11143 of SAFETEA-LU. To be eligible, projects must be Title 23-eligible projects, international bridges and tunnels, or intermodal rail-truck transfer facilities. It is a requirement that each project receive some form of Federal assistance under Title 23. A national limit of \$15 billion is authorized under the program, to be allocated by the Secretary of Transportation on a discretionary basis. This volume ceiling is in addition to each state’s annual private activity bond limitation under current law. Current refundings of PABs approved under this section do not count against the limit. The bonds must comply with the normal provisions for PABs (bonds must be issued through a state or local entity, there is a public hearing requirement, etc.) The PABs are Federally tax exempt but are subject to alternative minimum tax.

Tax-exempt PAB yields generally are 20 percent lower than the prevailing taxable interest rate for the same credit quality and maturity term. In today’s market, this reduction in interest expense has a present value benefit to the issuer of approximately 15 percent of the face amount borrowed.

With an authorized PAB issuance volume of \$15 billion, the program potentially could be utilized by projects with a notional value of \$20 billion to \$25 billion, given that many of these projects may also be drawing upon TIFIA financing, equity infusions, or other sources of capital in tandem with the PABs. (Senior debt often represents 70 percent of the capital structure for infrastructure project financings.)

The U.S. DOT is in the process of drafting a Notice of Proposed Rulemaking, which will seek comments on proposed regulations. The DOT has not set forth specific weightings for evaluation criteria, but notes that project readiness will be a key factor.

Examples of potential PAB applications include:

- **Private Concession Toll Road.** Projects such as SR 125 in San Diego and the Trans Texas Corridor involve long-term concessions (operating agreements) with private sector entities. Up until passage of SAFETEA-LU, such projects were precluded from utilizing tax-exempt bonds for the debt portion of their capital structures. Instead, they borrowed from commercial banks or sold taxable bonds in the corporate bond market. The new program will enable these privately developed, operated, and financed facilities to access the lower rates in the municipal bond market.
- **Rail Intermodal Facility.** Freight transfer facilities previously were not financiable on a tax-exempt basis. Under the new tax code provisions, a Class I rail carrier could issue lower cost tax-free bonds through a local public agency for a rail-truck intermodal facility. Projects like the Alameda Corridor would be able to finance a greater percentage of their costs on a tax-exempt basis.

Tax Credit Bonds – This financing tool refers to a new type of tax-preferred “zero-interest” debt financing. The Federal government effectively pays the interest cost on the bonds by giving the bondholder an annual tax credit, in lieu of the borrower paying cash

interest. The bondholder/investor can use this tax credit to offset Federal income tax liability. The borrower is responsible for repaying the principal at maturity from locally identified sources. The tax credit is treated as taxable interest income to the bondholder. Interest expense represents 50 to 75 percent of the financial cost (present value) of borrowing, depending upon interest rate and repayment term. At any given interest rate, the longer the bond issue, the greater the interest expense component. Having the Federal government “pay” the interest on a 25-year bond issue represents a 75 percent effective Federal subsidy from the General Fund.

Presently, there is no established “general market” investor base for the current tax credit bond programs in the education and energy sectors, due to their small issue size and limited secondary market liquidity. Recent surveys of Wall Street bond dealers have indicated that if issuance volume were larger, and there was greater uniformity in terms among the issues, the market could readily absorb \$5.0 bill to \$10 billion per year.

Implementation of tax credit bonds requires Federal tax legislation authorizing a change to the Internal Revenue Code. Absent Federal legislation, it may be possible to fashion a tax credit bond at the state level (i.e., with state rather than Federal tax credits) in more populous states (California, New York, Texas, and Florida).

- **Qualified Zone Academy Bonds (QZAB).** QZABs are tax credit bonds that may be used by school districts to finance renovations to public school buildings. Congress first authorized the program for \$400 million of bond volume in 1998 and 1999, and it has been renewed every two years since then. The annual \$400 million volume cap is formula distributed to states, which in turn allocate the volume among in-state districts. An estimated \$2.5 billion of bonds have been privately placed over the last eight years. Average issue size is approximately \$5.0 million, and most of the issues are non-rated. Maximum maturity date is set each month to produce a 50 percent **p.v.** subsidy (approximately 16 years). Tax credit is treated as taxable interest income to investor.
- **Clean and Renewable Energy Bonds (CREB).** CREBs are tax credit bonds that may be used by state/local governments and electric cooperatives to finance renewable energy projects (wind, biomass, solar, hydropower, etc.). The program was first authorized in the 2005 Energy Act for \$800 million to be issued by December 31, 2007. The U.S. Department of Treasury will allocate the volume, based on applications that were submitted April 2006. The bond maturity is set at approximately 15 years. CREBs differ from QZABs in certain respects: no limitation on eligible investors; principal must be amortized annually in equal installments; and arbitrage investment restrictions apply.

Financing Techniques – State/Local Initiatives

Shadow Tolling – A Shadow Toll System consists of a concession awarded to a private contractor who then has the responsibility to Design, Build, Finance, and Operate (DBFO) a road section for an agreed period of time. The term “shadow tolling” is used as there are no visible tollbooths and the users do not actually pay charges to the operators; rather, a

fee is paid to the private operator based on usage of the facility. Although the approach requires governmental resources, it helps expedite construction, transfer risk, and enhance the level of service. The payments do not commence unless and until the project is built to standard and becomes operational, so the concessionaire is incentivized to construct a high-quality facility quickly. Because payments to the operator are conditioned upon attaining certain service levels, the concessionaire has a vested interest in the long-term utility of the project. The approach additionally has the concessionaire absorb traffic risk, so that the government's payment level is based on actual utilization. Such approaches may be appropriate when real tolls are unacceptable or unfeasible.

Great Britain has used "shadow tolling" extensively to support its privatization program. Shadow tolls are not currently used in the United States although FDOT, in the first procurement of its kind in the nation, is offering annual "availability payments" to prospective concessionaires willing to build, own, and operate a new non-tolled tunnel to the Port of Miami. Payments will be based on the availability of the project for use by trucks and buses and such other factors as safety and compliance with other performance standards.¹³ Texas has passed enabling legislation to allow for shadow tolling. Implementation in other states would require the existence of enabling legislation to enter into such PPP agreements with the contracting party.

A report for the FHWA suggests that shadow toll concepts can be beneficially used in the United States if certain conditions are met. These conditions include:

- The project has access to tax-exempt debt;
- Underlying repayment sources are stable and creditworthy;
- The project sponsor agrees to accept traffic risk;
- Projects have a proven traffic demand, thus generally precluding start up projects; and
- Projects are in areas where there may be resistance to tolling.

Selling/Leasing Assets – Public owners of existing revenue-generating facilities enter into a long-term concession agreement with private entities (concessionaires), under which the concessionaire makes an upfront payment in exchange for the right to collect tolls over a pre-defined time period. The franchise or concession agreement can run from 35 years to as long as 99 years, but title to the facility remains with the governmental owner. Typically, there is a formula-based cap on the extent to which tolls may be increased over the franchise period (pre-defined step-up rates, plus inflation). This type of transaction can generate a substantial but non-recurring amount of long-term cash that may be used for transportation (or other) purposes, and shifts to the private sector any ongoing responsibility for operating and capital costs during the term of the franchise.

¹³Testimony of Karen J. Hedlund, Partner, Nossaman, Guthner, Knox & Elliott, LLP, before the Highways, Transit, and Pipelines Subcommittee, Committee on Transportation and Infrastructure, U.S. House of Representatives, May 24, 2006.

Lease transactions have been recently completed in Illinois and Indiana as described below, and are currently under consideration by other states.

Leasing assets are limited only by the number of current toll facilities. Asset leases of transit facilities are not likely to be meaningful sources of cash, because virtually no system fully recovers its operating expenses, let alone capital costs, from user charges. In addition, projects may require Federal approval, to the extent Federal-aid was utilized for construction or capital renewal purposes.

- **Illinois - Chicago Skyway.** In January 2005, the City of Chicago entered into 99-year agreement with Skyway Concession Company LLC for the lease of the Chicago Skyway, an eight-mile, 46-year-old elevated bridge extending from Chicago to the Indiana state line. The investors in the Concession Company, Macquarie Infrastructure Group and Cintra Concesiones de Infraestructuras de Transporte, S.A., paid the City of Chicago \$1.83 billion for the right to operate the Skyway. The proceeds were used largely for non-transportation purposes.
- **Indiana Toll Road.** The State recently signed an agreement to turn the 157-mile Indiana Toll Road over to a foreign consortium that will operate it for a profit for the next 75 years. Under the lease, Spanish-Australian consortium Cintra-Macquarie will pay the State \$3.8 billion up front and will be responsible for operating and maintaining the highway. It will get to keep the toll revenue it collects. The up-front payment will help pay for other transportation projects in the State.

Tables 4 through 9 show the attributes of some of the alternative sources of revenues for highways and public transportation, in terms of the criteria used for evaluating tax sources.

Table 4. Promising Source for Highways and Transit
Motor Fuels Taxes

Source and History	Yield, Adequacy, and Stability	Cost Efficiency, Economic Efficiency, and Equity	Potential Applicability and Acceptability	Implementation Issues and Potential Strategies to Overcome Barriers
<p>Motor Fuel Taxes – Excise Tax (Per Gallon) – Most states have a traditional “cents per gallon” excise taxes on the highway use of motor fuel. Some also have variable taxes with rates that can vary based on an inflation adjustment or a fuel price adjustment.</p>	<p>Motor fuel taxes are constitutionally dedicated to highways in most states and, therefore, adjustments to these taxes result in higher yields for highway investment.</p>	<p>Motor fuel taxes are very easy to administer and have low costs of compliance. Evasion has been a major issue, but states and the FHWA have curtailed evasion.</p>	<p>The motor fuel tax could add cents per gallon or could be indexed to inflation or to fuel prices as in some states.</p>	<p>Based on history, adjustments through legislation to the motor fuel excise tax have been the method of choice in most states for major new funding resources to fill funding gaps for state highways.</p>
<p>Motor fuel taxes have been the most important revenue mechanism for highway programs at the Federal and state levels.</p>	<p>Motor fuel taxes at rates sufficient to fund all needs will not add enough to prices to impact travel volumes. Motor fuel prices have recently increased by amounts significantly higher than tax rate increases that could fund all needs, with minimum impacts on travel behavior.</p>	<p>Motor fuel taxes may be higher per gallon than in some neighboring states. Opponents of fuel taxes generally raise the issue of diversion of purchases to neighboring states.</p>		

Table 4. Promising Source for Highways and Transit (continued)
Motor Fuels Taxes

Source and History	Yield, Adequacy, and Stability	Cost Efficiency, Economic Efficiency, and Equity	Potential Applicability and Acceptability	Implementation Issues and Potential Strategies to Overcome Barriers
Motor Fuel Taxes - Indexing of Fuel Taxes	The yield of motor fuel taxes could be enhanced by indexing to inflation or, in some cases, to fuel prices. A ceiling and a floor on the change in the indexed rate is likely.	Motor fuel taxes by themselves are not equitable among vehicle classes, because the largest vehicles may pay less in fuel taxes relative to the costs imposed on highways.	Indexing to inflation is a very promising adjustment because the index to inflation makes partial corrections for economic changes.	
Motor Fuel Taxes - Sales Tax on Fuel		Motor fuel taxes are mildly regressive among income groups.	A sales tax on fuel also is promising; some states have a portion of the total tax based on sales prices.	
Other Types of Petroleum Taxes	Other types of motor fuel taxes could be utilized.		Pennsylvania has an oil company franchise tax to collect fees on petroleum fuels.	

Table 5. Promising Source for Highways and Transit
Vehicle Registration and Sales Fees

Source and History	Yield, Adequacy, and Stability	Cost Efficiency, Economic Efficiency, and Equity	Potential Applicability and Acceptability	Implementation Issues and Potential Strategies to Overcome Barriers
<p>Registration and Other Vehicle Fees – All states have traditional types of registration fees for light vehicles and somewhat higher and graduated fees for heavy vehicles.</p>	<p>Registration fees provide major revenue sources for states and local governments (through state allocations) and must be adjusted through legislation. In addition to adjusting rates, other options include revising the type of registration fee.</p>	<p>Registration fees are relatively inexpensive to administer in relation to potential yield, but not as inexpensive as fuel taxes. Registration fees can be varied by vehicle size and can be set in rough relation to highway cost responsibility, except for the impacts of different mileage by similarly sized vehicles.</p>	<p>Registration fee adjustments are very promising as both a short- and long-term option for funding highways. Registration fees allow for collections from vehicles using alternative fuels without establishing new mechanisms for collection.</p>	<p>Equity among vehicle classes would indicate that parallel adjustments in registration fees should be made applicable to all vehicles.</p>
<p>Registration Fees Based on Value – Personal Property Taxes – A registration fee based on value can be structured as a personal property tax and be deductible from Federal income.</p>	<p>A fee on the value of a vehicle could raise substantial revenue, and could be structured to be deductible for Federal income tax purposes, thus increasing the state's revenue yield without an equal increase in net total tax payments.</p>	<p>Registration fees for light vehicles, if collected on a flat basis, are somewhat regressive by income class. Registration fees for light vehicles on the basis of value are progressive.</p>	<p>Registration fees based on value have the best revenue generating potential and are less costly to taxpayers in the state.</p>	<p>Some states have recently eliminated or reduced such fees despite their advantages in comparison to collecting other state taxes that are not deductible (such as sales taxes).</p>
<p>Sales Taxes on Vehicles</p>	<p>Sales taxes on vehicles can be useful revenue sources.</p>	<p>Sales taxes on vehicles will be fairly progressive.</p>	<p>Sales taxes on vehicles have substantial revenue raising potential.</p>	<p>All sales taxes already may be deposited into general revenue accounts.</p>

Table 6. Promising Source for State or Local Highways Tolls

Source and History	Yield, Adequacy, and Stability	Cost Efficiency, Economic Efficiency, and Equity	Potential Applicability and Acceptability	Implementation Issues and Potential Strategies to Overcome Barriers
<p>Traditional Tolls - Selected highways and selected bridges historically have been toll facilities.</p>	<p>Existing toll facilities have been proven to be reliable and stable generators of revenue. The bonds of toll agencies are highly marketable.</p>	<p>Tolling costs more to administer and for compliance than motor fuel taxes, although these costs are reduced greatly through ETC.</p>	<p>Tolls and pricing may be considered to be highly promising options for application to new highway capacity in the longer term, with perhaps some limited short-term opportunities.</p>	<p>A few existing toll facilities have been leased to international companies, substituting short-term revenue gains by public agencies for lesser longer term revenues.</p>
<p>Tolling New Lanes</p>	<p>Legislation may be necessary to enable new types of tolls or pricing initiatives. Electronic pricing could significantly expand future opportunities.</p>	<p>Tolls can be set to achieve equity among vehicle classes. Concerns about the impacts of tolling on equity among income groups have been addressed in several analyses.</p>	<p>Major positive opportunities exist to toll new future capacity. Sometimes this could be accomplished with tolls covering only a portion of needed revenues, which provides more total revenue and capacity than no tolling of new facilities. Special types of toll facilities such as for truck lanes or HOT lanes could be promising.</p>	<p>Acts allowing Regional Mobility Authorities (RMA) and a PPP act could expand future possibilities for tolling. Some states do not yet have a PPP act parallel to that of other states, which would enable private parties to initiate proposals to develop new facilities or to add toll lanes to existing facilities.</p>
<p>Tolling Existing Lanes</p>	<p>Tolling existing lanes could provide very substantial additional revenues.</p>	<p>Tolling existing lanes could provide for greater equity than other sources of new revenues, but is widely perceived as inequitable (“paying twice”).</p>	<p>Little short-term opportunity is thought to exist to toll existing free lanes. This does not mean that such opportunities might not exist in the future, particularly with new types of approaches to toll collection and pricing, including electronics and PPPs.</p>	<p>Sentiment is against tolling any currently free highway lanes. Likewise, little opportunity exists for tolling existing free bridges.</p>

**Table 7. Promising Source for State and Local Highways and Transit
VMT Fees**

Source and History	Yield, Adequacy, and Stability	Cost Efficiency, Economic Efficiency, and Equity	Potential Applicability and Acceptability	Implementation Issues and Potential Strategies to Overcome Barriers
<p>VMT Fees – Fees on VMT could be long-term options (after 2017) that could supply revenues without being directly tied to fuel consumption.</p>	<p>VMT fees could be set to yield any level of desired revenues. VMT fees do not conflict with the need to reduce energy costs, reduce the balance of payments, or reduce fossil fuel consumption.</p>	<p>VMT fees are slightly more related to vehicle use equity than fuel taxes or registration fees. VMT fees, especially if applied as congestion pricing fees, send stronger pricing signals to travelers.</p>	<p>In the long run, VMT fees and congestion pricing could replace all or a portion of current user fees. Oregon is demonstrating the technologies for collecting VMT fees at the fuel pump.</p>	<p>VMT fees or congestion pricing fees require the technology to collect those fees reliably and also the political will to implement a new approach.</p>
<p>Congestion Pricing – This pricing could be applied as a special kind of VMT fee, with fees varying based on the level of congestion on the road.</p>	<p>VMT fees or congestion-related fees themselves would have to be indexed to respond to inflation.</p>	<p>VMT fees will require much more administrative and compliance efforts than motor fuel taxes. VMT fees will be about as regressive among income groups as motor fuel taxes, because Department of Energy data show small differences in fuel efficiency by vehicles owned by different income groups. VMT fees must be graduated by vehicle weight and characteristics to raise fees equitably among the various vehicle classes.</p>	<p>A 2005 study of highway and transit revenue options for the U.S. Chamber of Commerce’s National Chamber Foundation identified VMT fees and congestion pricing fees as a promising option in the long term (15 or more years).</p>	<p>There are not yet any VMT fees or congestion pricing fees in the United States that are not associated with toll facilities.</p>

Table 8. Promising Source for Highways and Transit
Local Option Taxes and Beneficiary Charges

Source and History	Yield, Adequacy, and Stability	Cost Efficiency, Economic Efficiency, and Equity	Potential Applicability and Acceptability	Implementation Issues and Potential Strategies to Overcome Barriers
<p>Local Option Taxes – These taxes have been widely used in many states to support highway and transit investments. Local governments in most states have implemented some type of local option tax, which must be specifically allowed by state enabling legislation.</p> <p>Local option taxes for transportation investments include motor fuel, vehicle, property, sales, and income taxes.</p>	<p>Sales taxes tend to have the highest yield in comparison to other local option taxes. Motor fuel and vehicle taxes tend to generate less revenue in comparison to other local option taxes.</p> <p>Except for motor fuel and vehicle taxes, other local option taxes tend to be indexed with inflation. Sales taxes respond to economic growth.</p> <p>Fluctuations in economic conditions tend to affect sales tax yield. Gasoline taxes and income taxes also could be impacted to some level by fluctuations in the economy.</p>	<p>Collection mechanisms already are in place to levy these taxes at the state or local level.</p> <p>Most local option taxes do not send pricing signals to drivers.</p> <p>Most local option taxes are regressive (except for income taxes). However, sales taxes tend to receive stronger support than other local option taxes. People consider that sales taxes are more “fair,” because everyone pays, whether they are vehicle or transit users.</p>	<p>State legislation must be in place that allows local governments to implement local option taxes.</p> <p>Sales taxes have been widely used by transit agencies to support operations and capital investments.</p>	<p>Commonly, local option taxes require voters’ approval. While an expenditure plan that specifies projects and/or programs to be funded with the new local option tax levies is not always required, local option taxes have better chances of success for implementation where expenditures and uses are clearly defined.</p>

Table 8. Promising Source for State and Local Highways and Transit (continued)
Local Option and Beneficiary Charges

Source and History	Yield, Adequacy, and Stability	Cost Efficiency, Economic Efficiency, and Equity	Potential Applicability and Acceptability	Implementation Issues and Potential Strategies to Overcome Barriers
<p>Beneficiary Charges</p> <p>Impact Fees – Impact fee legislation exists in 26 states (excluding Florida). Impact fees for transportation improvements are widely used in California and Florida.</p> <p>Value Capture – These techniques have been in place since the 1950s, starting in California. Only Arizona does not have enabling legislation to allow TIF to finance infrastructure needs.</p>	<p>Revenues from impact fees are typically dedicated for certain road and transit improvements that would serve the new development. In addition, revenues from impact fees will be highly dependent on development opportunities in the area where implemented. Value capture tools are subject to increases in property value realized by infrastructure improvements.</p>	<p>Beneficiary charges do not send pricing signals to encourage efficient transportation decisions. These charges can be relatively efficient and equitable if properly structured. Benefit districts can target the specific beneficiaries.</p> <p>While impact fees are directly charged to developers, they pass those charges to buyers, increasing the cost of real estate.</p> <p>TIF allocates a portion of the additional property taxes resulting from the increase in property values. Communities and local agencies could argue that implementation of TIF would take away revenues that otherwise would be used to meet other public needs.</p>	<p>Implementation is subject to enabling legislation that allows the collection of impact fees and the formation of assessment districts. These tools tend to be most applicable in higher growth state or localities.</p>	<p>Impact fees are only applicable to new development. TIF and other property assessments may require the formation of districts, where property tax levies are dedicated for transportation improvement. This may require voters' approval from district residents and business owners.</p> <p>Beneficiary charges have been the subject of numerous lawsuits in many areas.</p>

Table 9. Summary of Promising Project Delivery Tools for Highways and Transit
Innovative Finance and Public-Private Partnerships

Source and History	Yield, Adequacy, and Stability	Cost Efficiency, Economic Efficiency, and Equity	Potential Applicability and Acceptability	Implementation Issues and Potential Strategies to Overcome Barriers
<p>Innovative Finance – Most states have used one or more forms of these financing tools.</p>	<p>Innovative financing tools are used to leverage capital in the form of debt or equity. They rely on existing or new revenue sources to pay the indebtedness.</p>	<p>Incurring longer term debt helps advance programs and projects that would otherwise take years to develop if at all.</p>	<p>They are widely applicable and can be used for program and individual project delivery.</p>	<p>States may require enabling legislation to issue GARVEE bonds. Most innovative finance grant management tools are codified under Title 23 U.S. Code and require no special action from states to be used. To test new grant management tools, states may apply to the U.S. DOT under the SEP-15 or TE-045 programs. Debt mechanisms must be balanced against long-term revenue sources. Many states cap the amount of debt that can be issued.</p>
<p>PPPs – PPPs are a major long-term opportunity to impact on project and program delivery. PPPs are commonly used in Europe to reduce public sector costs to construct, operate, and maintain highway facilities but are not yet widely used to support similar projects in the United States.</p>	<p>States and other public sponsors increasingly consider private sector involvement as a way to spur implementation of large projects.</p>	<p>PPPs can facilitate access to private capital and bring innovative cost-saving project delivery methods.</p>	<p>Several states are using PPPs to operate and maintain portions of their highway systems. There is potential for large-scale PPPs. The U.S. DOT has preliminary evaluations that indicate the potential for significant cost savings and improvements in the quality of highway services provided to the public.</p>	<p>Specific project proposals need to be evaluated to determine if PPPs would be cost effective. May require enabling legislation. More than 20 states have explicit PPP acts that provide means to bring the private sector into funding and management of highways. Virginia’s act has fostered a wide range of proposals.</p>

These various sources could yield potentially large funding increments for large regions. A large region is identified as having a population of more than 4.0 million and, according to the 2000 census, the National Capital Region's population consisted of 4.2 million people with a land area comprising of 3,020 square miles. Table 10, from a recent National Cooperative Highway Research Program (NCHRP) review of revenue options for metropolitan areas, indicates the level of taxes that would be necessary to generate \$20 million annually in a region of 4.0 million people. For example, in order to generate an additional \$20 million annually, it would require an increase of only 1.1 cents on the gasoline tax.

Table 10. Illustrative Yields from Alternative Sources

Source	Unit	Rate for \$20 Million
VMT Fees	Per 100 miles traveled	\$0.05
Fuel Tax	Per gallon	\$0.011
Fuel Sales Tax	Percentage of sales	0.47%
Vehicle Sales Tax	Annual vehicle sales	0.3%
Registration Fees	Per vehicle, annually	\$10.56
Property Tax	Per \$1,000 of assessed value	\$0.13
Development Tax	Per new house built	\$706

Source: Martin Wachs, et al., "Metropolitan-Level Transportation Funding Sources," prepared for National Cooperative Highway Research Program, 2005.