CAMBRIDGE SYSTEMATICS

Long-Term Transportation Financing Study

Final Report

prepared for

State of Washington Joint Transportation Committee

prepared by

Cambridge Systematics, Inc.

with

Mercator Advisors, LLC

January 2007

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date

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Executive Summary

This study is sponsored by the Washington State Joint Transportation Committee (WSJTC) and conducted by Cambridge Systematics, Inc. as prime consultant, in association with Mercator Advisors LLC. The study addresses five topics related to existing and new methods for funding and financing statewide transportation needs. These topics are organized into the following five sections of this report:

- **Section 1.0: Motor Fuel Tax Viability –** Compares of Washington State's dependence on fuel taxes with that of other states, the impacts of the State's fuel price fluctuations on revenue, and the forecasted impacts of hybrid and alternative fuel vehicles.
- **Section 2.0: Alternative and Emerging Revenue Sources –** Provides an evaluation of alternative and emerging transportation funding efforts throughout the country and internationally, including vehicle travel pricing and tolling innovation, concession and/or private development of transportation facility improvements, and other funding sources.
- **Section 3.0: Debt Financing Trends and Implications –** Evaluates trends and long-term implications of applying debt financing to complete transportation projects, including both conventional and non-traditional approaches.
- **Section 4.0: Evaluation of State-Distributed Transportation Funds –** Reviews the approaches used by other states to distribute funds to local governments for transportation purposes, such as direct distribution of funds by formula and project grants subject to particular eligibility criteria and priorities.
- **Section 5.0: Recommendations –** Presents recommendations for maintaining the medium- and long-term viability of the State's funding portfolio.

While Cambridge Systematics takes full responsibility for the information and findings in this report, a substantial amount of the work presented here is the result of a partnership between the consulting team and the members of our Working Group. These members are staff from both legislative bodies, the Office of Financial Management (OFM), and Washington State Department of Transportation (WSDOT).[1] Their input was critical to our research and findings. They provided critical understanding of the complexity and nuances of funding transportation in a state that is at the forefront of innovative and effective funding practices.

The complexity, however, is no excuse for confusing stakeholders about the near- and long-term consequences of the State's current funding practices or the

[1] Roster of the JTC Working Group provided under separate cover.

advantages and disadvantages of alternatives. Therefore, we also take responsibility for presenting compelling, understandable solutions. While there are immediate funding problems, many of the biggest challenges for the State will grow more difficult and painful to solve over the next 10, 20, or even 30 years. These challenges seem to hover some distance out in the future, but our goal in this study is to bring all of the issues into sharp focus and present solutions that contend with the political realities, as well as resolve the technical challenges.

MOTOR FUEL TAX VIABILITY

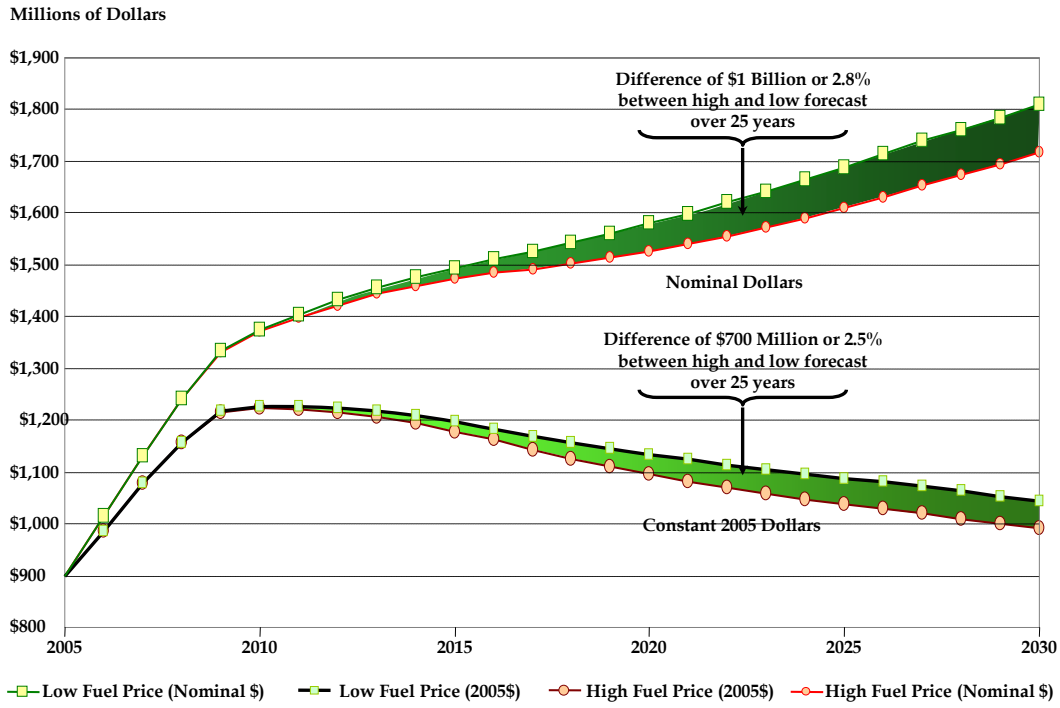
At present, fuel taxes comprise nearly half of state revenues for transportation.[2] The Washington Legislature approved the Nickel funding package in 2003 that increased the tax rate from 23 cents to 28 cents per gallon, and then again 2 years later with passage of the 2005 Partnership funding package, which increased the rate a total of 9.5 cents per gallon to 37.5 cents per gallon in July 2008 or 37 percent measured in nominal dollars. These rates were used to forecast 2 alternative revenue projections: 1) a baseline scenario that assumes motor fuel prices will change from $2.706 per gallon in 2006 to $4.409 in 2030 (annual increase of 2.6 percent), and 2) a high fuel price scenario that assumes the price will reach $6.079 in 2030 (annual increase of 3.9 percent).[3]

The net effect between the high and low fuel price scenarios is shown as the shaded area between the two curves in Figure ES.1. This area represents a cumulative loss of revenue of $1.1 billion over 25 years in nominal dollars or a loss of 2.8 percent (total revenue of $37.0 billion). In constant dollars, this cumulative loss of revenue amounts to $700 million over 25 years (year 2005 constant dollars) or a loss of 2.5 percent. The most significant findings from these projections, however, is the loss in purchasing power shown as the difference between the nominal and constant dollar revenue projections. This difference, whether measured between the high or low projections, will amount to almost $10 billion over 24 years.

[2] This share is net of bond proceeds, which are not considered a source of funding since the debt service for these bonds must be secured from another funding source.

[3] Developed by the U.S. Department of Energy (DOE) on the most recent *Annual Energy Outlook*, February 2006.

Figure ES.1 Motor Fuel Tax Revenue Projections in Nominal vs. Constant Dollars*, 2005 to 2030

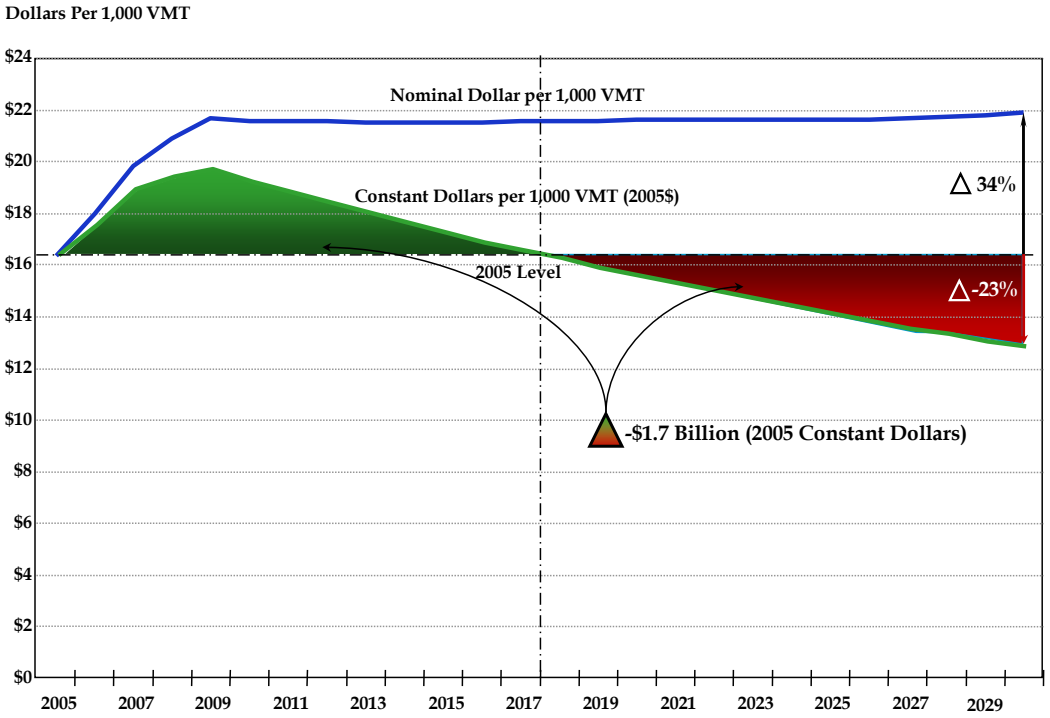


Source: Washington Stae DOT and Cambridge Systematics, Inc.
*Assumes 2.2 percent annual inflation.

A more accurate understanding of the future viability of the motor fuel tax is gained when the total revenues are compared with the projected increase in demand for transportation. Using the baseline projections, Figure ES.2 shows projected motor fuel tax revenue in terms of dollars per 1,000 vehicle-miles traveled (VMT). In nominal dollars, this amount is projected to grow from $16.3 in 2005 to $21.9 in 2030, an increase of 34 percent. In constant 2005 dollars, however, this amount is projected to fall to $12.6 in 2030, a decrease of 23 percent compared to the purchasing power of revenues per 1,000 VMT available in 2005.

The 37.5 cent rate will sustain the fuel tax per 1,000 VMT above the 2005 level for the next 13 years. But from 2018 onward, the State will collect less each year than it did in 2005. From 2005 to 2030, the aggregate revenue will total a net loss of $1.7 billion (in constant 2005 dollars), as shown in the two shaded areas in Figure ES.2, if no further adjustments to the motor fuel tax rate are made.

Figure ES.2 Projected Motor Fuel Tax Revenue Per 1,000 VMT*, 2005 to 2030



Source: Washington State DOT and Cambridge Systematics, Inc.
*Based on average annual inflation of 2.2 percent over the 25-year period.

Given these results, it is clear that even with the significant increases to the fuel tax adopted in the past three years, the State's revenues from fuel tax will diminish to their current level sometime after 2015. The future viability of fuel tax revenues is address in our recommendations (below).

TRENDS AND IMPLICATIONS OF DEBT FINANCING

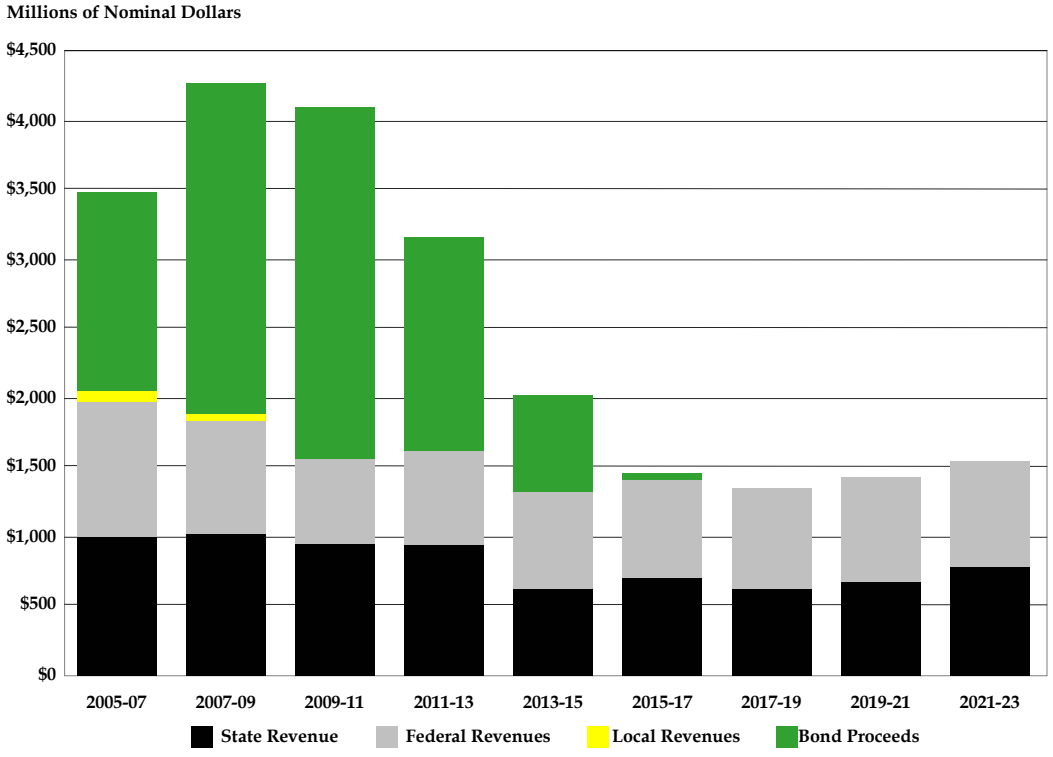
This study examines the use of debt financing as a strategic tool to accelerate state transportation investment in Washington. Section 3.0 describes factors that contributed to a shift away from pay-as-you-go financing and outlines the general scope of the bonding programs approved by the Legislature. It also provides an indication of how the amount of debt issued for highway purposes in Washington compares to other states and presents a discussion of issues related to debt management and financial planning. Finally, the section describes the potential use of long-term asset leases and public-private partnerships to increase or accelerate transportation investment. Brief summaries of only some of the findings are provided here.

To address some of the most critical transportation needs, the State of Washington has embarked upon an ambitious capital investment program. Approximately

430 highway, bridge, ferry, and rail projects totaling over $11 billion are included in transportation funding packages approved by the State Legislature in 2003 and 2005 (the "Funding Packages"). The Funding Packages provide authorization for approximately $7.7 billion of general obligation (G.O.) bonds secured by motor vehicle fuel tax revenue (the "MVFT Bonds") and $349.5 million of G.O. bonds that will be paid from vehicle sales taxes, rental car tax receipts, and other fees (the "Multimodal Bonds"). In addition, over $400 million of MVFT Bonds authorized prior to 2003 are expected to be issued over the next 3 years.

Bond proceeds comprise a significant portion, approximately 45 percent, of the total capital funding currently expected to be allocated by the State of Washington for highway construction and preservation and other transportation infrastructure needs through 2023.[4] Figure ES.3 shows the annual amount of funding for transportation capital projects by source.

Figure ES.3 WSDOT Capital Budget and 16-Year Financial Plan Capital Sources of Funds

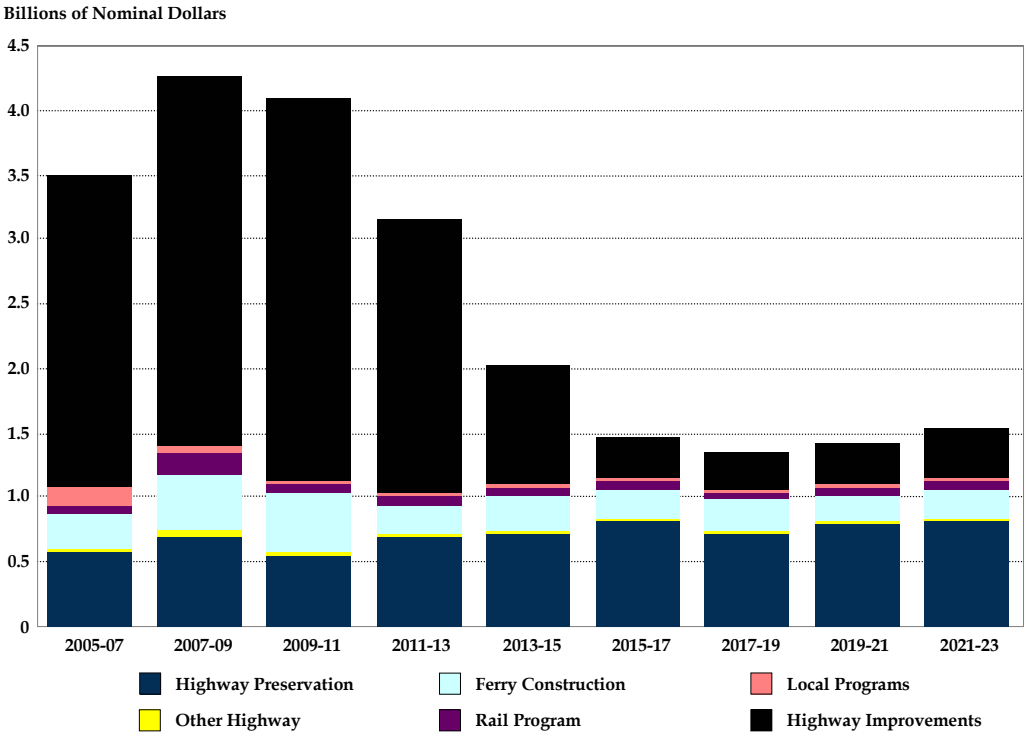


Source: Department of Transportation 2007 to 2009 Capital Budget Request and 16-Year Financial Plan, August 30, 2006.

[4] Department of Transportation 2007 to 2009 Capital Budget Request and 16-Year Financial Plan, August 30, 2006.

The Legislature primarily targeted new construction needs in crafting the Funding Packages. As shown in the Figure ES.4 below, annual resources dedicated to highway preservation and ferry construction do not increase significantly in WSDOT's long-term financial plan.

Figure ES.4 WSDOT Capital Budget and 16-Year Financial Plan Capital Uses of Funds

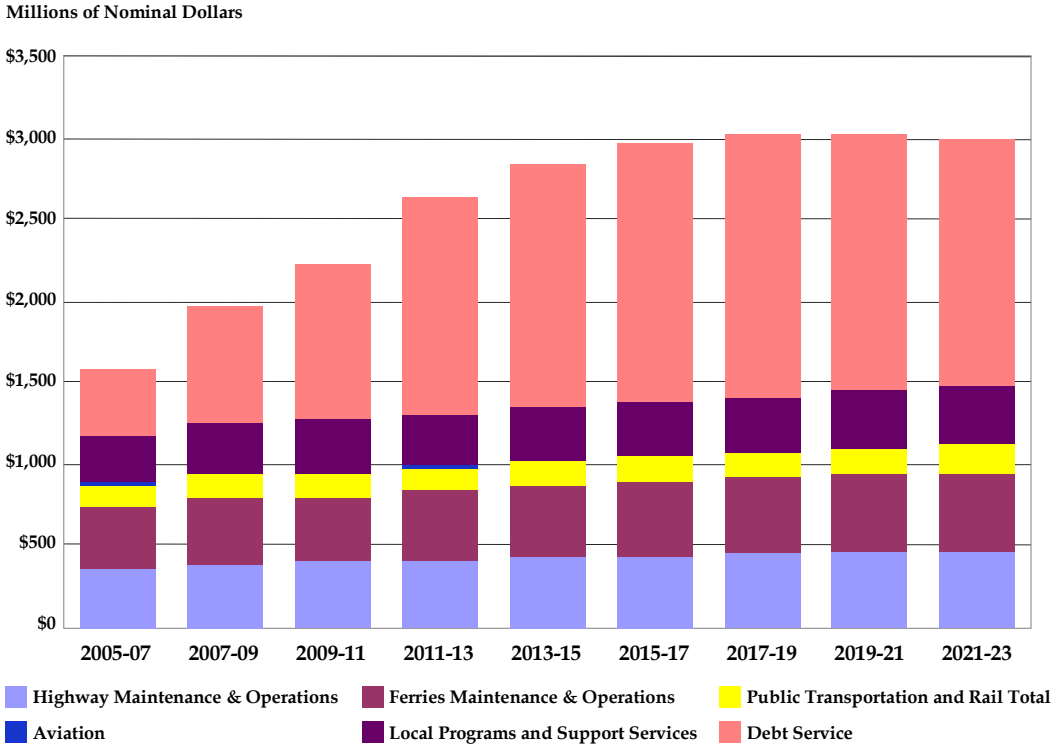


Source: Department of Transportation 2007 to 2009 Capital Budget Request and 16-Year Financial Plan, August 30, 2006.

The Funding Packages include scheduled increases to the state gas tax that will bring the rate to 37.5 cents per gallon by July 1, 2008. The incremental funding from the tax increases allocable to WSDOT will primarily be used to pay debt service on MVFT Bonds. As shown in Figure ES.5, total funds available to WSDOT will increase over time, but the amount budgeted for support services and operation and maintenance of highways and the State Ferry system will remain relatively flat. [5] By the end of the 2011 to 2013 biennium, debt service may comprise over 50 percent of WSDOT's operating budget.

[5] Department of Transportation 2007 to 2009 Operating Budget Request and 16-Year Financial Plan, August 30, 2006.

Figure ES.5 WSDOT Capital Budget and 16-Year Financial Plan Operating Uses of Funds



Source: Department of Transportation 2007 to 2009 Operating Budget Request and 16-Year Financial Plan, August 30, 2006.

Washington is one of a handful of states that pledges its full faith and credit to the payment of transportation bonds secured by motor fuel taxes. The "double-barreled" pledge of both the taxing power of the State and a dedicated revenue stream provides a very cost-effective way to access the capital markets.

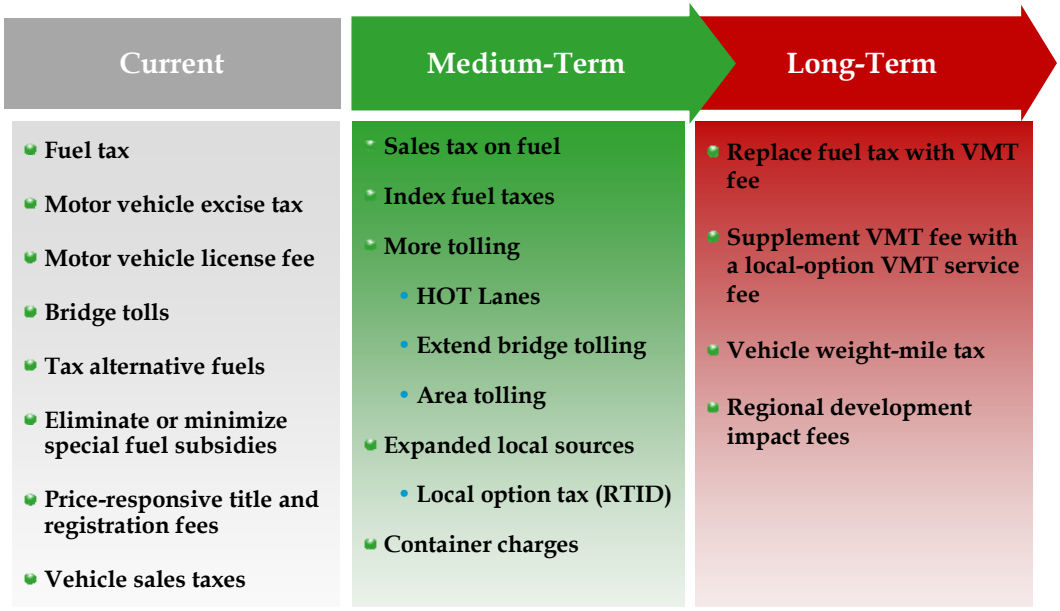
From an investor's perspective, an additional bonds test on MVFT bonds is not needed because of the strength of the State's general obligation pledge (AA/AA1/AA credit ratings) and the fact that revenue is withheld on a monthly basis to ensure sufficient funds are available to make debt service payments. The risks associated with the pledged revenue stream, however, remain. If motor fuel tax revenue collections fall because of a severe economic downturn (or passage of a voter initiative), the impact on WSDOT operations could be significant.

By establishing an informal policy on minimum acceptable debt service coverage, Washington could mitigate the potential risks associated with fluctuations in motor fuel tax revenue and enhance the amount of resources available for pay-as-you-go opportunities.

RECOMMENDATIONS

Our recommendations for a more optimal funding portfolio are divided into two timeframes. The medium-term extends over the next 5 to 15 years, depending on how quickly the State's gas tax receipts are eroded by increasing mileage of the vehicle fleet, usage of non-taxed fuels, and the advancement of technology needed to replace fuel taxes. The transition to long-term funding solutions would overlap with the medium-term recommendations over a 5-year period. Figure ES.6 presents our medium- and long-term recommendations for improving Washington State's funding portfolio and demonstrates significant Legislative leadership by listing the recent increases across a large number of funding sources.

Figure ES.6 Evaluation of Revenue Sources – Sorting Alternatives Into Three Timeframes



Our funding recommendations are intended to match the rising costs of construction, operations, and maintenance as measured in constant dollars and adjusted for increasing demand. Therefore, these funding proposals will result in annual increases to transportation users. In additions, these funding alternatives would be appropriate should the Legislature choose to increase or decrease the amount of transportation revenue that the State collects now.

The imposition of automatic adjustments isolates funding increases (measured on a basis of nominal dollars) from the political process and present significant political challenges. Nevertheless, our analysis of past trends (Sections 1.0 and 2.0) demonstrate that purchasing power of the State's funding portfolio has declined over long periods, punctuated with the voters and Legislature's episodic efforts to recapture some of the lost ground. The lack of success with this

approach to date compels us to recommend automatic indexing of existing and new sources in order to stabilize the true parity of funding available to meet the increasing demand in the future. Although the recommendations are scaled to be revenue-neutral, the Legislature could choose to implement any or all of our recommendations at more aggressive level if it deems current funding insufficient, or scale them back to maintain a lower level of funding.

Medium-Term Recommendations

Our medium-term recommendations are intended to prevent the forecast 23 percent decline in future fuel tax revenues weighted by the VMT over the next 25 years. These are summarized in rough order of effectiveness based on 5 criteria (see Section 1.0).

Index State Motor Fuel Taxes – In the medium term, indexing of the motor fuel tax is the most viable strategy for Washington State to keep the purchasing power of the motor fuel tax from eroding significantly over time. This indexing, however, would not completely offset the erosion caused by increasing VMT associated with higher mileage vehicles. Indexing the fuel tax rate to inflation (2.2 percent annually) starting in 2010 would generate approximately $9.8 billion more by 2030 than would be earned under the flat 37.5 cent Partnership rate. Under the indexed scenario, the fuel tax rate would reach 59.2 cents per gallon in the year 2030. This increase in the nominal rate would maintain the purchasing power of today's 32 cent rate.

Sales Taxes on Motor Fuel – Although this source scores low on the basis of reliability, it scores high on yield. The Legislature could replace some share of the fixed rate fuel excise tax with a sales tax, which is a percentage of the cost of a gallon of fuel. The revenue generated would not track well with the true cost inflation of transportation needs. A 6.5 percent sales tax on motor fuels would generate $16.9 billion in revenue from 2010 to 2030, almost twice what indexing the fuel excise tax would generate.

Container Charges – This source, if applied as a variable fee based on peak-period pricing, has the strong potential to reduce truck-related congestion, but would not generate significant revenues. If applied, however, as a flat $50.00 fee in 2010 (and indexed to inflation), it could generate over $8 billion in revenue from 2010 to 2030. There is uncertainty in this forecast because container fees could divert some container traffic to other West Coast ports.

Tolling Specific Corridors – Many states are looking to tolling as a way to provide additional revenue for transportation projects. The Washington State Transportation Commission has completed its Comprehensive Tolling Study. The study did not propose specific projects for implementation, but it provides examples of high-cost/high-need projects that have potential to generate partial funding for some portion of their cost. The specific improvements and tolling options include the following projects.

- SR 704 Cross Base Highway;
- Snoqualmie Pass Improvements;
- SR 520 and I-90 Bridges over Lake Washington;
- SR 167 and I-405 High-Occupancy Toll (HOT) Lane System: Sumner to Bellevue;
- I-405 North HOT Lanes – SR 520 north to I-5 (Swamp Creek);
- I-5 in Lewis County;
- I-5 and Alaskan Way Viaduct in Seattle; and
- Statewide Truck Tolling.

The amount of dollars that could be generated by the potential projects varies widely. On the low end are the HOT lane projects, which sell the excess capacity in high-occupancy vehicle (HOV) lanes to drivers that are in a hurry to be somewhere. The tolls are dynamically adjusted such that the lanes remain free flowing. Since these toll lanes are only effective during peak periods and the amount of capacity to sell is limited, the revenue potential of these tends to be modest. The Snoqualmie Pass Improvements are at the high end, where tolling could potentially fund the entire project cost.

The revenue stream from these projects could amount to over $26 billion (in nominal dollars) over a 30-year period. The value of that revenue stream if used to issue bonds, however, is less than $4 billion in available funds for construction of these projects today. Public-private partnerships may have the potential to stretch the value of these revenue streams through the use of equity participation rather than debt. Nevertheless, the results show that the estimated tolling streams for all, but one of the illustrative examples (with the possible exceptions of the Snoqualmie Pass Improvements, I-90 Bridge, and statewide truck tolling), contribute only a fraction of the total funding needed. Thus, most of these tolling projects on new facilities create net funding liabilities for the State that will require additional funding from non-toll sources to fully fund the projects.

Long-Term Recommendations

The long-term recommendations are derived from an intense national debate over moving to an entirely new approach to funding transportation. The consensus among most participants in this debate recommends that in the long term, all levels of government charged with funding transportation should move from existing sources to a funding system that charges drivers for the marginal cost of where, when, and how much they drive. In other words, a variable fee for vehicle miles of travel calibrates to the congestion levels. Although this proposal seems to impose a dramatic change in the way transportation is paid for, current fuel tax is more like user fee than tax; albeit a weak one that does not correspond well to the full cost of the service.

Widespread implementation of mileage-based user fees – whether in urbanized areas for congestion pricing and management or statewide as a replacement for gallonage-based taxes – may be technically feasible in the next 10 to 15 years. Time will be needed to equip vehicle fleets with Global Positioning System (GPS) and Geographic Information System (GIS) technology, and to develop reliable and auditable administrative systems. It will be a major challenge nationally to shift from collecting motor fuel taxes from a few thousand wholesalers to collecting user fees from millions of automobile owners.

Nevertheless, mileage-based revenue systems offer the potential of significant benefits. Revenues are more likely to keep pace with population and economic growth. Alternative fuels will not erode mileage-based revenues as they will gallonage-based taxes. Mileage-based user fees will separate fuel use from highway use, removing the conflict with energy and air quality policies. Furthermore, mileage-based system will maintain the long-established political consensus that highways should be funded from user fees and that all users should pay their fair share. Finally and perhaps most important, mileage-based fees will send strong price signals to users and thus better manage the demand in relation to capacity.

A VMT fee system would offer local jurisdictions the opportunity to piggy-back on the state VMT fee and replace all of their funding sources with a local-option VMT fee. This substitution would remove the dependence most local jurisdictions in Washington State have on special and general taxes. In fact, the Puget Sound Regional Council (PSRC) is in the midst of an experiment that is being closely watched around the country; whereby, all freeways and many arterial highways in the central PSRC region are tolled.[6]

A VMT fee of 2.15 cents per mile is projected to generate $33.2 billion in revenue from 2010 to 2030, which is roughly revenue-neutral with the current schedule of motor fuel tax rates. The same VMT fee that starts at 2.15 cents per mile in 2010, but then is indexed to inflation (2.2 percent annually), is projected to generate $42.0 billion in revenue from 2010 to 2030, or an increase of $8.8 billion from the non-indexed VMT fee. Subsection 5.2 (Next Steps) of this report provides some guidance on implementation of VMT fees.

[6] Pryne, Eric, *Tolls Could Cut Congestion, Test Shows*, Seattle Times, Friday, November 24, 2006.

1.0 Motor Fuel Tax Viability

1.1 INTRODUCTION: PAST AND PRESENT

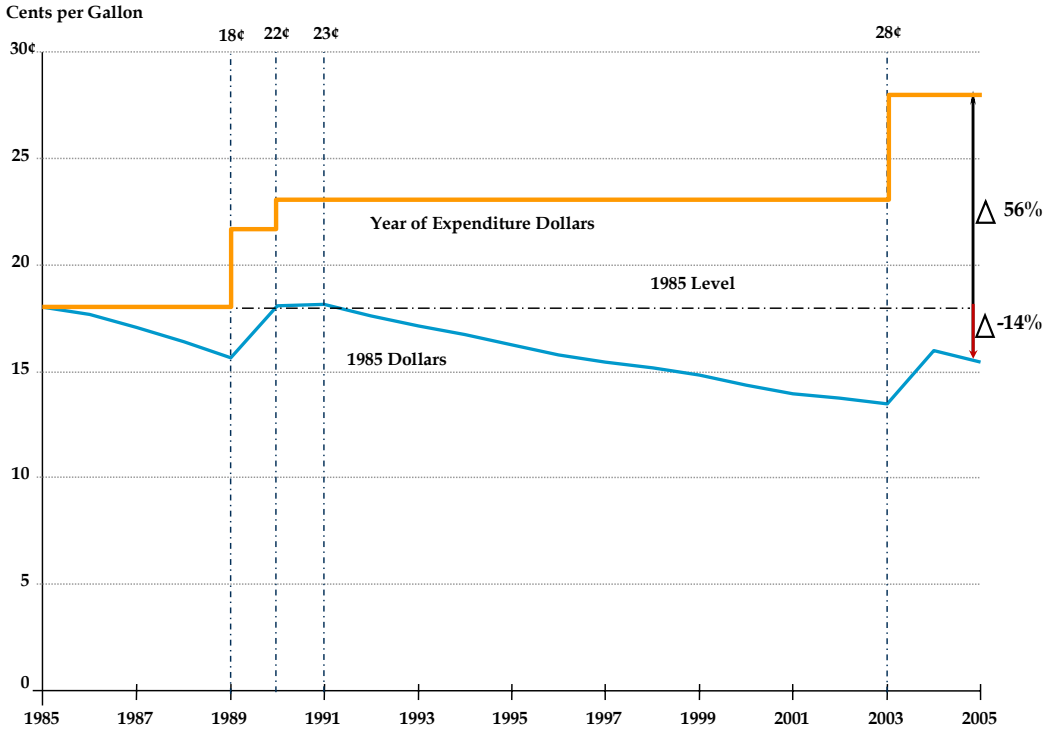
At present, fuel taxes comprise nearly half of state revenues for transportation.[7] The Washington State motor fuel tax rate was 18 cents per gallon in 1985, increased to 22 cents per gallon in 1990, and to 23 cents per gallon in 1991. The tax rate stayed at 23 cents per gallon from 1991 to 2002. The Washington Legislature approved the Nickel funding package in 2003 that increased the tax rate to 28 cents per gallon, and then again two years later with passage of the 2005 Partnership funding package, which when fully implemented in July of 2008 will increased the rate a total of 9.5 cents per gallon or 37 percent. The increases are phased in starting in July of 2003 from 28 cents per gallon to 31 cents per gallon then to 34 cents per gallon in July 2006, then to 36 cents per gallon in July 2007, and finally to 37.5 cents per gallon in July 2008. These measures demonstrate the leadership of the Legislature to increase funding for state transportation.

Unfortunately, in the future these nominal dollars must fund the costs for new construction and ongoing maintenance and operations at future prices, which are certain to increase. Thus to measure accurately the purchasing power of the state's gas tax, the rate and the revenues it generates should be adjusted to take into account the likely price inflation in costs for construction, maintenance and operations. While there are several inflation rates that may apply to the mix of activities funded with gas tax revenues, the consumer price index (CPI) appears to be the most appropriate. When adjusted for inflation, the 37.5 cent rate in the 2030 will be equivalent to less than 25 cents in 2005 constant dollars, or 23 percent below the 2005 level.

Figure 1.1 shows the historical motor fuel tax rate from 1985 to 2005. In nominal dollars (i.e., year of expenditure dollars), the motor fuel tax rate has increased by 56 percent over 20 years (28 cents in 2005 compared to 18 cents in 1985). In constant 1985 dollars, however, the motor fuel tax rate has declined by 14 percent (15.4 cents in 2005 compared to 18 cents in 1985). This decline in purchasing power has come despite the voters electing to increase the fuel tax rate three times.

[7] This share is net of bond proceeds, which are not considered a source of funding since the debt service for these bonds must be secured from another funding source.

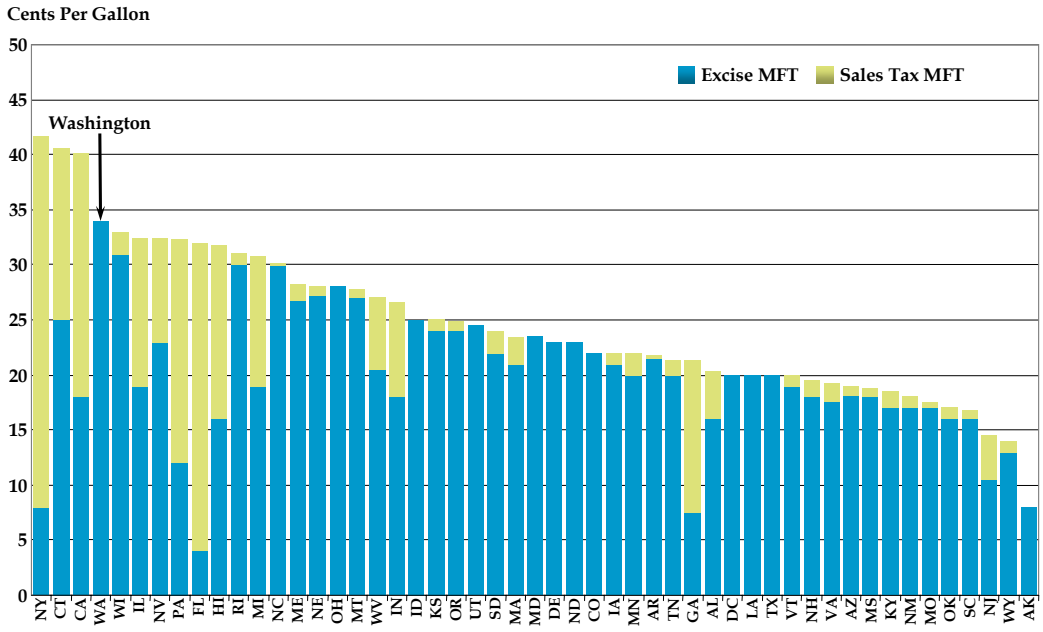
Figure 1.1 Historical Washington State Motor Fuel Tax Rate Nominal and Constant Dollars[1], 1985 to 2005[2]



Source: Washington State Department of Transportation and Cambridge Systematics, Inc..
1. Based on average annual inflation of 3.0 percent over the 20-year period.
2. 2005 is used as a base years because this is when the rate was increased to 31 cents per gallon.

Figure 1.2 shows that the current rate of 34 cents per gallon places Washington State fourth after New York (41.7 cents), Connecticut (40.5 cents), and California (40.1 cents). While the entire 34 cents per gallon for Washington State is composed of only the excise tax, the rates for each of these other states are composed of a fixed excise portion and a sales tax rate that charges a fixed percentage of the cost of a gallon of fuel. As a result, the rates measured in cents per gallon for these mixed rates fluctuate based on the price per gallon.

Figure 1.2 National Comparison of State Gasoline Tax Rates, October 2006

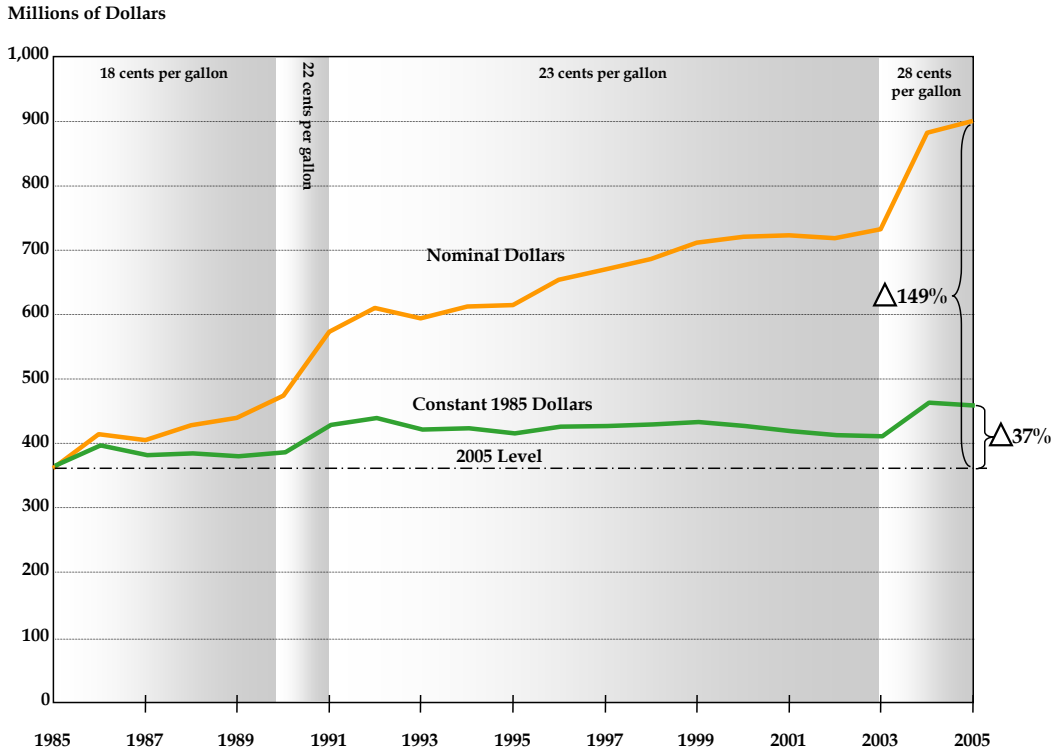


Source: American Petroleum Institute. Includes sales, petroleum, and local option taxes, October 2006.

We caution interpreting Washington's current rank of fourth nationally as any reliable indicator of its fuel tax rate being "too high" or not having much more "head room." Even without the volatility in fuel prices, the relative ranking among states based on fuel tax rates solely does not convey a reliable metric of how high fuel taxes should be increased (or decreased) relative to other states. Such comparisons are often used to suggest that fuel prices and fuel tax rates are connected. The anecdotal evidence and economic analysis, however, contradict this connection. For example, observers tell of two service stations facing one another at a major intersection on the state border between New York and New Jersey. Both stations charge the same price per gallon for gas, despite the fuel being sold in New Jersey being taxed 14 cents per gallon (third lowest in the nation) and New York at 41.7 cents. While most states are dependent on fuel taxes as their largest source of transportation revenue, their portfolios of transportation funding from other sources varies drastically.

The previous presentation of past and present fuel tax rates is intended to set the stage for what really counts: revenues. Figure 1.3 shows the historical trend of Washington State's motor fuel tax revenues from 1985 to 2005. In nominal dollars (i.e., year of expenditure), the amount of revenue has grown from $362 million in 1985 to $901 million in 2005, an increase of 149 percent, driven by the 6 increases in fuel tax rate over that period. In constant 1985 dollars, however, the amount has grown only to $496 million in 2005, an increase of 37 percent.

Figure 1.3 Historical Washington State Motor Fuel Tax Revenue Nominal and Constant Dollars*, 1985 to 2005

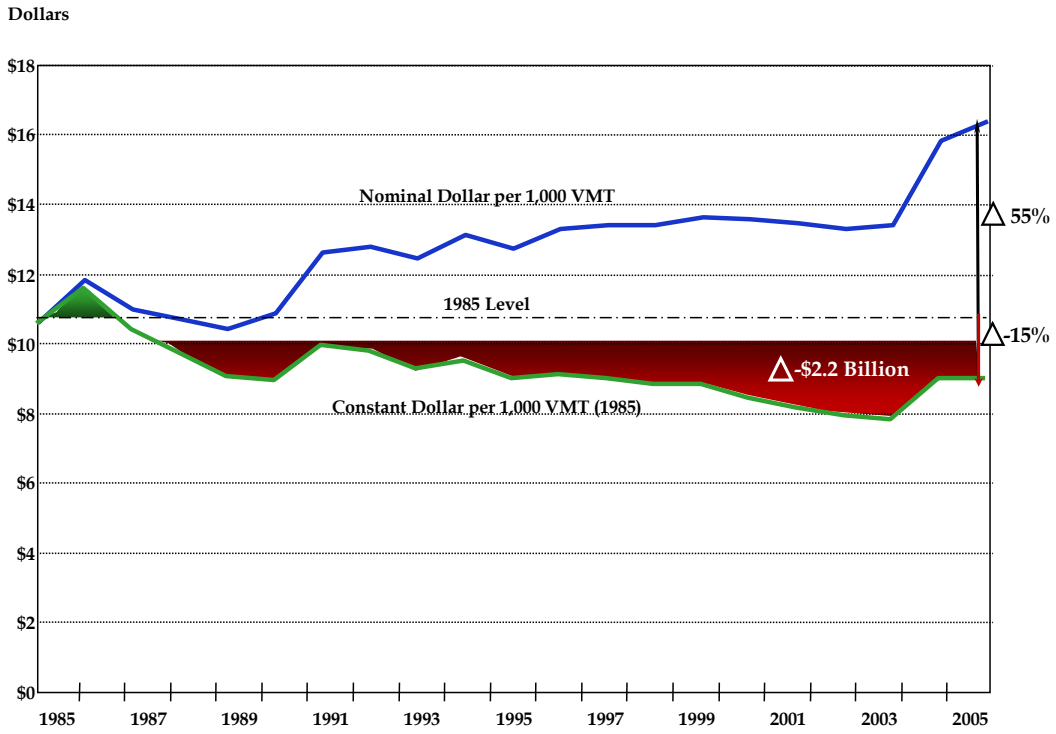


Source: Washington State DOT and Cambridge Systematics, Inc.
*Based on average annual inflation of 3.0 percent over the 20-year period.

In order to finally understand the historical trend in nominal and constant revenues, these revenue trends were weighted by the demand on the transportation system; thus, as demand increases it can be determined if revenues were keeping up. These revenue trends were weighted by statewide aggregate VMT as a reasonable measure of demand for transportation capacity, operations, and maintenance. Figure 1.4 shows historical motor fuel tax revenue in terms of dollars per 1,000 VMT. In year of expenditure dollars, this amount has grown from $10.56 in 1985 to $16.33 in 2005, an increase of 55 percent. But in constant 1985 dollars, this amount has fallen to $9.00 in 2005, a decrease of 15 percent.

The most compelling result of this final measurement of historical revenue trends is shown as the shaded area under the trend for constant dollars per thousand VMT. This area connotes the amount of total aggregate revenue that was lost between 1985 through 2005 relative to indexing fuel tax receipts per thousand VMT based on what was available in 1985. This lost of $2.2 billion in purchasing power relative to the demand for transportation over the past 20 years may define the fundamental problem this study is attempting to solve.

Figure 1.4 Historical Motor Fuel Tax Revenue Per 1,000 VMT
Nominal and Constant Dollars*, 1985 to 2005

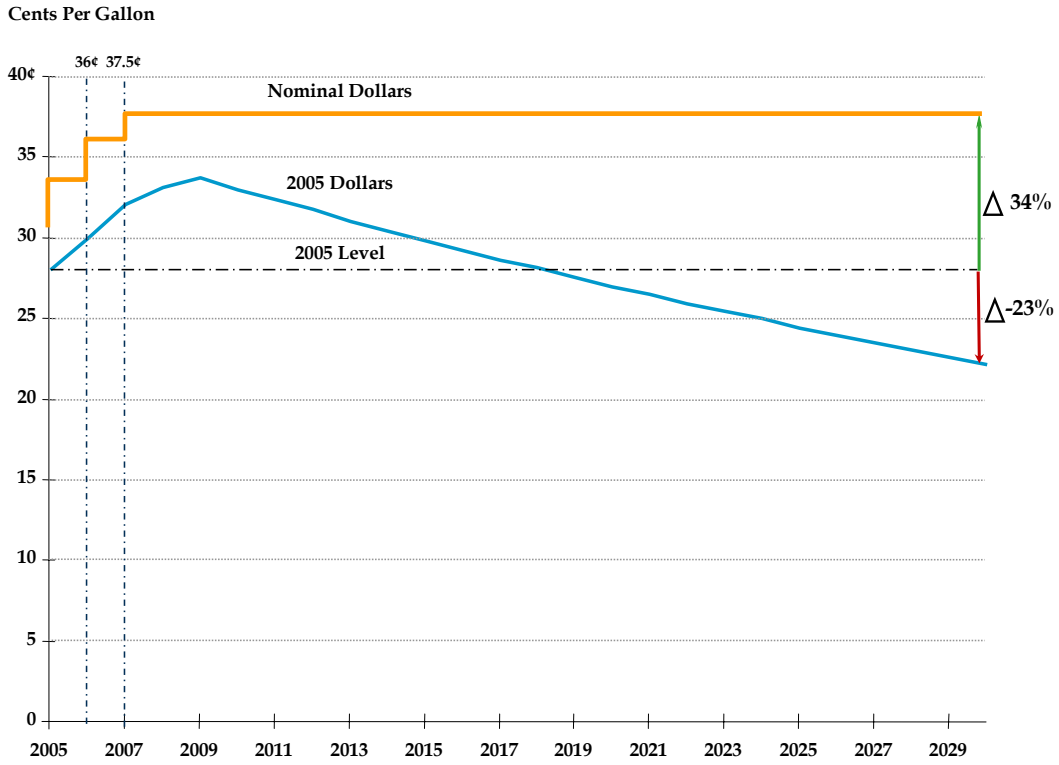


Source: Washington State DOT and Cambridge Systematics, Inc.
*Based on average annual inflation of 3.0 percent over the 20-year period.

1.2 MOTOR FUEL TAX FORECAST

The previous subsection examined historical trends in fuel tax rates and revenues and compared Washington States fuel tax rates with other states. This subsection examines future trends starting with the scheduled increases in fuel tax as required in the 2005 Partnership Funding Package. Figure 1.5 shows what the Washington State's motor fuel tax rate will be through the year 2030, if no further changes are made after July 2008. At 37.5 cents per gallon, the motor fuel tax rate in 2030 would be 34 percent higher than the 28.0 cents per gallon at the start of 2005. In constant 2005 dollars, however, the motor fuel tax rate will have declined by 23 percent (21.7 cents in 2030 compared to 28 cents in 2005).

Figure 1.5 Baseline Projected Washington State Motor Fuel Tax Rate Nominal and Constant Dollars*, 2005 to 2030



Source: Washington State DOT and Cambridge Systematics, Inc.
*Based on projected average annual inflation of 2.2 percent over the 25-year period.

Based on the established schedule of fuel tax rate increases, Cambridge Systematics prepared a forecast of future revenues from fuel taxes. These forecasts show the future revenues in nominal dollars, constant dollars, and revenues weighted by future travel demand (i.e., vehicle miles of travel or VMT). The forecast methodology is described in detail in a separate technical report that was prepared in September 2006. That report documents the motor fuel tax model development process, data sources, and sensitivity analysis and is provided under separate cover.

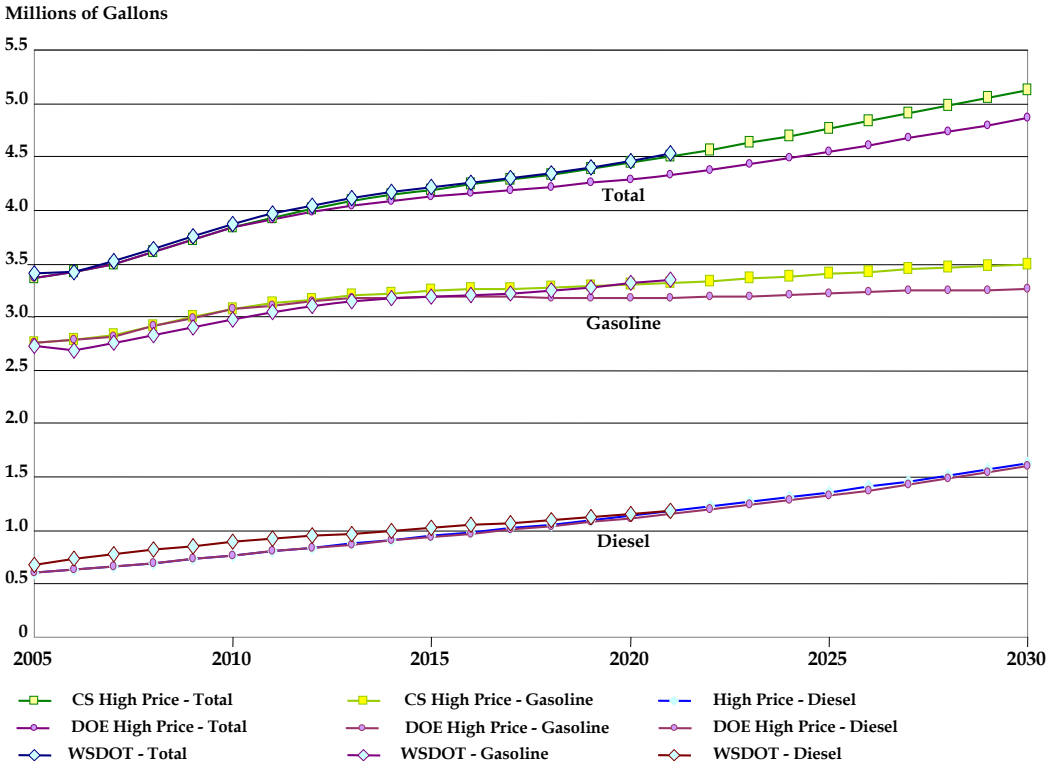
CS conducted a sensitivity analysis of motor fuel consumption and revenue, using the High Fuel Price scenario developed by the Department of Energy (DOE) on the most recent *Annual Energy Outlook* (February 2006):

- The low fuel price scenario projections assume that motor fuel prices will change from $2.706 per gallon in 2006 to $4.409 in 2030, an average annual increase of 2.6 percent.
- The high fuel price scenario projections assume that motor fuel prices will change from $2.706 per gallon in 2006 to $6.079 in 2030, an average annual increase of 3.9 percent.

Increases in fuel prices are expected to reduce fuel consumption by modifying travel behavior in the short term; and when high prices are sustained over the long term, it is expected that people would switch to more fuel efficient vehicles. The effect of this is a reduction in motor fuel consumption over time, as shown in Figure 1.6. As is clear in the graphic, there was no significant difference between this forecast and that of WSDOT, except that this extended 10 years further out to 2030.

This forecast of fuel volumes generated our forecast of revenues: one in nominal dollars (year of expenditure dollars) and the equivalent in constant (2005 inflation adjusted) dollars. In nominal dollars, motor fuel tax is projected to generate $38.1 billion from 2006 to 2030 based on baseline assumptions. In constant year 2005 dollars, the amount of projected revenue is $28.4 billion.

Figure 1.6 Motor Fuel Consumption Projections, 2005 to 2030

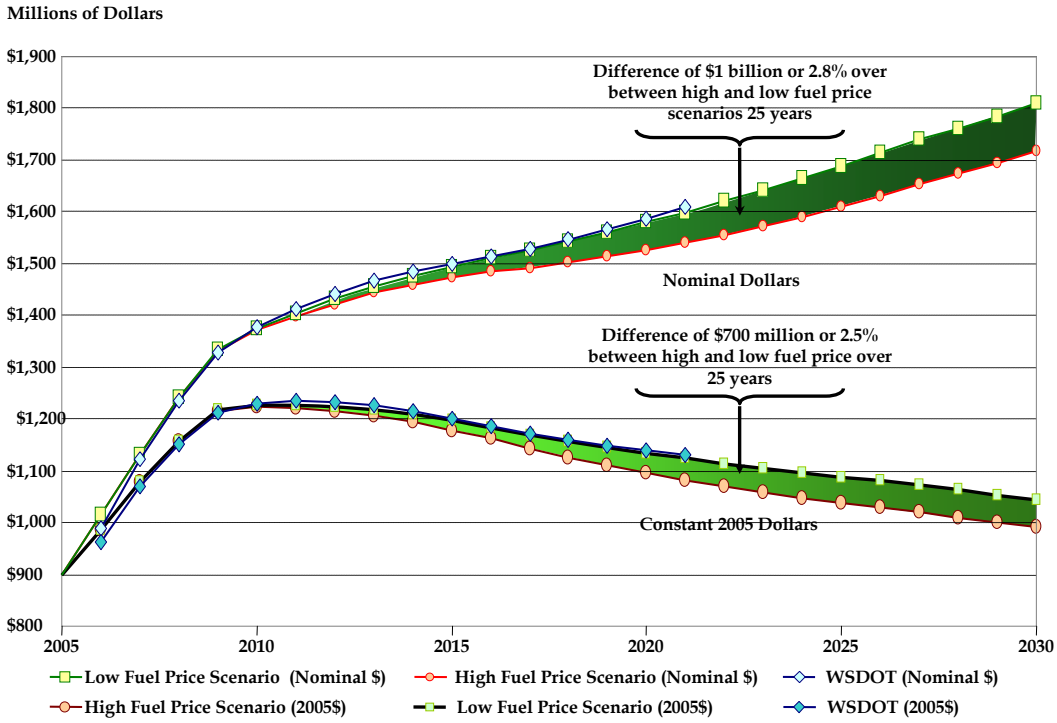


Source: Washington State Department of Transportation and Cambridge Systematics, Inc.

The net effect between the high and low fuel price scenarios is shown as the shaded area between the two curves in Figure 1.7. This area represents a cumulative loss of revenue of $1.1 billion over 25 years in nominal dollars or a loss of 2.8 percent (total revenue of $37.0 billion). In constant dollars, this cumulative loss of revenue amounts to $700 million over 25 years (year 2005 constant dollars) or a loss of 2.5 percent.

The most significant findings from these projections, however is the loss in purchasing power (shown in Figure 1.7) which is the difference between the nominal and constant dollar revenue projections. This difference, whether measured between the high or low projections, will amount to almost $10 billion over 24 years.

Figure 1.7 Motor Fuel Tax Revenue Projections*, 2005 to 2030

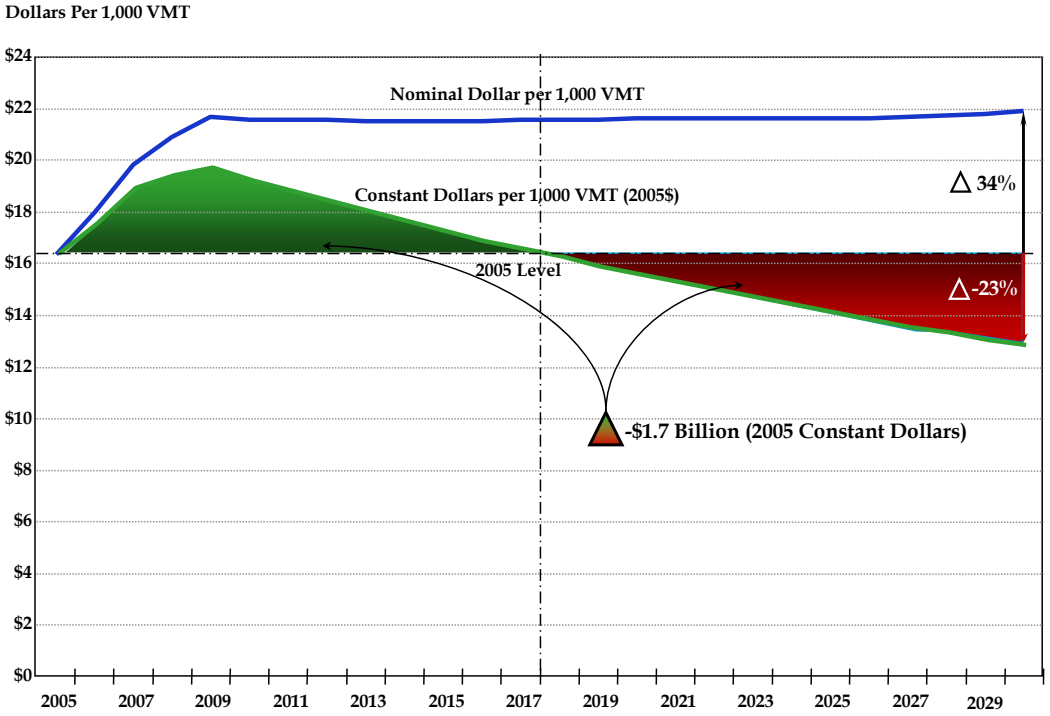


Source: Washington Stae DOT and Cambridge Systematics, Inc.
*Assumes 2.2 percent annual inflation.

As was shown for the historical trend in the previous subsection, a more accurate understanding of the future viability of the motor fuel tax is gained when the total revenues are compared with the projected increase in demand for transportation. Using the baseline projections, Figure 1.8 shows projected motor fuel tax revenue in terms of dollars per 1,000 VMT. In nominal dollars, this amount is projected to grow from $16.3 in 2005 to $21.9 in 2030, an increase of 34 percent. In constant 2005 dollars, however, this amount is projected to fall to $12.6 in 2030, a decrease of 23 percent compared to the purchasing power of revenues per 1,000 VMT available in 2005.

The 37.5 cents rate will sustain the fuel tax per 1,000 VMT above the 2005 level for the next 13 years. But from 2018, the State will collect less that it did in 2005. The aggregate revenue generated from 2005 to 2030 will total a net loss of $1.7 billion (in constant 2005 dollars), as the two shaded areas in Figure 1.8, if no further adjustments to the motor fuel tax rate are made.

Figure 1.8 Projected Motor Fuel Tax Revenue Per 1,000 VMT*, 2005 to 2030



Source: Washington State DOT and Cambridge Systematics, Inc.
*Based on average annual inflation of 2.2 percent over the 25-year period.

Given these results, it is clear that even with the significant increases to the fuel tax adopted in the past three years, the State's revenues from fuel tax will diminish to their current level sometime after 2015.

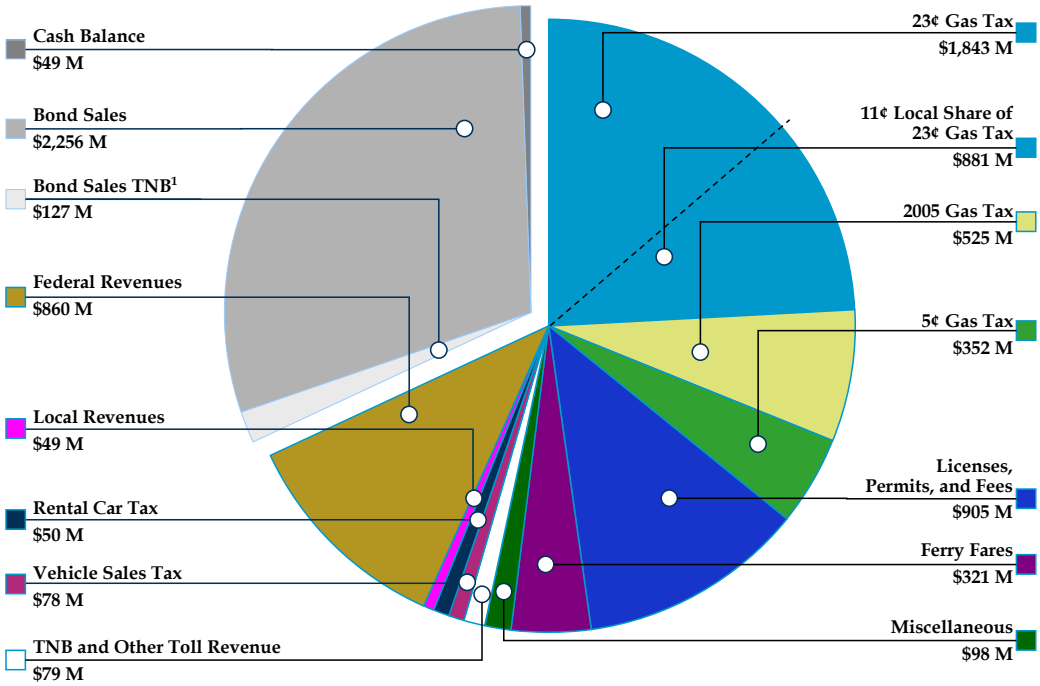
2.0 Alternative and Emerging Revenue Sources

This section provides relevant information on the universe of alternative and emerging revenue sources that could be used for transportation funding in Washington State. It also provides a topology to help organize existing and potential funding sources, which is used in Section 6.0: Identify Options and Timeframes to evaluate funding policies and rank alternative revenue sources.

2.1 EXISTING REVENUE SOURCES

Total transportation funds available in Washington State at the state level are projected at $7,590 million for the 2007 to 2009 budget period (July 2007 to June 2009). WSDOT divides this total amount into 14 major funding sources, as shown in Figure 2.1. The state motor fuel tax (or gas tax) is by far the largest single source of transportation revenue with a 2007 to 2009 funding projection of $2,720 million or 36 percent of the total (53 percent of revenue, excluding bond sales).

Figure 2.1 Total Transportation Funds,* 2007 to 2009



Source: Washington State DOT 2007-2009 Budget Request.
*Tacoma Narrows Bridge.

The cash balance, bond sales, and bond sales Tacoma Narrows Bridge (TNB) line items represent financing options as opposed to sources of revenue, and are thus shaded in gray. The total amount of this financing is $2,431 million. Although this money constitutes funds that may be spent for transportation, they are entirely dependent on the flow of state fuel tax receipts to repay the capital and interest. Therefore, from the perspective of this study, bond sales do not constitute a source of funding. A discussion of these debt financing practices is addressed in Section 4.0: Trends and Implications of Debt Financing. Net of the bond sales, therefore, the amount of projected state transportation revenue generated in Washington State is $5,159 million. Table 2.1 summarizes this information.

Table 2.1 Transportation Revenue Sources, 2007 to 2009

Revenue Source	2007-2009 Projection (in Millions)	Share of Total Revenue
23¢ Gas Tax	$1,843	36%
2005 Gas Tax	$525	10%
5¢ Gas Tax	$352	7%
License, Permits, & Fees	$905	18%
Ferry Fares	$321	6%
Miscellaneous	$98	2%
TNB and Other Toll Revenue	$79	2%
Vehicle Sales Tax	$78	2%
Rental Car Tax	$50	1%
Local Revenues	$49	1%
Federal Revenues	$860	17%
Total – Revenue Sources	$5,159	100%
Financing Mechanism		
Bond Sales	$2,256	93%
Bond Sales Tacoma Narrows Bridge	$127	5%
Cash Balance	$49	2%
Total – Financing Mechanisms	$2,431	100%

Source: 2007-2009 Budget Request, WSDOT, page 8. Numbers may not add exactly to totals due to rounding.

When the bond sales are removed from the total amount of funding available for transportation, the motor fuel tax (which is discussed in Section 1.0: Motor Fuel Tax Viability) comprises 53 percent of state transportation revenue in Washington State. In addition to the motor fuel tax, the other major sources of transportation revenue are:

- **License, permits, and fees** ($905 million, 18 percent) – Includes motor vehicle registration fees ($30.00 per vehicle annually); combined licensing fees for trucks (from $30.00 to $3,402 per truck annually based on weight); driver license fees ($25.00 for a 5-year license); and other fees (i.e., vehicle inspection fees, title fees, special permits). In 2005, a new vehicle weight fee of $10.00 to $30.00 annually for passenger cars based on weight was implemented.
- **Federal funds** ($860 million, 17 percent) – This is primarily funding from Federal-aid highway acts. This also includes transit funding and debt service reimbursement for Federally eligible costs.
- **Ferry fares** ($321 million, 6 percent) – Fares for ferry services in the Puget Sound region have generally gone up by about 5 percent annually in recent years. Larger fare increases took place in 2001 (20 percent) and in 2002 (12.5 percent).
- **Vehicle sales tax** ($78 million, 2 percent) – 0.3 percent of the sales price for new and used vehicles.
- **Rental car tax** ($50 million, 1 percent) – 5.9 percent of the contract amount for rental vehicles.

Section 3.0 of this report provides some details about the sources used to fund the debt service for the $2.4 billion in bond sales and cash balance. Note that the bond proceeds are roughly 46 percent of the total funding ($5.2 billion expected over the next biennial budget cycle).

Following the release of the WSDOT 2005 to 2007 Budget in August 2004, the Washington State Legislature enacted the 2005 Funding Package to fund additional transportation projects over a 16-year period. Table 2.2 provides a summary of this package, which is projected to generate $719 million in additional funds for the 2005 to 2007 budget period and a total of $8,475 million in additional funds over the full 16 years (through 2021).

Table 2.2 Transportation Funding Package – Projected 16-Year Proceeds
Dollars in Millions

New Funding Restricted to Highway Use (18th Amendment)	
9.5¢ Gas Tax Increase (phased in over 4 years)	$5,546
Trucks under 8,000 lbs.	341
Vehicle License Plate Fees	227
Interest Income	38
Total Cash Revenue Projected Over 16 Years	*6,152*
Less 16 Years Total Annual Debt Service on New Bonds	*-3,994*
Net Available for Cash Funding for Investments	2,158
Net Available for Cash Funding for Investments	$2,158
Proceeds of Bonds for the Program to be Repaid from Revenues	5,100
Total Investment for 18th Amendment Restricted Funds	$7,258
New Funding Available for Any Transportation Investment	
Vehicle Weight Fee	$908
Motor Homes	130
Drivers Licenses and Related Service Fees	179
Total Investment for Non-Restricted Funds	$1,217
Total 16-Year Funds Available for Investment	$8,475

Source: NewFundingPackage2005.pdf, *The Money and What It Means to You*, http://www.wsdot.wa.gov/Projects/-Funding/2005/default.htm.

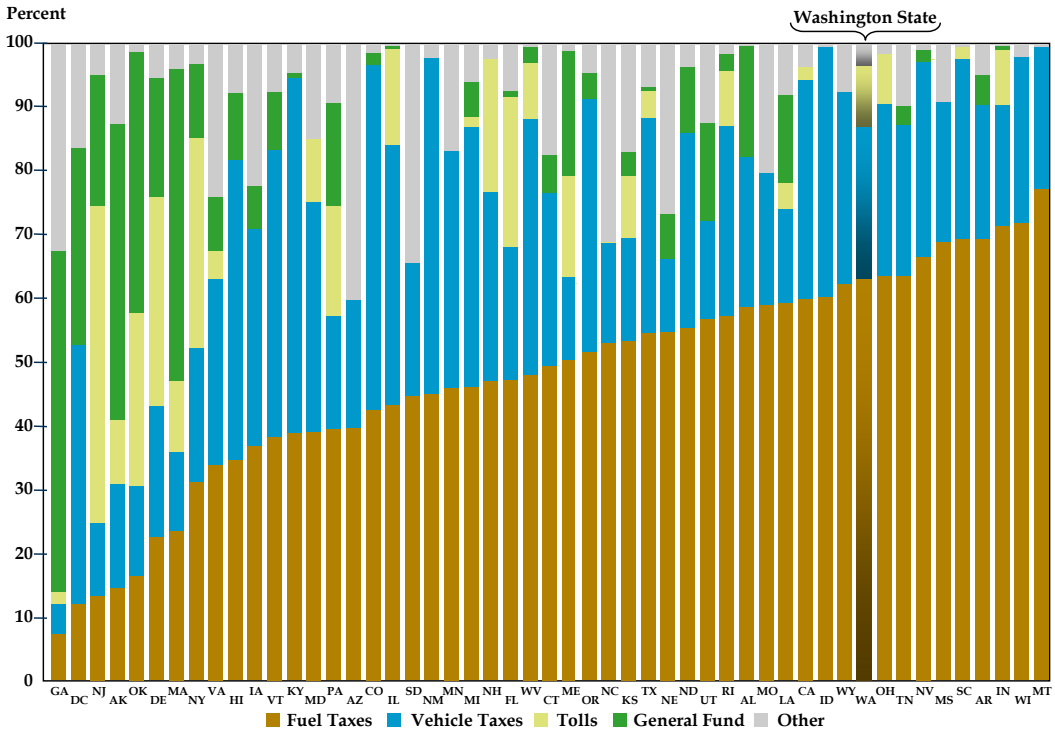
The following are the main components of the 2005 Funding Package:

- **Gas tax increase –** The state gas tax per gallon increased from 28 cents to 31 cents in July 2005, 34 cents in July 2006, 36 cents per gallon and to 37.5 cents in July 2008;
- **New vehicle weight fee for passenger cars –** New fee of $10.00 to $30.00 annually for passenger cars based on weight; and
- **Additional bonding –** An additional $5.1 billion in bond sales, which will result in $4.0 billion of debt service payments during the 16-year period.

These new funding sources and financing are incorporated into the base case assumptions used throughout the remainder of this report.

The current funding sources available for statewide in Washington can be compared to the funding portfolios of other states. Figure 2.2 shows the dependence of Washington State on fuel taxes and vehicle taxes relative to other states, based on year 2004 data:

Figure 2.2 State Highway Funding, State by State, Year 2004



Source: 2004 Highway Statistics, Table SF-1

- Motor fuel taxes and vehicle taxes comprise the majority of state highway funding for most states. Tolling and general fund revenue comprise a high percentage of funding for select states (tolls: New Jersey, New York, Delaware; general fund revenue: Georgia, Massachusetts, Arkansas, and Oklahoma).
- The percentages of state highway funding that is derived from the motor fuel tax range from 7 percent (Georgia) to 77 percent (Montana). At 63 percent, Washington State ranks 10th among the 50 states.

In 2004, Washington State ranked 10th in its dependence on fuel taxes and one of 16 states that does not use any of it general fund for transportation. Table 2.3 provides a breakdown of the major revenue categories and overall annual growth rates at the state/local level over the last decade.

Table 2.3 Historical Growth Rates of Major Revenue from 1990 to 2000

Highway Revenues	Average Annual Growth	Transit Revenues	Average Annual Growth
Motor fuel taxes	2.4%	Motor fuel taxes	3.5%
Vehicle taxes	4.0%		
Tolls	5.1%	Passenger fares	3.5%
		Other operating revenues	6.0%
Property taxes*	4.3%	Sales taxes	8.5%
Other taxes (sales, other)	7.5% (State) 7.6% (Local)	Other taxes (property, income, other)	6.9%
General fund	7.5% (State) 7.7% (Local)	General fund	0.7%
Miscellaneous	2.8% (State) 2.0% (Local)	Other funds	7.5%

Source: Federal Highway Administration (FHWA) Highway Statistics, and the Federal Transit Administration National Transit Database (NTD).

*Includes beneficiary charges.

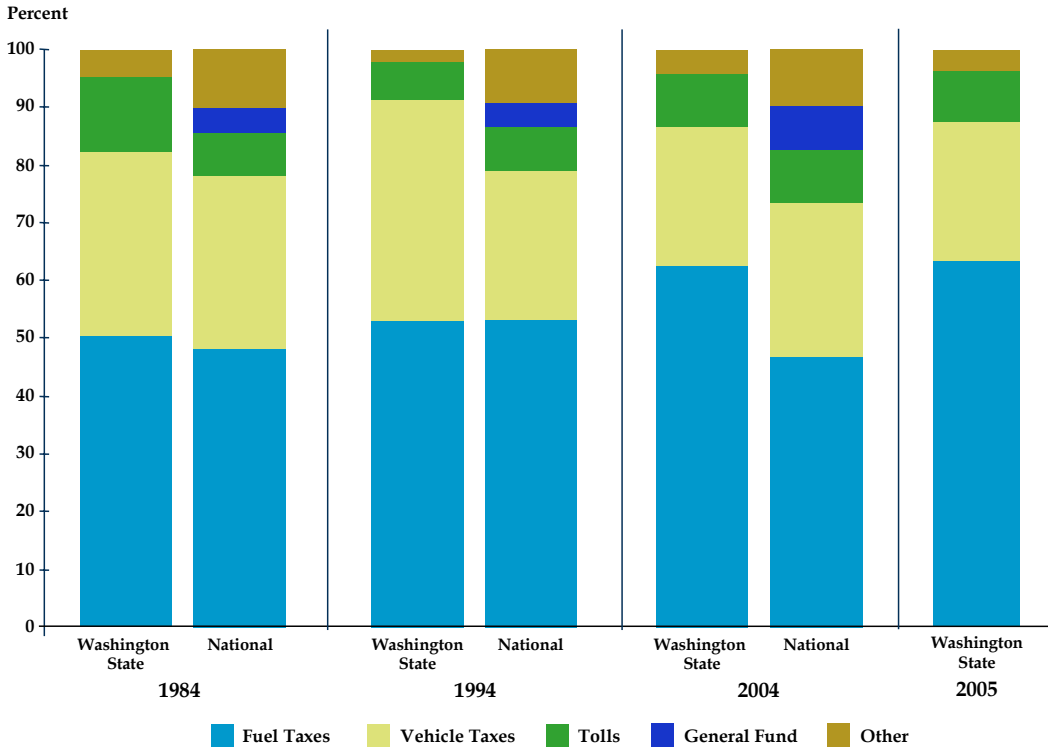
For all states combined, funding sources other than motor fuel taxes have increased at a greater rate than motor fuel taxes.[8] As can be seen in Table 2.3, the fastest growing revenue sources on the highway side are revenues from general fund appropriations and other taxes. Over the last decade, revenues from the general fund have increased at an average annual growth rate of 7.5 percent at the state level and 7.7 percent at the local level. Similarly, the annual growth of revenue from other specialized taxes dedicated to highways has been estimated at 7.5 and 7 6 percent at the state and local levels, respectively. At the same time, motor fuel taxes have increased at only 2.4 percent per year.

Figure 2.3 shows the comparison of state highway funding in Washington State with the nation as a whole over time:

- In 1984, Washington State generated 50 percent of its state transportation funding from the motor fuel tax, compared to 48 percent for the nation as a whole.
- In 1994, the percentage of funding from the motor fuel tax in Washington State went up to 53 percent, compared to 54 percent for the nation as a whole. The percentage of funding from vehicle taxes in Washington State went up from 32 percent in 1984 to 38 percent in 1994.

[8] State general funds increased by 221 percent, tolls by 83 percent, other by 89 percent, and motor fuel taxes by 75 percent from 1982 to 2001 in real terms, Government Accountability Office (GAO) *Trends in Federal and State Highway Investment*, June 2003.

Figure 2.3 State Highway Funding: Washington State vs. National Total – Years 1984, 1994, 2004 (2005 for Washington State)



Source: 2004 Highway Statistics, Table HF-10.

- In 2004, the percentage of funding from the motor fuel tax in Washington State went up to 63 percent, compared to 47 percent for the nation as a whole. With the repeal of the motor vehicle excise tax in 2003, the percentage of funding from vehicle taxes in Washington State fell from 38 percent in 1994 to 24 percent in 2004.
- In 2005, the percentage of funding from the motor fuel tax in Washington State stayed at 63 percent. National data for 2005 is not available at this time.

2.2 Typology for Existing and Potential Funding Sources

There are many different ways to organize the universe of potential funding sources into discrete categories. For this study, four categories have been defined that separate funding sources based on who pays and how the revenue is collected in relation to the transportation service funded. In economic terms, these four categories are arrayed along a spectrum based on the "benefit principle." This principle of taxation posits that taxes should be based on the benefits received by people using the good financed with the tax. The benefit principle is often difficult to implement because by their very nature, many government-

produced goods (public goods) do not have easily measured benefits. National defense, for example, is a pure public good because the benefits flow to all citizens; and one citizen's use or "consumption" of national defense does not exclude anyone else from using the same national defense. But in those cases where direct benefits can be provided to specific users, government has imposed taxes, fees, or charges calibrated to a greater or lesser degree with the benefits received. Public college tuition, national park admission fees, and gasoline excise taxes are three common examples. The beneficiaries of education, a wilderness experience, and highway use are asked (required) to pay accordingly.

Proponents of the benefits principal will most often cite its inherent equity as its justification, but a more relevant advantage for its application to transportation funding may be efficiency: The more direct and calibrated a usage fee or tax for use of the roadway, the stronger the price signal sent to a user regarding the real cost of when, where, and how they use the state's transportation system. This price signal, therefore, compels the more efficient use of existing and future transportation facilities and services. Our typology for organizing existing and potential funding sources identifies the following four major categories of revenues, ranked according to the strength of their price signal and the closeness of their nexus between users and the benefits they derive. The following four categories, however, may be more accurately thought of as a continuum, where the distinction between one category and the next blur at the boundaries between them:

1. **Direct user fees –** This category includes fees directly associated with a trip. Tolls and transit and ferry fares are the most common examples. Nevertheless, the specific fees in this category range from pure user fees that vary according to the marginal cost of accommodating a driver or rider at a specific time of day on a particular roadway or transit system to flat fees that charge users for the average cost. With modern electronic technology, tolls can vary with demand to help manage congestion, or they can be set at a flat rate, which sends a weaker price signal. Direct freight user charges, while now rare, could be in this category. Other potential direct user fees could include parking fees, benefit assessment districts, and developer impact fees.[9] In Washington, current direct user fees consist of TNB and other toll revenue and ferry fares. They will account for 8 percent of total state transportation revenue in Washington State, or $400 million for Fiscal Year (FY) 2007 to 2009.

2. **Indirect user fees –** Indirect user fees are collected from transportation users, but are termed indirect because they are not collected in association with an actual trip itself. They differ from direct user fees like tolls, which are

[9] These latter two sources are legally defined as fees, because the charges are calibrated to match the impact of new development (or existing residents and businesses in the case of some assessment districts) on their need for transportation.

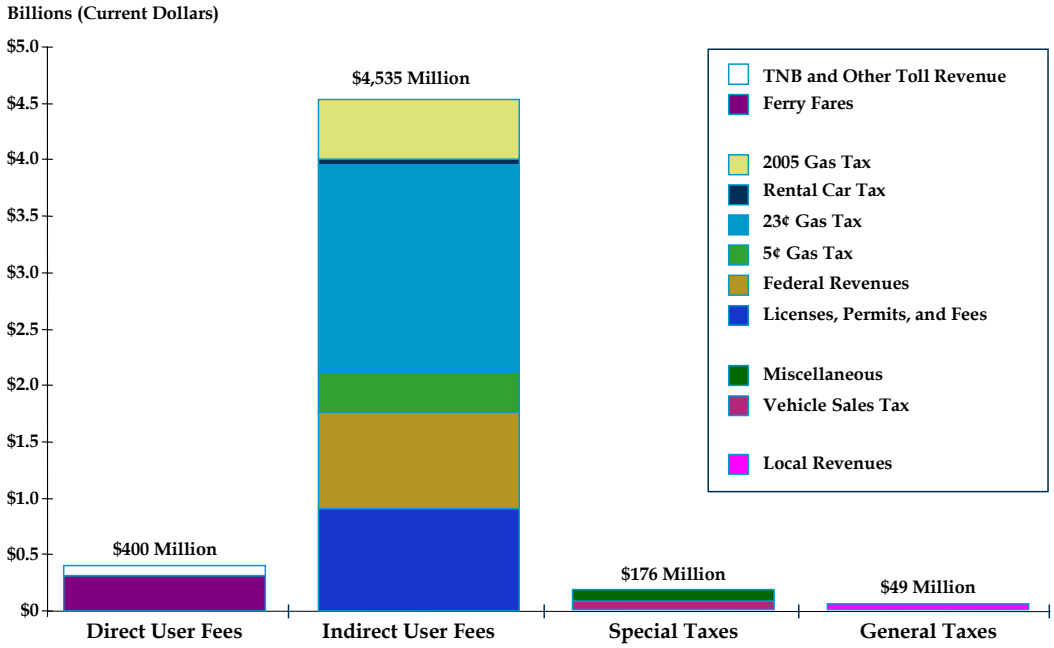
charged directly at the point of use. Motor fuel taxes are the largest of the indirect sources. Other indirect user fees include vehicle registration fees and excise taxes, and replacement parts taxes such as the Federal tax on tires for large vehicles. Indirect user fees will provide 88 percent or $4,535 million of state transportation revenue for FY 2007 to 2009.

3. **Specialized taxes –** These sources are distinct from user fees because they are applied to and collected based upon non-transportation activities, but are dedicated to transportation. The major sources now utilized in this category are state and local option taxes, including sales and property taxes, but this category also includes leases and some forms of improvement district taxes or fees. This category also includes value capture techniques such as special assessment districts. They do not include development impact fees, which are calibrated to the impact of specific categories of land use on the need for new transportation capital, and thus a form of direct user fees. Their critical difference from general taxes is the assurance given to voters who must approve them that that the money will be spent only on transportation. While this linkage raises the consciousness of the voters for the need for more transportation investment, once in place the tax feels almost identical as general taxes (the fourth category) for the payer. In Washington, these specialized taxes provide 3 percent or $176 million of state transportation revenue for FY 2007 to 2009, and include state vehicle sales taxes.

4. **General taxes –** These sources are those that are collected and used for broad purposes, of which transportation may be one purpose. The largest sources in this category are income taxes (not imposed in Washington State), property taxes, general sales taxes, and other ad valorem taxes that are allocated to transportation through the Legislature's discretion during its biennial budgeting process. General taxes are typically a significant source of transportation funding at the local level, but they constitute only 1 percent or $49 million of state transportation revenue in Washington State over the 2007 to 2009 budget cycle.

Figure 2.4 shows the sources of transportation revenue in Washington State organized according to the topology described.

Figure 2.4 Transportation Revenue by Category, 2007 to 2009



Source: WSDOT 2007-09 Budget Request and Cambridge Systematics, Inc.

National transportation revenues collected in 2004 at all levels of government totaled $129.5 billion for highways and $38.6 billion for public transportation.[10] Table 2.4 presents the actual revenues by funding source by government level and by highway and transit in FY 2004, as reported by the Highway Statistics and NTD.

In Washington State, transportation revenues collected in 2004 at all levels of government totaled $2.8 billion for highways and $2.0 billion for public transportation. Table 2.5 summarizes the actual Washington State revenues by government level and by highway and transit in FY 2004 as reported by the Highway Statistics and NTD.

[10] The FHWA Highway Statistics and the FTA National Transit Database compile summary data on Federal, state, and local funding sources used by state DOTs, local government, and transit agencies to support highway and transit investments and operations and maintenance (O&M) expenditures. The most recent data available from both sources is for 2004.

Table 2.4 2004 National Revenue: Highway and Transit Revenue by Mode and Level of Government
Billions of Dollars

Type of Tax or Fee	Highway				Transit				Highway and Transit			
	Federal	State	Local	Total	Federal	State	Local	Total	Federal	State	Local	Total
Direct User Fees	0.0	5.6	0.9	6.6	0.0	0.0	10.9	10.9	0.0	5.6	11.9	$17.5
Indirect User Fees	28.6	45.9	1.9	76.4	5.6	0.5	0.1	6.2	34.1	46.5	2.1	$82.7
Specialized Taxes	0.3	3.5	11.6	15.4	0.0	3.4	6.1	9.5	0.3	6.9	17.7	$24.9
General Taxes	2.0	7.4	21.7	31.1	1.4	3.9	6.7	12.0	3.4	11.3	28.4	$43.1
Total*	$30.9	$62.5	$36.1	$129.5	$6.9	$7.8	$23.9	$38.6	$37.9	$70.3	$60.0	$168.2

Source: FHWA Highway Statistics and the FTA National Transit Database.

*Totals may not add up due to rounding. "0.0" means less than $50 million in revenue (rounds to zero).

Table 2.5 Washington State Revenue: Highway and Transit Revenue by Mode and Level of Government, 2004
Billions of Dollars

Type of Tax or Fee	Highway				Transit				Highway and Transit			
	Federal	State	Local	Total	Federal	State	Local	Total	Federal	State	Local	Total
Direct User Fees	0.0	0.1	0.0	0.1	0.0	0.0	0.3	0.3	0.0	0.1	0.2	$0.4
Indirect User Fees	0.5	1.2	0.0	1.7	0.2	0.0	0.0	0.2	0.7	1.2	0.0	$1.9
Specialized Taxes	0.0	0.1	0.7	0.7	0.0	0.1	0.9	1.0	0.0	0.2	1.6	$1.7
General Taxes	0.0	0.0	0.2	0.2	0.1	0.0	0.4	0.5	0.1	0.0	0.7	$0.8
Total*	$0.6	$1.4	$0.9	$2.8	$0.3	$0.1	$1.6	$2.0	$0.8	$1.5	$2.5	$4.8

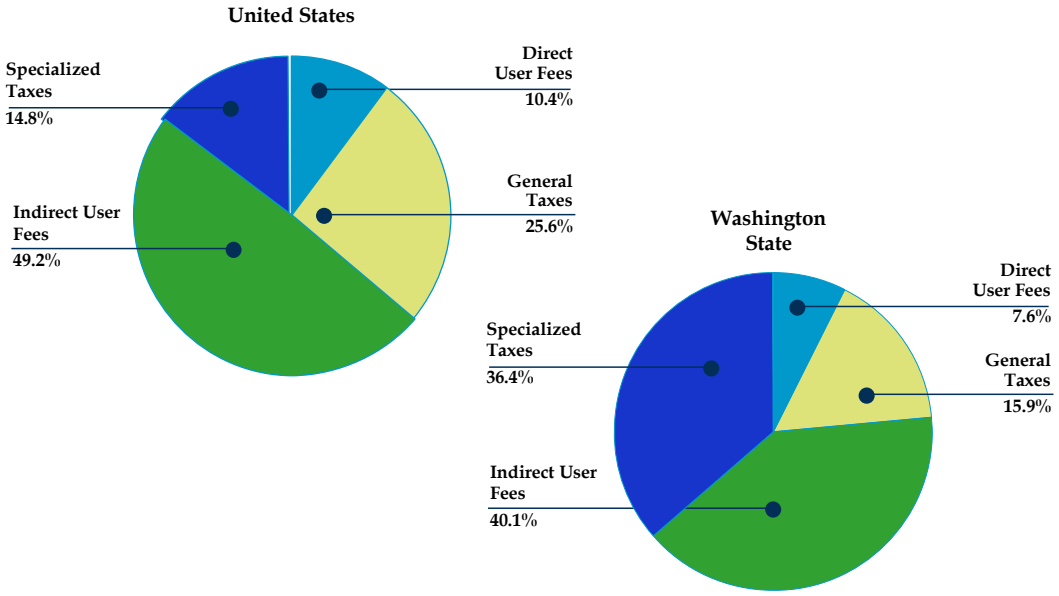
Source: FHWA Highway Statistics and FTA National Transit Database.

*Totals may not add up due to rounding. "0.0" means less than $50 million in revenue (rounds to zero).

Figure 2.5 shows the percentage comparison of transportation revenue by source for the nation as a whole, and for Washington State for all levels of government:

- For the nation as a whole, $17.5 billion (10.4 percent) of transportation funding are derived from direct user fees, $82.7 billion (49.2 percent) are from indirect user fees, $24.9 billion (14.8 percent) are from specialized taxes, and $43.1 billion (25.6 percent) are from general taxes.
- For Washington State, $0.4 billion (7.6 percent) of transportation funding are derived from direct user fees, $1.9 billion (40.1 percent) are from indirect user fees, $1.7 billion (36.4 percent) are from specialized taxes, and $0.8 billion (15.9 percent) are from general taxes.

Figure 2.5 Comparison of Highway and Transit Revenue: All Levels of Government, 2004

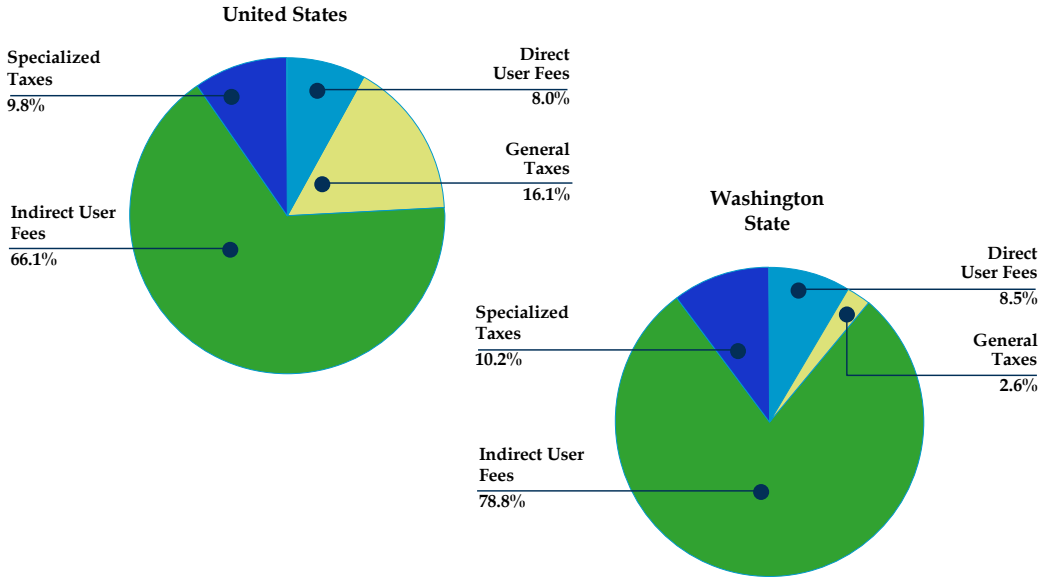


Source: FHWA Highway Statistics and FTA National Transit Database.

Figure 2.6 shows a percentage comparison of transportation revenue by source for the nation as a whole, and for Washington State for state government only:

- For state-level transportation funding for the nation as a whole, $5.6 billion (8.0 percent) are derived from direct user fees, $46.5 billion (66.1 percent) are from indirect user fees, $6.9 billion (9.8 percent) are from specialized taxes, and $11.3 billion (16.1 percent) are from general taxes.

Figure 2.6 Comparison of Highway and Transit Revenue: State Government Only, 2004



Source: Cambridge Systematics, based on data from the FHWA Highway Statistics and FTA National Transit Database.

- For state-level transportation funding in Washington State, $127 million (8.5 percent) are derived from direct user fees, $1,186 million (78.8 percent) are from indirect user fees, $154 million (10.2 percent) are from specialized taxes, and $39 million (2.6 percent) are from general taxes. These numbers differ from those provided in Figure 2.4, as they are reflective of year 2004 data as opposed to 2007 to 2009 projections.

These comparisons indicate that Washington State's portfolio of current sources have some desirable characteristics over the average state portfolio nationwide. For example, Washington's use of general taxes, which is less effective at sending any price signal to users, is less than one-sixth of the average portfolio. Direct user fees, however, constitute about the same share for Washington as the average portfolio, but three-quarters of these user fees are from ferry fares, leaving a very small share coming from roadway tolling. (This does not include transit fares that are collected by local agencies.)

Another useful conclusion from these comparisons comes from noting the difference for Washington State between the funding portfolios for all levels of government and that for the state government (see pie charts for Washington State only in both Figures 2.5 and 2.6): given the much larger share of specialized taxes and general funds used by local governments in the State, Washington State's local governments face an even stronger challenge to shift their portfolio more toward direct user fees. Or, as an even more effective strategy, the State may want to transition to direct user fee sources that local governments can use for their transportation funding. These findings will be relevant in the final

section of this report to formulate recommendations for funding strategies in the medium and long term (Section 5.0: Recommendations).

2.3 Understanding the Universe of Revenue Sources

State DOTs nationwide are continuously evaluating and implementing strategies to expand existing sources of revenue and introduce new sources. In this sub-section of the report, a comprehensive inventory of funding sources used by states nationwide for highway and transit capital, operations, and maintenance is provided.

As shown in the first column of Table 2.6, potential revenue sources have been grouped by their primary purpose: a) generate new revenue; b) leverage current revenue, and c) improve the efficiency of investment though better management. The columns in the center of the table indicate how the strategies have been applied (e.g., for maintenance of highways, for transit capital improvements, etc.). The right-most column lists the states and other jurisdictions that have implemented specific strategies. While the inventory is not exhaustive, it provides a reasonably current and comprehensive inventory of sources and applications that have relevance to future potential transportation funding in Washington State.

The options that have the greatest potential for application in Washington State are described in the following subsections:

- **Direct user fees –** Tolling and vehicle travel pricing innovations, and ferry fares;
- **Indirect user fees –** Motor fuel tax, registration and vehicle fees, and container charges;
- **General taxes –** Dedicated sales tax for transportation; and
- **Regional and local options –** Leveraging local option taxes.

Direct User Fees

Tolling – As of December 2005, toll facilities in the United States accounted for approximately 5,100 miles of roads, bridges, and tunnels. The most promising candidates for future toll facilities are for new roads or when adding additional lanes to existing roads. The State of Texas has all but made the policy decision to fund new limited-access highway capacity at least partially through tolls, and to refrain from the tolling of existing lanes.

Table 2.6 Inventory of Revenue Sources

Specific Revenue Tool	Modes				Scope		Yield	Locations Used
	Highway/ Bridge		Transit					
	Preservation & Maintenance	New Capacity	Operations & Maintenance	Capital	Program	Project	Potential Yield	
Direct User Fees								
Tolling new roads and bridges		●	●	●		●	M	About ½ of states (e.g., TX, FL, VA)
Tolling existing roads	●	●	●	●		●	L	VA proposed, others considering
HOT lanes, express toll lanes, truck toll lanes		●	●	●		●	M	CA, CO, GA, MN, TX; WA pending
VMT fees	●	●	●	●	●		H	OR testing, recommended by 15 state-pooled fund study
Transit fees (fares, park-and-ride fees)			●		●		H	All transit agencies
Container fees, customs duties, etc.		●			●	●	M	CA
Indirect User Fees								
Motor fuel excise (per gallon) tax	●	●		●	●		H	All states, Federal
Indexing of the motor fuel tax (can be indexed to inflation or to other factors)	●	●		●	●		H	FL, IA, KY, ME, NE, NY, NC, PA, WV*
Sales tax on motor fuel	●	●		●	●		H	CA, GA, HI, IL, IN, MI, NY
Petroleum franchise or business taxes	●	●		●	●		H	NY, PA
Vehicle registration or license fees	●	●			●		H	All states
Vehicle personal property taxes	●	●			●		M	CA, KS, VA
Excise tax on vehicle sales dedicated to transportation	●	●			●		H	CT, IA, KS, MD, MI, MN, MO, NC, NE, OK, SD, VA; Federal for heavy trucks
General Taxes								
Dedicate portion of state sales tax	●	●	●	●	●		H	AZ, CA, IN, KS, MA, MS, NY, PA, UT, VA
Miscellaneous transit taxes (lottery, cigarette, room tax, rental car fees, etc.)			●	●	●	●	L	Various states and localities
General Revenue	●	●	●	●			H	Most States and localities
Regional/Local Options								
Dedicated property taxes	●	●	●	●	●		H	Many local governments

Specific Revenue Tool	Modes				Scope		Yield	Locations Used
	Highway/ Bridge		Transit					
	Preservation & Maintenance	New Capacity	Operations & Maintenance	Capital	Program	Project	Potential Yield	
Beneficiary charges/value capture (impact fees, tax increment financing, mortgage recording fees, lease fees, etc.)		●		●		●	L	Many states and localities (e.g., CA, FL, OR, NY)
Permitting local option taxes for highway improvements								
• Local option vehicle or registration fees	●	●			●	●	M	AK, CA, CT*, CO, HI, ID, IN, MS*, MO, NE, NV, NH, NY, OH, SC, SD, TN*, TX, VA*, WA, WI
• Local option sales taxes	●	●			●	●	H	AL, AZ, AR, CA, CO, FL, GA, IA, KS, LA, MN, MO, NE, NV, NM, NY, OH, OK, SC, TN, UT, WY
• Local option motor fuel taxes	●	●			●	●	M	AL, AK*, FL, HI, IL, MS, NV, OR, VA, WA
Permitting local option taxes for transit								
• Local option sales taxes			●	●	●	●	H	AL, AZ, CA, CO, GA, IL, LA, MO, NV, NM, NY, NC, OH, OK, TX, UT, WA
• Local option income or payroll taxes			●	●	●	●	H	IN, KY, OH, OR, WA

Source: Cambridge Systematics. For Potential Yield, H = High, M = Medium, and L = Low.

Note: Revenues go into General Fund but can be earmarked or used for transportation.

* Florida and Maine adjust their fuel tax rates based on inflation annually; legislation authorizing Wisconsin to adjust the motor fuel tax rate has been repealed recently. Other states, such as Kentucky, Nebraska, North Carolina, New York, Pennsylvania, and West Virginia, have a variable fuel tax component that is adjusted based on the price of motor fuel. As such, the variable component is subject to fluctuations in fuel prices.

In Washington State, the use of tolling is currently limited to the ferry system. In spring 2007, tolling will begin on the Tacoma Narrows Bridge connecting the Kitsap Peninsula with the City of Tacoma, when a newly construction bridge will be open to the public. As currently planned, the toll rate for automobiles will be $3.00 from 2007 to 2009, $4.00 from 2010 to 2012, $5.00 from 2013 to 2015, and $6.00 from 2016 on.

The Washington State Comprehensive Tolling Study, recently completed by Cambridge Systematics, found that public attitudes toward tolling in the State are mixed. There is more acceptance for the tolling of new facilities as opposed to existing roads, but the results of the outreach effort revealed that there will be a significant effort needed to educate the public about the benefits and costs of congestion pricing, the variety of tolling alternatives and their advantages and disadvantages, and the alternative methods of raising revenues and managing demand.

The Comprehensive Tolling Study provided some illustrative examples of where tolling could be applied in various locations throughout the State, with the associated policy and revenue implications. A summary of these examples will be provided in Section 2.5: Revenue Generation Projections.

Vehicle-Miles Traveled (VMT) fee – 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 vehicle miles traveled. The Oregon DOT is currently 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 of 2004. The full pilot test began in June 2006 and will continue for one year.

A total of 260 trial participants in the Portland metropolitan area have a mileage-recording and GPS device installed in their vehicles, and are currently purchasing gas at select service stations in Portland equipped with wireless mileage-reading devices. The mileage-recording device in each car tracks miles driven in four categories: miles driven in Oregon; miles driven out-of-state; miles driven in the Portland metropolitan area during weekday rush hour (7:00a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.); and miles driven when no satellite signal was available (e.g., miles accumulated in underground parking garages, tunnels, etc.). During the first six months of the pilot test, participants are paying the gas tax as usual. In December 2006, participants will be randomly divided into different test groups: one group will continue to pay the gas tax; a second group will pay a mileage-based fee of 1.2 cents per in-state mile, instead of the gas tax; and a third group will pay a mileage-based fee, plus a congestion pricing fee for mileage accrued during weekday rush hours in the Portland metropolitan area.

The pilot test is proceeding smoothly to date. Occasional equipment failures have been experienced, but the rate has not been unusual or problematic as yet. Following conclusion of the pilot test in summer 2007, Oregon DOT will prepare

a report and present the findings to the Oregon State Legislature in 2009. At that time, next steps will be determined; these may include further testing, evaluation of additional geographic regions, or evaluation of different pricing schemes.

Ferry fares – Fares for ferry services in the Puget Sound region have generally gone up by about 5 percent annually in recent years. In addition, the Capron Funds, which are the fuel taxes and fees collected from the additional gas taxes levied in 2003 and 2005 in San Juan and Island Counties, are not being refunded to these counties as per the Capron Refunds law. Instead, these funds are being made available for Washington State Ferries (WSF) operations. They are expected to generate $74 million in FY 2005 to 2021 for ferry operations.

In general, any of the State's funding sources available for any mode of transportation could be spent on ferries unless prohibited by the 18th Amendment. More specific funding sources that could be dedicated exclusively to ferry capital or operations are generally based on charging beneficiaries of the ferry system that are not currently paying for the full and direct benefits they receive. Specifically, such sources could include:

- **Tourism and recreation –** Hotels, restaurants, and other tourism-dependent industries accessible by ferry could pay a surcharge or special tax in the form of hotel occupancy tax, special tax on meals, surcharge on admission charges to special events, etc.
- **Higher fares for out-of state ferry users –** Given state residents see some of their gas tax, MVET, sales tax, and other state funds subsidize ferry capital and some operations; thus, fares for out-of-state (non-resident) riders should be increased to offset the subsidy from state taxpayers.
- **Bundling ferries fares with other service charges –** BC Ferries includes transit passes (which include access to ferries) with student union membership. Such bundling could be expanded to include hotel reservations, tour packages, or other charges for activities that involve using the ferries.
- **Property assessments –** Using one of the traditional methods of value capture, the State could assess property that benefits from ferry services. These assessments could be levied in the form of property tax, a parcel tax, or a special assessment district. A related funding source could be a surcharge on the MVET for cars registered where ferry service is provided. These assessments may be complicated for ferry terminal on the mainland. In fact, Revised Code of Washington (RCW) 36.54 governing county ferry districts and RCW 36.57A authorizing public transportation benefit authorities have been modified to encourage development of local passenger-only ferry services.

Indirect User Fees

Motor fuel tax – All 50 states and the District of Columbia levy motor fuel excise taxes on a per gallon basis. Some states have a fixed rate and an adjustable rate, which could vary with changes in motor fuel price or other factors. In most

states, the motor fuel tax accounts for over 40 percent of total state highway funding. In addition to direct increases of the motor fuel excise tax, other options to consider include:

- **Indexing of the motor fuel tax –** 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. Florida and Maine index their fuel tax rates based on inflation annually; legislation authorizing Wisconsin to adjust the motor fuel tax rate has been repealed recently. Other states, such as Kentucky, Nebraska, North Carolina, New York, Pennsylvania, and West Virginia have a variable fuel tax component that is adjusted based on the price of motor fuel. As such, the variable component is subject to fluctuations in fuel prices.
- **Sales tax on motor fuel –** In addition to excise taxes, some states also collect sales taxes on motor fuels, including California (6 percent), Georgia (4 percent), Hawaii (4 percent), Illinois (6.25 percent), Indiana (6 percent), Michigan (6 percent), and New York (4 percent). These rates do not include any county or local taxes that also may be levied on motor fuel in these states. In some instances, revenues from sales taxes on motor fuel are not completely dedicated for transportation. This is the case in California and Georgia, where a portion goes to the general fund. In Indiana, none of the receipts of sales taxes on motor fuels are dedicated for transportation; and in New York, the rate is capped at 8 cents per gallon by recent legislative action.
- **Other motor fuel-related taxes –** A few states have implemented or considered taxes on petroleum products in addition to traditional gallonage taxes. These taxes also can be dedicated and can provide revenues for transportation in a manner similar to other types of fuel taxes. Examples include Pennsylvania (oil company franchise tax of 19.2 cents per gallon of gasoline and 26.1 cents per gallon of diesel) and New York (petroleum business tax of 15.9 cents per gallon of gasoline and 13.15 cents per gallon of diesel).

Registration and vehicle fees – Vehicle registration, license, and title fees are commonly dedicated to transportation and represent the second largest source of revenue for many state DOTs (after the motor fuel tax). Options to be considered include:

- **Vehicle registration and weight fees –** As with Washington State, other states typically vary vehicle registration fees according to vehicle class. For light vehicles, many states have a flat fee, although some states base the fee on weight or some combination of weight, age, horsepower, and value. For heavy vehicles, most vehicle registration fees are based on weight categories that are specific to each state.
- **Excise tax on vehicle sales –** Currently, some states collect vehicle sales taxes that are dedicated for transportation, including Connecticut, Iowa, Kansas, Maryland, Michigan, Minnesota, Missouri, Nebraska, North Carolina, Oklahoma, South Dakota, and Virginia. 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. In Washington State, the excise tax on vehicles sales is 0.3 percent of the purchase price for both new and used vehicles, which is dedicated to transportation.

- **Motor vehicle excise tax** (or vehicle personal property tax) – Some states and localities levy a personal property tax based on the value of vehicles. The amount of revenue generated is only modestly responsive to inflation, because while the average value of new vehicles has continued to increase, the average value of the fleet is being depreciated each year. Unlike other taxes and fees, the assessed amount is tax-deductible for those who itemize when filing their Federal income taxes. Despite the tax-deductible feature, opponents have mounted campaigns which repealed this tax in Washington State (SB 6865 in the year 2000, based on voter passage of Initiative 695 in 1999).

Rental car tax – Many states and local jurisdictions charge some fee or tax, but the revenues may be diverted to multitude public services beyond any relationship to transportation. Washington State charges 5.9 percent of the contract amount for rental vehicles and dedicates this to transportation uses.

Container charges and marine terminal gate fees – The most successful container fee program to date is the Alameda Corridor: a 20-mile-long rail cargo expressway linking the Ports of Long Beach and Los Angeles to the transcontinental rail network near downtown Los Angeles. The $2.4 billion cost was funded through a unique blend of public funds and private sources, of which 48 percent is composed of revenue bonds funded from user fees paid by the railroads. Railroads initially paid $15.00 for each loaded 20-foot equivalent unit (TEU) container, $4.00 for each empty container, and $8.00 for other types of loaded rail cars such as tankers and coal carriers. Over a 30-year period, fees will increase between 1.5 percent and 3 percent per year, depending on inflation. Effective January 1, 2006, fees are $16.75, $4.47, and $8.93, respectively.

"PierPASS" is a related practice that that began on July 25, 2005. Any ocean container picked up at or delivered to the Ports of Los Angeles or Long Beach during peak hours – 3:00 a.m. to 6:00 p.m. Monday through Friday – is subject to the PierPASS Traffic Mitigation Fee (TMF). This surcharge is part of the PierPASS OffPeak Program and payment is the responsibility of the Beneficial Cargo Owner (the importer or exporter). The TMF is $80.00 per 40-foot container (FEU) and $40.00 per 20-foot container (TEU). The TMF does not apply to empty containers and chassis, domestic containers, transshipments to other ports or intermodal containers that depart or arrive via the Alameda Corridor for import or export. PierPASS is a not-for-profit entity created by marine terminal operators to reduce congestion and improve air quality in and around the Los Angeles and Long Beach ports. Revenues are used to operate the program and do not generate any funding for transportation investments. Nevertheless, the program is credited with diverting up to 30 percent of the truck traffic out of the peak period.

In an attempt to enlarge the program this year, the California State Senate proposed the implementation of an additional $30.00 fee on every 20-foot cargo container moving through the Southern California ports to help fund port and intermodal improvements to serve this commerce. This bill was passed by the state legislature but was vetoed by the Governor.

General Taxes

Dedicated sales tax for transportation – Some states dedicate sales tax revenues for transportation purposes. Seven states (i.e., California, Indiana, Massachusetts, New Jersey, New York, Pennsylvania, and Virginia) dedicate a portion of their sales tax levies to transit. The States of Kansas and Utah allocate a portion of the state general sales taxes for highway expenditures:

- **Kansas –** The sales tax rate dedicated to transportation is one-quarter percent. In 2004, $90.1 million in sales tax revenue was allocated into the Kansas State Highway Fund, accounting for 17 percent of the total revenues into this fund.
- **Utah –** A 1/16 allocation of sales tax revenues is dedicated to the Centennial Transportation Fund from 1997 to 2008. The fund is used to pay for specific transportation investments.

Regional/Local Options

Local option taxes – Local options taxes have been adopted in one form or another in at least 46 states. They include mechanisms such as state-authorized local options sales, gasoline, income, and vehicle taxes and fees. Its application and level could be at the local or regional level. These taxes are often dedicated to specific transportation projects or programs. Local option revenue strategies will be discussed in Section 4.0: Evaluate State-Distributed Transportation Funds.

2.4 EVALUATION CRITERIA AND SCORING

The following criteria were established for purposes of evaluating the revenue generation alternatives:

- **Yield and reliability –** This criterion refers to both the overall magnitude of funds a strategy is capable of generating in addition to how reliable this yield is over time. Strategies are given a "high" rating if they are capable of producing a lot of revenue that can be predictably sustained over time. Strategies are given a "low" rating if there is high uncertainty, or if the strategies are inherently short term or low yield. In particular, fuel taxes have been the mainstay of transportation revenues for decades ("high" yield). Nevertheless, they may not be reliable over time because, if not indexed, their contribution degrades with inflation. If they are indexed, they degrade as cars become more fuel efficient.

- **Economic efficiency –** This criterion refers to the extent that a strategy provides clear pricing signals that encourage users and providers to minimize unproductive travel and maximize economic growth. Therefore, strategies with "high" economic efficiency are those that help make the marginal prices of goods and services reflect their true costs. Strategies with "low" economic efficiency are those that distort the market by collecting fees that are unrelated to the services they help fund.
- **Regressivity –** This criterion refers to the extent that each strategy equitably burdens different groups of people financially, or unfairly restricts access to basic transportation services. Excise and sales taxes and user fees are all regressive, since they require those with lower incomes to expend a disproportionately higher share of their incomes to pay the tax or fee. The only funding strategies that receive a "high" rating are those that levy different fees based on income level, including income or payroll taxes, property taxes, and vehicle personal property.
- **Administrative effectiveness –** This criterion refers to the cost and ease of administering each fee or tax system; that is, minimizing evasion and minimizing the logistical hassle imposed on the public in the process of paying the fee or tax in a cost-effective way. The easiest fee-collection systems, designated as having "high" administrative effectiveness in Table 2.7, are those that piggyback on other payments at the point of sale, including fuel taxes and sales taxes. Strategies are designated as "medium" if they require the user to make a unique payment solely for the purpose of paying fees or taxes, but where this process has been reasonably streamlined. VMT fees are the only strategy designated as "low," since current technologies provide no easy way to monitor individuals' mileage.
- **Public acceptance –** Because all of the funding sources in Table 2.7 require the public to pay more, it is likely that they will all be generally unpopular, with a default "public acceptance" score of "low." Funding sources that are somewhat removed from the transportation project or service they are supporting tend to be particularly unpopular, such as sales, property, and income taxes and general revenue.

The scoring is presented in the next three tables according to these five evaluation criteria. The current status and use of each strategy in Washington are also provided. Table 2.7 provides scoring for direct user fees, and Table 2.8 provides scoring for indirect user fees.

Table 2.7 Scoring for Potential Direct User Fees

Funding and Finance Strategy by Primary Purpose	Yield and Reliability	Economic Efficiency	Regressivity	Administrative Effectiveness	Public Acceptance	Current Status in Washington
Tolling new roads and bridges	Med/ High	High	Med	Med	Med	Tacoma Narrows Bridge: current financial plan calls for eastbound toll of $3.00 in 2007, reaching $6.00 in 2016. Actual toll to be set by the Transportation Commission in 2007.
Tolling existing roads	High	High	Med	Med	Low	Not currently used.
HOT lanes, express toll lanes, truck toll lanes	High	High	Med	Med	Med	Being considered, but none at this time.
VMT fees	High	High	Med	Low	Low	Not currently used.
Transit fees (fares, park-and-ride fees, other)	Med	High	Med	Med	Med	Ferry and transit fares vary by operator, but increases authorized by RCW 47.60.326. Parking tax in some Puget Sound cities.
Container charges	High	Med	Low	Med	Med	Not currently used.

Table 2.8 Scoring for Potential Indirect User Fees – Fuel Taxes, Registration, and Vehicle Fees

Funding and Finance Strategy by Primary Purpose	Yield and Reliability	Economic Efficiency	Regressivity	Administrative Effectiveness	Public Acceptance	Current Status in Washington
Fuel Taxes						
Raising the motor fuel excise (per gallon) tax	High	Med	Med	High	Med	Motor fuel tax rates are specified in RCW 82.36.025. Washington's fuel tax was 23¢ per gallon from 1991 to 2002, increased to 28¢ in July 2003, and will increase to 37.5¢ in July 2008 (in phases). Since 1991, that represents an average annual increase of about 2.8 percent.
Indexing of the motor fuel tax	High	Med	Med	High	Low	
Sales tax on motor fuel	Med	Med	Med	High	Low	Sales taxes pegged to fuel price could be less reliable than the others since the price of fuel is volatile.
Other motor fuel-related taxes	Med	Med	Med	High	Low	
Registration & Vehicle Fees						
Raising registration or related fees	High	Med	Med	Med	Low	Specified in RCW 46.16.0621; $30.00 per vehicle per year since the year 2000.
Vehicle weight fees	High	Med	Med	Med	Low	Vehicle weight fees range from $10.00 to $3,402 annually per vehicle based on weight (last increased in 2005).
Motor Vehicle Excise tax	High	Med	Med	Med	Low	Repealed by SB 6865 in 2000, based on voter passage of Initiative 695 in 1999. Was formerly 2.2% of vehicle value annually.
Excise tax on vehicle sales	High	Med	Med	Med	Low	Specified in RCW 82.08.020; 0.3% of sales price (new and used vehicles).
Rental Car Tax	Low	Med	Med	Med	Med	Specified in RCW 82.08.020; 5.9% of rental contract.
Vehicle personal property taxes	Med	Med	High	Med	Low	Not currently used.
Beneficiary charges/ value capture and tax increment financing	Low	Low	Low	Med	Low/ Med	Not currently used at the state level.

2.5 REVENUE GENERATION PROJECTIONS

The following subsections provide projections of the revenue that could be generated with the implementation of select strategies. Results are provided in nominal dollars (i.e., year of expenditure).

Direct User Fees

Tolling – The Comprehensive Tolling Study provided projections of potential revenues for illustrative projects in Washington State. The projections are indicative of the cumulative revenue that could be applied to facility construction costs over a 30- to- 40-year period, above and beyond the operations and maintenance expenses of the toll facility. A more complete description of the facilities and the policy context is provided in the Comprehensive Tolling Study documentation.[11]

- **SR 520 and I-90 –** Tolls of $1.50 each way on both bridges would have minimal disruption of traffic flows and generate $967.4 million for capital improvements.
- **Snoqualmie Pass –** A $4.00 toll in each direction starting in 2009 could fund operations and maintenance expenses, plus about $500 million in capital costs over 35 years. The toll is not expected to have a big impact on traffic volume; roughly a 5 percent reduction.
- **SR 704 Cross Base Highway** (new facility) – A $1.40 toll implemented in 2011 would generate $34 million that could be applied to the facility construction costs (about 15 percent of the construction costs).
- **I-405/SR 167 HOT Lanes** (39 miles) – This could generate $200 million in revenue, not including the value of travel time savings (about $43 million per year).
- **I-405 North HOT Lanes** (14 miles). This could generate $59 million in revenue, not including the value of travel time savings (about $15.6 million per year).
- **Alaskan Way Viaduct and I-5** (22.5 miles). A toll of 10 cents to 40 cents per mile during peak periods (less during off-peak periods) would divert about 7 to 27 percent of traffic and generate $400 to $2,400 million in revenue.

[11] Washington State Transportation Commission, *Washington State Comprehensive Tolling Study Final Report, Volume 1*, Cambridge Systematics, Inc., with IBI Group; Foster Pepper, PLLC; Frank Wilson & Associates; Mirai Transportation Planning and Engineering; PBS&J; and the Texas Transportation Institute, September 20, 2006.

- **I-5 in Lewis County** (40 miles). A toll of 7.5 cents per mile would divert about 18 percent of traffic and generate $700 million in revenue.
- **Statewide Truck Tolling**. A toll of 20 cents per mile for big trucks could generate $500 million in revenue annually.

Vehicle miles of travel pricing – Using Washington State's VMT projections through the year 2030 provided by WSDOT, a VMT fee of 2.15 cents per mile is projected to generate $33.2 billion in revenue from 2010 to 2030, which is roughly revenue-neutral with the current motor fuel tax. A VMT fee that starts at 2.15 cents per mile in 2010 and is then indexed to inflation (assumption of 2.2 percent annually based on economic forecasts developed by the Congressional Budget Office or CBO) is projected to generate $42.0 billion in revenue from 2010 to 2030, or an increase of $8.8 billion from the non-indexed VMT fee.

Ferry fares – Using projected 2006 to 2007 ferry fare revenue as a starting point, a projected $3.9 billion in ferry fare revenue would be generated from 2010 to 2030 if no fare changes were made. If ferry fares were increased by 3 percent annually beyond 2006, an additional $1.9 billion in revenue relative to the flat ferry fare scenario is projected to be generated from 2010 to 2030. This takes into account slightly lower ridership resulting from the higher fares (fare elasticity of -0.10; 3 percent fare increase results in 0.3 percent ridership loss).

Indirect User Fees

Raising the motor fuel tax – If the motor fuel tax rate were increased by 1.5 cents per gallon starting in 2011 and then every 2 years thereafter, a projected $7.3 billion in additional revenue would be generated from 2010 to 2030 relative to holding the motor fuel tax rate constant at 37.5 cents per gallon. In this scenario, the motor fuel tax rate would reach 52.5 cents per gallon in the year 2030. The CS motor fuel tax forecasting model developed for Task 1 was used to generate this projection.

Index state motor fuel taxes – If the motor fuel tax rate was indexed to inflation starting in 2010, a projected $9.8 billion in additional revenue would be generated from 2010 to 2030 relative to not indexing the motor fuel tax rate. This is based on the CBO inflation assumption of 2.2 percent annually. In this scenario, the motor fuel tax rate would reach 59.2 cents per gallon in the year 2030. The CS motor fuel tax forecasting model developed for Task 1 was used to generate this projection.

Sales taxes on motor fuel – If a 6.5 percent sales tax on motor fuels were assessed in Washington State, a projected $16.9 billion in revenue would be generated from 2010 to 2030. This is based on forecasted motor fuel prices from the Department of Energy (DOE). The sales tax is assumed to apply to gasoline and diesel prices discounted for Federal and state motor fuel excise taxes (i.e., no double-taxing). In cents per gallon, the sales tax would be equivalent to

13.6 cents in 2010, increasing to 25.0 cents in 2030. The CS motor fuel tax forecasting model developed for Task 1 was used to generate this projection.

Vehicle registration fees – If the vehicle registration fee stays at $30.00 through the year 2030, the revenue projection is $5.3 billion from 2010 to 2030. If the base vehicle registration fee in Washington State were increased by $5.00 starting in 2010 and then every 5 years thereafter, a projected $2.4 billion in additional revenue would be generated from 2010 to 2030 relative to holding the vehicle registration fee constant. This is based on forecasted state vehicle registrations provided by WSDOT, which projects vehicle registrations at almost 7.3 million in 2010, increasing to 9.8 million in 2030. Vehicle registrations per capita are projected to change from 1.07 in 2010 to 1.14 in 2030.

Licensing fees for trucks – If the licensing fees for trucks stay unchanged through the year 2030, the revenue projection is $1.7 billion from 2010 to 2030. If fees increase by 3 percent annually starting in 2007, an additional $0.9 billion in revenue is projected from 2010 to 2030.

Passenger car weight fees – If passenger car weight fees stay unchanged through the year 2030, the revenue projection is $4.5 billion from 2010 to 2030. If fees increase by 3 percent annually starting in 2007, an additional $2.3 billion in revenue is projected from 2010 to 2030.

Motor vehicle excise tax – Year 2006 data from the National Automobile Dealers Association (NADA) indicates that average vehicle selling prices nationwide were about $28,000 for a new vehicle and $15,000 for a used vehicle. Based on rough assumptions made regarding the age of the overall fleet and depreciation of vehicle value over time, the average vehicle value for the fleet as a whole is estimated at about $14,000 at present – increasing to about $15,000 in the year 2010.

Assuming the average vehicle value in Washington State increases at roughly the same pace as inflation, a well-enforced statewide motor vehicle excise tax (MVET) of about 1.0 percent annually is projected to generate $33.9 billion from 2010 to 2030, which is roughly revenue-neutral with the motor fuel tax. This MVET would equate to about $150 annually for every vehicle in Washington State in the year 2010, growing to about $230 per vehicle annually in 2030. Since the MVET would be tax deductible, an actual revenue-neutral MVET may need to be appreciably higher than 1.0 percent.

Excise tax on vehicle sales – Currently in Washington State, the sales tax rate for vehicle sales is 6.8 percent, of which 0.3 percent is dedicated to transportation. This applies to the sales of both new and used vehicles. If the transportation-dedicated sales tax stays at 0.3 percent, the year 2010 to 2030 revenue projection is $1.1 billion. If the transportation-dedicated sales tax was 1.0 percent instead of 0.3 percent, a projected $2.6 billion in additional revenue would be generated from 2010 to 2030. The methodology for these calculations is as follows:

- Year 2004 Woods and Poole forecasts of automobile dealer retail sales were used to project real growth (net of inflation) in vehicle retail sales (between 2.0 percent to 2.7 percent annually through 2030).
- The automobile dealer retail sales data also includes sales from parts and service. Recent NADA data shows that parts and service accounts for 11.7 percent of total auto retail sales.
- Data from the Washington Department of Revenue (DOR) shows that auto taxable retail sales in 2005 were approximately $9.5 billion. This figure was adjusted to discount for parts and service sales. Woods and Poole growth rates were applied to the net auto taxable sales.
- Projected revenue from the one percent sales tax on auto dealer taxable retail sales was then calculated.

Rental car tax – The rental car tax of 5.9 percent of the contract amount is projected to generate $0.6 billion from 2010 to 2030, using current year rental car tax revenue as a starting point. Assuming price sensitivity towards this tax is minimal, doubling the rental car tax to 10.8 percent would generate an additional $0.6 billion from 2010 to 2030.

Container charges – The 2004 Marine Cargo Forecast, prepared for the Washington Public Ports Association by BST Associates and Global Insight, estimated that the Puget Sound region ports handled 2.8 million TEUs (20-foot equivalent units) in the year 2002, and that this number will grow to 6.9 million TEUs in the year 2025. These numbers include imports and exports, and both domestic and international trade.

If a container charge of $50.00 per TEU were assessed for all containers entering or exiting these ports, and assuming this charge does not affect the volume of containers handled, a projected $6.3 billion in revenue would be generated from 2010 to 2030. If the container charge is introduced at $50.00 in 2010 and is then indexed to inflation (assuming 2.2 percent inflation annually), an additional $1.8 billion in revenue would be generated from 2010 to 2030 relative to the non-indexed container charge. The indexed container charge would be $77.00 in 2030.

Special (Dedicated) Taxes

Dedicated sales tax revenue – If a 0.5 percent sales tax rate was dedicated to transportation, this would generate a projected $20.0 billion in transportation revenue from 2010 to 2030. The methodology for this calculation is as follows:

- Year 2004 Woods and Poole forecasts of retail sales (excluding auto and gasoline sales) were used to project real growth (net of inflation) in retail sales (between 2.3 percent and 2.4 percent annually through 2030).
- Washington DOR data show that taxable retail sales in 2005 were $92.7 billion (excluding auto dealer taxable retail sales). Woods and Poole

real growth rates and the CBO inflation forecast (2.2 percent annually) were applied to the net retail sales.

- Total sales tax revenue was calculated based on the 0.5 percent transportation-dedicated sales tax rate on projected taxable retail sales during the 2010 to 2030 period.

Summary of Revenue Projections

Tables 2.8 to 2.10 summarize the year 2010 to 2030 revenue projections for these revenue generation strategies, in terms of:

- **Base –** The projected revenue over the 2010 to 2030 time period if no changes to current implementation are made; and
- **Increment –** The projected 2010 to 2030 revenue from implementation of the specified strategy, above and beyond the revenue that is generated in the base case (i.e., the incremental revenue).

The 18th Amendment to the State Constitution (passed November 1944) specifies that the revenue from certain funding sources is restricted for highway purposes only, regardless of which agency spends the revenue. The 18th Amendment language reads:

> *"The expenditure of certain specific taxes is restricted to highway uses (i.e., registration fees, motor and special fuel taxes). In addition, the state constitution provides that 'all other taxes intended for highway purposes' must be placed in a special trust fund and used only for highway purposes. Therefore, whether new revenue sources are restricted under the 18th Amendment depends entirely upon the actual legislative drafting of the tax measure and expressed intent of the legislature."*

Ferries, State Patrol highway activities, and Department of Licensing functions, as well as portions of other agencies' budgets (Parks, Department of Agriculture, etc.), have been defined as highway purposes.

In Tables 2.9 and 2.10, the information provided in the rightmost column of the tables, "18th Amendment Restricted," that follow are based on review from legal counsel. "TBD" indicates whether this source would be restricted by the 18th Amendment is to be determined based on legislative direction. For the revenue sources that are not restricted by the 18th Amendment, these could be specifically noted as being dedicated to transportation purposes only to avoid diversion of such revenue to non-transportation purposes. The intent of all of the revenue generation strategies provided in these tables is that the revenue should be used for transportation purposes.

Table 2.9 Direct User Fees Revenue Projections from 2010 to 2030
Nominal Dollars in Billions

Funding Source	Description	Base Revenue	Incremental Revenue	18th Amendment Restriction*
Non-indexed VMT fees	Statewide VMT fee at 2.15¢ per mile (roughly revenue-neutral with 37.5¢ per gallon motor fuel tax)	$0	$33.2	TBD**
Indexed VMT fees	Statewide VMT fee at 2.15¢ per mile in 2010, indexed to inflation thereafter	$0	$42.0	TBD
Ferry fares	Increase ferry fares by 3% annually	$3.9	$1.9	No

* 18th Amendment: The expenditure of certain specific taxes is restricted to highway uses (i.e., registration fees, motor and special fuel taxes). In addition, the state constitution provides that 'all other taxes intended for highway purposes must be placed in a special trust fund and used only for highway purposes. Therefore, whether new revenue sources are restricted under the 18th Amendment depends entirely upon the actual legislative drafting of the tax measure and expressed intent of the legislature.

**TBD – Subject to legislative determination.

Table 2.10 Indirect User Fees Revenue Projections from 2010 to 2030
Nominal Dollars in Billions

Funding Source	Description	Base Revenue	Incremental Revenue	18th Amendment Restriction*
Raising motor fuel tax rate	Assume tax remains at 37.5¢ per gallon after 2009 until 2011 and then increase by 1.5¢ per gallon every two years starting, reaching 52.5¢ in 2029	$33.4	$7.3	Yes
Indexed motor fuel tax rate	Assume tax remains at 37.5¢ per gallon after 2009 until 2010 and then index to inflation (increase of about 2.2% annually)	$33.4	$9.8	Yes
Sales tax on motor fuel	Implement motor fuel sales tax of 6.5% starting in 2010	$0	$16.9	TBD**
Vehicle registration fees	Existing $30 registration fee through 2030, then increase by $5.00 every 5 years, reaching $55 in 2030	$5.3	$2.4	Yes
Licensing fees for trucks	No change to truck licensing fees through 2030, but then increase fees by 3 percent annually	$1.7	$0.9	Yes
Passenger car weight fees	No change to passenger car weight fees through 2030, then increase fees by 3 percent annually	$4.5	$2.3	No
Motor vehicle excise tax	1.0 percent of assessed value annually (average value of $15,000 per vehicle in 2010)	$0	$33.9	No
Excise tax on vehicle sales	Currently, 0.3% of sales price is dedicated to transportation, but would increase by 0.7%, to 1.0%	$1.1	$2.6	No
Rental car tax	Currently, 5.9% of rental contract. Increment: Increase by 5.9%, to 10.8% of rental contract	$0.6	$0.6	No
Container charges	$50 per container that enters or leaves Washington State ports in 2010, increasing annually with inflation	$0	$8.1	TBD

* 18th Amendment: The expenditure of certain specific taxes is restricted to highway purposes (i.e., registration fees, motor vehicle fuel taxes). In addition, the state constitution provides that 'all other taxes intended for highway purposes must be placed in a special trust fund and used only for highway purposes. Therefore, whether new revenue sources are restricted under the 18th Amendment depends entirely upon the actual legislative drafting of the tax measure and expressed intent of the legislature.

**TBD – Subject to legislative determination.

Note: A dedicated 5.0 percent state sales tax for transportation would generate $13 billion (nominal dollars) between 2010 and 2030.

3.0 Trends and Implications of Debt Financing

3.1 INTRODUCTION

This chapter examines the use of debt financing as a strategic tool to accelerate state transportation investment in Washington. Subsection 4.2 describes factors that contributed to a shift away from pay-as-you-go financing and outlines the general scope of the bonding programs approved by the Legislature. The comparative debt ratio analysis in Subsection 3.3 provides an indication of how the amount of debt issued for highway purposes in Washington compares to other states. Subsection 3.4 presents a discussion of issues related to debt management and financial planning. The remaining subsections describe the potential use of long-term asset leases (3.5) and public-private partnerships (3.6) to increase or accelerate transportation investment.

3.2 DEBT FINANCING FOR TRANSPORTATION IN WASHINGTON STATE

The increased reliance on debt financing for a significant portion of the State's transportation capital program is attributable in part to the magnitude of the investment needs relative to available resources. In December 2000, the Blue Ribbon Commission on Transportation released a report identifying nearly $50 billion in critical transportation investment needs throughout Washington State.

The size of the backlog was attributed in part to a failure to increase motor fuel taxes and vehicle-related fees, which are the primary source of pay-as-you-go transportation funding. The state gas tax was fixed at 23 cents per gallon from 1991 to 2003. As shown in Section 1.0, the effective buying power of the tax declined significantly over that period. At the same time, demand for highway capacity was increasing. Annual VMT in the State increased from approximately 47 billion in 1990 to over 54 billion by 2002.

The failure of pay-as-you-go transportation funding to keep pace with demand was exacerbated by the elimination of a significant source of transportation funding. In 1999, voters passed an initiative repealing the state Motor Vehicle Excise Tax (MVET) – a 2.2 percent levy on the assessed value of vehicles licensed in the State. The MVET, which was first imposed in 1938, generated over $900 million for transportation in the 1997 to 1999 biennium. The voter initiative was found unconstitutional, but in 2000, the Washington State Legislature enacted the provision by statute.

Increases in highway materials and land acquisition costs over the past decade also contributed to the gap between available resources and needs. Since 2001, for example, the annual increase in WSDOT's construction cost index has averaged approximately 12 percent. The cost increases are driven by several factors, including national and international construction activity, rising crude oil prices, and other energy supply issues.

The Funding Packages

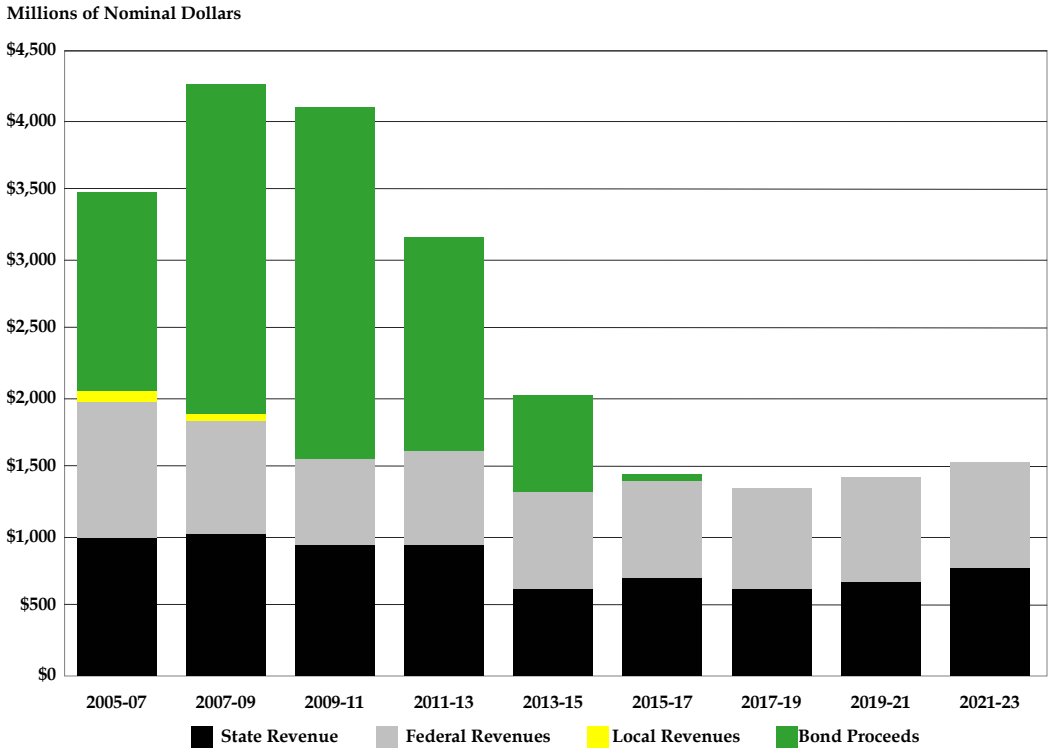
To address some of the most critical transportation needs, the State of Washington has embarked upon an ambitious capital investment program. Approximately 430 highway, bridge, ferry, and rail projects totaling over $11 billion are included in transportation funding packages approved by the State Legislature in 2003 and 2005 (the "Funding Packages"). The targeted projects include at-risk structures, safety improvements, and congestion relief efforts.

Debt financing is a key component of the State's transportation investment strategy. The Funding Packages provide authorization for approximately $7.7 billion of general obligation (G.O.) Bonds secured by motor vehicle fuel tax revenue (the "MVFT Bonds") and $349.5 million of G.O. Bonds that will be paid from vehicle sales taxes, rental car tax receipts, and other fees (the "Multimodal Bonds"). In addition, over $400 million of MVFT Bonds authorized prior to 2003 are expected to be issued over the next 3 years.

Bond proceeds comprise a significant portion, approximately 45 percent, of the total capital funding currently expected to be allocated by the State of Washington for highway construction and preservation and other transportation infrastructure needs through 2023.[12] Figure 3.1 shows the annual amount of funding for transportation capital projects by source.

[12] Department of Transportation 2007 to 2009 Capital Budget Request and 16-Year Financial Plan, August 30, 2006.

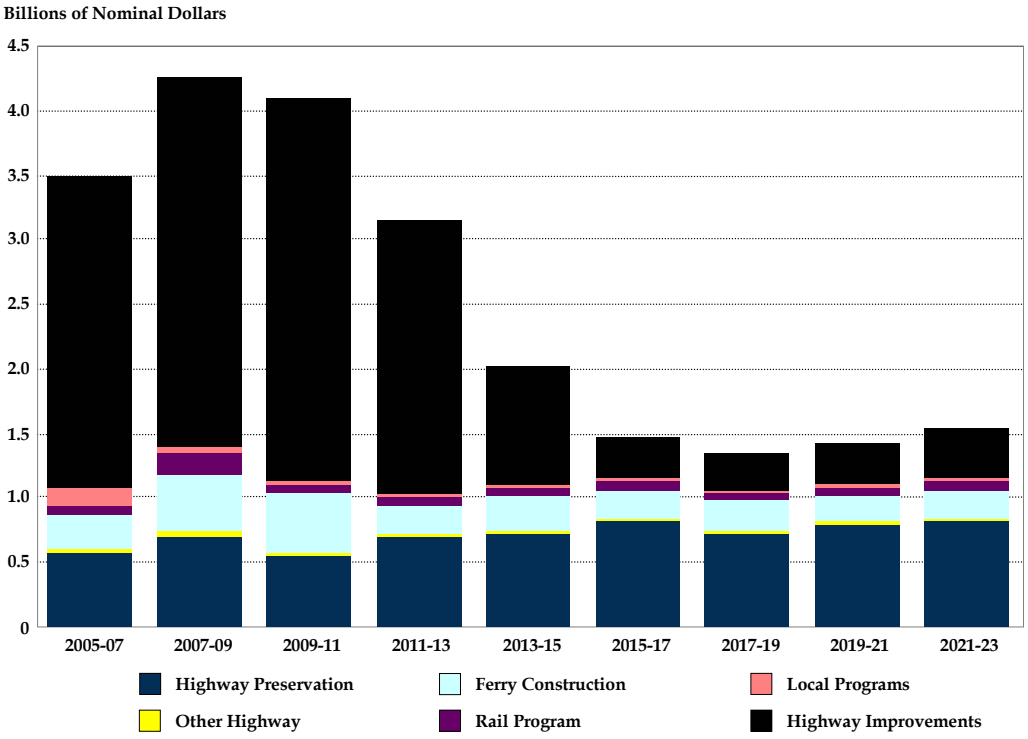
Figure 3.1 WSDOT Capital Budget and 16-Year Financial Plan Capital Sources of Funds



Source: Department of Transportation 2007 to 2009 Capital Budget Request and 16-Year Financial Plan, August 30, 2006.

The Legislature primarily targeted new construction needs in crafting the Funding Packages. As shown in the Figure 3.2 below, annual resources dedicated to highway preservation and ferry construction do not increase significantly in WSDOT's long-term financial plan.

Figure 3.2 WSDOT Capital Budget and 16-Year Financial Plan Capital Uses of Funds

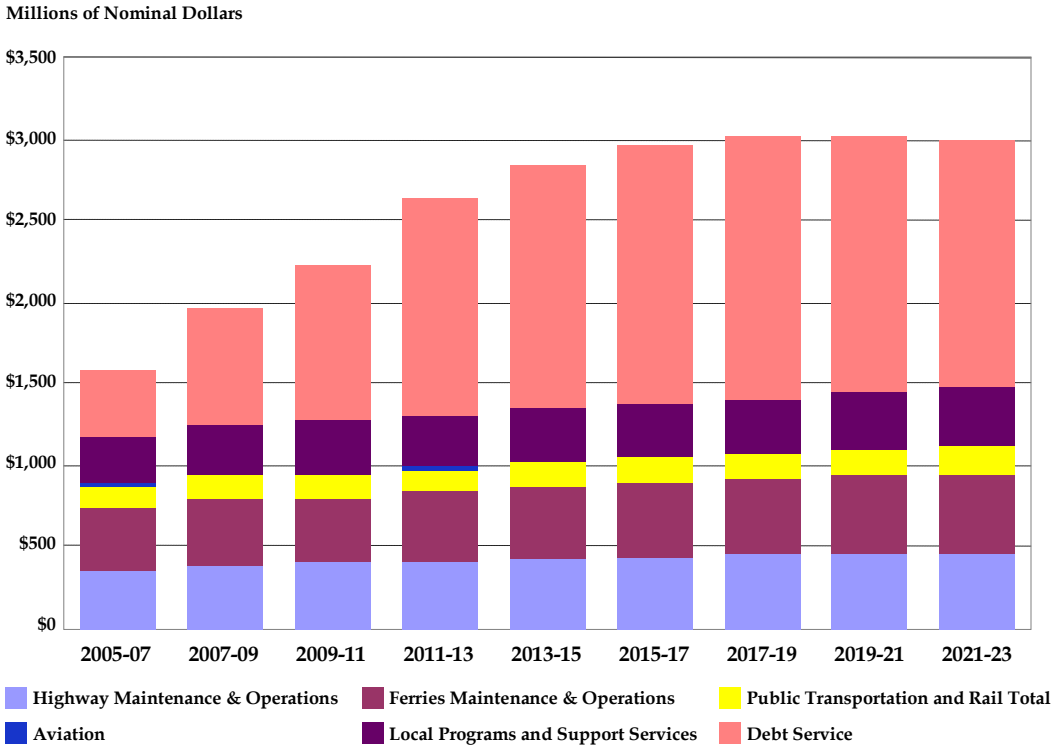


Source: Department of Transportation 2007 to 2009 Capital Budget Request and 16-Year Financial Plan, August 30, 2006.

The Funding Packages include scheduled increases to the state gas tax that will bring the rate to 37.5 cents per gallon by July 1, 2008. The incremental funding from the tax increases allocable to WSDOT will primarily be used to pay debt service on MVFT Bonds. As shown in Figure 3.3, total funds available to WSDOT will increase over time, but the amount budgeted for support services and operation and maintenance of highways and the State Ferry system will remain relatively flat. [13] By the end of the 2011 to 2013 biennium, debt service may comprise over 50 percent of WSDOT's operating budget.

[13] Department of Transportation 2007 to 2009 Operating Budget Request and 16-Year Financial Plan, August 30, 2006.

Figure 3.3 WSDOT Capital Budget and 16-Year Financial Plan Operating Uses of Funds



Source: Department of Transportation 2007 to 2009 Operating Budget Request and 16-Year Financial Plan, August 30, 2006.

3.3 COMPARATIVE DEBT RATIO ANALYSIS

To evaluate the level of indebtedness of governmental entities, ratings agencies calculate various statistics, such as debt per capita, debt as a percent of state personal income, and debt service as a percent of revenues. These types of measures can be useful for monitoring trends, but there is no direct correlation between debt ratios and credit ratings.

The State of Washington is a good example of the disconnect between statistical debt burdens and credit quality. Moody's assigns an AA1 rating to the State's G.O. Bonds even though the debt as a percentage of personal income and the debt per capita ratios are about twice as high as the Moody's 50-state median levels. In Moody's opinion, the above-average debt ratios are offset by the State's expanding economy and strong budgetary controls.

Debt Ratios for State and Local Highway Obligations

The FHWA collects data from states and various other sources and publishes an annual summary of key highway statistics. The quality and consistency of the

data provided to the FHWA varies, but the information can be used to make broad comparisons.

Table 3.1 shows various statistics based on the amount of state and local debt obligations for highways outstanding as of the end of 2004. Tables 3.2 and 3.3 are based on data from *Highway Statistics 2004*, the most recent information available.[14] To provide a general indication of how increased debt issuance affects the relative rankings, the table includes a second row of statistics for Washington based on the amount of MVFT Bonds outstanding as of June 30, 2006, which is approximately $877 million higher. All other information was kept constant. For example, based on 2004 data, the amount of transportation debt per capita in Washington was $376. Using the 2006 data point for outstanding transportation debt in Washington and the 2004 population estimate increases the debt per capita amount to $515 and moves the State up two notches in the ranking of transportation debt per capita.

Table 3.3 shows various statistics based on the amount of annual debt service. The 2006 debt service data is the maximum annual debt service requirement on debt outstanding as of June 30, 2006.

[14] FHWA *Highway Statistics* 2004, released October 2005. Includes debt issued for toll facilities and state issues for local roads. Does not include debt issued by transit agencies.

Table 3.1 Debt Ratios Based on Amount of Outstanding Transportation Debt in 2004

	Total Outstanding Debt	Rank	Total Debt per Capita	Rank	Total Debt per Licensed Driver	Rank	Total Debt per Lane Mile	Rank	Total Debt per million VMT	Rank
Delaware	$ 1,172,309	27	$ 1,416	1	$ 2,196	1	$ 89,360	3	$ 126	4
New Jersey	11,282,899	4	1,297	2	1,945	2	136,283	1	155	1
Massachusetts	7,046,682	6	1,098	3	1,517	3	93,237	2	129	3
Alaska	673,470	33	1,030	4	1,396	5	23,548	13	135	2
Kansas	2,730,635	14	1,028	5	1,379	7	9,925	25	94	7
Connecticut	3,155,326	12	906	6	1,171	8	69,971	4	100	6
New Mexico	1,757,474	22	905	7	1,382	6	13,109	21	73	9
New York	16,166,002	1	844	8	1,437	4	67,312	6	117	5
Colorado	3,533,866	8	768	9	1,103	9	19,525	16	77	8
Florida	10,699,845	5	611	10	814	13	40,899	7	54	14
Virginia	4,430,705	7	595	11	867	11	28,591	10	56	12
Texas	12,774,272	2	568	12	878	10	19,767	15	55	13
Oklahoma	1,933,058	19	560	13	816	12	8,286	31	42	20
Hawaii	657,119	34	525	14	779	15	69,929	5	68	10
Utah	1,252,045	26	520	15	791	14	14,023	18	51	15
Washington 2006	**3,247,670**	**11**	**515**	**16**	**721**	**17**	**19,150**	**17**	**58**	**11**
Wisconsin	3,040,430	13	496	17	778	16	12,970	22	50	16
Arizona	2,509,436	15	437	18	663	18	20,083	14	44	18
Washington 2004	**2,369,806**	**16**	**376**	**19**	**526**	**20**	**13,974**	**19**	**43**	**19**
Rhode Island	380,662	42	352	20	513	21	28,114	11	45	17
Indiana	1,907,492	20	344	21	422	26	9,742	26	26	29
California	12,322,542	3	340	22	541	19	32,562	9	37	21
West Virginia	622,877	36	334	23	482	22	8,175	32	31	25
Maine	414,062	40	315	24	420	27	8,785	29	28	28
New Hampshire	384,808	41	310	25	390	30	11,941	23	29	27

Table 3.2 Debt Ratios Based on Annual Debt Service in 2004

	Total Disbursements for Debt Service	Rank	Debt Service as % of Motor Fuel Tax Receipts	Rank	Debt Service as % of Total Receipts	Rank	Debt Service as % Disbursements	Rank	Debt Service as % State Personal Income	Rank
New Jersey	$ 815,301	3	348%	1	32%	3	21%	3	0.234%	7
Georgia	238,384	12	308%	2	13%	10	12%	8	0.093%	18
Massachusetts	1,600,137	1	279%	3	52%	1	44%	1	0.625%	1
Connecticut	431,802	5	127%	4	36%	2	26%	2	0.288%	4
New York	1,140,743	2	115%	5	23%	4	19%	4	0.162%	9
Delaware	115,335	20	99%	6	19%	7	14%	6	0.427%	2
Oklahoma	103,881	23	93%	7	9%	19	9%	13	0.111%	14
New Mexico	160,481	15	78%	8	22%	5	14%	7	0.334%	3
Arizona	405,908	6	65%	9	20%	6	16%	5	0.271%	5
Rhode Island	38,997	34	49%	10	13%	9	10%	10	0.115%	13
Hawaii	35,354	35	48%	11	13%	11	11%	9	0.091%	21
Utah	138,336	18	43%	12	17%	8	7%	19	0.234%	6
Kentucky	183,196	13	42%	13	11%	13	10%	12	0.170%	8
Virginia	257,381	10	33%	14	9%	17	9%	16	0.103%	16
Dist. of Columbia	8,288	42	31%	15	2%	37	2%	37	0.031%	36
Florida	481,953	4	29%	16	9%	15	8%	17	0.093%	19
Kansas	114,306	21	29%	17	10%	14	8%	18	0.139%	11
Washington 2006	244,000	11	28%	18	13%	12	10%	11	0.120%	12
Alaska	8,088	43	28%	19	1%	40	1%	40	0.037%	34
Illinois	312,447	8	27%	20	9%	18	7%	20	0.073%	25
Maryland	111,709	22	26%	21	7%	24	6%	25	0.054%	31
New Hampshire 9/	34,005	36	23%	22	8%	21	9%	14	0.076%	23
Pennsylvania	286,316	9	22%	23	6%	27	7%	21	0.072%	26
West Virginia	61,631	28	20%	24	6%	28	6%	26	0.140%	10
Indiana	145,394	17	20%	25	7%	22	6%	28	0.082%	22
Ohio	317,904	7	20%	26	9%	16	9%	15	0.093%	20
Maine	40,139	33	19%	27	7%	26	6%	27	0.106%	15
Mississippi	69,469	26	18%	28	7%	23	6%	22	0.102%	17
Washington 2004	150,819	16	18%	29	8%	20	6%	23	0.074%	24
Colorado	85,520	24	16%	30	5%	30	5%	29	0.055%	29

3.4 DEBT MANAGEMENT AND FINANCIAL PLANNING

The significant increase in bonding in recent years and the strategy of fully leveraging scheduled increases in the state motor fuel tax raise important policy questions, such as:

- What is the appropriate balance between "pay-as-you-go" financing and bonding?
- Is it appropriate to issue additional debt to cover unexpected cost increases on projects approved by the Legislature?
- Is the practice of crafting funding packages and pledging the State's full faith and credit on transportation bonds a sustainable approach for meeting ongoing capital needs?

These types of issues are best addressed by developing debt management guidelines that can be incorporated in the capital planning process for state transportation projects. The discussion below outlines several areas for policy development.

Minimum Debt Service Coverage on MVFT Bonds

Washington is one of a handful of states that pledges its full faith and credit to the payment of transportation bonds secured by motor fuel taxes. The "double-barreled" pledge of both the taxing power of the State and a dedicated revenue stream provides a very cost-effective way to access the capital markets.

Authorization to issue MVFT Bonds requires legislative approval (60 percent majority of both houses) or approval by voters in a statewide referendum, but the amounts issued are excluded from Washington's constitutional and statutory limits on general obligation debt.

Compliance with an "additional bonds test" is not required for MVFT Bonds. An additional bonds test is a covenant that protects bondholders by prohibiting the issuance of additional parity debt if the ratio of pledged revenue (historical or projected) to debt service (annual or maximum annual) is less than a certain ratio. Highway revenue bond credits typically require that pledged revenues collected over the prior year equal at least two times the projected maximum annual debt service after issuance of proposed debt.

From an investor perspective, an additional bonds test on MVFT Bonds is not needed because of the strength of the State's general obligation pledge (AA/AA1/AA credit ratings), and the fact that revenue is withheld on a monthly basis to ensure sufficient funds are available to make debt service payments. The risks associated with the pledged revenue stream, however, remain. If motor fuel tax revenue collections fall because of a severe economic downturn (or passage of a voter initiative), the impact on WSDOT operations could be significant.

By establishing an informal policy on minimum acceptable debt service coverage, Washington could mitigate the potential risks associated with fluctuations in motor fuel tax revenue and enhance the amount of resources available for pay-as-you-go opportunities.

Table 3.3 shows the pro forma debt service coverage on the State's MVFT Bonds and General Obligation debt for the FYs 1996 and 2006. MVFT debt service coverage declined over that period, but coverage of G.O. Bond debt service increased due to strong growth in General State Revenues. The third column shows the potential debt coverage on the MVFT Bonds in 2016 based on projected gas tax revenue for 2016, as well as 2006 gross revenue (in-ground coverage). It appears that a policy of maintaining minimum gross debt service coverage of 2.0x would not preclude issuance of the debt included in the Funding Packages.

Table 3.3 Pro Forma Debt Service Coverage on MVFT Bonds and General Obligation Debt, Fiscal Year 1996, 2006, and 2016
Millions of Nominal Dollars

Source of Funding	1996	2006	2016
MVFT Bonds Outstanding*	$993	$2,995	$7,190
Gasoline Tax Revenues**	655	1,003	1,512
Maximum Annual MVFT Debt Service	114	244	693
Gross Coverage	5.74x	4.10x	2.18x
Net Coverage after County-City Allocation	4.97x	3.69x	–
Gross Coverage with 2006 Revenue	–	–	1.45x
G.O. Bonds Outstanding	5,107	7,892	-
General State Revenues	7,318	12,286	
Maximum Annual G.O. Debt Service	528	811	
Gross Coverage	13.87x	15.15x	

Source: WSDOT and Mercator Advisors.

* Estimate for FY 2016 is based on WSDOT 16-Year Financial Plan and assumes issuance of all debt authorized under the Funding Packages.

** Estimate for 2016 is from Table 4.3 (MFT Model A), Washington State Motor Fuel Tax Forecast, Cambridge Systematics draft Technical Report, September 2006.

Term and Structure of the MVFT Bonds

The projected decline in MVFT coverage is due in part to the assumption that all future bond issues will be structured with a final maturity of 25 years and equal annual debt service requirements. Higher debt service coverage could be

maintained by deferring amortization of principal for a few years and/or by extending the final maturity on bonds issued to finance long-lived assets.

Many of the capital improvements undertaken with proceeds from MVFT Bonds have useful lives exceeding 25 years. Deferring payment of debt service on bonds issued to finance those investments would promote intergenerational equity by shifting a portion of the cost to future beneficiaries. Issuing longer-term debt can also reduce the impact of large and frequent bond issues on operating budgets and it is an appropriate way to mitigate the risks associated with uncertain revenue streams such as tolls.

Extending the term of a bond issue increases total debt service. In recent years, however, the incremental cost has been relatively modest because bond yields for maturities 30 years and longer have not been significantly higher than yields on 20-year bonds. Many states and regional transportation authorities have taken advantage of the favorable market conditions to extend the term of their debt. Table 3.4 provides examples of recent transportation bond issues with final maturities exceeding 25 years.

Table 3.4 Examples of Transportation Debt With Maturities Longer Than 25 Years

Issue Date	Issuer	State	Issue Description	Amount $Millions	Final Maturity	Number of Years
11/01/2006	State of Louisiana	LA	Gasoline and Fuels Tax Revenue Bonds	$1,107.490	2041	35
10/31/2006	Texas Transportation Commission	TX	General Obligation Mobility Fund Bonds	$1,040.275	2035	28
10/19/2006	Regional Transportation District	CO	Sale Tax Revenue Bonds (FasTracks Project)	$600.000	2036	30
10/04/2006	Regional Transportation Authority	IL	General Obligation Bonds	$250.350	2035	29
10/12/2006	Harris County, Texas	TX	Toll Road Senior Lien Revenue Bonds	$135.530	2036	30
09/21/2006	E-470 Public Highway Authority	CO	Senior Revenue Bonds	$110.688	2039	33
09/21/2006	Miami-Dade County Expressway Authority	FL	Toll System Revenue Bonds	$304.335	2039	33
07/06/2006	Utah Transit Authority	UT	Subordinated Sales Tax Revenue Bonds	$175.000	2036	30
06/07/2006	Metropolitan Transportation Authority	NY	Dedicated Tax Fund Bonds	$350.000	2035	29
04/19/2006	The Port Authority of NY and NJ	NY/NJ	Consolidated Bonds	$500.000	2036	30
06/15/2006	Port of Portland	OR	Special Obligation Revenue and Refunding Bonds	$71.000	2036	30
02/08/2006	Bay Area Toll Authority	CA	San Francisco Bay Area Toll Bridge Revenue Bonds	$1,000.000	2045	39
10/04/2005	Puerto Rico Highways and Transportation Authority	–	Transportation Revenue Bonds	$800.000	2045	40
08/17/2005	Pennsylvania Turnpike Commission	PA	Registration Fee Revenue Refunding Bonds	$465.560	2041	36

Contingency Planning

WSDOT maintains a 16-Year Financial Plan that outlines expected operating and capital uses of transportation funding. Some state DOTs model expected cash flows for 5- to 10-year periods, but Washington's approach appears to be unique.

Management tools like the 16-Year Financial Plan should be used to develop "worst case" scenarios and contingency plans. The decision to fully leverage the incremental tax revenue generated by the scheduled state motor fuel tax increases, coupled with the State's strong commitment to deliver the projects in the Funding Packages on schedule, leaves little room for error. Key assumptions should be reviewed and updated regularly. For example, the current plan assumes toll revenue generated by the TNB will be sufficient to cover debt service and operating costs by 2009. If that does not occur, what is the strategy for mitigating the impact on the Department's operating budget?

Another area that deserves attention is asset management. Governmental Accounting Standards Board (GASB) 34 financial reporting requirements will ensure that deferred maintenance needs are identified, but steps should be taken to make certain that the base level of preservation and maintenance funding in the transportation budget is sufficient to cover the life-cycle costs of the new facilities being added to the system. Furthermore, as the existing transportation asset base ages, its maintenance cost will increase.

Financing of Transportation Mega-Projects

Washington faces the challenge of securing financing for mega-projects like the Alaskan Way Viaduct and Lake Washington floating bridge. The State issued MVFT Bonds to finance construction of the TNB and assumed certain risks associated with project costs and revenue generation, but that approach will not work for all projects under all market conditions.

Tolling, public-private partnerships, and regional funding are important financing tools, but many states have discovered that they cannot take advantage of such opportunities without first maintaining their existing network. Having the resources to co-invest in projects is also important. Some projects, for example, may be able to support a significant portion of their life cycle costs, but if the State cannot secure the remaining funding, the project cannot move forward.

Alternative Financing Mechanisms

Some states are encouraging local communities and private entities to finance and manage certain transportation improvements by agreeing to reimburse those entities over time for a significant portion of the cost.

Pass-through financings – As of October 2006, the Texas DOT had completed 11 pass-through financing agreements with cities and counties where it agreed to reimburse the local entities for funding certain improvements to the state

highway system. The state reimbursements are based on the number of vehicles that use the facility after completion, and minimum and maximum annual payments are negotiated.

Availability payments – Florida is in the process of selecting a private concessionaire to design, finance, build, operate, and maintain a $1 billion tunnel to the Port of Miami in exchange for annual "availability payments" based on various performance standards. Miami-Dade County has contributed $100 million of G.O. Bond proceeds to initial studies for the project, and is expected to be responsible for a portion of the annual payments over a 35- to 40-year period. The approach is very similar to the "shadow tolling" arrangements adopted in the United Kingdom to secure private financing for the reconstruction of major roads. The availability or shadow toll payments are generally made from tax revenues and other governmental resources, and users of the facility financed by the private concessionaire are not charged a toll.

3.5 LONG-TERM ASSET LEASES

Long-term asset leasing involves public owners of existing revenue-generating facilities entering into a long-term concession agreement with private entities (concessionaires) under which the concessionaire makes an upfront payment and/or enters into a revenue-sharing arrangement in exchange for the right-to-collect tolls over a predefined 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 (predefined step-up rates, plus inflation). This type of transaction can generate a substantial but nonrecurring amount of cash for a state that may be used for transportation (or other) purposes, and shifts to the private sector the ongoing responsibility for operating and capital costs during the term of the franchise.

Lease transactions have been completed recently in Illinois, Indiana, and Virginia, and are under consideration by other states. Leasing assets is limited only by the number of current toll facilities. Asset leases of transit facilities are not likely to be meaningful sources of cash, since virtually no transit system fully recovers its operating expenses, let alone capital costs from user charges. Both highway and transit asset leasing projects may require Federal approval, depending on how Federal-aid funds were used for construction or capital renewal. A couple recent examples of long-term asset leases (the Chicago Skyway and Indiana Toll Road) are summarized below, followed by the context in Washington State.

Chicago Skyway – The Chicago Skyway was publicly managed by the City of Chicago until 2004, when it became the first existing toll road in the United States to be privatized through a long-term lease. The idea to lease the Skyway was

first introduced as a part of the Chicago mayor's 2003 city budget proposal. The plan was pitched as a means for the City to pay off debts and raise money for other city needs.

Responding to the City's request for proposals, eight different consortiums submitted their qualifications to the City Council in April of 2004. Three went on to submit financial offers. At $1.83 billion, the highest offer was significantly higher than the other two offers received (at $701 million and $505 million, respectively). The agreed-on lease is for a 99-year term, during which a consortium consisting of 2 firms, Cintra Concesiones de Infraestructuras de Transporte S.A. of Spain and the Macquarie Infrastructure Group of Australia, is responsible for all operations and maintenance and is granted the right to all toll and concession revenue collected on the Skyway during that period.

From the perspective of the public partner, the venture has clear financial advantages in the short to medium term. With about $500 million in debt owed on the bridge itself, the $1.83 billion lease enabled the city council to pay off the remaining debt on the bridge with about $1.3 billion to spare. Furthermore, because the City had so much other debt on which it was paying about 5 percent a year in interest, the City had a strong interest in foregoing the $8.4 million in annual profits it earned on the bridge in exchange for receiving the $1.83 billion upfront. Perhaps because of these financial advantages, the lease proposal met little opposition in Chicago, at least among those at the table. The Chicago City Council voted unanimously in favor of the lease.

From the perspective of the private partners, a spokesman indicated that they expected a 10-percent return on the Skyway investment in the long run. Some of the reasons for this optimistic forecast are the relative advantages of the Skyway over competing routes (offering time savings and spare capacity) and its good condition after recent upgrades completed by the City. Both of these advantages are believed to become more pronounced in the long run, which makes the long 99-year lease term important. Another important feature of the contract is the permission it grants to raise tolls. The lessors are permitted to raise tolls up to $5.00 by 2017 or at the rate of inflation (whichever is higher), and to continue raising tolls at a rate equal to the highest among the inflation rate, growth in Gross Domestic Product (GDP), or 2 percent per year from 2017 to 2105.

The private operator has proceeded to make some changes since taking over. This includes contracting toll collection to a parking garage management company, raising tolls, implementing electronic toll collection (ETC), installing satellite toll lanes, and beginning a repaving and lane-reconfiguration project. The changes made since the takeover are likely to affect the firm's bottom line, as well as the quality of the service provided to motorists.

Indiana Toll Road – In May 2005, Indiana DOT identified to the Governor a significant shortfall in the funding needed for state transportation improvements. The Governor proposed leveraging new funding sources, including public-private partnerships, to fully fund and construct these improvements within the

next decade. In fall 2005, the Indiana Finance Authority issued a request for proposals to privatize the 157-mile Indiana Toll Road as a means of generating necessary revenue. In January 2006, bids were received from four companies: Macquarie-Cintra, Babcock & Brown, Itinere, and Morgan Stanley. None of the other competing bids came within a billion dollars of the $3.8 billion that Macquarie-Cintra was prepared to offer. The State received the $3.8 billion in June 2006, and Macquarie-Cintra is operating and maintaining the toll road as a for-profit enterprise under the 75-year deal.

Context in Washington State – The future prospects of long-term asset leases in Washington State likely depend on the future of tolling on Washington facilities. Because there are no existing toll roads or bridges in Washington State, it is unlikely for the State to have feasible options anytime soon.

The new Tacoma Narrows Bridge, scheduled to open in 2007, will be a toll bridge. In addition, new demonstration HOT lanes on SR 167 are planned for 2008, with the possibility of adding HOT lanes to I-405 if successful. Both of these projects will help demonstrate to the public the feasibility of modern tolling technologies, and will provide financial analysts with a baseline with which to estimate future toll revenues in the area.

3.6 PUBLIC-PRIVATE PARTNERSHIPS

Introduction

Public sponsors increasingly consider private-sector involvement as a way to spur implementation of large projects. While searching for new sources of revenue, transportation agencies around the country also are experimenting with public-private partnerships (PPP) to help deliver, operate, maintain, and in some cases, even finance highway and transit infrastructure. PPPs encompass a range of contractual arrangements by which public (Federal, state, local government, and special authorities) and private entities collaborate in the development, operation, ownership, and financing of a transportation infrastructure project or program, including recent long-term lease arrangements. In some cases, PPPs can even attract net new investment capital that otherwise might not be available.

PPPs appear to be best suited for large, complex projects with acknowledged need and strong governmental support. PPPs can provide substantial benefits in terms of accelerating project development and construction, transferring construction and performance risk away from government, providing more efficient operation and superior service, and introducing new technologies.

Under current market conditions, private consortiums may also be able to generate greater amounts of construction funding for a given project than is possible with conventional tax-exempt financing structures. The discussion below highlights some of the factors that influence the amount of financing that can be raised under each approach.

Municipal Bonds – In the tax-exempt market, project revenue bonds are typically issued as fixed-rate debt with principal and interest payments scheduled over a 35- to 40-year period. If investors are to be secured solely by project revenue (no recourse to the taxing power of the sponsor or any other source of payment), debt capacity will be constrained by the need to maintain projected debt service coverage ratios acceptable to the rating agencies and potential investors. The minimum acceptable debt service coverage ratio (projected net revenue divided by total debt service payable in each year) can vary significantly depending on the credit strength of the project, but it generally ranges between 1.5x and 2.0x for start-up toll facilities.

Table 3.5 shows the potential project cash flow associated with a hypothetical tax-exempt financing scenario.

Based on the assumptions above, there would be a construction funding shortfall of approximately $391 million. Total debt service on the tax-exempt revenue bonds over 40 years would be approximately $1.8 billion, and the net revenue available to the project sponsor over a 75-year period would exceed $7.4 billion (assuming the actual net revenue generated equals the amount projected).

Table 3.5 Tax-Exempt Financing Scenario

Key Assumption	Potential Project Cash Flow
Project cost (5-year construction period)	$1 billion
Tax-exempt interest rate on revenue bonds	5.00%
Term of bonds*	40 years
Net revenue in opening year**	$50 million
Average annual growth in net revenue***	2.50%
Debt service coverage	1.29x to 1.50x

* Transportation bonds issued by the State of Washington are amortized over 25 years. A 40-year term is typical for tax-exempt debt issued to fund construction of new toll facilities. A bond issue structured with an average interest rate of 5.00% and a 75-year term would provide approximately $850 million in net proceeds, but it is uncertain whether that transaction would be marketable.

** Costs associated with toll operations and routine maintenance are assumed to have been paid from gross revenues leaving $50 million of "net revenue" available for payment of debt service.

*** The revenue projections used by public sector sponsors of toll projects are usually "conservative" in terms of assumed growth in traffic and generally are not based on an assumption that toll rates will be set at levels that maximize potential revenue. The 2.5 percent annual revenue growth assumption is a proxy for a toll policy that tries to keep pace with inflation.

Private concession financing – Under a private concession structure, a larger amount of construction financing can be generated by leveraging potential project revenue for a longer period of time and/or by finding investors willing to assume a greater amount of traffic and revenue risk.

Table 3.6 shows the potential project cash flow under a hypothetical private concession financing scenario.

Table 3.6 Private Concession Financing Scenario

Key Assumptions	Potential Project Cash Flow
Project cost (5 year construction period)	$1 billion
Target return (pre-tax) on total investment*	6.50%
Term of concession	75 years
Net revenue in opening year	$50 million
Average annual growth in net revenue**	3.30%

* The Commonwealth of Virginia recently negotiated a concession agreement for a toll facility that requires the private operator to share revenue with the state after achieving a 6.5 percent return on total investment. This return can be thought of as a blended return on invested capital in the form of taxable debt and private equity. Under the hypothetical example presented above, the pro forma return on equity would be approximately 10.2 percent (assuming 80 percent of the project is financed with taxable debt with an average cost of 5 percent over the 75-year concession period).

** The 3.3 percent annual revenue growth assumption is a proxy for a more aggressive assessment of potential traffic growth and higher assumed toll rates. The revenue risks that private investors are willing to assume vary significantly depending on the credit strength of the project and the terms of the concession agreement relating to permitted toll increases.

Under the assumptions outlined above, a private concessionaire might be able to fund the total project cost of $1 billion. It is very important to note, however, that the valuation in this example does not include renewal and replacement and other life-cycle costs that private investors would likely be responsible for under a concession agreement.

The $391 million of incremental construction funding versus the municipal bond scenario reflects the value of leveraging 100 percent of the net revenue stream for a 75-year period and the assumption that net project revenues can be increased at an annual rate of 3.3 percent versus 2.5 percent. The "opportunity cost" associated with securing the addition construction funding through a private concession ranges from $7.4 billion in gross dollars (the amount of potential surplus revenue under the municipal bond scenario) to $11.3 billion (if one assumes the public sponsor would also have established toll rates at levels necessary to achieve 3.3 percent annual revenue growth). In present value terms, the opportunity cost associated with the concession financing in this example is approximately $970 million. [15] The estimated financial cost has to be weighed against the potential benefits derived from transferring the risk of construction delays and cost overruns to the private sector and the economic and social benefits derived from the expediting completion of the project, such as reduced congestion or improved air quality.

[15] The present value calculation is based on the assumed public sector cost of capital of 5.0 percent and does not vary significantly when annual net revenue is assumed to grow at 3.3 percent rather than 2.5 percent.

Figure 3.4 Hypothetical Tax-Exempt Revenue Bond Scenario

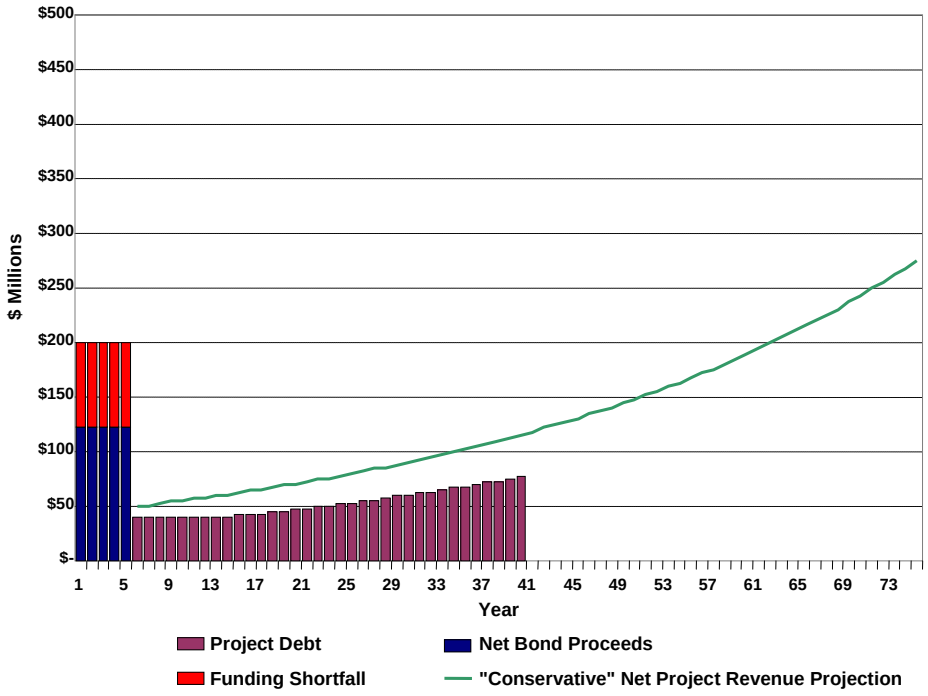
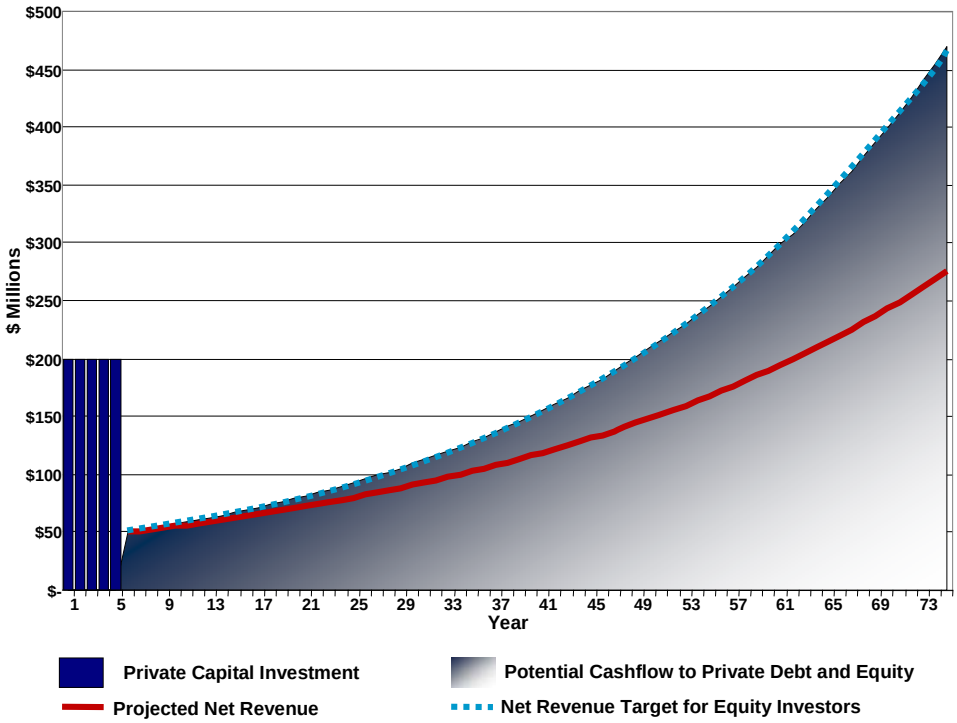


Figure 3.5 Hypothetical Private Concession Financing



Project Delivery Options

The government has long contracted with private firms to help in the construction of transportation infrastructure. There are many different varieties of contractual arrangements that might be used to collaborate with private firms, with varying degrees of responsibility assumed by each party. Depending on the legal, political, and financial features of the project at hand, different arrangements might be appropriate for different situations. These options are shown below.

Design-bid-build – This is the traditional approach in which the public-sector contracts with a private firm(s) to design a construction project, then accepts bids for the project as designed, and then awards a contract to a private firm(s) to construct the project as designed. The public entity retains ownership and responsibility for operations, maintenance, and financing.

Private contract fee services – This approach deviates from tradition by having private firms contracted to provide additional services that public entities have traditionally conducted in-house. For example, rather than limiting outside contracts to the realms of planning, design, and construction, public entities might also contract out to a private firm to provide operations, maintenance, or financial-management services.

Design-build – In this approach, the public sector contracts with a private entity to both design and construct a project, and to assume responsibility for the risks associated with fulfilling the contract for a flat fee. But as with design-bid-build, the public entity retains ownership and responsibility for financing, operations, and maintenance.

Build-operate-transfer (BOT) (or design-build-operate-maintain, DBOM) – This approach combines the previous two, such that the private entity that designs and builds a project is also responsible for operating and maintaining it down the road. The public entity continues to retain ownership and responsibility for financing.

Design-build-finance-operate (DBFO) – In addition to transferring responsibility for design, construction, operations, and maintenance, this approach also transfers some or all of the financial responsibility to the private sector as well. In reality, a combination of different types of revenues may be cobbled together from both public and private sources, including project-generated funds (such as tolls), tax or user-fee revenues, Federal funding, leveraged funds, and private equity. The public entity retains ownership.

Build-own-operate (BOO) – This approach transfers even ownership to a private entity, such that the private entity assumes all risk, responsibilities, and rights to any surplus revenues generated by the project. In practice, "ownership" is usually granted only through a long-term lease, lasting 30 to 100 years, such that although the public agency technically retains ownership, the private entity enjoys most of the risks and rewards of ownership, as delineated in the contract.

Table 3.7 summarizes these project delivery options.

Table 3.7 Project Delivery Options

	Own	Conceive	Design	Build	O&M	Financial Responsibility
Design – bid-build	Public	Public	Private by fee contract	Private by fee contract	Public	Public
Private contract fee services	Public	Public or private by fee contract	Private by fee contract	Private by fee contract	Public or private by fee contract	Public
Design-build	Public	Public	Private by fee contract		Public	Public
BOT	Public	Public	Private by fee contract			Public
DBFO	Public	Public or private	Private by fee contract			Public, public/ private, or private
BOO	Private	Public or private	Private by fee contract (concession)			

Source: FHWA web site; Public-Private Partnerships.

Experience in Washington State

Washington State paved the way for private-sector involvement in transportation projects with the passage of the Public-Private Initiatives (PPI) Act in 1993, which allowed WSDOT to enter into agreements with private entities to develop transportation infrastructure and levy tolls to recoup costs. The act authorized the public-private initiatives program to complete up to 6 demonstration projects. In 1994, 14 proposals were submitted to WSDOT to be selected as 1 of the 6 demonstration projects. The proposals involved toll roads, toll bridges, congestion pricing, park-and-ride lots, and ferry operations.

None of the proposed demonstration projects were completed according to plan. One of the contributing factors was the passage of several amendments to Washington's original PPI legislation, including a 1995 amendment requiring an advisory vote on any projects challenged by a petition with 5,000 signatures; and a 1996 amendment requiring legislative funding for environmental, public involvement, and engineering work prior to project approval. While these amendments made an exception for 1 project that was already underway (the TNB project), these requirements meant that no other demonstration project could proceed without legislative approval and appropriations, which were not granted.

The one demonstration project excepted from the legislation revisions involved the construction and operation of a new bridge over the Tacoma Narrows. A private firm was to levy tolls on the existing bridge, construct a new bridge, and then operate both. But a lawsuit backed by citizens in nearby neighborhoods who were opposed to the new tolls prevented the project from continuing according to plan. In 2000, the state Supreme Court ruled that it was illegal to charge tolls on the Tacoma bridge (due to a 1961 law barring the use of tolls on

that bridge), but upheld the overall constitutionality of the PPI Act. As a result of this ruling, the State came up with a new financing plan, and compensated the private firm for their involvement up to that point. Thus, due to public opposition to the specific projects attempted through the PPI program, the program has not successfully demonstrated the potential role of the private sector in helping to fund Washington's transportation systems.

Beyond the PPI program, there have been several other types of private-sector involvement in the provision of transportation infrastructure and transportation services in Washington: private firms assisting in the construction of freeway interchanges and private firms taking over ferry operations.

I-5: South DuPont Interchange – The South DuPont Interchange on I-5 was constructed in 1997, entirely financed by the Weyerhaeuser Real Estate Company, who hoped to recoup the costs through a nearby planned community it was also developing, Northwest Landing. From the point of view of the State, it was a successful project, because the private financing enabled the project to be completed at a lower cost and in 26 months, instead of 48 months, demonstrating some of the advantages of private partnerships. However, as of 2003, the Weyerhaeuser Company reports that it has still not recouped its costs, with lower than expected residential and business demand in the area.

I-90: Sunset Interchange – The Sunset Interchange on I-90 was built with a coalition of public and private agencies, including WSDOT; the City of Issaquah; King County; Sound Transit; the Transportation Improvement Board; and a private firm, Port Blakely Communities. As with the south DuPont interchange, the private firm was able to accelerate the construction project by conducting various phases of the planning process simultaneously, such as securing right-of-way before final project approval.

Privatization of Ferries – Currently, ferry services in Washington State are either state operated by the Washington State Ferries (WSF), or county-operated (for example, the Kitsap Transit Service). These public operators, and any operators leasing their vessels, are required to use workers from the Inland Boatmen's Union. In addition, state law bars private operators from competing within 10 miles of the publicly-operated routes. Therefore, in order to operate, private firms must get special permission from the public ferries for rights to particular routes, and would either need to operate under the same labor agreements as does the State, or use their own vessels and circumvent labor unions.

In 2005, one private firm was able to do so. Kitsap Transit offered one of their routes to the private firm, Aqua Express (after Kitsap County voters had voted down a tax increase designed to support continued ferry service). The Inland Boatmen's Union took the position that the venture was likely to fail financially, and, therefore, was not worth opposing. Aqua Express began operating passenger-only ferry service between Kingston and Seattle in January 2005, but the venture lasted only 10 months, due to high fuel costs, low ridership, and the

inability to expand into more profitable routes controlled by the state ferries and backed by the unions.

These examples illustrate that involving the private sector in the provision of transportation infrastructure and services can be complicated, and that successful ventures must be well designed within the context of local needs, politics, and legal requirements.

4.0 Evaluate State-Distributed Transportation Funds

This section provides the following information:

- Establishes context on how Washington State currently distributes transportation funds to local governments;
- Provides a summary of approaches used in other states for providing state funds to local transportation programs;
- Identifies the relative contributions of states to local transportation programs;
- Identifies the primary funding sources used by local governments for transportation; and
- Provides a discussion of strategies that could be used to generate transportation revenue in Washington State at the regional and local levels.

4.1 CONTEXT IN WASHINGTON STATE

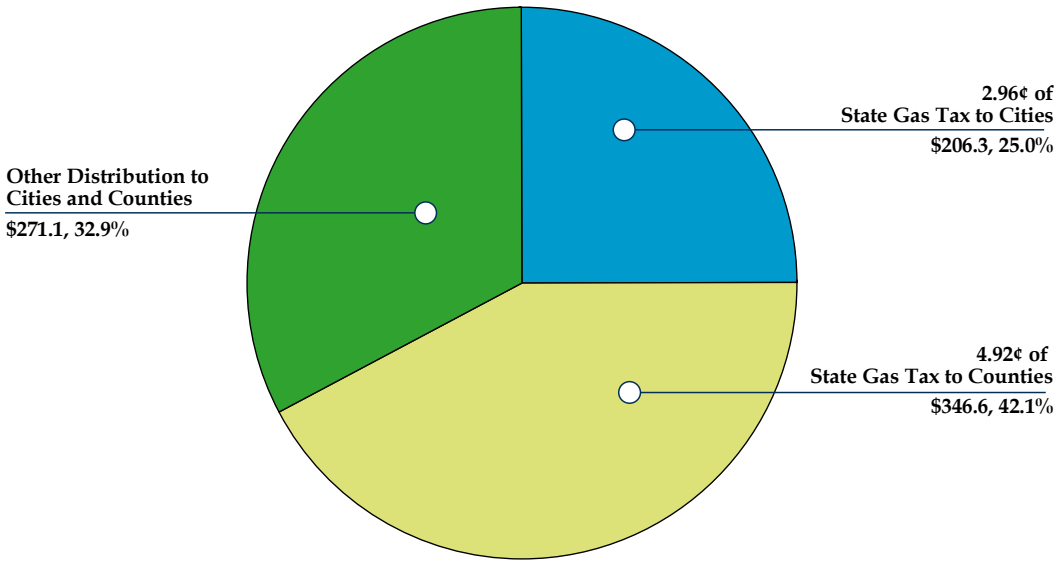
The Transportation Resource Manual provides the following information regarding local and regional jurisdictions in Washington State:[16]

- Cities and towns are responsible for 16,190 miles of streets and approximately 682 bridges in the 280 incorporated municipalities of the State;
- Currently, about 69 percent of cities' transportation funding are generated from local revenue sources, 18 percent from state revenues, and 13 percent from Federal sources;
- Counties are responsible for managing 40,353 miles of roads and approximately 3,224 bridges in the unincorporated areas across the State; and
- Currently, about 63 percent of counties' transportation funding is generated from local revenue sources, 27 percent from state revenues, and 10 percent from Federal sources.

Washington State 2007 to 2009 budget projections indicate that of the $7.59 billion of state transportation funds available, $824 million (10.9 percent) will be distributed to cities and counties. Figure 4.1 shows the funding sources for that distribution.

[16]Source: *Transportation Resource Manual*, pages 288-289; Legislative Transportation Committee, January 2005.

Figure 4.1 State-Distributed Transportation Funds to Local Governments in Washington State, Fiscal Years 2007 to 2009
(In Millions of Dollars



Source: WSDOT 2007-09 Budget Request 12.

More information on each funding source is provided as follows:[17]

- The 2.96 cents distribution of the state gas tax to cities (projected at $206.3 million in 2007 to 2009) is used for the construction and maintenance of city streets. Funds are distributed to cities on a per capita basis.
- The 4.92 cents distribution of the state gas tax to counties (projected at $346.6 million in 2007 to 2009) is used for the construction and maintenance of county roads. The funds are distributed to counties as follows: 10 percent are evenly distributed, 30 percent are distributed by population, 30 percent are based on annual road costs, and 30 percent are based on needs for construction and maintenance.
- Other funding distributions to cities and counties are comprised of transportation grants from sources that include the Transportation Improvement Board (the Urban Arterial Program, the Transportation Improvement Program, and the Small Cities Account programs); and the Freight Mobility Strategic Investment Board (Freight Mobility Strategic Investment Program). In addition, counties receive grants and distributions from the County Road Administration Board (County Arterial Preservation Program and the Rural Arterial Program).

[17]Source: *Transportation Resource Manual*, pages 77-79 and pages 288-290, Legislative Transportation Committee, January 2005.

4.2 SUMMARY OF APPROACHES USED IN OTHER STATES

Local governments include a wide range of entities, including counties, municipalities, townships, road districts, commissions, toll authorities, and other designated authorities.[18] Similar to Washington, all of the remaining states, with the exceptions of Georgia and Rhode Island, distribute a portion of state transportation user fees and taxes to local governments. Common funding sources for these distributions are the motor fuel tax and motor vehicle (i.e., vehicle registration or licensing) fees. The approaches that other states use to distribute state transportation funds to local governments vary widely:

- In some states, funding sources available for transportation are not dedicated to transportation purposes, (i.e., no protection similar to the 18th Amendment in Washington). Thus, the amount of total transportation funds available to both state and local programs can vary in each budget cycle.
- The criteria used to allocate funds include population; road mileage; relative needs; vehicle registrations; vehicle miles traveled; area (i.e., square miles); fuel sales; land valuation; tax raising ability; and sales tax ratios, as well as flat distributions (i.e., equal amounts to each city or county). Some programs are discretionary block grant or project-specific funding approaches, subject to eligibility criteria and a priority setting process.
- Restricting the use of distributed funds to designated roadway purposes such as road construction and maintenance is common. Of the 46 states that distribute motor fuel and motor vehicle receipts to local governments, 37 states (80 percent) restrict 100 percent of such receipts to roadway purposes.[19] For another 7 states, the percentage of such receipts restricted to roadway purposes ranges from 93 percent to 99 percent. Only California and Hawaii restrict lower percentages of motor fuel and motor vehicle receipts to roadway purposes (53 percent and 62 percent, respectively).

With the wide variety of approaches in use today, there is no one best practice that emerges. Each state has designed an individual approach that reflects its own particular policy concerns and equity considerations. While population, road mileage, and motor vehicle registrations are the most common allocation variables in use, the percentage weight placed on these and other variables vary

[18] *Highway Statistics 2004*, Introduction, FHWA, Office of Highway Policy Information.

[19] *Highway Statistics 2004*, Table LGF-1: Revenues Used by Local Governments for Highways – 2003, FHWA, Office of Highway Policy Information.

significantly. Specific examples of funding distribution formulas of motor fuel tax receipts used by select states include the following:[20]

- **Arizona –** Portion based on population, and portion based on the ratio of total sales of motor fuel within the county to total statewide sales.
- **California –** Reimbursable snow removal costs, dedicated amount for heavy rainfall and storm damage, portion based on historical allocation, portion based on motor vehicle registrations, portion based on road miles maintained, and portion based on population.
- **Colorado –** Portion based on historical allocation, portion based on motor vehicle registrations, and portion based on road miles maintained.
- **Florida –** For counties, based on both population and sales tax revenue. For cities, one-third is based on population; one-third is based on sales tax revenue; and one-third is based on revenue raising ability (i.e., per capita non-exempt assessed real and personal property valuation).
- **Iowa –** For counties, 60 percent are based on relative needs (as determined by a fund distribution committee) and 40 percent are based on geographic area. For cities, based on population.
- **Minnesota –** Sets aside a portion of its motor fuel tax revenue to the County-State Highway Aid Fund and the Municipal-State Highway Aid Fund. These funds are distributed based on a combination of equal distribution, motor vehicle registrations, highway mileage, population, and need (as determined by the State in coordination with the counties and municipalities).
- **North Carolina –** 75 percent are based on population and 25 percent are based on the mileage of public streets.
- **Ohio –** For counties and townships, based on equal portions. For municipalities, based on motor vehicle registrations.
- **Oklahoma –** Portion distributed based on combination of area, population, and road miles; and portion distributed based on need, as determined by the State in coordination with the counties.
- **Oregon –** For counties, based on motor vehicle registrations. For cities, based on population.
- **Pennsylvania –** 50 percent are based on road mileage, and 50 percent are based on population.

[20] *Highway Taxes and Fees: How They are Collected and Distributed*, Table MF-106: Provisions Governing the Disposition of State Motor-Fuel Tax Receipts – 2001, FHWA, Office of Highway Policy Information.

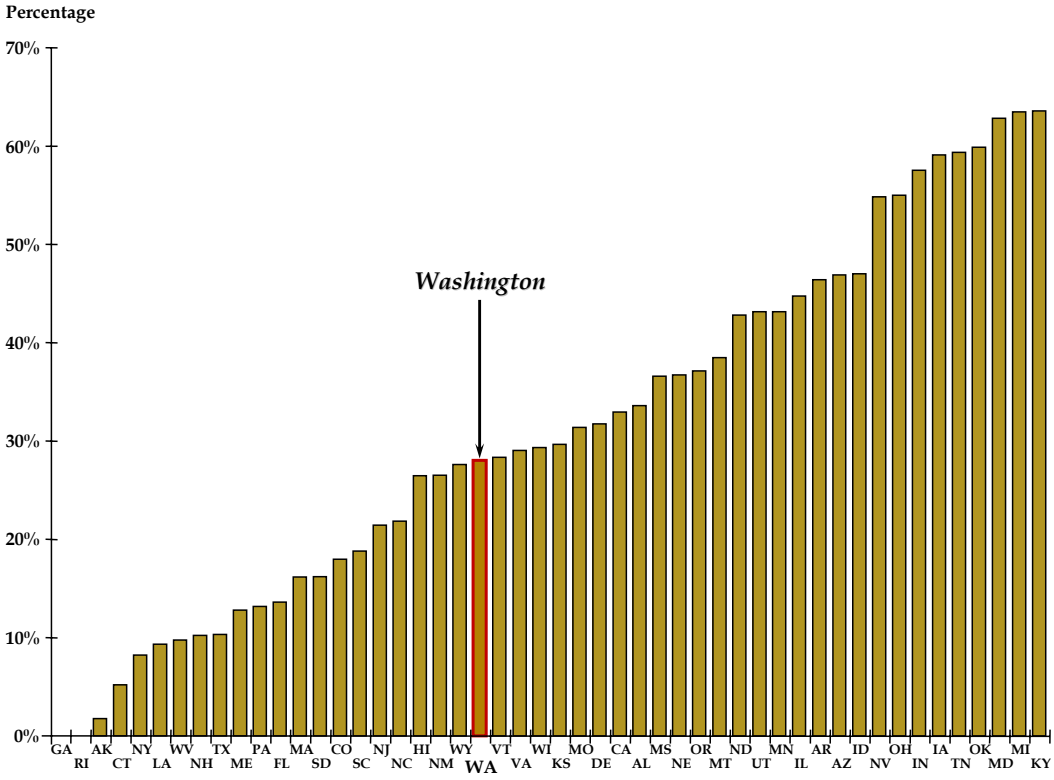
Approaches for states to distribute funds to local governments can be classified into two high-level categories:

1. **Direct distribution –** The strengths of direct distribution of funds are simplicity, transparency, and less administration. States primarily distribute funds to local governments using direct distribution. For most states, the sheer number of local government entities within the state makes direct distribution a more practical and efficient approach. The state may change the distribution formula on an as-needed basis.
2. **Project grants –** The strengths of project grants are more control and accountability, and the devoting of funds to specifically identified projects. Project grants are used if additional funds are needed for projects deemed to have particular regional significance. The use of project grants is of particular value with respect to funding transportation projects that cross local jurisdictional boundaries; provide enhanced connectivity with the state highway system; or tie in with high-level statewide initiatives (i.e., safety, mobility, environmental quality).

4.3 RELATIVE CONTRIBUTIONS OF STATES TO LOCAL TRANSPORTATION PROGRAMS

Figure 4.2 shows the percentage of local roadway funding derived from state governments for each state. Direct comparisons, however, are difficult between states where the State owns widely different shares of the total mileage of public roads. While Washington State's share of 10 to 15 percent is typical, North and South Carolina – as well as some others – own 100 percent.

Figure 4.2 Local Roadway Funding Derived from States, Year 2003



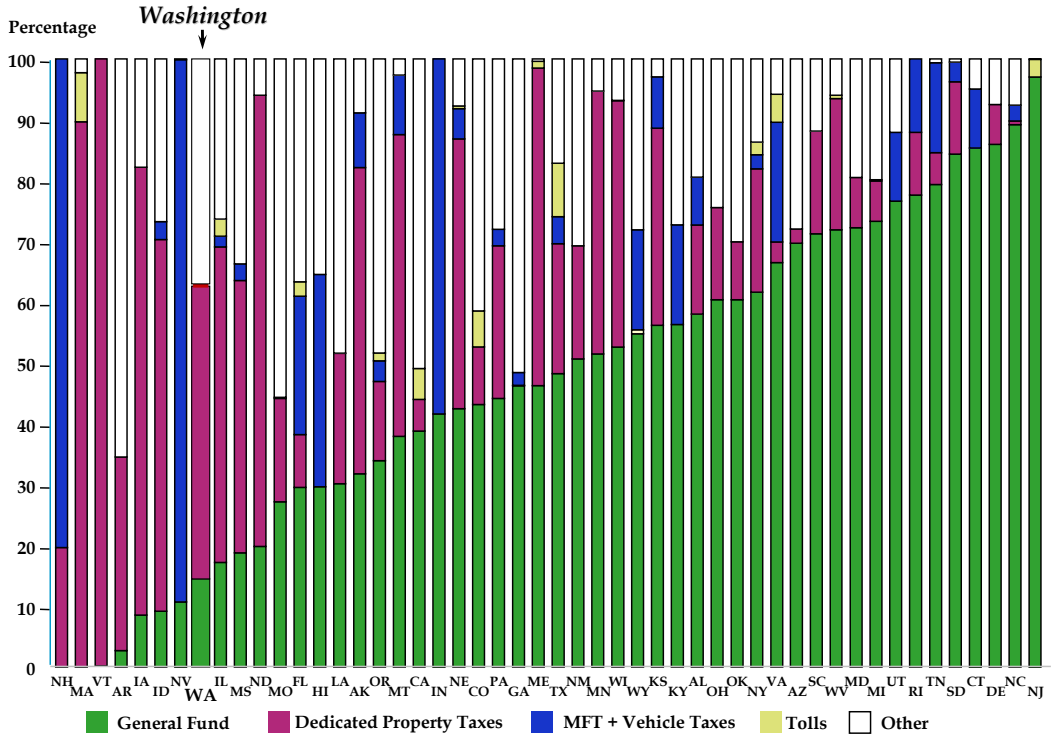
Source: 2004 Highway Statistics, Table LGF-1 (for year 2003).

The range is from 0 percent (Georgia and Rhode Island) to 64 percent (Kentucky). At 28 percent, Washington State ranks 29th highest among the 50 states.

4.4 TRANSPORTATION FUNDING SOURCES USED BY LOCAL GOVERNMENTS

Figure 4.3 shows the methods that local governments use to generate roadway funding for each state.

Figure 4.3 Locally Generated Roadway Funding, Year 2003



Source: 2004 Highway Statistics, Table LGF-1 (for year 2003).

Nationally, the most common sources of local roadway funding are local general funds (composed of various local taxes) and dedicated property taxes. Other sources include local option motor fuel taxes, local option vehicle taxes, tolls, dedicated sales taxes, various exactions and development fees, parking revenues, and special assessment districts.

In Washington State, 14 percent of local roadway funding are derived from general funds, 48 percent from property taxes (Property Tax Road Levy as described in Section 4.5, page 4-9), and 37 percent from other sources. These other sources include sales taxes, parking taxes, and other taxes/fees. These totals do not include state fuel tax revenues distributed to local governments. The Boarder Area Motor Fuel Tax is only local fuel tax collected by local jurisdictions (see below).

4.5 POTENTIAL REVENUE GENERATION STRATEGIES

Washington authorizes a wider range of local option taxes and fees than perhaps any other state. Many of these have been authorized and adopted in the past decade. With the recent repeal of the State's motor vehicle excise tax, an important revenue source for public transit, the trend toward increased reliance on sales taxes and other local option taxes is likely to continue into the future. A description of these revenue generation strategies is provided to follow.

Motor fuel taxes – Washington State is among the states that authorize local option motor fuel taxes:

- A 1 cent per gallon border area motor fuel tax has been enacted in the border area cities of Blaine, Nooksack, and Sumas.
- Counties or regional transportation investment districts can impose a motor fuel tax of up to 10 percent of the state rate for highway purposes. Voter approval is required. At present, no county has enacted this.

Vehicle license fees – Regional Transportation Investment Districts (RTID) and Transportation Benefit Districts are authorized to impose up to $100 annual vehicle license fee with voter approval. Prior to 2002, counties in Washington State could collect up to $15.00 per vehicle in vehicle license fees and distributed to local governments. The vehicle license fee had been adopted in four counties as of 1997. Initiative 776, passed by voters in 2002, was repealed.

Motor Vehicle Excise Tax (MVET) – Certain local governments have the authority to collect MVET for specified purposes. Nevertheless, the MVET at the state level was repealed in 2000 as a result of Initiative 695, which was passed by voters in 1999.

- King, Pierce, and Snohomish Counties **–** An MVET of up to 0.3 percent of the vehicle value may be imposed with voter approval; revenues dedicated to HOV lanes, commuter rail, and car/vanpool services.
- A RTID in portions of King, Pierce, and Snohomish Counties is authorized to impose, with voter approval, a rate of up to 0.8 percent for RTID purposes.
- Public Transportation Benefits Areas (PTBA) may impose up to 0.4 percent MVET for passenger-only ferries with voter approval.

The following MVETs were repealed by statewide initiatives:

- **Transit agencies –** A MVET of up to 0.725 percent of the vehicle value; revenues dedicated to transit capital expenditures. This was repealed as a result of the Initiative 695 in 2000.
- **Transit agencies in certain large metropolitan areas –** A MVET of up to 0.8 percent of vehicle value for "high capacity" transit services (i.e., transit services operating on exclusive right-of-way). This authority was repealed as a result of Initiative 776 in November 2002. The 0.3 percent MVET for high capacity transit is still imposed by Sound Transit in portions of King, Piece, and Snohomish Counties, because those revenues are pledged for debt service on outstanding bonds.

Other local option taxes – Local governments in Washington State are authorized to levy a variety of other local option taxes to support transit and other infrastructure investments, including bridges and roads. A summary of these options is provided below.

- **Public transportation systems sales and use tax –** A sales tax of up to 0.9 percent can be levied with voter approval by any city, public transportation benefit area, county transportation authority, or metropolitan municipality for capital and operating expenditures of public transportation systems.
- **High capacity transportation systems sales and use tax –** A sales tax of up to 1.0 percent can be levied with voter approval by a city, public transportation benefit area, county transportation authority, metropolitan municipality, or Regional Transit Authority (RTA) for high capacity transit services in certain large counties. If a 0.1 percent criminal justice sales tax is being levied, the high capacity transit services sales tax is limited to 0.9 percent.
- **Employer tax –** Up to $2.00 per employee per month can be levied for "high-capacity" transportation projects, HOV lanes, commuter rail, or vanpool/ carpool services, or by a RTID for RTID purposes.
- **Business and occupation (B&O) taxes –** Up to 0.2 percent of gross proceeds can be levied (up to 6 percent for utility-related businesses). Revenues go into the general fund or can be dedicated for municipal transit services.
- **Local household tax –** Up to $1.00 per household, collected by any city or county for municipal transit systems. In practice, the City of Pullman in the local agency that uses this tax to support transit. Both this tax and the B&O tax (above) are only used in lieu of a local option sales tax.
- **Retail sales and use tax –** RTID and Transportation Benefit Districts are authorized to impose with voter approval 0.1 percent sales and use tax or a 0.2 percent sales and use tax, respectively, for transportation purposes. PTBA may impose up to 0.4 percent for passenger-only ferries with voter approval.

All counties in Washington have enacted some type of local option sales tax. Asotin County has the lowest local sales tax rate at 0.7 percent, which includes 0.2 percent that is dedicated to public transit. Portions of Snohomish and King Counties have currently the highest local sales tax rate at 2.4 percent, including 0.9 percent dedicated to public transit and 0.4 percent dedicated to high capacity transit. The high capacity transit sales tax is currently collected in portions of King, Pierce, and Snohomish Counties by Sound Transit.

Another option is the real estate transfer tax, or mortgage recording tax, which is essentially a tax on the sale of property. In Washington State, a tax of up to 0.5 percent is authorized for dedication to capital projects, including streets, highways, and bridges. At least 4 other states authorize similar taxes, including Colorado, Delaware, Illinois, and New York.

In addition, every county in Washington State collects a property tax road levy that may not exceed $2.25 per $1,000 of assessed valuation (0.225 percent) for street and highway improvements. Proceeds are deposited in the county road fund. In Washington State, cities have responsibility for roads within their

borders; counties have responsibility in unincorporated areas. As a result, county roads taxes are only imposed on property in unincorporated areas.

Transit fares – Transit fares are set by individual transit agencies, and are typically used to help pay for ongoing operating and maintenance expenses.

Parking taxes – Cities, RTIDs, and counties (in unincorporated areas) have the authority to impose parking taxes on commercial parking businesses, which are dedicated to transportation. These have been implemented by the Cities of SeaTac, Bainbridge Island, Bremerton, Mukilteo, and Tukwila.

Development impact fees – Impact fees consist of one-time charges to developers on new development. Revenues from impact fees are used to pay for infrastructure improvements resulting from growth generated by new development, such as water, sewers, roads, parks, schools, and other infrastructure needs. Currently, 27 states have approved legislation that allows for the implementation of impact fees. The states with the highest number of communities that have adopted impact fees are California, Florida, Oregon, Colorado, and Texas. Impact fees for transportation facilities may be calculated based on each type of land use generation of average trips or VMT, numbers of units in a residential project, square footage in a nonresidential project, or other factors.

Value capture – Value capture attempts to capture some of the increase in value due to the improvement that benefits the properties impacted. Assessment districts are special property taxing districts where the cost of infrastructure is paid for by properties that are deemed to benefit from the infrastructure. These assessments can be applied to the full value of the subject property, or use a Tax Increment Financing (TIF) technique in which bonds are issued to finance public infrastructure improvements, and repaid with dedicated revenues from the increment in property taxes as a result of such improvements. The use of TIF was initiated in California in the 1950s, and has been used extensively in other states, such as Illinois, Minnesota, Oregon, and Wisconsin.

Community Facilities Districts (CFDs) – CFDs are creative funding mechanisms for infrastructure projects where residential and commercial property owners are charged an annual fee for the benefit of infrastructure in their area. CFDs seem suited to regional projects and programs as they are not tied to a specific facility, as is the case with most other beneficiary charges. They have been used in California and, to a lesser extent, in Arizona, Illinois, New Mexico, and Hawaii. Although they have seen limited use for transportation to date, there may be larger potential in the future.

County Ferry Districts – Counties can establish districts for ferries or passenger-only ferries and levy a property tax of up to $0.75 per $1,000 of assessed value for the provision of ferry services. This was authorized in the 2006 Legislative Session. At present, 4 counties in Washington operate ferries: Skagit, Pierce, Whatcom, and Wahkiakum. No county ferry districts have yet been enacted.

General revenue – States and local governments also use general fund appropriations to support transportation needs.

Table 4.1 provides the rankings of each strategy in terms of the five evaluation criteria previously described in Section 2.0: Alternative and Emerging Revenue Sources. The current status and use of each strategy in Washington are also provided.

Table 4.1 Scoring for Local Option Revenue Generation Strategies

Funding and Finance Strategy by Primary Purpose	Yield and Reliability	Economic Efficiency	Regressivity	Administrative Effectiveness	Public Acceptance	Current Status in Washington
Motor fuel excise (per gallon) tax	Med	Med	Med	High	Low/ Med	RCW 82.80 allows counties or RTIDs to charge up to 10% of the state fuel tax rate with voter approval. Not currently enacted. Three cities have enacted a 1¢ per gallon tax by separate border area provision.
Registration or licensing fees	Med	Med	Med	Med	Low	RTID and TBD $100 fee per vehicle per year with voter approval.
Motor vehicle excise tax	Med	Med	Med	Med	Low/ Med	King, Pierce, and Snohomish Counties – A MVET of up to 0.3 percent of the vehicle value; revenues dedicated to HOV lanes, commuter rail, and car/ vanpool services. RTID (RCW 36.120) rate of up to 0.8% (RCW 81.100) for RTID purposes.
Sales taxes	Med	Low	High	High	Low/ Med	Select counties and transit districts have authority to implement business, household excise, and/or sales and use taxes for transit. Twenty-four agencies have implemented excise or sales taxes for transit. RTID may impose a 0.1 percent and TBD 0.2 percent.
Income and payroll taxes	Med	Low	Med	Low	Low	See sales taxes.
Property taxes	Med	Low	Med	High	Med	By RCW 36.82.040, all unincorporated areas of the state levy a rate of up to 0.225%, dedicated to county roads. Cities may use general property tax revenue for transportation.

Funding and Finance Strategy by Primary Purpose	Yield and Reliability	Economic Efficiency	Regressivity	Administrative Effectiveness	Public Acceptance	Current Status in Washington
Transit fares	Med	High	High	Med	Med	Transit fares set by individual operator.
Parking tax	Low	High	Med	Med	Low	RCW 82.80.030 allows RTID, cities, or counties (in unincorporated areas) to establish. Has been enacted by some Puget Sound cities.
Beneficiary charges/value capture, tax increment financing	Med	High	Low	Med	Low/Med	Not currently used.
General fund revenue	High	Low	Med	High	Low	Use varies at the local level.

The development of revenue projections for all possible regional and local revenue generation strategies is beyond the scope of this study. Described below are some representative examples of such strategies and the revenue they are projected to generate over the year 2010 to 2030 time period.

Motor fuel taxes – If a county motor fuel tax of 10 percent of the state rate (or 3.75 cents per gallon, starting in 2010) was adopted across all Washington State counties, this could generate about $3.3 billion over the 2010 to 2030 period.[21]

Vehicle license fees – If a vehicle license fee of $15.00 per vehicle was allowed and adopted across all Washington State counties, this could generate about $2.7 billion over the 2010 to 2030 period.

Other local option taxes – In 2005, both the public transportation and high capacity systems sales taxes generated $969 million. Assuming no changes to the local option taxes that have been enacted and assuming annual growth in retail sales of 2.3 to 2.4 percent annually through 2030 based on Year 2004 Woods and Poole data, these local option taxes are projected to generate $38.8 billion between 2010 and 2030. If counties throughout Washington State increased enactment of these local option taxes by a factor of 1.5 (i.e., increase the sales tax rate by 50 percent), an additional $19.4 billion in revenue would be generated from 2010 to 2030.

[21] At present, only RTID counties have this authority.

5.0 Recommendations

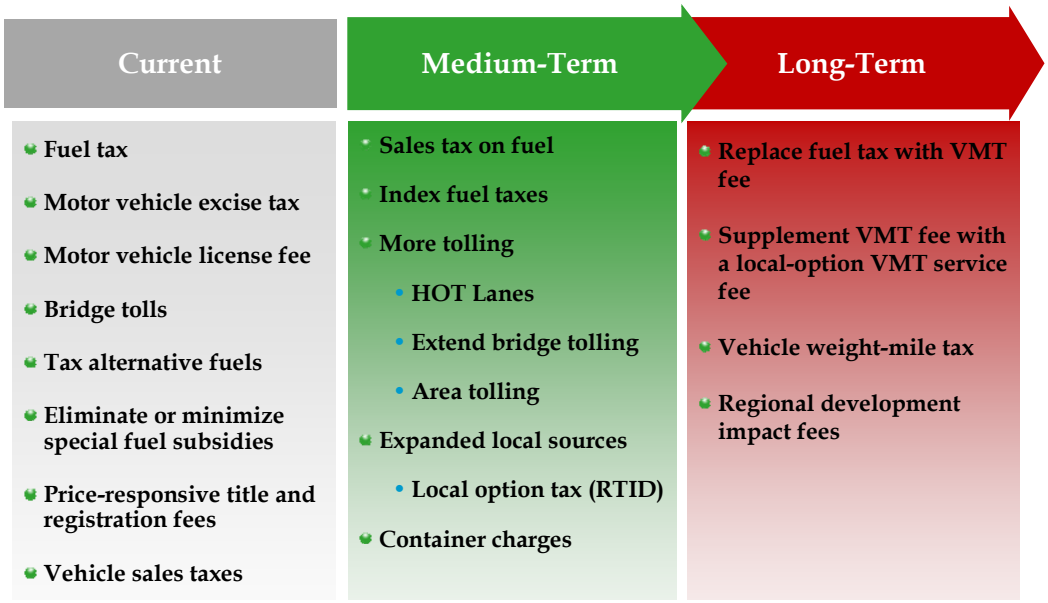
Our recommendations for a more optimal funding portfolio are divided into two timeframes. The medium-term extends over the next 5 to 10 years, depending on how 2 uncertainties play out. The first involves how quickly the State's gas tax receipts are eroded by increasing mileage of the vehicle fleet and usage of non-taxed fuels. This trend and the likely range of uncertainty are shown in Figure 1.7 (Motor Fuel Tax Revenue Projections, 2005 to 2030). An earlier and/or more dramatic erosion would advance the end of the medium term. The second uncertainty involves how soon the technology and other implementation challenges can be resolved to allow substituting a VMT charge for the fuel tax. Once these uncertainties are resolved, implementation of the long-term funding solutions may overlap with the medium-term recommendations and progress over a 5-year transition period.

Figure 5.1 presents our medium- and long-term recommendations for improving Washington State's funding portfolio. In addition, we show what the State has recently accomplished in increasing its transportation:

- **Current –** This list of recent increases across a large number of funding sources represents significant Legislative leadership and voter willingness to increase funding in the short term. These accomplishments, however, remove some of the more obvious solutions for implementation in the medium- and long-term funding portfolios.
- **Medium term –** These recommendations could be implemented in the next 5 to 10 years from a technical perspective. Nevertheless, we offer assessment of their political feasibility other than to document their success in other states (see Table 2.6).
- **Long term –** Strategies that may be 10 or more years out for implementation, pending advancements in available technology.

Our funding recommendations are revenue-neutral measured in constant dollars and adjusted for increasing demand; and these funding alternatives would be appropriate, should the Legislature choose to increase or decrease the amount of transportation revenue that the State collects now. Nevertheless, because these funding proposals automatically maintain the current spending level measured in constant dollars and in relation to the demand, they will result in annual modest increases to transportation users.

Figure 5.1 Evaluation of Revenue Sources – Sorting Alternatives into Three Timeframes



The imposition of automatic adjustments isolates funding increases (measured on a basis of nominal dollars) from the political process and present significant political challenges. Nevertheless, our analysis of past trends (Sections 1.0 and 2.0) demonstrate that purchasing power of the State's funding portfolio has declined over long periods, but then punctuated with the voters and Legislature's erratic efforts to recapture some of the lost ground. The lack of success with this approach to date compels us to recommend automatic indexing of existing and new sources in order to stabilize the true parity of funding available to meet the increasing demand in the future. Although the recommendations are scaled to maintain parity with the purchasing power available at present, the Legislature could choose to implement any or all of our recommendations at more aggressive level if it deems current funding insufficient, or scale them back to maintain a lower level of funding.

5.1 MEDIUM-TERM RECOMMENDATIONS

Our medium-term recommendations are predicated on the analysis of future revenues weighted by the VMT presented in Section 1.2 (Motor Fuel Tax Forecast) and shown in Figure 1.8 (Projected Motor Fuel Tax Revenue per 1,000 VMT, 2005 to 2030). This analysis shows a 23 percent decline in fuel tax revenues relative to the demand for transportation capacity over the next 25 years. This future decline comes on the heels of a 15 percent decline in fuel tax revenues per 1,000 VMT from 1985 to 2005 (see Figure 1.4, Historical Motor Fuel Tax Revenue per 1,000 VMT 1985 to 2005). While the decision whether to reverse this loss is one we leave to the Legislature, our following recommendations present

solutions for doing so. These are summarized in rough order of effectiveness based on the five criteria used to score each existing and potential new source in Section 1.0. These summaries omit most of the information already included in their evaluations in Subsection 2.3.

Index state motor fuel taxes – In the medium term, indexing of the motor fuel tax is the most viable strategy for Washington State to keep the purchasing power of the motor fuel tax from eroding significantly over time. This indexing, however, would not completely offset the erosion caused by increasing VMT associated with higher mileage vehicles. Our proposal for maintaining purchasing parity indexes the fuel tax rate to inflation (2.2 percent annually) starting in 2010, and would generate approximately $9.8 billion from 2010 to 2030 relative to the current schedule of fixed increases under the Partnership Funding Package motor fuel tax rate. Under this scenario, the motor fuel tax rate would reach 59.2 cents per gallon in the year 2030.

Sales taxes on motor fuel – Although this source scores low on the basis of reliability, it scores high on yield. The Legislature could replace some share of the fixed rate fuel excise tax with a sales tax, which is a percentage of the cost of a gallon of fuel. The revenue generated would not track well with the true cost inflation of transportation needs. A 6.5 percent sales tax on motor fuels would generate approximately $16.9 billion in revenue from 2010 to 2030, almost twice what indexing the fuel excise tax would generate.

Container charges – This medium-term source, if applied as a variable fee based on peak-period pricing, has the strong potential to reduce truck-related congestion, but would not generate significant revenues. If applied, however, as a flat $50.00 fee in 2010 (but indexed to inflation), it could generate an over $8 billion in revenue from 2010 to 2030. The uncertainty in this forecast depends on the potential for diversion of container traffic to other ports.

Tolling-specific corridors – Many states are looking to tolling as a way to provide additional revenue for transportation projects. In Washington, the new span of the Tacoma Narrows Bridge was financed primarily with tolls. Other projects in Washington are frequently mentioned as potential projects for tolling, including replacement and expansion of the SR 520 Floating Bridge across Lake Washington and the Alaskan Way Viaduct.

The Legislature directed the Washington State Transportation Commission to conduct a Comprehensive Tolling Study to recommend whether, when, where, and how Washington should use tolling. The Commission's final report was published in September 2006. The first of the eight recommendations that emerged from the study identifies the types of applications that make sense for Washington over the short, medium, and long term. The study did not propose specific projects for implementation, but the study's authors have brought forward their analysis into this study and recommend implementing high-cost/ high-need projects (such as SR 520, Columbia River Crossing at Vancouver, and Snoqualmie Pass), and apply variable pricing, as appropriate, to encourage the

most effective use of the system. Furthermore, we recommend converting HOV lanes to HOV/tolled express lanes to optimize performance and maintain free-flowing service for transit, vanpools, and carpools. The study made no recommendations regarding whether any particular project should be tolled, but this list of projects does provide a reasonable cross section of the range of projects that might be considered in Washington. Table 5.1 presents these illustrative examples.

These recommendations provide a revenue stream that could be used to supplement other funding sources over a long period of time. Alternatively, the revenue stream may be converted to contribute to a construction project today (or in the near future). Under the latter case, we assume that bonds or other debt instruments would be used. These debt instruments cost money to issue, build in protection mechanisms against default, and involve interest payments. All of these factors considerably reduce the present value of those revenue streams well below the level of simply adding up the dollar value of the stream.

The amount of dollars that could be generated by the potential projects varies widely. On the low end are the HOT lane projects, which sell the excess capacity in HOV lanes to drivers that are in a hurry to be somewhere. The tolls are dynamically adjusted, such that the lanes remain free flowing. Since these toll lanes are only effective during peak periods and the amount of capacity to sell is limited, the revenue potential of these tends to be modest.

The revenue stream from the projects shown in Table 5.1 could amount to over $26 billion over a 30-year period. The value of that revenue stream today, if we were to try to bond against that stream, however, is under $4 billion, assuming that traditional municipal bonds are used. As discussed on page 3-16, public-private partnerships may have the potential to stretch the value of these revenue streams through the use of equity participation rather than debt. Nevertheless, the results show that the estimated tolling streams for all but one of the illustrative examples (Snoqualmie Pass Improvements) contribute only a fraction of the total funding needed. Thus, these tolling projects create net funding liabilities for the State that will require additional funding from non-toll sources to fully fund the projects.

Table 5.1 Illustrative Examples Studied in the Comprehensive Tolling Study

Project	Illustrates
1. SR 704 Cross Base Highway 2 lanes each direction, as designed; 1 toll point on either side of the center interchange. All electronic toll collection.	Funding a highway project
2. Snoqualmie Pass Improvements Safety improvements and some capacity enhancement.	Funding a highway improvement, maintenance, and operations project
3. SR 520 and I-90 Bridges over Lake Washington SR 520: • 3 lanes each direction, 1 of which is a 2+ HOV lane; • Everyone, but HOV3+ tolled; and • Variable tolls to manage demand. I-90: • R8A project (adds 1 HOV2+ lane each direction in outside roadway) and existing center lane operations; and • Everyone, but HOV3+ tolled.	System of tolled bridges for traffic management and funding
4. SR 167 and I-405 HOT Lane System: Sumner to Bellevue SR 167: • Add 1 HOT lane and convert existing HOV lane to HOT lane; add HOV lane south of SR 18); results in 2 HOT and 2 general purpose lanes in each direction; and • HOV2+ are free. SR 405: • Add 1 HOT and 1 general purpose lane, and convert existing HOV lane to HOT lane in each" direction; results in 2 managed and 3 general purpose lanes in each direction. Consistent with "Option D." • HOV2+ are free.	HOT lane system corridor for traffic management. Anticipates that additional non-tolling capital would be required.
5. I-405 North HOT Lanes – SR 520 north to I-5 (Swamp Creek) Project Capacity Improvements: • Nickel plus TPA projects from SR 520 north; and • Nickel only from SR 520 South. HOT Lane Definition: • 2 lanes each direction from 520 to 522 (1 added lane, plus the existing HOV lane); • 1 lane each direction from 522 to I-5 (convert existing HOV lane); and • HOV2+ are free.	HOT lane that can be implemented in the near term; consistent with current planning efforts that include additional capacity, not just conversion of existing HOV lane.

Project	Illustrates
6. I-5 in Lewis County 2 tolling points were assumed, located in segments aimed at mitigating potential diversion, while generating significant revenue. The southern tolling location is near the Toutle River Safety Rest Area and the northern tolling location is within the Grand Mound to Maytown segment of I-5.	Toll an existing freeway to generate revenue for major improvements.
7. I-5 and Alaskan Way Viaduct in Seattle Tolling of I-5 from I-405 at Tukwila northward to Northgate for a distance of 18 miles. The Alaskan Way Viaduct would be tolled from Spokane Street to Roy Street for a distance of 4.5 miles. Both facilities were assumed to have all electronic time-of-day distance-based pricing.	Toll existing freeways in a dense urban area to generate revenue for major improvements with an element of traffic management.
8. Statewide Truck Tolling Commercial vehicles charged a per mile charge in Washington State.	Tolling commercial vehicles to increase system effectiveness, revenue, and as a precursor to more extensive highway tolling.

5.2 LONG-TERM RECOMMENDATIONS

Our long-term recommendations are derived from an intense national debate over moving to an entirely new approach to funding our transportation needs. This study's authors have been at the center of this debate and produced major studies for various national think tanks and public research agencies (Hudson Institute, National Cooperative Highway Research Program (NCHRP), National Chamber of Commerce, U.S. DOT, and state DOT executives). The consensus among most participants in this debate recommends that in the long term, all levels of government charged with funding transportation should move from existing sources to a funding system that charges drivers for the marginal cost of where, when, and how much they drive: In other words, a variable fee for vehicle miles of travel calibrate to the congestion levels.

Vehicle-Miles Traveled Fee

In about 10 to 15 years time, transitioning from the motor fuel tax to a VMT fee will be an option for Washington State that will be feasible from an implementation perspective, and will achieve greater economic efficiency. Widespread implementation of mileage-based user fees – whether in urbanized areas for congestion pricing and management or statewide as a replacement for gallonage-based taxes – is at least 10 to 15 years in the future. Time will be needed to equip vehicle fleets with GPS and GIS technology, and to develop reliable and auditable administrative systems.

It will be a major challenge nationally to shift from collection motor fuel taxes from a few thousand wholesalers to collecting user fees from millions of automobile owners. Nevertheless, mileage-based revenue systems offer the potential

of significant benefits. Revenues are more likely to keep pace with population and economic growth. Alternative fuels and engines will not erode mileage-based revenues as they will gallonage-based taxes. Mileage-based user fees will separate fuel use from highway use, removing the conflict with energy and air quality policies. And a mileage-based system will maintain the long-established political consensus that highways should be funded from user fees and that all users should pay their fair share.

In addition to its potential to provide for long-term statewide funding needs, a VMT fee system would offer local jurisdictions the opportunity to piggy-back on the state VMT fee and replace all of their funding sources with a local-option VMT fee. This substitution would remove the dependence most local jurisdictions in Washington State have on special and general taxes (e.g., sales tax, property taxes, etc.), which were shown in Section 3.0 to have low economic efficiency. In fact, the PSRC is in the midst of an experiment that is being closely watched around the country; whereby, all freeways and many arterial highways in the central PSRC region are tolled. Vehicles would be outfitted with devices that use GPS technology that calculate the charges on each road segment, display the charges to the drivers, and accumulate and bill the drivers accordingly.[22]

A VMT fee of 2.15 cents per mile is projected to generate $33.2 billion in revenue from 2010 to 2030, which is roughly revenue-neutral with the current schedule of motor fuel tax rates. A VMT fee that starts at 2.15 cents per mile in 2010 and is then indexed to inflation (2.2 percent annually) is projected to generate $42.0 billion in revenue from 2010 to 2030, or an increase of $8.8 billion from the non-indexed VMT fee.

Next Steps

One of the advantages of long-term implementation of a VMT fee is that it may be a universal substitute for most - if not all – of Washington State's current sources of transportation funding. Nevertheless, implementation of such a radical change in transportation funding, even if revenue-neutral, will involve careful and cautious planning. VMT, if perceived as tolling on a grand scale, could easily meet with strong public opposition, given the perceptions as revealed in the just completed Tolling Study for the Washington State Transportation Commission.

If initially implemented in its most benign configuration, VMT would be a modest change to the current fuel tax that motorists now pay at the pump. Instead of collecting a charge on a gallon of gas, the State collects an equivalent amount on a mile of travel. Payment could be initially made at the pump, where the amount of VMT fee is substituted for the gas tax amount. The Legislature could phase in

[22] Pryne, Eric, *Tolls Could Cut Congestion, Test Shows*, Seattle Times, Friday, November 24, 2006.

potential enhancements over time, such as substituting the current transportation funding methods used by local governments (i.e., local option VMT fees), or linking the VMT fee to congestion levels, vehicle weight (i.e., roadway wear and tear), emission of green house gasses, etc.

Nevertheless, the challenge posed with full scale substitution of a VMT fee for a fuel tax, unlike the many successful implementations of tolling on corridors or bridges, requires breaking new ground. We are aware of only two areawide tolling efforts underway that could provide guidance to the Washington State Legislature. Fortunately, these are located in Oregon and the Puget Sound region. In fact, the PSRC work could proceed toward a regional pricing system in advance of any statewide process the Legislature may eventually consider. While the implementation of regional approach within Puget Sound would provide guidance for a statewide system, it may also offer the Legislature the opportunity to move in concert with PSRC, or to continue the implementation in phases region by region. In its recommendation, the Regional Transportation Commission' Final Report (December 31, 2006) proposes areawide tolling, which is consistent with the recommendations of this study.

PSRC staff indicate that the project is very close to the end of its first phase of study, and roughly estimates that such a system could generate between $1.5 billion to $2.5 billion per year in toll revenue. Operating expenses might consume 5 to 10 percent of that amount. The initial implementation cost might be up to $1.5 billion, much of which would be buying the on-board equipment needed to make the system work.

PSRC assumes net toll revenue of $1.5 billion per year (after subtracting operating expenses); the initial investment will have been paid off in the first year. Over a 30-year period, assuming 4 percent growth per year (3 percent to track inflation and another percent as a proxy for increasing traffic levels, or the increasing value of the road as congestion increases), total revenue could be over $84 billion. Note that these are sketch-level estimates based on some of the early findings of the PSRC study and could vary considerably, if additional analysis were done. As with the analysis of the individual toll projects, front loading the project development capability of this revenue stream would significantly reduce the amount of project that could be bought from these dollars.

There has been considerable skepticism that this bold experiment can be implemented at a state – let alone regional – level. Some transportation professionals regard VMT fees feasible only at a national level. Others see the development of Vehicle Infrastructure Integration (VII) and its installation on most new vehicles as a pathway to statewide and, possibly regional, congestion pricing and VMT fee implementation.[23]

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[23] VII technology enables communication among vehicles and between vehicles and the roadside using wireless, dedicated short-range communications (DSRC). Data

Footnote continued

The Oregon effort includes specific legislative actions after the conclusion of the technical feasibility analysis. Prior to any legislative action to implement the program, however, the study thus far includes a strong public outreach process that has been an integral part of the VMT pilot study, including stakeholder meetings, public hearings and public testimony, an interactive web site, and media reports. Members of the public have raised the following concerns about the mileage-based fee:

- **Privacy –** Oregon DOT has clarified through interviews and articles that the road user fee program collects mileage data only and does not collect location information. Mileage data are transferred only at the time of fueling. This has reduced the level of public concern about the protection of driver's privacy.
- **Revenue –** The mileage-based fee of 1.2 cents per mile was selected as being roughly revenue-neutral with the gas tax, based on average vehicle fuel economy data. At the present time, Oregon DOT does not intend to set a higher mileage-based fee that would generate revenue above and beyond what the gas tax would otherwise generate.
- **Environmental equity –** The mileage-based fee is based on actual miles driven in Oregon. It does not distinguish among different types of vehicles based on either fuel economy or weight. One of the most significant public policy concerns expressed to date concern whether the fee should vary by vehicle type to account for varying environmental and/or road maintenance impacts. The technology does allow for a variable fee scheme based on vehicle type to be introduced in the future, and this remains an option to be considered going forward.
- **Geographic Equity –** While the current pilot test involves only participants residing in the Portland metropolitan area, some residents of rural Oregon have expressed concerns about the geographic equity of a mileage-based fee if the system were to be expanded statewide. The concern is that rural residents need to drive more miles on average than urban residents on a day-to-day basis, and a mileage-based fee could disproportionately impact rural residents.
- **Congestion pricing –** The last six months of the pilot test will evaluate the impacts of having a peak-period surcharge (i.e., congestion pricing) in place. Some members of the public do not feel that congestion pricing is equitable. Transportation and land use professionals have asked about the possible

transmitted from the roadside to the vehicle could warn a driver that it is not safe to enter an intersection. Vehicles could serve as data collectors and transmit traffic and road condition information from every major road within the transportation network. VII would provide transportation agencies with the information needed to implement VMT fees without additional infrastructure.

intended and unintended consequences of congestion pricing on land uses and travel patterns. No determination has yet been made regarding whether congestion pricing would be recommended for longer-term implementation.

Oregon DOT anticipates that adoption of a mileage-based fee system will require legislative support and additional funding for installation of vehicle and service-station technology; development of new state and Federal legislation governing administration, enforcement, and privacy concerns; and coordination with vehicle manufacturers, the fuel distribution industry, and organizations representing the general public. The Oregon Legislative Assembly passed House Bill (HB) 3946 in 2001, which mandated the formation of a Road User Fee Task Force (RUFTF) and set forth the following steps towards possible statewide implementation:[24]

1. Study alternatives to the current system of taxing highway use through motor vehicle fuel taxes.
2. Gather public comment on alternative approaches and make recommendations to the Department of Transportation (the department) and the Oregon Transportation Commission (the commission) on the design of pilot programs to be used to test alternative approaches.
3. Evaluate any pilot program implemented by the department and report the results of the evaluation to the Legislative Assembly, the department, and the commission.
4. Propose to the Legislative Assembly options for the design of a revenue collection system for Oregon's roads and highways that would replace the current system for revenue collection.

These steps may provide the Washington State Legislature with a possible road map, should it choose to replace its current funding portfolio with a statewide VMT fee system.

The Oregon RUFTF consists of 12 members appointed by the Governor, the Speaker of the House of Representatives, the President of the Senate, and the Chairperson of the Oregon Transportation Commission. Following the passage of HB 3946, the RUFTF spent the following months examining the strengths and limitations of various revenue generating alternatives for replacing the gas tax as the primary source of revenues for repairing, maintaining, and building Oregon's roads. After reviewing multiple options, RUFTF focused on a mileage-based user fee on the basis of it being a fair, simple, and affordable way to generate revenue based on actual miles traveled in Oregon.

In March 2003, RUFTF presented a report to the Legislative Assembly that reviewed the alternatives and proposed testing the mileage-based fee through conduct of a pilot program. At the Federal level, the FHWA was supportive of

[24]Source: *House Bill 3946*, 71st Oregon Legislative Assembly, Regular Session, 2001.

evaluating the concept and provided funding for the pilot program to be conducted. Results from the pilot program will be evaluated with respect to the following RUFTF funding principles:[25]

- **User pay system –** Any future revenue collection system should be a "user pay" system;
- **Acceptable to public –** A new revenue system must be acceptable to the public;
- **Transparent to the public –** A new revenue source should be visible to the taxpayers and not confusing;
- **Support entire public highway and road system –** A new revenue mechanism should be designed to support the operation, maintenance, and preservation of the highway and road system for state, cities, and counties in all parts of the State as the fuel tax does today;
- **Revenue sufficiency –** The sources comprising the new system must collectively have the ability to raise revenue sufficient to ultimately replace the fuel tax on gasoline as the primary revenue source for Oregon's roads;
- **Minimal non-governmental burden –** A new revenue source should not impose substantial financial burdens on taxpayers or the private sector;
- **Enforceability –** A new revenue source must be enforceable to ensure tax evasion is not substantial; and
- **Non-local government revenue source –** Revenue sources that are traditionally and primarily the province of local governments should not be usurped by the State.

Following conclusion of the pilot test in summer 2007, Oregon DOT will prepare a report and present findings to the Legislative Assembly in 2009. At that time, next steps will be determined that could include the need for further testing and evaluation of additional geographic regions and/or pricing schemes. Any longer-term adoption of the mileage-based fee will require additional funding for vehicle and service station technology, as well as greater cooperation from a variety of stakeholders, including legislators at the state and Federal levels, vehicle manufacturers, the fuel distribution industry, and organizations representing the general public. These steps and the upcoming results of PSRC's current study offer the Legislature some reasonable guidance for implementation.

[25]Source: *Report to the 72nd Oregon Legislative Assembly*, RUFTF, March 2003.

CAMBRIDGE SYSTEMATICS

Long-Term Transportation Financing Study

Executive Summary

prepared for

State of Washington Joint Transportation Committee

prepared by

Cambridge Systematics, Inc.

with

Mercator Advisors, LLC

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Executive Summary

Long-Term Transportation Financing Study

prepared for

State of Washington Joint Transportation Committee

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Executive Summary

This study is sponsored by the Washington State Joint Transportation Committee (WSJTC) and conducted by Cambridge Systematics, Inc. as prime consultant, in association with Mercator Advisors LLC. The study addresses five topics related to existing and new methods for funding and financing statewide transportation needs. These topics are organized into the following five sections of this report:

- **Section 1.0: Motor Fuel Tax Viability –** Compares of Washington State's dependence on fuel taxes with that of other states, the impacts of the State's fuel price fluctuations on revenue, and the forecasted impacts of hybrid and alternative fuel vehicles.
- **Section 2.0: Alternative and Emerging Revenue Sources –** Provides an evaluation of alternative and emerging transportation funding efforts throughout the country and internationally, including vehicle travel pricing and tolling innovation, concession and/or private development of transportation facility improvements, and other funding sources.
- **Section 3.0: Debt Financing Trends and Implications –** Evaluates trends and long-term implications of applying debt financing to complete transportation projects, including both conventional and non-traditional approaches.
- **Section 4.0: Evaluation of State-Distributed Transportation Funds –** Reviews the approaches used by other states to distribute funds to local governments for transportation purposes, such as direct distribution of funds by formula and project grants subject to particular eligibility criteria and priorities.
- **Section 5.0: Recommendations –** Presents recommendations for maintaining the medium- and long-term viability of the State's funding portfolio.

While Cambridge Systematics takes full responsibility for the information and findings in this report, a substantial amount of the work presented here is the result of a partnership between the consulting team and the members of our Working Group. These members are staff from both legislative bodies, the Office of Financial Management (OFM), and Washington State Department of Transportation (WSDOT).[1] Their input was critical to our research and findings. They provided critical understanding of the complexity and nuances of funding transportation in a state that is at the forefront of innovative and effective funding practices.

The complexity, however, is no excuse for confusing stakeholders about the near- and long-term consequences of the State's current funding practices or the

[1] Roster of the JTC Working Group provided under separate cover.

advantages and disadvantages of alternatives. Therefore, we also take responsibility for presenting compelling, understandable solutions. While there are immediate funding problems, many of the biggest challenges for the State will grow more difficult and painful to solve over the next 10, 20, or even 30 years. These challenges seem to hover some distance out in the future, but our goal in this study is to bring all of the issues into sharp focus and present solutions that contend with the political realities, as well as resolve the technical challenges.

MOTOR FUEL TAX VIABILITY

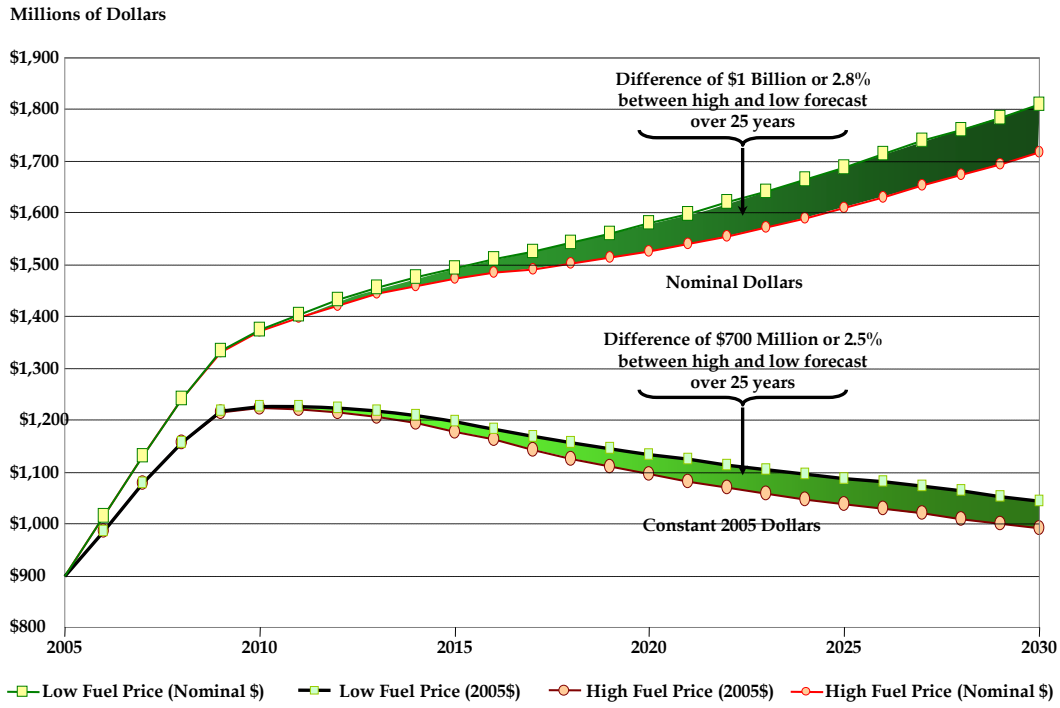
At present, fuel taxes comprise nearly half of state revenues for transportation.[2] The Washington Legislature approved the Nickel funding package in 2003 that increased the tax rate from 23 cents to 28 cents per gallon, and then again 2 years later with passage of the 2005 Partnership funding package, which increased the rate a total of 9.5 cents per gallon to 37.5 cents per gallon in July 2008 or 37 percent measured in nominal dollars. These rates were used to forecast 2 alternative revenue projections: 1) a baseline scenario that assumes motor fuel prices will change from $2.706 per gallon in 2006 to $4.409 in 2030 (annual increase of 2.6 percent), and 2) a high fuel price scenario that assumes the price will reach $6.079 in 2030 (annual increase of 3.9 percent).[3]

The net effect between the high and low fuel price scenarios is shown as the shaded area between the two curves in Figure ES.1. This area represents a cumulative loss of revenue of $1.1 billion over 25 years in nominal dollars or a loss of 2.8 percent (total revenue of $37.0 billion). In constant dollars, this cumulative loss of revenue amounts to $700 million over 25 years (year 2005 constant dollars) or a loss of 2.5 percent. The most significant findings from these projections, however, is the loss in purchasing power shown as the difference between the nominal and constant dollar revenue projections. This difference, whether measured between the high or low projections, will amount to almost $10 billion over 24 years.

[2] This share is net of bond proceeds, which are not considered a source of funding since the debt service for these bonds must be secured from another funding source.

[3] Developed by the U.S. Department of Energy (DOE) on the most recent *Annual Energy Outlook*, February 2006.

Figure ES.1 Motor Fuel Tax Revenue Projections in Nominal vs. Constant Dollars*, 2005 to 2030

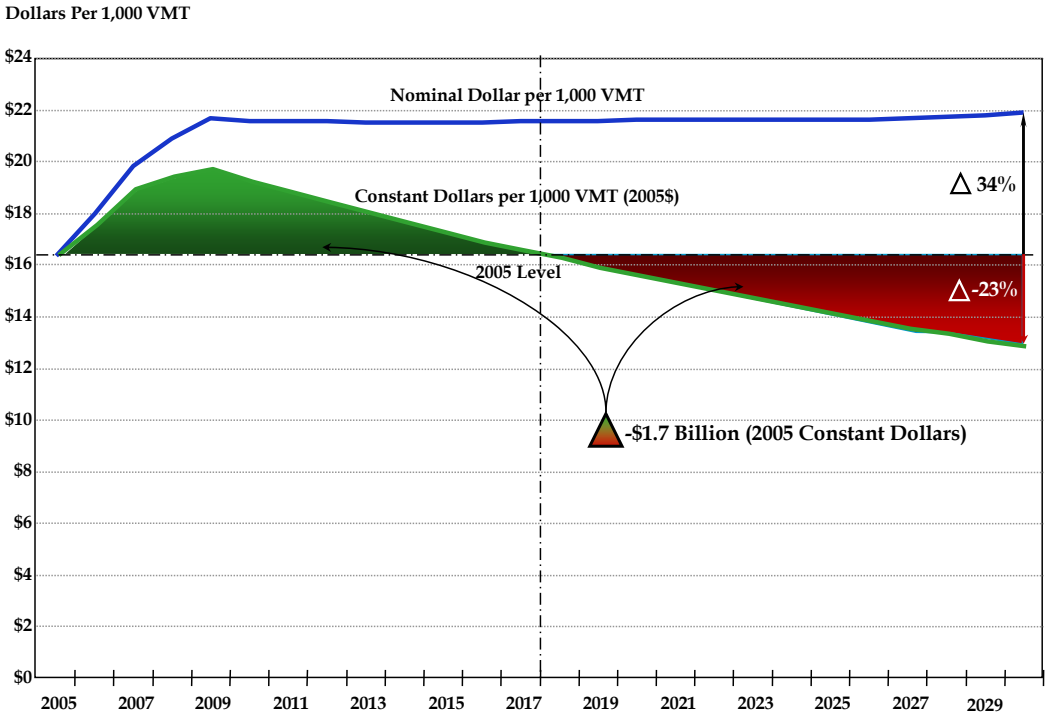


Source: Washington Stae DOT and Cambridge Systematics, Inc.
*Assumes 2.2 percent annual inflation.

A more accurate understanding of the future viability of the motor fuel tax is gained when the total revenues are compared with the projected increase in demand for transportation. Using the baseline projections, Figure ES.2 shows projected motor fuel tax revenue in terms of dollars per 1,000 vehicle-miles traveled (VMT). In nominal dollars, this amount is projected to grow from $16.3 in 2005 to $21.9 in 2030, an increase of 34 percent. In constant 2005 dollars, however, this amount is projected to fall to $12.6 in 2030, a decrease of 23 percent compared to the purchasing power of revenues per 1,000 VMT available in 2005.

The 37.5 cent rate will sustain the fuel tax per 1,000 VMT above the 2005 level for the next 13 years. But from 2018 onward, the State will collect less each year than it did in 2005. From 2005 to 2030, the aggregate revenue will total a net loss of $1.7 billion (in constant 2005 dollars), as shown in the two shaded areas in Figure ES.2, if no further adjustments to the motor fuel tax rate are made.

Figure ES.2 Projected Motor Fuel Tax Revenue Per 1,000 VMT*, 2005 to 2030



Source: Washington State DOT and Cambridge Systematics, Inc.
*Based on average annual inflation of 2.2 percent over the 25-year period.

Given these results, it is clear that even with the significant increases to the fuel tax adopted in the past three years, the State's revenues from fuel tax will diminish to their current level sometime after 2015. The future viability of fuel tax revenues is address in our recommendations (below).

TRENDS AND IMPLICATIONS OF DEBT FINANCING

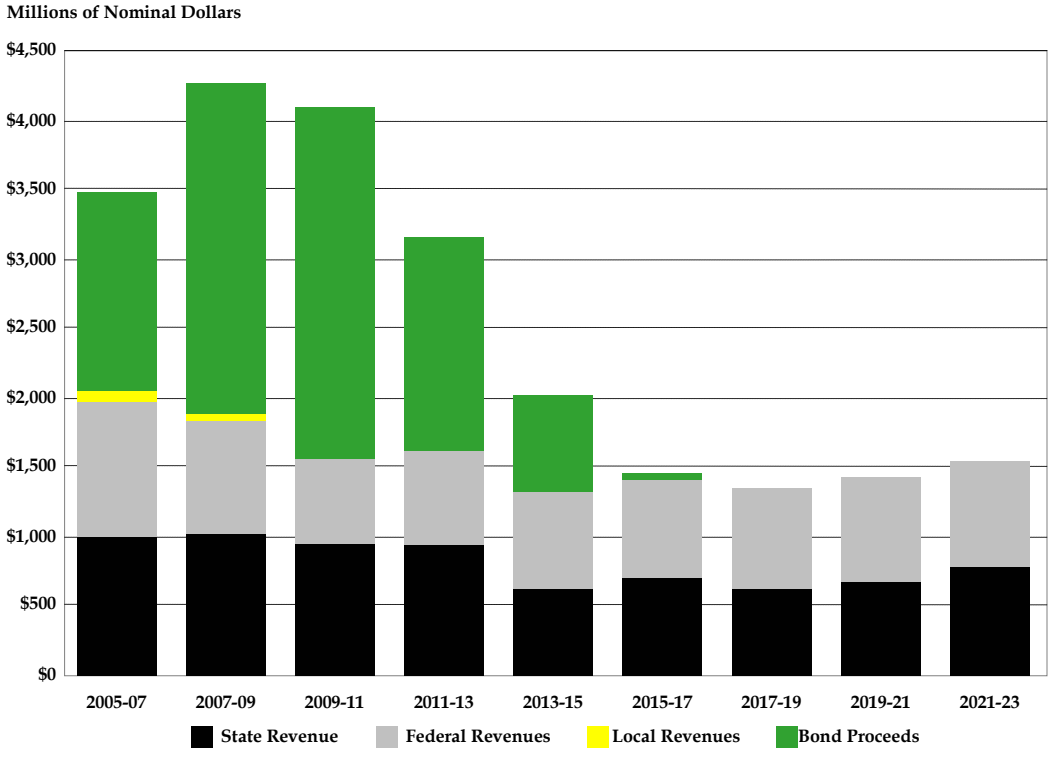
This study examines the use of debt financing as a strategic tool to accelerate state transportation investment in Washington. Section 3.0 describes factors that contributed to a shift away from pay-as-you-go financing and outlines the general scope of the bonding programs approved by the Legislature. It also provides an indication of how the amount of debt issued for highway purposes in Washington compares to other states and presents a discussion of issues related to debt management and financial planning. Finally, the section describes the potential use of long-term asset leases and public-private partnerships to increase or accelerate transportation investment. Brief summaries of only some of the findings are provided here.

To address some of the most critical transportation needs, the State of Washington has embarked upon an ambitious capital investment program. Approximately

430 highway, bridge, ferry, and rail projects totaling over $11 billion are included in transportation funding packages approved by the State Legislature in 2003 and 2005 (the "Funding Packages"). The Funding Packages provide authorization for approximately $7.7 billion of general obligation (G.O.) bonds secured by motor vehicle fuel tax revenue (the "MVFT Bonds") and $349.5 million of G.O. bonds that will be paid from vehicle sales taxes, rental car tax receipts, and other fees (the "Multimodal Bonds"). In addition, over $400 million of MVFT Bonds authorized prior to 2003 are expected to be issued over the next 3 years.

Bond proceeds comprise a significant portion, approximately 45 percent, of the total capital funding currently expected to be allocated by the State of Washington for highway construction and preservation and other transportation infrastructure needs through 2023.[4] Figure ES.3 shows the annual amount of funding for transportation capital projects by source.

Figure ES.3 WSDOT Capital Budget and 16-Year Financial Plan Capital Sources of Funds

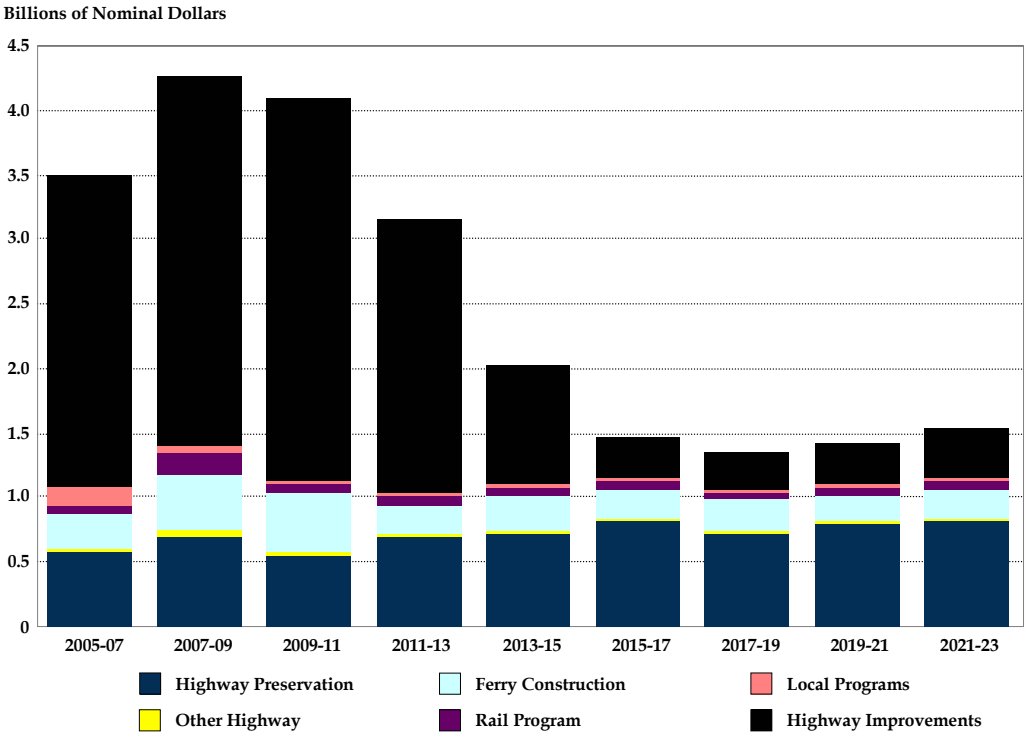


Source: Department of Transportation 2007 to 2009 Capital Budget Request and 16-Year Financial Plan, August 30, 2006.

[4] Department of Transportation 2007 to 2009 Capital Budget Request and 16-Year Financial Plan, August 30, 2006.

The Legislature primarily targeted new construction needs in crafting the Funding Packages. As shown in the Figure ES.4 below, annual resources dedicated to highway preservation and ferry construction do not increase significantly in WSDOT's long-term financial plan.

Figure ES.4 WSDOT Capital Budget and 16-Year Financial Plan Capital Uses of Funds

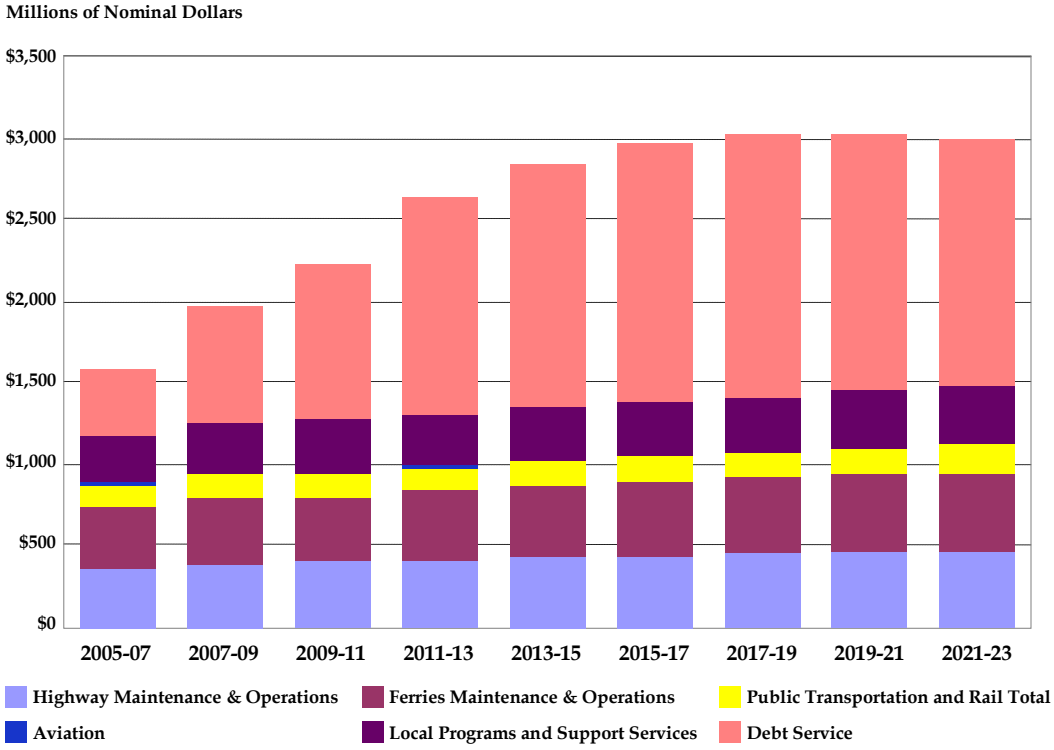


Source: Department of Transportation 2007 to 2009 Capital Budget Request and 16-Year Financial Plan, August 30, 2006.

The Funding Packages include scheduled increases to the state gas tax that will bring the rate to 37.5 cents per gallon by July 1, 2008. The incremental funding from the tax increases allocable to WSDOT will primarily be used to pay debt service on MVFT Bonds. As shown in Figure ES.5, total funds available to WSDOT will increase over time, but the amount budgeted for support services and operation and maintenance of highways and the State Ferry system will remain relatively flat. [5] By the end of the 2011 to 2013 biennium, debt service may comprise over 50 percent of WSDOT's operating budget.

[5] Department of Transportation 2007 to 2009 Operating Budget Request and 16-Year Financial Plan, August 30, 2006.

Figure ES.5 WSDOT Capital Budget and 16-Year Financial Plan Operating Uses of Funds



Source: Department of Transportation 2007 to 2009 Operating Budget Request and 16-Year Financial Plan, August 30, 2006.

Washington is one of a handful of states that pledges its full faith and credit to the payment of transportation bonds secured by motor fuel taxes. The "double-barreled" pledge of both the taxing power of the State and a dedicated revenue stream provides a very cost-effective way to access the capital markets.

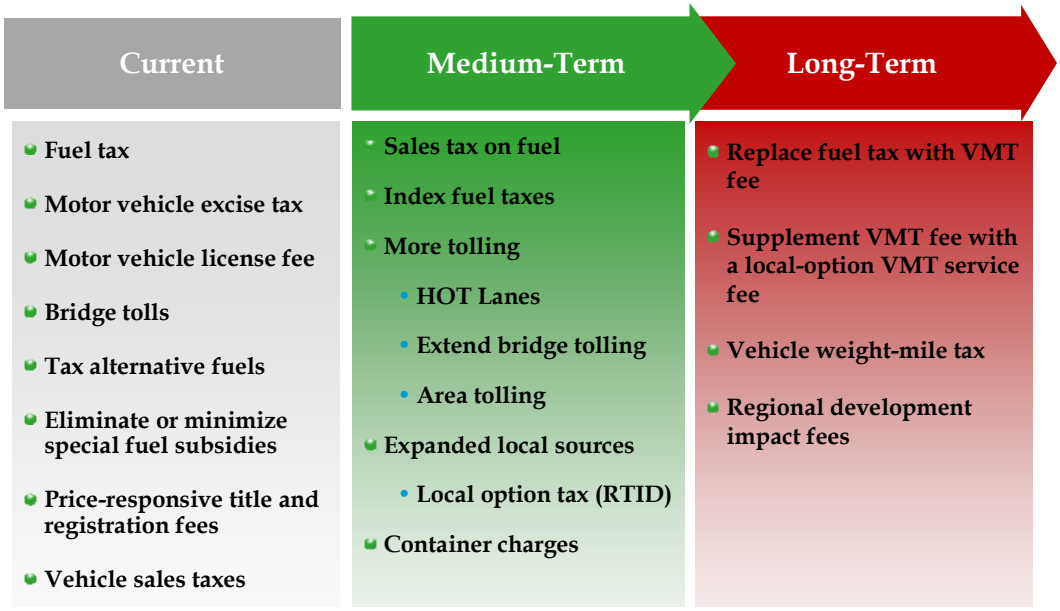
From an investor's perspective, an additional bonds test on MVFT bonds is not needed because of the strength of the State's general obligation pledge (AA/AA1/AA credit ratings) and the fact that revenue is withheld on a monthly basis to ensure sufficient funds are available to make debt service payments. The risks associated with the pledged revenue stream, however, remain. If motor fuel tax revenue collections fall because of a severe economic downturn (or passage of a voter initiative), the impact on WSDOT operations could be significant.

By establishing an informal policy on minimum acceptable debt service coverage, Washington could mitigate the potential risks associated with fluctuations in motor fuel tax revenue and enhance the amount of resources available for pay-as-you-go opportunities.

RECOMMENDATIONS

Our recommendations for a more optimal funding portfolio are divided into two timeframes. The medium-term extends over the next 5 to 15 years, depending on how quickly the State's gas tax receipts are eroded by increasing mileage of the vehicle fleet, usage of non-taxed fuels, and the advancement of technology needed to replace fuel taxes. The transition to long-term funding solutions would overlap with the medium-term recommendations over a 5-year period. Figure ES.6 presents our medium- and long-term recommendations for improving Washington State's funding portfolio and demonstrates significant Legislative leadership by listing the recent increases across a large number of funding sources.

Figure ES.6 Evaluation of Revenue Sources – Sorting Alternatives Into Three Timeframes



Our funding recommendations are intended to match the rising costs of construction, operations, and maintenance as measured in constant dollars and adjusted for increasing demand. Therefore, these funding proposals will result in annual increases to transportation users. In additions, these funding alternatives would be appropriate should the Legislature choose to increase or decrease the amount of transportation revenue that the State collects now.

The imposition of automatic adjustments isolates funding increases (measured on a basis of nominal dollars) from the political process and present significant political challenges. Nevertheless, our analysis of past trends (Sections 1.0 and 2.0) demonstrate that purchasing power of the State's funding portfolio has declined over long periods, punctuated with the voters and Legislature's episodic efforts to recapture some of the lost ground. The lack of success with this

approach to date compels us to recommend automatic indexing of existing and new sources in order to stabilize the true parity of funding available to meet the increasing demand in the future. Although the recommendations are scaled to be revenue-neutral, the Legislature could choose to implement any or all of our recommendations at more aggressive level if it deems current funding insufficient, or scale them back to maintain a lower level of funding.

Medium-Term Recommendations

Our medium-term recommendations are intended to prevent the forecast 23 percent decline in future fuel tax revenues weighted by the VMT over the next 25 years. These are summarized in rough order of effectiveness based on 5 criteria (see Section 1.0).

Index State Motor Fuel Taxes – In the medium term, indexing of the motor fuel tax is the most viable strategy for Washington State to keep the purchasing power of the motor fuel tax from eroding significantly over time. This indexing, however, would not completely offset the erosion caused by increasing VMT associated with higher mileage vehicles. Indexing the fuel tax rate to inflation (2.2 percent annually) starting in 2010 would generate approximately $9.8 billion more by 2030 than would be earned under the flat 37.5 cent Partnership rate. Under the indexed scenario, the fuel tax rate would reach 59.2 cents per gallon in the year 2030. This increase in the nominal rate would maintain the purchasing power of today's 32 cent rate.

Sales Taxes on Motor Fuel – Although this source scores low on the basis of reliability, it scores high on yield. The Legislature could replace some share of the fixed rate fuel excise tax with a sales tax, which is a percentage of the cost of a gallon of fuel. The revenue generated would not track well with the true cost inflation of transportation needs. A 6.5 percent sales tax on motor fuels would generate $16.9 billion in revenue from 2010 to 2030, almost twice what indexing the fuel excise tax would generate.

Container Charges – This source, if applied as a variable fee based on peak-period pricing, has the strong potential to reduce truck-related congestion, but would not generate significant revenues. If applied, however, as a flat $50.00 fee in 2010 (and indexed to inflation), it could generate over $8 billion in revenue from 2010 to 2030. There is uncertainty in this forecast because container fees could divert some container traffic to other West Coast ports.

Tolling Specific Corridors – Many states are looking to tolling as a way to provide additional revenue for transportation projects. The Washington State Transportation Commission has completed its Comprehensive Tolling Study. The study did not propose specific projects for implementation, but it provides examples of high-cost/high-need projects that have potential to generate partial funding for some portion of their cost. The specific improvements and tolling options include the following projects.

- SR 704 Cross Base Highway;
- Snoqualmie Pass Improvements;
- SR 520 and I-90 Bridges over Lake Washington;
- SR 167 and I-405 High-Occupancy Toll (HOT) Lane System: Sumner to Bellevue;
- I-405 North HOT Lanes – SR 520 north to I-5 (Swamp Creek);
- I-5 in Lewis County;
- I-5 and Alaskan Way Viaduct in Seattle; and
- Statewide Truck Tolling.

The amount of dollars that could be generated by the potential projects varies widely. On the low end are the HOT lane projects, which sell the excess capacity in high-occupancy vehicle (HOV) lanes to drivers that are in a hurry to be somewhere. The tolls are dynamically adjusted such that the lanes remain free flowing. Since these toll lanes are only effective during peak periods and the amount of capacity to sell is limited, the revenue potential of these tends to be modest. The Snoqualmie Pass Improvements are at the high end, where tolling could potentially fund the entire project cost.

The revenue stream from these projects could amount to over $26 billion (in nominal dollars) over a 30-year period. The value of that revenue stream if used to issue bonds, however, is less than $4 billion in available funds for construction of these projects today. Public-private partnerships may have the potential to stretch the value of these revenue streams through the use of equity participation rather than debt. Nevertheless, the results show that the estimated tolling streams for all, but one of the illustrative examples (with the possible exceptions of the Snoqualmie Pass Improvements, I-90 Bridge, and statewide truck tolling), contribute only a fraction of the total funding needed. Thus, most of these tolling projects on new facilities create net funding liabilities for the State that will require additional funding from non-toll sources to fully fund the projects.

Long-Term Recommendations

The long-term recommendations are derived from an intense national debate over moving to an entirely new approach to funding transportation. The consensus among most participants in this debate recommends that in the long term, all levels of government charged with funding transportation should move from existing sources to a funding system that charges drivers for the marginal cost of where, when, and how much they drive. In other words, a variable fee for vehicle miles of travel calibrates to the congestion levels. Although this proposal seems to impose a dramatic change in the way transportation is paid for, current fuel tax is more like user fee than tax; albeit a weak one that does not correspond well to the full cost of the service.

Widespread implementation of mileage-based user fees – whether in urbanized areas for congestion pricing and management or statewide as a replacement for gallonage-based taxes – may be technically feasible in the next 10 to 15 years. Time will be needed to equip vehicle fleets with Global Positioning System (GPS) and Geographic Information System (GIS) technology, and to develop reliable and auditable administrative systems. It will be a major challenge nationally to shift from collecting motor fuel taxes from a few thousand wholesalers to collecting user fees from millions of automobile owners.

Nevertheless, mileage-based revenue systems offer the potential of significant benefits. Revenues are more likely to keep pace with population and economic growth. Alternative fuels will not erode mileage-based revenues as they will gallonage-based taxes. Mileage-based user fees will separate fuel use from highway use, removing the conflict with energy and air quality policies. Furthermore, mileage-based system will maintain the long-established political consensus that highways should be funded from user fees and that all users should pay their fair share. Finally and perhaps most important, mileage-based fees will send strong price signals to users and thus better manage the demand in relation to capacity.

A VMT fee system would offer local jurisdictions the opportunity to piggy-back on the state VMT fee and replace all of their funding sources with a local-option VMT fee. This substitution would remove the dependence most local jurisdictions in Washington State have on special and general taxes. In fact, the Puget Sound Regional Council (PSRC) is in the midst of an experiment that is being closely watched around the country; whereby, all freeways and many arterial highways in the central PSRC region are tolled.[6]

A VMT fee of 2.15 cents per mile is projected to generate $33.2 billion in revenue from 2010 to 2030, which is roughly revenue-neutral with the current schedule of motor fuel tax rates. The same VMT fee that starts at 2.15 cents per mile in 2010, but then is indexed to inflation (2.2 percent annually), is projected to generate $42.0 billion in revenue from 2010 to 2030, or an increase of $8.8 billion from the non-indexed VMT fee. Subsection 5.2 (Next Steps) of this report provides some guidance on implementation of VMT fees.

[6] Pryne, Eric, *Tolls Could Cut Congestion, Test Shows*, Seattle Times, Friday, November 24, 2006.