

IMPLEMENTING ALTERNATIVE TRANSPORTATION FUNDING METHODS



PRELIMINARY WHITE PAPER ON TRANSPORTATION FUNDING PROJECTIONS: WORKING DRAFT



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WASHINGTON STATE LEGISLATURE

Joint Transportation Committee

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IMPLEMENTING ALTERNATIVE TRANSPORTATION FUNDING METHODS STUDY

Draft Preliminary White Paper on Transportation Funding Projections

I. PURPOSE

The 2009 legislature directed the Joint Transportation Committee (JTC) to conduct a comprehensive analysis of mid-term and long-term transportation funding mechanisms and methods. Elements of the study are to include existing data and trends, policy objectives, performance and evaluation criteria, incremental transition strategies, and possibly, scaled testing (ESSB 5352 (204) (1)).

The study will analyze the feasibility and practicality of implementing funding methodologies identified in the JTC's 2007 *Long-Term Transportation Financing Study*, as well as other approaches identified by the committee, staff, and the consultants. The research and analysis must take into account existing and emerging funding, energy, environmental, and mobility policy objectives. The principle objective of this project is to identify specific implementation steps for the legislature and agencies to begin implementing viable mid-term and long-term transportation funding approaches. The primary focus of this effort is to examine state imposed and collected transportation taxes and fees.

This preliminary white paper on transportation funding projections provides an overview of the existing state funding sources, analyzes and updates the funding recommendations and projections made in the 2007 *Long-Term Transportation Financing Study*, and provides a risk assessment of key metrics that affect the funding base.

A second companion white paper on policy initiatives provides an overview of how existing and emerging local, state and federal funding, energy, environmental, and mobility initiatives may influence or alter the nature of the transportation system, the implementation of transportation financing strategies, and the assumptions and conclusions of the 2007 *Long-Term Transportation Financing Study*.

II. CURRENT TRANSPORTATION FUNDING SOURCES

The State of Washington relies upon a variety of funding sources for transportation (a complete discussion of which is contained in the *White Paper on Policy Initiatives*). Of these funding sources, the motor vehicle fuel tax (comprised of the gasoline tax and the special fuel tax) represents the largest portion, at over 40% of the State's transportation revenues (excluding proceeds from bond sales) during the 2009-11 biennium. Exhibit 1 below shows the State's Transportation revenue sources for the current 2009-11 biennium and over the course of the Legislature's 16-year financial plan.

Exhibit 1
Washington State Funding Sources 2009-25 16-Year Financial Plan

	09-11 Biennium		16 YR Plan	
	\$ millions		\$ millions	
Gross Motor Vehicle Fuel Tax	2,657.4		23,255.9	
Refunds & Transfers	-129.2		-1,200.2	
Distributions to Local Jurisdictions	-503.0		-4,388.3	
<i>Net Motor Vehicle Fuel Tax</i>	2,025.2	29%	17,667.5	38%
Licenses, Permits & Fees	929.0		8,347.7	
Capron Distribution to Local Jurisdictions	-4.3		-38.9	
<i>Net Licenses, Permits & Fees</i>	924.7	13%	8,308.8	18%
<i>DOL Fees and Abstracts</i>	165.0	2%	1,422.0	3%
<i>DOT Business Related Revenue</i>	14.5	0%	114.6	0%
<i>Federal Funds</i>	1,097.3	15%	5,673.9	12%
<i>Ferry Revenues</i>	313.0	4%	3,446.7	7%
Vehicle Sales Tax	64.8		717.2	
Rental Vehicle Sales Tax	42.2		519.5	
<i>Total Vehicle Sales Tax</i>	107.0	1%	1,236.7	3%
<i>Local Revenue</i>	95.0	1%	249.9	0%
<i>Miscellaneous</i>	22.0	0%	220.0	0%
<i>Transfers from AROW, TNB, HOT Lane Accts</i>	19.0	0%	26.5	0%
<i>Treasurer's Interest</i>	54.5	1%	423.0	1%
<i>Bond Sales</i>	2,202.3	31%	6,406.6	14%
<i>Tolling Revenues – TNB, HOT Lane Accts</i>	117.1	2%	1,540.5	3%
<i>Tolling Account Interest</i>	1.6	0%	13.0	0%
Total	7,093.5		46,749.6	

Motor Vehicle Fuel Tax

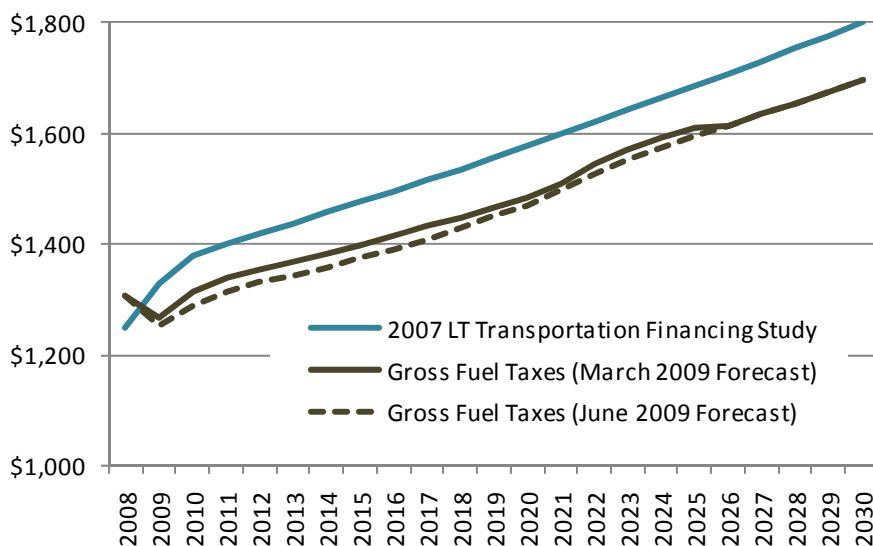
The state's motor fuel tax is a set amount (37.5 cents per gallon) on gasoline and diesel fuel. The 2007 study highlighted concerns over the State's dependence on fuel taxes for transportation funding, namely that the constant tax rate does not keep pace with inflationary increases in transportation costs and increasing fuel efficiency is driving consumption down.

In addition to these concerns, rising oil prices, use of alternative fuels, and increasing market penetration by hybrid vehicles, also drive fuel consumption down and erode the revenue base the State is currently relying on for transportation funding.

The March 2009 Transportation Revenue Forecast Council projections assume moderate and gradual changes in consumption trends based on fuel prices and increasing fuel efficiency of the

fleet but have not accounted for any potential major changes in the fleet. Even so, recent projections show estimated motor fuel tax revenue decreasing relative to assumed levels just a couple of years ago.

**Exhibit 2
Projected Gross Motor Fuel Tax Revenues – Year of Expenditure Dollars
(\$ millions)**



This change represents a decrease in revenues of \$1.7B over the 2010-2030 period relative to assumptions made in the 2007 Long Term Transportation Financing Study, with purchasing power continuing to decline. Using the June 2009 forecasts, the picture continues to worsen.

Bond Sales

Another important factor of the State’s current transportation funding plan is the use of bond proceeds to fund transportation needs. The 2007 study reviewed the state’s anticipated bonding to support implementation of the 2003 Nickel and 2005 Transportation Partnership Act (TPA) projects and noted that debt service on these bonds will become an increasingly large part of the Washington State Department of Transportation’s (WSDOT) budget.

In the 2009-11 biennium, over one third of the funding available comes from bond sales. This essentially means that the State is using a significant portion of future revenues to pay for today’s needs. Approximately 25% of the revenues in the legislative 16-year transportation financial plan are consumed by debt service. This is a result of policy decisions in 2003 and 2005 to leverage the increases in the gas tax in these years (Nickel package and TPA) by issuing bonds to front load the program and address a significant backlog of projects.

Historically the State has been able to gain funding by re-issuing bonds at a lower rate. The state has benefited from exceptionally good rates on its Nickel and TPA bonds, and is unlikely to gain from any re-issuance opportunities in the future.

Licenses, Permits, and Fees

Revenue from licenses, permits, and fees currently represents about 14% of the State's transportation revenues. Like the motor fuel tax, these fees are set at fixed amounts and therefore do not keep pace with inflationary increases in transportation costs.

Federal Funds

Federal funding represents approximately 17% of the State's transportation revenues. While this is a significant amount, federal support of state transportation projects is heavily reliant on motor vehicle fuel taxes and subject to the same structural issues discussed above. Furthermore, the federal Highway Trust Fund (HTF), which has historically provided approximately \$33 billion a year to the states has recently required transfers from the federal general fund to remain solvent. The administration has requested that Congress transfer an additional \$20 billion to the HTF in FFY 2009 to stabilize the fund while a longer term proposal for federal transportation funding is developed. This instability in transportation funding at the federal level calls into question the federal government's ability to continue supporting state transportation needs at the level it has in the past.

Ferry Fares

Revenue from ferry fares is used to support the operating costs of the State's ferry system and is thus limited in the types of transportation needs it can address. Farebox recovery (the percentage of operating costs covered by fares and other earned income such as concessions and parking) is anticipated to be 76% over the 16-year financial plan (starting at 73% for the 2009-11 Biennium and projected to grow to 79% for the 2023-25 Biennium). The increase in cost recovery are based on assumed ridership growth and annual 2.5% fare increases. Dedicated motor fuel taxes and licenses and permit fees are anticipated to provide the remainder of WSF's operating revenue, with the 16-year financial plan showing a deficit of \$128.1 million at the end of the 2023-25 biennium.

Tolls

Tolls are a new revenue source for the State of Washington and a funding mechanism that the 2007 study recommended pursuing to a greater extent in the medium term. Current State tolling policy is focused on facility tolling (i.e. limited tolling to pay for a specific capital project, like the Tacoma Narrows Bridge upgrade) and tolling of high-occupancy vehicle lanes (HOT) lanes. Facility tolling revenues are dedicated to bond repayment and are further restricted by legislative direction to fund maintenance and operation costs of the tolled facility.

Vehicle Sales Taxes

Comprised of special sales taxes on the purchase and lease of vehicles, vehicle sales taxes represent approximately 2% of the State's transportation revenues. This is a relatively small amount that can be adversely affected when the economy slows.

III. 2007 STUDY RECOMMENDATIONS

Given the challenges and risks in how the State is currently funding transportation, the 2007 study recommendation a number of changes over the medium and long term.

A. Sales Tax on Fuel

**Exhibit 3
Sales Tax on Fuel Estimates**

	2007 Study	March 2009 Forecasts
Incremental Revenue Generated (2010-2030) with 6.5% Sales Tax on Fuel	\$16.9B	\$16.9B

When gas prices increase, consumption tends to decrease as individuals look for ways to economize. The current gas tax is highly susceptible to these types of fluctuations, and a special sales tax on fuel has the advantage of offsetting these trends. As fuel prices increase, revenues from a percentage-based sales tax would also increase.

The 2007 Study estimated that a 6.5% sales tax on fuel would generate approximately \$16.9B in 20 years. Based on the March 2009 forecasts of fuel prices and consumption levels, an estimate for the same time frame also projects \$16.9B in revenues. Although consumption is projected to decrease relative to assumed levels in 2007, higher fuel prices in the short and medium term offset the decreasing consumption to maintain of stable yield.

B. Index State Motor Fuel Taxes

The 2007 Study recommended indexing the motor fuel tax to inflation in order to maintain the purchasing power of fuel tax revenues. The study assumed an inflation rate of 2.2% which is roughly equivalent to the national implicit price deflator (IPD) over the past 20 years.

Based on March 2009 fuel consumption and price forecasts, and assuming no additional decrease in consumption due to a slightly higher nominal price of fuel caused by the increasing tax rate, the following estimates provide a comparison.

**Exhibit 4
Projections for Indexing Motor Fuel Taxes**

	2007 Study	March 2009 Forecasts
Incremental Revenue Generated (2010-2030)	\$9.8B	\$8.5B
Tax Rate 2030	.59.2 cpg	58.0 cpg

Decreasing consumption projections since 2007 levels have led to a decrease of approximately \$1.3B in revenue indexing could generate.

However, the notion of indexing raises an important question about which index to use. WSDOT's construction cost index, which more closely reflects transportation capital costs, has averaged 5.2% over the past 16 years. Using an index like this has the advantage of more closely tracking transportation construction costs, but since it's based on a much smaller number of costs (and not US GDP), it is much more volatile on a year-to-year basis. Indexing options that are used by other states include: the consumer price index (CPI) which can be calculated on a national or region-specific basis; the wholesale fuel price; the producer price index; the average cost of fuel; the retail price of fuel; and ,the amount of alternative fuels sold.

C. Tolling

The 2007 Study used the 2006 Washington State Transportation Commission Comprehensive Tolling Study as a baseline, and cited the following specific examples of where tolling might be enacted. In total, it estimated that up to \$26B could be earned over a 30-year period.

The Transportation Commission's view of tolling, more generally, was that the State should consider how tolling fits into the larger transportation system in terms of revenue and system efficiency and move away from project specific financing. In 2008, the Transportation Commission completed an update to their 2006 Tolling Study that identified a number of additional tolling candidates.

Since the 2007 study, the Washington State Legislature has shown interest in pursuing tolling opportunities. The 2008 Legislature adopted RCW 47.56.830 (ESSHB 1773), which designated the Legislature as the only entity with tolling authority on the state highway system and provided the following policy guidance:

- Overall Direction: Washington should use tolling to encourage effective use of the transportation system and provide a source of transportation funding.
- When to Use Tolling: Tolling should be used when it can be demonstrated to contribute a significant portion of the cost of a project that cannot be funded solely with existing sources or optimize the performance of the transportation system. The social, environmental, and economic effects of the tolling should be considered, and the tolling should be directed at making progress toward the state's greenhouse gas reduction goals.
- Setting Toll Rates: Toll rates, which may include variable pricing, must be set to meet anticipated funding obligations. To the extent possible, the toll rates should be set to optimize system performance, recognizing necessary trade-offs to generate revenue.
- Duration of Toll Collection: Because transportation infrastructure projects have costs and benefits that extend well beyond those paid for by initial construction funding, tolls may remain in place to fund additional capacity, capital rehabilitation, maintenance and operations, and to optimize performance of the system.

Other legislative action includes enactment of a toll on the Tacoma Narrows Bridge, enactment of a pilot HOT Lane program on SR 167, and approval of tolling authority for the SR 520 bridge. In addition, the 2009 Legislature has directed WSDOT to conduct studies of tolling applications on SR 520, the Columbia River Crossing, expansion of the SR 167 program, and SR 509.

Although tolling is being used to an increasing extent in Washington, Legislative policy guidelines limit the uses of tolling and corresponding revenues to specific projects.

D. Expand Local Sources (Local Option Taxes)

The 2007 Study recommended that local jurisdictions increase enactment of local option sales taxes. Specifically, it cited RTID and Transportation Benefit Districts' taxing authority as an area to pursue. The companion *White Paper on Policy Initiatives* includes a more detailed analysis of local transportation funding options and notes that the number of Transportation Benefit Districts has been increasing in recent years, though barriers to other types of local transportation funding options remain high.

E. Container Charges

The 2007 Study recommended variable container charges based on peak period pricing to reduce truck related congestion and generate revenues. Assuming a flat, \$50 container fee, the study projected up to \$8B in revenues between 2010 and 2030.

Since the 2007 study, a number of developments have occurred with respect to potential container fees. In 2007, the Washington State Senate introduced Senate Bill 5207 that would have created a freight congestion relief account funded through a \$50 container fee with "container" defined as a twenty-foot equivalent (TEU). In response to strong opposition to this bill, the Senate instead directed the JTC to study container fees and other freight funding mechanisms.

In January 2009, the JTC published its Freight Investment Study, which found that container fees set at \$30 or greater would have a significant diversion effect, causing freight traffic to move away from Puget Sound Ports. The analysis was not sufficiently sensitive to predict the diversionary effects of container fees below \$30. Furthermore, proceeds from container fees were anticipated to be limited to projects that benefit freight movement and thus would be limited in the types of transportation projects they can fund.

F. VMT Based Funding Alternatives

In the long term, the 2007 Study recommended moving to a funding system that charges drivers for the marginal cost of where, when, and how much they drive. Specifically, it recommended a tax based on vehicle miles traveled (VMT) in lieu of the Motor Vehicle Fuel Tax.

IV. RISK ASSESSMENT

In the past two years, since the 2007 study, expectations have been changing regarding the future for a number of key variables that affect the existing transportation revenue base. The revenue projections discussed herein incorporate those changes, but it is important to understand the key drivers and how they might continue to impact state transportation revenues.

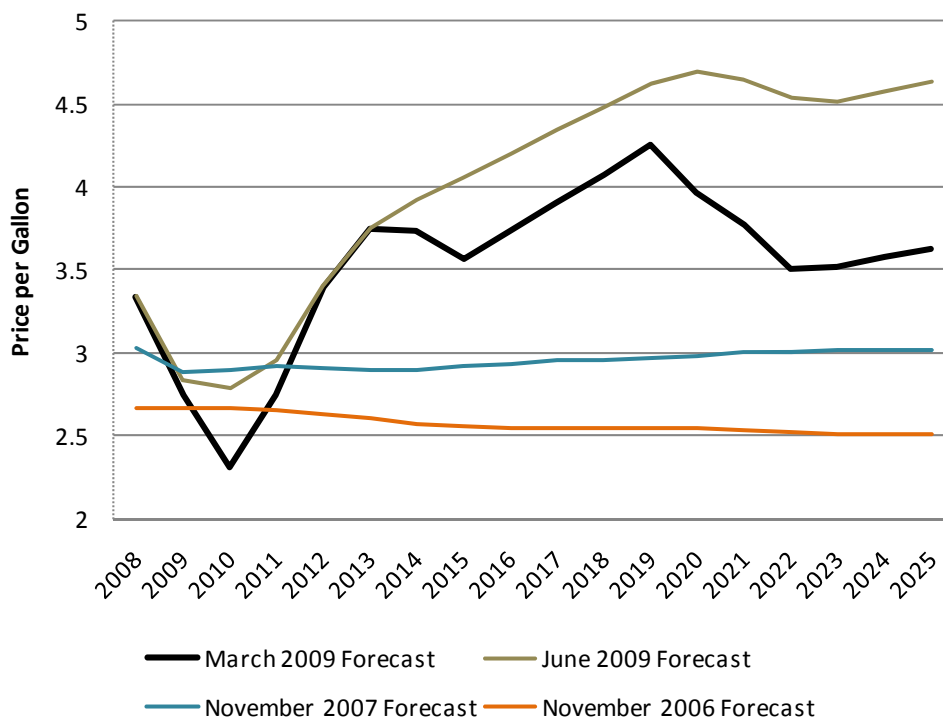
A. Variables Affecting Fuel Consumption

There are a number of factors currently pushing fuel consumption down. Over the long-run, they have the combined effect of eroding the revenue base Washington relies on most heavily for its transportation funding needs. The pace at which these changes occur could have a substantial impact on revenues in the medium term, and the following analysis identifies some key variables and their impact on fuel tax revenues.

Fuel Prices

Prices for gasoline and diesel fuel are volatile. below shows how the projected price of gasoline has varied over the past few years. The November 2006 forecast is representative of the baseline used for the 2007 Study and does not reflect the price spikes that were experienced in 2008. More recent projections (based on March and June 2009 forecasts) show fuel prices at much higher levels.

Exhibit 5
Washington State Retail Gasoline Price Projections



In terms of existing transportation revenues in Washington, fuel prices are relevant to the extent that they affect consumption. When the price of fuel goes up, individuals typically respond by driving less. Hundreds of studies have been conducted on the relationship between fuel prices and consumption (i.e. the price elasticity of demand), and while results will vary by region and in response to other factors, it has been generally found that a 10% increase in the price of gasoline lowers demand by 2.6% in the short term (within a year). In the long-run, the reduction in demand is expected to be greater.¹

If we apply this logic to the Transportation Revenue Forecast Council’s Fuel Price projections, we can see potential differences in fuel tax revenues of \$20M in FY2011 alone. By FY2015, that difference could grow to over \$230M.

¹ Goodwin, Phil, Joyce Dargay and Mark Hanly, “Elasticities of Road Traffic and Fuel Consumption with Respect to Price and Income: A Review,” *Transport Reviews*, Vol. 24 No. 3, 275-292, May 2004.

Exhibit 6
Fuel Price Projections and Gross Fuel Tax Revenues for FY2011
(March 2009 Forecast)

	Retail Gasoline Price	Expected Consumption	Gross Fuel Tax Revenue
	\$2.75/gallon	2.864 billion gallons	\$1.341 billion
	\$2.60/gallon	2.904 billion gallons	\$1.356 billion
	\$2.78/gallon	2.856 billion gallons	\$1.333 billion

Source: March 2009 Transportation Revenue Forecast Council Retail Gasoline Price Projections; BERK Consumption and Revenue calculations assuming -0.26 price elasticity of demand.

Exhibit 7
Fuel Price Projections and Gross Fuel Tax Revenues for FY2015

	Retail Gasoline Price	Expected Consumption	Gross Fuel Tax Revenue
March 2009 Forecast	\$3.57/gallon	2.920 billion gallons	\$1.398 billion
June 2009 Forecast	\$4.06/gallon	2.720 billion gallons	\$1.272 billion
November 2006 Forecast	\$2.92/gallon	3.186 billion gallons	\$1.510 billion

Source: Transportation Revenue Forecast Council Retail Gasoline Price Projections; BERK Consumption and Revenue calculations assuming -0.5 long-term price elasticity of demand.

Fuel Efficiency

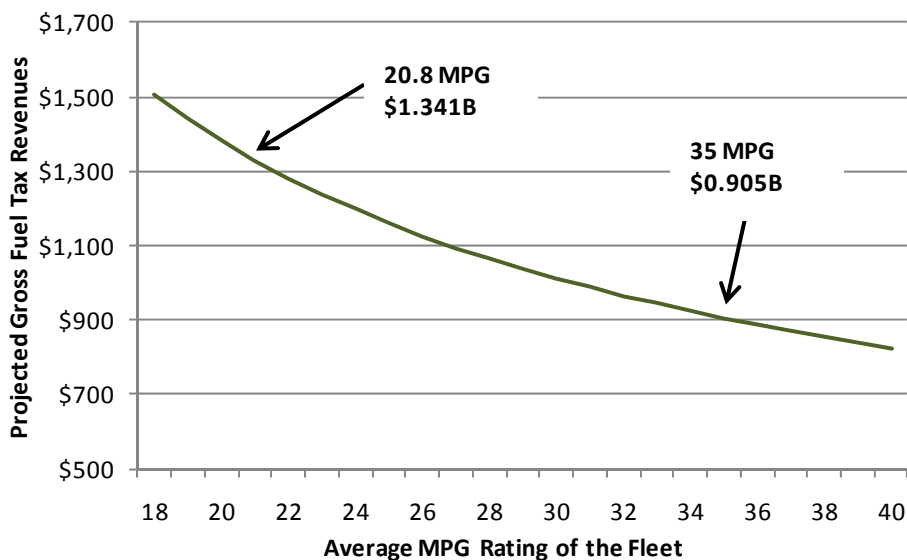
Fuel efficiency of the fleet is another key variable that affects consumption. While in the past we have come to expect modest annual increases in average fuel efficiency for the fleet, emerging policies may greatly increase the speed at which vehicles become more fuel efficient. The companion *White Paper on Policy Initiatives* discusses these policies in detail.

From a revenue standpoint, even small increases in fuel efficiency can result in relatively large changes in revenue. In 2008, the average mpg rating for all new cars and light duty trucks sold in the U.S. was 20.8 mpg.² The 2007 Energy Independence and Security Act (EISA) has mandated that passenger vehicles achieve an overall fuel economy of 35 MPG by 2020. Assuming that these standards translate to the existing fleet on the road in Washington, the following graph shows how

² Environmental Protection Agency, Press Release, "Average fuel economy goes up in U.S." September 19, 2008.

gross fuel tax revenues might change as fuel efficiency increases (assumes all other variables stay constant).

Exhibit 8
Projected Gross Revenue from Fuel Tax by Average MPG of the Fleet (FY2011)



Hybrids and Alternative Fuels

In addition to increasing fuel economy and increasing oil prices, market penetration of hybrid vehicles and alternative fuels are also driving fuel consumption down. A more complete discussion of this trend can be found in the companion *White Paper on Policy Initiatives*.

B. Vehicle Miles Traveled

A tax based on vehicle miles traveled (VMT) was proposed by the 2007 Study as a long-term strategy to replace the fuel tax. Presumably, VMT is less affected by the variables discussed above and therefore provides a more stable revenue base. In addition, it provides an opportunity to modify taxes based on congestion levels and other factors to increase the overall efficiency of the transportation system.

At this point in time, it is unclear how much more stable a VMT-based tax would be. Historically, VMT per capita has been growing (reflecting average increases in personal wealth and land use development patterns). However, recent demographic trends (including an aging population and smaller household sizes) have led to a relatively flat VMT per capita over the past five years.

Furthermore, statewide climate change initiatives have linked VMT to carbon emissions and proposed ambitious targets for reducing VMT per capita. Given the influx of hybrid vehicles and alternative fuel technologies, the VMT goals are currently under review, and it is unclear how new goals might compare to today's levels.

**Implementing Alternative Transportation Funding Methods
2007 Funding Data Update**

A much more thorough analysis of VMT trends and policy initiatives would be required if the State chose to transition to a transportation funding system that included a substantial portion based on VMT.