



Washington State
Transportation Commission

Washington State Comprehensive Tolling Study Part 2

Exploration of Potential Tolling Opportunities in Washington

prepared for
Washington State Transportation Commission

by
Cambridge Systematics, Inc.



under subcontract to
Jacobs Carter Burgess

February 20, 2008

<http://www.wstc.wa.gov>



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February 20, 2008

The Honorable Christine Gregoire
Office of the Governor
P.O. Box 40002
Olympia, WA 98504-0002

The Honorable Members
Senate Transportation Committee
P.O. Box 40482
Olympia, WA 98504-0482

The Honorable Members
House Transportation Committee
P.O. Box 40600
Olympia, WA 98504-0600

Dear Governor Gregoire, Senators, and Representatives:

The Washington State Transportation Commission (WSTC) is pleased to submit this Tolling Study – Part 2 report to you for your consideration as discussions continue on tolling policy and specific tolling projects throughout the State. The WSTC began this Part 2 study last year per your direction in the 2007-2009 Transportation Budget:

ESHB 1094, Section 206:

“...(3) The commission shall conduct a planning grade tolling study that is based on the recommended policies in the commission’s comprehensive tolling study submitted September 20, 2006.”

Further direction was given in the Transportation Budget Notes – Agency Detail document:

“...3. Continuation of Tolling Study - Funding is provided for more detailed modeling of tolling options on specific routes and structures. The Commission shall contract with the WSDOT Economic Partnership Program to develop tolling scenarios. (Motor Vehicle Account - State) One-time”

With this direction, the Commission moved forward with its Part 2 study of tolling in Washington State with the focus being on identifying early actions that might be taken to carry out the overall direction described in the Commission’s first tolling study. The Commission screened a wide

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range of potential tolling projects and using evaluation criteria based on the policies suggested in Tolling Study I, narrowed tolling projects and using evaluation criteria based on the policies suggested in Tolling Study I, narrowed that list down to a handful of viable, near-term projects. This process resulted in the creation of both a set of guiding principles for tolling and a phased in plan for how tolling might progress in Washington State.

We hope you find this report helpful in bringing into focus the long-term vision for tolling in Washington, as well as for developing a near-term tolling action plan for specific areas in the State.

Sincerely,

A handwritten signature in black ink that reads "Richard Ford". The signature is written in a cursive, flowing style.

Richard Ford, Chairman
Washington State Transportation Commission

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Cambridge Systematics, Inc.
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Cambridge, Massachusetts 02140

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Executive Summary

■ Background and Approach

In 2006, the Washington State Transportation Commission (WSTC), at the direction of the Legislature completed the Comprehensive Tolling Study, which addressed issues relating to if, where, when, and how to toll. The body of work developed during the Comprehensive Tolling Study (hereafter called “Tolling Study 1”) provides a good overview of how tolling has been used around the country and around the world, and many of the policy and technical issues associated with tolling. It also relates that background knowledge to the issues facing Washington. The final report, along with 11 background papers and a report on attitudes towards tolling is available on the Commission’s web site at: <http://wstc.wa.gov/Tolling/>. The culmination of Tolling Study 1 was a set of eight proposed tolling policies for Washington.

This Tolling Study Part 2 is intended to identify the early actions that might be taken to carry out the “overall direction” described in Tolling Policy 1, which said, “Washington should use tolling to encourage effective use of the transportation system and provide a supplementary source of transportation funding. That policy should evolve over time.”

Growth, declining revenue for transportation, and increasing construction costs are all reasons why tolling needs to be considered in Washington at this time but moving tolling projects forward has become increasingly complicated and will require careful study and public input. It was done successfully on the Tacoma Narrows Bridge which is now open, showing that tolling is viable again in Washington. Also, the SR 167 HOT lanes project, which is a pilot that is designed to use the existing facility more effectively and create a smoother flow of traffic, is just a few months away from operation.

From a practical standpoint, most projects under consideration in Washington involve putting tolls on highways that are now free, which is not easily accepted. There are also proposals to put tolls on projects before improvements are available for use by the public, adding a further public acceptance complication. And policies related to the use of toll revenue continue to be a vibrant discussion. It is important for WSDOT and the Legislature to keep in mind the desire for consistency in decision-making. It is also important that short-term steps fit in with the long-term vision.

There are immediate decisions to be made, and these decisions will influence what might be done on subsequent projects. The aging SR 520 bridge is in dire need of replacement; WSDOT presented several finance options for the project that examined pre-construction tolling, post construction tolling, as well as the potential for tolling the parallel I-90 Bridge.

In addition, there is the Urban Partnership project that features pre-construction tolling on SR 520 as a transportation system efficiency measure.

The Commission screened a wide range of potential tolling projects using evaluation criteria based on the policies in Tolling Study 1. We then further evaluated a subset of those projects to explore suitability and implementation issues. The result of this investigation was a set of guiding principles and an illustrative phasing plan for how tolling might progress in Washington.

■ Guiding Principles

In addition to the eight policies from Tolling Study 1 reiterated in Section 1.0, the Commission recommends the following guiding principles moving forward, stated in no particular order of priority (see Section 4.1):

1. **Consider System Impacts.** In authorizing tolling projects, the Legislature should consider the impacts of tolling on the entire transportation system and not just focus on the specific segment of highway they want to toll. The decisions of today should not create stumbling blocks for future decisions. This is consistent with proposed Tolling Policy #2 from 2006, and is even more pronounced as a concern given the “intricate issues” discussed in Section 1.4.
2. **Pre-Construction Tolling.** Pre-construction tolling was not even a topic of discussion during Tolling Study 1, because it has never been tried before, and the conventional wisdom was that it would have difficulty gaining public or legislative support. However, putting tolls on complex mega-projects before the improvements are completed could have benefits to the public and should be seriously considered. One of the benefits is that overall project cost could be reduced substantially by avoiding interest charges during the construction period, meaning that drivers will pay less over the long term. Another benefit is that, if set appropriately, pre-construction tolling can help smooth traffic flow and increase operation efficiency of existing facilities.

Pre-construction tolling is an important feature of the Urban Partnership proposal submitted by WSDOT, PSRC, and King County to the Federal government. To be eligible to receive Federal grants, U.S. DOT requires tolling to be in place by September 2009. To meet that timeline, a legislative tolling authority is needed soon. If pre-construction tolling is used on the SR 520 project, it is reasonable to ask whether it might be appropriate on other major projects as well.

3. **Federal Waiver for I-90 Tolling.** The State should seek a Federal waiver for potential tolling applications on I-90, such as tolling the I-90 bridge over Lake Washington or tolling Snoqualmie Pass as soon as possible so that facility is ready to move forward as soon as the State is ready to do so. Both of these applications are consistent with the Commission’s 2006 proposed tolling policies.

4. **Duration of Toll Collection.** Consistent with the Commission's original recommendations, tolls on projects should stay on over the life of the facility to ensure adequate funding is available to cover the maintenance and rehabilitation needs of the facility, and to continue serving as a traffic management tool to optimize traffic flows.
5. **Public Awareness and Acceptance.** Work done by the Commission and more recently by others has highlighted the fact that the public does not have a good understanding of the nuances of the tolling policies that are currently under consideration. Public outreach and education needs to be an ongoing effort throughout the State to enable these important financing and traffic management tools to be used effectively.
6. **Effectively Engage the Private Sector.** It is possible that private sector involvement can create the right incentives for cost-effective delivery of major projects through the use of alternative contract vehicles such as alliance contracting, design-build, design-build-operate-maintain, and design-build-finance-operate maintain. The State should consider these approaches that have been effectively used elsewhere in the United States and around the world, but also should be cautious that the public's interest is adequately protected and advanced.

■ Illustrative Phasing Concepts

Tolling Study 1 suggested that the use of tolling in Washington would evolve over time, and identified the kinds of applications that might be appropriate in the short, medium, and long term. In Section 4.2 of this report, the Commission identified the specific project opportunities that might exist in each of these three timeframes, along with some of the issues that need to be addressed. It is important to emphasize that these are illustrative phasing concepts aimed at indicating a potential path towards incorporating tolling into the transportation system of the state. Other phasing options are clearly possible, and these will likely evolve over time.

■ Next Steps

There continues to be considerable discussion about the need for tolling to keep our highways safe, to reduce congestion, and to generate revenue throughout the State, and in the Puget Sound region in particular. In preparation for the 2009 legislative session, the Commission has the following potential avenues for additional study:

1. Further investigation into the dollars and cents of pre-construction tolling.
2. Evaluation of how the private sector might be used to create more value for money through performance-based contracting approaches or other types of public-private partnerships.

3. Investigation into how other parts of the country have addressed the issue of using revenue that might be collected on one facility on other parts of the transportation system.
4. More in-depth feasibility studies of particular projects that currently are not being studied by WSDOT or others, such as the Snoqualmie Pass or I-5 in Lewis, Thurston, and Cowlitz counties.
5. Further investigation into opportunities for truck-only toll lanes or other freight-oriented projects, such as paying for freight improvements with container fees.
6. If the Governor's Request Bill related to the SR 520 Bridge Replacement and HOV Project is enacted, the Commission should work with WSDOT to find ways to accelerate resolution of the policy issues surrounding the tolling of that project.

1.0 Introduction

■ 1.1 Background

In 2006, the Washington State Transportation Commission (WSTC), at the direction of the Legislature completed the Comprehensive Tolling Study, which addressed issues relating to if, where, when, and how to toll. The study began with a two-pronged effort. The first prong was designed to orient the Commission to trends and issues surrounding tolling in the United States and around the world, from the perspective of the kinds of issues Washington is facing. The second prong involved interviews with stakeholders around the State to gain their perspectives on tolling issues.

The body of work developed during the Comprehensive Tolling Study (hereafter called “Tolling Study 1”) provides a good overview of how tolling has been used around the country and around the world, and many of the policy and technical issues associated with tolling. It also relates that background knowledge to the issues facing Washington. The final report, along with 11 background papers and a report on attitudes towards tolling is available on the Commission’s web site at: <http://wstc.wa.gov/Tolling/>.

The culmination of Tolling Study 1 was a set of eight proposed tolling policies for Washington, presented below:

1. **Overall Direction.** Washington should use tolling to encourage effective use of the transportation system and provide a supplementary source of transportation funding. That policy should evolve over time:

Short Term
(within 10 years)

- Accelerate implementation of high-cost/high-need projects, examples being SR 520, Columbia River Crossing at Vancouver, and Snoqualmie Pass.
- Use price differentials as appropriate to make most effective use of the system.
- Convert high-occupancy vehicle (HOV) lanes to HOV/tolled express lanes to optimize performance and maintain free-flowing service for transit, vanpools, and carpools.

Medium Term
(within 20 years)

Consider potential for building additional capacity as tolled express lanes through more extensive study of long-term costs and benefits.

Consider broader use of tolling to optimize system performance.

Long Term
(beyond 20 years)

Consider more extensive use of tolls as the ability to build more capacity is constrained, traditional revenue sources decline, and technology advances.

2. **When to Use Tolling.** Tolling should be used when it can be demonstrated to:
 - Contribute to a significant portion of the cost of a project that cannot be funded solely with existing sources; and/or
 - Optimize system performance, such as with an HOV/Tolled Express lane.Such tolling should in all cases:
 - Be fairly and equitably applied in the context of the statewide transportation system; and
 - Not have significant adverse impacts through diversion of traffic to other routes.
3. **Use of Toll Revenue.** Toll revenue should be used only to improve, preserve, or operate the transportation system.
4. **Setting Toll Rates.** Toll rates, which may include variable pricing, should be set to optimize system performance, recognizing necessary tradeoffs to generate revenue.
5. **Duration of Toll Collection.** Since transportation infrastructure projects have costs and benefits that extend well beyond those paid for by initial construction funding, tolls should remain in place to fund additional capacity, capital rehabilitation, maintenance, operations, and to optimize performance of the system.
6. **State Toll Authority to Set Toll Policy.** Following broad statutory direction, the Washington State Transportation Commission, as the currently designated State Tolling Authority, should develop policies and criteria for selecting the parts of the transportation system to be tolled; propose the study of potential toll facilities; recommend toll deployments to the Governor and Legislature; and set toll rates. The Authority should engage in robust and continuous coordination with state-authorized regional or multistate entities that may propose toll facilities to the Authority.
7. **WSDOT to Implement Policy.** The Washington State Department of Transportation should be responsible for planning, development, operations, and administration of toll projects and toll operations within the State.
8. **Toll Collection Systems.** Toll collection systems in the State of Washington should be simple, unified, and interoperable, and avoid attended tollbooths, wherever possible.

■ 1.2 Tolling Study Part 2

In 2007, the WSTC was provided \$275,000 to conduct:

...a planning grade tolling study that is based on the recommended policies in the commission's comprehensive tolling study submitted September 20, 2006. (Budget, Sec. 206)

In the Budget Summary, the proviso intent was stated as:

Continuation of the Tolling Study – Funding is provided for more detailed modeling of the tolling options on specific routes and structures. The Commission shall contract with WSDOT Economic Partnership Program to develop tolling scenarios.

The Budget Section 605 also provides some intent:

Based on the anticipated outcomes of the tolling study, to be conducted under section 206 of this act, the legislature intends that tolls be charged to offset or partially offset the costs of the following projects, and that a managed lane concept be applied in their design and implementation i.: SR 520 Bridge Replacement and HOV project, and widening of I-405.

This Tolling Study Part 2 provides a first step toward fulfilling the legislature’s direction. In essence, this study is intended to identify the early actions that might be taken to carry out the “overall direction” described in Policy 1. The Commission, WSDOT, and the consultant team developed a work plan that was designed to provide the Legislature, Governor’s office, and others considering tolling and pricing options with an analysis of how well different proposals met the intent of the proposed tolling policies.

At the outset, the team:

- Identified the universe of potential tolling projects in Washington State that might be considered in the short, medium, and long term. The project list was culled from ongoing activities at WSDOT and by asking for suggestions from WSDOT staff and the Commissioners.
- Made an initial attempt to identify those policies from the Comprehensive Tolling Study that relate to project selection criteria, and a mechanism to turn those policies into criteria.
- Considered potential analysis methods and frameworks for working through the choices of whether or how tolling should be used in the State.

The remainder of the project involved narrowing down the large list of projects to those that might best carry out the intent of the Commission’s tolling policies.

■ 1.3 Reasons to Consider Tolling in Washington

A variety of factors are combining to encourage a serious look at tolling and pricing in Washington:

- **Growth** – Population continues to grow, especially in the Puget Sound region and with that growth comes increasing congestion, decreasing safety, and concerns about the impact of driving on climate change.

- **Decreasing Operational Efficiency of the Existing Transportation System** – Increasing congestion renders the existing system less efficient and less productive.
- **Declining Revenue** – Proposition 1 in the central Puget Sound region was defeated, causing additional pressure on finding new revenue sources. Also, revenues from existing sources such as the gas tax are expected to decline in productivity over time.
- **Increasing Costs** – Construction costs are rising at rates that are faster than the overall rate of inflation, meaning that WSDOT’s construction work program is not able to deliver as much as had been planned.

The Tacoma Narrows Bridge is now open, showing that tolling is viable again in Washington. The project was successful in using price incentives to encourage over 70 percent of users to pay tolls via the “Good-to-Go” electronic payment system – a level unprecedented in the toll industry for such a new project. The next toll project will be the SR 167 HOT lanes, which will have 100 percent electronic toll collection. Washington can use experience from these two projects to refine toll collection systems and methods moving forward.

■ 1.4 Intricate Issues Considered

As was explored in great detail in Tolling Study 1, the wide variety of potential motivations for tolling as well as ways to use tolling contributes to an intricate web of issues that need to be considered when deciding whether projects how or whether tolling should be included in projects. Here are a few of the issues considered by the Commission as it developed this report:

- Numerous projects are proceeding in the same corridor at once. For example, the SR 167 HOT lanes project is moving towards construction. A variety of studies are underway on I-405. There are several options being discussed for Lake Washington. None of these can be considered in isolation, yet there is not yet a comprehensive forum to come to agreement on the best approach for the State and region.
- Similarly, projects are proceeding in different parts of the Central Puget Sound region and around the State. Tolling Study 1 had a proposed policy that said that “...tolling should in all cases be fairly and equitably applied in the context of the statewide transportation system.” As WSDOT and the Legislature consider how to fund different projects, it is important to keep in mind the desire for consistency in decision-making.
- Short-term steps need to fit in with the long-term vision. If there are projects that might work in the short term, but in the medium term have the potential to become obsolete, we need to carefully consider the benefits of these short-term investment decisions if the investment is to be justified.

- Most projects involve putting tolls on highways that are now free. This is a brand new concept that the public may not appreciate without a compelling argument as to how they benefit. In addition, tolling existing facilities, in particular Interstate highways will require Federal approval.
- Commission recommendations called for toll revenue to be allowed on any part of the transportation system, rather than being limited to the tolled facility, and that the tolls should stay on after the initial construction debt is paid off. The public will tend to want money collected on one facility to be used for the benefit of that facility.
- Some projects that involve replacing or improving existing facilities may benefit from toll collection starting before completion of the improvement. The motivation from so-called “early tolling” may be to lower the overall cost of the project by reducing or eliminating the need to pay interest on construction loans while the toll facility is being built. The savings could be significant. Early tolling may have cost saving benefits, but may be poorly understood by the public. Another motivation is to use tolling to smooth traffic flow before the capital improvements can be made.

■ 1.5 Ongoing Public Awareness Efforts by WSDOT

The Washington State Department of Transportation (WSDOT) was awarded \$935,000 in Federal FY 2006 funds to advance public awareness and acceptance of value pricing and associated operational toll concepts from a “user’s perspective,” incorporate previous study findings into near- and mid-term policies and project planning, and improve state and regional coordination. The project will communicate to the public and elected officials the concept of value pricing and how tolling can help manage traffic. The inability of public agencies to effectively communicate these concepts has hindered and delayed acceptance of pricing concepts. The WSDOT VPPP communications project is continuing to develop work programs that advance regional strategic planning and other communications efforts that will commence in early 2008.

■ 1.6 Recent Events in Washington Related to Tolling and Pricing

The second span of the Tacoma Narrows Bridge is now open to traffic and tolls are being collected, and the SR 167 HOT Lanes Pilot Project is nearing the time when it will open as well. These projects are beginning to show how tolling might be used in Washington.

Beyond these two projects, the most immediate action needs related to tolling involves the finance plan for the SR 520 bridge across Lake Washington. In 2006, Engrossed Substitute Senate Bill (ESSB) 6099 directed the Washington State Department of Transportation

(WSDOT) to prepare a proposed finance plan for the SR 520 Bridge Replacement and HOV Project. ESSB 6099 states that the "...project finance plan must include state funding, Federal funding, at least one billion dollars in regional contributions, and revenue from tolling" and must "be tied to the estimated cost of the recommended project solutions..." The intended regional contribution is primarily the funding that would have been provided by Proposition 1, the "Roads and Transit" ballot measure, had it been approved by voters in November 2007. However, that ballot measure failed.

In response to the failure of Proposition 1 in January 2008, WSDOT and Governor Gregoire presented a report with five potential funding scenarios for the SR 520 project that included an option to place tolls on the bridge in advance of the construction project being completed.¹ The report also raised several policy questions:

1. Should a broader range of tolling scenarios be considered? Should we include tolls on I-90 as part of a system of cross-Lake Washington travel?
2. What toll levels will the public accept?
3. What is the appropriate tradeoff between revenues and traffic?
4. Should all of the SR 520 toll revenues be dedicated to the SR 520 bridge project or should a portion of the revenue be used for other purposes?

These are all questions that the Commission wrestled with during Tolling Study 1. In general, the Commission took a more expansive view of the potential applications of tolling and the acceptable uses of toll revenue than had been considered before in the United States. The Commission also took the view that tolling should be considered in the overall context of the transportation system, recognizing both the revenue generating role as well as an emerging role to improve system efficiency.

The Commission's recommendations were clear about the need to move away from project-specific financing to a broader view of benefits when tolling a corridor. The State has an interest in improving traffic flow across Lake Washington. If tolling cars can induce modal or time-of-day shifts to improve system efficiency, and if that efficiency can be improved by enhancing transit service with toll revenue, then that is an appropriate approach. The London Area Tolling concept demonstrated how effective the combination of road pricing and transit enhancement could be. If better operations and a more robust transit system can be accomplished through innovative tolling applications and use of the revenue, then these options should be seriously considered.

We urge the Governor and the Legislature to look at these important policy questions through the lens of the eight tolling policies developed by the Commission in Tolling Study 1, which are repeated in Section 1.1 of this report.

¹ Washington State Department of Transportation, *2007 SR 520 Finance Plan*, January 2008.

2.0 Evaluation Criteria

There are numerous opportunities for tolling and pricing projects in Washington. The first step at evaluating them should be whether they conform to the policies proposed in the Comprehensive Tolling Study from 2006. Of the eight policies, the first two are relevant to project selection. The remaining eight address implementation. The evaluation criteria used in this report are described below.

■ 2.1 Consistency of Project with Policy 1 – Overall Direction

Short Term

- Accelerate implementation of high-cost/high-need projects.
- Use price differentials as appropriate to make most effective use of the system.
- Convert HOV lanes to tolled express lanes.

Medium Term

- Consider potential for building additional capacity as tolled express lanes through more extensive study of long-term costs and benefits.
- Consider broader use of tolling to optimize system performance.

Long Term

- Consider more extensive use of tolls.

■ 2.2 Consistency of Project with Policy 2 – When to Use Tolling

- Contribute to a significant portion of the cost of a project that cannot be funded solely with existing sources.
- Optimize system performance.
- Be fairly and equitably applied.
- Not have significant adverse impacts through diversion of traffic to other routes.

All of the criteria can be reasonably evaluated even at this preliminary stage with the exception of “be fairly and equitably applied.” This criterion speaks more to the overall program of work that the State decides to carry out, and cannot be evaluated on a case by case basis. Therefore, it is not included in the matrix evaluation for each project below.

In the screening analysis done in this report, we assess how well each project proposal is likely to achieve each element of Policies 1 and 2. To the extent there are studies already done, we have taken these into account. Where there is no information, we apply professional judgment and recognize where the evaluation could be different depending on the specifics of the proposal and further study.

3.0 Evaluation of Potential Tolling Applications in Washington

At the beginning of Tolling Study 2, the Commission, WSDOT staff, and the consultant team developed a list of 28 potential tolling projects in the State in 13 corridors. The project list consisted of active proposals, proposals that have had some study or discussion, and other opportunities. Schedule and resource constraints led to focusing analysis attention on a shorter list of 12 projects in 7 corridors.

The screening mechanism involved:

1. Considering how well the proposal conformed to the evaluation criteria described in Section 2.0. Most of the proposals appeared to meet the intent of the criteria.
2. Considering how “ready” the projects were in the development process. Those that were not that far along were deferred from consideration in this report.

The fact that a project was not on this shorter list does not mean that it may not be a viable toll project in the future. The shorter list of potential tolling applications evaluated in this report is shown in Table 3.1 and discussed in more detail in the remainder of this section. Table 3.2 lists the projects that were not evaluated in this report, but may be appropriate for consideration in the future. Short summaries of these additional projects are provided in Appendix A.

Table 3.1 Tolling Applications Evaluated in this Report

Tolling Application	Type	Objective
<i>Central Puget Sound Region</i>		
1. Lake Washington Corridor:		
1a. SR 520 Bridge Replacement Project	Toll Bridge	Revenue to build project.
1b. I-90/SR 520 Corridor Tolling	Toll SR 520 and I-90 corridors	Revenue to build project.
1c. Urban Partnership Agreement Proposal/Lake Washington Corridor Management Project (I-5 to I-405)	Toll SR 520 Corridor	Traffic management and revenue.
1d. I-90: I-5 to I-405	Convert planned R8A HOV to HOT	Traffic management.
1e. I-90: I-405 to Issaquah	Convert HOV to HOT lane	Traffic management.

Table 3.1 Tolling Applications Evaluated in this Report (continued)

Tolling Application	Type	Objective
2. I-5 Corridor – Central Puget Sound:		
2a. I-5 Pavement Reconstruction and Bottleneck Improvement Projects	Toll I-5: Tukwila to Northgate	Revenue to pay for improvement and traffic management.
2b. I-5 System HOV to HOT Lane Conversion	Convert HOV to HOT lanes	Traffic management.
2c. Westside Corridor	New freeway parallel to I-5	Revenue for a new freeway.
2d. Alaskan Way Viaduct	Several options: area toll or toll viaduct replacement	Revenue for highway infrastructure and/or traffic management and transit.
3. I-405/SR 167 Corridor:		
3a. I-405 North	Express toll lanes	Traffic management and transit enhancement plus revenue for highway infrastructure.
3b. Eastside Express Toll Lanes: I-405/SR 167	Regional system of toll lanes	Traffic management and transit enhancement plus revenue for highway infrastructure.
3c. I-405/SR 167/SR 512 Express Lane Beltway	Regional system of toll lanes	Traffic management and transit enhancement plus revenue for highway infrastructure.
<i>Outside of Central Puget Sound Region</i>		
4. I-5 in Lewis County	Toll I-5	Revenue for corridor improvements.
5. SR 395 North Spokane Corridor	Toll new corridor	Revenue for new corridor.
6. Columbia River Crossing	Toll bridge	Revenue to build bridge; potential for traffic management.
7. I-90 Snoqualmie Pass East and I-90 Snoqualmie Pass East – Hyak to Keechelus Dam	Toll I-90	Revenue for pass improvements.

Table 3.2 Tolling Applications Not Evaluated in this Report, but Potentially Appropriate for Future Consideration

Tolling Application	Type	Objective
<i>Central Puget Sound Region</i>		
1. U.S. 2 Corridor		
1a. U.S. 2 Trestle	Toll trestle	Revenue
1b. U.S. 2 Corridor	Toll Corridor	Revenue
2. Proposed New Puget Sound Limited Access Highways		
2a. SR 167 – Tacoma to Edgewood New Freeway Construction	Toll new freeway	Revenue
2b. SR 704 Cross Base Highway	Toll new highway corridor	Revenue
2c. SR 509 Freight Congestion Relief Project	Toll new highway corridor	Revenue
3. Regional System Tolling		
3a. Convert all Existing and Future Central Puget Sound HOV lanes to HOT lanes	System HOV to HOT conversion	Traffic management and revenue generation for project improvements.
3b. Toll all Central Puget Sound Freeways	Regional tolling	Revenue for improvements and traffic management.
3c. Toll all Central Puget Sound Freeways and Arterials	Regional tolling	Revenue for improvements and traffic management.
<i>Outside of Central Puget Sound Region</i>		
4. N. Wenatchee Columbia River Third Bridge Crossing	Toll Bridge	Revenue
5. I-5 Improvement Projects		
5a. I-5 Skagit County	Toll I-5	Revenue
5b. I-5 Whatcom County	Toll I-5	Revenue
6. SR 395 North Spokane Corridor	Toll new corridor	Revenue

■ 3.1 Toll Lake Washington Corridor

The Lake Washington Corridor of SR 520 and I-90 are severely congested and represent a growing challenge to mobility in the Central Puget Sound Region. There are numerous proposed improvements in the corridor under development and under study, and these proposals are not necessarily consistent with one another.

Toll SR 520 Bridge Replacement Project

Toll the SR 520 Bridge Replacement to Fund the Project

SR 520 across Lake Washington is functionally obsolete, meaning that it has inadequate capacity to handle growing traffic demands, as well as substandard road geometry. In addition, the existing bridge is not seismically sound. WSDOT has been evaluating alternatives and funding options for this project for several years. The preferred alternative would replace the existing two-lane structure with a new seismically sound six-lane facility. The new bridge would have two general purpose lanes and one HOV lane in each direction, full shoulders, and a bicycle and pedestrian path. Improvements to approach structures as well as on-and-off ramps and segments of SR 520 on either end of the lake also would be included.

Financial planning for the bridge undertaken to date has assumed that tolling would provide between \$700 million to \$1.2 billion in funding for the SR 520 Bridge Replacement project.

The project currently is undergoing a Supplementary EIS. A Finance Plan also is underway, and is expected to be completed in December 2007.

I-90/SR 520 Corridor Tolling (Toll SR 520 and I-90 Corridors)

Toll the SR 520 Bridge Replacement and I-90 to Fund the SR 520 Project

The SR 520 Bridge Replacement project also might consider tolling both the I-90 and the SR 520 bridges in order to generate additional revenue for the SR 520 bridge replacement, assist in managing trans-lake traffic, and potentially address possible geographic equity issues.

Lake Washington Urban Partnership (Toll SR 520 Corridor plus Active Traffic Management, Transit, and Telework)

Improve Traffic Flow across Lake Washington and Generate Revenue to Contribute to the Cost of the Improvements

The Lake Washington Urban Partnership is a coalition comprised of the Washington State Department of Transportation (WSDOT), the Puget Sound Regional Council (PSRC), and King County. The Lake Washington Urban Partnership has proposed a project to the Federal Highway Administration to employ variable-priced tolling to manage traffic congestion on the existing Lake Washington SR 520 Corridor. The Lake Washington Urban Partnership also would apply active traffic management strategies on the SR 520 and I-90 corridors, as well as implementation of enhanced transit and transportation demand management on these corridors. The SR 520/Lake Washington Corridor connects I-5 and I-405

via the Evergreen Point Floating Bridge across Lake Washington and is one of the most congested corridors in the Central Puget Sound region.

The toll rates on the SR 520 Corridor would vary by time of day and would be implemented prior to construction of a new bridge. Assuming that legislative and other approvals are secured by 2009, tolling of the Lake Washington SR 520 Corridor will be in place by late 2009.

The Lake Washington Urban Partnership currently is engaged in Phase I planning and early design efforts. Legislative authorization for the project also is being sought, with tolling policy expected to be defined during the 2008 Washington Legislative session (January to mid-March) and full project authorization expected during the 2009 legislative session.

I-90 Corridor - HOV to HOT Lane Conversion

Traffic Management in the I-90 Corridor across Lake Washington

There are two potential HOT Lane projects on the I-90 Corridor:

1. **I-90: I-5 to I-405 (Convert existing HOV lanes to HOT lanes between I-5 and I-405)** - WSDOT and Sound Transit have been planning improvements to I-90 across Lake Washington. The current preferred alternative is referred to as R-8A. This involves adding a single HOV lane in each direction to the outer roadway between Seattle and Bellevue, as well as new HOV on-and-off ramps at Mercer Island and improved HOV access at Bellevue Way. The result of this improvement will be three HOV lanes in the peak direction and a single HOV in the off-peak direction across Lake Washington. The HOT lane conversion could be extended east to Issaquah.
2. **I-90: I-405 to Issaquah (Convert HOV lane to HOT lane)** - This project will convert the existing HOV lanes on I-90 to HOT lanes from I-405 to Issaquah.

Table 3.3 Consistency of Lake Washington Corridor Projects with Policy 1
Overall Direction

Policy	Consistency
<i>Short Term</i>	
Accelerate implementation of high-cost/high-need projects.	SR 520 was specifically named as an example of a project that fits this criterion in the Comprehensive Tolling Study. It is clearly a high-cost/high-need project. All of the revenue-oriented options in this corridor would be consistent with this policy.
Use Price Differentials as appropriate to make most effective use of the system.	Price differentials can potentially be part of any solution in this corridor, and are vital to some of the solutions.
Convert HOV lanes to tolled express lanes.	The proposal to convert HOV capacity to HOT capacity on I-90 from Seattle or Bellevue to Issaquah would be consistent with this policy.

Table 3.3 Consistency of Lake Washington Corridor Projects with Policy 1
Overall Direction (continued)

Policy	Consistency
<i>Medium Term</i>	
Consider potential for building additional capacity as tolled express lanes through more extensive study of long-term costs and benefits.	The I-90 proposals consider this option.
Consider broader use of tolling to optimize system performance.	Variable pricing to optimize system performance can be incorporated into most of the solutions in the Lake Washington Corridor.
<i>Long Term</i>	
Consider more extensive use of tolls.	Any of the tolling options in this corridor could be a stepping stone to more extensive use of tolls, unless the bonded indebtedness of a project, such as the SR 520 bridge, places binding constraints on the ability to use revenue for other projects or an integrated regional system.

Table 3.4 Consistency of Lake Washington Corridor Projects with Policy 2
When to Use Tolling

Policy	Consistency
Contribute to a significant portion of the cost of a project that cannot be funded solely with existing sources.	Preliminary estimates indicate that SR 520 tolls alone are not adequate to fully fund the proposed SR 520 Corridor improvements; however, they could be expected to fund a “significant portion.” Options involving tolling both SR 520 and I-90 across Lake Washington would yield a larger portion. The HOV to HOT conversion concepts are less about revenue for project development than about optimizing the transportation system. It is likely that these could cover their operating costs, although this should be studied to make sure.
Optimize system performance.	Any of the options could be configured to contribute to improved system performance.
Not have significant adverse impacts through diversion of traffic to other routes.	Depending on how tolling is applied in some or all of this corridor, there could be adverse impacts. This would need to be estimated through further study.

The challenge in the Lake Washington corridor is that there are numerous proposals, all with merit, all with their own constituency, all controversial in some way, none with adequate funds, and none with a resounding mandate. As described in Tolling Study 1, tolling major new bridges has long had historical precedent in Washington. Tolling a major bridge corridor improvement now has a precedent on the Tacoma Narrows Bridge.

It would be entirely consistent with past policy to have the SR 520 bridge tolled to cover a significant portion of its capital cost.

The fiscal realities, especially with the recent demise of the RTID election, are that tolling SR 520 alone is not enough to pay for a wider replacement bridge, which leads to a discussion of tolling both crossings. Tolling both crossings would generate more money, but there is no precedent for tolling both bridges in a corridor to pay for improvements on one facility. And there are interesting opportunities to implement congestion pricing on SR 520, as proposed in the Urban Partnership concept, or even on both bridges.

The defeat of the RTID ballot measure provides a valuable opportunity to step back and study the technical merits of the various proposals in the Lake Washington corridor, and possibly in connection with I-5 and I-405 to address a comprehensive solution to the core transportation system in King County. Most people would likely agree that *some* form of tolling would be appropriate in this corridor, and should be advanced for further study. However, the size and scope of the study needed would be significantly outside of the schedule and resources of Tolling Study 2. We, therefore, suggest that this corridor not be evaluated any more in Tolling Study 2, but that it should be recommended as a high priority in the final report of Tolling Study 2.

■ 3.2 Toll I-5 Corridor - Central Puget Sound

The I-5 Corridor is the main freight and passenger corridor from Canada to Mexico. In the Central Puget Sound region, it is also a main north-south commuter route as well as a key artery for important freight and deliveries. It has become increasingly congested at many times of the day, and such congestion is expected to increase over time. As Washington State and the region look to the future for solutions to issues in the I-5 Corridor, there are many opportunities where tolling or pricing could play a role.

I-5 Pavement Reconstruction and Bottleneck Improvement Projects

Toll I-5 - Tukwila-to-Northgate to Generate Revenue to Fund an Extensive Rehabilitation and Improvement Project and Traffic Management through Pricing

WSDOT is planning to replace 14 miles of concrete on I-5 from Tukwila through downtown Seattle to Northgate. The projects will be coordinated with other transportation projects in the area, including the Alaskan Way Viaduct project, the SR 520 Bridge Replacement project, Light Rail, and I-405 and SR 509 improvements. The project is in the planning stage.

Tolling could provide some or all of the revenue for this project. In addition, tolling variations by time of day could be used to manage traffic demand on the freeway.

There are no formal tolling proposals on the table for I-5. While tolling existing Interstate highways has historically been prohibited, there are recent Federal initiatives that are encouraging states to look at tolls as a potential means to fund expensive reconstruction projects. Tolling I-5 would need to carefully consider not only the revenue potential of such a concept, but also the impacts on traffic patterns around the Central Puget Sound region.

I-5 System HOV to HOT Lane Conversion

Conversion of I-5 HOV Lanes to HOT Lanes to Optimize Traffic Flow

I-5 has HOV lanes from the King/Pierce County line north to I-90, and from Seattle-Northgate to the SR 526 interchange in South Everett. The I-5 Everett HOV project will extend this HOV lane from the SR 526 interchange to the I-5/U.S. 2 interchange in Everett. HOT lanes are one solution to providing travel-time reliability for high-value trips, and conversion of the I-5 HOV lanes to HOT lanes has been discussed. Portions of I-5 HOV lanes are congested; WSDOT HOV policy requires the consideration of changing the definition of HOV from 2+ to 3+. At that time, it is likely that the HOV lanes will appear to be underutilized, and HOT lanes would be an effective way to make better use of the capacity.

This idea has not been formally proposed, but has been looked at the regional level as part of the Congestion Relief Analysis 1 and 2. A subset component of this project could include conversion of the I-5 Express lanes from Downtown Seattle to Northgate into Express Toll lanes.

Alaskan Way Viaduct

Several Options – Areawide Toll to Support Surface Alternative or Toll the Viaduct Replacement Itself

The Alaskan Way Viaduct parallels I-5 and is structurally unsound. There are several options for replacing it, including a replacement in kind, a tunnel, and an at-grade facility. WSDOT studied the feasibility of tolling the replacement and tunnel options, and found that it generated only fraction of the revenue needed, and that it would divert an unacceptable amount of traffic onto City of Seattle streets and onto I-5. A surface alternative would be much less expensive, and could be paid for with existing funds, but there still may be reasons to include the Viaduct in an I-5 Corridor tolling package.

A system of tolling both the Alaskan Way Viaduct and I-5 from Tukwila to Northgate (18 miles) was evaluated in Tolling Study 1. Again, the Alaskan Way Viaduct portion of the revenue was relatively small, but the I-5 portion generated quite a bit. As with tolling I-5 alone, tolling both facilities raises the issue of what happens to the complementary street system.

Since the Alaskan Way Viaduct serves more of a local access role to Seattle rather than a through-traffic role, another idea that has been discussed is the use of an areawide toll in some portion of Seattle to support whatever improvement is preferred in the Alaskan Way Viaduct corridor.

Westside Corridor

Toll a Highway Corridor to Generate Revenue for Construction, and Potentially as an Aid to Traffic Management

This project would involve an extension of SR 509 past SeaTac Airport to I-5 in South King County (6 miles). When combined with the existing SR 509 freeway from SeaTac south to the 1st Avenue South Bridge (another 5.8 miles), this would create a continuous 11.8-mile parallel alternative to I-5 in the area south of Seattle. Tolls may be a way to partially fund the project, or, if tolls are used in an I-5 Corridor concept, to be part of that concept.

Consistency with Tolling Policies

The list of potential projects in this corridor is considerable, and the potential use of tolling would best be considered in a broad system context when considering different approaches. Clearly, tolling one element of the system would cause impacts on other elements of the system. A comprehensive decision-approach to tolling or pricing in this corridor, as well as connections to Lake Washington Crossings as well as the I-405/SR 167 Corridor would be appropriate.

Table 3.5 Consistency of I-5 Central Puget Sound Corridor Projects with Policy 1
Overall Direction

Policy	Consistency
Short Term	
Accelerate implementation of high-cost/high-need projects.	Improvements to I-5 are high-cost and high-need, as are improvements to the Alaskan Way Viaduct.
Use Price Differentials as appropriate to make most effective use of the system.	Price differentials can potentially be part of any solution in this corridor, and are vital to some of the solutions.
Convert HOV lanes to tolled express lanes.	The proposal to convert HOV capacity to HOT capacity on I-5 would be consistent with this policy.
Medium Term	
Consider potential for building additional capacity as tolled express lanes through more extensive study of long-term costs and benefits.	None of the I-5 Corridor proposals suggests this. The HOT lane concepts are all conversions.
Consider broader use of tolling to optimize system performance.	Variable pricing to optimize system performance can be incorporated into most of the solutions in the I-5 Corridor.
Long Term	
Consider more extensive use of tolls.	Any of the tolling options in this corridor could be a stepping stone to more extensive use of tolls.

Table 3.6 Consistency of I-5 Central Puget Sound Corridor Projects with Policy 2
When to Use Tolling

Policy	Consistency
Contribute to a significant portion of the cost of a project that cannot be funded solely with existing sources.	<p>Tolling the existing mainline of I-5 through the most congested part of Central Puget sound could generate a significant amount of revenue that could certainly contribute to, and potentially entirely pay for the entire reconstruction effort, depending on the toll level. Tolling a system of facilities in the I-5 Corridor, including Alaskan Way Viaduct and SR 509 could increase the amount of revenue, as well as represent a system perspective on tolling the corridor.</p> <p>The HOV to HOT conversion concepts are less about revenue for project development than about optimizing the transportation system. It is likely that these could cover their operating costs, although this should be studied to make sure.</p>
Optimize system performance.	Any of the options could be configured to contribute to improved system performance.
Not have significant adverse impacts through diversion of traffic to other routes.	Tolling will result in diversion of traffic from the tolled facilities, and some will result in time shifting if time-of-day pricing is used. Nontolled, parallel facilities may be congested already, and prone to adverse impacts. The details of any tolling concept in the I-5 Corridor would need to seriously consider these potential effects.

■ 3.3 I-405/SR 167 Corridor HOV/Express Toll Lanes

I-405 and SR 167 are the eastern component of the main north-south corridor through the Central Puget Sound region. These highways serve the growing Eastside communities, are heavily congested, and congestion is growing quickly. The existing HOV lane on SR 167 from 15th Avenue southwest in Auburn and the I-405 interchange in Renton is in the process of being converted to an HOT lane as a four-year demonstration project, with an anticipated opening in 2008.

Several other projects in the I-405 Corridor are under study or development, some which have the potential to be developed as HOV/Express Toll Lanes. Note that the proposals in this corridor involve construction of new lanes, which is different from the I-5 Corridor HOV/Express Toll Lane concepts discussed earlier that involves conversion of existing HOV lanes to HOV/Express Toll Lanes.

All of the Express Toll Lane planning in the I-405/SR 167 Corridor assumes that HOV 2+ vehicles will pass for free, under the existing HOV operating practice. Several studies done by WSDOT over the years have shown that some segments of the existing HOV lane system are exceeding the operating policy of typical speeds of 45 miles per hour in the peak periods. More segments, including those in the I-405 Corridor are expected to reach this threshold as well. This issue has consequences for the ability to operate HOV 2+ managed lanes of all kinds, as well as implications for the effectiveness of HOT lanes when HOV 2+ vehicles can travel for free.

Also, further development of the planned projects in the I-405 relied to a considerable extent on the passage of Proposition 1 in the Central Puget Sound region. Since this proposition did not pass, projects in this corridor all have a significant funding gap. WSDOT is in the process of revisiting some of its planning assumptions for projects in this corridor to address these issues.

I-405 North Express Toll Lanes

Express Toll Lanes to Improve the Efficiency of the Highway and Generate Revenue for Construction

This project would involve improvements to I-405 North extending from SR 520 in Bellevue to I-5 in Lynnwood, a distance of 14 miles currently funded by WSDOT. The express toll lane system would consist of adding a lane in each direction for the entire length, resulting in two express toll lanes in each direction extending from a point north of SR 520 to the SR 522 interchange in Bothell, and a single HOT lane in each direction continuing north from SR 522 to the I-5 Swamp Creek interchange. The project's largest cost is the braiding of two ramps that benefit the general purpose lanes, not the express toll lanes. An investment-grade traffic and revenue study has recently been completed by WSDOT for a HOT lane on I-405 with 2+ HOVs allowed for free. Under an operating policy with 2+ HOVs paying no tolls, WSDOT's studies show that expected toll revenue could cover the cost of building and operating the toll system, plus some extra. If HOV 3+ vehicles are allowed to use the lanes for free, WSDOT staff believes that most, if not all, of the construction costs could be funded with toll revenues. Studies of this scenario have not yet been done, however.

Eastside Express Toll Lanes - I-405/SR 167

Expand Planned Toll Lanes to a Complete System of Toll Lanes on the Eastside to Improve the Efficiency of the Highway and Provide Revenue from the Tolls

Given the ongoing express toll lane explorations on I-405 and SR 167, there has been interest in considering a complete system of express toll lanes for the entire corridor from Lynnwood to Sumner. An illustrative project was evaluated in Tolling Study 1, which would provide two HOV/express toll lanes in each direction along most of SR 167 and I-405. The SR 167 portion would add one lane in each direction from SR 410 in Sumner to the I-405 interchange in Renton, a distance of about 19 miles. On the I-405 portion, the

express toll lanes would extend from the SR 167 interchange north to SR 522 in Bothell, about 20 miles. The Tolling Study 1 analysis concluded that revenue generation would be low compared to the high capital costs of improvements, but that it should be adequate to cover the incremental cost of tolling. Since the toll lanes also contribute benefits in the form of time savings to travelers, this makes the express toll lanes a reasonable option to consider in this corridor, pending further detailed investigations. More recent studies done by WSDOT may indicate that the project costs can be covered by toll revenue.

I-405/SR 167/SR 512 Express Lane Beltway

Expand Planned Toll Lanes Further to a Complete System of Toll Lanes on the Eastside to Improve the Efficiency of the Highway and Generate Revenue for Construction

This project would merely continue the I-405/SR 167 express toll lanes from SR 167 at the SR 410 interchange in Sumner down to SR 512 in Pierce County up to the SR 512/I-5 interchange in south Tacoma.

Table 3.7 Consistency of I-405/SR 167 Corridor HOV/Express Toll Lanes with Policy 1
Overall Direction

Policy	Consistency
<i>Short Term</i>	
Accelerate implementation of high-cost/high-need projects.	Revenue would not be expected to be a significant portion of the cost of constructing these projects.
Use Price Differentials as appropriate to make most effective use of the system.	Price differentials would be part of any solution in this corridor, and are vital to some of the solutions.
Convert HOV lanes to tolled express lanes.	Entirely consistent.
<i>Medium Term</i>	
Consider potential for building additional capacity as tolled express lanes through more extensive study of long-term costs and benefits.	Entirely consistent.
Consider broader use of tolling to optimize system performance.	The HOV/Express Toll concept is potentially a stepping stone to a more comprehensive road pricing policy. All of the concepts in this corridor involve new lane construction, as well as direct ramp connectors, which are expensive. If the ultimate long-term objective is to move to more extensive use of tolling, potentially to the extent of replacing some or all of the gas tax, then consideration might be given to skipping the step of HOT lanes in favor of more comprehensive pricing strategies. This is an issue that would require further study.
<i>Long Term</i>	
Consider more extensive use of tolls.	See discussion immediately above.

Table 3.8 Consistency of I-405/SR 167 Corridor HOV/Express Toll Lanes with Policy 2
When to Use Tolling

Policy	Consistency
Contribute to a significant portion of the cost of a project that cannot be funded solely with existing sources.	Revenue would not be expected to be a significant portion of the cost of constructing these projects.
Optimize system performance.	Any of the options could be expected to improve system performance.
Not have significant adverse impacts through diversion of traffic to other routes.	All of these concepts would involve additional lanes, and conversion of existing HOV lanes to HOV/Express Toll Lanes. These should not cause added congestion over the do-nothing alternative, though study of particular circumstances, such as ramp connections should be done to make sure.

There are numerous opportunities in the Eastside corridor, and they are all very expensive. They all involve new lane construction. An effective HOV/Express Toll lane system may need direct connections at interchanges which will increase the cost. If these projects take 10 to 20 years to develop, it is reasonable to ask whether they will be obsolete by the time they are open.

■ 3.4 Toll I-5 in Lewis, Thurston, and Cowlitz Counties

Tolling an Existing Freeway to Pay for Expensive Capital Improvements

Tolling Study 1 contained an analysis of tolling portions of I-5 in Lewis County to pay for extensive improvements needed in the vicinity of Centralia and Chehalis. The analysis found that tolling an existing freeway can produce considerable revenue, especially when there are not many alternatives. Although some diversion of traffic from I-5 might occur, the diversion was likely to be for local trips, which might actually improve traffic operations on I-5.

The tolling concept in Tolling Study 1 involved two tolling locations, one at the north end of the corridor and another at the south, and that concept was estimated to be able to support about three quarters of a billion dollars in construction funds using conservative assumptions. A different tolling concept assuming all-electronic toll collection along the entire length of the corridor was evaluated in a sketch-level analysis. Such a system at 15 cents per mile might generate additional revenue of 25 percent. Similar concepts could be applied on I-5 in Skagit County and I-5 in Whatcom County and would support analysis of the potential of the I-5 Corridor of the Future concept.

Table 3.9 Consistency of Tolling I-5 in Lewis County with Policy 1
Overall Direction

Policy	Consistency
Short Term	
Accelerate implementation of high-cost/high-need projects.	Consistent.
Use Price Differentials as appropriate to make most effective use of the system.	Price differentials could be used, but this would not be the primary focus.
Convert HOV lanes to tolled express lanes.	Not applicable.
Medium Term	
Consider potential for building additional capacity as tolled express lanes through more extensive study of long-term costs and benefits.	Not applicable.
Consider broader use of tolling to optimize system performance.	A potential stepping stone to this concept.
Long Term	
Consider more extensive use of tolls.	A potential stepping stone to this concept.

Table 3.10 Consistency of Tolling I-5 in Lewis County with Policy 2
When to Use Tolling

Policy	Consistency
Contribute to a significant portion of the cost of a project that cannot be funded solely with existing sources.	Consistent.
Optimize system performance.	Pricing could be used to optimize system performance, although this would not be the primary motivation.
Not have significant adverse impacts through diversion of traffic to other routes.	The project involves adding lanes. The additional lanes should be effective at drawing traffic into the corridor from parallel routes. The tolls will encourage some drivers to use toll-free alternatives, which will make for more congestion on these alternatives than a nontolled condition, but probably not worse than a do-nothing condition. Removal of short local trips from the freeway also could improve freeway operations, resulting in an overall net benefit.

Tolling an existing freeway to pay for improvements and rehabilitation is a new idea that is gaining traction around the country. Missouri, Pennsylvania, Virginia, and Massachusetts are among the states where these ideas are gaining a serious hearing. With the expiration of SAFETEA-LU, the Federal role in the Interstate System is in question. Alternative approaches, such as tolls on existing highways for major improvements are a reasonable option to consider.

■ 3.5 Toll SR 395 North Spokane Corridor

Toll SR 395 to Generate Revenue to Build the Project

This project addresses the need for a major improvement to allow motorists and freight to move through metropolitan Spokane along the corridor from I-90 to U.S. 395 at Wandermere. The needs of the corridor are indicated by increasing congestion and other operational and safety issues on the existing street network. The project will provide a facility for balanced transportation, including park-and-ride lots to support transit and vanpooling operations, as well as an expanded and enhanced pedestrian/bicycle facility. Right-of-way also will be reserved for possible light rail use.

When completed, the North Spokane Corridor will be a 10.5-mile, 60-mile per hour, limited access highway with a direct connection to I-90 just west of the existing Thor/Freya Interchange. Other interchanges will be placed at locations such as Trent Avenue (SR 290), Wellesley Avenue, Francis/Freya Street, Parksmith Drive, U.S. 2, and U.S. 395 at Wandermere. This \$2.1 billion (in 2006 dollars) project will be developed in two major phases:

- **Phase 1** – Spokane River North to establish the corridor from the river to U.S. 395 at Wandermere; and
- **Phase 2** – Spokane River South to extend the corridor between I-90 and the Spokane River. Phase 2 also will include a Collector/Distributor (C/D) system (of six lanes) along I-90 between the Liberty Park and Sprague Avenue interchanges.

WSDOT Eastern Region conducted a preliminary feasibility assessment in March 2007 of whether the project might be appropriate to advance as a public-private partnership with tolling. The conclusion was that if tolls diverted 50 percent of the traffic, then the toll rate would have to be almost \$45 to pay for 100 percent of the project cost. Notwithstanding the fact that this is a purely hypothetical situation which could never occur (a \$45 toll would be likely to divert virtually ALL of the traffic from this 10-mile facility), it does imply that the project could probably support less than 10 percent of its capital cost with tolls.

Table 3.11 Consistency of Tolling SR 395 North Spokane Corridor with Policy 1
Overall Direction

Policy	Consistency
Short Term	
Accelerate implementation of high-cost/high-need projects.	A contribution of less than 10 percent of project cost is not likely to provide much project acceleration value.
Use Price Differentials as appropriate to make most effective use of the system.	Price differentials are unlikely to be viable in this corridor.
Convert HOV lanes to tolled express lanes.	Not applicable.
Medium Term	
Consider potential for building additional capacity as tolled express lanes through more extensive study of long-term costs and benefits.	Not applicable.
Consider broader use of tolling to optimize system performance.	If other roads in the vicinity were tolled, this could be applicable.
Long Term	
Consider more extensive use of tolls.	A potential stepping stone to this concept.

Table 3.12 Consistency of Tolling SR 395 North Spokane Corridor with Policy 2
When to Use Tolling

Policy	Consistency
Contribute to a significant portion of the cost of a project that cannot be funded solely with existing sources.	A contribution of less than 10 percent of project cost is not likely to be considered a significant portion.
Optimize system performance.	Probably not applicable in this corridor.
Not have significant adverse impacts through diversion of traffic to other routes.	The additional lanes should be effective at drawing traffic into the corridor from parallel routes. The tolls will encourage some drivers to use toll-free alternatives, which will make for more congestion on these alternatives than a non-tolled condition, but probably not worse than a do-nothing condition.

The high-cost and low-revenue productivity of this project make it an unsuitable candidate for further consideration.

■ 3.6 Columbia River Crossing

Toll River Crossing to Pay for Corridor Improvements

The Columbia River Crossing project is a bridge, transit, and highway improvement project for I-5 between Vancouver and Portland. It is cosponsored by the Oregon Department of Transportation and the Washington State Department of Transportation, and is working to address the congestion, mobility, and safety problems on I-5 between SR 500 in Vancouver and Columbia Boulevard in Portland. The following alternatives are being studied in the Draft EIS that is underway:

- Replacement bridge with bus rapid transit;
- Replacement bridge with light rail;
- Supplemental bridge with bus rapid transit;
- Supplemental bridge with light rail; and
- No-build.

As part of the Draft EIS process, several additional congestion-relief elements will be included in each of the “build” alternatives. Tolling is one of the concepts under consideration in the DEIS.

Table 3.13 Consistency of Tolling Columbia River Crossing with Policy 1
Overall Direction

Policy	Consistency
Short Term	
Accelerate implementation of high-cost/high-need projects.	Consistent.
Use Price Differentials as appropriate to make most effective use of the system.	Price differentials could be used to improve traffic flow in this corridor.
Convert HOV lanes to tolled express lanes.	Not applicable.
Medium Term	
Consider potential for building additional capacity as tolled express lanes through more extensive study of long-term costs and benefits.	Not applicable.
Consider broader use of tolling to optimize system performance.	This could be a stepping stone to broader tolling in the region.
Long Term	
Consider more extensive use of tolls.	A potential stepping stone to this concept.

Table 3.14 Consistency of Tolling Columbia River Crossing with Policy 2
When to Use Tolling

Policy	Consistency
Contribute to a significant portion of the cost of a project that cannot be funded solely with existing sources.	As a mature bridge crossing corridor, tolling it is likely to be able to generate a considerable amount of money that could be put toward the improvements.
Optimize system performance.	Tolls could be used to optimize performance.
Not have significant adverse impacts through diversion of traffic to other routes.	If a capacity increase is involved, the bridge will likely draw traffic from parallel routes, or allow pent up cross-river demand to occur. Tolls may suppress some of this, but the net result is likely to be an improvement over current conditions.

Tolling the Columbia River Crossing would be entirely consistent with the precedent set by tolling improvements to the Tacoma Narrows Bridge, and tolling the SR 520 Corridor (if that project is successful at moving forward). Since there is an extensive ongoing study, we would not perform any additional new analysis of this potential tolling project.

■ 3.7 Toll I-90 Snoqualmie Pass East and I-90 – Snoqualmie Pass East – Hyak to Keechelus Dam

Toll the Existing I-90 Corridor across Snoqualmie Pass to Pay for Expensive Improvements

This 15-mile project will improve I-90 by providing a safer, more efficient six-lane freeway from Hyak to Easton. Closures due to avalanches and rockfall hazards will be minimized by using a combination of solutions such as bridges, snow sheds, retaining walls, and other engineering measures. New pavement designed to last 40 years will provide a smoother ride. The public also should enjoy a safer drive due to stabilized slopes and a realigned roadway. Wildlife habitat on either side of I-90 will be reconnected with the installation of new bridges and culverts. The increased habitat connectivity will allow wildlife to cross I-90 safely. Overall, I-90 will be a safer, more reliable route for travel between western and eastern Washington.

A significant improvement project on Snoqualmie Pass was funded as part of the TPA program. However, improvement needs are well in excess of these amounts.

The high cost of improvements in this corridor is similar to the cost of major bridge improvements, such as Tacoma Narrows or SR 520, leading to the suggestion that tolls might be an effective way to provide funds to accelerate construction of the desired improvements. A sketch-level tolling analysis conducted as part of Tolling Study 1 found that one-half billion dollars could be generated for project construction with a toll rate of \$3 (in 2000 dollars) with relatively little diversion due to the lack of alternatives. Higher or lower amounts could be generated by higher or lower tolls.

This project has clear potential. In attitude surveys done at the end of Tolling Study 1, there was a measure of support for this idea. No additional work would be needed as part of Tolling Study 2, but a recommendation could be advanced to the legislature based on the work in Tolling Study 1.

Table 3.15 Consistency of Tolling I-90 Snoqualmie Pass with Policy 1
Overall Direction

Policy	Consistency
Short Term	
Accelerate implementation of high-cost/high-need projects.	Consistent.
Use Price Differentials as appropriate to make most effective use of the system.	Probably not applicable in this corridor.
Convert HOV lanes to tolled express lanes.	Not applicable.
Medium Term	
Consider potential for building additional capacity as tolled express lanes through more extensive study of long-term costs and benefits.	Not applicable.
Consider broader use of tolling to optimize system performance.	This could be a stepping stone to broader tolling in the region.
Long Term	
Consider more extensive use of tolls.	A potential stepping stone to this concept.

**Table 3.16 Consistency of Tolling I-90 Snoqualmie Pass with Policy 2
When to Use Tolling**

Policy	Consistency
Contribute to a significant portion of the cost of a project that cannot be funded solely with existing sources.	Consistent.
Optimize system performance.	Probably not applicable, though toll differentials to manage traffic on busy weekend periods could be viable.
Not have significant adverse impacts through diversion of traffic to other routes.	If toll rates are kept to a nominal level, diversion impacts should be minimal.

4.0 Recommendations

The Commission's Tolling Study 1 was published in September 2006. The study featured eight policy recommendations related to if, where, when, and how to toll in Washington. Those recommendations are reproduced in Section 1.0 of this report.

A lot has happened in Washington and around the United States since Tolling Study 1 was completed:

- The second span of the Tacoma Narrows Bridge opened to traffic, becoming the first corridor in the nation to put tolls on a previously free corridor. An unprecedented percentage of drivers used the Good to Go! electronic toll collection system, approaching 70 percent of toll paying traffic. Traffic congestion in the SR 16 Corridor has all but disappeared.
- Increasing discussion nationally of tolling existing Interstate Highways.
- The collapse of the I-35W Bridge in Minneapolis underscored the dire condition of the nation's transportation infrastructure.
- The Federal government prodded states and regions to be aggressive about considering congestion pricing proposals that involved tolling existing roads through its Urban Partnership Agreement program. They received over 20 applications, and agreed to fund 5 of them, pending further action on the part of the grantees. A collaboration between WSDOT, Puget Sound Regional Council, and King County submitted a successful application that included tolling of the SR 520 bridge in advance of construction of a new bridge to demonstrate congestion pricing. New York City also submitted a bold proposal to price all traffic entering midtown and lower Manhattan.
- Regional Proposition 1 in the Puget Sound Region failed to pass, leaving a big funding gap in many Puget Sound region projects.
- The National Surface Transportation Policy and Revenue Study Commission issued its report that highlighted nationwide transportation system funding gaps, the need for new and improved revenue mechanisms, and the opportunities for tolling, congestion pricing, and public private partnerships, including tolling of existing Interstate highways.²

² Report of the National Surface Transportation Policy and Revenue Study Commission, Transportation for Tomorrow, December 2007. Available at: <http://www.transportationfortomorrow.org/>.

The Commission's recommendations from September 2006 pushed the envelope of what was considered comfortable public policy at the time. Ideas such as pricing to improve transportation system efficiency, use of toll revenue beyond the limited boundaries of the tolled highway or bridge, and extending the duration of toll collection beyond the need to pay off initial debt were not well understood or accepted by the general public, as evidenced by the attitude research that accompanied the Commission's report. Recent events, however, have caught up with the Commission's viewpoint, and demonstrate that the Commission's original eight policy recommendations are still as valid as ever.

Section 3.0 of this report documented how the Commission considered how its prior recommendations could be applied to the specific challenges of developing and improving Washington's transportation system today on specific project opportunities. In reviewing these potential tolling applications and the extent to which decisions on one project or set of projects influences decisions on other projects, the Commission developed two types of recommendations for this interim report:

1. Guiding principles, to be applied in general terms as WSDOT, PSRC, individual counties, or cities move forward with decisions related to tolling.
2. An illustrative example of how tolling might be phased in the State for use in advancing the dialogue at integrating tolling into the transportation project development process.

■ 4.1 Guiding Principles

In addition to the eight policies from Tolling Study 1 reiterated in Section 1.0, the Commission recommends the following guiding principles moving forward, stated in no particular order of priority:

1. **Consider System Impacts.** In authorizing tolling projects, the Legislature should consider the impacts of tolling on the entire transportation system and not just focus on the specific segment of highway they want to toll. The decisions of today should not create stumbling blocks for future decisions. This is consistent with proposed Tolling Policy #2 from 2006, and is even more pronounced as a concern given the "intricate issues" discussed in Section 1.4.
2. **Pre-Construction Tolling.** Pre-construction tolling was not even a topic of discussion during Tolling Study 1, because it has never been tried before, and the conventional wisdom was that it would have difficulty gaining public or legislative support. However, putting tolls on complex mega-projects before the improvements are completed could have benefits to the public and should be seriously considered. The normal public reaction might be to oppose such an idea, because they could not use the project for which they were paying. However, if tolling starts during the construction period, the overall project cost could be reduced substantially by avoiding interest charges during the construction period, meaning that drivers will

pay less over the long term. Another benefit is it will help smooth traffic flow and improve operational efficiency before capital investment can be made.

Pre-construction tolling is an important feature of the Urban Partnership proposal submitted by WSDOT, PSRC, and King County to the Federal government. Since that proposal requires tolling to be in place by September 2009, a decision on whether pre-construction tolling is an acceptable policy choice is needed soon. If pre-construction tolling is used on the SR 520 project, it is reasonable to ask whether it might be appropriate on other major projects as well.

3. **Federal Waiver for I-90 Tolling.** The State should seek a Federal waiver for potential tolling applications on I-90, such as tolling the I-90 bridge over Lake Washington or tolling Snoqualmie Pass as soon as possible so that facility is ready to move forward as soon as the State is ready to do so. Both of these applications are consistent with the Commission's 2006 proposed tolling policies.
4. **Duration of Toll Collection.** Consistent with the Commission's original recommendations, tolls on projects should stay on over the life of the facility to ensure adequate funding is available to cover the maintenance and rehabilitation needs of the facility, and to continue serving as a traffic management tool to optimize traffic flows.
5. **Public Awareness and Acceptance.** Work done by the Commission and more recently by others has highlighted the fact that the public does not have a good understanding of the nuances of the tolling policies that are being proposed. Public outreach and education needs to be an ongoing effort throughout the State to enable these important financing and traffic management tools to be used effectively.
6. **Effectively Engage the Private Sector.** It is possible that private sector involvement can create the right incentives for cost-effective delivery of major projects through the use of alternative contract vehicles such as alliance contracting, design-build, design-build-operate-maintain, and design-build-finance-operate maintain. The State should consider these approaches that have been effectively used elsewhere in the United States and around the world, but also should be cautious that the public's interest is adequately protected and advanced.

■ 4.2 Illustrative Phasing Concepts

Tolling Study 1 suggested that the use of tolling in Washington would evolve over time, and identified the kinds of applications that might be appropriate in the short, medium, and long term (refer back to Page 1-1 for the proposed policy). This section identifies the specific project opportunities that might exist in each of these three timeframes, along with some of the issues that need to be addressed.

It is important to emphasize that these are illustrative phasing concepts aimed at indicating a potential path towards incorporating tolling into the transportation system of the State. Other phasing options are clearly possible, and these will likely evolve over time.

Projects and systems that are in operation right now or under development or expected to be open soon are:

1. Washington State Ferries (in operation).
2. Tacoma Narrows Bridge (recently opened).
3. SR 167 HOT Lanes (under development, anticipated opening spring 2008).

Opportunities that might be accomplished in the short term (within 10 years), medium term (within 20 years), and long term (beyond 20 years) are described in Tables 4.1, 4.2, and 4.3, respectively.

Table 4.1 Short-Term Opportunities
Within 10 Years

Project	Issues
<p>SR 520 and I-90. Toll SR 520 from I-5 to I-405 in accord with UPA; time-of-day tolling to optimize flow, plus active traffic management on both SR 520 and I-90. Consider tolling I-90 for additional revenue, as well as to balance traffic management objectives.</p>	<p>The recent Financial Plan prepared by WSDOT and presented by Governor Gregoire calls for tolling to be placed on SR 520 in advance of the project improvement work to reduce the amount of the toll. It also calls for tolling to be used for traffic management, as well as consideration of tolling on I-90 as well. I-90 tolling would require Federal permission. The Commission agrees with these steps.</p>
<p>I-405 North Express Toll Lanes</p>	<p>This project has been under development for awhile, but there are still funding gaps. There are new issues emerging to address concerns about HOV 2 traffic congesting the new lanes, even without the use of tolling the express lanes. Continued study of the best solutions in the corridor and how these solutions might fit into a long-term vision for tolling in the corridor and region are desirable so that WSDOT can move ahead with needed improvements.</p>
<p>Toll I-90 over Snoqualmie Pass</p>	<p>Tolling this important mountain pass could accelerate the development of much needed improvements. If advance tolling is used in this corridor, improvements could be done even sooner. It would not be difficult technically to put tolling in this corridor. Further study of tolling in this corridor is warranted. As with tolling I-90 across Lake Washington, Federal permission would be needed.</p>
<p>Toll I-5 in Lewis, Thurston, Cowlitz Counties</p>	<p>As with the Snoqualmie Pass project, tolling this corridor could be done quickly, especially if tolling was done in advance of construction. Additional study work would identify specific tolling options and issues. Federal permission would be needed to toll this Interstate highway.</p>
<p>I-405 Express Toll Lanes</p>	<p>Such a project would involve construction of additional lanes on all of I-405 and making them express toll lanes. WSDOT currently is evaluating options in this corridor, considering the lack of funding left by the defeat of the RTID initiative.</p>

Table 4.2 Medium-Term Opportunities
Within 20 Years

Project	Issues
Toll Columbia River Crossings	A major bridge project such as this is a natural candidate for tolling. The environmental study timeline for this project may dictate the medium-term horizon rather than the short-term horizon, although advance tolling could push it into the short-term category.
Toll I-5 in Skagit and Whatcom Counties	Both of these projects are similar in scale and scope to tolling I-5 in Lewis, Thurston, and Cowlitz counties, but not as far along in the development process. These could be appropriate the medium-term category if the State wanted to use I-5 in Lewis, Thurston, and Cowlitz counties as a demonstration.

Table 4.3 Long-Term Opportunities
Beyond 20 Years

Project	Issues
Comprehensive tolling in Central Puget Sound region by time of day, combined with active traffic management, increased transit service	Details as to whether this would be: 1) all freeways; 2) all freeways plus arterials; 3) all freeways, arterials, collectors; or 4) all roads.
Comprehensive statewide tolling to replace the motor fuel tax.	Similar discussions are being held at the national level.

■ 4.3 Next Steps

There continues to be considerable discussion about the opportunities for tolling throughout the State, and in the Puget Sound region in particular. In preparation for the 2009 legislative session, the Commission has the following potential avenues for additional study:

1. Further investigation into the dollars and cents of pre-construction tolling.
2. Evaluation of how the private sector might be used to create more value for money through performance-based contracting approaches or other types of public-private partnerships.
3. Investigation into how other parts of the country have addressed the issue of using revenue that might be collected on one facility on other parts of the transportation system.
4. More in-depth feasibility studies of particular projects that currently are not being studied by WSDOT or others, such as the Snoqualmie Pass or I-5 in Lewis, Thurston, and Cowlitz counties.
5. Further investigation into opportunities for truck-only toll lanes or other freight-oriented projects, such as paying for freight improvements with container fees.
6. If the Governor's Request Bill related to the SR 520 Bridge Replacement and HOV Project is enacted, the Commission should work with WSDOT to find ways to accelerate resolution of the policy issues surrounding the tolling of that project.

Appendix A

Screening Analysis of Projects Not Studied in this Report

At the beginning of Tolling Study 2, the Commission, WSDOT staff, and the consultant team developed a long list of potential tolling projects in the State. The project list consisted of active proposals, proposals that have had some study or discussion, and other opportunities. Schedule and resource constraints led to focusing analysis attention on a shorter list of projects.

The screening mechanism involved:

1. Considering how well the proposal conformed to the evaluation criteria described in Section 2.0. Most of the proposals appeared to meet the intent of the criteria.
2. Considering how “ready” the projects were in the development process. Those that were not that far along were deferred from consideration in this report, but are not necessarily bad tolling projects.

The projects that were considered, but not included in this report are described below.

■ Project Opportunities in Central Puget Sound

U.S. 2 Corridor

The U.S. 2 Corridor starts at the I-5 interchange in Everett/Snohomish County and travels east via Stevens Pass to connect with Wenatchee and other locations in Eastern Washington. The WSDOT has completed a Corridor study of U.S. 2 from Monroe to Stevens Pass with a list of safety deficiencies and proposed improvement projects to improve safety, operations, and mobility. The U.S. 2 Trestle provides a connection from the I-5 interchange in Everett across the Ebey Slough to the SR 9 interchange, approximately two miles.

U.S. 2 Trestle. (Toll Trestle) The project would relieve congestion and improve safety at one of the worst chokepoints in Snohomish County. The U.S. 2 Trestle is the major access

point to I-5 and Everett for residents in the designated urban growth areas of Lake Stevens, Snohomish, and Monroe. RTID funding is proposed to:

- Modify the U.S. 2/SR 204 interchange to add capacity to all on-and-off ramps;
- Improve westbound mobility; and
- Improve Everett arterial access at I-5/U.S. 2 to increase mobility in downtown Everett for general use and transit access.

This project would complement improvements already scheduled for the on-and-off ramps that connect U.S. 2 to I-5, and would reduce traffic congestion and improve safety for users from I-5 and U.S. 2.

Tolling Objective: Revenue

U.S. 2 Corridor. (Toll Corridor) The U.S. 2 Route Development Plan (RDP) is a list of 56 safety and congestion relief improvement projects created by WSDOT with the help of local communities along a 47-mile stretch of U.S. 2 between Snohomish and Skykomish. The intent is for local jurisdictions to use the list of projects to solicit funding for construction.

The tolling concept is to toll some or the entire corridor to fund safety improvements.

Tolling Objective: Revenue

Proposed New Central Puget Sound Limited Access Highways

There are three new limited access highways proposed in the Central Puget Sound: a proposed completion of the SR 167 Freeway from Tacoma to Edgewood and the proposed SR 704 Cross Base Highway in Pierce County (proposed as a freeway for part of its route) and the extension of the SR 509 limited access freeway from SeaTac Airport to I-5 in south King County.

SR 167 – Tacoma to Edgewood New Freeway Construction. (Toll SR 167 extension) The SR 167 extension will complete a vital freeway connection in south Puget Sound. The project would provide a six-lane freeway, including carpool/transit lanes, between I-5 and the current end of SR 167 in Puyallup, and a new four-lane freeway connecting I-5 to SR 509, serving the Port of Tacoma. The total distance of this freeway extension is six miles.

The tolling opportunity on this project is to build the project as a traditional toll road, with toll rates probably ranging from 10 to 30 cents per mile for passenger cars. Since the project would improve the connection between the Port of Tacoma and the existing freeway system, freight-oriented traffic would be most likely to benefit from the project, and pay the tolls.

Tolling Objective: Revenue

SR 704 Cross Base Highway. (Toll new highway corridor) When complete, the Cross-Base Highway (SR 704) will provide regional travelers with a new six-mile-long, multi-lane divided highway beginning at the I-5 Thorne Lane Interchange at the west end, connecting to 176th Street at SR 7 at the eastern terminus. This new alternate east-west route will ease congestion on I-5, SR 512 and 7, Spanaway Loop Road, and 174th Street, by providing a route through the Fort Lewis and McChord military bases.

Tolling Study 1 included a sketch-level feasibility study of this corridor and found that toll revenues would generate only 15 percent of the capital cost of construction (after accounting for operating and maintenance expenses). Part of the reason for the low revenue was the assumption that only through-travelers would be charged – those destined to or from the military bases would not be charged. Tolling Study 1 also identified concerns about environmental justice issues, since there is an unusually high concentration of households below the poverty level in the catchment area of the project.

Tolling Objective: Revenue

SR 509 Freight and Congestion Relief Project. (Toll SR 509 extension) This project would involve an extension of SR 509 past SeaTac Airport to I-5 in South King County (six miles). This would provide a parallel north-south routing to I-5 in the area south of Seattle. Tolls may be a way to partially fund the project, or, if tolls are used in an I-5 Corridor concept, to be part of that concept.

Tolling Objective: Revenue

Regional System Tolling

Over time, as the value of the gas tax declines due to inflation and/or improved fuel efficiency, there will be pressures to move to other funding mechanisms. As the cost of new infrastructure continues to climb, there also will be increasing pressures for improved traffic management approaches, some of which might involve road pricing. Oft-mentioned mechanisms are more extensive systematic use of tolling and/or charges based on VMT, and systems of HOT or Express Toll Lanes. This level of system tolling was anticipated in Recommendation 1 of Tolling Study 1: “Consider more extensive use of tolls as the ability to build more capacity is constrained, traditional revenue sources decline, and technology advances.”

It is unlikely that any of these approaches to system tolling would be desirable in the short term. However, it is important to think about these longer-term options as Washington makes commitments to develop the shorter-term solutions. There are two questions that should be considered: 1) Does the short-term solution allow migration to the longer-term solution?; and 2) Does the promise of the longer-term solution mean that we should skip the investment in the shorter-term solution?

Some potential regional system tolling concepts that have been under discussion are described below.

Convert All Existing and Future Central Puget Sound HOV Lanes to HOT Lanes. (System HOV to HOT conversion) There is an expectation that converting HOV lanes to HOT lanes can improve the performance of freeways in the Central Puget Sound region. A pilot project is underway on SR 167, and additional development work is being done on I-405. Would it make sense to expand the HOT lane concept to all freeways in the Central Puget Sound region that have, or will have, HOV lanes?

Toll All Central Puget Sound Freeways. (Regional Tolling of all highways) Straight per-mile tolling using nonstop, all-electronic toll collection could be used a supplemental funding source for development and rehabilitation of the Central Puget Sound freeway system. If toll prices are varied by time of day, there could be the added benefit of optimizing the performance of the freeway system. The potential danger in such a system is that traffic will divert to arterial streets that are less able to handle the traffic load, therefore, such a system would need to be considered very carefully.

Toll All Freeways and Arterials in the Central Puget Sound Region. (Systemwide tolling) The PSRC conducted an experiment whereby all freeways and arterials in the Central Puget Sound Region would be tolled.

■ Project Opportunities Outside of Central Puget Sound

North Wenatchee Columbia River Third Bridge Crossing (Toll Bridge)

A conceptual analysis conducted by the WVTC indicates that a third bridge crossing the Columbia River between Wenatchee and East Wenatchee is needed and might be funded through collection of tolls. This third bridge would connect SR 28 and SR 285 but might not necessarily be a state-owned facility.

Tolling Objective: Revenue

I-5 Improvement Projects

Tolling Study 1 contained an analysis of tolling portions of I-5 in Lewis County to pay for extensive improvements needed in the vicinity of Centralia and Chehalis. The analysis found that tolling an existing freeway can produce considerable revenue, especially when there are not many alternatives. Although some diversion of traffic from I-5 might occur, the diversion was likely to be for local trips, which might actually improve traffic operations on I-5.

There are other locations on I-5 in need of significant investment, and a similar approach might be tried at these locations. I-5 in Lewis, Thurston, and Cowlitz counties is discussed in the main portion of this report. Other opportunities are described below.

I-5 – Skagit County. (Toll I-5 Corridor in Skagit County) WSDOT is conducting a master plan that is evaluating existing and future needs for I-5 from Conway (SR 534 I/C) to Cook Road in Skagit County. The master plan will be completed in summer 2008 and will suggest prioritized improvements for I-5 and its interchanges.

Tolling Objective: Revenue

I-5 – Whatcom County. (Toll I-5 Corridor in Whatcom County) The WSDOT Mt. Baker Office is conducting a freeway Master Plan for I-5 in the Bellingham urban area (Fairhaven to Slater Road). This plan is being done concert with I-5 interchange improvements funded by the Legislature (\$15M). This I-5 Master Plan will include a list of short- and long-range improvement projects for safety, congestion relief, and freight mobility that extend through the year 2035. This plan will be completed in summer 2008.

The Washington Legislature has provided \$15 million for the I-5 Downtown Bellingham Ramp Reconstruction project. This project will commence in 2010 and will make safety improvements to the on-and-off ramps between Samish Way and Sunset Drive in Bellingham. This is the only funding source available at this time to pay for the improvements projects identified in the I-5 Master Plan.

Tolling Objective: Revenue