



Washington State
Department of Transportation

SR 520 Bridge Replacement and HOV Project



2007 SR 520 Finance Plan

Prepared for:
Governor Chris Gregoire
and the
Joint Transportation Committee

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1. SUMMARY

Funding the SR 520 bridge replacement is a high priority for the state. As Governor Chris Gregoire stated on November 7, 2007, “Safety must be our number one priority and the 520 bridge, a critical link in our transportation system, is one of the top regional safety issues. It is vulnerable to earthquakes and winds, and it must be replaced.”

In 2007, the Washington State Legislature and Governor Gregoire signed Engrossed Substitute Senate Bill (ESSB) 6099 that 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.

This plan meets the requirements in ESSB 6099 that a finance plan be provided to the governor and the joint transportation committee by January 1, 2008. The findings of this plan are summarized below.

- **Funding Gap:** There is still a gap between sources and uses of project funding. The challenge lies not just in filling the gap, but in correcting mismatches in the timing of project needs and available funding.
- **Schedule:** Delays in delivering the project will increase the funding gap. Construction inflation costs \$100 to 120 million per year of delay, or upwards of \$10 million per month. Ongoing work, such as the mediation for the west-side design, could impact the total cost and timing of the project. Alternatively, acceleration of the project could reduce the total project cost.
- **Funding Probability:** There are several funding sources identified in the state transportation budget that remain uncertain. These include \$1.1 billion in regional funding proposed in the Roads and Transit ballot measure and some or all of the \$200 million in federal transit and highway funding distributed regionally by the Puget Sound Regional Council (PSRC).
- **Toll Revenue:** The 2007-09 state transportation budget identified tolling as a revenue source. This plan examines tolling in more depth than in previous work. Scenarios involving a range of toll rates and how much of the road is tolled were analyzed under two sets of financing assumptions. The analysis concluded that tolling could contribute between \$0.85 and \$1.52 billion in project funding with tolls beginning in mid-2018 when the new bridge and approaches are completed.
- **Pre-completion Tolling:** Tolling the existing bridge “pre-completion” between third quarter 2009 and mid-2018 could generate an additional \$480 to \$570

million in pay-as-you-go funding, assuming that all toll revenue is available for project needs. Legislative action to move tolling forward will be required during the 2008 legislative session in order to meet the September 30, 2009 deadline for implementing tolls as a recipient of a federal Urban Partnership Grant.

Exhibit 1 summarizes the project funding needs, the identified funding sources, and some of the available options for closing the funding.

We believe there are some promising options to help close the funding gap, including the positive outlook for tolling. There are also outstanding policy questions that need to be considered before further work can proceed. This finance plan serves to advance the funding discussion and identify those questions.

Exhibit 1. Summary of Project Funding Needs and Funding Sources

	<i>Millions of Dollars</i>
TARGET PROJECT NEED	
2006 Project Cost Estimate ¹	\$4,380 M
Less: Savings from Design Change & Early Construction of Pontoons ²	(\$400 M)
2007 Project Cost Estimate	\$3,980 M
SOURCES OF FUNDS <i>(based on the Governor's 2008 Supplemental Budget)</i>	
State Gas Tax (Nickel & TPA Packages, & Other State)	\$554 M
Allocation from WSDOT "Risk Pool" ³	\$1,072 M
Previously Committed Federal Bridge Funds	\$114 M
State Sales Tax Deferral or Transfer (similar to TNB) ⁴	\$180 M
Subtotal State/Federal Contribution	\$1,920 M
Shortfall / Funding Gap	\$2,060 M
Funding from Tolls	
SR 520 Tolls (beginning at completion in mid-2018) ⁵	\$850 M to \$1,520 M
Pre-Completion Tolling (toll existing bridge mid-2009 to mid-2018) ⁶	\$480 M to \$570 M
Tolling I-90	To Be Determined
<p>Note: The information in this table does not account for gaps caused by potential mis-matched timing in which project needs occur prior to funding availability.</p> <p>¹ 2006 estimate of probable costs for the 6-Lane Alternative with the Pacific Interchange option as reviewed by the Expert Review Panel.</p> <p>² The magnitude of cost savings depends both on design changes and on advancing certain construction activities to avoid the impacts of inflation; full savings requires early pontoon construction to be advanced to the 2009-11 and 2011-13 biennia.</p> <p>³ The Governor's 2008 Supplemental Budget proposes full allocation of the risk pool to the SR 520 Project. The risk pool is funded from \$800 million in future federal bridge funding and \$272 million in future federal Surface Transportation Program (STP) funds.</p> <p>⁴ Statutory amendments would be required. A state sales tax deferral would be repaid with future toll revenues.</p> <p>⁵ Legislation ESSB 6099 suggested tolls on SR 520. The range of funding generated by tolls is influenced by a number of factors underlying the toll scenarios tested. Toll rates vary by scenario from \$5.83 to \$10.29 in 2007 dollars for a peak commute period <u>round-trip</u> (7-9 AM and 3-6 PM). All scenarios employ variable toll schedules that provide lower tolls at off-peak times.</p> <p>⁶ Assumes all pre-completion net toll revenue would be available for project needs. Pre-completion toll scenarios tested toll rates from \$5.83 to \$6.86 in 2007 dollars for a peak commute period <u>round-trip</u>. Pre-completion tolling would require legislative approval. The Urban Partnership Grant provides funding for tolling infrastructure.</p>	

Next Steps

There are a number of policy questions to be considered that affect project funding. Some of these questions are outlined below.

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?

All of the scenarios tested for this finance plan confined tolls to SR 520 between I-5 and I-405. A strong case can be made that SR 520 is part of a system of cross-lake routes that includes I-90, and that tolling I-90 should be evaluated to determine the amount of funding that could be generated. There are two main reasons that tolling I-90 should be pursued further: 1) it is unlikely that the funding gap can be filled by tolling on SR 520 only; and 2) tolling both routes will generate needed revenue and discourage traffic diversion—facilitating better management of cross-lake travel.

What toll levels will the public accept?

What is the appropriate tradeoff between revenues and traffic?

The goal of a finance plan is to balance funding sources with uses. Nevertheless, other considerations enter into the discussion. For example, what toll rates will the public accept? Will people accept tolls before the new bridge construction is complete? If toll rates are set too high, an unacceptable number of travelers may divert away from SR 520, and their compromise travel decisions could potentially impact the levels of congestion on other roads. What is the appropriate tradeoff between raising funds, the number of people served by SR 520, and the impacts of toll diversion?

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?

This finance plan assumes that all toll revenues are available to help finance the cost of SR 520 bridge construction. What are the pros and cons of making a portion of the toll revenue available for funding alternative needs such as transit operations? Does the answer to this question affect the public's view about the tradeoff between higher toll rates and serving the public's need to travel across the lake?

When is the best time to update this finance plan?

Plans should be updated whenever there is a significant change in the sources or uses of funds.

The SR 520 finance plan changes whenever the project definition changes, the timing of key elements change, as legislation makes new funding sources or financing methods possible, or as other significant decisions occur, such as a decision to provide toll revenue to support transit operations.

Plans should expand the level of detail and include outside validation prior to construction.

The SR 520 project meets the FHWA definition of a “major project”, which places certain requirements that must be met before the project goes to construction. To the extent that the project uses federal funding from any source, WSDOT will be required to complete and submit a detailed finance plan to FHWA (and FTA if transit funding is involved) prior to commencing construction. This expanded financial plan cannot be finalized until after the environmental process is complete and the range of funding sources has been solidified. After submission of the plan to the federal agency, they will review and accept the plan. Annual updates will be then required during construction.

2. WHY HAS THIS FINANCE PLAN BEEN PREPARED?

The 2007-09 state transportation budget identified a number of funding sources for this project. Some of the funding is secured while other sources were identified for further study. This plan provides Governor Gregoire and the legislature with our assessment of the potential amounts of funding these sources could contribute to the SR 520 bridge replacement.

ESSB 6099 requires this finance plan

In 2007, the legislature passed and Governor Gregoire signed ESSB 6099, which laid out a process for moving the SR 520 bridge replacement project forward. There are four primary components of the legislation:

1. Complete a mediation process to select a west side interchange and develop a project impact plan: In June, the Office of Financial Management selected The Keystone Center as the mediators and the mediation is underway. The project impact plan, due in December 2008, is to provide “a comprehensive approach to mitigating the impacts of the project... [that is] agreed to by all appropriate parties.”
2. Develop a long-range plan that will accommodate high capacity transit: We are working with Sound Transit, King County Metro, and the University of Washington to develop a plan for a multi-modal station at Montlake Boulevard East and Pacific Street and a corridor plan for future high capacity transit on SR 520. A draft plan was submitted in October 2007. That plan outlined three key assumptions: 1) that high capacity transit on SR 520 would initially be addressed in the HOV lanes through a bus rapid transit program; 2) that the multi-modal station at Montlake would primarily be a transfer station rather than an HCT terminus or a park-and-ride facility; and 3) that rail across Lake Washington would occur first in the I-90 corridor, and that rail in the SR 520

corridor would not be implemented prior to 2030. The final high capacity transit plan will be submitted to the governor and legislature in December 2008.

3. Incorporate the findings of a health impact assessment: The Puget Sound Clean Air Agency and Public Health - Seattle & King County are developing a health impact assessment that will evaluate the project's impact on air quality, carbon emissions, and other public health issues. The recommendations from this assessment will be considered in the mediation process and incorporated into the project impact plan.
4. Develop a finance plan: This report fulfills the requirements for submitting a finance plan to Governor Gregoire and the joint transportation committee by January 1, 2008. Specifically, ESSB 6009 states:
 - i. *The state route number 520 bridge replacement and HOV project finance plan must include state funding, federal funding, at least one billion dollars in regional contributions, and revenue from tolling. The department must provide a proposed finance plan to be tied to the estimated cost of the recommended project solutions, as provided under section 3 of this act, to the governor and the joint transportation committee by January 1, 2008.*

How does this finance plan relate to previous work?

June 2006 Funding Plan for the Expert Review Panel

In March 2006, the legislature passed legislation that required WSDOT to prepare a project finance plan for the Alaskan Way Viaduct and SR 520 bridge replacement projects. It specified that each plan “clearly identifies secured and anticipated fund sources, cash flow timing requirements, and project staging and phasing plans, if applicable....” The legislation also specified that an Expert Review Panel be appointed to provide independent review of the finance plans, and upon completion of the review, report their findings and recommendations to the joint transportation committee, the Office of Financial Management, and the governor by September 2006.

The panel’s first responsibility was to better define the “uses” of funding — what is the project; how much is it likely to cost; and when are those funds needed. The answers to those questions have been adopted in subsequent work, including this report. For financial planning purposes, the six-lane project alternative costs were assumed. Of the two west side concepts under consideration — the Montlake Interchange and Pacific Interchange options — the more costly Pacific Interchange option was assumed for fiscal prudence. The panel determined that the project would cost \$4.4 billion under the then-current assumptions of when the project would begin construction.

The June 2006 finance plan submitted to the Expert Review Panel identified a total of \$1.25 billion in funding from state and federal sources. This included \$554 million

from state gas taxes and an estimated \$700 million generated from future tolls on the new floating bridge. This figure was based on the findings of the 2004 SR 520 Toll Feasibility Study which identified an amount that could reasonably be achieved under a variety of traffic and financing assumptions.

With a total estimated project cost of \$4.4 billion and only \$1.25 billion of funding identified at the time, the resulting funding shortfall was highlighted by the panel as an area needing further development. The panel also noted at the time that it was early in the project evolution to have a full funding plan.

March 2007 Funding Alternatives Report by the Washington State Treasurer

In the spring of 2007, the Office of the State Treasurer examined alternative revenue assumptions including:

- Tolling the existing SR 520 bridge prior to completing the new facility
- Tolling the parallel Interstate 90 (I-90) crossing, and
- Examining the impacts of different financing methods on the amount that tolling could contribute toward project construction.¹

For this study, WSDOT updated traffic and revenue forecasts. The Office of the State Treasurer's report assumed that the project being financed was the \$4.4 billion 6-lane alternative with the Pacific Interchange option. In the report, it was also assumed that the Roads and Transit ballot measure would pass and would provide \$1.1 billion to the SR 520 project.

The Office of the State Treasurer's report concluded that the project's funding gap could not be eliminated solely by implementing tolls on SR 520 after the project was completed. The state must either contribute additional funds toward the construction cost or toll both SR 520 and the parallel I-90 crossing.

What new information is included in this finance plan?

This current finance plan also represents an update to the previous work. We have recently developed an approach to generate cost savings of up to \$400 million, consisting of a revision to the design of the floating bridge and an advancement of pontoon construction. These savings results in a new estimate of probable cost of \$3.9 billion.

¹ *SR 520 and I-90 Toll Feasibility Analysis: Traffic and Revenue Forecasts Technical Memorandum*, PB, May 2007; and *The State of Washington: Report on SR 520 Bridge Replacement and HOV Project Funding Alternatives*, Seattle-Northwest Securities Corporation & Montague DeRose and Associates, LLC, March 28, 2007.

In addition, this finance plan updates earlier toll traffic and revenue studies by providing a more in-depth analysis of SR 520 tolling, including a detailed examination of potential revenue from five toll scenarios with and without pre-completion tolling. Potential changes to high capacity transit and increases in capacity on nearby roadway facilities were incorporated in this analysis.

All of the funding sources identified or proposed in the 2007-09 state transportation budget and in the governor's 2008 supplemental budget are examined. The toll scenarios analyzed identify the key trade-offs associated with different strategies for tolling SR 520.

3. WHAT ARE THE PROJECT COSTS AND FUNDING NEEDS?

The SR 520 project is one of the region's highest transportation priorities. The floating bridge, Portage Bay viaduct and west approaches are at high risk of failure in the next 20 years and need to be replaced to maintain public safety. In addition, as one of the two east-west routes across Lake Washington, SR 520 is vital to keeping the region moving and supports the health of the regional economy.

The importance of SR 520 to the region and changes to the project's funding sources are causing the state to update the project's funding needs and sources, with consideration given to both the timing and magnitude of these needs and sources. There will be additional revisions to the finance plan as the project moves through the environmental and design processes and new information becomes available about potential funding sources.

What is the proposed project?

As described in the project's Draft Environmental Impact Statement (EIS) issued in August 2006, WSDOT proposes to replace the Portage Bay and Evergreen Point bridges and approaches, replace the existing roadway between Interstate 5 (I-5) in Seattle and 108th Avenue Northeast on the Eastside, and add a new bicycle and pedestrian path. Final project specifications are still being developed.

In December 2006, Governor Gregoire endorsed the six-lane configuration (four general purpose and two transit/carpool lanes) as the alternative that will keep drivers safer, improve reliability for people crossing the lake, provide a dedicated lane for transit and high occupancy vehicles (HOVs), and accommodate future high capacity transit on the SR 520 bridge. The legislature confirmed the governor's endorsement during the 2007 legislative session and outlined a path for resolving the remaining project issues in ESSB 6099 (described in section 2).

The communities on the east side of Lake Washington have formally supported a six-lane configuration through city council resolutions. The Seattle City Council passed a

resolution supporting a design that improves transit reliability. We are now moving forward with design and planning for a six-lane corridor.

ESSB 6099 also directed a mediation process to develop a project impact plan for “...addressing the impacts of the state route 520 bridge replacement and HOV project design on Seattle city neighborhoods, parks, including the Washington park arboretum, and institutions of higher education.” The results of the mediation process will likely affect the design of the project west of the floating bridge and may affect the project costs and schedule.

How does the project benefit the region?

The benefits to the Puget Sound region in general, and the Lake Washington communities specifically, are numerous, and include:

- Rebuilding the west approaches, Portage Bay viaduct, and floating bridge will improve safety by reducing seismic and storm risks;
- Adding an HOV lane in each direction will improve transit reliability and bus and carpool travel times and will complete the HOV system between Seattle and Redmond;
- Improved shoulders between I-5 and Bellevue Way Northeast will improve safety and travel times by allowing disabled vehicles to pull out of traffic and will improve the response times for emergency vehicles and incident responders; and
- Building a new bicycle/pedestrian path across Lake Washington will add commuting choices.

The project will be designed and constructed with communities as well as the natural and built environments in mind.

- Stormwater treatment features will treat contaminated runoff water before it enters Lake Washington;
- Wetlands affected by the project will be restored and/or replaced;
- Culverts that currently block fish from passing through streams in the project area will be removed and/or replaced;
- Sound walls will reduce highway noise in nearby parks and neighborhoods; and
- Landscaped lids covering portions of SR 520 will reconnect neighborhoods on both sides of the lake.

How much does the project cost?

The cost of any project is a function of both design choices and timing. In 2006, WSDOT determined that the most likely cost of the 6-Lane Alternative with the Pacific Interchange option would be \$4.4 billion.

We are working to reduce the cost of the project to make it more affordable without sacrificing the commitments that have been made to the public and to the communities on either side of Lake Washington. Recently, two strategies have been developed.

- The preliminary design for the floating bridge included pontoons that could accommodate the weight of high capacity transit (in the form of light rail) in addition to four general purpose lanes and two HOV lanes. We have recently developed a revised floating bridge design concept that reduces the number of required pontoons, allowing for construction cost savings. The reduced number of pontoons will provide the necessary buoyancy for four general purpose traffic lanes and two HOV lanes, as currently envisioned in the 4+2 configuration. These pontoons would be designed to allow for modifications to accommodate future rail in the corridor.
- We are also proposing to advance pontoon construction which would provide the ability to restore the traffic capacity of the existing SR 520 bridge in the case of a catastrophic failure. Advancing this work by almost three years over the original plan will reduce the cost of pontoon construction by not incurring as much inflation.

The combined effect of an alternative design requiring fewer pontoons and advancing pontoon construction represents a cost reduction of \$400 million. Expediting construction of pontoons to restore the SR 520 bridge in the event of a catastrophic failure will require advancing significant funding into the 2009-11 and 2011-13 biennia. WSDOT's February 2008 budget update will include the necessary cash flow to support early pontoon construction. The current estimate of probable cost is now \$3.98 billion. If the start of early pontoon construction is delayed beyond the proposed 2009-11 biennium timeframe, the potential cost savings will be reduced.

Changes in project definition, design, or schedule including any resulting from mediation activities, will require updates to the project's cost estimate.

The biggest factor contributing to rising project costs is delay. The inflationary cost has been estimated at upwards of \$10 million per month for each month of delay beyond the planned start of major corridor construction in 2013. As such, the longer it takes to start construction, the more costs will be affected by inflation and price increases.

In recent years, construction inflation has exceeded general price inflation, and energy-intensive highway and heavy construction costs have increased faster than

general construction, in part due to high oil prices. Another contributing factor in recent years has been greater demand for construction materials from growing economies in Asia, with prices moving upwards as the industry struggles to keep up with demand.

- *The PPI [Producer Price Index] for highway and street construction inputs soared 43 percent from December 2003 through August 2007; the index for “other heavy construction,” 36 percent.²*

With the costs of construction materials rising faster than general inflation, public and private projects across the country are adjusting. Experts differ on their predictions as to when the market for construction commodities will stabilize.

In September 2006, we updated the cost estimates for the SR 520 project to reflect local and international construction market conditions for steel, concrete, asphalt, and diesel fuel. It is also important to note that the cost estimates for the SR 520 project are shown in future or year of expenditure dollars, which reflect the prices that would likely be in effect at the time construction occurs. This includes predictions by experts about inflation rates and construction material and labor costs.

What project development activities are currently underway?

In the 2007-09 biennium, we are continuing project design, advancing the environmental process, and participating in the mediation process so major corridor construction can begin as early as 2013. Meeting this deadline includes preparing the Supplemental Draft EIS for release in 2009. Environmental approval will be received in 2011. While the environmental process continues, early construction of the pontoons will proceed, beginning in 2010.

Final design activities, along with right of way acquisition and project permitting, will begin in early 2011 and are expected to be complete by mid-2013. We will advertise for portions of corridor construction in early 2012, with construction expected to be completed and tolling operations to commence by mid-2018. Other construction-related activities, including demolition of the existing bridge, will carry into 2020.

How do recent developments affect the project’s financial outlook?

As this finance plan describes, there is not enough secured funding to complete the project by 2018. Two options exist to close the gap: identify additional funding sources, and/or reduce the costs of the project.

² Association of General Contractors, “Construction Inflation Alert,” October 2007.

Project funding developments

Two events have changed funding options since the spring of 2007 when ESSB 6099 was passed into law (described in more detail below).

- The 2007 Roads and Transit ballot measure failed and replacement regional funding has not been identified.
- The SR 520 project was selected by the U.S. Department of Transportation to receive an Urban Partnership Grant.

The legislature, acting on recommendations that it received from the Blue Ribbon Panel on Transportation, concluded that major Puget Sound transportation projects, including the SR 520 bridge replacement, could not be funded solely from state contributions. As a result, in 2002 a regional transportation governance bill was passed which authorized the creation of a Regional Transportation Investment District (RTID).

RTID adopted its investment plan on May 31, 2007, called “The Blueprint for Progress” which called for \$1.1 billion for the SR 520 project in year of expenditure dollars. The plan became the Proposition 1 Roads and Transit ballot measure and was put to the voters residing in the urban areas of King, Snohomish and Pierce counties. Voters’ rejection of the ballot measure in November 2007 leaves the SR 520 project without this major regional investment and leads to consideration of other funding sources.

The U.S. Department of Transportation selected the SR 520 bridge replacement as a priority project to receive federal grant funding to improve traffic through the combined implementation of advanced technology, transit, telecommuting and tolling. The Urban Partnership Grant announced in August 2007 could eventually provide \$127 million in federal funding for transit, ferry and highway projects in the region aimed at reducing congestion, including \$86 million for the SR 520 corridor. In order to receive the federal dollars awarded for the grant proposal, the state must implement tolling in the SR 520 corridor by September 30, 2009. While the grant would not provide additional capital funding toward the \$3.9 billion project cost, it could cover the costs of implementing tolling on the existing bridge, among other activities collectively referred to as the Lake Washington Congestion Management Program.

Moreover, by providing a means to toll the project prior to its completion, the grant creates the opportunity for generating additional toll funding. Pre-completion tolling could be an extremely important revenue stream if the early pontoon construction proposal is adopted because of the timing of this source.

The option to implement tolling on the existing bridge (pre-completion tolling) assumes that tolls would begin by September 30, 2009, consistent with the Urban Partnership Grant conditions. In order for this to occur, the legislature must take action to move pre-completion tolling forward during the 2008 session.

How do the above events impact the analysis and findings of this plan?

ESSB 6099 required that this finance plan be submitted by January 2008. In order to meet this schedule, the traffic and revenue forecasting and its associated initial financial capacity analysis work had to be completed by October 2007.

- Roads and Transit ballot measure: The analytical work assumed the Roads and Transit ballot measure package of improvements would be fully in place by 2030. This assumption makes the other routes and transit that would be improved relatively more attractive, decreasing the number of travelers who would be willing to pay tolls on SR 520. Without these road and transit improvements, more cross-lake vehicle travel is projected, and with diminished alternatives, travelers would be more willing to pay a toll on SR 520. Therefore, the assumptions used in the technical analysis result in toll funding projections that are more conservative than if we had assumed that the Roads and Transit measure would not pass.
- Urban Partnership Grant: The option to implement tolling on the existing bridge (pre-completion tolling) assumes that tolls would begin no later than September 30, 2009 under the grant-funded Lake Washington Congestion Management Program.

Matching revenues to project needs will change as the total cost or the timing of construction expenditures changes. This report was drafted before decisions could be made on promising new developments in cost reduction or early pontoon construction schedules, so the implications of these changes were only made at a summary level.

4. WHAT IS THE CURRENT FUNDING PICTURE?

Several federal, state, regional and local funding sources were identified by the legislature in the 2007-09 state transportation budget. The following sections provide greater detail about the risks and opportunities associated with each funding source, except for the funding contribution of tolls, which is covered in Section 5.

Nickel and Transportation Partnership Account Fuel Tax Funding

The 2003 “Nickel” and 2005 Transportation Partnership Account (TPA) packages collectively provide \$554 million in state funding for the project. Motor fuel taxes are the primary revenue source supporting these two packages. The funding contributions to SR 520 represent approximately one percent of the Nickel package and approximately seven percent of the TPA package. The SR 520 funding amounts were specified in the respective legislative packages.

Bridge Funds

The 2007-09 state transportation budget has identified \$112.7 million in federally apportioned Bridge Program funding for the SR 520 Project. A state programming decision has already been made that this level of funds should go to the SR 520 project. Future disbursements of funds from the federal Bridge Program to Washington state are based on assumptions regarding the successor to the current Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), which expires at the end of federal fiscal year 2009. There is a relatively low risk that we would not receive sufficient highway funding from the federal government to make this allocation.

WSDOT Risk Pool Funding

The 2007-09 state transportation budget also identifies \$1.1 billion in WSDOT “Risk Pool Funding” (also known as “pooled funds”) for budget years beyond FY 2009. This funding is derived from two federal highway programs, namely the federal Bridge Program and the federal Surface Transportation Program (STP). Future federal disbursements of funds from both programs are based on assumptions regarding the successor act to SAFETEA-LU. Funds from these two programs were described as being available for use by either the SR 520 or the Alaskan Way Viaduct projects. Because the state’s investment in the Alaskan Way Viaduct project is limited to \$2.8 billion, only \$400 million of the risk pool could be used to pay for viaduct expenditures. The governor is proposing in the 2008 supplemental budget that all risk pool funding be dedicated to the SR 520 project.

Until the U.S. Congress passes a successor act to SAFETEA-LU, the timing of funds from these programs disbursed to Washington state remains uncertain.

Lake Washington Congestion Management Program

The federal government, through the Urban Partnership Grant program, will provide seed money that would allow the state to begin tolling the existing SR 520 bridge in 2009 if the state chooses to accept the grant. For the purpose of this report, we assume the state agrees to accept and meet the conditions of the federal grant.

We would receive approximately \$86 million in federal grant funding to develop and implement active traffic management and traveler information systems, and to inform tolling strategy development through the pre-completion implementation of tolls on the existing SR 520 bridge. The grant award itself is not a funding source that contributes to the \$3.9 billion project cost. Rather, the \$86 million will cover the costs of traffic management and toll collection infrastructure for the pre-completion time period.³

³ The \$86 million Urban Partnership Grant is reflected in Transportation Executive Information System (TEIS) as part of the SR 520 program.

The grant is significant because it provides the means to increase the funding contribution from tolls by implementing them in 2009. Discussion of the “pre-completion” tolling assumptions and revenue estimates occurs in Section 5 of this report.

The funding potential of pre-completion tolling shown Exhibit 1 and elsewhere assumes that all net toll revenues are available for project construction uses.

RTID Roads and Transit Package

The primary assumption for regional funding in the enacted 2007-09 state transportation budget was the \$1.1 billion contribution from the Roads and Transit package. Voters did not approve the ballot measure; it is unclear whether the region may elect to send a second proposal to the voters or what funding amount would be included for the SR 520 project. Therefore, this plan does not assume any regional funding.

State Sales Tax Deferral or Transfer

A component of the proposed \$1.1 billion in regional funding noted above was the transfer back to the project of the 6.5% state sales tax paid on applicable project-related construction expenditures, which would equate to \$180 million in additional project funding. Because this was a potential component of the Roads and Transit funding proposal, the credit for the state portion of the effective sales tax was not called out separately in the enacted 2007-09 state transportation budget as a source of state funding. With the voters’ rejection of the Roads and Transit package, the state sales tax transfer under current legislation is not available.

However, the governor’s 2008 supplemental budget identifies sales tax deferral as a potential source of funds and it is anticipated that the legislature will consider sales tax deferral legislation for SR 520 during the 2008 legislative session. Sales tax deferral legislation would provide a mechanism for delaying the payment of state sales tax on construction expenditures until after the new bridge is completed. Depending on the mechanism, this may be considered either an additional source of funds or a deferral of a portion of the project cost. The deferred sales tax amount would then be repaid from excess toll revenues over a number of years. A similar state sales tax deferral was employed in the construction financing of the new Tacoma Narrows Bridge.

Federal Formula Funding Distributed by the Puget Sound Regional Council:

The 2007-09 state transportation budget identified \$200 million in Federal Transit Administration (FTA) funds assumed to come from the federal formula funds distributed by the Puget Sound Regional Council (PSRC). The budget proposed contributions of \$25 million each year for eight years beginning in FY 2014. These FTA funds are currently dedicated to transit operations, maintenance, system preservation, bus replacements, and paratransit services for regional transit providers.

Consideration of potential regional funding could be broadened to include Federal Highways Administration (FHWA) funding as well, specifically Surface Transportation Program (STP) or Congestion Mitigation and Air Quality (CMAQ) funds.

In the 2007-09 transportation budget, we were directed to apply for the PSRC-distributed federal funding and will do so as it becomes available.

Things to be considered when evaluating the likelihood of securing FTA and other federal funds distributed by PSRC include:

1. PSRC Approval Needed: The state cannot program these federal funds (STP, CMAQ, FTA 5307 and FTA 5309) without approval from PSRC's Executive Board.⁴ This is a decision the Board may choose to make, but the timing, the amount, and the source of funding would be under their control.
2. Funding Eligibility: Most of the PSRC-distributed federal funding has strict eligibility rules established by the U.S. Congress. CMAQ funds must be spent on a narrow type of project that has a measurable air quality benefit. Transit funding must be spent on eligible transit capital projects. STP funding has the most flexible eligibility rules. While some aspects of the SR 520 project would certainly be eligible under all of these funding sources, eligibility will need to be demonstrated for any selected project use.
3. Uncertain Future Funding Levels: PSRC has already selected funding recipients through federal FY 2010. This is one year beyond the current federal transportation funding act. This means any funding for the SR 520 project would come from future appropriations under the successor act to SAFETEA-LU. While the U.S. Congress is debating the future of federal transportation funding, the current trend is for lower federal appropriations in the future, resulting in less available project funding at the regional level.
4. High Regional Demand for PSRC's Transit Funds: PSRC's FTA 5307 and 5309 formula funds are primarily used for transit maintenance, system preservation, bus and fleet replacements and paratransit services. Re-allocating these funds to eligible components of the SR 520 project would create a gap in local transit agencies' budgets. On the other hand, both King County Metro and Sound Transit buses use the SR 520 corridor. Both agencies would need to support a joint application to PSRC to direct some of these funds to the SR 520 project to cover the capital expenditures of certain elements, such as the direct access ramps at 108th Avenue Northeast. An application submitted jointly by King County, Sound Transit and WSDOT to the PSRC is likely to be competitive.

⁴ See Title 23 U.S. Code 134.

5. Equally Competitive Non-Transit Funding: During the 2006 project selection process, 192 projects totaling \$343 million were submitted for STP/CMAQ funding, all competing for only \$127 million available (over a three year period). These projects were a mix of local arterials and state highways that do not have significant funding allocated through the state Nickel and TPA packages. King County has expressed interest in supporting WSDOT's receipt of capital funding to cover certain SR 520 project elements, such as the pedestrian/bike lane. While an application submitted jointly by WSDOT and local jurisdictions or King County is likely to be favorably received, the amount of interest in these funds by other projects and the competitive nature of funding distribution will make securing the full \$200 million designated in the 2007-09 state transportation budget a difficult proposition.

What are the risks associated with obtaining FTA funds for the SR 520 project?

If FTA funds are selected by PSRC and the FTA designated recipients for the SR 520 project, FTA must be a co-lead agency for the environmental process. FTA and FHWA (the current federal lead agency) have different environmental review processes and procedures. FTA was previously a project co-lead agency earlier in the environmental review process and has provided extensive comments from the public transportation perspective. When it appeared that FTA funds would not be used to fund the project, FTA stepped back from the co-lead role. If FTA funds are used moving forward, FTA would need to validate the environmental process to date, continue as a co-lead for the future work, and process FTA grant funding.

Re-engaging FTA as a co-lead agency would likely increase the amount of time required to complete the environmental process, especially if FTA wants to re-address the purpose and need and alternatives analysis. There could be increased cost associated with additional analysis on environmental effects to resources since FHWA and FTA have slightly different methodologies for some resources. Also, we may see a delay associated with obtaining federal lead concurrence on the selected alternative, depending on the alternative that is ultimately proposed.

If we received FTA funds, what would we do to minimize those risks?

Before applying for funding, WSDOT would invite FTA to review the environmental work completed to date to determine whether FTA would need to reopen the purpose and need and alternatives analysis processes for their concurrence. If the purpose and need and alternatives analysis processes were reopened, WSDOT and FTA would jointly develop an estimate of schedule impact.

At this moment, the cumulative effect of FTA involvement in the project on the existing SR 520 NEPA process cannot be determined. If FTA funding is anticipated to be used for the SR 520 Project, coordination with FTA and the FTA designated recipients should begin as soon as possible to minimize any delay that may occur.

Prior to completing the application for FTA funds, WSDOT would assign a member of the project leadership team the responsibility of building and maintaining an

exceptional relationship with FTA. This liaison to the FTA would be responsible for updating FTA personnel on project issues to date and to keep the FTA personnel informed as the project progresses. The liaison would be responsible for ensuring that FTA remained actively involved in project development and for ensuring that FTA concerns are understood and satisfactorily addressed at each step in the development process. FTA would concentrate on the transit elements of the project while FHWA would concentrate on highway pieces except where there is overlap. FTA is also concerned with connectivity, high capacity transit elements, and pedestrian and bike elements.

5. HOW DO TOLLS CONTRIBUTE TO PROJECT FUNDING?

The SR 520 project has been envisioned as a toll project since 2003. Tolls have the ability to contribute a significant share of project funding. Exactly how much tolls contribute depends on myriad operational and financing factors, each with trade-offs that must be weighed against other objectives.

What toll scenarios were analyzed?

Five primary toll scenarios were developed and evaluated for the finance plan analysis to test tolling that would begin in 2018, when the new SR 520 facility is scheduled to open to traffic. Two additional “pre-completion” tolling cases were analyzed to account for the possibility of implementing tolls on the existing bridge before and during construction as early as the third quarter of 2009.⁵ A range of toll traffic and revenue forecasts from “low” to “high,” with “base” in the middle, was prepared for each scenario to capture uncertainty about the future and associated differences in travel outcomes.

While the toll scenarios vary in several respects, all seven have some common assumptions:

- Tolling would be confined to the SR 520 corridor between I-5 and Interstate-405 (I-405);
- Toll collection would be confined to all electronic methods (no cash collection);
- Tolls would be collected in both travel directions (rates are one-way);

⁵ This could be done in connection with the Urban Partnership Agreement grant received by WSDOT, King County and the Puget Sound Regional Council which includes implementation of congestion pricing tolls on SR 520.

- Toll rates would vary by time of day and by weekdays/weekends following a set schedule;
- Transit would be exempted from paying tolls; and
- All of the road and transit network improvements proposed in the Roads and Transit ballot measure would be completed no later than 2030. (This assumption yields more conservative toll funding results, and despite the rejection of the ballot measure, it is possible that some other funding could be developed to aid in completing some or all of these projects by 2030.)

In addition, Exhibit 2 presents the menu of key components or “building blocks” that were used to define the toll scenarios for travel demand modeling, revenue projections, and financial analysis.

Toll Configuration refers to where the toll is assessed. Two options were considered:

1. A single point of toll collection on the floating bridge so that only cross-lake trips are tolled; and
2. Corridor tolling so that both cross-lake trips and short segment trips on both sides of the lake would be tolled. Corridor tolling was not considered for the pre-completion period, due to the additional capital expense of toll collection equipment this would incur and the relatively small additional revenue that would be generated in doing so.

Bridge Toll Emphasis refers to the primary objective served by the variable toll schedule for cross-lake travel. As the toll rate increases, some customers will seek alternative routes, travel modes or even destinations. Up to a point, however, charging a higher toll will increase revenue. Beyond that point, additional toll increases will more severely impact demand, resulting in less revenue. Three options were considered:

1. A lower, “traffic throughput” toll schedule designed to optimize the number of vehicles served in the morning (AM) and afternoon (PM) peak periods;
2. A “balanced traffic and revenue” toll schedule striking a compromise between vehicles served and revenue generated; and
3. A “maximum revenue” toll schedule to determine the highest level of funding that tolls could support.

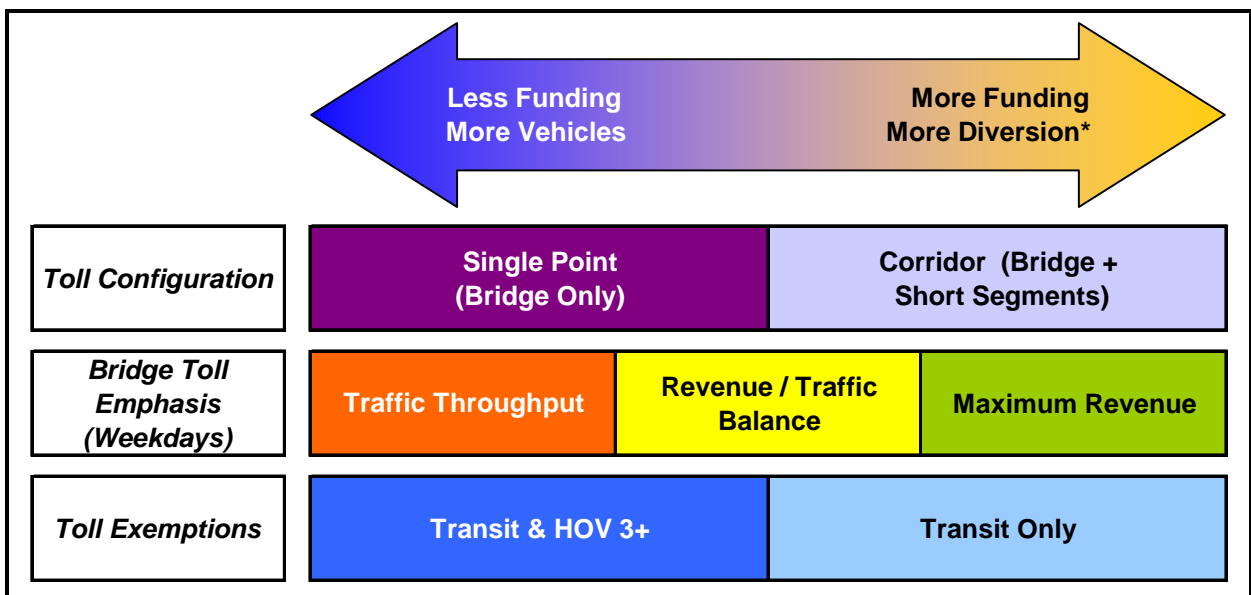
Weekend tolls were not varied by scenario, as the regional travel model used in the tolling analysis does not support weekend travel demand modeling. Short segment tolls were also not varied by toll scenario. The segment rates that were used for each segmental scenario were set so that they were high enough to cover the cost of collecting the tolls and simultaneously low enough so that unacceptable diversion was avoided.

Toll Exemptions refer to which special classifications of vehicles may use SR 520 without paying a toll. As previously noted, public transit vehicles were assumed to travel

toll-free in all scenarios. One additional option was also considered: allowing HOVs with three or more persons (3+ HOVs) to travel across the lake toll-free by not assessing the toll in the two HOV lanes of the 6-lane configuration.⁶ HOVs may be tolled, however, in some circumstances:

1. The finance plan travel demand modeling assumed that HOVs would be tolled in both pre-completion scenarios to assess the revenue potential of the existing facility. Providing a toll exemption to HOVs mixed in with general traffic on the existing facility is possible, but in the absence of a continuous, cross-lake HOV lane in which to segregate HOVs for an electronic toll exemption, operational and technological obstacles would need to be overcome.
2. HOVs making short segment trips will be tolled in scenarios where the general purpose vehicles are also tolled on the short segments. It is not feasible to expect that short-segment HOVs will be able to safely weave across to the left-hand toll-free HOV lanes and then return to the right-hand exit lane in time to exit.

Exhibit 2. Components in Toll Scenario Development



* See page 26 for a definition of “diversion”

Exhibit 3 identifies the distinctive components of the five primary toll scenarios as well as the two pre-completion scenarios. The scenarios are numbered and presented in descending order of their projected funding potential.

⁶ The SR 520 Bridge Replacement and HOV Project DEIS 6-Lane Alternative employs the 3+ HOV definition, and the finance plan analysis assumes that the rest of the network will have converted from the 2+ to the 3+ HOV definition by the year of opening (2018) or shortly thereafter.

Exhibit 3. Finance Plan Toll Scenarios

Scenario	Bridge Toll Emphasis (Weekdays)	Toll Configuration	Toll Exemptions
Toll Scenarios Applying at New Bridge Opening in mid-2018			
SCENARIO 1	Maximum Revenue	Corridor (Bridge + Short Segments)	Transit Only
SCENARIO 2	Revenue / Traffic Balance	Corridor (Bridge + Short Segments)	Transit Only
SCENARIO 3	Maximum Revenue	Single Point (Bridge Only)	Transit & HOV 3+
SCENARIO 4	Revenue / Traffic Balance	Corridor (Bridge + Short Segments)	Transit & HOV 3+
SCENARIO 5	Traffic Throughput	Corridor (Bridge + Short Segments)	Transit & HOV 3+
Pre-Completion Toll Scenarios from late 2009 until New Bridge Opening			
SCENARIO B	Revenue / Traffic Balance	Single Point (Bridge Only)	Transit Only (No HOV Lane)
SCENARIO B5	Traffic Throughput	Single Point (Bridge Only)	Transit Only (No HOV Lane)

When would tolling begin?

The new SR 520 facility is anticipated to be substantially complete and open for travel by mid-2018 (FY 2019). At that time, revenue operations would begin for the five primary toll scenarios identified in Exhibit 3.

In the case of pre-completion tolling of the existing facility, tolling would commence in the third quarter of 2009 (FY 2010).

How much are the tolls in the finance plan scenarios?

On SR 520, tolls are assumed to vary by time-of-day according to an established schedule. The bridge toll is relatively higher during peak travel times in all toll scenarios. Weekday toll rates are highest during the morning and afternoon peak commute periods. Weekend toll rates are highest at midday.

Higher peak period tolls help to manage demand and limit congestion by causing some users to change their time of travel, switch to transit or carpooling, alter their route or destination at those times when people want to travel most, or reduce the frequency of recurring trips. Tolls are lower during off-peak times to encourage some users to shift their travel away from times of high demand.

Exhibit 4 presents the weekday and weekend toll rates by time period for each of the toll scenarios for post-completion tolling. Rates are provided for the year of opening in 2018 dollars as well as in constant 2007 dollars. A key assumption is that tolls would increase annually at a projected rate of inflation, assumed to be 2.5 percent per year.

- A typical peak period round-trip commute across Lake Washington would cost from \$5.83 (Scenario 5) to \$10.29 (Scenarios 1 and 3) in 2007 dollars.
- With a variable toll schedule, the average one-way toll per transaction over the course of a weekday would range from \$2.13 (Scenario 5) to \$3.12 (Scenarios 1 and 3) in 2007 dollars. While no one traveler would pay this amount, the average one-way toll per transaction serves an approximate fixed toll equivalent to the variable toll schedule, facilitating comparisons to Tacoma Narrows Bridge.
- As shown in Exhibit 4, inflation would make these amounts about 31 percent higher in 2018, the year of opening.

Exhibit 4. Weekday and Weekend Toll Schedules by Scenario and Bridge Toll Emphasis

Phase:	Weekday & Weekend Toll Schedules							
	After New Bridge Opens 2018 > (FY 2019 >)							
Bridge Toll Emphasis:	Traffic Throughput Bridge Tolls		Revenue / Traffic Balance Bridge Tolls		Revenue Max Bridge Tolls		Segment Tolls to/from I-5 or I-405*	
Application:	Scenario 5		Scenarios 2 & 4		Scenarios 1 & 3		Scenarios 1, 2, 4 & 5	
Year's \$s:	2018 \$s	2007 \$s	2018 \$s	2007 \$s	2018 \$s	2007 \$s	2018 \$s	2007 \$s
Weekdays								
12-5 AM	\$1.00	\$0.76	\$1.00	\$0.76	\$1.00	\$0.76	\$0.50	\$0.38
5-6 AM	\$2.00	\$1.52	\$2.00	\$1.52	\$2.50	\$1.91	\$0.50	\$0.38
6-7 AM	\$3.00	\$2.29	\$3.50	\$2.67	\$5.00	\$3.81	\$0.70	\$0.53
7-9 AM	\$3.40	\$2.59	\$4.00	\$3.05	\$6.00	\$4.57	\$0.80	\$0.61
9-10 AM	\$3.00	\$2.29	\$3.50	\$2.67	\$5.00	\$3.81	\$0.70	\$0.53
10 AM-2 PM	\$2.75	\$2.10	\$2.75	\$2.10	\$3.75	\$2.86	\$0.55	\$0.42
2-3 PM	\$3.40	\$2.59	\$4.00	\$3.05	\$5.75	\$4.38	\$0.80	\$0.61
3-6 PM	\$4.25	\$3.24	\$5.00	\$3.81	\$7.50	\$5.72	\$1.00	\$0.76
6-7 PM	\$3.40	\$2.59	\$4.00	\$3.05	\$5.75	\$4.38	\$0.80	\$0.61
7-9 PM	\$2.75	\$2.10	\$2.75	\$2.10	\$3.75	\$2.86	\$0.55	\$0.42
9-11PM	\$2.00	\$1.52	\$2.00	\$1.52	\$2.50	\$1.91	\$0.50	\$0.38
11 PM-12 AM	\$1.00	\$0.76	\$1.00	\$0.76	\$1.00	\$0.76	\$0.50	\$0.38
Wt. Average	\$2.79	\$2.13	\$3.06	\$2.33	\$4.10	\$3.12	\$0.72	\$0.55
Weekends								
12-5 AM	\$1.00	\$0.76	\$1.00	\$0.76	\$1.00	\$0.76	\$0.50	\$0.38
5-8 AM	\$1.00	\$0.76	\$1.00	\$0.76	\$1.00	\$0.76	\$0.50	\$0.38
8-11 AM	\$1.50	\$1.14	\$1.50	\$1.14	\$1.50	\$1.14	\$0.50	\$0.38
11 AM-6 PM	\$2.00	\$1.52	\$2.00	\$1.52	\$2.00	\$1.52	\$0.50	\$0.38
6-9PM	\$1.50	\$1.14	\$1.50	\$1.14	\$1.50	\$1.14	\$0.50	\$0.38
9-11PM	\$1.00	\$0.76	\$1.00	\$0.76	\$1.00	\$0.76	\$0.50	\$0.38
11 PM-12 AM	\$1.00	\$0.76	\$1.00	\$0.76	\$1.00	\$0.76	\$0.50	\$0.38
Note: Assumes 2.5% per year toll escalation.								
* Intra-Short Segment Tolls (e.g., between 92nd Ave & Bellevue Way) are 1/2 of the Segment Tolls.								

Exhibit 5 presents the pre-completion weekday and weekend toll rates by time period for the two scenarios in which tolling could begin in third quarter 2009. Rates are shown for the year of implementation in 2009 dollars as well as in constant 2007 dollars. Tolls are also assumed to escalate for inflation by 2.5 percent each year during the pre-completion toll period in the same manner as after the new bridge opens in mid-2018. Pre-completion tolling also assumed that nights from 11:00 PM to 5:00 AM would be toll-free when demand is low and construction closures are most likely.

Exhibit 5. Pre-Completion Weekday and Weekend Toll Schedules by Bridge Toll Emphasis

Phase:	Weekday & Weekend Toll Schedules			
	Pre-Completion Tolling 2009-2018 (FY 2010-18)			
Bridge Toll Emphasis:	Traffic Throughput Bridge Tolls		Revenue / Traffic Balance Bridge Tolls	
Application:	Additive to Scenario 5		Additive to Scenarios 1-4	
Year's \$s:	2009 \$s	2007 \$s	2009 \$s	2007 \$s
Weekdays				
12-5 AM	Toll-Free	Toll Free	Toll-Free	Toll Free
5-6 AM	\$1.60	\$1.52	\$1.60	\$1.52
6-7 AM	\$2.40	\$2.29	\$2.80	\$2.67
7-9 AM	\$2.72	\$2.59	\$3.20	\$3.05
9-10 AM	\$2.40	\$2.29	\$2.80	\$2.67
10 AM-2 PM	\$2.20	\$2.10	\$2.20	\$2.10
2-3 PM	\$2.72	\$2.59	\$3.20	\$3.05
3-6 PM	\$3.40	\$3.24	\$4.00	\$3.81
6-7 PM	\$2.72	\$2.59	\$3.20	\$3.05
7-9 PM	\$2.20	\$2.10	\$2.20	\$2.10
9-11PM	\$1.60	\$1.52	\$1.60	\$1.52
11 PM-12 AM	Toll-Free	Toll Free	Toll-Free	Toll Free
<i>Wt. Average</i>	\$2.35	\$2.24	\$2.58	\$2.46
Weekends				
12-5 AM	Toll-Free	Toll Free	Toll-Free	Toll Free
5-8 AM	\$0.80	\$0.76	\$0.80	\$0.76
8-11 AM	\$1.20	\$1.14	\$1.20	\$1.14
11 AM-6 PM	\$1.60	\$1.52	\$1.60	\$1.52
6-9PM	\$1.20	\$1.14	\$1.20	\$1.14
9-11PM	\$0.80	\$0.76	\$0.80	\$0.76
11 PM-12 AM	Toll-Free	Toll Free	Toll-Free	Toll Free

Note: Assumes 2.5% per year toll escalation.

Using Scenarios 2 and 4 as a representative example, Exhibit 6 graphically presents the variable weekday bridge and short segment toll schedules. The left axis of the chart provides toll rates in year of opening 2018 dollars while the right axis converts these to constant 2007 dollars.

Exhibit 7 presents the corresponding weekend bridge toll schedule that is assumed for all of the primary scenarios (Scenarios 1-5) when the new bridge opens, as well as the short segment tolls that apply to these same scenarios except Scenario 3. Short segment tolls are assumed to be fixed on weekends.

Exhibit 6. Scenarios 2 and 4 Balanced Traffic/Revenue Bridge and Segment Tolls (Weekdays)

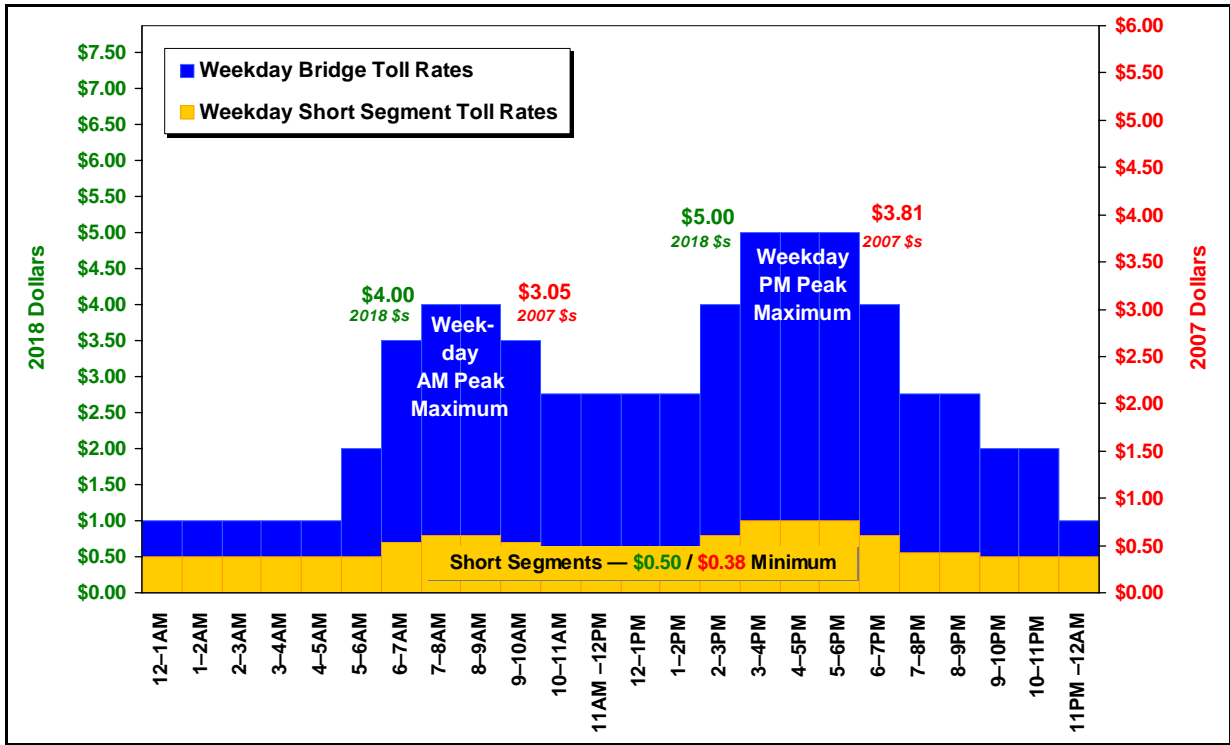
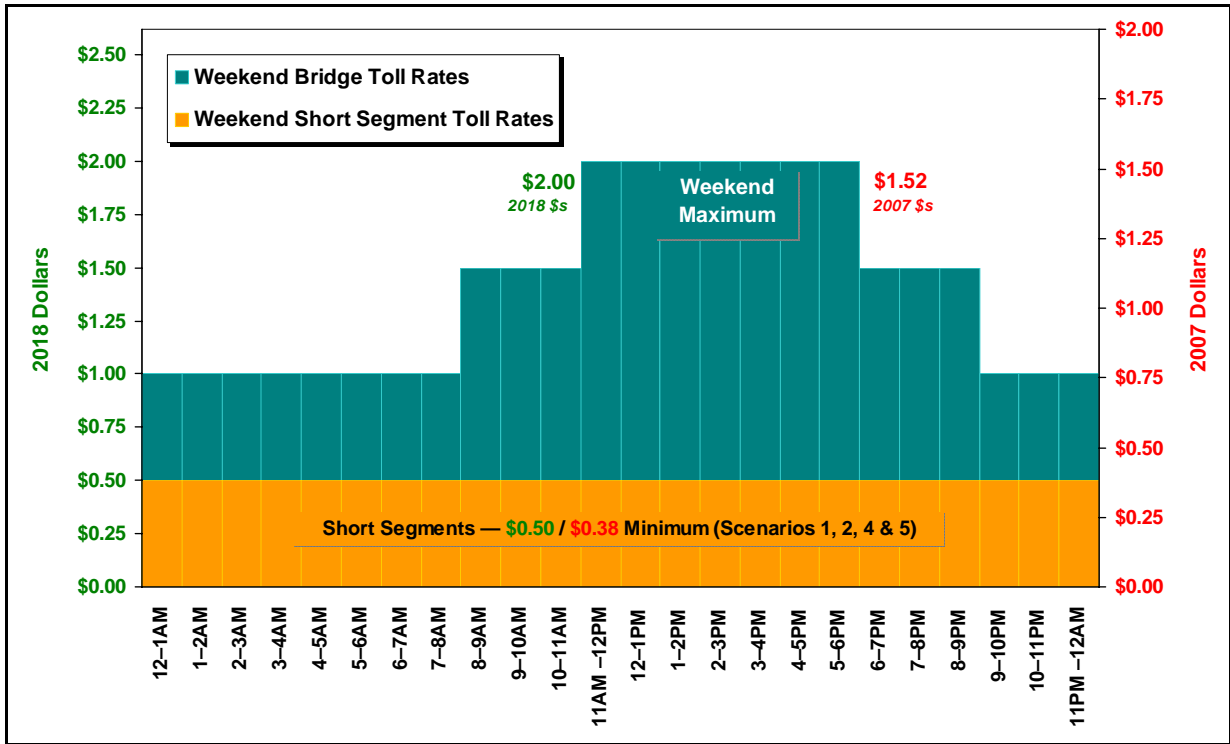


Exhibit 7. Scenarios 1-5 Bridge and Short Segment Toll Rates (Weekends)



How does tolling impact travel behavior?

Exhibit 2 earlier in this section illustrates how the scenario components would impact toll revenues, and thus, project funding. For the scenarios analyzed, higher tolls, more extensive corridor tolling, and/or fewer toll exemptions were projected to yield higher funding albeit with fewer vehicles choosing to use SR 520.

Because tolls change the time and monetary costs that travelers face when making a trip, they cause changes in travel behavior. Toll raises the out-of-pocket cost of travel, but may provide travel time savings and/or improved reliability, particularly during peak periods where lower demand due to tolls is most likely to reduce congestion. The public's willingness to pay tolls will depend upon several factors, including: how much time is saved on the tolled route relative to other alternatives; how much reliability is improved on the tolled route relative to other alternatives; the purpose and frequency of the trip being made; and the ease of payment.

What are the types of toll diversion?

The changes in travel patterns caused by tolls are often referred to as toll diversion. Implementing tolls can result in several types of diversion:

- Route diversion — a change of route to avoid the toll;
- Mode diversion — a shift in travel mode to transit or carpool to avoid or lower the toll cost;
- Change in time of travel — a shift in travel to a lower cost (lower toll) time of day;
- Change of trip destination — a shift in travel to a new destination that avoids the toll; and
- Change in trip frequency — a reduction in the frequency of a recurring trip, including trip elimination.

What impact does the regional transportation network have on the potential level of toll funding?

The characteristics of the entire network of highways, arterials and transit service can have a significant impact on the toll traffic projections for the SR 520 project. Alternatives to using SR 520 will be more attractive when the capacity and reliability of other roads and transit elements are higher. In other words, diversion away from SR 520 due to a toll will be higher if alternative routes and/or modes involving I-90, I-405 and I-5 are improved.

This finance plan assumes that the road and transit investments proposed in the Roads and Transit package are in place within the areas most impacting cross-lake travel by 2030. Travel demand modeling sensitivity tests were conducted to test what would

happen without these improvements in order to help understand how they would impact SR 520 travel and funding potential.

Relative to the roadway and transit network that exists today (plus currently programmed and fully funded projects), adding the Roads and Transit set of improvements:

- Decreased the overall demand for cross-lake travel in the general purpose travel lanes (–9.4 percent with tolls and –8.5 percent without tolls), with a more pronounced impact on I-90 than for SR 520;
- Increased cross-lake HOV traffic (+48 percent for SR 520 and +94 percent for I-90) due to the improved HOV facilities on I-90 and along the I-405 corridor;
- Increased overall cross-lake transit ridership (+35 percent) due to light rail on I-90, but decreased bus ridership on SR 520 (–63 percent) as reduced transit service there becomes less attractive; and
- Increased the diversion impact of tolls on SR 520 due to lower congestion on I-90 and I-405 making these routes more attractive while at the same time reliable light rail on I-90 makes transit there a more attractive option.

What impact does tolling have on the regional transportation network?

At present, there are approximately 113,500 vehicles using SR 520 on a typical weekday, carrying over 150,000 people.

The introduction of tolls on SR 520 and the resulting toll diversion will impact travel behavior and traffic characteristics for other parts of the regional roads and transit network. Some potential SR 520 users will respond to tolls by altering their own travel, including: route shifting to other corridors (e.g., I-90); shifting to other modes such as carpools or transit; shifting the times of travel to less costly periods; or by changing their trip destination or eliminating their trip altogether.

When SR 520 is tolled, general purpose lane traffic is expected to decrease and HOV lane traffic is expected to increase for the reasons described previously. Exhibit 8 presents the projected toll traffic volumes in 2030 for each of the toll scenarios analyzed.

Exhibit 8. Toll Traffic Volumes and Persons Served in 2030 by Toll Scenario

<i>Toll Scenario</i>	<i>Vehicles in General Purpose Lanes</i>	<i>Vehicles in 3+ HOV Lanes</i>	<i>Total SR 520 Bridge Vehicles</i>	<i>Total SR 520 Persons Served (Incl. Transit)</i>	<i>Total I-90 Bridge Vehicles</i>
Scenario 1	83,900	10,000	93,900	140,100	190,400
Scenario 2	107,200	10,500	117,700	169,700	181,300
Scenario 3	83,100	12,700	95,800	147,600	188,800
Scenario 4	107,200	12,200	119,400	175,100	180,400
Scenario 5	109,800	12,100	121,900	177,600	179,400

Note: "High Case" traffic projections for year 2030 are provided for consistency with project modeling procedures

Exhibit 9 presents the net toll diversion rates for each scenario, relative to a toll-free six-lane facility. These results include both the decrease in general purpose traffic volumes as well as the increase in HOVs if SR 520 is tolled.

Using Scenario 4 as an example, the number of vehicles crossing Lake Washington on SR 520 in 2030 is 21 percent lower when the bridge is tolled. The percentage of travelers that make these changes during the PM peak period, when SR 520 is most heavily congested, is less than the percentage change that would be observed for an entire day. This difference reflects the fact that other cross-lake routes are less attractive alternatives during the peak period due to congestion on those alternate routes. Similarly, diversion rates would be higher during off-peak periods when alternatives are more attractive, despite lower off-peak toll rates.

Exhibit 9. Toll Diversion as a Percentage of Toll-Free Traffic

<i>Scenario</i>	<i>Toll Impacts on 2030 Traffic (Relative to Toll-Free Build Condition)</i>							
	<i>520 Net Toll Diversion (%)</i>		<i>I-90 Net Increase (%)</i>		<i>520 Transit Mode Shift (%)</i>		<i>520 HOV3+ Mode Shift (%)</i>	
	<i>PM Peak</i>	<i>Daily</i>	<i>PM Peak</i>	<i>Daily</i>	<i>PM Peak</i>	<i>Daily</i>	<i>PM Peak</i>	<i>Daily</i>
Scenario 1	- 28%	- 38%	+ 5%	+ 14%	+ 23%	+ 23%	- 4%	- 10%
Scenario 2	- 13%	- 22%	+ 3%	+ 9%	+ 23%	+ 23%	+ 3%	- 6%
Scenario 3	- 26%	- 36%	+ 4%	+ 13%	+ 23%	+ 23%	+ 11%	+ 14%
Scenario 4	- 12%	- 21%	+ 3%	+ 8%	+ 23%	+ 23%	+ 12%	+ 9%
Scenario 5	- 10%	- 19%	+ 2%	+ 7%	+ 21%	+ 21%	+ 10%	+ 8%

In the absence of a toll on SR 520, the parallel I-90 bridge is projected to carry 167,100 daily vehicles in 2030. Projected 2030 traffic on a six-lane SR 520 bridge without a toll is estimated at 150,600 vehicles, consisting of 139,400 general purpose

vehicles and 11,200 high-occupancy vehicles. This level of future daily traffic would result in significant congestion during the increasingly expanded morning and afternoon commute periods.

Because peak periods would be congested, some level of toll diversion would be beneficial to SR 520 travel. Implementing tolls could actually improve throughput during these periods because the variable toll schedule would bring down peak travel demand to be more in line with available capacity.

What level of tolls is “optimal” depends on whether the goal is to move the most vehicles and persons (Scenario 5), maximize the funding provided by tolling (Scenario 1), or some balance in the middle.

What other factors impact the level of toll funding?

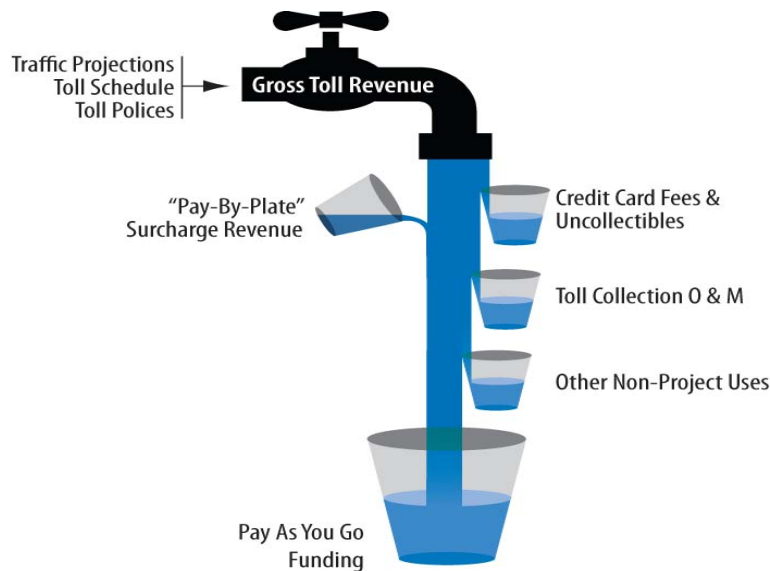
Pre-completion Financing Assumptions

Under the Urban Partnership Grant, toll revenues could be collected on the existing bridge before and during the construction phase of the project (2009-18). Revenues would start prior to the major construction expenditures and are best treated as “pay-as-you-go” project funding. This means pre-completion tolls would cover expenses as they are incurred, saving the cost of financing debt. Certain operational and maintenance expenses, including credit card fees and toll collection functions, would be deducted from the gross toll revenues resulting in the net toll revenues that would be available for funding project expenditures. Until the new facility is completed, routine bridge and roadway operation and maintenance expenses are assumed to be covered by the existing maintenance budget and/or capitalized as a cost of construction.

Exhibit 10 illustrates the flow of toll revenues that yield pay-as-you-go funding during the pre-completion period (third quarter 2009 through mid-2018).

A portion of the pre-completion gross toll revenues may need to be pledged to pay for additional transit service under the Lake Washington Congestion Management Program funded by the Urban Partnership Grant. This possibility is indicated by the “Other Non-Project Uses” bucket in Exhibit 10. The total operating cost of the new buses in the program over the nine fiscal years from FY 2010 to 2018 has been initially estimated at \$40 million. Until such an agreement with the other project partners has been finalized, pre-completion toll revenues are presented excluding these non-project uses.

Exhibit 10. Pre-Completion "Waterfall" Progression from Gross to Net Toll Revenues



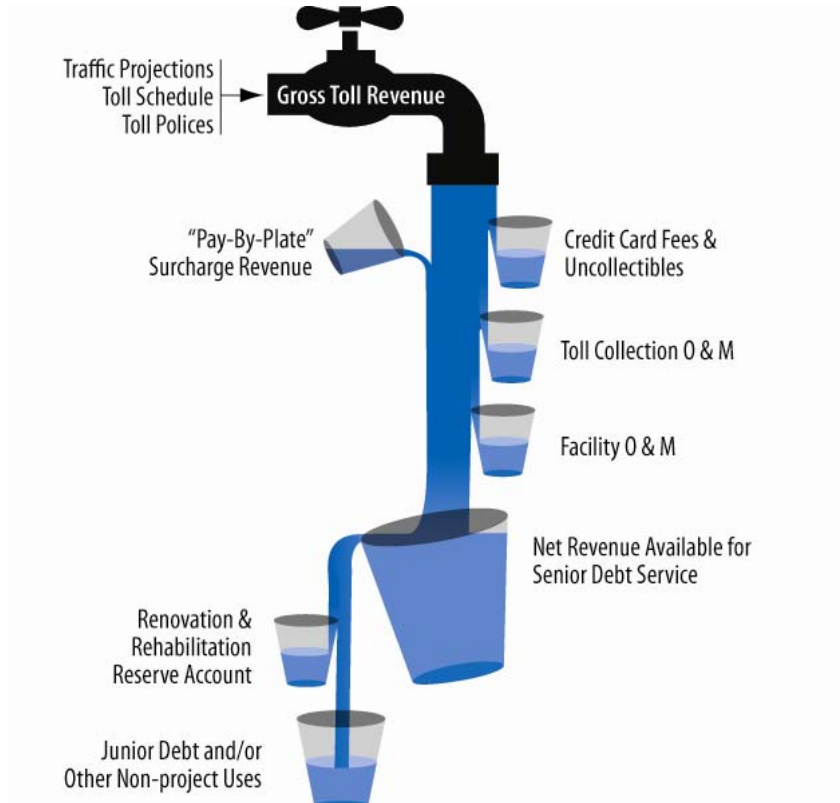
Post-completion Financing Assumptions

When toll revenues are used to repay bonds, the market typically requires that gross toll revenues be first pledged to cover the toll facility's operations and maintenance expenses prior to making debt service payments. This ensures that the facility and related assets are well-maintained and able to continue their revenue operations to provide an acceptable level of service to facility users. Providing funding for toll collection, routine bridge and roadway operations and maintenance as well as periodic repairs and rehabilitation also helps to minimize the risk of the facility being closed or other events interrupting the toll revenue stream. Other revenue sources and expenses are added and subtracted, respectively, to determine the net revenues available for debt service.

Exhibit 11 shows this progression from gross toll revenues to the net toll revenues available to repay debt, as anticipated for the SR 520 project. Gross toll revenues from SR 520 would be supplemented by "pay-by-plate" surcharge revenue from users without transponders, and would then be reduced by credit card fees, uncollectible accounts, toll collection operation and maintenance expenses, and facility operation and maintenance expenses. The resulting "Net Revenue Available for Debt Service" would be used to repay the principal and interest on the bonds and would determine the level of borrowing supported.⁷

⁷ The "pay-by-plate" surcharge amount is set to equal the additional cost of video toll collection from those without transponders.

Exhibit 11. Post-Completion "Waterfall" Progression from Gross to Net Toll Revenues



Debt Financing Assumptions

Two financing scenarios were examined by the Office of the State Treasurer, including:

1. 30-year General Obligation / Motor Vehicle Fuel Tax (GO/MVFT) bonds — Bonds repaid from toll revenues but backed by the Motor Vehicle Fuel Tax Fund would be considered by the financial markets to be essentially equivalent to general obligation bonds backed by the full faith and credit of the State of Washington. As a result, the cost of borrowing, issuing, and insuring these bonds would be the same as other state obligations.
2. 40-year Non-Recourse Toll Revenue bonds — Revenue bonds would be backed only by the toll revenue generated by the project, and thus, credit rating agencies consider revenue bonds riskier than their GO/MVFT counterparts. As a result, the coverage requirements and the cost of borrowing, issuing, and insuring these bonds would be greater than those for GO/MVFT bonds. The longer 40-year term helps offset the higher credit cost and coverage requirements of using non-recourse toll revenue bonds.

Exhibit 12 summarizes the bond financing assumptions used by the Office of the State Treasurer to identify the financial capacity of net toll revenues.

Exhibit 12. Bond Financing Assumptions

Assumption	GO/MVFT (State-Backed) Bonds	Revenue Bonds
Term	Long-Term (30-year)	Long-Term (40-year)
Minimum Debt Service Coverage Ratio*	1.25x: Annual net revenue is at least 125% the annual debt service payments **	1.5x: Annual net revenue is at least 150% of annual debt service payments
Interest Rates	5.90% Current Interest 6.40% Deferred Interest	6.00% Current Interest 6.50% Deferred Interest
Issuance Costs	0.2% of Par Amount	0.4% of Par Amount ***
Bond Insurance	0.15% of Debt Service	1.00% of Debt Service
Underwriter Discount Current Interest Bonds	0.50% of Par Amount	0.70% of Par Amount
Underwriter Discount - Deferred Interest Bonds	1.00% of Par Amount	1.20% of Par Amount
Minimum Fund Balance	None	None
Reserves	None	Debt Service Reserve Fund (Surety)
<p>* The Debt Service Coverage Ratio is the factor of net revenue available for repaying debt divided by the debt service principal and interest payments. The excess revenue provided by debt service coverage can be made available for other purposes, such as renovation and rehabilitation expenses, subordinated debt and/or other project or non-project uses.</p> <p>** Assumed, but may not be necessary for debt backed by the State of Washington.</p> <p>*** Includes the cost of a debt service reserve account surety policy.</p>		

The Office of the State Treasurer used the net toll revenue stream for each toll scenario and financing case to identify the maximum construction amounts that could be leveraged with bonds, subject to the above financing conditions, and assumed the bond proceeds would follow the distribution of project expenditures indicated in Exhibit 13.

Exhibit 13. Anticipated Schedule of Bond Proceeds

Fiscal Year	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Expenditure Distribution for Bond Proceeds	6.5%	16.3%	26.7%	27.1%	23.4%

The funding contribution of net toll revenues was optimized by “sculpting” the debt repayment schedule, using combinations of current interest bonds and deferred interest bonds, so that the payments increase over time in line with rising toll

revenues. This allows the state to borrow the largest amount possible while maintaining the desired debt service coverage level throughout the life of the debt repayment schedule.

How much project funding can be raised by the toll scenarios?

The results from the financial capacity analysis conducted by the Office of the State Treasurer are presented below as ranges for each toll scenario, depending on the traffic/revenue case, financing scenario, and when tolls begin.

Exhibit 14 presents the funding that could be contributed by tolls beginning in mid-2018 when the new bridge and approaches are open to traffic. The highlighted column focuses on the funding contribution that would be available from the sale of 30 year state-backed bonds under the base projection for traffic and revenue. The base projection lies between the low and high points of the traffic and revenue forecast range produced for each scenario.

Exhibit 14. Toll Funding Potential with Toll Beginning Mid-2018 (\$ Billions)

Implementation Timing	Tolling Begins Pre-Completion (Third Quarter 2009)					
Revenue Case	Low Projection		Base Projection		High Projection	
Scenario	30 Year State-Backed Debt	40 Year Non-Recourse Debt	30 Year State-Backed Debt	40 Year Non-Recourse Debt	30 Year State-Backed Debt	40 Year Non-Recourse Debt
Scenario 1 (Rev Max/Corridor/HOVs tolled)	\$1.72 B	\$1.63 B	\$1.91 B	\$1.82 B	\$2.09 B	\$1.98 B
Scenario 2 (Balanced/Corridor/HOVs tolled)	\$1.57 B	\$1.50 B	\$1.76 B	\$1.68 B	\$1.91 B	\$1.82 B
Scenario 3 (Rev Max/Bridge Only/HOVs free)	\$1.55 B	\$1.48 B	\$1.73 B	\$1.65 B	\$1.89 B	\$1.79 B
Scenario 4 (Balanced/Corridor/HOVs free)	\$1.50 B	\$1.43 B	\$1.69 B	\$1.61 B	\$1.83 B	\$1.74 B
Scenario 5 (Throughput/Corridor/HOVs free)	\$1.39 B	\$1.33 B	\$1.57 B	\$1.49 B	\$1.70 B	\$1.61 B

With financing provided by 30 year state-backed bonds, toll funding under the base traffic and revenue projections varies from \$1.04 billion with modest tolls designed to optimize traffic throughput (Scenario 5) to \$1.35 billion at the revenue maximizing tolls (Scenario 1). Future traffic levels would have to achieve their highest expectations and/or financial coverage assumptions would need to be reduced in order to reach the maximum toll funding level of \$1.52 billion.

Exhibit 15 shows the higher funding amounts that would result by adding pre-completion tolling to the existing bridge, beginning in third quarter 2009 (FY 2010).

A single pre-completion tolling case (Scenario B) was added to Scenarios 1 through 4. This implementation of tolls in 2009 is projected to yield upwards of an additional \$570 million in pay-as-you-go project funding under the base projection traffic and revenue case. Scenario 5, with slightly lower peak period toll rates, is projected to generate about \$530 million in additional funding for the base projection.

Exhibit 15. Toll Funding Potential with Pre-Completion Tolls Beginning in 2009 (\$ Billions)

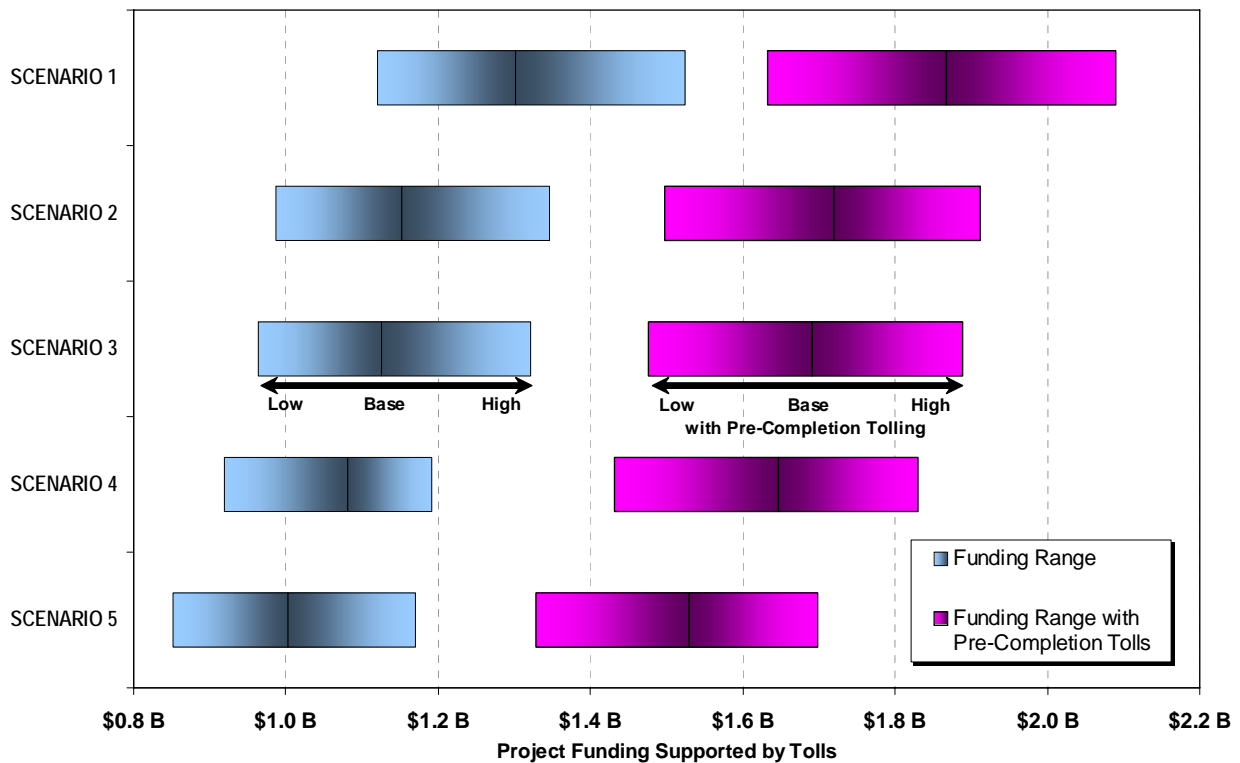
Implementation Timing		Tolling Begins Post Completion (July 1, 2018)					
Revenue Case		Low Projection		Base Projection		High Projection	
Scenario	Financing Case	30 Year State-Backed Debt	40 Year Non-Recourse Debt	30 Year State-Backed Debt	40 Year Non-Recourse Debt	30 Year State-Backed Debt	40 Year Non-Recourse Debt
		Scenario 1 (Rev Max/Corridor/HOVs tolled)		\$1.20 B	\$1.12 B	\$1.35 B	\$1.25 B
Scenario 2 (Balanced/Corridor/HOVs tolled)		\$1.06 B	\$0.99 B	\$1.19 B	\$1.11 B	\$1.35 B	\$1.25 B
Scenario 3 (Rev Max/Bridge Only/HOVs free)		\$1.04 B	\$0.96 B	\$1.17 B	\$1.08 B	\$1.32 B	\$1.23 B
Scenario 4 (Balanced/Corridor/HOVs free)		\$0.99 B	\$0.92 B	\$1.12 B	\$1.04 B	\$1.26 B	\$1.17 B
Scenario 5 (Throughput/Corridor/HOVs free)		\$0.92 B	\$0.85 B	\$1.04 B	\$0.97 B	\$1.17 B	\$1.09 B

These amounts assume that all net toll revenues (after toll collection operations and maintenance costs) are available for pay-as-you-go project capital expenditures. There are at least two circumstances in which the pre-completion toll funding would be less:

- Pre-completion funding would be about \$40 million less if toll revenues were pledged to cover the additional transit service operations resulting from the buses proposed for purchase with funding from the Urban Partnership Grant; and
- Pre-completion funding would be less if a toll exemption were given to 2+ HOVs or some subset of HOV traffic such as registered carpools.

The overall range of funding across the three traffic/revenue cases and the two financing scenarios is shown in Exhibit 16 for both tolling start dates.

Exhibit 16. Toll Funding Ranges by Scenario with and without Pre-Completion Tolls



Pre-completion tolling would provide an opportunity to establish a toll collection track-record in the SR 520 corridor. This would help to establish a baseline for the investment grade traffic and revenue forecasts that would typically occur prior to issuing debt, and would likely improve the credit rating or lower the cost of credit to the project if non-recourse toll revenue bonds are used in its financing.

6. WHAT IS THE FUNDING GAP?

Project needs, sources of funding and options for closing the gap

Earlier sections have described the project needs, the identified funding and the potential contribution of tolls. Exhibit 17 summarizes the funding as identified in the governor’s 2008 supplemental budget to define the current funding gap. The range of funding from tolls are presented as options that could help close the gap.

Exhibit 17. Summary of Project Funding Needs and Funding Sources

	<i>Millions of Dollars</i>
TARGET PROJECT NEED	
2006 Project Cost Estimate ¹	\$4,380 M
Less: Savings from Design Change & Early Construction of Pontoons ²	(\$400 M)
2007 Project Cost Estimate	\$3,980 M
SOURCES OF FUNDS <i>(based on the Governor's 2008 Supplemental Budget)</i>	
State Gas Tax (Nickel & TPA Packages, & Other State)	\$554 M
Allocation from WSDOT "Risk Pool" ³	\$1,072 M
Previously Committed Federal Bridge Funds	\$114 M
State Sales Tax Deferral or Transfer (similar to TNB) ⁴	\$180 M
Subtotal State/Federal Contribution	\$1,920 M
Shortfall / Funding Gap	\$2,060 M
Funding from Tolls	
SR 520 Tolls (beginning at completion in mid-2018) ⁵	\$850 M to \$1,520 M
Pre-Completion Tolling (toll existing bridge mid-2009 to mid-2018) ⁶	\$480 M to \$570 M
Tolling I-90	To Be Determined
<p>Note: The information in this table does not account for gaps caused by potential mis-matched timing in which project needs occur prior to funding availability.</p> <p>¹ 2006 estimate of probable costs for the 6-Lane Alternative with the Pacific Interchange option as reviewed by the Expert Review Panel.</p> <p>² The magnitude of cost savings depends both on design changes and on advancing certain construction activities to avoid the impacts of inflation; full savings requires early pontoon construction to be advanced to the 2009-11 and 2011-13 biennia.</p> <p>³ The Governor's 2008 Supplemental Budget proposes full allocation of the risk pool to the SR 520 Project. The risk pool is funded from \$800 million in future federal bridge funding and \$272 million in future federal Surface Transportation Program (STP) funds.</p> <p>⁴ Statutory amendments would be required. A state sales tax deferral would be repaid with future toll revenues.</p> <p>⁵ Legislation ESSB 6099 suggested tolls on SR 520. The range of funding generated by tolls is influenced by a number of factors underlying the toll scenarios tested. Toll rates vary by scenario from \$5.83 to \$10.29 in 2007 dollars for a peak commute period <u>round-trip</u> (7-9 AM and 3-6 PM). All scenarios employ variable toll schedules that provide lower tolls at off-peak times.</p> <p>⁶ Assumes all pre-completion net toll revenue would be available for project needs. Pre-completion toll scenarios tested toll rates from \$5.83 to \$6.86 in 2007 dollars for a peak commute period <u>round-trip</u>. Pre-completion tolling would require legislative approval. The Urban Partnership Grant provides funding for tolling infrastructure.</p>	

Tolling revenue projections are shown as ranges due to present uncertainty in their amounts or policy decisions that have not yet been made. While tolling SR 520 upon completion of the project could potentially yield up to \$1.5 billion, reaching this

amount requires charging relatively high toll rates, achieving an optimistic traffic forecast and issuing debt under favorable financing conditions. Similarly, receipt of FTA funding would likely extend the environmental process schedule, and the inflationary cost of project delay would reduce the net benefit of this potential funding source. We anticipate receiving additional direction on these funding options in 2008 as we refine the project finance plan.

Matching annual sources and uses of funds

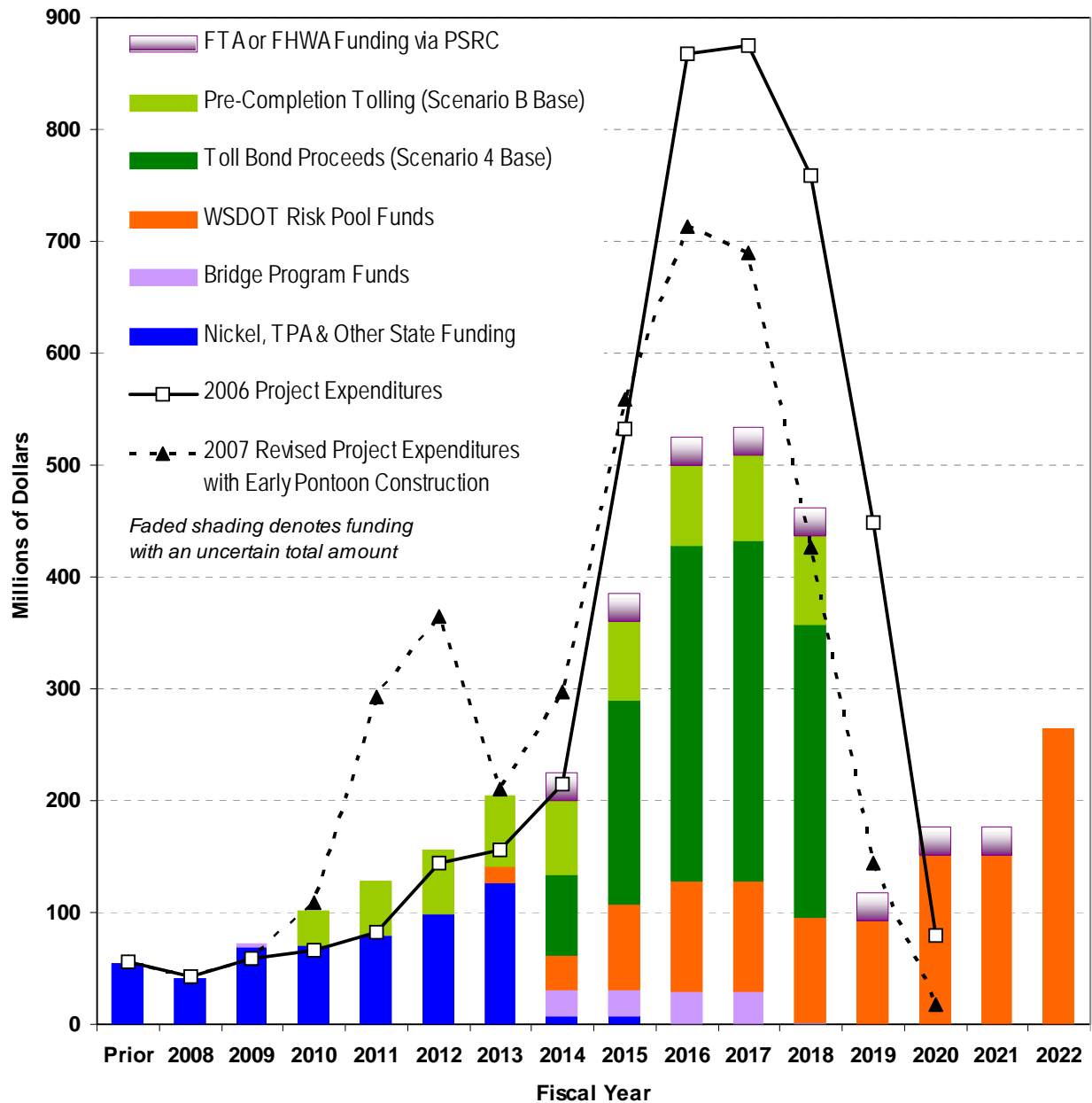
Exhibit 18 on the next page shows the alignment between the project's expenditures and an illustrative view of the funding over time. This illustrative funding scenario includes the governor's 2008 supplemental budget funding identified in Exhibit 17, potential FTA/FHWA funding, and Scenario 4 toll funding levels under the base case traffic and revenue projection combined with pre-completion tolling and the use of 30 year state-backed bonds.

The stacked bars show the categories and magnitudes of funding by color in each year. Project expenditures over time are indicated by the solid and dotted black lines, where the solid line represents the 2006 project cost schedule and the dotted line represents the revised 2007 cost schedule that reflects the alternative pontoon design combined with early pontoon construction.

Exhibit 18 emphasizes that closing the funding gap requires not only balancing the magnitude of funding sources with project uses, but also their timing. The entire funding gap consists of a series of annual gaps, each of which must be balanced. Even if sufficient overall project funding were identified, gaps might still exist in the balance of sources and uses on an annual basis.

The challenges involved in moving project funding sources back or forward in time vary by source. For example, the WSDOT Risk Pool funding relies on future federal funding, some of which is received after the project is substantially complete. Moving this funding to an earlier point in time may require borrowing against future federal disbursements. However, the interest costs of borrowing would lower the amount of funding that could be made available earlier in time.

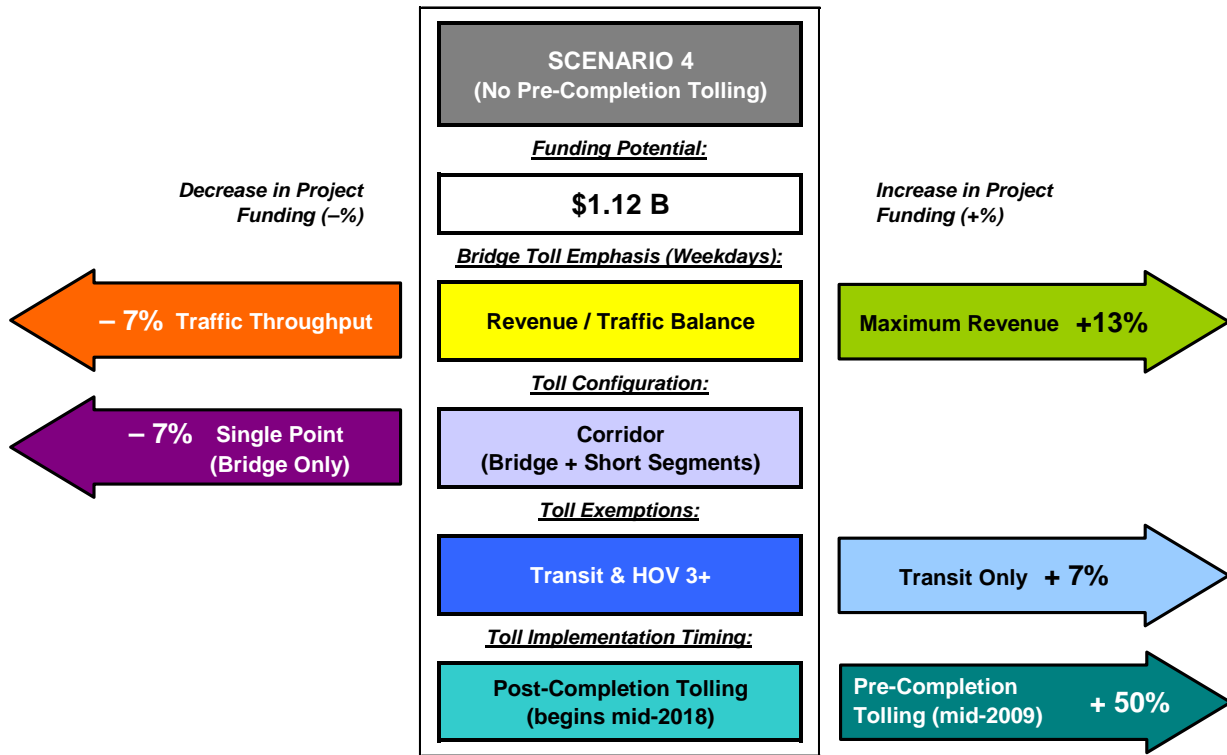
Exhibit 18. Illustrative View of Annual Sources and Uses of Funds



How do the toll scenario options impact funding levels?

Each of the components of toll policy and tolling objectives shown in Exhibit 3 has an impact on the amount of revenue that can be generated from tolls. The illustrative funding scenario shown in Exhibit 18 would yield \$1.12 billion from bonding the net toll revenues collected after the project is completed under Scenario 4. Exhibit 19 shows how changing some of the toll policy choices would impact the overall project funding provided by tolls, using Scenario 4 as a basis of comparison.

Exhibit 19. Impacts of Varying Toll Assumptions on Scenario 4 Funding Levels



For example, if optimizing traffic throughput were more important than balancing traffic and revenue goals, there would be a 7 percent reduction in the level of toll funding. Alternatively, changing the tolling emphasis to maximize revenue would result in a 13 percent increase in project funding.

Similar changes in project funding can be observed by altering other components as shown in Exhibit 19. For example, eliminating the short segment tolls so that only cross-lake travel was tolled would cut revenue by 7 percent. Separately, eliminating toll exemptions for HOV users would increase revenue by 7 percent.

The most significant component is the pre-completion tolling option. Tolling the new facility raises \$1.12 billion in funding. Tolling pre-completion adds roughly 50 percent to the funding potential of Scenario 4.

Summary

To summarize, there are several key findings described in the finance plan:

- **A funding gap exists.** There is still a gap between the amount of identified funding and actual project costs. The challenge lies not just in filling the gap, but in matching project needs and schedule with timing of available funds.
- **Tolling SR 520 could contribute substantial project funding.** Tolling SR 520 after the new bridge is open to drivers in 2018 could generate between \$850 million and \$1.5 billion for project funding purposes. Policy makers would need to adopt a toll strategy that balances the number of vehicles traveling in the corridor with the amount of revenue generated from tolls.
- **Pre-completion tolling jump-starts project funding.** Tolling SR 520 from late 2009 until the new bridge opens to drivers in 2018 could generate an additional \$480 to \$570 million.
- **Design changes and early pontoon construction could save \$400 million.** The current project cost estimate is \$4.38 billion for the 6-Lane Alternative with the Pacific Interchange option. With cost savings, including design changes and early pontoon construction, the project is estimated to cost \$3.98 billion.

Next Steps

As outlined on page 4 of this plan, there are several policy decisions that will need to be made regarding toll rates, toll locations in the SR 520 corridor, and whether tolling on I-90 should be included as part of the SR 520 revenue package. As part of these policy discussions, additional tolling and traffic analysis will need to be completed for I-90.