



Washington State Transportation  
Commission

# Washington State Comprehensive Tolling Study

## *Volume 2 – Background Papers*

# Final

# Report

*prepared by*

**Washington State Transportation Commission**

*by*

**Cambridge Systematics, Inc.**



*with*

IBI Group

Foster Pepper, PLLC

Frank Wilson & Associates

Mirai Transportation Planning and Engineering

PBS&J

Texas Transportation Institute

*September 20, 2006*

[www.wstc.wa.gov](http://www.wstc.wa.gov)



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# Preface

A team of consultants led by Cambridge Systematics, Inc. was hired by the Washington State Transportation Commission to conduct a Comprehensive Statewide Tolling Study. The study is being done at the direction of the Washington State Legislature who directed the Commission to conduct a: “...study of the State’s transportation system to determine the feasibility of administering tolls on specific transportation facilities or a network of facilities” (2005-2007 Transportation Budget, Chapter 313, Laws of 2005, Section 206(1)). This study will also serve as the comprehensive tolling study required for the new Transportation Innovative Partnerships Program (TIPP) (Chapter 317, Laws of 2005, Section 9(2)(a)), and as the tolling study necessary to implement toll facilities within the Regional Transportation Investment District (RTID).

This is Volume 2 of the Final Report. These papers are intended to provide the reader some background on national perspectives on various aspects of tolling as well as detail related to tolling in Washington State.

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# *Background Paper #1*

## **National Perspective: Uses of Tolling and Related Issues**

### ■ **Tolling Background and History**

Tolling has been used for centuries to finance highways. For example, early road building in the United States relied heavily on private, profit-seeking entities, and the historical remnants of these early turnpikes can be seen in the numerous roads with the “turnpike” moniker. The earliest turnpike in the United States was the Philadelphia and Lancaster Turnpike Road, built in 1795. These early turnpikes ultimately failed, as more efficient canals and then railroads were developed in the mid-1800s.

It was not until the popularization of automobiles in the early to mid-20<sup>th</sup> century that toll-backed financing gained renewed popularity. Starting with the Pennsylvania Turnpike in the 1930s, state after state embarked on building intercity highways using toll revenue bonds. For the most part, these new highways were developed by special purpose authorities and were financed with bonds backed by the anticipated toll collections. This era of turnpike building extended into the 1950s and early 1960s, but was mostly extinguished by the advent of the Interstate Highway System begun in 1956. Though some of these early turnpikes paid off their debt and removed their tolls, most still operate as tolled facilities, since the need to upgrade, expand, and extend could be funded through continuing toll collection on the original facilities.

The late 1970s and 1980s saw another revival of the toll financing concept, this time focusing on urban expressways in a few fast-growing areas, where traditional revenue sources were inadequate to meet growing traffic demands.

In the 1990s and continuing into the early part of the 21<sup>st</sup> century, toll facility development continued, this time enhanced by the promise of electronic toll collection to reduce or eliminate the delays commonly associated with traditional toll roads. Electronic toll collection also opened the opportunity for new concepts in tolling, such as high-occupancy toll (HOT) lanes, express toll lanes, truck only lanes, cordon tolling, and mileage-based pricing. Innovations are proceeding at a pace, whereby, it soon may be technically feasible to toll a broad spectrum of other roads, using global positioning satellites (GPS) or roadside short-range radio methods. Though the more recent activity has been more widespread than that in the 1970s and 1980s, tolling continues to be a solution primarily being done by a few states with intense traffic needs.

The advent of electronic toll collection has broadened the potential policy rationale for tolling. Whereas, the historical use of tolling has been to fund high-cost projects, it can now be used to manage congestion on a network with limited capacity. Economists have long argued that using flat user charges (the gas tax) does not reflect the true value of highway travel under congested conditions. Using price to manage demand is used in the airline, hotel, and telecommunications industries, to name a few. With electronic tolling, it can now be used in the highway industry, and many regions are starting to move in that direction.

## ■ Definition of Key Terms

There are a variety of terms used to describe the different types of tolling projects in use around the country, and everyone using them does not necessarily use the same terminology. As such, we have provided these definitions as they will be used in this report:

- **Tolling** – This involves charging a direct fee to use a highway, bridge, or tunnel (generically referred to as a “highway” or “toll road” for this report).
- **Pricing** – A subset of tolling, pricing focuses on the use of tolls to manage traffic demand, with revenue generation being a secondary objective. Various adjectives are sometimes used to modify the term pricing: variable-, congestion-, and value-. They all essentially mean the same thing: varying the toll charged based upon the time of day, day of week, and/or real-time traffic conditions in order to appropriately manage traffic. Pricing can be applied to traditional toll roads, bridges, tunnels, or designated highway lanes (i.e., managed lanes as defined below).
- **Traditional Toll Road (or Bridge/Tunnel)** – A highway that requires toll collections from all drivers (usually with the exception of emergency vehicles). Typically, those tolls are used to support operations and maintenance, as well as to pay debt service on the bonds issued to finance the toll facility. The toll rate does not vary by time of day or day of week. Tolls may be collected at a flat rate at toll plazas, or based on distance traveled using tickets, electronic transponders, or video recording of license plates. Many existing traditional toll roads are converting to some form of electronic toll collection, and most new toll projects incorporate the option to pay electronically.
- **Managed Lanes** – Any type of highway lane that is set aside for special use. A managed lane could be a traditional high-occupancy vehicle (HOV) lane (i.e., a lane restricted to vehicles that carry 2+ or 3+ passengers), a truck-only lane, or a bus-only lane. More recently, managed lanes also may refer to highway facilities for which tolled lanes are adjacent to free lanes. Drivers have the option to either pay the toll and use the toll lanes (to take advantage of travel time savings), or use the toll-free lanes instead. HOVs, transit buses, and motorcycles often are allowed to use the toll

lanes at no charge. The appropriate toll amount may be determined according to actual real-time traffic volumes.

The method used to select which highway projects may be good candidates for tolling varies widely from region to region. A comprehensive regional tolling plan could be developed, or the selection process could be done on a case-by-case basis.

The revenue generated from tolls may be used in ways that include, but are not limited to, the following:

- Debt service on new stand-alone projects;
- Debt service on toll road extensions and expansions;
- Capital renewal that does not involve new capacity;
- Operating and maintenance expenses; and
- Cross subsidization of other transportation projects and services, including transit.

## ■ Current Trends in Tolling Applications

There are several current trends in the planning and development of new tolling projects, as discussed below.

### Existing Systems Leveraging New Capacity

Regions with successful and mature toll roads have a significant advantage when trying to develop new toll projects. Historically, many of the nation's toll roads were developed using revenue bonds, which meant that projects needed to generate enough revenue to cover debt service in the early years. However, once they got through these early years (sometimes with the help of general obligation guarantees), they quickly became money makers, and had excess revenue. Depending on the enabling legislation or relevant bond documents, this excess revenue from the existing system often could be used to subsidize extensions or entirely new toll projects. A few recent examples of new toll projects being developed using system financing or guarantees are highlighted below.

In Texas, toll road authorities in both Houston and Dallas have continued to build new facilities backed by revenue streams from existing systems. In Dallas, the Metroplex Toll Financing System (MTFS) allows TxDOT and/or the North Texas Tollway Authority (NTTA) to make toll projects available for investment by other entities that would then receive returns on their investments, as well as benefit through accelerated project development and completion. Candidate MTFS projects would be those toll projects that can reasonably be expected to generate toll revenues beyond the level necessary to pay debt and expenses. These candidates could be designated MTFS projects and represent an

opportunity for local entities to partner in the investment, thereby, sharing in any surplus revenues generated by the toll project. For example, if City A were to contribute 10 percent of the funding for Project X, then that city would receive 10 percent of the surplus revenues from Project X. This surplus revenue could provide an ongoing funding source for the city to use in other transportation projects. In keeping with the premise of regional project support, first choice to invest in a MTFS toll project would belong to those cities and counties directly affected by a project. Contributions are not limited to cash, but include donated right-of-way, design, or other contributions to the value of the total project.

Also in Texas, the **Texas Mobility Fund** is a revolving fund that is designed to back bonds that are pledged towards the construction of highway projects. The proceeds from the sale of these bonds could be used to finance construction on state-maintained highways, publicly owned toll roads, and any other project that is eligible for the State's Highway Fund.

Other examples of using leverage from mature systems include:

- Florida's Turnpike and other agencies in Florida have built extensive systems of toll projects by using established revenue streams from earlier projects;
- In Massachusetts, excess revenues from the Massachusetts Turnpike Authority, obtained from toll increases, have been used to help close the funding gap in the Central Artery/Tunnel project, most of which is untolled; and
- In New York City, the MTA uses toll revenues from its bridge and tunnel crossings to subsidize its transit operations.

Leveraging the revenue of an existing system can create concerns about interregional and intraregional equity. People may not always be willing to have the tolls collected on "their" part of the system used to support projects on a part of the system that they do not use.

## Startup Traditional Toll Facilities

Many regions are turning to tolling to enable construction of limited access highway projects (or bridges/tunnels) that are not being funded through general funding mechanisms. When funding highway projects on a pay-as-you-go basis, it can often take years or decades for enough dollars to be available to pay for a project. With tolling, the dedicated future revenue stream can be bonded, enabling the project development to be accelerated. Recent projects are being developed through the public sector, as well as through public-private partnerships.

## ***Public Sector***

Historically, toll roads were developed by special purpose public authorities that raised capital either through the sale of non-recourse revenue bonds backed by toll collections. With non-recourse bonds, shortfalls in toll revenue could result in default. This was the case in most of the major eastern toll roads, such as the Massachusetts, Pennsylvania, and New Jersey turnpikes. In some cases, projects mitigated some of the default risk with backup pledges from government, either through general obligation bonds (where state or local governments pledged tax revenues to make up for any revenue shortfalls from tolls), or limited obligations of specific revenue sources (such as gas taxes).

In the mid-1980s, the toll road system in Harris County (Houston), Texas was financed with bonds backed by both toll revenues and a general obligation pledge of the County. Likewise, in the mid-1990s, the E-470 Public Highway Authority developed a startup toll facility in the Denver region with partial support from a regional vehicle registration fee.

In contrast, the Foothill/Eastern and San Joaquin toll roads in Orange County, California were developed by two public authorities (one for each corridor), largely through the use of non-recourse toll-backed debt.

For some projects, a combination of factors led to toll revenue in the early years to be considerably lower than forecast. Both Houston and Orange County toll road systems opened in the midst of severe economic recessions. This resulted in both financial and public relations difficulties. The E-470 project, in some ways, was the most speculative, as it was heavily dependent upon future traffic growth that would result from development spurred by the road itself. However, the risks inherent in the project were mitigated somewhat by both the pledge of the vehicle registration fees and the funding of deeply subordinated loans by the state DOT and local governments.

It is becoming increasingly difficult for new standalone projects to be self-supporting without revenue pledges from other sources (either non-toll or existing, mature toll facilities). This is probably due to the higher cost of road development. The rates on the Harris County system are about \$0.08 to \$0.14 per mile, while those on the Orange County projects are \$0.13 to \$0.23 per mile and the Denver project is \$0.18 per mile. By comparison, the toll rate on older, established facilities is much lower: the Illinois Tollway charge has been \$0.03 per mile until recently, and the toll rate on the New Jersey Turnpike is \$0.04 per mile. Rates on these older facilities have not had to keep pace with inflation.

## ***Public-Private Partnerships***

The mid-1990s brought greatly increased interest in the role of public-private partnerships (PPP) in the development of toll facilities. The interest in PPPs for this study is limited to situations where the private sector is responsible for contributing some or all of the capital needed to build a project. This may be contrasted with the *governmentally funded* design-build projects. In design-build projects, the private sector takes responsibility for delivering a project for a fixed price and a fixed date, but the funding ultimately comes from public sources, such as taxes (Federal, state, or local grants or tax-supported bonds).

For PPPs, where the private sector contributes capital, the level of private involvement varies considerably from project to project. For example, the Dulles Greenway project in Virginia and the Camino Colombia project in Texas were actually owned by private investors. Other PPPs have made use of 63-20 corporations, where ownership of the project resides in a publicly appointed nonprofit corporation, such as the Greenville Southern Connector in South Carolina and Pocahontas Parkway in Virginia.

All of these toll PPPs have struggled in their early years, with the Greenway project requiring restructuring of its debt, and the Camino Colombia project recently going bankrupt and closing. The Camino Colombia project was recently bought by the Texas Department of Transportation (TxDOT) for less than one-quarter of its construction cost, and has been reopened.

Many other attempts at developing toll roads as PPPs have failed or been derailed, due to adverse public reaction or the changing needs of the public sector. In recent years, potential public-private toll road projects in Minnesota and Arizona were canceled. The Tacoma Narrows Bridge project in Washington started out as a PPP, but was converted to a traditional, publicly financed toll bridge after public protest over the private sector profiting from a public project. In Chesapeake, Virginia, the Chesapeake Expressway went through its development process with the intent of being financed and operated through a 63-20 corporation, but ultimately, the project ended up being developed and owned by the City of Chesapeake, since much of the risk that was to have been transferred to the private sector had been reduced through the project development process.

Developing toll projects as PPPs is still in its infancy in the United States, with techniques and legislation evolving.

## ■ Recent Innovations in Tolloed Managed Lanes

The advent and rapid advancement of electronic toll collection technology allows for tolling to be applied in ways that were not possible a decade ago, making tolling faster and more convenient for both the drivers and the operating agency. In addition to the increased convenience to toll-paying customers, electronic toll collection allows for pricing to be used for traffic management purposes, in addition to, or even instead of, revenue generation.

Some of these new concepts have been implemented, while others are the subject of proposed legislation or policy discussion. The focus of this working paper is on these recent innovations in tolling, which have primarily been new or enhanced tolloed managed lane applications. There are several types of such applications, described below.

## **HOT (High-Occupancy Toll) Lanes**

HOT (High-Occupancy Toll) lanes grew out of the recognition that some traditional HOV lanes were underutilized. HOT lanes allow a single-occupancy vehicle (SOV) to pay a toll to use HOV lanes which have excess capacity. Three HOT lane projects were developed in the mid-1990s: SR 91 Express Lanes, I-15 HOT Lanes, and Katy Freeway QuickRide. In May 2005, the first MnPASS lanes on I-394 in Minneapolis opened to traffic, and the I-25 HOT lane is due to open in Denver this fall. Each of these is described below.

### ***SR 91 Express Lanes***

This was the first PPP to emerge in California, and involved the construction of four new express lanes (two in each direction) in the median of the heavily congested SR 91 freeway that connected homes in Riverside County to jobs in Orange County. The express lanes were about 10 miles long, and provided only one entry and exit point at each end. Toll rates were set based on historical traffic information to ensure free flow of traffic, and were intended to maximize revenue for the owner/operator, while maintaining a high level of traffic flow. The project combined innovations in PPPs (design-build development, private operations) with innovations in tolling (variable pricing and all-electronic collection).

The California Private Transportation Company operated the project as a business, focusing on customer satisfaction. They provided such a high level of emergency/safety surveillance that some drivers chose to pay to use the toll lanes even during periods when there was no congestion on the adjacent free lanes. The company also frequently surveyed customers to enhance the customer experience.

The project was an unqualified success. The typical customer used the facility once or twice a week (rather than everyday), but felt as if they received value for the money they paid when they needed to avoid congestion on the adjacent free lanes.

Over time, however, the project came under increasing criticism, especially from commuters residing in Riverside County. A clause in the franchise agreement entered into between the company and the California DOT (Caltrans) limited Caltrans' ability to provide capacity enhancements that competed with the HOT lane project (a so-called "non-compete" clause). Ultimately, the project was sold by the private developer to the Orange County Transportation Authority (OCTA) for a profit. OCTA is moving forward with the capacity enhancements, and has modified the tolling policy to increase traffic flow at lower toll prices.

### ***I-15 HOT Lanes***

Around the same time, the San Diego Association of Governments (SANDAG) moved forward with a demonstration project funded in part from the Federal Highway Administration's (FHWA) congestion pricing pilot program (now called value pricing). The project involved conversion of the existing reversible HOV lanes to about eight miles

of HOT lanes. Toll prices are set dynamically, meaning that the traffic volume on the HOT lane dictates the toll price, changing every six minutes to keep traffic at free flow in the HOT lane. This project is not a private venture, and the upfront capital costs were not extensive since the lanes already existed. The only costs were for toll collection and enforcement. Excess revenue from the project is used to support improved transit service in the corridor.

### ***Katy Freeway QuickRide***

Another variety of HOT lane project was built in Houston, where an existing reversible single-lane HOV lane was modified to increase the number of drivers using the lane. On the Katy Freeway, HOVs were defined as cars with three or more people during certain peak hours. With the QuickRide program, HOVs with two or more could pay to use the HOV lane during those hours. Use of the lane is by subscription only, and the lane has a few hundred paying customers a day. The program was extended to the U.S. 290 reversible HOV lane in 2000 (for the a.m. period only).

### ***I-394 HOT Lane (MnPASS)***

The first HOT lane to open for quite awhile just opened recently in Minneapolis, where the existing HOV lane on I-394 was converted to a HOT lane. The project extends for nine miles in one direction (11 in the other), with part of the project a single lane in each direction, and the remainder two lanes reversible. I-394 is different from previous HOT lane projects in these ways:

- Most of it is a single lane in each direction, with only a double-white stripe separating the HOV/Toll traffic from the general purpose traffic.
- There are zones where there are breaks in the striping to allow drivers to enter or exit the facility. This is in contrast to the single on- and off-points on previous projects.
- There are two tolling zones, and prices change dynamically every three minutes, based on traffic density in the HOT lanes. Drivers are shown the price to use either one or both tolling zones at the beginning of their trip, with the price at entry guaranteed, regardless of any price changes by the time they get to the new section.
- Enforcement of the HOV and tolling is done by roving patrol vehicles. Some patrol cars are equipped with enforcement transponders that allow them to query the transponders of vehicles in the toll lane that do not have more than one occupant.

The project is still new, but early indications have found that about 4,000 people per day use the facility, and that the buffer-separated design is generally being heeded by the public. The algorithms that modify the tolls have been found to be very sensitive to short-term variations in traffic density that result from the “platooning” or grouping of vehicles behind slower vehicles (particularly buses); alternative approaches are being studied. A

recent study by a television news team found that the HOT lane saved about an hour of time over the course of a week's worth of commuting at a cost of about \$12.00.

The HOT lanes originally ran for 24 hours a day; whereas, the HOV lanes they replaced only operated during peak hours in the peak direction. However, this has now changed, such that the traffic in the non-peak direction is allowed free access to the HOT lanes. This is because traffic conditions in the general purpose lanes were found to worsen with the take away of the previously non-restricted HOV lanes.

Early findings also are that the lanes are not generating enough revenue to cover operations expenses. This may be due to the change in hours of operation described above.

### ***I-25 HOT Lane***

The I-25 HOT Lane Project in Colorado is scheduled to open in spring 2006. This project is a conversion of the existing I-25 HOV facility. State law currently maintains free access for HOV2+, motorcycles, Inherently Low-Emission Vehicles (ILEV), and hybrids. Colorado DOT currently is seeking a change in state statutes for the hybrids to become tolled. The important constraints on this project are as follows:

- The full funding grant agreement between the Federal Transit Administration (FTA) and the Regional Transportation District (RTD) specifies that net revenues must go to transit;
- Bus travel times take precedence over all others using the facility, meaning that the addition of SOV traffic should not impact bus operations; and
- Entering and exiting loading constraints for the facility into the downtown Denver grid network mean that the pricing for this facility will be on a published toll schedule to be updated periodically, rather than with dynamic pricing.

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

### ***Summary of HOT Lane Experience to Date***

HOT lanes are not one-size-fits-all. Each of the three HOT lane projects developed to date has had different policy motives. The SR 91 project grew out of a desire to increase capacity in a heavily congested corridor, and provided a way for a private partner to develop the project motivated by profit. The I-15 project grew out of a desire to utilize spare capacity on the HOV lanes, as well as the desire to cross-subsidize transit service in the corridor. The Katy Freeway QuickRide program was a way to obtain more productivity out of underutilized HOV lanes during the hours when HOV2s were not permitted to use them.

## **Express Toll Lanes**

As with HOT lanes, express toll lanes are situated next to regular highway lanes. The difference from the HOT lane concept is that with an express toll lane, all personal automobiles using them pay a toll – there are no exceptions made for HOV vehicles. However, transit vehicles and/or registered vanpools would usually be allowed to operate for free. While these lanes typically represent added highway capacity, existing toll-free lanes also could be converted to toll lanes. Express toll lanes also could be located adjacent to traditional toll roads, but employ variable pricing (based on time of day and/or congestion levels) to maintain free-flowing traffic.

The Tampa-Hillsborough County Expressway Authority currently is building three express toll lanes elevated over the existing Lee Roy Selmon Crosstown Expressway (a toll road), and plans to charge premium tolls for the express service. The Miami-Dade Expressway Authority also has been studying a similar project on its SR 836 toll road. Express toll lanes also are being actively studied in Maryland, Georgia, and Minnesota.

## **Truck-Only Toll (TOT) Lanes**

Truck-Only Toll (TOT) lanes have the potential to improve safety and increase productivity in the trucking industry. One concept is dedicated toll truckways for long-haul truck movements. The toll truckways would be built next to existing roadways, but would be barrier-separated from general traffic to improve safety. The toll truckways could potentially be built to withstand greater vehicle weights, thus, enabling a single truck driver to carry several times the payload than currently is permitted in most states. In theory, truckers would, therefore, be attracted to use the TOT lanes, because the toll cost would be offset by the additional safety and productivity. With the TOT lane concept, a single truckway lane would be provided in each freeway direction of travel, with frequent passing lanes and staging yards near cities or major highway junctions. The concept also could involve a rebate of fuel taxes for mileage spent on the toll truckways. Separating truck traffic from auto traffic also has potential safety benefits by separating vehicles with different operating characteristics into separate traffic streams.

TOT lanes have been studied in the Los Angeles region on SR 60 and I-710, both of which are heavily utilized by trucks accessing the Ports of Los Angeles and Long Beach. The preliminary Los Angeles region studies found that urban TOT lane facilities would need to overcome challenges that include truck trips of short lengths, limited travel time savings during off-peak periods, and significant construction costs and geometric constraints related to adding lanes in an urban environment.

Another TOT lane concept involves urban corridors, which do not necessarily allow longer or heavier vehicles. Such a system of TOT lanes has been recently studied in the Atlanta metropolitan areas, with the findings that TOT lanes had a high potential for relieving congestion, potentially even more than HOV or HOT lanes. Some of the scenarios studied involved the conversion of existing and planned HOV lanes to TOT

lanes. Such a policy would be unprecedented, and be politically very difficult to implement. However, the study does point the way towards the potential for TOT lanes in dense urban regions with heavy truck demands.

## **Tolled Managed Lane Issues**

Tolled managed lane facilities in their various forms are an exciting and promising mechanism to generate revenue, manage traffic congestion, and improve operational efficiency. Some members of the public continue to be skeptical with respect to paying tolls, particularly when toll-free alternatives are available. One of the biggest challenges with tolling involves creating a common understanding of what is being proposed, and the policy or strategic basis for the particular proposal. Some of the key issues surrounding tolled managed lane concepts are discussed below.

### ***All Express Toll Lanes Depend on Congestion***

Express toll lanes, whether HOV are allowed in for free or not, depend on congestion to be successful. It is congestion that creates the value offered by a lane managed through pricing. If there is no congestion, there is no need for such a facility. This means that express toll lane solutions are best suited in corridors where there is no opportunity to expand capacity, and where the traffic management potential of toll lanes provides a benefit to all travelers at some time when their personal value of time is high enough to warrant paying extra to be somewhere on time.

### ***Traffic Management Benefits of Toll Lanes Depend on Tolls Forever***

Traditionally, people expect tolls to be removed once the debt to finance a facility has been paid off. In the case of express toll lanes, the value of the project depends on the tolls staying on. It is the tolls that create the traffic management benefit, and that benefit will be lost if tolls are removed. This leaves the question of what should be done with the money collected by tolls on a managed lanes system.

### ***Revenue Productivity***

How much of the capital cost of a highway improvement can a toll lane project generate? Can it produce excess revenue to subsidize other highway or transit projects? There is a tendency to think that tolling projects can be big revenue generators, but in fact there are likely to be very few applications for which tolling could be fully self-supporting, except for projects that simply involve a conversion of existing general purpose lanes to tolling lanes. The success of express toll lanes depends largely on congestion levels in adjacent lanes. In most metropolitan areas, such congestion only lasts for an hour or two during morning and evening rush hours – typically not enough to pay for an expensive infrastructure project. In addition, the sections of highway with the greatest need for capacity expansion are often the ones with the most geometric constraints – meaning that

the upfront design and construction costs will be high. Increasingly, pricing projects are being considered for their potential traffic management capabilities, regardless of their ability to fund new infrastructure construction.

### *Policy Justification*

It is important to clearly articulate the policy rationale for considering a tolling project. One rationale might be to simply provide a supplemental revenue source to enable a project to be built sooner than it would otherwise. Another might be to provide a congestion-free alternative in places where “building your way out of congestion” with conventional freeway lanes is not possible. Whatever the policy objective is for a particular project, it must be clearly articulated and justified for both decision-makers and the public in order for a new tolling project to be approved.

### *Equity*

Equity considerations may emerge in public discussions, including “Lexus Lane” concerns (i.e., providing a highway lane that is only affordable to the wealthy) and geographic concerns (i.e., why travelers must pay a toll for certain parts of the transportation network, while other parts have no tolls). In some cases, the public also has expressed concerns about the private sector being in the business of collecting and setting tolls for a profit. They may not understand why, if the private sector is able to make a profit on such projects, the public sector does not simply develop the project on its own.

### *Implementation*

Implementing new tolled managed lane projects often have particular challenges. For example, how would cars get in and out of the lanes – any time they want, via special ramps, or with merge/weave zones? Would tolling just happen during peak periods or all day? How would safety be affected? What happens if an accident blocks one or more tolled managed general purpose lane(s) for some period of time?

## ■ **Cordon Pricing**

Cordon pricing is a relatively new concept; whereby, vehicles are charged a toll to enter a highly congested area. The concept has been in use in Singapore since 1975, and recently enacted in the central business district portion of London. The concept in London involves a flat toll of £5 to enter the cordoned area during normal business hours. The toll has resulted in a significant reduction in congestion, with the revenue being used to subsidize additional transit services. Generally considered a success, the London cordon charge is expected to be expanded to a larger area.

## ■ Conclusions: Tolling Opportunities and Constraints

Clearly, the use of tolling in numerous forms is under intense consideration in many regions of the country. Some states and regions have been successful at advancing the idea that tolls can be used to finance desired highway improvements, while others have struggled to advance proposals beyond the discussion phase. This section explores some of the lessons learned from recent toll project development activities, and the opportunities and constraints for such activities in the future.

### Underlying Conditions

#### *Leveraging Existing Toll Facilities Provides a Head Start*

Regions that have existing toll assets have an advantage over those just starting out, because they have the ability to leverage the revenue stream from the current facilities. The ability to provide system financing (i.e., apply excess revenues from other parts of the toll enterprise) or to provide loans or seed money, provides new projects in such communities a “head start” over other areas. Areas with existing toll facilities also have a head start on the public relations and political battles regarding the use of tolls in the first place.

#### *Heavy Traffic Congestion Breeds a “Last Resort” Mentality*

Places with intense traffic congestion have a greater incentive to move to tolling than those that do not. Especially in areas with rapid growth, traditional public funding is often inadequate to keep up with traffic needs. Often, tolling is a way to advance a project that cannot be afforded for 10 or 20 years. Where congestion is not as pressing an issue, communities may make the choice to wait the extra time for the desired highway projects.

#### *Political Champions Needed*

It usually takes an elected official to champion a particular toll project. Without the benefit of an elected champion, projects are less likely to advance.

#### *Electronic Toll Collection Removes One Big Objection*

Many people still equate toll roads with congestion at toll booths. With electronic toll collection, most new toll projects are able to offer highway-speed toll collection facilities, which eliminate this objection.

## Expectations Versus Reality

It is rare for a startup toll project to be able to be fully self supporting without some kind of credit enhancement or financial contribution. The difficulty of startup toll projects has been demonstrated repeatedly around the country. Various factors contribute to this reality:

- Development costs are high, especially in congested urban areas.
- Projects being built in anticipation of (or to accommodate/encourage) future development are inherently risky. Although development costs in these areas may be lower, potential revenue from traffic also is likely to be more speculative. High population and employment growth rates over extended periods of time are no guarantee of future continuation of such trends. Indeed, normal trends in the business cycle might lead to a situation where the high growth that leads to the pent up demand for a startup toll road stalls by the time the road opens, thereby, impacting early year revenues from a project.
- The full and timely payment requirements of traditional municipal bonds set a high bar for feasibility. Credit enhancements that give projects time to mature are likely to be critical for most projects to be acceptable to investors.

Attempts to mitigate these factors also may exacerbate the toll facility's financial problems in later years. For example, the San Joaquin Hills toll road was built in anticipation of a continuation of intense traffic growth in Orange County. The debt service was structured so that early year payments were lower, but later year payments were higher. The financing also assumed toll rate escalation over time. When growth stalled in Orange County at the opening of the toll road in 1997, the agency struggled to make debt service payments. In traditional financings, this early year pressure ultimately would ease, as traffic grew sufficiently to meet a level debt service payment schedule. However, in the case of the San Joaquin Hills toll road, since debt service increases over time, and toll rates increase over time, traffic never really had a chance to catch up.

The growing acknowledgment of traffic uncertainty in the ramp-up period is being reflected in recent initiatives in the various states. The Florida and Texas case studies show that the states are willing to contribute to the development and early year support of new toll projects. Colorado allows state and local support for toll projects up to 10 percent of the cost (and is exploring how it might incorporate Federal assistance).

Recent activities with FAST lanes projects are recognizing that such projects are unlikely to be self supporting. In Minnesota, a PPP program designed to attract private partners initially anticipated 100 percent private funding; however, over time, the financial realities of such lanes have migrated that thinking toward "how much" the public subsidy will need to be.

## Outlook

Whether, where, and how to use tolling to fill gaps in funding for expansion of highway infrastructure comes down to how different regions treat the financial, philosophical, and political questions that toll financing entails.

### Questions

#### **1. Should funding for building or expanding corridors be paid from general fuel tax revenues (general user fees), or from user fees generated in the corridor (tolls)?**

Texas has all, but made the policy decision to fund new limited-access highway capacity at least partially through tolls. A number of states may be creeping towards that idea, and yet others are not ready to embrace such policies. An important consideration in this question has to do with equity between corridors or regions. Should one corridor be expected to pay its own way, while others benefit from traditional DOT revenue streams? When DOTs do provide backstop financing or seed money, how can they ensure equity around their states?

Such issues are not new, and are not limited to toll finance. When projects are funded with general user fees, the same issue of social equity must be dealt with in the intrastate distributions of public funds. With projects that are partially funded by tolls, another equity issue that arises is related to double taxation – if drivers are paying gas taxes, why should they have to pay again with tolls? If they pay tolls, are they entitled to a rebate on gas taxes? The Massachusetts Turnpike, for example, offers rebates on fuel taxes for drivers that provide documentation of using the Turnpike. Ultimately, the answers to these questions are political, but there are potential answers to why tolls may not be double taxation. For instance, most new toll facilities will not be self-supporting from tolls for many, many years, and the fuel taxes cover the costs not paid for through tolls – thereby allowing the project to be built and provide mobility benefits earlier than with tax-only projects.

One key difference between discussions of toll finance today and a decade or two ago revolves around government involvement. Federal policy still prohibits tolling the Interstates (with the exception of a few pilot projects). States are beginning to realize that they need to play an important role in project finance if new projects are to succeed, and are more open to supporting projects financially through a combination of toll and other tax-based revenues. For example, the Chesapeake Expressway in Virginia is a tolled facility, but state policy-makers recognized early on during project development that it could never be self-sustaining. The State contributed public funds to cover 75 percent of the total capital costs.

#### **2. To what extent should projects have to be self-sustaining?**

It is much easier to finance a new toll project if there is an existing stream of revenue from a mature project to provide a source of funds for pooled financing. Such cross-subsidies, while financially desirable, can bring out interregional and intraregional concerns

regarding the allocation of scarce dollars. As noted above in the Dallas/Fort Worth region with the Metroplex Toll Financing System, carefully crafted agreements are possible.

### **3. What role should the private sector play in developing projects?**

Public-private partnerships typically bring innovation, risk transfer, and accelerated completion to the project development process. If the project is financed with toll revenue bonds, PPPs can help structure the debt financing so that it avoids state borrowing limitations. They allow states to avoid debt cap limitations. However, the price of private involvement can include a real or perceived loss of public control. The successful SR 91 project in Southern California is an example where the public gave up control over toll setting and improvements to competing routes, with the ultimate result being a perceived need to buy out the private involvement. Washington and Virginia also have backed out of potential PPP deals to some extent motivated by issues of control. Though not a U.S. project, the current lawsuit in the Province of Ontario between the private owners of the Highway 407 ETR in Toronto and the government over who has the right to set toll rates is a telling example of privatization issues.

### **4. Are toll lanes an appropriate response to traffic congestion in urban areas?**

Toll lanes provide an interesting response to a difficult problem. The conventional wisdom is that “you can’t build your way out of congestion,” and indeed, the increase in new lane miles has not come close to the increase in vehicle miles of travel over the last few decades in the United States. Toll lanes serve a dual purpose – they bring a funding source (tolls and possibly up-front capital from private partners), and the ability to manage demand through variable pricing.

The use of variable pricing to offer improved reliability to those willing to pay is a new concept in highways, but not new in other arenas, such as air travel and hotel pricing. It also has a long history in other public utilities, such as telecommunications and electricity. While the telecommunications industry has moved away from “congestion pricing” in recent years, and has embraced more of a flat-pricing model, this is because of intense competition among providers, and the fact that the telecommunications system now has lots of excess capacity – certainly not the case for highways.

In the constrained capacity environment of urban highways, using tolls to provide a measure of reliability to the public could be a creative compromise. Most people acknowledge that enough capacity cannot be built to ward off congestion problems. However using prices to keep lanes flowing when people really need them is a concept that might gain favor over time. The policy rationale for providing partial public subsidies for such toll lanes is fairly solid as well – when people pay to use the express lanes, they free up capacity in the “free” lanes, thereby, benefiting everyone. And when a particular traveler really needs the uncongested capacity in those cases where their own value of time is high enough to warrant paying the toll, they will be happy the lanes are available.

Express toll lanes are being advanced in several places right now, and time will tell the extent to which they can achieve political acceptance and achieve the objectives intended.

At current and anticipated future levels, the motor fuel tax will be inadequate to satisfy all the highway construction demands in areas where new highways are still needed. In most of the country, toll-revenue financed projects can be expected to be successful at closing some of this revenue gap in a limited number of locations where conditions are most favorable.

*Background paper prepared by Cambridge Systematics, Inc., with assistance from PBS&J and Texas Transportation Institute in January 2006.*

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## Background Paper #2

# Ascertainment Interviews: Opinion of Washington's Community Leaders

### ■ Executive Summary

This report summarizes the results of an Ascertainment of Stakeholder Views and includes a Situation Analysis for consideration of the issues facing the implementation of tolling in the State of Washington. Frank Wilson & Associates conducted 16 interviews with community leaders and interest group representatives from all areas of the State. Interviews took place between October 13 and November 16.

#### What Was Most Important to Interviewees?

- **Safety** - Transportation system has been ignored for a couple of decades, making some roads and bridges downright dangerous - especially vulnerable in a seismic event.
- **Economy** - An efficient transportation system and the ability to move product to market is critical to the economy and future of the State; the need to accelerate projects through toll financing should consider these economic factors.
- **Congestion Relief** - Congestion has worsened considerably, with travelers in the Puget Sound area most affected by delays on a regular basis.
- **Fairness is Important** - Tolling the Tacoma Narrows Bridge is acceptable, but there was not a bigger context of tolling to reassure Kitsap Peninsula residents that other areas also would have tolled projects. As a result, most interviewees identified fairness as important in implementing tolling in all areas of the State.
- **Congestion Management is Inherently Fair** - Most interviewees who were familiar with the concept of congestion management thought it is a fair way to add capacity to existing roads. They believe it is a low-cost, practical way to fix existing roads - and it represents a choice. Those who were unfamiliar with congestion management had a harder time imagining how it would work, but liked the idea if it could show itself to work in certain environments.

- **Tolling is the Way of the Future** – It is inevitable – and has been the tradition for funding bridge construction in Washington. There is no other way to build what we need.
- **Acceptance of Tolling among the General Public will Take Time** – The State should do some pilot projects first. Many interviewees consider the Tacoma Narrows Bridge and SR 167 as defacto demonstration projects.

## What Projects are Conducive to Tolling?

Interviewees indicated that bridges are natural – they have traditionally been tolled and it may be the only way to pay for them. Projects with a clear need and conditions that make tolling practical were mentioned. Interviewees were not in favor of tolling an entire road, but did like the idea of HOT lanes, where drivers had a choice. Projects that add capacity or relieve congestion should be the priority. Some projects that received frequent mentions were:

- SR 520 and I-90 bridges (These were mentioned sometimes separately and sometimes together – with SR 520 mentioned more frequently because of more urgent safety issues. Some interviewees thought a toll would have to be placed on both bridges to avoid congestion on one or the other.).
- SR 167 HOT lanes.
- I-5 through Seattle (problem of Convention Center was mentioned by several interviewees).
- I-405 for its entire length.
- I-90 additional capacity from Lake Washington across Snoqualmie pass.
- Columbia River bridges.
- A new north-south corridor through eastern Puget Sound linking Kent and Everett, possibly as a Truck-Only Toll (TOT) project.

## Issues

The following issues were raised by interviewees and reflect personal views and opinions. While they do not reflect the views of everyone who was interviewed, they should be considered to see if they carry any weight with the public. They are listed in order of frequency of mention by interviewees.

- **Parallel Facilities** – Regarding parallel or alternate facilities, a dilemma exists between the belief that an alternative is needed for those who don't want to use a toll facility,

but also the need to toll parallel facilities (as in 520 and 90 bridges) to avoid “toll avoidance” impacts on the toll-free alternative. Important to this discussion was the need to offer choices to travelers.

- **Captive Audience** – The “captive audience” dilemma is a desirable condition for tolling, but also lends itself to the outcry of unfairness for the same reason that makes it desirable. In the view of some, Vancouver, Washington faces the same potential dilemma as Kitsap Peninsula if bridge improvements toll both the I-5 and I-205 bridges. This would affect the 60,000+ people who commute daily across the river from Vancouver to jobs in Portland, Oregon.
- **Impact of RTIDs** – If Regional Transportation Investment Districts (RTID) receive tolling authority, some people foresee the possibility of the RTIDs becoming the preferred source of funding for local projects wherever they are created. The fear is that if they were to be created in the more populous counties of the State (which are the only places they are seen as feasible), then we could see the development of a series of fiefdoms that help themselves, with no one willing to pay for statewide improvements. This could leave the less populated rural areas without transportation funding.
- **Communications** – Communicating with the public about tolling is important. Not only is there an information void about how modern toll-collection systems work, there is little knowledge about tolling for congestion management purposes. The comprehensive tolling study is a good vehicle to use to initiate a discussion tolling in all its forms. The Tacoma Narrows Bridge and SR 167 projects are viewed as good test cases from which people can learn the practical side of how tolling works.
- **Overall Need for Transportation Improvements** – Communicating the need for transportation improvements in general also is important. Many interviewees understood the importance of goods movement to the State's economy and to the future transportation system, and they believe that raising awareness about the importance of the economy and goods movement to the State of Washington is an important rationale for explaining why we need tolling. If we don't pay to improve the transportation system, Washington will simply lose business to competing states and countries.

## ■ Introduction

Frank Wilson & Associates conducted 16 interviews with community leaders throughout the State to identify concerns and preferences about tolling, and to elicit suggestions for criteria that could be used to identify specific projects for possible tolling. These opinions do not represent a statistically valid sample of opinion in Washington State. Rather, these interviews provide a flavor for the kind of issues that WSDOT will face as it explores tolling in the Comprehensive Tolling Study.

The interviews were conducted in October and early November of 2005, coinciding with a statewide election that included Initiative 912 that sought the repeal of a recently enacted gas tax hike. The election heightened awareness of transportation funding issues, and sometimes offered campaign-induced information (or misinformation) as a backdrop for the interviews. This backdrop is important context for some of the responses provided by interviewees.

## How Does the Future Look for Tolling in Washington?

The pieces of a hypothetical picture of the future of tolling in Washington include:

- Introducing statewide tolling to the public in Washington by positioning the successful Tacoma Narrows Bridge and SR 167 as examples of possible future projects;
- Successfully implementing a network of toll roads and bridges in Washington that will keep the State competitive and traffic and goods moving; and
- More equitable distribution throughout the State of gas tax resources and toll projects.

These potential elements of a successful implementation of tolling in Washington were among many suggested by interviewees. They are not meant to suggest a particular direction for implementation, nor are they meant to imply that the path taken to this vision was an easy one; rather, they represent one possibility that emerged through responses from interviewees.

As seen through the collective eyes of interviewees, this hypothetical future looks something like this:

*Washington State, the first state in the country to establish a statewide tolling policy framework, now features a comprehensive network of toll facilities that share a common electronic toll collection technology. Toll bridges across Tacoma Narrows, Lake Washington and the Columbia River connect seamlessly with HOT lanes, especially on several roads in the Seattle area. With these successes in the State's most populous areas, transportation planners are now working on new toll projects in other areas of the State. To determine the feasibility and desirability of toll projects, they apply the tolling framework developed by the Commission as part of the comprehensive tolling study.*

*The common electronic toll collection technology lets drivers travel an array of roads and bridges without having to stop and pay tolls. Visitors to the area are able to request a transponder for their rental car so they can take advantage of the congestion-free driving on the HOT lanes and bridges.*

## ■ Methodology

This report is based on interviews with stakeholders from across the State. The views and perceptions of stakeholders are documented and synthesized. Current and future issues that WSTC may face in the development of a statewide tolling framework also are identified, as well as strategic steps for moving forward.

Between October 13 and November 16, 2005, Frank Wilson & Associates conducted 16 interviews to gauge the perceptions of stakeholders on a number of topics related to the Washington State Transportation Commission's ("the Commission") comprehensive tolling study. The Commission's Tolling Committee together with Commission and WSDOT staff provided names of initial interviewees. Second-tier interviewees were those suggested by initial interviewees. Questions probed these areas:

- Level of awareness about the Comprehensive Tolling Study and tolling;
- Perception of the need for transportation improvements in interviewees' areas, as well as statewide;
- Strengths and weaknesses of using tolls to finance road improvements and as a congestion management tool;
- Possible support or opposition to tolling in their community;
- Perceptions about the fairness of tolling and ways to implement tolling so that it is fair to users and non-users; and
- Possible criteria to use in evaluating whether or not tolling should be used in a particular area, and projects that might meet those criteria.

Additionally, every interviewee was asked if there was anyone else that we should talk to whose perspective they thought would be important to the study.

## ■ Synthesis of Information

### **Awareness About Tolling in Washington and the Comprehensive Tolling Study**

All but one interviewee was following the subject of tolling in the State of Washington, and most had heard about the comprehensive tolling study and thought it was a good idea. Many interviewees mentioned the Tacoma Narrows Bridge, and several noted the SR 167 HOT lane project.

When asked what they thought when they first heard about the study, many interviewees said they thought the time had come for tolling. They mentioned the Tacoma Narrows Bridge and the need to find a balance about who should pay. Several interviewees mentioned that tolling should be done everywhere so there are fewer objections to it in a specific area. One interviewee said they favored lower tolls without a sunset, rather than higher tolls that are removed sooner.

## **What Are the Transportation Problems Throughout the State?**

As might be expected, the Puget Sound area had the highest number of problems identified by interviewees. Whether the discussion centered on freight mobility or commuters, the Puget Sound region always came up for discussion, even among interviewees from other areas of the State.

In addition to naming specific roads or projects, many interviewees commented on the transportation system in general, often citing specific priorities related to their industry or profession:

“When we deal with transportation problems, we tend to look at level of service and accidents. We need to ask, ‘What does it mean to the economy and how will it attract business and promote business growth?’”

“We need ease of access in and out of our marine ports and airport.”

“We live in an earthquake-prone area. We have to shore up and replace bridges.”

“People are paying more for time [spent in congested traffic] than it would cost in higher tax.”

“Safety is the number one concern. Something has to be done for travelers using the highway.”

“The Puget Sound problem is obvious, but there are needs in Vancouver, Blaine and Spokane, too.”

“Two decades of no investment in infrastructure has caused problems everywhere.”

“So many years of nothing, and now we have to catch up.”

The chart below lists the transportation problems identified by interviewees, and some comments made with reference to those problems. Comments in the right column reference the priorities listed in the left column. Priorities reflect the frequency of mention by interviewees.

<b>Interviewee Comment</b>	
<b>Seattle-Tacoma</b>	
<p><b>In priority order according to interviewees' mentions.</b></p> <p>SR 520 across Lake Washington</p>	<ul style="list-style-type: none"> <li>• Don't just replace the bridge. That just moves the bottleneck. 520 should be widened from 10 miles east of the lake to I-5 on the west.</li> <li>• 520 safety issue has raised it in public awareness. This project (520 bridge) is special and should be handled differently, maybe from the feds. Go outside the regular sources for funds. Maybe a FEMA-type funding to prevent a costly failure instead of waiting for the disaster to replace it.</li> </ul>
Alaskan Way Viaduct	<ul style="list-style-type: none"> <li>• Like 520 bridge – Alaskan Way Viaduct should be handled differently because of the safety issue and costly replacement. Sea wall is important to this area, too.</li> <li>• The Viaduct is a safety issue.</li> </ul>
I-90 between I-5 and Issaquah	<ul style="list-style-type: none"> <li>• I-90 needs HOV lane, use of center lane to increase capacity across Snoqualmie Pass.</li> </ul>
I-405 for the entire distance	<ul style="list-style-type: none"> <li>• I-405 is closer to being built than some of the other projects. Widening has been on hold, but there is a record of decision already. Move forward with the ones that are ready.</li> </ul>
I-5 through Seattle (from Marysville to Olympia)	<ul style="list-style-type: none"> <li>• I-5 problem goes without saying – you can't get through the city without changing lanes.</li> </ul>
SR 167 extension and add HOT lanes	<ul style="list-style-type: none"> <li>• SR 167 HOT lanes are a good idea. They offer a choice.</li> <li>• We need east-west access to get into port facilities – like SR 167 and SR 519.</li> </ul>
I-90 Bridge across Lake Washington	
SR 18 between I-5 and I-90 – complete bypass	
SR 509 extension between SEATAC and I-5	
Mentioned only once:	
Highway 9 in Snohomish County	
I-605 – talked about but never done	
SR 519 – important for sea port	
SR 518 – Build 3 <sup>rd</sup> lane out of SEATAC	
U.S. 395 Improvements	<ul style="list-style-type: none"> <li>• North-south freeway is needed.</li> <li>• U.S. 395 has been on the books for years. It goes to Canada and is needed for goods movement (e.g., timber, fruit, hay and mining and cattle), as well as an alternate route around Spokane.</li> </ul>
I-90 from Idaho border to 10 miles west of Spokane	
Grade separation at train crossing	

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**Interviewee Comment (continued)**
**Vancouver/Clark County**

- |              |  |
|--------------|--|
| I-5 corridor | <ul style="list-style-type: none"> <li>• Capacity needed through the corridor, including the Columbia River crossing.</li> </ul> |
|--------------|--|

**Yakima**

- |                                   |  |
|-----------------------------------|--|
| I-90 crossing the Snoqualmie pass | <ul style="list-style-type: none"> <li>• I-90 improvements across the Snoqualmie Pass are most important, especially for trade/moving goods to port. Also, a national security issue.</li> </ul> |
|-----------------------------------|--|

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 U.S. 12 at 40<sup>th</sup> Avenue and 16<sup>th</sup> Avenue
**Blaine/Whatcom County**

- |                     |  |
|---------------------|--|
| I-5 border crossing | <ul style="list-style-type: none"> <li>• The issue is security versus traffic flow. It's not just a transportation problem.</li> <li>• Capacity is a problem. There are not enough personnel; there is more of a focus on the southern U.S. border.</li> </ul> |
|---------------------|--|

**Kitsap Peninsula**

- |   |  |
|---|--|
| SR 305 from Poulsbo to Bainbridge Island Ferry Terminal | <ul style="list-style-type: none"> <li>• There should be more terminals in other areas to relieve traffic on the access roads to the ferries.</li> </ul> |
| SR 304 from Highway 3 to Bremerton Ferry                | <ul style="list-style-type: none"> <li>• People are resistant to traffic improvements through their communities to terminals.</li> </ul>                 |
- 

## What About Using Tolls for Raising Revenue and Congestion Management?<sup>1</sup>

Interviewees were asked to identify the strengths and weaknesses of using tolls to raise revenue for transportation projects and as a traffic management tool. Virtually everyone realized the need to find alternative funding mechanisms for transportation projects. Many also mentioned the reality that the toll revenue is not likely to be the only source of funding for the biggest projects. For those who understood the distinction between the two types of tolling, there was support for HOT lanes because of the new alternative they offer for those who choose to use them. Interviewees did not identify many weaknesses of HOT lanes; rather, they brought up operational issues related to the change from HOV to HOT. Some typical comments included:

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<sup>1</sup> Two separate questions were asked in the interview related to the use of tolls to raise revenue and tolls for congestion management purposes. It was clearly understood among interviewees that toll revenue would be used to pay off the bonds that finance construction of the tolled facility, making the toll a user fee.

“In the long term, reliance on gas tax is not sustainable. Consumption is declining...”

“If the public is not willing to tax, then this is a good option...we pay our fair share.”

“Public acceptance will be difficult for revenue generation purposes. They’re already paying taxes. Why toll?”

“Travelers would be made aware of the economics of their travel decisions...”

“If you do dynamic tolling, then there is better mobility and reliability...it’s efficient.”

“There’s a lot of abuse of HOV. How will we manage it?”

### Strengths and Weaknesses of Using Tolls

Following is a collection of the comments from interviewees regarding the strengths and weaknesses of using tolls. The comments about using tolls for revenue generation are listed first, followed by comments about tolling for congestion management. Comments also are grouped into categories that reflect the general nature of the comment.

### Tolling for Revenue Generation

Strengths	Weaknesses
<b>Tax versus Toll</b>	
<ul style="list-style-type: none"> <li>• If the public is not willing to tax, then this is a good option. We want it to be fair – we pay our fair share – like a user fee.</li> <li>• You don’t have to raise other taxes. It’s easier to get support for tolls than for taxes.</li> <li>• In the long term, reliance on gas tax is not sustainable. Consumption is declining with hybrid cars.</li> <li>• You can target major projects – leverage toll money with other local funds. Target big projects.</li> <li>• Tolling really means that you get the project sooner rather than later.</li> <li>• For very expensive projects tolls are appropriate and fair.</li> <li>• Don’t go into tolling with the thought of getting a lot of revenue.</li> </ul>	<ul style="list-style-type: none"> <li>• In today’s dollars, will tolling ever pay debt service?</li> <li>• Don’t go into tolling with the thought of getting a lot of revenue.</li> <li>• Tolls on specific facilities reduce the case for a tax to address a statewide transportation system. Voters won’t support an additional tax once they start paying tolls for “their” roads.</li> </ul>

## Tolling for Revenue Generation (continued)

Strengths	Weaknesses
<b>Operational Factors</b>	
<ul style="list-style-type: none"> <li>• Tolls also can pay for operations.</li> <li>• Be efficient in collection and moving traffic through the toll area. Leave space for an approach on both sides (bridge).</li> <li>• It can induce carpool (if they ride free or reduced toll).</li> <li>• Travelers would be made aware of the economics of their travel decisions – it would force a mode choice.</li> <li>• Done right, it could make a difference.</li> </ul>	<ul style="list-style-type: none"> <li>• Costly to staff the facility. Slows traffic down.</li> <li>• If you toll one route, then the nearest parallel would get all the traffic. This also could be a safety issue.</li> <li>• If the focus is only on revenue, then bus, van and carpools aren't a prioritized and you're not looking at multiple goals.</li> </ul>
<b>Fairness/User Pays</b>	
<ul style="list-style-type: none"> <li>• There is a direct relationship between what you use and what you pay – where and when. It's fair and reasonable.</li> <li>• Pay as you go. If you choose it, you pay.</li> <li>• Shifting users from general purpose lanes to an HOT lane benefits those who don't use it.</li> <li>• It's philosophically good because you raise some revenue from people who benefit.</li> </ul>	<ul style="list-style-type: none"> <li>• Fairness is an issue if it's the only alternative.</li> <li>• I live on the west side of the Sound. We're used to paying for a ferry. That's really a toll. Our run subsidizes more than its cost to support less profitable runs.</li> <li>• Charging a toll invalidates the land use decisions. When people purchase lower-cost homes in outlying areas, they make a decision to spend their time rather than their money (for a closer-to-work home). This gives rise to a legitimate outcry when the rules are changed (by charging a toll for what was previously "free").</li> <li>• Depending on the users' income level, it can be the most regressive form of taxation.</li> </ul>
<b>Public Acceptance</b>	
<ul style="list-style-type: none"> <li>• Sends a clear message that there is inadequate funding for transportation.</li> <li>• It acknowledges that the transportation system has limited capacity. With tolls you meter usage through fees.</li> </ul>	<ul style="list-style-type: none"> <li>• Acceptance of the technological shift or the pain of implementation. Toll facility users must use a technology that wasn't needed before the toll. For some, that step can be daunting.</li> <li>• Biggest obstacle is people don't like tolls. We're not from the east coast. Even though technology makes it more efficient, it will take getting used to.</li> <li>• Public acceptance will be difficult for revenue generation purpose – they're already paying taxes. Why toll?</li> <li>• People have to get used to paying for it. Be prepared for sticker shock. Transportation has been so cheap for so long. There's no good mass transit.</li> <li>• Problem with tolling on I-5 is how do you package tolling for an old, paid-for road?</li> </ul>

## Tolling for Congestion Management

### Operational Factors

#### Strengths

- If you do dynamic tolling, then there is better mobility and reliability, which equals an advantage to carpool, vanpool and bus. It's efficient.
- It's efficient. Reduce congestion without new construction.
- Some people will choose mass transit to take advantage of the HOT lane by paying transit fare rather than toll.

#### Weaknesses

- HOT is sometimes difficult from an engineering perspective. There's a lot of abuse of HOV. How will we manage it?
- Tolling would be wasteful if it is a new highway. People already violate HOV lane restrictions. It could be a safety issue.
- Economics drive a lot of decisions. People will be driven to mass transit. The new facility could go without sufficient revenue to pay the debt.

### Fairness/User Pays

- The only type of congestion pricing that's good is HOT lane because there is an alternative to paying the toll.
- Theoretically this is the highest value use, the best use of resources for goods movement. We have not seen good analysis on system management and freight. What pricing mechanisms work? Tolling freight has other implications.
- Congestion management with free parallel lanes is OK. We don't have a problem with HOT lanes.

- Equity – captive audience. If they don't have an option, there will be problems
- If it's not done right, then fairness and mobility (multiple modes) will be an issue.
- Little concern for lower-income people. They already pay a higher proportion of taxes. We have the most regressive tax structure in the country.
- The big kicker is if there are no alternatives. There are no other mode choices.
- A huge hot button in the 90s was when Public-Private partnerships were proposed. There was strong opposition. The State Patrol had to keep order in the hearing room.
- The concept of paying more at one time of day.

### Public Acceptance

- I'd like to change the name – discuss it as “congesting pricing” rather than “congestion management.”
- Don't have the toll in effect during off-peak. Then they're paying to enter a particular zone at a specific time. This would be more easily accepted by the public – their decision.
- It's a cultural change. Folks in our state are tired of traffic. It's really bad and they're ready for it.
- Communication is the key.
- HOT lanes should be tested. Will it be widespread or only in certain areas? Target projects where it makes sense for efficiency.
- HOT lanes are less objectionable than full toll road.
- The alternative parallel route is an escape valve for political steam. You pay with time instead of money.
- Public more willing to accept the cost for congestion pricing.

- People adapt to change slowly. They're not going to accept it.
- Don't use HOT lanes as a stick to get people out of cars.
- Don't use revenue for other than road-related operation and capacity purposes.

## ***Educate the Public***

A significant number of comments were related to raising public awareness about tolling – from the need for it to the obstacles preventing it, to operational features that interviewees thought the public would like or dislike. Certainly the approach to communicating about tolls could make or break the program. Citing the failed attempt to implement tolling through public-private partnerships in the 1990s, some interviewees believe a one-project-at-a-time approach would be more likely to succeed in gaining public acceptance.

## ***Find Champions and Identify Potential Opposition***

Interviewees, themselves, were relatively well informed about the interest in implementing tolling in Washington. However, they were often hard pressed to know what might form the basis for opposition to tolling because the concept has not been widely publicized. The only public response to tolling to date has been reaction to the attempt at public-private toll projects in the 1990s and the decision to toll the new span of the Tacoma Narrows Bridge to finance its construction. So much of what interviewees anticipated in the way of future public response about tolling was based on their observation of these experiences.

<b>Supporters</b>	<b>Opponents</b>
<ul style="list-style-type: none"> <li>• Don't know yet – it's not tested.</li> <li>• Mayor of Vancouver, Royce Pollard, likes the user fee concept and recognizes the constraints in the corridor to manage congestion.</li> <li>• Environmentalists are likely to support it if it is implemented fairly.</li> <li>• Environmentalists will understand the positive effect on pollution.</li> <li>• Transportation planners.</li> <li>• State patrol will be an ally on safety issues, but how hard are you making their enforcement job?</li> <li>• Business will support it. They need transportation improvements to meet their business goals.</li> </ul>	<ul style="list-style-type: none"> <li>• Trucking Industry – British Columbia to Tijuana.</li> <li>• Trucking industry will be fickle.</li> <li>• Vancouver – captive audience for Columbia River crossings much like Gig Harbor. 60,000 people commute from Vancouver to Oregon every workday.</li> <li>• Some people might like the idea until they have to pay the toll.</li> <li>• In the 1990s local action groups opposed the public-private toll projects and might do so again. Source of opposition was the perception that the corporations would be enriched in the paying of the tolls.</li> <li>• Community-based organizations and advocacy groups – for their constituencies it is another hit they can't afford. They're already paying a higher proportion of their income for daily living costs.</li> <li>• Anti-tax folks.</li> <li>• Initiative writers and talk radio hosts who pump people up with false statements.</li> <li>• Maybe AAA. They won't want tolls on existing facilities.</li> <li>• Fiscal conservatives will say they've already paid.</li> </ul>

It is generally believed that it is important to identify “champions” for tolling as implementation of various projects moves forward. However, potential champions also were not easy for interviewers to name. Nevertheless, there were a few potential opponents and supporters identified.

## **Fairness – Equity on Three Fronts**

Interviewees were asked about fairness twice in the formal questions. First, they were asked whether they felt that tolling, overall, was a fair or unfair way of providing financing for transportation projects. The second question deliberately asked them to consider whether tolls placed a disproportionate financial burden on minorities and economically disadvantaged groups. But by far the greatest concern voiced about equity could be called “geographic equity.” This type of equity has at its source the idea that a captive group (on the Kitsap Peninsula, in the case of the Tacoma Narrows Bridge; and on one side of the Columbia River, in the case of Vancouver) should not be unfairly burdened with a toll that only they have to pay.

On the fairness of tolling in general, most interviewees thought that tolls are fair, but often added a caveat to their response, such as:

“Depends, it should be an added part of a revenue package. Roadways are like utilities. Everyone uses them. How do you determine who pays and how much?”

“Philosophically, if you’re a user, you should pay more than someone who doesn’t use it. If one region goes to tolling, what are the implications for the rest of the State?”

“Modest tolling is not unfair. You could provide a subsidy for older people or poor people based on frequency.”

“It depends how you implement it. Don’t just shift congestion and environmental/social impacts to other routes.”

“Gas tax is more fair.”

“The devil is in the details. What can you use the money for? In the geographic area? On transit?”

“With caveats: that the tolling is in response to constraints in the corridor to manage congestion, and that it assures a structured process to address all issues.”

“It’s fair because there are more choices.”

“If I had my druthers, I’d say no.”

Regarding a potential disproportionate financial burden placed by tolls, some interviewees mentioned this possibility even before they were asked. None felt that tolling was inherently unfair to anyone, but that the potential for unfairness should be addressed up front so that there is a ready response if there is a need to take specific action in any individual community. The key for many was to offer options so that the toll facility is framed as a choice. Several people did mention that they thought that a toll is like a sales tax – regressive in nature. Some comments:

*“Should everyone pay? We (who use the road) all benefit.”*

*“There’s never a fair tax. It may not be possible to make it fair. People will just have to make a choice.”*

*“Have components that allow choice and level the playing field.”*

*“If you tolled everything it would be bad. It’s OK if it’s an option.”*

*“Mitigate any impacts through the use of revenues. Offer better transit service.”*

*“Maybe try a reduced fee structure?”*

*“Just help people move from point A to point B.”*

*“If you transition to an enterprise system (paying a toll to use the road), then people who receive assistance might qualify for a discount based on some needs-based criteria.”*

*“HOT lanes are fair. The decision is always yours.”*

## **Criteria for Evaluating Projects for Tolling**

As one might expect, interviewees’ criteria for evaluating possible projects for tolling reflected the concerns and interests they raised in other areas of the interview. Together, the comments and suggestions begin to form a loose structure around several possible criteria that answer the questions that interviewers posed. The question posed most frequently was, “Is it politically acceptable?” This question was repeated various ways, indicating the importance of this factor locally, regionally and statewide. The overarching question was, “What are the goals with the toll/project?” Once the goal(s) are established, the following questions and concerns can be seen as a test for determining whether or how a project will meet them.

## **Public and Political Acceptance**

- It has to be politically acceptable in the area.

## **Benefits**

- What safety enhancements would be gained?
- Would it facilitate goods movement?
- Would it help or expand industry?
- Look at economic indicators – would it help the economy?
- Capacity should be increased.
- Does it provide a new facility? Replacement is not as justifiable.
- Improve mobility for the most people.

## **Feasibility/Practicality**

- Tolls have to be easy to collect.
- Make sure there are no other options or no one will use it.
- Is there a viable place to toll?
- Would it pilot a new technology?
- Congestion management projects must have limited access.
- Facility has to be well marked, simple, and efficient.
- Use technology to keep it simple and keep costs down.
- Increase traffic flow and reduce emissions.
- How can tolling make a difference on existing chokepoints?

## **Financial**

- Does the financial modeling indicate that tolling will meet the stated goal?
- Is there another way of funding the project?
- Does funding one project shift impacts to another?
- Using tolls for operations is appropriate.
- It's a matter of timing. Eventually, everyone will get their local project built.
- There has to be a resolution of how we're going to handle transportation funding. Will it be statewide or RTID with tolling authority?

## **Location**

- Where can you make the biggest difference in congestion?
- If widening isn't possible, then would congestion management be a good alternative?
- Look at the total transportation problem and funding mechanisms.
- Are there substitute routes?
- There should be no other route options for a tolled facility.
- How would placing a toll in one area affect others?

## **Projects That Meet the Criteria**

After interviewees had offered some criteria that reflected their priorities, they were asked again about the projects they had identified as possible tolling projects. Did they still seem appropriate after considering them against the yardstick they had just named? Many people believed the projects they had originally named could stand the test of the criteria they had mentioned. The candidates are:

### **Puget Sound Area**

- I-5 from downtown to Northgate – Figure out a way for a new lane, then tweak it to make it politically acceptable.
- I-405 for its entire length (HOT pilot).
- I-90 from Seattle to Issaquah.
- I-90 across the Cascades.
- SR 167 – Extend and add capacity.
- I-90 and 520 bridges (These were often named in tandem because of the belief that one could not succeed as a toll project without the other because of expected toll avoidance behavior.).
- Alaskan Way Viaduct.

### **Clark County/Vancouver**

- I-5 and I-205 in Vancouver.
- Columbia River bridges.

## What Should be Done to Address Concerns About Tolling?

Finally, interviewees were asked, “What one thing should be done to address the concerns people might have about tolling?” Responses to this question related to two primary areas, public acceptance and operational issues/suggestions.

Public Acceptance	Operations
<ul style="list-style-type: none"> <li>• The need to have a plan.</li> <li>• The plan should offer a clear picture of expectations and goals.</li> <li>• They should articulate to the public what those expectations and goals are. Example: SR 167 toll project will maximize the use of the free lanes.</li> <li>• Establish a long lag time. Sensitize the public that tolling is coming.</li> <li>• Start with a project people understand.</li> <li>• No ambiguity.</li> <li>• People aren't going to like paying tolls.</li> <li>• Make sure people understand what they're getting for their tolls.</li> <li>• Get better at explaining the issues. Some will consider it a double tax. Be up front about problems.</li> <li>• Have a structured public process that includes the business community.</li> </ul>	<ul style="list-style-type: none"> <li>• Do it in a way that one region doesn't feel they're singled out.</li> <li>• Explain how the electronic device works.</li> <li>• Give options for tourists.</li> <li>• Number and location of access points is important.</li> <li>• Try a vehicle miles tax – Germans use it on heavy vehicles.</li> <li>• Don't repeat the mistakes of TNB – net gain is one HOV.</li> <li>• For HOT lanes, provide incentives to get cars into the lane.</li> <li>• WSDOT should stay the course. They're heading in the right direction: implement tolling in places where it makes sense, like the 167 HOT lanes, Hood Canal Bridge, 520 Bridge.</li> <li>• In the last couple of years WSDOT has listened – like replacing the Hood Canal bridge ahead of time and budget.</li> <li>• First improvements should be additional general-purpose lanes on I-5, I-405, and I-90.</li> <li>• If the RTIDs have the power to levy taxes then they could become the only game in town – the power will be where the money is.</li> <li>• Adopt a set of guidelines and a structured process to help agencies around the State that are making transportation decisions. Identify criteria that must be addressed – a checklist.</li> <li>• First, have a level playing field.</li> </ul>

## ■ Situation Analysis: Strengths, Weaknesses, Opportunities, Threats

Identifying strengths, weaknesses, opportunities and threats is an effective format for building a thorough inventory of issues facing WSTC as it seeks to establish a statewide tolling framework. It takes the perceptions provided by interviewees and synthesizes them so that they become useful and actionable.

### Strengths

The time for tolling has come. The legislature has recognized it and Washington is among the first states (if not the first) to attempt to establish a framework to guide the selection and implementation of tolling projects. The results of the comprehensive tolling study have the potential to guide this effort toward a comprehensive framework for a system of toll roads with interoperable electronic toll collection systems. Some strengths that will support the study's goals are described below.

**Two toll projects already underway can serve as real-life success stories.** The high visibility of the Tacoma Narrows Bridge and its successful execution thus far are great strength for the prospect of implementing tolling statewide. A successful marketing phase and launch will raise interest and awareness throughout the State – both on tolling and on electronic toll collection. The SR 167 HOT lane project will serve as the second example of tolling, and will introduce the HOT lane concept to the State of Washington.

**Tolling is seen as the way of the future – but not a panacea.** There was awareness among several interviewees that even projects with a toll component as part of a financing package cannot be built on tolls alone. A combination of funds, including taxes, will be required to make most projects feasible, and to allow for tolls low enough that they don't price the project out of the market.

A plan for statewide tolling would make individual projects fair. As was evidenced by Tacoma Narrows Bridge, any single proposal could be viewed as unfair. The statewide tolling framework provides a potentially welcome response to the concern that a specific geographic area is paying a disproportionate share while others get “their projects” build through tax dollars.

### Weaknesses

**There are no tolling champions.** Outside of the obvious interest groups (such as transportation planners and economic development advocates) there were no groups who came to mind as advocates for tolling and/or transportation improvements. There also were no advocates identified at the state level who could champion the concept. To the extent that there are recognizable champions, they should be identified. A champion can

be the person to carry the banner for tolling projects, and speak up when misinformation is circulated by detractors.

**There is little public knowledge about tolling for congestion management.** Most interviewees believe that public is not well informed about congestion management tolling. And even though most interviewees knew about the Commission's tolling study, they voiced concerns about implementation (especially of HOT lanes) that revealed their lack of knowledge about electronic toll collection and the operation of HOT lanes. Introducing HOT lanes must address the lack of a local reference point about how such projects will work.

## Opportunities

**There is still time to frame tolling vis-à-vis the future economy of the State.** The information void about tolling provides opportunity on two fronts. Funding improvements to existing facilities as well as new projects is important beyond what is obvious to most citizens. As a trade-dependent state, Washington's entire economy depends on a viable transportation system. An understanding of the importance of this factor is very important, and can be a part of the framing of tolling in the State of Washington, whose thriving ports face worldwide competition.

**Information void about tolling.** The Commission, in communicating about the study, and WSDOT, in communicating about specific tolling projects moving forward have the means to brand and position tolling firmly on the side of the public good – as a practical, fair way to bring projects to life that had languished for decades without sufficient resources.

**Public awareness is high about the need for safety improvements.** Although many major projects have languished for at least a couple of decades, the need for improvements has been raised recently through revelations about the potential for failure of the SR 520 Bridge. This was reflected in interviewees' comments about safety being a primary criterion for determining which projects should be considered for tolling. Interviewees also mentioned the fact that the condition of the SR 520 Bridge had helped to generate support for other projects that pose safety concerns – especially in the event of an earthquake.

## Threats

There currently are no interest groups formed specifically to support or oppose toll roads in Washington. (At least interviewees were unable to identify any.) The threat to tolling comes in the possibility of overlooking potential issues and misreading or underestimating community concerns. Among the possible threats to the successful implementation of the recommendations of the tolling study is the defeat of the attempted gas tax repeal, since people may feel that the revenue issue is now “solved.”

**Information void could be filled by detractors.** The flip side of the coin regarding the information void about tolling is the opportunity it offers to others. It could become a threat in the form of detractors to specific projects or opponents of tolling in general. Either could gain an upper hand in the presence of such a void, and could fill it with rhetoric to suit their cause.

**We have the tax now. Why do we need tolls?** When the gas tax hike faced possible repeal, several interviewees anticipated its passage as a boost to the introduction of tolling statewide. Likewise, its defeat also could cause people to believe that the retention of the tax revenue will solve Washington's gridlock. If such a belief were to take hold, it could stand in the way of public acceptance of the tolling solution.

## ■ Preliminary Recommendations

The strengths, weaknesses, opportunities and threats, when viewed together, reveal a potential strategic path that will help establish a statewide framework for tolling. Strengths and opportunities include the “right track” that WSDOT is on with regard to execution on the TNB project and the widespread desire for transportation improvements. Weaknesses and threats include the absence of a champion for tolling, and the information void about tolling. The preliminary recommendations that follow reflect ways in which the opportunities and strengths can be put to work to overcome the weaknesses and threats.

Do it right, and even credible detractors can be won over or positioned appropriately. Do it wrong, and the detractors will end up with their message in the lead, and toll projects potentially DOA.

**Ensure success on TNB and publicize it.** The Tacoma Narrows Bridge project is the best possible publicity for tolling in Washington. Ensuring broad distribution of transponders in advance of opening will go far to quell the perception that Gig Harbor people don't like paying to use the bridge. If other Washingtonians see this as a success, and hear people talk about its convenience, which will be more powerful than any example of success from some other state like California, Florida, or Minnesota. Likewise, the 167 HOT Lane project's implementation should be portrayed as an important demonstration project that is successfully moving forward with public and commuter support.

**Raise public awareness about tolling.** This is a simple proposition with enormous consequences. Every interviewer said that gaining public support for tolling and specific toll projects was essential for tolling to succeed in the State. Many of them acknowledged that it was the one thing that should be done to ensure the successful implementation of tolling. It means branding tolling in terms that are meaningful and relevant to citizens, identifying their preferences for local projects, expressing the benefits, winning over detractors, involving citizens in the statewide effort from grass roots to the state level,

responding and inoculating on the fairness and equity issues, and remaining vigilant for signs of discontent so that issues don’t become crises.

**Identify local projects with the most local and statewide support.** With fairness a primary concern of interviewees, attention should be given to identifying the projects with the most support, as well as the local projects with the most support from citizens throughout the State. Some people viewed the implementation of tolling in different areas throughout the State as a way of leveling the playing field and making tolling fair.

**Develop proactive community outreach and participation for statewide tolling.** As communication strategies about tolling are implemented, a framework for citizen involvement should be devised that includes local groups as well as a statewide citizens group. These groups could be a formal part of the tolling framework. Local citizen committees can help broaden support for tolling and keep WSDOT apprised of local issues and concerns as projects move forward.

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**Comprehensive Tolling Study Ascertainment  
Stakeholder Interviewee List**

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Steve Appel	Washington Farm Bureau
Jeannie Beckett	Port of Tacoma
Rick Bender	Washington State Labor Council
Jeff Brody	Bremerton Sun
Don Brunnell	Association of Washington Business
Stan Finkelstein	Association of Washington Cities
Robert Frank	Everett Herald
Mark Hallenbeck	University of Washington and Washington State Transportation Center
Peter Hurley	Transportation Choices
Pat Jones	Washington Public Ports Association
John Okamoto	Port of Seattle
Mary Place	Yakima Councilwoman and Immediate Past President, Association of Washington Cities
Larry Pursley	Washington Trucking Associations
Janet Ray	AAA
Thayer Rorabaugh	City of Vancouver Transportation Services
Karen Schmidt	Freight Mobility Strategic Investment Board

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# Washington State Comprehensive Tolling Study

## Ascertainment Questionnaire

Stakeholders/Community Leaders

Thank you for taking the time to visit with us today.

1. First of all, how closely have you been following the issue of using tolls to help finance or manage traffic on new or upgraded roads and bridges in the State – very closely, somewhat closely or not very closely?

Very closely.....1  
 Somewhat closely.....2  
 Not very closely.....3

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2. Looking at the area of the State where you live or do business, are there transportation problems that you want to have solved? How about other areas of the State?

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3. Are you aware of any projects that have been discussed for years, but that have not been built yet for one reason or another? (If so, name projects or areas.)

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4. Among the traffic or transportation problems you just named, do you think any of them are more important than any others? Which ones, and why?

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5. Are you aware of state legislation requiring the State Transportation Commission to look at the merits of tolling in Washington?

[If yes] When you first heard this – was your first impression positive or negative?

Positive ..... 1

Negative ..... 2

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6. Among the traffic problems you first mentioned, do you think any of them might be good candidates for a toll project?

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7. As you see it, what are the strengths and weaknesses of raising revenues for transportation projects through tolling? First the positive things.

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8. And what do you see as the negatives?

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9. As you see it, what are the strengths and weaknesses of using tolling to manage traffic? First the positive things.

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10. And what do you see as the negatives?

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11. As you talk to people in your community, is there any group individual who you feel would oppose tolling?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

12. All in all, do you feel that tolling is a fair or unfair way of providing financing for transportation projects?

Fair .....1  
Unfair .....2

\_\_\_\_\_

IF UNFAIR, ASK:

\_\_\_\_\_

13. And what makes it unfair?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

14. Some people say that tolls place a disproportionate financial burden on minorities and economically disadvantaged groups. Others say that tolls are a fair way of having users pay for what they use. As you think about the issue, do you feel that tolling can be implemented in a way that is fair to users and non-users of all income levels? (IF YES: How do you feel that could be done?) (IF NO: Why do you feel that can't be done?)

Yes: \_\_\_\_\_

\_\_\_\_\_

No: \_\_\_\_\_

\_\_\_\_\_

15. If you were on the Transportation Commission charged with recommending some projects for tolling, what criteria do you feel should be used in evaluating whether or not tolling should be used in a particular area?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

16. Now let’s talk again about the problems you mentioned, and the projects you thought might be good candidates for tolling. Considering the criteria you just mentioned, do you still think those projects would be good candidates? [Repeat areas or problems raised earlier in #6.]

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17. If the State were to change one thing about tolling that would do the most to address the concerns people might have about tolling, what would that one thing be?

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18. This process of deciding which other roads and bridges, if any, should involve tolls will be playing out for some time yet to come. Would you like to stay abreast of the progress of this issue in the State, or not? (IF YES:) And what would be the best way to stay in touch with you? (WRITE NAME AND PHONE, E-MAIL ADDRESS, REGULAR MAILING ADDRESS, ETC.)

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19. Periodically we may bring people together in small groups to discuss this issue. Would you ever like to be a part of such a group? (IF SO, GET PHONE, E-MAIL OR ADDRESS IF NOT CAPTURED IN Q 12 ABOVE.)

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20. We are interested in talking to additional opinion leaders such as yourself in your community. Who else would you recommend that we talk to about this issue? (GET NAMES AND GET PHONE NUMBERS IF POSSIBLE.)

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That completes our interview. Thank you for helping us.

*Background paper prepared by Frank Wilson and Associates, Inc., with assistance from Cambridge Systematics, Inc. in January 2006.*

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## *Background Paper #3*

# **Organizational and Administrative Structures**

The first part of this chapter is a national perspective of toll organizational models around the United States, to gain a sense of the pros and cons of these models under various circumstances. The next part considers Washington-specific projects and goals, and leads with documentation of interviews with stakeholders in Washington. This chapter concludes with descriptions of organizational models that would appear suited for application in Washington State.

### ■ **National Perspective**

This section is intended to provide concise baseline information on the alternative organizational models for toll road implementation, highlighting the financial, operational, and policy-setting functions that must be addressed in developing new tolling entities. The paper also will address the toll organization's relationship to Department of Transportations (DOT) with respect to issues, such as outsourcing, budgeting, administrative responsibilities, and jurisdictional boundaries. The paper draws on and presents the experiences in other states and local jurisdictions in establishing new or enhanced tolling organizations. While the emphasis of the paper is on state-level initiatives, it provides an overview that includes state, local, and private toll organization structures being used in the United States.

### **Overview of Tolling Practices in the United States**

Many state and local governments rely on user tolls as a supplement to motor fuel taxes for funding transportation infrastructure construction and operations. The manner in which tolls are applied reflects historical trends, state and local legislative requirements, and policy priorities within individual states and local jurisdictions. This section provides an overview of the range of state- and local-level approaches currently in use across the United States for tolling highways, bridges, and tunnel facilities. While the examples presented in this section capture significant examples of the practices found throughout the United States, they are not all-inclusive. Moreover, the complexity and variations found among institutional arrangements prevents a total categorization of some organizations into a specific type.

## Historical Perspective on Tolling Practices

Throughout the 1930s, states followed the Federal lead in using tolls to finance only very special and high-cost and otherwise very special links, mainly tunnels and bridges. In the 1940s and 1950s, prior to the interstate construction era, many eastern states adopted tolling as a primary means for developing major state “turnpikes,” while western states used gas tax revenues to develop “freeways.” Development of tolled highways stagnated, however, following passage of the 1956 Federal-Aid Highway Act, which began development of the Interstate system supported by Federal gas tax revenues.

Interest in tolling as an alternative mechanism for funding transportation infrastructure reemerged in the 1980s and 1990s as states faced growing budgetary and congestion pressures. This was particularly true in rapidly growing urban and suburban areas. In addition, there exists substantial public pressure not to increase fuel taxes.

Tolled facilities also can support efforts in the area of urban traffic management, as witnessed by the increasing interest in high-occupancy toll (HOT) lanes and variable pricing on bridges. The “managed lanes” concept is intended to provide the optimum level of traffic service to the users, along with providing financial support to payment of the project’s construction and operational expenses. In effect, the level of service of the managed lanes is controlled by the level of toll imposed on the user.

Despite previous limitations on the use of Federal funds to construct and operate tolled highways, state and local jurisdictions have experimented with a broad variety of alternative mechanisms for financing their road networks. Thus, tolling practices vary considerably from state to state. However, with the passage of SAFETEA-LU in 2005, there is continued support for potential tolling of Federal facilities and the integration of Federal funds with toll revenues.

## Current Practices

What has been the response to the interest in tolling? The response has taken shape through several actions, including:

- **Legislation** - Adopting policies that promote the use of tolling as a revenue source and traffic management tool, and establishing efficient organizational models for implementing policy directives.
- **Finance** - Expanding finance opportunities for all levels of agencies – Federal, state, regional, and local – to participate in meeting the mobility needs of the users.
- **Technology** - Advancing the use of express toll lanes and open road tolling concepts through an integrated electronic payment system, often with the result of changes in organizational approaches to include additional outsourcing and collaborative

operations plans. However, the issue of governance has not reflected the influence from technology as readily.

- **Risk Sharing** – Creating opportunities for public-private partnerships that promote risk sharing between public and private sector groups most qualified to address various risk factors and deliver transportation systems faster and more efficiently.

A review of practices within the U.S. toll industry identified current trends with regard to how the above responses shape organizational practices. The following subsections highlight these trends.

### *Organizational Approaches*

The U.S. toll industry can be segmented into broad organizational categories as described below.

- **Statewide Turnpike Authorities (Independent and DOT-Sponsored State-Level Organizations)** – Statewide turnpike authorities can be separate entities from the state DOT, as is the case in Pennsylvania, Georgia, and North Carolina; or they can be departments within a state DOT, as in Texas and Florida. Statewide authorities and enterprises can often leverage their revenue stream to provide statewide service. Toll revenues collected in portions of the system with higher use can be utilized to improve or construct new facilities in areas where the early revenues do not meet project-specific debt service requirements.
- **Regional Toll Authorities (Regional- and Local-Level Independent)** – Strong local and regional support for meeting regional needs is the bases for regional toll authorities. These authorities may consist of a single county or entity, several jurisdictions, or a semiautonomous board with specific geographic boundaries. Regional authorities are focused on the regional system and promote projects that benefit the region. Texas, Florida, and Colorado allow regional or local agencies to be developed. In Texas, regional or local toll agencies can be created within a county as in the case of the Harris County Toll Road Authority in the Houston area, or for a region of the State as with the Central Texas Regional Mobility Authority in the Austin area, or as a regional agency outside a county government structure as in the case of the North Texas Toll Authority. Florida also has provisions for local and regional toll road organizational approaches.
- **Public-Private** – The need for additional funding partners has facilitated an acceptance of public-private toll road initiatives in some states. While the model varies by state, the intended result is to involve private sector participation in various forms for the advancement of projects that can be paid for over time by a dedicated revenue stream such as toll collections. The final ownership model also may vary by location and the financial plan submitted by the private partner/developer; however, even privately owned and operated facilities must conform to public standards to ensure the safety of the traveling public. Today, we see public-private partnerships

being pursued with greater acceptance by many states and their long-term potential to be a strong component within a State transportation system appears promising.

The public-private partnership approach may require a change in existing toll organization structure in order to proactively oversee public-private partnership activities. The Virginia Department of Transportation, while not a traditional tolling agency, has created special divisions within the Department to address this need. Likewise, the Texas Department of Transportation has recognized the need for specialized expertise on its “side of the table” when negotiating public-private partnerships. Existing toll-only organizations may not need any changes if adequate expertise exists in the form of internal or outsource staffing.

### *Examples of Legislation and Organizational Approaches*

As examples of the above three broad categories of toll organizational structures, recent legislation has been passed to address the renewed interest in using tolls to finance needed transportation improvements and increase the options available to agencies for the implementation of tolling solutions. Legislative actions involving tolling opportunities also determine the organizational structures to be enacted.

These recent legislative actions have shown the strong interest in establishing state-level tolling agencies as well as local/regional agencies. A summary of selected recent legislative actions include:

- **Colorado** - Established a statewide tolling enterprise to focus on urban transportation needs. The distinction between an “enterprise” and an “authority” is largely in how the individual states recognize a revenue-generating operation. However, in some cases, it is meant to promote a more business-like approach. The Colorado Tolling Enterprise (CTE) is a DOT-Sponsored agency - the Director of CTE is an existing director-level employee of the Colorado DOT.
- **North Carolina** - Established a state turnpike authority to address transportation needs in both large urban and smaller urban areas. The NC Turnpike Authority is an independent authority with nine board members appointed by the Governor, President of the State Senate and Speaker of the State House.
- **Texas** - Passed a broad transportation bill (HB 3588) in 2003 that provides for the organization of regional mobility authorities (RMA), empowers state DOT Districts to analyze and institute toll roads, establishes a mobility fund to serve as project start-up funding, allows for public-private project development agreements, and established a cross-state corridor for multi-purposes. HB 3588 has added capabilities to existing toll organizations within the State, such as the ability to utilize public-private partnerships.
- **Florida** - Empowered the long-standing Florida’s Turnpike, a District within Florida’s Department of Transportation, to organize and operate more like a business enterprise, reorganizing into the Florida Turnpike Enterprise (FTE). This move was

aimed at allowing the FTE more business-like freedoms of operation, such as: a reduction in project development and delivery schedules through increased completion of tasks in parallel; opportunities to enhance nontoll revenue streams through development of property along the Turnpike; greater focus on customer service; and the flexibility to enter into business relationships with other toll agencies. These can be undertaken while still being organizationally associated with the Florida Department of Transportation.

- **Georgia** - Broadened the powers of a State Road and Tollway Authority (SRTA) to expand its financial authority; and, under separate legislation, established a public-private initiative law that allows for unsolicited proposals to be received and considered by the State. The SRTA is a state-level independent authority.
- **Virginia** - Has been a leader in the development of legislation encouraging the involvement of private ventures into the public transportation arena. Virginia has a fully private toll road operating in the State, the Dulles Greenway, and one public-private toll road, the Pocahontas Parkway (Route 895), the latter being a nonprofit corporation established specifically to develop the Pocahontas Parkway project.

## Case Studies

A review of toll and turnpike actions taken during the past few years in Texas, Florida, and Virginia helps to define the current changes being undertaken in U.S. toll industry. The following summary of those case studies is representative of actions being taken in the United States to address the provision of needed transportation projects.

### *Texas House Bill HB3588: Omnibus Transportation Bill*

HB 3588 was adopted June 2003, establishing a framework for broadening the application of tolling across the State as well as establishing a funding mechanism for supporting the broader use of tolls in the state's transportation system. The primary items of HB 3588 as they relate to this study include:

- Establishment of the Trans-Texas Corridor;
- Establishment of guidelines for the creation of Regional Mobility Authorities (RMA);
- Provision for the use of public-private partnerships through the use of comprehensive development agreements;
- Creation of the Transportation Mobility Fund to provide toll equity money for new toll projects, with an annual dedicated revenue of \$250 million;
- Advanced right-of-way acquisition opportunities; and
- Ability to place tolls on non-tolled roads (conversion).

In addition, the Texas Transportation Commission established a policy directive requiring that all new highway projects be assessed with regard to the ability and level of funding that could be achieved from tolling. This directive has essentially put all Texas DOT District Engineers into the business of assessing the use of toll roads with the Texas Transportation Commission acting as the governing body.

### ***Florida's Toll Industry***

Florida's toll industry is varied, offering a number of ways of conducting the business of planning, designing, constructing, and operating toll facilities. The Florida "approach" came together over a long period of time through a series of actions and decisions, including:

- **Statewide System Perspective** – Florida's Turnpike – today referred to as the Florida Turnpike Enterprise (FTE) – was created in the late 1950s to provide a limited access roadway that connected central and southern Florida. FTE has shown continued evolution to meet the needs of the State – serving as both Florida's "mainstreet" and its leader in innovative transportation practices and the incubator for change in delivering transportation systems. FTE continues to stress delivery of highway systems along with enhancement of service to its customers through the convenience of electronic payment systems. FTE's successful marketing of their signature "SunPass" transponder serves as a model to all toll agencies. While significant growth and expansion are the norm for FTE, so is continued improvement in their financial standing, as evidenced by continued high ratings from the bond market.
- **Regional Systems Perspective** – Regional Expressway Authorities began in the 1960s as regional leaders saw the need and opportunity to enhance their quality of life and economic opportunities through toll roads. This approach continues today, over 40 years since the initial efforts by the Orlando-Orange County region. Today's regional toll authorities include systems operated by the Orlando-Orange County Expressway Authority, the Miami-Dade Expressway Authority, and the Tampa-Hillsborough Expressway Authority.
- **Local, Stand-Alone Project Perspective** – The enactment of local bills in the Florida Legislature has allowed creation of authorities with specific project purposes. Local tollway authorities have become more prominent since the early 1990s. These authorities often serve to provide connections for specific, significant needs. They can exist under the umbrella of a county government or as an independent board. These have largely consisted of toll-bridge authorities, such as the Mid-Bay Bridge Authority in Okaloosa County and the Garcon Bridge Authority in Santa Rosa County.

Florida's toll industry continues to evolve to meet statewide and regional needs for improved transportation. Florida's flexible implementation options have been created to meet the continued demand for growth in the State.

### *Virginia's Public-Private Initiatives*

Virginia's recent tolling approach includes development of the "public-private transportation act," or PPTA. The PPTA, initiated in 1995, allows private entities to enter into agreements to construct, improve, maintain, and operate transportation facilities. Virginia has not developed a statewide tolling or turnpike authority and there appears to be no movement in that direction. However, the Virginia Department of Transportation (VDOT) has created two special divisions within the Department to review and manage the PPTA program.

The precursor to Virginia's PPTA was development of the Dulles Greenway, a privately owned toll road in northern Virginia. The Dulles Greenway was created prior to the 1995 PPTA and is not subject to oversight by the Virginia Department of Transportation]. Oversight of the Dulles Greenway is provided through the Virginia State Corporation Commission. Seeing the need to enhance upon the approach used to develop the Dulles Greenway and give the State of Virginia more control over the development of publicly accessed highways, the PPTA act of 1995 was passed.

The following observations can be made of Virginia's toll road experiences since passage of the PPTA:

- The State has received 43 unsolicited proposals (through August 2005) and VDOT has issued one RFP for a public-private project. However, only one PPTA project, the Pocahontas Parkway has been developed and opened to traffic to date. It should be noted that the Pocahontas Parkway project has had financial difficulties due to slow growth in traffic demand. Eight additional proposals have resulted in comprehensive development agreements with a total value of approximately \$2 billion (August 2005).
- PPTA proposals submitted to VDOT during the early years of the program were proposals to use VDOT's state and Federal funds to develop and construct toll projects that required additional funds beyond those generated by toll revenues. After acceptance by the State, state funds were essentially earmarked to the specific PPTA project, preventing the use of the earmarked state funds on other VDOT projects.
- A noticeable change in the nature of PPTA submittals has occurred in the past year as private sector teams are starting to include international tollway and financial firms in partnership with U.S. firms. This is consistent with the public-private activities noted in Texas.
- There currently are six PPTA proposals under consideration and review by VDOT (August 2005).

## Overview of Organizational Models

### *Introduction*

Tolling entities share common functions: they charge user fees (i.e., tolls), to help finance debt associated with facility construction, operation/management, expansion, and major rehabilitation; and, providing opportunities for enhanced traffic management. While they share common defining functions, tolling entities follow different organizational models. Tolling organizations are sometimes differentiated by their transportation function (e.g., turnpikes that traverse a state, urban expressway systems that connect commuters to an urban core, and urban bridge structures that provide access to and from urban centers and for trade routes). For the purposes of this working paper, tolling entities are described by their governance and structural form rather than by function.

The broad organizational categories described previously can be further divided into six organizational types:

1. **State-level Independent Public Toll Authorities** – Independent state agencies established to build and/or operate a comprehensive facility and/or system of toll roads.
2. **State DOT-Sponsored and Operated Toll Entities** – Subunits of state DOTs or other state agencies (with varying levels of autonomy) that are charged with building and operating a toll facility or system.
3. **Regional-Level Independent Public Toll Authorities** – Independent authorities established to construct and/or operate a toll facility, via a combination of state legislation and local mandate.
4. **Local Agency-Sponsored and Operated Toll Entities** – Subunits of city or county governments that are charged with constructing and/or operating a toll facility or system.
5. **Multipurpose Independent Public Authorities** – Authorities that construct, manage, or operate toll facilities along with other public infrastructure (e.g., port authorities).
6. **Public-Private Ventures** – Private organizations that build and/or operate a toll facility, generally through various forms of public-private partnership with the state or local jurisdiction. While there are a limited number of active 100 percent private facilities, particularly for bridges, this is not the focus of this paper. Public-private ventures, or partnerships, that are being formed and allowed in the U.S. report to an agency/organization that represents the public good. Public-private toll road ventures are different from purely public ones in that a private entity typically builds and/or operates the facility. It also is possible that the private entity have responsibility for operation and maintenance of the facility.

While the construction and operation/maintenance of facilities built via a public-private partnership model may fall under private interests – most likely the investors – the government will likely need to ensure that the private partners are living up to their end of the bargain. Thus, the public sector’s role shifts from one of direct governance to regulation and oversight. The effects of public-private ventures on an existing transportation organization vary with the level of expertise available on-staff. There must be recognition that conducting business in a public-private partnership, even in an oversight role, requires the financial and engineering expertise of the agency to be on par with the private sector’s team. One aspect of the public-private partnership that must be carefully considered is assigning roles between the public and private sectors. From a financial management perspective, the private sector prefers to have the authority to manage the facility on a daily basis without direct, hands-on involvement from the public sector sponsor. This does not eliminate the negotiation of specific operational performance and financial terms and conditions to protect the public users and public sponsor.

As with the governance options, this role may be performed at a state- or local-level depending on the nature of the facility and the sponsoring agency. It also could be performed by an existing or newly formed regulatory body, as well as an existing policy-making board. Thus, the public agency/organization typically falls under one of the categories outlined above.

For purposes of the Washington Tolling Study, the organizational categories associated with Local Agency-sponsored/operated Toll Authorities and Multipurpose Independent Public Authorities are not addressed within this Working Paper.

No rules exist for how a tolling entity should be organized and operated, although three considerations tend to drive both organizational structure and agency (or subagency) management:

1. **Mission and Responsibilities** – The organizational structure must be consistent with anticipated functions and objectives of the entity;
2. **Type of Facility** – The nature of the facility or system (e.g., single bridge or highway structure, cross-state thruway, urban commuter route) can influence the selection of governance and management structure; and
3. **Legal Barriers and Requirements** – Laws, constitutional provisions, and current policies and regulations that may drive the selection of some organizational options over others.

These considerations influence nearly every decision about the organizational structure, governance, financial policies, institutional relationships, and responsibilities of a tolling entity. These are discussed further below.

### Governance Requirements

The governance of public toll entities is typically split between a policy-making body and a chief executive. Policy-making bodies for public toll entities take many different forms and have varying responsibilities, but are typically multi-member boards responsible for strategic-level decision-making and oversight of the toll authority. Structural options for policy-making bodies are identified in Table 3.1.

**Table 3.1 Tolling Entity Governing Bodies**

<b>Organizational Type</b>	<b>New Independent Board</b>	<b>Existing Independent Board</b>	<b>Other Governance Options</b>
State-level Independent Authority	Members selected by governor/ approved by legislature to govern new toll entity	Transportation commission or other existing board governs new tolling entity	
State-DOT Tolling Entity	Typically governed by existing Transportation Boards or Commissions	Transportation commission or other existing board governs new tolling entity	
Local-level Independent Authority	Members selected by governor and/or mayor, city council, or county commissioner(s)	Established local authority assumes governance responsibilities	County commission or city council governs new tolling entity
Existing Multipurpose Authority	Typically governed by the authority under which the toll organization is created	Established authority assumes governance responsibilities with possible expansion in representation	

Similarly, toll entity chief executives typically report to the agency’s governing body (i.e., the policy body), but also may be selected and/or accountable to a jurisdiction’s elected executive (and, in some instances, legislative body). Specific options for selecting tolling entity chief executives are identified in Table 3.2.

**Table 3.2 Chief Executive Models**

<b>Organizational Type</b>	<b>Director Selected by Elected Executive</b>	<b>Entity Managed by Existing Executive</b>	<b>Other Director Selections Approaches</b>
State-level Independent Authority	Governor appoints (legislature may have a confirmation role)	DOT secretary/director serves as toll authority director	Selected by governing body/authority members  Selected by DOT secretary
State-DOT Tolling Entity	Typically selected by DOT's senior leadership	DOT secretary serves as toll authority director	Selected by DOT secretary
Local-level Independent Authority	Governor, mayor, or county commissioner(s) select	Director of public works or director of existing authority serves as chief executive	Selected by governing body/authority members

### *Financial Requirements*

Most tolling entities carry out similar financial roles – they finance construction (generally through debt issuance) and manage the collection of tolls to repay debt and fund maintenance and operations. Financial considerations that influence the selection of the preferred organizational structure for a tolling entity include:

- Anticipated mix of funding sources (100 percent toll-financed, hybrid of public funds and tolls, application to higher-level political jurisdictions for financial support (e.g., Federal credit provisions, state financing authorities, etc.));
- Level of financial support (i.e., guarantee) anticipated from the sponsoring state or jurisdiction;
- Debt issuance limitations and procedures of the sponsoring state and/or jurisdiction;
- Underlying creditworthiness of the sponsoring state and/or jurisdiction;
- Interest in pursuing joint development, facility concessions, etc.;
- Role and potential reach of public oversight commissions, including but not limited to the approval of toll rates; and
- The autonomy of the agency also might impact the financial market's level of comfort with regard to receiving higher bond ratings.

If direct affiliation with the sponsoring jurisdiction is advantageous, a beneficial organizational model is one where the tolling entity is a subunit of an existing agency (e.g., a department within a state DOT). A key issue to consider is the degree of autonomy

needed to satisfy investors that political influence is not overriding financial security versus the degree to which integration into the state organization is desirable for management of the state or regional system. A related factor is the extent to which the sponsoring jurisdiction is willing to extend financial support to the tolling entity in the form of financial guarantees and/or direct support. Conversely, to the extent that direct affiliation with the sponsoring jurisdiction is not advantageous, an independent organizational structure may be more appropriate (e.g., an independent public authority). The latter model is not found in its purest form. For example, the North Carolina Turnpike Authority (NCTA), while sponsored legislatively and funded by the North Carolina Department of Transportation (NCDOT), is authorized to have independent staffing, location, and policy Board. However, the NCTA is required to have its annual budget and work program approved by the NCDOT Board of Transportation.

The organizational structure of a tolling entity may affect the availability of non-debt sources for project funding. For instance, it may be easier to commit state funds to a toll project if the tolling entity is part of, or has a close alliance with, the state transportation department. The organizational structure also can determine the taxing capabilities of an entity and, most importantly, the ability of the entity to adjust toll levels to meet debt covenants and/or debt service responsibilities.

### *Management and Operational Requirements*

As with models for governance and finance, models for management and operations of toll entities vary considerably – from large bureaucracies that mirror state transportation departments in terms of scope and capabilities, to small management organizations that outsource nearly every function of operations, to private industry and/or to the state DOT. In establishing a toll entity, public officials will need to consider two important questions about each major functional area:

- **How are policies, procedures, and rules established?** At one extreme, a new tolling entity could be completely autonomous from other areas of government and have full responsibility for establishing its own rules and procedures. At the other end of the spectrum, an entity could be established as part of an existing agency and simply adopt that organization's operational and administrative framework, including detailed policies and procedures, for example. There also are many options along the spectrum where an agency has autonomy in some operational and administrative areas, but falls under the rules and regulations of an existing organization for others.
- **Who performs functions?** There are essentially three options for who will perform operational and administrative functions: internal forces, personnel from other agencies, or the private sector (i.e., outsourcing).

Table 3.3 identifies the key operational and administrative areas a tolling entity may be responsible for, gives examples of specific activities performed in these areas, and where applicable, provides comments on organizational or managerial options. Tables 3.4, 3.5, and 3.6 depict a summary of how three different organizational models address the use of in-house and outsourcing to perform these basic functions.

**Table 3.3 Operational and Administrative Functions Common to Tolling Organizations**

<b>Managerial and Operational Areas</b>	<b>Types of Activities</b>	<b>Comments Regarding Organizational Approaches</b>
Maintenance	Pavement repair, sign replacement, mowing, snow removal	Geographic extent of toll facility/system influences cost-effectiveness of who performs the work
Traffic Safety/ Enforcement	Speed and toll enforcement, truck weight oversight, accident management	State constitution may define who must provide police service
Technical Services	Planning, design, environmental review, etc.	One-time, periodic demand for services may encourage outsourcing
Toll Operations	Manual toll collection, automation equipment, electronic payment and backroom financial systems	Outsourcing prevalent for toll collection, particularly automatic collection systems
Right-of-Way Acquisition	Condemnation proceedings, utilities relocation	Only government entities have eminent domain authority, but acquisition activities are frequently outsourced
Asset Management	Pavement, structures, toll collection facilities, fleet/equipment/building management	Outsourcing of other activities may reduce asset management needs
ITS	Traffic operations centers, information kiosks, dispatching emergency vehicles, traveler information systems	Need for coordination with regional ITS operators encourages outsourcing to state, regional government, or private sector
Contract Management	Oversight and direction of contracted construction, design, systems development, etc.	Outsourcing of other activities may increase importance of this function as an “in-house” activity
Procurement	Construction, services, equipment, supplies	State and/or local laws may dictate rules and regulations
Legal Services	Rulemakings, law suits, condemnation proceedings, legislative support	Some states dictate role of Attorney General with respect to legal matters
Human Resources	Recruitment, hiring/firing, promotions, training, grievance issues, pay and benefits	State and/or local laws may dictate rules and regulations
Managerial and Operational Areas	Types of activities	Comments regarding organizational approaches
Fiscal Services	Accounting and audit, financial estimates, payroll, accounts payable	Portions of fiscal services functions commonly outsourced; integration with other state agencies critical
Information Technology and Other Support Activities	Hardware/software policies, network development and administration, systems development, web site maintenance	Increasingly, this set of functions at least partially outsourced; integration with other state agencies critical
Marketing and Public Affairs	Advertising and promotions, media relations, intergovernmental coordination	Marketing role not typically a core competence for state and local transportation agencies; staff marketing/communications director utilizes private sector resources

**Table 3.4 Operational and Administrative Functions**  
*In-House and Outsourcing within a State DOT-Sponsored Tolling Organization*

<b>Managerial and Operational Areas</b>	<b>Types of Activities</b>	<b>In-House and Outsourcing Comparison</b>
Maintenance	Pavement repair, sign replacement, mowing, snow removal	Can be in-house or outsourced; primarily in-house activity today; may be supported by sponsoring DOT
Traffic Safety/ Enforcement	Speed and toll enforcement, truck weight oversight, accident management	In-house or sister state agency assigned to the toll facility; not outsourced
Technical Services	Planning, design, environmental review, etc.	In-house or outsourced; outsource is common with in-house management-level staff oversight
Toll Operations	Manual toll collection, automation equipment, electronic payment and backroom financial systems	In-house or outsourcing are used; outsource is more common and growing in use, particularly enhanced backroom operations
Right-of-Way Acquisition	Condemnation proceedings, utilities relocation	In-house or outsourcing are used; in-house staff management of outsource acquisition firms
Asset Management	Pavement, structures, toll collection facilities, fleet/equipment/building management	In-house with outsourcing of data collection, condition assessment, and system development is common
ITS	Traffic operations centers, information kiosks, dispatching emergency vehicles, traveler information systems	In-house more common than outsourcing in these agencies
Contract Management	Oversight and direction of contracted construction, design, systems development, etc.	In-house and outsourcing is common; project and program management roles often use outsource professionals
Procurement	Construction, services, equipment, supplies	In-house; some cases of outsource support here also
Legal Services	Rulemakings, law suits, condemnation proceedings, legislative support	In-house or from sponsoring DOT staff
Human Resources	Recruitment, hiring/firing, promotions, training, grievance issues, pay and benefits	In-house with support from sponsoring DOT staff
Fiscal Services	Accounting and audit, financial estimates, payroll, accounts payable	In-house management with outsource of production items, accounting
Information Technology and Other Support Activities	Hardware/software policies, network development and administration, systems development, web site maintenance	In-house, or combination of in-house management and outsource
Marketing and Public Affairs	Advertising and promotions, media relations, intergovernmental coordination	In-house most often with support from sponsoring DOT; some outsourcing for newer agencies

**Table 3.5 Operational and Administrative Functions**  
*In-House and Outsourcing within an Independent State-Level Tolling Organization*

<b>Managerial and Operational Areas</b>	<b>Types of Activities</b>	<b>In-House and Outsourcing Comparison</b>
Maintenance	Pavement repair, sign replacement, mowing, snow removal	Can be in-house or outsourced; primarily in-house activity today
Traffic Safety/ Enforcement	Speed and toll enforcement, truck weight oversight, accident management	In-house or sister state agency assigned to the toll facility; not outsourced
Technical Services	Planning, design, environmental review, etc.	In-house or outsourced; outsource is common with in-house management-level staff oversight
Toll Operations	Manual toll collection, automation equipment, electronic payment and backroom financial systems	In-house or outsourcing are used; outsource is growing in use, particularly enhanced backroom operations; some areas and existing agencies have labor union issues
Right-of-Way Acquisition	Condemnation proceedings, utilities relocation	In-house or outsourcing are used; in-house staff management of outsource acquisition firms
Asset Management	Pavement, structures, toll collection facilities, fleet/equipment/building management	In-house with outsourcing of data collection, condition assessment, and system development is common
ITS	Traffic operations centers, information kiosks, dispatching emergency vehicles, traveler information systems	Varies with agency size and maturity, but in-house more common than outsourcing in these agencies
Contract Management	Oversight and direction of contracted construction, design, systems development, etc.	In-house appears most common; limited use of program management outsource professionals for this
Procurement	Construction, services, equipment, supplies	In-house; limited cases of outsource support here also
Legal Services	Rulemakings, law suits, condemnation proceedings, legislative support	In-house staff
Human Resources	Recruitment, hiring/firing, promotions, training, grievance issues, pay and benefits	In-house staff
Fiscal Services	Accounting and audit, financial estimates, payroll, accounts payable	In-house management with outsource of auditing and accounting
Information Technology and Other Support Activities	Hardware/software policies, network development and administration, systems development, web site maintenance	In-house, or combination of in-house management and outsource
Marketing and Public Affairs	Advertising and promotions, media relations, intergovernmental coordination	In-house and some outsourcing for newer agencies

**Table 3.6 Operational and Administrative Functions**  
*In-House and Outsourcing within an Independent Regional-Level Tolling Organization*

<b>Managerial and Operational Areas</b>	<b>Types of Activities</b>	<b>In-House and Outsourcing Comparison</b>
Maintenance	Pavement repair, sign replacement, mowing, snow removal	Can be in-house or outsourced; recently moving toward more outsourcing activity
Traffic Safety/ Enforcement	Speed and toll enforcement, truck weight oversight, accident management	Outsource to sister regional or state agency assigned to the toll facility; not outsourced to private sector
Technical Services	Planning, design, environmental review, etc.	In-house or outsourced; outsource is common with in-house senior management-level oversight
Toll Operations	Manual toll collection, automation equipment, electronic payment and backroom financial systems	In-house or outsourcing are used; outsource is growing in use, particularly enhanced backroom operations. Some areas and existing agencies have labor union issues
Right-of-Way Acquisition	Condemnation proceedings, utilities relocation	In-house or outsourcing are used; in-house staff management of outsource acquisition firms very common
Asset Management	Pavement, structures, toll collection facilities, fleet/equipment/building management	In-house management with outsourcing of data collection, condition assessment, and system development is common.
ITS	Traffic operations centers, information kiosks, dispatching emergency vehicles, traveler information systems	Varies with agency size and maturity, but in-house management with outsourcing of operations is growing
Contract Management	Oversight and direction of contracted construction, design, systems development, etc.	In-house appears most common; growing use of program management outsource professionals for this
Procurement	Construction, services, equipment, supplies	In-house with outsource support here also
Legal Services	Rulemakings, law suits, condemnation proceedings, legislative support	In-house staff counsel with outsourcing for needed support
Human Resources	Recruitment, hiring/firing, promotions, training, grievance issues, pay and benefits	In-house staff
Fiscal Services	Accounting and audit, financial estimates, payroll, accounts payable	In-house management and CFO with outsource of auditing and accounting support
Information Technology and other Support Activities	Hardware/software policies, network development and administration, systems development, web site maintenance	In-house, or combination of in-house management and outsource services
Marketing and Public Affairs	Advertising and promotions, media relations, intergovernmental coordination	In-house management/director with outsourcing

## ***Organizational and Implementation Lessons Learned***

Organizational lessons learned are outlined below.

- The organizational and governance structure must be selected to support the vision, mission, goals, and objectives of the tolling agency.
- While some state-level toll agencies continue to support primarily “mainline” and connected facilities, others are charged with developing regional facilities to address specific transportation capacity and traffic management needs. This is the case in Colorado and North Carolina where these new authorities have clear directives to address regional needs rather than to develop a “statewide” turnpike facility.
- Other states have created the ability for local and regional decision-makers to develop independent authorities to address local needs. Florida, Texas, and others have taken this approach. This puts local support of specific projects into the forefront. It also allows for a greater regional base for financial participation and investment, as well as governance models.
- The use of “outsourcing” for multiple elements of the tolling agency’s organization, project/program delivery, and operation continues to grow. Outsourcing utilizes private sector performance, flexibility, and efficiencies to support of a more streamlined public sector management team. Florida and Texas are two states that are utilizing the outsourcing approach to achieve faster program delivery and more efficient operations.
- The potential use of public-private partnerships requires enhanced skills in several areas (financial, project delivery, for example). Therefore, an agency’s organizational structure should consider the potential for public-private partnership models. Those enhanced skills are needed to support specific methods of advertising, reviewing, and approving both solicited and unsolicited proposals for public-private partnerships and concession agreements for transportation projects. Without the proper support of technical, financial, and policy expertise, agencies at all levels of government may not be prepared to successfully perform the financial and engineering negotiations required to assess the overall viability of potential public-private project opportunities.

### ***Summary***

The ultimate question with respect to organization and governance is often, “can an existing agency/organization, transportation or otherwise, perform in a more business-like manner as required by the toll industry?” While traditional transportation agencies are adept at managing large-scale transportation programs, their organizations may not be structured to respond quickly to daily changes and the varied demands of customers of a toll road system.

Recently enacted tolling organizations have selected an organization and governance model that allows the merging of strengths from an existing multipurpose transportation

agency alongside a new organization focused solely on tolling opportunities. The reasons for selecting this approach have included:

- The desire to use available technical resources from an existing agency rather than create duplicate capabilities. In this manner, only tolling-specific skills need to be added within the new organization.
- The desire to develop greater synergy in integrating long-range goals and transportation system improvements.
- The desire to have greater control from a centralized transportation agency rather than a more independent agency, whether statewide or regional in nature.
- Providing a means of funding start-up activities, from administrative to project feasibility assessment.

The most current trend for startup tolling agencies also includes the use of outsourcing for general tolling expertise and support. Outsourcing for special tolling skills also supports the need for a streamlined, flexible product delivery and customer service approach. This approach supports the continued implementation and updating of challenging technology advances.

However, one size does not fit all. Thus the best organization model for a new toll agency is one that meets the stated vision and mission of the agency while providing customer and production services in the most efficient manner. As Washington State considers the best governance and organizational approach, discussion of these measures will be conducted to assure the best approach is considered and selected. These discussions and assessment of Washington State’s vision for a tolling agency will be documented in later reports.

Tables 3.7, 3.8, and 3.9 present a summary of operational characteristics for representative organizational models that were identified in previous sections.

**Table 3.7 DOT-Sponsored Model Examples**

<b>Organizational Issue</b>	<b>Texas Turnpike Authority (TTA)</b>	<b>Florida Turnpike Enterprise (FTE)</b>
Governing Board	Texas Trans. Commission	FDOT Secretary/Commission
CEO Selection	Texas Trans Commission	FDOT Secretary/Commission
Admin. Procedures	Follows TxDOT policies and procedures	Follows FDOT policies and procedures
Debt Authority	TxDOT and Texas Trans Commission	Florida Division of Bond Finance issues debt
Financial Partnership	TxDOT funding eligible for toll roads	DOT funds available under certain conditions
SUPPORT Services	Use TxDOT resources, internal staff, and outsourcing	Use FDOT resources, internal staff, and outsourcing
Project Selection	Texas Trans Commission	Internal with Commission approval
Physical Location	Co-located w/TxDOT	Separate

**Table 3.8 Regional-Level Independent Model Examples**

<b>Organizational Issue</b>	<b>Orlando-Orange County Expressway Authority (OOCEA)</b>	<b>North Texas Tollway Authority (NTTA)</b>
Governing Board	Appointed Board 3 plus Elected official and FDOT District representative	Appointed Board
CEO Selection	Selected by Board	Selected by Board
Admin. Procedures	Independent	Independent
Debt Authority	Issues own debt	Statutory, Board approval required
Financial Partnership	FDOT, public and private partnerships	TxDOT, local public entity partnerships
Support Services	Internal staff and outsourcing	Internal staff and outsourcing
Project Selection	Internal; consistent with MPO plan	Internal; consistent with MPO plan
Physical Location	Independent offices	Independent offices

**Table 3.9 State-Level Independent Model Examples**

<b>Organizational Issue</b>	<b>Pennsylvania Turnpike Commission (PTC)</b>	<b>Illinois State Toll Highway Authority (ISTHA)</b>
Governing Board	Independent Board appointed by Governor and State Senate	Independent Board appointed by Governor and State Senate
CEO Selection	Selected by PTC Board	Selected by Governor and Board
Admin. Procedures	Independent	Independent, with assistance by State Contract Management Services agency on major procurements
Debt Authority	Self-authorized	Self-authorized via statute
Financial Partnership	Use of State and Federal funds allowed	Toll revenues only, no mix with state or Federal funding
Support Services	Internal; some outsourcing	Internal, some outsourcing of services such as VES and toll system maintenance
Project Selection	Independent; directed by Legislative action	Independent on existing system; extensions or new routes by Legislative approval
Physical Location	Independent offices	Independent offices

## ■ Washington State Perspective

The following section summarizes a series of interviews with stakeholders in Washington State regarding tolling organizations and the Washington State context regarding tolling. The interviews were performed in a conversation-like manner beginning with asking participants about their ideas about the vision and mission of tolls in Washington State. Discussions also covered the areas of organization and governance, interagency coordination, public interaction and expectations, and staffing and operational responsibilities of tolling agencies.

We interviewed a member of the Washington State Transportation Commission, representatives of various divisions of the Washington State Department of Transportation, staff from the Puget Sound Regional Council (PSRC), a representative of the Regional Transportation Investment District (RTID), and senior management from King County's Department of Transportation.

Each interview brought different issues and key points to the forefront. Key points from the interviews are summarized below. The primary concerns are identified below.

### Financial Control

There were several issues surrounding the financial control of funds flowing to and from toll agencies:

- **Control of Financial Information and Use of Funds Over Time** – The need to provide ongoing monitoring of fund uses and for appropriate information to be made available to all parties was stressed.
- **Controlling income, Expenses, and Cash Flow Schedules** – This issue addresses the need to ensure that project and system funding include planning of income and expenses through the use of detailed schedules.
- **Protection of WSDOT Non-toll revenue Sources if Tolls Fall Short of Meeting Debt Payments** – The concern here was to make sure that appropriate financial safeguards of WSDOT non-toll resources are included on any project that includes a combination of toll revenues and other funds, including WSDOT non-toll resources.
- **Financial Control Requirement Impacts to Toll Organization Structure** – This topic questioned the way in which the financial requirements of a toll organization impact the organizational and operational responsibilities of an agency. Financial requirements are specifically spelled-out in any bond sale. Furthermore, the activities leading up to a bond sale will dictate that the appropriate financial expertise be available to the toll agency.

## Regional Focus

The importance of addressing regional issues related to tolling was brought out within every interview. The principal issues were:

- **Importance of Customer Service and Relations at the Regional Level** – This issue addresses the need to be close to the customer with the ability to promptly respond to customer needs. Given that the more urban regions will more likely have tolling systems to assist with traffic management and congestion, the location of customer service and public relations staffing in the regions was viewed as important.
- **Setting of Toll Prices or Pricing Strategies for Managed Lanes** – Traditionally, the setting of toll levels is determined by the need to cover operations and maintenance costs plus Meet debt payment schedules. However, where managed lanes and traffic management are the principal reasons for tolling, there is a need to consider the full impact of price variations upon the transportation network not just the toll system. The interviews brought out the interest in regional involvement in establishing appropriate toll rates and pricing strategies for the managed lane systems.
- **Establishment of Policies at the Regional Level** – This is related to the issue of setting toll levels and managed lane pricing. Regional-level policy setting was viewed as more Responsive to the local users than a state-level agency with no regional representation.
- **The Puget Sound Region May be More Open to Tolling than other Regions of the State** – This observation was made due to the increasing congestion on the urban freeway and interstate corridors and general responsiveness to financing transportation system improvements.

There would appear to be support of a regional transportation entity in the Seattle area with a range of powers available to it. Authority could be for planning and programming only; or, include the authority to plan, design, construct, and operate/maintain tolling systems. A regionally based tolling agency would likely be supported within the Puget Sound Region. The form and comprehensive nature of such an agency's authority would have to be determined.

## Public-Private Partnerships

The nature of public-private partnerships (PPP) is unique and continues to evolve throughout the United States. Further, the interviews indicated that the case of PPP in Washington State also will bring its own unique features to the practice. Rules for PPP application in Washington State are in draft form at the time of this writing. Specific issues were:

- **Ability within the Toll Agency to Engage in and Manage Potential Public-private Partnerships** – While not all PPP in Washington State will involve transportation toll facilities, there is a recognized need to have adequate expertise available to the tolling agency(s) to address potential PPP activities involving toll systems.
- **Establish a Separate Public-Private Partnership Oversight Entity that Coordinates with Tolling Experts for Toll Road Projects** – It was suggested that a separate entity could coordinate with a tolling agency(s) as needed for specific expertise related to tolled PPP projects.

## Operation

The operation of modern toll facilities and systems has changed considerably over the past decade. In this sense, the expectations of the users often dictate the “viewable” end product, thus influencing the behind-the-scenes operation of payment systems. In particular:

- **The “backroom” operation should appear seamless to the user, providing for a single statement for multiple uses if necessary** – As multiple payment systems are linked together for the benefit of the user, there will need to be a single-statement of transactions. To do this, the backroom operations must become fully integrated at the point of payment level. Fortunately, this approach is well developed in many locations and the art and science of the payment transactions are being enhanced.
- **Coordinate the payment systems with the Washington State Ferry System payment mechanism** – Similar to the previous issue, it would be desirable to incorporate the Washington State Ferry System payment into a multi-agency and use mechanism.
- **What impact would potential union involvement play in a toll agency organization?** This issue will need to be defined as the tolling agency(s) approach is developed. For example, we understand that the Washington State Ferry System currently has contracts involving 20 different workers unions. This is addressed by many states and their approaches can be studied alongside the Washington State labor laws to determine an appropriate answer.

## Policy

The issues related to policy areas included those statewide in nature as well as regionally important topics:

- **Would there be free alternate routes to tolled roads?** This is primarily an issue with new alignment facilities, but also could be important on major systems improvements and bridge crossings. The answer, of course, is a policy decision and must be considered on a case by case basis.

- **RTID supports managed lane projects for traffic management purposes** – Puget Sound region policy documents are very clear in their support for pricing for traffic management.
- **Must define the purpose and role of tolling** – This statement is related to the need to clearly delineate the overarching vision of a tolling agency(s). It also can speak to individual projects and systems.
- **Tolling should be introduced as part of the transportation finance package rather than sent to a statewide referendum for approval** – Concern was expressed over the need for statewide referendum for the tolling question and the need for tolling as part of the finance package.
- **Insulation from Politics** – There should be some level of insulation of the tolling agency(s) from purely political decision-making, allowing for full consideration of all technical and financial merits of projects and systems alongside realistic political considerations. While the political nature of our governing process is needed and brings value to the overall process, the issues of technical and financial merit must be weighed alongside the political will to implement a project. Investors will quickly read the political landscape for these signs of support.
- **Who would own and/or operate tolled facilities at the regional level when they consist primarily of tolled lanes on State roads?** Again, a question to be answered in the development of projects of this nature. Ownership of the actual facility will most likely remain with the WSDOT. The operating party for the tolling system can vary.

## Statewide Role

The potential role that the State should play was expressed in these ways:

- **Oversight agency at the state level that establishes general tolling policies and operational guidelines, with possible regional representation** – This oversight was seen as a way to provide continuity and consistency among toll systems across the State.
- **Coordination with multi-state or multi-regional issues** – The potential for toll facilities that cross state lines, such as bridges, should be considered and the involvement of state-level agencies made a part of understandings among states.
- **Establishment and oversight of public-private partnership arrangements** – A statewide role in providing consistency and expertise in the area of PPP is important to the tolling agency.

## Tolling Systems

Tolling systems are important part of the operation of a toll organization. Some of the issues raised included:

- **Facility-based tolling will grow to become system-based tolling in the urban regions** – Washington State’s historic approach to tolling single projects is viewed as turning to become an approach of developing tolling systems with the urban regions and perhaps the State.
- **Need to consider the ability to leverage revenues among systemwide facilities** – The use of revenues among a system of toll facilities is an important consideration. Many agencies use this approach to leverage excess revenues on existing, mature systems to support newer projects during the early years of traffic growth. As toll systems are developed, the approach to leveraging revenues will be important to timely development and stronger financial ratings.
- **Regional managed lane systems are key elements to traffic management using tolling** – A system of managed lanes is envisioned by many at the regional level as a means of addressing travel demand and improving the quality of travel service through variable pricing strategies. Variable tolling rates are used to ensure a higher quality level of service to the user willing to pay a toll.
- **HOT lanes are supported and dynamic tolling/pricing is appropriate to protect the traffic management and managed lane goals** – This is a general statement from the interviews that confirms what many have suspected in the major urban regions.

## Common Themes

Some common trends emerged from those interviews:

- State-level oversight and guidance is needed on all tolling-related issues.
- Regional-level representation is needed on toll pricing, traffic management systems, and customer service.
- Electronic payment systems should be developed, with a single statement of activities for multiple modes and open fiscal accountability.
- The organization should have some insulation from purely political decision-making, allowing for full consideration of all technical and financial merits of projects and systems alongside realistic political considerations.

## ■ Potential Organizational and Administrative Models for Washington State

Governance and organizational issues must be addressed if tolling in Washington is to move beyond the Tacoma Narrows Bridge and SR 167 Pilot Project. In considering this issue, we investigated trends in the tolling industry around the United States and also interviewed various transportation leaders in Washington.

Historically, tolling in Washington State has been used to finance major bridges. Once the debt was paid, tolls were removed, resulting in the owner, normally WSDOT, to take over maintenance and operation responsibilities. This is the model being used for the new Tacoma Narrows Bridge.

Recently, Washington State initiated a managed lanes pilot project on SR 167, which is different in that tolls are not being used to pay off capital. Rather, they are being used to manage congestion, with the toll revenue being used to pay off expenses, operate and maintain the managed lane, and increase transit, vanpool, carpool, and trip reduction services in the corridor.<sup>2</sup> In addition, the Tacoma Narrows Bridge project is being developed to allow open road tolling in addition to traditional manual toll collection. These developments are part of the evolutionary change to tolling approaches and pave the way to a modern tolling policy and approach in the State, including addressing the issue of organization and governance models.

Currently, the Washington State Transportation Commission is the Toll Authority. As such, they have the responsibility to set tolls. Selection of toll projects is the prerogative of the legislature.

The results of our national research and state-level stakeholder interviews indicate the growing acceptance of tolling as a means of project finance and traffic management in congested urban regions. Nationally, recent trends point to the development of statewide tolling agencies that have regionally based representation. The continued growth in urban regions and desire for continued mobility with personal automobiles has moved the focus of tolling agencies from statewide turnpikes to urban projects with stronger emphasis on traffic management. In Washington State, we found a clear desire for regionally specific policies for pricing and traffic management, with some level of state oversight.

A significant desire expressed during our work was to have objective criteria applied consistently around the State. The balance between local or regional initiative and consistent policy at the statewide level should account for these concerns:

- A way to combine funds from regional or local entities with state or Federal funds.

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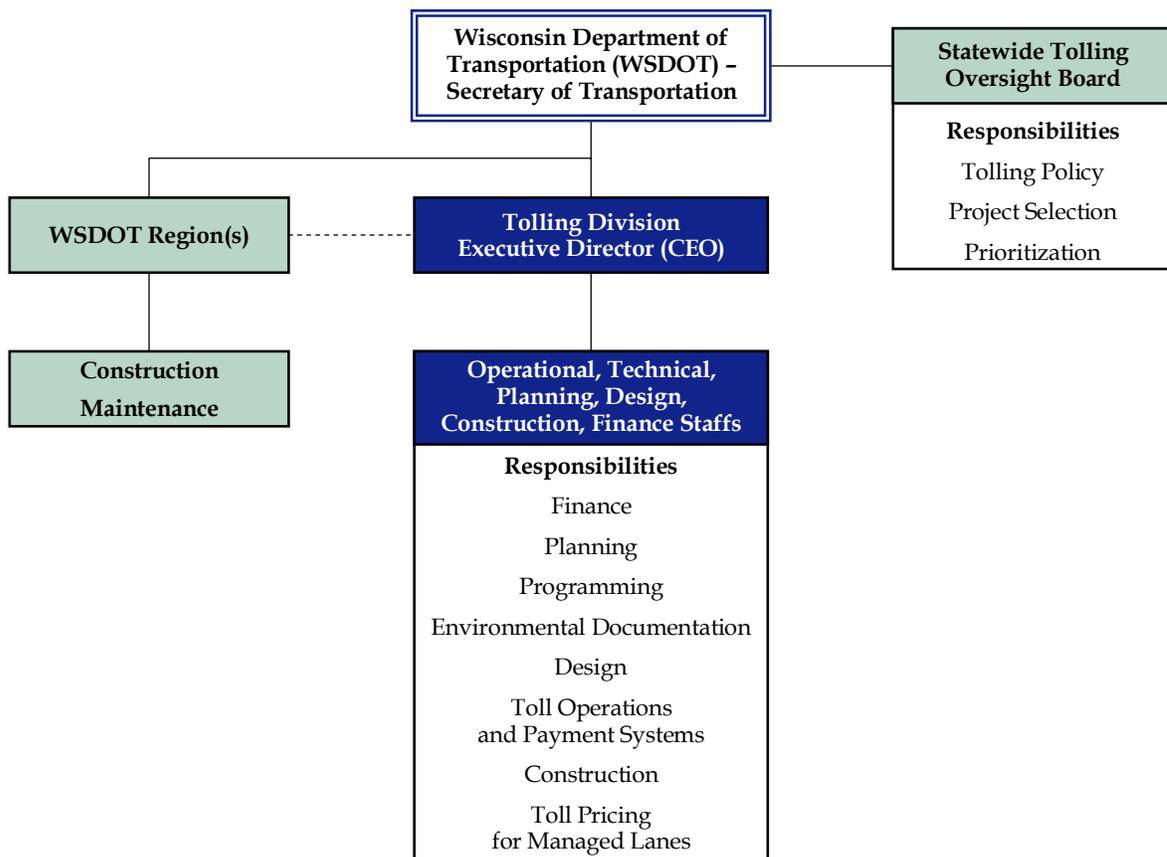
<sup>2</sup> 47.66 RCW.

- A set of specific, consistent criteria that should be met before tolling or pricing were implemented, potentially administered through WSDOT.
- A means of advancing projects that meet the policy criteria without Legislature action. The authority to approve such projects should rest with the Commission or some other statewide tolling authority, working with information provided by WSDOT.

As a result, two similar, yet subtly different, approaches to governance surfaced as the best candidates for consideration.

**Centralized Statewide**, whereby all project selection and configuration decisions are made centrally. Within this state-level control, however, localities or regions would have the ability to initiate projects and work with the central administration to advance them through the planning, design, construction, and operation process. Ultimate decision authority, however, would reside within this central body. This organizational model is depicted in Exhibit 3.1

### Exhibit 3.1 Centralized Statewide Organization

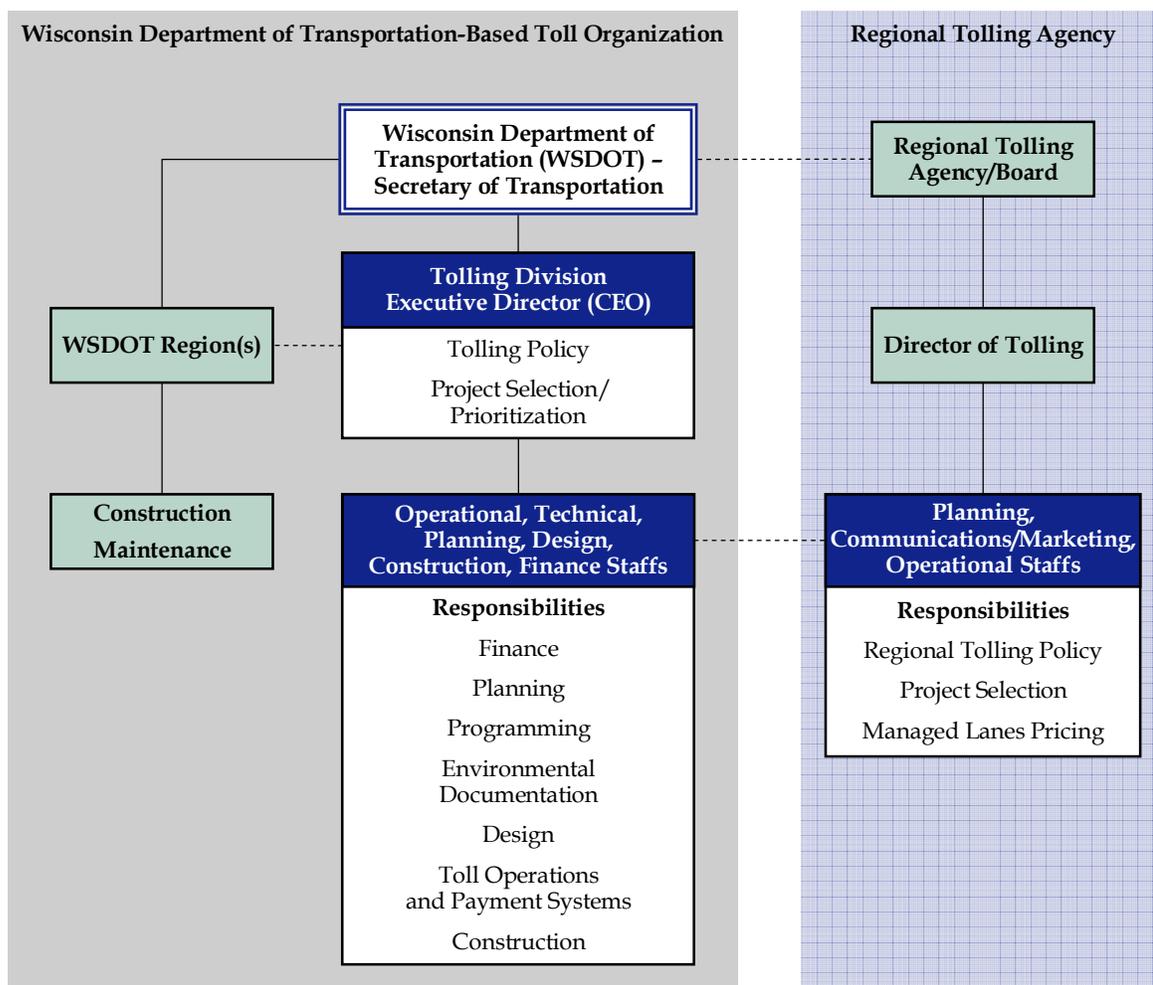


The advantages of this governance structure are that there is a single tolling agency for all levels of project and system development with the potential for close coordination with overall WSDOT project programming. Regional representation can be accomplished through a Statewide Tolling Oversight Committee. Also, tolling expertise can be assembled in a single organization rather than distributed across multiple agencies.

The disadvantage of a centralized governance structure is that there may be a perception that tolling is being imposed from the outside, rather than developed based on local decision-making. This could ultimately make it more difficult to advance worthy projects.

**Regional plus Statewide**, which allows local or regional tolling authorities to be created to advance projects or systems, with the State leading decision-making in rural areas or other appropriate circumstances. To avoid duplication of specialized functions and expertise, detailed project development, operations, and maintenance activities would always be carried out by WSDOT. This organizational model is shown in Exhibit 3.2.

### Exhibit 3.2 Regional Plus Statewide Organizations



The chief advantage of this approach is that it allows regional champions to move projects and systems into the forefront rather than waiting for a state-level champion. The closer connection to the regional support base is viewed by many experts in the toll industry as critical to the success of urban toll facilities. As with the centralized statewide concept, the tolling expertise can be kept centralized.

The disadvantage of this approach is that it requires commitment to continual organizational and operational communication between the regional- and state-level toll agencies. There also is the potential for some redundancy in skills between the state- and regional-level.

### ***Commission Recommendation***

The commission weighed the desire for regional initiative with the importance of consistency of policy setting around the State. It recommends that governance of tolling be carried out through a centralized authority with robust and continuous regional input that includes the right to propose projects. In practice, this would mean that the centralized authority would set forth overall policy and criteria for determining which parts of the system could be tolled. Regions could initiate and pursue studies in accord with those criteria, and ultimately apply to the centralized authority for permission to toll. The centralized authority would be responsible for determining consistency with the criteria, and for setting toll rates.

The day-to-day administration of tolling operations, including system development functions (i.e., studies, design, system architecture, technology) would be by WSDOT.

*Background paper prepared by PBS&J, with assistance from Cambridge Systematics, Inc. in January 2006.*

## Background Paper #4

# Equity, Fairness, and Uniformity in Tolling

### ■ National Review of Equity and Fairness

Unlike most other issues initially raised with regards to tolling and pricing, such as privacy and the reliability of technology, issues of fairness and equity continue to be raised as an issue in tolling as often today as they were 10 years ago. Left unanswered, equity and fairness concerns can constitute an insurmountable barrier to implementation.

#### The Policy Foundation

The analytical basis of equity and fairness in transportation infrastructure and services is found in several policies and directives, in chronological order:

- *Title VI of the Civil Rights Act of 1964*, which states, “No person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.”<sup>3</sup>
- *National Environmental Policy Act of 1969*, which decided in favor of community-oriented analysis of policy-making.<sup>4</sup> For proposed major transportation facilities, an analysis of environmental impacts was now required that went beyond the infrastructure itself to include a broader geographic area.
- *Federal Aid Highway Act of 1970*, which assured that transportation facilities be approved “in the best overall public interest” with efforts to eliminate or minimize effects on community cohesion, employment effects, and displacement of people.<sup>5</sup>

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<sup>3</sup> United States Code. *Title VI: Nondiscrimination in Federally Assisted Programs*, Civil Rights Act of 1964, 42 USC 2000(d) – 2000(d)(1).

<sup>4</sup> United States Code. *The National Environmental Policy Act*, 42 USC 4321-4347, Public Law 91-190 (1970), Public Law 94-52 (1975), Public Law 94-83 (1975), and Public Law 97-258 (1982).

<sup>5</sup> United States Code. *Federal-Aid Highway Act of 1970*, 23 USC 109(h), 1970.

- ***Civil Rights Restoration Act of 1987***, which identified the extent to which Title VI applied, to include all Federal-aid recipients, sub-recipients, and contractors regardless of whether specific activities in question are Federally funded or not.<sup>6</sup>
- ***Executive Order 12898 of 1994***, which established the precedent that environmental justice consideration be extended to low-income populations and to avoid “disproportionately high and adverse” effects.<sup>7</sup>
- ***U.S. Department of Transportation implementation actions***, which provided requirements upon and guidance for transportation agencies and professionals in incorporating environmental justice principles in all transportation activities.<sup>8,9</sup>

These actions combine to provide the fundamental concerns of Environmental Justice:<sup>10</sup>

1. To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and low-income populations;
2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and
3. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.

Environmental Justice may be the basis for issues of equity and fairness in the consideration of funding and planning process; however, the concepts of equity and fairness are not wholly comprised by Environmental Justice when interpreted literally. For example, if a project has benefits to a low-income population (defined by FHWA to mean a population below the Department of Health and Human Services’ poverty guidelines)<sup>11</sup> yet is detrimental to a community just above the poverty level, does this

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<sup>6</sup> United States Public Laws. *Civil Rights Restoration Act*, Public Law 100-259 (S. 557), March 1988.

<sup>7</sup> Executive Order 12898. *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, Federal Register, Volume 59, Number 32, February 16, 1994.

<sup>8</sup> U.S. Department of Transportation. *DOT Order on Environmental Justice to Address Environmental Justice in Minority Populations and Low-Income Populations*, DOT Order 5610.2, April 1997.

<sup>9</sup> U.S. Department of Transportation. *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, DOT Order 6640.23, December 1998.

<sup>10</sup> Federal Highway Administration. *Questions and Answers on Environmental Justice and Title VI*, <http://www.fhwa.dot.gov/environment/ejustice/facts/index.htm>, accessed October 9, 2005.

<sup>11</sup> U.S. Department of Transportation. *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, DOT Order 6640.23, December 1998. This order references eligibility criteria for the Community Services Block Grant Program, found at <http://aspe.os.dhhs.gov/poverty/poverty.htm>.

make the project a fair and equitable project simply because it achieves the literal definition of environmental justice? In order to account for issues similar to these, many practitioners advocate for considering the context, perspective, and timeframe of policy decisions on the broader definition of disadvantaged groups. Another related equity issue is the situation of two communities with similar demographics, where one community has extensive toll facilities and the other community does not.

As articulated by a publication from the Institute for Transportation Studies at the University of California at Berkeley, equity and fairness issues most frequently arise when:<sup>12</sup>

- Some communities get the benefits of improved accessibility, faster trips, and congestion relief, while others experience fewer benefits;
- Some communities suffer disproportionately from transportation programs' negative impacts, like air pollution;
- Some communities have to pay higher transportation taxes or higher fares than others in relation to the services that they receive; or
- Some communities are less represented than others when policy-making bodies debate and decide what should be done with transportation resources.

These four issues are generally identified within the concepts of *geographic equity*, *income equity*, and *participation equity*. However, there are additional measures of equity and fairness.

The Victoria Transport Policy Institute identifies *opportunity equity* issues as they pertain to mobility need and accessibility, whereby certain communities may disproportionately benefit from actions taken by the State. In a violation of opportunity equity, the extent of mobility needs may be greater for population A than population B, but mobility enhancements are offered disproportionately to population B.<sup>13</sup> Put differently, if a toll road is implemented serving a high-income community rather than a needed road from a low-income community solely due to cost recovery, this would violate the concept of opportunity equity.

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<sup>12</sup>Cairns, Shannon; Greig, Jessica; and Wachs, Martin. *Environmental Justice and Transportation: A Citizen's Handbook*, Institute of Transportation Studies, University of California at Berkeley, January 2003, <http://www.its.berkeley.edu/publications/ejhandbook/ejhandbook.html>, accessed October 9, 2005.

<sup>13</sup>Littman, Todd. *Evaluating Transportation Equity: Guidance for Incorporating Distributional Impacts in Transportation Planning*, Victoria Transport Policy Institute, September 2005, <http://www.vtpi.org/equity.pdf>, accessed October 9, 2005.

In a study for the Santa Clara Valley Transportation Authority in regards to the specific evaluation of equity for High-Occupancy Toll (HOT) lane facilities, researchers identified a fifth type of equity consideration: *modal equity*, which pertains to the perceived attractiveness of commuting by single-occupant vehicles in HOT lanes relative to the travel-time benefits extended to high-occupant vehicle users under HOV lane operations.<sup>14</sup> In other words, public opinion on the part of carpoolers and bus riders may be predisposed against toll roads, as they feel that one should “do the right thing” in order to have the travel-time benefits these facilities provide. This would be an example of perceived modal equity.

## Equity Issues in Toll Proposals

A fair and equitable policy regarding tolls must be viewed under a contemporary context. Eighty years ago, publicly financed roads were perceived as unfair, as an extremely small portion of the population owned an automobile. Tolls were used extensively in the first few centuries of this country’s existence, into the first five and a half decades of the 20<sup>th</sup> century. Eventually, however, fuel taxes won out as the primary financing tool for the development of the modern highway system, as the correlation between road use and fuel was viewed as a sufficient nexus. Today, vehicle ownership is pervasive, and the vast majority of the adult population personally drives a vehicle at some point on a public road.<sup>15</sup> As a result, public opinion now tends to view roads as a public good. Due to rising fuel efficiencies and fixed taxation levels, fuel tax revenue as a percentage of transportation need has been declining substantially, and actual tax receipts may soon be in decline.<sup>16,17</sup> As governments turn to tolls as a way of shoring-up transportation funding, public opinion concerns with equity also have risen with it.

Tolling has many applications currently in the United States. The various applications can be summarized into four general categories, with the understanding that some proposed projects do not fit neatly in these four categories: flat-rate tolls on highways and bridges

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<sup>14</sup>Weinstein, Asha and Sciara, Gian-Claudia. *Assessing the Equity Implications of HOT Lanes*, Santa Clara Valley Transportation Authority, November 2004.

<sup>15</sup>According to the 2000 Census, Summary File 3 data, approximately 96 percent of owner-occupied households and 78 percent of renter-occupied households throughout the United States have a personal vehicle available. In the State of Washington, an even greater share of the population uses the roads, with 97 percent of owner-occupied households and 84 percent of renter-occupied households have a personal vehicle available.

<sup>16</sup>Oregon Department of Transportation. *Road User Fee Task Force*, Office of Innovative Partnerships and Alternative Funding, [http://www.oregon.gov/ODOT/HWY/OIPP/ruftf\\_faq.shtml](http://www.oregon.gov/ODOT/HWY/OIPP/ruftf_faq.shtml), accessed October 9, 2005.

<sup>17</sup>Taylor, Brian; Weinstein, Asha; and Wachs, Martin. *Reforming Highway Finance: California’s Policy Options*, University of California Transportation Center, 2001, <http://www.uctc.net/papers/488.pdf>, accessed October 9, 2005.

(traditional toll facilities), variable-rate tolls on highways and bridges (value pricing), variable tolls on exclusive facilities within corridors (express toll lanes), and variable tolls on exclusive HOV facilities (HOT lanes). A fifth category also deserves mention – vehicular use pricing – which includes advanced implementations such as a Vehicle Miles Traveled (VMT) toll and cordon toll. These applications have not been implemented in the United States or Canada, but have had some limited applications in Great Britain, Singapore, Norway, and Germany.<sup>18</sup>

Although different in their implementation and focus on the five areas of equity outlined above, these categories all face the same test of fairness: the distribution of costs and benefits and the public acceptance of that distribution. Public opposition has been the overriding factor in tolling projects that have failed to come to implementation, rather than a technical evaluation of equity. As a result, the review of equity issues in toll projects is largely a study of public opinion.<sup>19</sup>

The concept of tolling is new in many states, and proposed projects have inevitably been controversial to one extent or another everywhere they have been considered. A variety of reasons contribute to toll projects remaining controversial. As it pertains to equity and fairness, this includes concerns for low-income individuals; geographic distribution of toll benefits and costs; and fairness to user classes. Addressing concerns of equity and fairness has taken a considerable amount of time to nurture in states even with implemented projects, such as California, New York, Minnesota, and Texas. In all states, public opinion was generally lukewarm, at best, to start.<sup>20,21,22</sup>

Limited studies have been conducted regarding the fairness of new toll facilities. Generally, proposed new road or bridge projects with a tolling element have been successfully criticized on established environmental documentation procedures, even if the principal (unofficial) objection on the part of opinion-setters has been the fairness of tolling. Examples can be found with the Jefferson Parkway (W-470) proposed toll corridor

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<sup>18</sup>California, Colorado, Minnesota, Oregon, and Washington additionally studied applications of areawide pricing in the past 10 years. No specific proposals ever moved forward, and as such, data is conceptual only.

<sup>19</sup>It is not the purpose of this section to review public opinion and attitudes regarding tolling and pricing in general. Rather, this section reviews public opinion strictly from the perspective of equity and fairness.

<sup>20</sup>Munnich, Lee and Loveland, Joseph. *Value Pricing and Public Outreach: Minnesota's Lessons Learned*, Transportation Research Board, Paper 05-0394, 84<sup>th</sup> Annual Meeting, January 2005.

<sup>21</sup>Ungemah, David; Swisher, Myron; and Tighe, Charles Daniel. *You're Making Me HOT: Talking High Occupancy Toll (HOT) Lanes with the Denver Public*, Transportation Research Board, Paper 05-1191, 84<sup>th</sup> Annual Meeting, January 2005.

<sup>22</sup>Stockton, W.R.; Grant, C.L.; McFarland, F.; Edmonson, N.R.; and Ogden, M.A. *Feasibility of Priority Lane Pricing on the Katy HOV Lane: Feasibility Assessment*, Research Report 2701-F, Texas Transportation Institute, Texas A&M University, June 1997.

in Colorado, the Mid-State Tollway in Alameda and Contra Costa counties in California, and the Trans-Texas Corridor in Texas. As a result, separating issues of equity from other facility development issues is difficult.

By comparison, a greater amount of data is available regarding the study of equity for recent Value Pricing Program projects. Extensive evaluation efforts of the State Route 91 (express toll lanes) and I-15 (HOT lanes) have yielded significant data. Additional efforts to investigate and document equity issues have been conducted for I-394 (HOT lanes), I-25 (HOT lanes), Tappan Zee Bridge (value pricing), and Leeway toll bridge (value pricing). Some of the more conclusive findings from this body of research are reported below:

1. The Center for Transportation Research at the University of Texas conducted a statewide public opinion assessment of new toll roads, new toll lanes, and HOT lanes in various areas of Texas for the Texas Department of Transportation. In general, a majority of respondents throughout Texas indicated that toll roads were unfair (55 percent), should not be used to finance new roads (51 percent), and should not be used to finance improvements to existing roads (71 percent). Negative perceptions of the fairness of toll roads occurred more often for respondents in areas currently without toll roads (such as Lubbock, Corpus Christi, and San Antonio) than areas with toll roads (such as Houston and Dallas), typically by 10 to 15 percent. Although the negative responses are strong, and indicate a clear public perception issue with the fairness of tolls, it should be noted that Texans favored tolling over fuel taxes in all areas except San Antonio. Finally, although support for tolls on new and existing roads was low, support for HOT lanes was much stronger, with 52 percent in favor.<sup>23</sup>
2. The California Polytechnic State University evaluated the user profiles of travelers on State Route 91, an express toll lane, immediately following implementation and opening of that facility. Findings from this evaluation, repeated often to counter criticism of equity and fairness issues in express toll lanes and HOT lanes, indicated that low-income drivers use the express lanes and that they approve of them as much as those of higher incomes. Over 50 percent of commuters with household incomes less than \$25,000 approved of the express toll lane concept on SR 91, again similar to opinions of those with higher household incomes.<sup>24</sup>
3. A Villanova University study of transponder acquisition on the SR 91 express lanes found an inequitable hurdle for low-income to access the facility due to the unavailability of credit cards, checking accounts, or sufficient cash savings to pay for

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<sup>23</sup>Podgorski, Kaethe and Kockelman, Kara. *Public Perceptions of Toll Roads: A Survey of the Texas Perspective*, Center for Transportation Research, University of Texas, 2005, [http://www.ce.utexas.edu/prof/kockelman/public\\_html/TRB05PublicResponsetoTRs.pdf](http://www.ce.utexas.edu/prof/kockelman/public_html/TRB05PublicResponsetoTRs.pdf), accessed October 9, 2005.

<sup>24</sup>Sullivan, Edward. *Continuation Study to Evaluate the Impacts of the SR 91 Value-Priced Express Lanes Final Report*, California Polytechnic State University, December 2000, [http://ceenve.calpoly.edu/sullivan/SR91/final\\_rpt/FinalRep2000.pdf](http://ceenve.calpoly.edu/sullivan/SR91/final_rpt/FinalRep2000.pdf), accessed October 9, 2005.

transponder deposits. These barriers become a greater barrier to usage of the facility than trip cost when modeled for lower-income users.<sup>25</sup>

4. Research efforts for the I-15 HOT lanes included attitudinal and use studies of the existing I-15 HOT lanes, and, stated-preference surveys for the I-15 Managed Lane expansion proposal. Results showed lower-income drivers used the HOT lanes (as toll-payers) less than a normalized model would reflect for the facility, but expressed opinions favorable to the program and to its fairness.<sup>26</sup> This attitude was confirmed in an extensive stated-preference survey for the proposed managed lane expansion. This survey found 60 percent of low-income respondents approved of the HOT lane concept (roughly equivalent to the percentage of higher-income respondents), 78 percent of low-income respondents believed the concept of using the lanes for a toll was fair (no statistical difference between income levels), and 75 percent of low-income respondents expressed support for the concept of managed lanes in general (higher than middle-income respondents).

The highest stated desired uses of revenue were:

- Improve all San Diego freeways (31 percent);
- Improve I-15 general purpose lanes (28 percent);
- Improve I-15 express lanes (20 percent);
- Extend I-15 express lanes (15 percent); and
- Add more general purpose lanes to I-15 (12 percent).

Overall, this survey found significant evidence that HOT lanes do not negatively impact lower-income communities.<sup>27</sup>

1. Researchers at San Jose State University and the University of California at Berkeley investigated equity issues regarding HOT lanes in particular for the Santa Clara Valley Transportation Authority. Their findings indicated that:

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<sup>25</sup>Parkany, Emily. *Environmental Justice Issues Related to Transponder Ownership and Road Pricing*, Transportation Research Board, 84<sup>th</sup> Annual Meeting, January 2005.

<sup>26</sup>Supernak, Janusz; Brownstone, David; Golob, Jacqueline; Golob, Thomas; Kaschade, Christine; Kazimi, Camilla; Schreffler, Eric; and Steffey, Duane. *I-15 Congestion Pricing Project Monitoring and Evaluation Services Phase II Year Two Overall Report*, San Diego Association of Governments, May 2000, [http://argo.sandag.org/fastrak/pdfs/yr2\\_overall.pdf](http://argo.sandag.org/fastrak/pdfs/yr2_overall.pdf), accessed October 9, 2005.

<sup>27</sup>Redman, Deborah; Norman, Judith; and Wilson, Frank. *I-15 Managed Lanes Value Pricing Project Planning Study Volume 2 Public Outreach*, San Diego Association of Governments, February 2002, [http://argo.sandag.org/fastrak/pdfs/concept\\_plan\\_vol2.pdf](http://argo.sandag.org/fastrak/pdfs/concept_plan_vol2.pdf), accessed October 9, 2005.

- Income equity is the most frequently cited equity concern.
  - Geographic equity concerns arise where project benefits and costs have strong spatial patterns or where different constituencies are noticeably segregated. For example, the authors specifically cited an example of proposed HOT lanes in Maryland. Residents who lived closer to Washington, D.C. feared that the toll rate for them to use the HOT lanes would be made higher by the volume of travelers commuting from further out. As a result, they perceived HOT lanes to be inequitable as the proposed lanes would not benefit them (on a cost-per-use basis) as much as it would residents further out from D.C. This is similar to complaints often heard on the city’s Metro rail system – trains already are full by the time they reach the inner stations.
  - Modal equity is a real concern to groups that promote transit, carpools, or other modes. Concerned participants do not believe it is fair to offer the same travel-time savings to those who pay a toll as for those that “do the right thing” by sharing a ride or riding the bus.<sup>28</sup>
2. For new toll roads and bridges, the World Bank identified toll roads as a way to positively impact equity by supporting infrastructure networks in areas that are less wealthy than others. In order to accomplish these objectives, toll revenues must be redistributed with the expressed goal of aiding less developed areas. Additional ways tolls can be used to benefit equity include financial support and/or lower tolls for targeted communities.<sup>29,30</sup> This concept is counter to the conventional wisdom in the United States, where there is a strong bias towards the idea that toll revenues should be used within the corridor or area where they were generated.

## Addressing Equity Concerns

National experience has shown that equity issues can become a factor in the consideration of proposed toll projects. Often, these concerns may derive from a poor understanding of the potential benefits from tolling. Regardless, careful and deliberate planning may help mitigate equity concerns. As Washington moves forward with the consideration of tolls in the State, planners and policy-makers should address key questions designed to identify:

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<sup>28</sup>Weinstein, Asha and Sciara, Gian-Claudia, November 2004.

<sup>29</sup>The World Bank. *Review of Recent Toll Road Experience in Selected Countries and Preliminary Tool Kit for Toll Road Development*, Asian Toll Road Development Program, Draft Final Report, May 1999.

<sup>30</sup>The World Bank. *Toll Roads and Concessions*, unknown date/ongoing knowledge base, [http://www.worldbank.org/transport/roads/toll\\_rds.htm](http://www.worldbank.org/transport/roads/toll_rds.htm), accessed October 9, 2005.

1) potential equity concerns, and, 2) ways to mitigate those that may occur.<sup>31</sup> Some of these questions include:

- Are proposed toll facilities located in the areas of highest need?
- Are proposed facilities disproportionately influenced by potential cost recovery?
- Are the distributions of benefits aligned with the principles of environmental justice?
- Are there ways to redistribute revenues to disadvantaged communities?
- Have alternative access options been considered for the facility, such as free use by HOVs or discounted toll rates for low-income households?
- If electronic tolling is included, have issues related to credit cards and account debits been resolved in order to permit the broadest opportunity as possible to participate?
- Are interest and citizen groups properly involved throughout the process of identifying projects and considering the impacts on their communities?

Although no assessment can completely address all potential issues or equity and fairness, the principle of environmental justice requires transportation professionals to evaluate proposed toll projects with an open eye and open mind. Ultimately, no project needs to be unnecessarily delayed or tabled due to issues of equity. Rather, correctly identifying concerns and mitigating them through deliberate action can ensure a win-win solution for project development.

## ■ Equity of the Current Financing System

Any analysis of the fairness of toll projects needs to consider the fairness of the current system of financing. Washington is one of only four states without an income tax, declared unconstitutional in the 1930s. Given the State's reliance upon property and excise taxes, the State has been criticized for relying on regressive taxes, which place a greater burden upon lower-income citizens. In 2002, the Washington Tax Structure Study Committee found the state taxation system to contain significant inequities: *"The finding for the Washington State tax system is that there are inequities for households and businesses. Washington's tax structure is regressive. The lowest-income households pay 15.7 percent of*

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<sup>31</sup>The consideration of equity concerns does not occur within a vacuum. Certainly, any proper policy decision must evaluate concerns in the context of benefits. The discussion of benefits from tolling, unless particular to disadvantaged communities, is a topic of Background Paper #1: The Uses of Tolling.

*income for total excise and property taxes, while the highest-income households pay 4.4 percent of income for the same taxes.”<sup>32</sup>*

One particular criticism from the statewide evaluation was that taxes based upon sales (for which, fuel and vehicles taxes could be included) fluctuate with economic performance, with no correlation to need. As it pertains to transportation, the committee articulated the desire of correlating the payment of fees with those who receive the benefit of services:

Taxes and user fees are different. Taxes are compulsory payments to fund public services, and by definition there is not any necessary connection between those who pay taxes and those who receive services. User fees are charges paid directly by those who receive specific goods or services from government or by those whose activities burden the public.

User fees often make sense, given the public’s increased concern about the level of taxes and the feeling that it is more fair to allocate costs to consumers when users can be readily identified. At the same time, the most important public goods, like schools and libraries, should remain as public goods financed by taxes.

The State should consider shifting a greater share – perhaps the entire share – of all highway and roads costs to motor vehicle users. This could be accomplished by higher gas taxes, tolls, and congestion pricing, or by fees that have an even closer relationship to impacts on our roads, such as weight-and-mileage charges. It would permit a reduction in the property tax. If motor vehicle user fees and taxes covered more of the cost of city and county roads, local property taxes could be reduced and/or shifted to other purposes. User fees also can be effective in allocating costs of environmental protection and clean-up directly to the activities that harm the public’s natural resources.<sup>33</sup>

Policy-makers generally consider fuel taxes to be a reasonable proxy for use fees, as the more one travels on the state highway network, the greater the taxes that will be paid. Although fuel taxes do correlate use with payment, they are a “brute-force” tactic that poorly conforms to the actual cost of building, maintaining, and operating facilities at maximum effectiveness.

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<sup>32</sup>Department of Revenue. *Tax Alternatives for Washington State: A Report to the Legislature*, Washington State Tax Structure Study, November 2002, [http://dor.wa.gov/content/statistics/wataxstudy/volume\\_1.pdf](http://dor.wa.gov/content/statistics/wataxstudy/volume_1.pdf), last accessed November 22, 2005.

<sup>33</sup>Ibid.

Examining national trends, a Brookings Institution report identified state gas taxes as only covering one-third of total highway investment revenue.<sup>34</sup> Washington reflects this trend, with only 34 percent of all highway funds in 2001 coming from the state fuel tax.<sup>35</sup> Even accounting for Federal sources, almost half of all highway revenue in Washington is derived from nongas-tax sources. Thus, highway improvements in Washington are only partially funded by direct user fees.

In addition to overall funding of transportation investments, the fuel tax itself is a poor proxy for the actual *value* of transportation services and resources. As indicated by the Brookings Institution report, and confirmed by other resources, the growth in vehicle miles traveled (VMT) has greatly outpaced the growth in gasoline consumption. Through the 1970s, VMT growth tracked nearly one-to-one in gasoline consumption growth. Starting in the 1980s, though, increasing fuel efficiencies of automobiles and use of alternative-fuel vehicles widened the gap between VMT and gasoline consumption. To the extent that VMT reflects actual use of the transportation system, the fuel tax became less of a direct payment for use. According to the California Policy Research Center in 1999, “The result is that, as less tax revenue per gallon is generated, Americans drive about twice as many miles per gallon; therefore, fuel tax revenues have plummeted when measured per mile of driving. What is more, congestion is worsening throughout the nation as revenues from user fees level off in current dollars and decline in buying power, and decline even more per vehicle-mile traveled.”<sup>36</sup>

The imbalance between use of highway facilities and payment for those facilities has been manifest in increasing congestion. Congestion reflects a market-based shortage between capacity (supply) and vehicular volume (demand). Provided fuel taxes remain a poor proxy for use, the “price” of using any given highway at any given point in time is set too low relative to demand and supply. Travel-time delay is the unintended consequence from the inability to meet use with payment through fuel taxes. FHWA estimated that auto users only paid 70 percent of their use of highways, with certain classifications of trucks contributing only 40 percent.<sup>37</sup> Travel-time delay resulting from the inefficient use pricing not only affects the actual users of highways at the time of use, but also nonhighway users (such as transit riders) and consumers (reflected as an indirect cost of goods movement). Altogether, congestion creates an inequitable consequence – nonusers are penalized by the inability to correctly price users.

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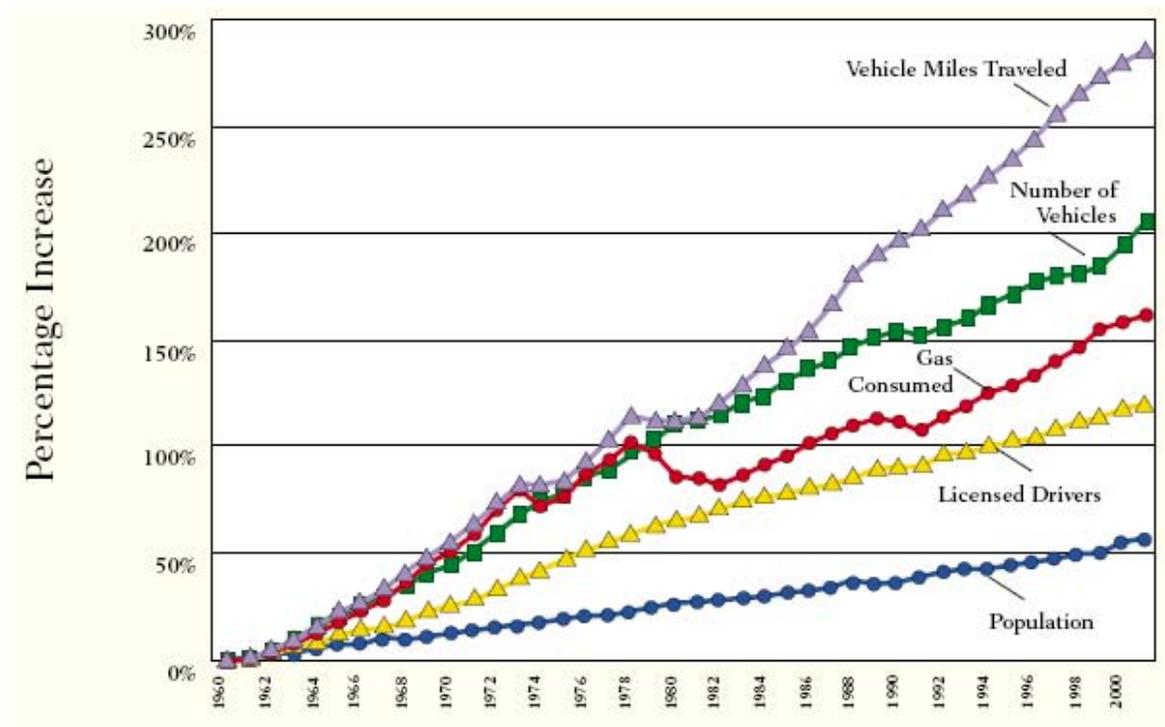
<sup>34</sup>Puentes, Robert and Prince, Ryan. *Fueling Transportation Finance: A Primer on the Gas Tax*, Brookings Institution, 2003, <http://www.brookings.edu/es/urban/publications/gastax.pdf>, last accessed: November 22, 2005.

<sup>35</sup>Ibid.

<sup>36</sup>As reported by: Wachs, Martin. *Improving Efficiency and Equity in Transportation Finance*, Center on Urban and Mobility Policy, Brookings Institution, April 2003, <http://www.brookings.edu/es/urban/publications/wachstransportation.pdf>, last accessed November 22, 2005.

<sup>37</sup>March, James. *Federal Highway Cost Allocation Study*, Federal Highway Administration, Public Roads, Volume 61, Number 4, January/February 1998, <http://www.tfrc.gov/pubrds/janpr/cost.htm>, last accessed: November 22, 2005.

### Exhibit 4.1 Growth in VMT and Fuel Consumption at the National Level<sup>38</sup>



In the long term, pricing and tolling offer opportunities to address this inequity, best summarized by a separate Brookings Institution paper:

Some argue that congestion pricing discriminates against the poor. Yet the current system of transportation finance is not at all neutral with respect to income, and a system of direct charges for actual benefits gained from using the system is inherently fairer than a complex system of cross-subsidies. For many trips, the proposed approach would lower trip costs compared with the current means of pricing travel...

As recognized in the 1920s, directly charging users at the time and place of use is the fairest and most efficient way of financing transportation systems. A change over time to electronic user fees could correct other inequities in the current system of user charges.<sup>39</sup>

<sup>38</sup>Ibid.

<sup>39</sup>Wachs, 2003.

## ■ Analysis and Recommendations for Washington

The National Review of Equity and Fairness issues identified five principal types of equity considerations, all related to the *distribution of benefits and costs*:

- **Geographic Equity** – Concerning the distribution throughout the State of Washington. Are improvements distributed in a logical and rational manner, based upon some objective and measurable criteria?
- **Income Equity** – Concerning the distribution upon economically disadvantaged communities. Do improvements negatively impact disadvantaged communities? Are improvements with negative consequences necessary for greater state or regional vitality?
- **Participation Equity** – Concerning the involvement of affected communities in the decision-making process for the distribution. Do disadvantaged communities have a voice in the decision-making process, and, is that voice adequately represented relative to the scale of impact?
- **Opportunity Equity** – concerning the specific distribution throughout the State relative to decision criteria. Are decision-making criteria, such as cost recovery, influenced by secondary affects, such as income status?
- **Modal Equity** – concerning the distribution upon preferred travel behavior. Do activities conflict with public perception for the encouragement of multimodal transportation?

All five equity and fairness issues can pertain to the consideration of toll and pricing concepts. Furthermore, these five issues are not separate from one another. For example, determining what is fair regarding the geographic distribution of toll projects (geographic equity) invariably involves the public participation process, an element of participation equity. In order to minimize confusion, we focus the discussion on geographic and income equity, with the remaining elements covered in the context of these two focus areas.

For proposed toll corridors in the greater Puget Sound region, we have built upon the established project identification, selection, and allocation process already in use in the region, to show how toll corridor selection can conform, where appropriate, to established procedures. By maintaining a consistent and knowable *process* in selecting toll projects, it should be possible to minimize fairness and equity controversy

### Framework for Analysis

WSDOT currently has primary responsibility for planning and financing toll facilities in Washington. When particular regions are involved, such as the Puget Sound,

Portland/Vancouver metro area or the Spokane/Coeur d’Alene metro area, then additional agencies may be involved, including the respective Metropolitan Planning Organizations (MPOs), Oregon Department of Transportation (ODOT), and the Idaho Transportation Department (ITD). The specific detail for each corridor and/or selection may be different, but the general process of evaluation outlined in this report will not differ.

The existing planning process provides the framework for analyzing fairness and equity. To the extent toll projects are considered within the normal planning process – a known system with established rules – fairness can be readily evaluated and acted upon by regional and statewide decision-makers. In other parts of the country, fairness concerns in tolling arose precisely because toll decisions were conducted outside the normal planning process.

Many of the projects under consideration are in the Puget Sound region, so our analysis includes a special focus on procedures in that region. Puget Sound Regional Council’s (PSRC) planning process provides the established framework prioritizing transportation investments, though two sources:

- **Vision 2020.** Vision 2020 established that regional transportation resources are to be distributed consistent with a four-part policy direction:
  - Optimize and manage the use of transportation facilities and services
  - Manage travel demand addressing traffic congestion and environmental objectives
  - Focus transportation investments on supporting transit and pedestrian-oriented land use patterns
  - Expand transportation capacity offering greater mobility options
- **Destination 2030.** Destination 2030 provided greater specificity for Vision 2020s direction, through a “*sequence for the development of new facilities: maintaining and preserving what we have, optimizing systems, and investing in capacity.*” Additional principles to guide investment include:
  - The first priority should be to maintain, preserve, make safe, and optimize existing transportation infrastructure and services.
  - Investments should emphasize continuity and complete discrete elements of the transportation system. Completing missing pieces of larger systems is a regional investment priority.
  - Appropriate investments in all modes should be emphasized to provide an array of travel choices.
  - Transportation investments should be directly linked with measurable transportation, environmental and land use outcomes, and should support the achievement of regional and state benchmarks.

- Cost-effective transportation options for addressing identified problems should be demonstrated and implemented.
- Compact development of designated urban centers, high-capacity transit station areas, and other communities should be supported through direct investment.

The planning process in the Puget Sound region serves as the template from which the equity analysis of tolling is applied in the area. Relevant regional planning processes and documents would be utilized as the starting point for equity analysis in other regions throughout the State.

## Geographic Equity

### *Geographic Equity as Reflected by Public Opinion*

Geographic equity is guided by public opinion and awareness. Public opinion shapes local policy choices, which are then articulated on the regional level in the pursuit of projects. If a local population believes they are not receiving their “fair share” from Federal and state transportation financing sources, this concern will inevitably be raised with regional, state, and in some cases Federal policy-makers. In the regional and statewide planning processes, geographic equity is one of the principal considerations for Federal and state project selection. Given the desire to apply a consistent project selection process, the existing planning process has a significant role in geographic equity.

Put simply, geographic equity, as manifest in public opinion, addresses two basic types of concerns:

- **Geographic Impacts of Deciding to Toll a Facility** – The public often express concerns about 1) the fairness for charging a toll on one facility, but not another; 2) the use of transportation funding “freed-up” by tolls on a facility; and 3) local accessibility burdened by tolls, which are in turn, addressing regional demand.
- **The Selection Process for Toll Projects** – The public also express concerns regarding the selection of toll facilities and consistency in application and process.

Prior to understanding how tolling and pricing of transportation facilities may detract or enhance geographic equity, it is necessary to understand the fairness of the current distribution of transportation resources. If the general public does not believe the current system is fair, then their evaluation of toll concepts will be influenced by this determination. Toll equity cannot be examined in a vacuum independent of the current distribution of resources.

The first step involves defining *fair* in the regional and statewide transportation planning and financing processes. A dictionary definition of *fair* uses descriptors such as: “lack of favoritism,” “free from preference in judgment,” “dictated by reason,” and “unbiased.” The public may hope for an idealized decision-making process that is applied upon

objectively established criteria, but when transportation funding is limited, some form of preference is inevitable. Even an objective process will have criteria measured by subjective weighting: how much preference is given to regional congestion relief, for example, as opposed to local accessibility?

### ***Basis for Concern on Toll Corridors***

Geographic equity has been a key concern on the Tacoma Narrows Bridge project. The legislation directing this study requires the development of “*equitable policies regarding the distribution of financial obligations imposed on those paying the tolls*” and investigation of “*options for reducing the outstanding indebtedness on the bridge project, including... means of spreading the cost of the project more equitably.*” Clearly, if this is an issue on Tacoma Narrows Bridge, it will continue to be an issue anywhere tolling is proposed in Washington.

There has been a considerable amount of market research and outreach conducted recently of Gig Harbor residents and Tacoma Narrows Bridge users.<sup>40</sup> The prevailing public attitude is that if Bridge users are to be charged tolls to finance a project that benefits them, then other projects in the State should likewise be financed with tolls. In short, this implies that an equitable geographic distribution of toll corridors would involve the identification of toll corridors throughout the State where a definitive need can be determined. However, installing toll projects around the State may not completely satisfy the public attitude towards unfairness. Tellingly, the market research indicates that Bridge users have moved beyond opposition to the project, to trying to negotiate the best deal for them as individual users, including the request for toll buy-downs from the State.



Although the Tacoma Narrows Bridge community has opposed the use of tolls on the bridge, there is historical precedent for tolls in this location. The original Tacoma Narrows Bridge and its successor were financed by toll revenue, as established by the Washington Toll Bridge Authority. Another 13 bridges have been financed statewide by tolls since 1930. Once tolls are in place on Tacoma Narrows Bridge, Kitsap Peninsula travel to and from the east of Puget Sound have to pay a toll, either on the bridge or on the Washington State Ferries. Interestingly, this pay-for-use is more readily accepted on ferries than on bridges, at least in today’s environment where there are no more toll bridges in Washington.

Like all transportation facilities, the ferries and toll bridges can serve two purposes: accessibility for local trips and mobility for regional trips. Addressing geographic equity

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<sup>40</sup>Market research activities are a component of this Interim Report to the Washington State Transportation Commission.

involves examining toll proposals that enhance regional mobility, but have the perceived impact of burdening local accessibility (or, potentially, vice versa). In other words, if a new toll project involves improvements to better serve regional trip-making, local residents may perceive themselves as unreasonably paying for a regional improvement, as they may have no realistic option to avoid the toll. This is primarily a public opinion challenge. Understanding what is acceptable for local communities is ultimately addressing public education and attitudes, and these already will be influenced by the perceived fairness of regional tax dollars distribution for transportation.

Invariably, the issue of geographic equity for all transportation improvements is a matter of political choice: when resources are less than needs, choices must be made. In addressing geographic equity for toll projects, the Statewide Tolling Study is not the appropriate forum to evaluate the fairness of existing political choices. However, it does provide an opportunity to evaluate the geographic distribution of toll corridors based upon the underlying principles of those political choices. To that effort, this section will address the following three questions:

- By what process are current transportation resources allocated?
- Are potential toll corridors allocated in a consistent manner?
- Do toll corridors carry new and significant local concerns?

### ***By What Process are Current Transportation Resources Allocated?***

Three levels of geography relate to transportation improvements: 1) statewide, 2) regional, and 3) local. These geographies do not necessarily correspond with the funding source, just the type of project.

*Statewide* improvements are those transportation facilities and corridors of significant value to either person- or freight-movement between regions. Obvious facilities in Washington include the interstate and U.S. highway network (I-5, I-90, I-82, U.S. 97, etc.) as well as less-obvious state ferry and aviation systems. Statewide improvements generally fall to investments that ensure efficient and effective travel throughout the State of Washington. Although many (if not most) state residents will never directly use the specific improvement corridor, especially if outside the interstate network, the secondary effects of improvements on goods and person movement will be realized throughout regional and local economies.

Related in purpose to statewide improvements, but whose benefits are primarily identified within confined areas, *regional* improvements involve transportation facilities that enhance person and goods movements within a prescribed region. Certainly, many regional improvements will benefit residents outside of the region, much as statewide improvements do. However, the intent of regional improvements is to benefit travelers and freight movement for trips within the region. These trips will likely extend across multiple jurisdictions, but be contained within the extended regional area.

Local improvements rarely involve the broad mobility enhancements of statewide and regional improvements. Rather, these improvements offer local accessibility to regional and statewide corridors. Wholly contained within one or two jurisdictions, local improvements will provide a service or facility whose benefits are likely tendered to the residents or businesses within a short distance of that facility.

All three types of transportation improvements are important to the public, yet the funding mechanisms for these improvements are relatively discrete. Federal and state funds are generally applied to regional and statewide improvements (with exceptions), and local funds are generally applied to local improvements (again, with exceptions). Generally, the public does not understand these distinctions. For example, a resident may equally desire improvements to local and regional facilities – and believes a decision for both comes from the same “pot” of funding (e.g., “my gas taxes”). This can lead to equity-related questions that may not be appropriate to the scope of project, leading to inappropriate comparisons, such as: “it’s not fair” that community X on the opposite side of town has congestion-free arterials when my arterials are clogged daily (local versus local fairness, viewed under an incorrect regional-lens).

As illustrated in the example, the public perception dilemma with fairness is not easily addressed within the context of only one or two of the geographic applications – what may be perceived by the implementing agency as a fair distribution of regional or statewide resources may not be viewed as fair by residents. However, the existing system of funding transportation improvements requires this geographic separation.

The consideration of toll corridors primarily involves the consideration of regional and statewide improvements. As a result, the context of improvements should address regional and/or statewide mobility and efficiency.

### **Policy Basis of Distribution**

Altogether, fairness in transportation finance, with a new layer of toll financing, can be simplified to three fundamental categories of questions for application on a geographic scale. These questions remain at the forefront of the planning process, and equally involve the consideration of tax- or toll-financed projects:

- **Current Allocation of Benefits and Costs** – As any decision-making process involves some allocation of preference, is the current system of distribution based upon a selection system that is *applied* in a just and consistent manner with transparent and measurable criteria? Is there an opportunity for input into this selection process?
- **Future Allocation of New Benefits** – Is the allocation of new project concepts (in the context of this study, toll corridors) likewise based upon a selection system that is applied justly and consistently? Is the selection process compatible with the existing system? Again, is there an opportunity for input into this selection process?
- **Future Allocation of New Burdens** – Are there statewide or regional needs that are unjustly ignored or penalized in the consideration of the new project concepts? Are

local communities, who may be dependent upon regional facilities for local access, unjustly financing regional improvements for their access? Or, is the burden for the regional improvement shared throughout the region? And, has the previous distribution of statewide and regional resources for local accessibility potentially offset this concern?

As applied in Washington, statewide improvements are identified by the appropriate agency (WSDOT) and financed using state and Federal funds. Planning for statewide facilities involves the adoption of the Washington Transportation Plan (WTP) – a 20-year planning horizon document. Three-year funding programs of projects included in the WTP are completed by the Statewide Transportation Improvement Program (STIP). The STIP and WTP identify a variety of transportation improvement projects with activities, including preliminary engineering, right-of-way acquisition, operations and other service implementation, and construction.

The process for project identification involves a decision-making process that is refined and updated through public comment:

WSDOT uses a priority programming process that first identifies needs for a 20-year period that can be accomplished within financial constraints. This is done through the State Highway System Plan (HSP). In order to be eligible for programming, a need must be first identified in the HSP. The needs contained in the HSP do not have start dates and can occur anytime during the 20-year period. The HSP is updated every two years and defines service-level objectives, action strategies, and costs. It includes an extensive public involvement process. From the HSP, a six-year implementation plan is developed. The Six-Year Plan is constrained to the investment level for a three-biennium period and is used in the budget development process. Only the first two years of the Six-Year Plan contains specific projects. The last four years contains funding levels for the different programs. Projects are then included for programming in the two-year budget from the Six-Year Plan.<sup>41</sup>

Of significant note, all improvements included on the National Highway System (NHS), including Interstate and U.S. highways, are selected and prioritized by WSDOT even if the project has a regional application. This includes construction, maintenance, and bridge projects. WSDOT receives the NHS allocation of funding in the STIP, providing a compensatory amount to regional entities from the Surface Transportation Program (STP). For any highway or bridge project that is designated for improvement, WSDOT prioritizes improvements based upon, “*available revenues and cost/benefit analyses. Each subprogram uses benefit/cost methodologies applicable to the specific subprogram. From the list of Benefit/Cost (B/C) prioritized projects, the Transportation Commission selects a mix of projects providing the*

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<sup>41</sup>Washington State Department of Transportation. *Statewide Transportation Improvement Program 2005–2007*, Section I: Introduction, <http://www.wsdot.wa.gov/TA/ProgMgt/STIP/STIPHP.htm>, last accessed: November 20, 2005.

*greatest net benefit to transportation users. This prioritized program is submitted biennially to the Legislature for funding authorization and is included in this STIP.”<sup>42</sup>*

Regional improvements are identified by the appropriate agency, such as the regional Metropolitan Planning Organization (MPO) or Regional Transportation Planning Organization (RTPO). Each regional entity provides regionally significant projects from the Metropolitan Transportation Improvement Programs (MTIP) to the STIP. As a result, the STIP reflects both regional and statewide improvements. The MTIP not only reflects regionally significant highway and bridge improvements, but also local accessibility projects (using Federal or state sources of revenue) that include local funding. As most of the proposed toll corridors under active discussion are in the Puget Sound region, we reference PSRC’s MTIP process for the remainder of this section.

PSRC is responsible for the distribution of STP, Congestion Mitigation Air Quality (CMAQ) and Federal Transit Administration (FTA) funding. These categories comprise the facility improvements typically associated with regional enhancements, in addition to NHS improvements identified by WSDOT. PSRC refines its project selection criteria every two years, concurrent with the adoption of the TIP in the following year. For the 2005-2007 Regional TIP, PSRC established the following process:

The PSRC coordinates a shared regional/countywide process to recommend and select projects to receive STP and CMAQ funds. The total estimated STP and CMAQ funds are split between the regional and countywide forums based on a preapproved funding split, and competitive processes are used by the forums to identify and recommend projects to receive the funds, as follows:

- Regional Process – The PSRC’s Regional Project Evaluation Committee (RPEC), with support from the PSRC, is responsible for coordinating a Regional Project Competition to identify and recommend projects to the Transportation Policy Board (TPB) to receive the regional portion of the STP and CMAQ funds.
- Countywide Processes – The four countywide forums are responsible for coordinating countywide project competitions to identify and recommend projects to the TPB to receive the countywide portions of the STP and CMAQ funds.<sup>43</sup>

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<sup>42</sup>Ibid., Section III: Consistency with Statewide Plan.

<sup>43</sup>Puget Sound Regional Council. *Policy Framework for the PSRC’s Project Selection Process*, Section: PSRC’s STP and CMAQ Funds, <http://www.psrc.org/projects/tip/selection/2005/2004policyframeAmend4.05.pdf>, last accessed: November 20, 2005.

## Transportation Funding as Applied

The policy basis for statewide and regional transportation funding indicates a process that is identifiable, compatible with preestablished criteria, and offers an opportunity to comment and revise consistently over time. The next step reviews how resource allocation has occurred in practice.

One common concern cited by many within the Puget Sound region is that the region already is a net-donor of transportation funding to the State. Recent study by PSRC indicates this is correct, with an average return of only 91 percent. Furthermore, particular counties within the region contribute an even greater net share of revenue to the State than the region in abstract.

If the region already is not receiving its “fair share” from tax revenue, tolls then represent an additional cost on the region. However, the elimination of the Motor Vehicle Excise Tax (MVET) revenue from statewide funding indicates highway and ferry program funding also will decrease. PSRC identified the dilemma facing the region from the imbalance between need and known funding:

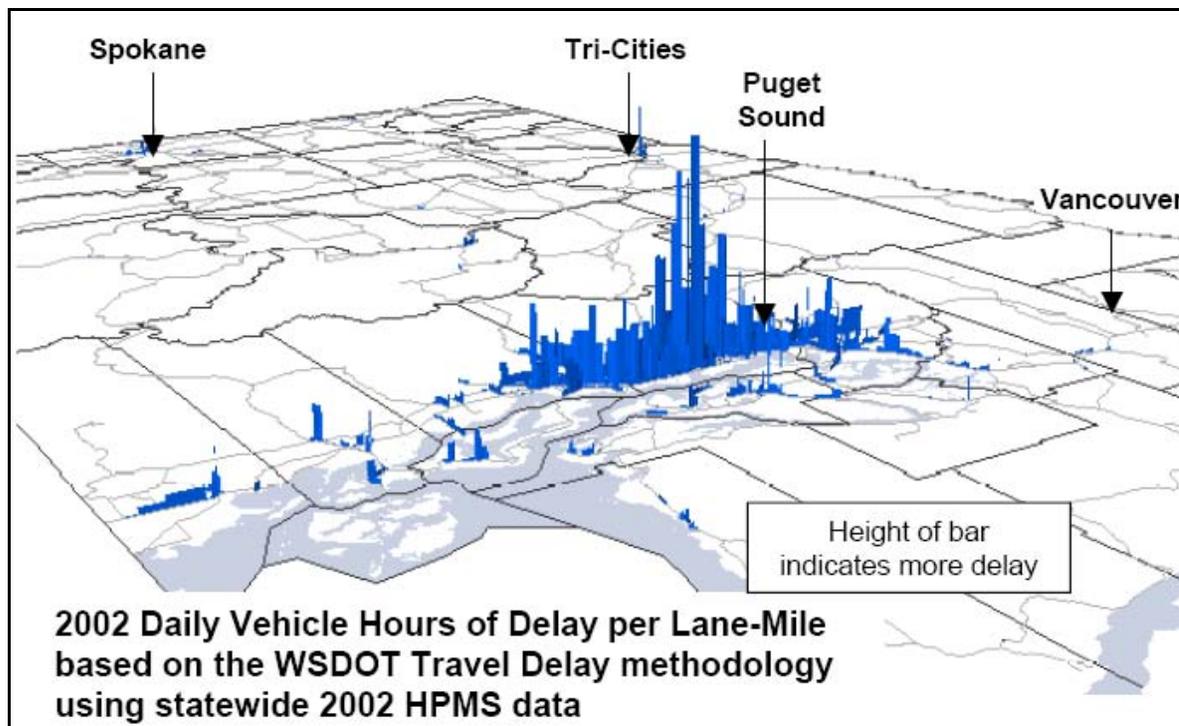
[This places a greater] reliance upon operating revenues, sales tax, and other (general tax) sources. The data also shows a declining reliance upon fuel taxes and vehicle registration charges (as proceeds shrink against inflation), as well as revenues from taxes on vehicle value (a result of the elimination of the statewide motor vehicle excise tax). These changes are structural, and are expected to continue to be reflected in future data. These changes are resulting in an increasing reliance upon funding sources that fluctuate with regional economic performance. This has both positive and negative implications. Sources that track with economic performance grow at the same time that the expanding economy puts greater general demands upon infrastructure investment. On the down side, these revenues do not necessarily match the demand driven investment needs that are specific to individual transportation facilities. In addition, fluctuations in economic performance create greater fiscal uncertainty, and suggest the need for different approaches to agency-level fiscal management. And in the mid- to long range, the nature of urban transportation needs (large capital projects in physically constrained urban environments) may require new finance instruments that free public agencies from the limitations of a pay-as-you-go investment approach.<sup>44</sup>

This approach is not as simple, though, as it may otherwise appear. As the Puget Sound region accounts for the greatest percentage of statewide population, and, economic activity, statewide investment in the Puget Sound region is high, but so is congestion (see Exhibit 4.2).

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<sup>44</sup>Ibid.

## Exhibit 4.2 Statewide Congestion<sup>45</sup>



Altogether, this implies that regional need is high. Even with a 100 percent return to source of statewide funds, it is unlikely that funds would be sufficient to meet needs. *Destination 2030* indicates over \$100 billion in needed transportation investments, yet even a 110 percent distribution would not even account for 10 percent of the projected shortfall. Furthermore, *Destination 2030* already shows an increasing reliance on nonstate funds, with only 11 percent of all regional transportation funds derived from the State.<sup>46</sup>

In short, new funding sources have been identified as necessary in order to resolve Puget Sound regional mobility needs. Sufficient funding is unlikely to come from the State, even with a “more equitable” distribution of revenue from the source.

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<sup>45</sup>Puget Sound Regional Council. *Destination 2030 Update: Congestion, Mobility, and System Efficiency*, September 14, 2005, <http://www.psrc.org/projects/mtp/presentations/congestion.pdf>, last accessed November 20, 2005.

<sup>46</sup>PSRC. *Transportation Finance 1989–2000*.

### ***Are Potential Toll Corridors Allocated in a Consistent Manner?***

Destination 2030 identifies six financial principles for funding the shortfall between needed facilities and anticipated revenues. Four of these principles are directly relevant to tolling:

1. New revenue sources must bear a relationship to system cost and system use;
2. System financing must be sustainable;
3. New financing tools or changes to the financing structure should strive to simplify and add flexibility to the overall structure; and
4. Ensure a reasonable rate of return on revenues raised within a region, for investments within the region.<sup>47</sup>

Of particular note in Destination 2030 is a policy declaration to “promote transportation financing methods that are based on use, and help optimize system efficiency with the long-term goal of introducing variable roadway pricing.”<sup>48</sup> This is coupled with a caution that tolls can have a “punitive [effect], penalizing travel without offering substantially improved mobility.”<sup>49</sup> This caution is less grounded in transportation economics (which would argue in favor of social utility as a result of system management) than it is in public opinion (which views tolls without a means of avoiding tolls as punitive).

As an application of public opinion, the Tacoma Narrows Bridge project provides valuable data. A public vote of approval for the Tacoma Narrows Bridge expansion project has indicated support for tolls for system finance amongst those who were included in the voting area.<sup>50</sup> Pricing for system management, except for High-Occupancy/Toll (HOT) lanes where tolls extend use to new vehicle classes, has been generally opposed nationwide. It can then be argued that tolls are acceptable when they improve reliability and offer new options.<sup>51</sup> As indicated in the ETC Market Survey Research conducted in February 2005, in the case of the Tacoma Narrows Bridge improvement, public concern is more about how toll financing of the bridge may be freeing up tax revenue for projects elsewhere.

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<sup>47</sup>PSRC. *Destination 2030*, Chapter 6: Finance.

<sup>48</sup>Ibid.

<sup>49</sup>Ibid.

<sup>50</sup>It should be noted that criticism of the Tacoma Narrows Bridge project has included concern that the election boundaries were not representative of the users of the bridge.

<sup>51</sup>Podgorski, Kaethe; and Kockelman, Kara. *Public Perceptions of Toll Roads: A Survey of the Texas Perspective*, Transportation Research Board, Paper 05-1857, 84<sup>th</sup> Annual Meeting, January 2005.

*Destination 2030* answers the concern about revenue reallocation through its proposed use of new toll-based revenues for projects of regional and statewide significance: “Investments in new or expanded state highways could in part be financed through user fees other than the statewide gas tax. This is a finding supported by the Blue Ribbon Commission Final Report. Use-based financing of new capacity will require regional implementation of these new financing tools.”<sup>52</sup> This policy guidance establishes three important precedents: 1) that new capacity could be financed *in part* by use fees coupled with gas tax; 2) new and expanded facilities are equally eligible; and 3) that pricing should be implemented regionally. It should be noted that this policy does not establish a procedure or preference for regional implementation, but simply a policy option for the region.

Applying this policy guidance, prospective toll projects should be derived only from improvements of regional significance appearing on the *Destination 2030* plan. As tolling and pricing concepts can change the operations and design of facilities, it is not as important to discuss the specific implementation as identified in the plan, as it is to identify how the toll corridor achieves the mobility enhancements that serve as the foundation of the project in the plan. The purpose of this effort is not to identify the specific project selection process, but to underscore that the process itself conforms to the established regional planning process.

### ***Do Toll Corridors Carry New and Significant Local Concerns?***

Certain corridors identified in the *Destination 2030* plan require significant resources to address transportation deficiencies. Although a regional nexus may be present for the toll facility, local perceptions of equity may be exacerbated if that toll corridor is viewed as “the only option” for residents or users. A toll corridor will be fair for local users if they:

1. Are impacted to a similar degree as regional users; or
2. Have received a net increase in mobility options.

For the case of Tacoma Narrows Bridge, Gig Harbor residents previously expressed concern regarding the fairness of use fees (tolls), for the bridge expansion (especially if one does not account for state improvements to the highway on either side of the bridge). These residents will use the bridge frequently, so there is an anticipated exacerbation to existing travel options – that the toll is a *new* cost. However, Tacoma Narrows Bridge also serves Kitsap County residents. Previously, Kitsap County residents could either travel via ferry (which requires payment of a use fee) or use the Bridge. Gig Harbor residents, although on the same side of the Sound as Kitsap County residents, had a built-in advantage insofar as the bridge was a convenient and less expensive alternative than the ferries. Tolls on the bridge can be considered as balancing the responsibility of Kitsap County (“impacted to a similar degree” criterion). Furthermore, the Bridge satisfies the second criterion (“net increase in mobility options”) as the expansion provides new

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<sup>52</sup>PSRC. *Destination 2030*, Chapter 6: Finance.

capacity and travel options (through the extension of HOV lanes) consistent with Destination 2030.

For a toll project to be geographically fair, the local social cost of paying a toll should be similar to the regional social cost. As proposed toll corridors are identified on major regional corridors, specific implementations that enhance travel options are preferable. Toll corridors also may improve local system efficiency, even if travel options are not enhanced by the toll. The local social cost of paying the toll should reflect the extent local system efficiency improvements create a net benefit on the community.

In short, there are no easy answers to what is fair from a geographic perspective. As stated at the beginning, selecting any project (tax- or toll-financed) involves a political choice. Therefore, the framework for choosing projects must be consistent and the process fair, which has been outlined here. What this means is that any toll policies that might emerge from this study should be carried out statewide, and incorporated into the larger project development and selection process.

## Income Equity

Unlike Geographic Equity, the analysis of which is primarily in the realm of public opinion and policy setting, Income Equity analysis is based within the principles of environmental justice. Following Federal and state action since 1964, fundamental policy-making principles have been articulated for environmental justice:

1. To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and low-income populations;
2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and
3. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.<sup>53</sup>

Earlier, we identified key questions pertaining to the potential effects of tolling upon lower-income and poverty-stricken communities, consistent with the application of environmental justice. For toll projects, the particular question is whether payment of a toll may be an additional cost. The evaluation needs to consider the net benefit or net cost of the toll itself upon these communities; the access to the system because of the ability (or lack thereof) to pay a toll; and available alternatives to paying the toll.

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<sup>53</sup>Federal Highway Administration. *Questions and Answers on Environmental Justice and Title VI*, <http://www.fhwa.dot.gov/environment/ejustice/facts/index.htm>, accessed October 9, 2005.

Toll projects are not necessarily negative for low-income populations. Particular situations in which toll projects avoid negative impacts upon low-income populations include:

1. **Toll projects create a positive spillover effect on adjacent facilities** – If demand management through tolling creates net-localized or net-systemwide benefits to traffic, congestion, and mobility, low-income travelers may benefit from toll facilities even if they never actually paid the toll charges. This scenario typically occurs in capacity enhancement projects, but also can occur in system management toll applications.
2. **Lower-income situational value of time is higher than the prevailing toll charge** – As witnessed on SR 91 in California, low-income drivers use and benefit from the toll facilities because their situational value of time sometimes exceeds the toll charge. For example, qualitative research on SR 91 indicated that low-income, working, single parents had a high value of time in the p.m. peak period, when the threat of overtime charges at day care facilities was greater than the prevailing toll charge. In this situation, lower-income travelers still have a net financial benefit from the use of the facility. Situational value of time comes into play more often for lower-income travelers than higher-income travelers, as the willingness to pay may depend upon certain travel situations only.
3. **Toll projects provide an enhancement of mobility options** – The principles of environmental justice ensure that benefits are not reduced or delayed. In the situation of toll projects that enhance mobility options (such as advancing new regional capacity for travel-time savings or extending modal benefits), the net effect is positive regardless of the mechanism of payment, provided the alternative (existing) options are not harmed by the enhancement. HOT lanes are almost always a net enhancement, provided existing benefits to carpools and vanpools are maintained, accessibility is not made more difficult, and travel times are sustained on the HOT lane facility.

New toll roads also may be net enhancements; however the key comparison here is the proposed funding and development situation without the use of toll charges. The net present value of the facility with tolls should be compared side-by-side with the net present value of the facility without tolls constructed at a later date.

Conversely, particular applications of tolling which hold the prospect of burdensome impacts on lower-income communities include:

1. **Toll projects which do not ensure accessibility to the facility, independent of ability to pay** – One pervasive concern of income equity in toll projects is the use of electronic tolling. To the extent that electronic tolling completely replaces cash-based transactions, then the criteria necessary to obtain an account undergoes scrutiny for disproportionate effects. If mechanisms are embraced that minimize hardship (such as ability to obtain transponders for a minimal cash outlay – without need for credit cards or checking accounts for validation), then these concerns become moot.

2. **Toll projects on existing capacity** – There may be situations whereby tolling existing capacity or infrastructure is prudent for policy-making, such as building revenue for rehabilitation, or managing system capacity. However, these situations could lead to burdens on low-income communities when the traveler’s cash outlay needed to use a particular facility increases. Even though pricing may improve overall system effectiveness (such as spreading peak periods and reducing congestion), and thereby deliver net economic benefits to society at large, the out of pocket cost to low-income travelers may far outweigh their own value of time. Hence, the price to use the facility is a net cost on the low-income traveler in this scenario.
3. **Projects that jump to the head of the priority queue because of toll revenue** – Cost recovery from tolls is one of the primary reasons to pursue toll-financed projects. However, it also is the clearest path to disproportionate harm to lower-income communities. To the extent that traffic and revenue models use income as a component to willingness to pay, then it is likely toll projects adjacent to or contained within higher-income communities will show greater cost recovery than lower-income communities. In these scenarios, projects are chosen not so much for overall need as they are an ability to pay to meet improvements. If a project in a low-income community could significantly enhance mobility, but is passed by due to cost recovery concerns, this is a net cost on the low-income community.

To evaluate these circumstances, three analytical questions have been identified:

1. How are lower-income communities defined?
2. What are the net effects upon mobility for lower-income communities?
3. How is system accessibility addressed in toll projects?

### ***How are Lower-Income Communities Defined?***

The standards established in the environmental justice context prevail when discussing income equity. PSRC uses two approaches for defining and measuring communities by income in the Puget Sound region:

*The first is a measure of poverty status from the 1990 Census. This analysis examines census block group data to understand spatial patterns of poverty concentration. Within the central Puget Sound region, 9.3 percent of all persons were under the poverty threshold in 1989. The second measure is regional median household income – which was estimated to be \$52,335 in 1997, using a Regional Council model to update 1990 Census data. This analysis examines census tract-level estimates of household median income when comparing income levels to the regional median. Low-income populations are identified as census tracts where the median household income is at or below 50 percent of the regional median.<sup>54</sup>*

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<sup>54</sup>PSRC. *Destination 2030*, Appendix 2: Environmental Justice.

PSRC's analysis indicates that low-income populations are concentrated in Seattle, Tacoma, and Everett.

### ***What are the Net Effects upon Mobility for Lower-Income Communities?***

*Destination 2030* provides a graphical representation of impoverished block groups and lower-income census tracts, consistent with the definition above, relative to regional transportation improvements in the 30-year plan (2001-2030). For each measure (poverty and income), there are two corresponding infrastructure analyses – roadway improvements and transit facilities. Of particular note in the plan is the correlation between rapid transit facilities and areas of lower-income populations. PSRC argues this shows a positive benefit to environmental justice, as these facilities not only address regional mobility needs but also connect lower-income communities with employment opportunities.

The consideration of tolling and pricing in any given region requires a similar analysis for that of transportation infrastructure allocation. Following a similar analysis, we must consider the net effect of tolling on lower-income communities. Do investments enable disadvantaged residents to more efficiently and effectively access opportunities for income advancement? Are existing costs addressed through the allocation of facilities and/or revenues? To answer these questions of income equity, we must understand the nature of the type of toll proposed. The impacts for these general classifications will differ. General guidance by type of project include:

- **New Facility Tolls** - provide a mobility option that currently does not exist. Provided the facility itself is warranted and meets geographic equity analysis, the only question that pertains to mobility is how toll operations affect the community's mobility options and efficiency.
- **Truck Only Toll (TOT)** - The concept of a TOT lane is to help reduce traffic and congestion *in* the general purpose lanes. This objective is counter to the prevailing wisdom of High-Occupancy Toll (HOT) lane facilities, where the express lane is viewed as a traffic relief option *from* the general purpose lanes. The basis for the TOT lane policy is the perspective that by consolidating truck and freight operations into a separate facility, vehicular throughput on the general purpose lanes is benefited to a degree greater than simply the difference in vehicular density. If TOT operations are shown to reduce traffic and congestion in the general purpose lanes (of which users will include lower-income travelers), while maintaining or improving net economic cost to freight movement, then TOT operations would likely be a net positive action for general-purpose lane users.
- **High-Occupancy/Toll (HOT)** - HOT lanes with free access to HOV users provide a new mobility option for avoiding congestion within a corridor, with little or no effect on general-purpose lane users. Provided HOT lane operations enhance HOV lane operations, with no net harm to HOV lane users by the increased travel on the facility, then HOT lanes provide a new mobility option without detriment. Furthermore, to

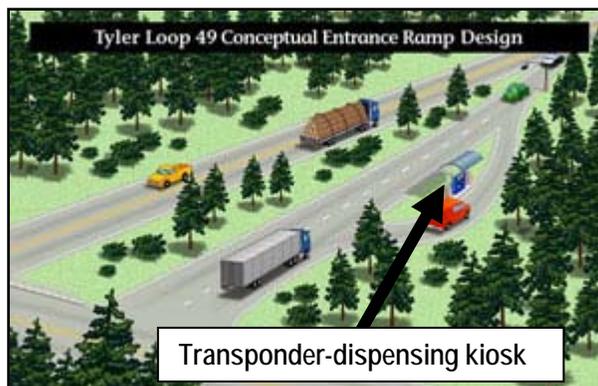
the extent that HOT lane revenues can be used to pay for more corridor-based services (such as improved transit services, park-and-rides, or operational improvements), this will only further extend the equity to lower-income communities.

- **Express Toll** – Express Toll lane (ETL) concepts involve charging all users for use of the lanes. The principal purpose of ETL is congestion relief and revenue generation. ETL analysis and net impacts will differ significantly, depending upon the specific proposal. For example, if the ETL involves new capacity construction, then the net effects of TOT and New Capacity tolls apply. If an ETL also involves the conversion of an HOV lane, the loss of free use of the HOV lane constitutes a loss of congestion relief for those unwilling to pay the toll. Although capacity enhancement will have occurred in this corridor, the loss of a mobility option today may constitute a social cost on lower-income communities. However, as with any toll project, the use of revenue can offset impacts. For example, if ETL revenues advance the construction of new transit facilities or enhance transit services (such as Bus Rapid Transit), then lower-income community affects may be minimized, depending upon the nature and routing of the services.
- **System Management Tolls** – System management tolls involve tolling all users to a facility in order to reduce congestion and enhance throughput. Like ETL tolling, system management tolls have too many variables to generally classify the concept as a net benefit or net cost to lower-income communities. For example, if tolls may be avoided through the use of HOV3+ and transit modes of travels, net mobility may be improved – either through a reduction in congestion as an SOV or HOV2 user, or, as an HOV3+ user with toll avoidance. However, if the value of time for lower-income travelers is significantly less than the prevailing toll charge and there is an economic cost to carpool formation, even HOV3+ use without toll may still yield a net cost on lower-income communities. It also should be noted that as indicated in public research, any applications of tolling on existing nontolled, general-purpose lane capacity is extremely controversial and rarely successful.

### *How is System Accessibility Addressed in Toll Projects?*

In addition to the ability to access and use toll facilities, addressed as a mobility question above, system accessibility is an important consideration in income equity. For this purpose, “system accessibility” is defined as the specific procedures employed for toll payment. For most of the proposed toll corridors, electronic toll collection will be the primary method for toll payment. However, as indicated in the national research, barriers to the acquisition of transponders and toll accounts constitute a social cost to lower-income communities. These barriers include the requirement to maintain checking and/or credit card accounts for automatic debits, or even the outlay of a substantial volume of cash if automatic debits are not mandated. To many lower-income households, these barriers are significant.

WSDOT has opted to use the “eGo” tag for the Tacoma Narrows Bridge. A relatively inexpensive transponder option, this technology selection allows WSDOT an opportunity to address system accessibility concerns. The Texas Department of Transportation selected the eGo tag for a small-city toll road, partially due to the fact it can be dispensed without human interaction and can be done with minimal cost. Through the use of in-road kiosks and/or retail outlets, travelers can obtain an account with a minimum of \$20.00 cash, with no requirement to register or provide any additional financial information. For communities along toll corridors, WSDOT could decide to make a similar acquisition policy, or even reduce the initial cost of acquisition. Either way, WSDOT has the ability to overcome this concern through its selected technology.



## ■ Acknowledgments

The authors would like to acknowledge both the Washington State Department of Transportation (WSDOT) and the Puget Sound Regional Council (PSRC) for their assistance in compiling data and suggesting a framework for toll corridor analysis consistent with existing statewide approaches.

*Background paper prepared by Texas Transportation Institute, with assistance from Cambridge Systematics, Inc. in January 2006.*

## Background Paper #5

# National Perspective: Review of Public Attitudes and Perceptions

The “new era” of tolling largely began since the adoption of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, wherein the Congestion Pricing Pilot Program, later renamed the Value Pricing Pilot Program, endorsed an expanded investigation into new tolling and pricing applications throughout the United States. The new era involved the use of electronic toll collection, toll rates for traffic management, and different applications of infrastructure additions or conversions. By the decade’s end, 15 states had enrolled in the program, and each attempted some facet of tolling or pricing on their highway and road systems.

Through the systematic study of feasibility, as required by the program, definitive public attitudes emerged regarding tolling and pricing in the new era. This section identifies the prevailing trends in public opinion for tolling.

## ■ Background

In the 1970s, the Federal government offered grant funding assistance to cities to support demonstrations of road pricing. However, “the opposition was so great from businesses, community groups, and the media that all studies were terminated before demonstration plans could be developed.”<sup>55</sup> Twenty-five years later, the idea of road pricing has risen again, due to greater flexibility in constructing or converting capacity as provided by electronic technologies. Road pricing now not only includes traditional toll roads, but also variations on toll lanes within existing facilities – generally termed managed lanes.<sup>56</sup> In the 1990s, the greatest momentum can be attributed to the potential to combine pricing with high-occupancy vehicle (HOV) facilities, a resulting concept called High-Occupant Toll (HOT) lanes. Although the HOT lane concept has received considerable praise for its

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<sup>55</sup>Higgins, T. J., 1994, *Congestion Pricing: Implementation Considerations*, Transportation Quarterly, Volume 48, Number 3, Eno Transportation Foundation, summer.

<sup>56</sup>*Managed lanes* may include variants, such as *Express Toll Lanes*, *Value Express Lanes*, *High-Occupant/Toll lanes*, and other names. Each nomenclature maintains different assumptions regarding vehicle and user class preference; however, this has not been uniformly applied in either the transportation literature or media.

applications in California, Texas, and very recently Minnesota, it is still subject to significant public acceptance barriers that originally prevented widespread introduction of such projects in this country.

The concept of tolling is new in many states, and proposed road pricing projects have inevitably been controversial to one extent or another everywhere they have been considered. Public and political support has taken a considerable amount of time to nurture in states with implemented projects, such as California, New York, Minnesota, and Texas. In all states, public opinion was generally lukewarm, at best, to start.<sup>57,58,59</sup> Only through the concerted efforts of agency champions, project managers, and political leaders are toll concepts able to progress positively in public opinion.

Public acceptance of toll roads, managed lanes, and other concepts may be more elusive than they would otherwise seem. One explanation for low levels of acceptance is that the nature of government in the United States is inherently biased against significant policy change. The closer any agency is to implementing a new toll facility, the greater the agency is at risk of sudden loss in political support due to public opposition.<sup>60</sup> Within any given state, this scenario can be found in areas with or without existing toll roads.<sup>61</sup>

A variety of reasons contribute to road pricing and other toll concepts remaining controversial, including concerns regarding equity for low-income individuals, geographic distribution of toll benefits and burdens, privacy of electronic toll collection, and taxation implications of the public highway system. Every proposed toll corridor will have its own dedicated user groups (including commuters, transit riders, truckers, and communities served by the facility) that expect their interests to be protected at all costs. Experience nationally has shown that toll projects are an easy target for criticism, which exacerbates the last minute withdrawal problem. It is easy to make headlines that are critical to the concepts, but rare to find lead stories favoring the implementation of tolling, pricing, and their variants. Similarly, politicians can make a name for themselves by

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<sup>57</sup>Munnich, L., and J. Loveland, 2005, *Value Pricing and Public Outreach: Minnesota's Lessons Learned*, Transportation Research Board, Paper 05-0394, 84<sup>th</sup> Annual Meeting, January.

<sup>58</sup>Ungemah, D., M. Swisher, and C. D. Tighe, 2005, *You're Making Me HOT: Talking High-Occupancy Toll (HOT) Lanes with the Denver Public*, Transportation Research Board, Paper 05-1191, 84<sup>th</sup> Annual Meeting, January.

<sup>59</sup>Stockton, W. R., C. L. Grant, F. McFarland, N. R. Edmonson, and M. A. Ogden, 1997, *Feasibility of Priority Lane Pricing on the Katy HOV Lane: Feasibility Assessment*, Research Report 2701-F, Texas Transportation Institute, Texas A&M University, June.

<sup>60</sup>Cain, A., 2005, *Achieving Majority Public Support for Urban Road Pricing: Preserving the Driver's Right to Choose*, Transportation Research Board, Paper 05-1791, 84<sup>th</sup> Annual Meeting, January.

<sup>61</sup>In Texas, toll roads and managed lanes have proceeded in the public realm with relatively little controversy in Houston and Dallas. However, significant public opposition in San Antonio, Austin, and Waco has made political support tenuous at best.

criticizing and even legislating against toll roads and managed lanes, such as in Minnesota and Maryland.

## ■ Selected National Experience

The purpose of this section is to review how different projects have measured public acceptability, both before and after implementation of toll projects. Despite the differences in the methods, there are similarities in the findings from these evaluations and lessons to be learned about the willingness of the public to accept the new era of tolling.

### California: State Route 91 Express Lanes

The SR 91 Express Lanes facility was originally conceived during the 1980s as a HOV facility by the California Department of Transportation (Caltrans). Following an environmental review, Caltrans endorsed the proposal to construct a four-lane HOV facility for 10 miles in the median of SR 91. At the time, controversy ensued regarding HOV lanes, with the end result of money earmarked for the new lanes being redirected. Following the passage of California's bill that authorized up to four public-private partnerships for transportation projects,<sup>62</sup> the California Private Transportation Corporation (CPTC) proposed building and operating the lanes as a tolled facility, with discounts for HOV3+. The subsequent changes to environmental documentation did not include substantive public outreach efforts, despite two separate lawsuits with fairness implications, but did collect enough information to provide before-and-after comparisons.

In cooperation with the Federal Highway Administration's (FHWA) Congestion Pricing Pilot Program, Caltrans worked with the California Polytechnic State University to review public attitudes regarding SR 91 after opening. The evaluation study included traveler opinion surveys to measure commuters' views on the project and associated public policies, and to compare pre-project opinions with later personal experience. Surveys were conducted in late 1995, spring 1996, late 1996, and spring 1997 in sample categories of single-occupancy vehicle (SOV), HOV2, and HOV3+. The study also included an opinion survey of area business representatives, conducted in late 1996, to measure their views on the impacts of the express lane facility.

Levels of approval for various aspects of the project rose throughout the course of the study. Although the idea of variable tolls was initially unpopular (with a 45 percent approval rating), later surveys showed a significant increase in approval (to about 60 percent). Approval levels for operating the highway as a private business also rose in

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<sup>62</sup>Assembly Bill 680, passed in 1989.

the 35 to 45 percent range, both before and five months after the facility's opening; and the winter 1996 survey showed that approval levels had since increased to 50 to 60 percent.

Opposition to toll financing was recorded, expressed as a general sense of “unfairness.” However, 60 percent of commuters believed tolls were an effective means to address congestion problems, and this percentage increased as commuters witnessed the tangible travel time savings in both HOT and general purpose lanes. Overall, there was a high level of acceptance for congestion pricing.

## California: Interstate 15 FasTrak HOT Lanes

The I-15 HOT Lanes (FasTrak) facility in San Diego was one of the original pilot projects of the Congestion Pricing Pilot Program, and the first dynamically priced HOT lane facility in the world. To this day, the I-15 FasTrak project provides the greatest amount of information on public acceptance for HOT lanes, and by extension, express toll lanes.

The eight-mile, two-lane barrier separated, reversible flow HOT lane facility was implemented in phases on the existing I-15 HOV lanes. The first phase involved a sticker-based, fixed monthly price for access for SOVs, called ExpressPass. Within a year, the second phase of implementation began: a dynamically priced HOT lane system offering toll access to SOVs (HOV2+ remained free to use the facility). By 2001, a third phase was under study, which included the construction of managed lanes and Bus Rapid Transit (BRT). The latter study summarizes the evolution of public attitudes for the concept since 1996.<sup>63</sup>

Focus groups of I-15 commuters were conducted in mid-1997 prior to the switch from monthly pass (Phase I interim operations) to a per-use dynamic fee system. Participants comprised the following categories: current ExpressPass users, past ExpressPass users, HOV users, and SOV users. According to the study, the project was perceived as successful in pursuing congestion relief, improving existing facilities, and generating revenue. At that point in the project, there were some reservations expressed for the planned switch to the per-use trip fee.

As part of the focus group effort, the participants were guided through a “bidding game,” meant to show how the project might be affected by real preferences and actions. To determine pay-per-use preferences, moderators asked respondents how much they would be willing to pay to use the Express Lanes once during an average morning commute. Respondents were then provided different information that might affect the price they were willing to pay. The game demonstrates the learning process consumers go through when they consider purchasing a good. This process involves a base valuation of the

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<sup>63</sup>San Diego Association of Governments, 2002, *I-15 Managed Lanes Value Pricing Project Planning Study: Volume 2, Public Outreach*, February, [http://argo.sandag.org/fastrak/pdfs/concept\\_plan\\_vol2.pdf](http://argo.sandag.org/fastrak/pdfs/concept_plan_vol2.pdf), accessed October 5, 2005.

good, a second valuation once information on the product is provided, and a series of further valuations due to strategic bidding for a limited good or product.

Results of the overall focus group study indicated the following.

### ***Before Project Implementation***

- Public opinion generally favorable;
- Existing carpoolers less favorable;
- Solo drivers who were likely to use the facility more favorable; and
- Indications of price sensitivity.

### ***At Conclusion of Phase I***

- ExpressPass users remain enthusiastic about program;
- Carpoolers have not reported negative impacts;
- Evidence of price sensitivity – some users left program because of cost;
- Low level of understanding and knowledge of project (particularly by non-ExpressPass users);
- General support for the principle of pricing; and
- Project's objective to support transit service is not widely known or supported.

### ***After Phase II Implementation***

The I-15 Attitudinal Panel Study began in the fall of 1997 as the first of five series of surveys to be completed by the end of 1999. In addition to the categories of users identified in the focus groups described above, the telephone surveys included other I-15 users, and I-8 users (as a control corridor). A total of 1,500 commuters were surveyed in each series.

Results revealed the following:

- Eighty-nine percent of ExpressPass users viewed the project as a success.
- Seventy-seven percent thought the program was fair to both travelers in the Express Lanes and in the I-15 general purpose lanes.
- Very few respondents (four percent) were aware that revenues were being used for improved I-15 transit service. Only two percent of all respondents favored using

excess revenue for transit, while a combination of 46 percent favored extension of the HOT lanes or improvements to the main lanes of I-15.

- The only negative feedback or negative media coverage on the project had been related to the expanded bus service, which had not gained the expected ridership.

### ***I-15 Managed Lanes Extension Research***

In 2001, a study of a proposed extension to the initial facility was conducted with an accompanying public outreach and assessment component. The project included focus groups, stakeholder interviews, intercept surveys of users, and a telephone-based stated-preference survey. Significant findings from the surveys included:

- Sixty-six percent of respondents approve of the I-15 HOT Lanes program.
- All income groups maintained at least 60 percent approval of the FasTrak program, with higher-income groups more likely to be supportive.
- Higher percentage of respondents approved of the concept of tolling on I-15 than of the FasTrak program itself (77 percent versus 66 percent).
- The majority of the respondents have no objection to the FasTrak concept, either philosophically or practically. They consider the extension fair to general purpose lane users (71 percent) and managed lane users (75 percent).

### **Texas: Statewide Toll Program**

Texas currently has 160 centerline miles of toll roads. These roads are located primarily in the metropolitan areas of Houston and Dallas, operated by the Harris County Toll Road Authority and the North Texas Turnpike Authority, respectively. Central Texas has 77 miles of toll roads under construction, and many smaller communities have projects under development. The toll authorities in Houston and Dallas have been in existence for over 15 years, while new regional mobility authorities are a new mechanism for addressing mobility needs. To date, all of the toll roads in operation have been constructed as new alignment, greenfield projects. Public opinion has been generally accepting of these toll roads and appreciative of having additional travel options.

However, due to increasing demands on the highway system and decreasing tax revenues for funding new construction, the Texas Transportation Commission has asked each district of the Texas Department of Transportation (TxDOT) to consider toll financing for all added capacity projects. This directive has led to considerable discontent among the public, as well as some local officials.

Several market research techniques have been employed around the State to assess the public's opinion on tolling. These have included focus groups, stakeholder interviews, telephone surveys, written surveys, and web-based surveys. As might be expected,

reactions have been as diverse as the State. Generally, opinions are within a few percentage points difference between Texan metropolitan areas,<sup>64</sup> but those areas with existing toll facilities are not as likely to contain highly visible and vocal opposition to new projects.

The public appears accepting of new toll roads, but the majority remains skeptical of added toll lanes on non-toll roads. According to an ongoing research endeavor in Texas, 71 percent of residents oppose tolling existing roads and 51 percent oppose tolling new roads; 82 percent agree that Texas should expand and improve existing roads before building new roads; and 75 percent feel tolls should be reduced after construction costs are paid.<sup>65</sup>

Focus groups and surveys across the State demonstrate the misunderstandings the public has regarding transportation finance. Common questions include:

- Why doesn't gas tax revenue cover the cost of maintenance and construction?
- Isn't tolling double taxation?
- Why wasn't the shortfall anticipated?

Each of these questions represents a “big picture” perspective, with citizens struggling to ascertain plausible answers to these questions. In focus groups where participants were educated on transportation finance, many participants were surprised to learn the rate of population increase, the increase in vehicle miles traveled, and the fact that gas tax revenues also fund other programs such as the Department of Public Safety and public education. Moreover, many people did not realize how expensive it is to maintain the roads.<sup>66</sup>

Attempts to answer the big picture questions have fallen short, primarily because there was not a concentrated, consistent message at the statewide level to address the knowledge gaps. Each district of TxDOT has pursued and is pursuing toll projects without the benefit of clearly identified messages from the Department that address the public's concerns. On a more local level, the areas of the State that currently have toll roads appear to be more accepting of additional toll roads. However, in many instances, the Department is considering adding toll lanes to freeway lanes or building toll lanes on facilities that the public expected to be upgraded to freeway facilities. This has led to cries of double taxation, allegations of neglect on adjacent free roads, and accusations of

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<sup>64</sup>Podgorski, K., and K. Kockelman, 2005, *Public Perceptions of Toll Roads: A Survey of the Texas Perspective*, Transportation Research Board, Paper 05-1857, 84<sup>th</sup> Annual Meeting, January.

<sup>65</sup>Draft findings from TxDOT Research Project 0-4817, conducted by Dr. Kara M. Kockelman, University of Texas – Austin, 2005. Final documentation not yet published.

<sup>66</sup>Collier, T., 2004, *Focus Group Testing of Messages on Tolling in Austin*, Texas Transportation Institute, December.

attempts by the Department to force motorists onto the toll roads. Each of these concerns is indicative of the ever widening knowledge gaps in the public.

## Minnesota: I-394 MnPass HOT Lanes

Minnesota Department of Transportation (MnDOT) opened its first HOT Lane in May 2005 on I-394 in western Minneapolis. The project is similar to the intended operations on the SR 167 HOT lane pilot project in the Puget Sound area. Like Washington, Minnesota has had a long experience with the Congestion Pricing and Value Pricing Pilot Programs. Beginning in 1994, MnDOT explored different pricing applications – new toll corridors, variable bridge pricing, and even areawide pricing for the Twin Cities metropolitan area, but have never had a project actually implemented until the I-394 project. With an intended purpose of improving mobility and enhancing the efficiency of I-394, MnPass provided the country's first buffer-separated HOT lane facility in the United States.

Public opinion in Minnesota has typically been strained as it regards tolling and pricing. In 1996, a proposed public-private partnership to build a toll road on SH 212 was blocked by a city council veto in the proposed corridor. Enabling legislation provides for cities to veto MnDOT projects – that legislation is still in place. In 1997, the initial proposal to convert I-394 HOV lanes to HOT lanes was withdrawn after public opposition emerged. Minnesota redirected its public outreach strategy in 2001 to facilitate the development of political leadership and champions through a citizen advisory task force. Findings from this effort included:<sup>67</sup>

- Top-level champions (such as the Governor) are helpful for setting the tone;
- Outreach to those with influence provide support to top-level champions;
- Coalitions must be maintained through direct action; and
- Preparation must proceed promotion, including letting no question go unanswered, and for correctly tailoring a message to the different audiences.

With new political support for the implementation of the MnPass project, a new public-private partnership was initiated, and the facility opened in spring 2005. A survey of residents was conducted in December 2004 to ascertain perspectives on the upcoming project. Echoing findings from the San Diego surveys, 64 percent of respondents thought the MnPass concept was a good idea, with only 28 percent opposing. Furthermore, support did not vary across income levels. Messages that were reinforced by open-ended responses included “better use of carpool lanes” (24 percent), “adds capacity to the roadway” (19 percent), and “only users pay, not everyone” (12 percent). By comparison,

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<sup>67</sup>Munnich, L., and J. Loveland, 2005, *Value Pricing and Public Outreach: Minnesota's Lessons Learned*, Transportation Research Board, Paper 05-0394, 84<sup>th</sup> Annual Meeting, January.

negative messages, such as “it only benefits the rich” and “carpool lanes should be free for all to use,” were cited by less than eight percent of respondents.<sup>68</sup>

## ■ Lessons Learned

### Barriers to Public Acceptance

Opposition to tolling remains a stubborn public opinion problem. Some opposition may be ideological in basis (such as the perception of tolls as an additional tax); whereas, other opposition may be based upon misperceptions regarding implementation (such as variable pricing being too complicated or unfair). The precedence of tolls in an area can be an advantage if the public is familiar with the concept; however, the only equivalent for the Washington resident is fares on State ferries, or those with long enough memories to recall facilities where tolls have been removed.

Value pricing and tolling overall tends to be more acceptable on new facilities than existing ones. In the case of managed lane and HOT lane projects, pricing is applied to only a portion of the facility, resulting in more choices for the driver, and is, therefore, more likely to be seen as an improvement on the existing facility if it is correctly positioned as such. The availability of a “free” option coexistent with the priced lane or lanes is a significant distinguishing factor in the public acceptability of HOT lanes versus wholesale facility or network pricing. Learning the lesson from Texas, however, it is important to distinguish improvements in a corridor that have been previously promised with gas tax revenue versus those that could become reality quicker with tolls.

Equity issues primarily relate to who gets to use the lanes, at what cost, and how the generated revenues are used. Some fear that tolling and value pricing is too restrictive, benefiting only the more affluent drivers. Observed data on SR 91 and I-15 discredit these concerns from a user perspective, but the conventional wisdom of disproportionate benefits to wealthier commuters can kill a project before it has an opportunity to prove itself, as what happened in Maryland in 2002.<sup>69</sup> For instances of managed lanes, some entirely oppose the concept of providing any benefit to carpoolers, and instead support express toll lanes without carpool discounts; whereas, others insist upon providing free access for all carpools.

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<sup>68</sup>Hubert H. Humphrey Institute of Public Affairs, 2005, *I-394 MnPass Project Evaluation Attitudinal Panel Survey Final Report*, March.

<sup>69</sup>Baltimore Sun, 2004, *Give Toll Lanes a Try*, as reported on TollRoad News, July 28, <http://www.tollroadsnews.com/cgi-bin/a.cgi/Z7qKEOVgEdiRW6r2jffWdW>, accessed October 5, 2005.

Other issues of opposition are less clearly related to equity, but still have a perceived “unfairness” about them. As a private facility, SR 91 faced initial opposition specifically to private, for-profit projects. I-15 researchers found opposition to the inclusion of toll-free HOV2s. The I-15 focus group participants responded negatively to dynamic pricing, which was seen as “price gouging.” They were unclear about why this was so unacceptable, but for them it was.

Public acceptance issues are often location specific. A report from the Claremont Research Institute shows variation in travel among different corridors, indicating “a geographic dimension to travel behavior.”<sup>70</sup> In another report that studied five counties in California, researchers found that “[Toll lane policies] were strongly disliked in Ventura County,” whereas, they had support from the majority of residents in the other four counties surveyed (Los Angeles, Orange, San Bernardino, and Riverside). Other factors, such as the local political context of a project, can create barriers to public acceptance. The SR 91 project, for example, was initially opposed by residents of Riverside County, because it replaced an originally planned HOV lane to be funded by Orange County, as identified earlier in this document. Riverside County residents were especially disturbed since it already had funded and partly built the HOV lane on its side of the county border. Opposition post-implementation from Riverside County helped contribute pressure on CPTC to sell its facility to Orange County Transportation Authority, which reintroduced HOV3+ discounts; however, this action did not completely assuage the concerns of Riverside County residents.

## The Selling Points of Tolling

### *HOT Lanes and Value Pricing*

In Washington, HOV options and tolling can be powerful allies in terms of obtaining public acceptability for value pricing. Washington has a rich history of HOV benefits and services, extending from the State’s extensive HOV lane networks to include HOV preference on ferries and extensive vanpool programs. The HOT concept in particular seems to provide a feasible compromise between HOV and toll road advocates, improving on (or in some cases even resuscitating) underutilized HOV lanes, and allowing for limited tolling opportunities where it has not otherwise been applied. Furthermore, additional toll opportunities exist in extremely congested corridors with little political or public appeal for grand capacity expansion projects. Continuing the application of HOV-related preference and/or treatment may provide the sufficient weight to encourage these toll applications.

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<sup>70</sup>Horan, T., L. Chang, and G. McMurrin, Grant, 1997, *Land Use and Equity Issues in Congestion Pricing: A Compositional Analysis of Five Corridor Markets in Southern California with an Exploration of the Equity Considerations for High Occupancy Toll (HOT) Lanes*, Claremont Research Group for the University of Minnesota, November.

Value pricing projects have the potential to provide benefits to the following:

- The individual driver, who receives additional choices and predictable travel times;
- The HOV network, which has the potential to benefit from more riders, and the riders themselves will have faster and more predictable travel times; if new transit services are included or if transit travel times are improved, potential increased bus ridership also is likely to increase support for transit, thereby, improving service even further; and
- The “whole” system – by providing more person-based capacity for the system, HOT lanes can potentially offer benefits to the remaining components of the network.

In addition to the general value pricing concept, specific projects have their own selling points. For example, SR 91 and I-10 in Houston use preset toll schedules, which at least in the initial stages of a project tend to be more easily understood than dynamic variable pricing, although Minnesota has not reported any problems with public understanding of their dynamically priced systems. I-15 and I-394 can emphasize that their distribution of revenue will benefit the public, especially transit programs. Respondents in the I-15 study increasingly recognized the benefits of the program and encouraged its continuation to help fund BRT service throughout the corridor. At first, the groups felt the program would “reduce stress, save time, and improve the safety of their commutes.” By the end, they had added that it would “help emergencies, get people to work on time, ease congestion, maximize utilization of the lanes, and increase the options available to SOV drivers.”

Selling points can be reinforced by a positive visual image. When Houston’s Katy HOV lane was functioning with additional capacity due to a 3+ occupancy restriction, the transportation agency found that the public is often more concerned with “perceived” failure (the visual image of empty lanes) than figures demonstrating actual efficiencies. Ideally, value pricing mitigates the “empty lane syndrome,” encouraging a positive public perception.

If selling points are effectively incorporated into a marketing scheme, they make a significant difference. Two studies in Oahu, Hawaii and in Los Angeles showed that, when presented as “a time-of-day charge to manage congestion by inducing shifts to transit and travel times,” only 15 percent (Oahu) and 20 percent (Los Angeles) respondents favored the concept. But when presented as “a user fee wherein those using the facility the most pay the most, and where fees go toward road development and maintenance,” 42 percent of the Oahu respondents accepted the idea.<sup>71</sup>

### ***New Toll Facilities***

Tolling is often cited as a means of advancing the construction of projects (for those that are planned within a fiscally constrained transportation plan), or for financing projects

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<sup>71</sup>Higgins, T. J., 1994, *Congestion Pricing: Implementation Considerations*, Transportation Quarterly, Volume 48, Number 3, Eno Transportation Foundation, summer.

that would not be otherwise constructed. Within the past 10 years, concepts that fall under this category include the construction of new travel lanes (such as express toll lanes) and new toll roads and bridges (outside of any existing travel corridor). Both types of toll facilities have seen recent activity throughout the United States – such as the SR 125 toll road in San Diego, the E-470/Northwest parkway beltway in Denver, the Westpark Tollway in Houston, the Camino Columbia Bridge in Laredo (Texas), and the Dulles Greenway expansion in Washington, D.C. Not all of these projects have been successful, and each has received a share of challenge from public opinion.

The Center for Transportation Research at the University of Texas conducted a statewide public opinion assessment of new toll roads, new toll lanes, and HOT lanes in various areas of Texas for the TxDOT. Majority of respondents indicated that toll roads were unfair (55 percent), should not be used to finance new roads (51 percent), and should not be used to finance improvements to existing roads (71 percent). Negative perceptions of toll roads occurred more often for respondents in areas currently without toll roads (such as Lubbock, Corpus Christi, and San Antonio) than areas with toll roads (such as Houston and Dallas), typically by 10 to 15 percent. Although the negative responses are strong, and indicate a clear public perception issue with the fairness of tolls, it should be noted that Texans favored tolling over fuel taxes in all areas, except San Antonio. Finally, although support for tolls on new and existing roads was low, support for HOT lanes was much stronger, with 52 percent in favor.<sup>72</sup>

As indicated in a study of public opinion for new toll roads to be constructed in the Austin area, messages that tended to enhance public acceptance included:<sup>73</sup>

- The Transportation Department currently does not have any economically feasible and timely alternative funding sources for transportation projects;
- Tolls produce roads faster and help pay off roads quicker;
- Tolls directly connect those who use the facility with those who pay for them;
- Additional revenue generated after roads are paid for helps pay for other local transportation projects; and
- Toll road revenues stay in the local area.

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<sup>72</sup>Podgorski, K., and K. Kockelman, 2005, *Public Perceptions of Toll Roads: A Survey of the Texas Perspective*, Center for Transportation Research, University of Texas, [http://www.ce.utexas.edu/prof/kockelman/public\\_html/TRB05PublicResponsetoTRs.pdf](http://www.ce.utexas.edu/prof/kockelman/public_html/TRB05PublicResponsetoTRs.pdf), accessed October 9, 2005.

<sup>73</sup>Texas Department of Transportation, 2005, *Central Texas Toll Road Baseline Marketing Survey*, Final Report, July.

## Identifying Potential Advocates and Opponents

All tolling proposals should be viewed in the context of the political environment for which it is proposed. There are inherent differences between traditional toll roads and bridges, value pricing, express toll lanes, and HOT lanes that will change the nature of opposition and promotion. Recognizing these differences has proven to be important for advancing any particular project. Opportunities for coalition-building should be examined, as well as the activity levels of local citizen groups and institutions. Potential opinion-setting advocates and opponents, who will influence the opinion of travelers and commuters, can be divided into the following: business groups, environmental groups, government leaders, and transportation professionals.

### *Business Groups*

As traffic congestion and its related costs increase and former solutions become less feasible, many cities, states, and metropolitan planning organizations (MPO) search for alternatives to government-funded transportation. In some cases, businesses have advocated pricing exemptions for commercial vehicles. But such exemptions may undermine the effectiveness or financial feasibility of the scheme, or may intensify opposition from other motorists.<sup>74</sup> Business groups are typically among the most influential groups to help champion new toll and value pricing initiatives, if those proposals are shown to either advance roadway projects or improve travel time reliability. Although not typically in opposition to toll projects, business groups may oppose specific proposals for concerns regarding disproportionate commercial toll rates, inability to access properties, or express lane facilities not serving key commercial areas. Finally, business groups may withhold support for specific projects if they are not articulated as a part of an overall system.

### *Environmental Groups*

Many environmental groups promote value pricing, although some do not. Those groups that support the concept point to benefits, such as reduced energy use and air pollution; the preservation of open space; and more cost-effective infrastructure investment if the value pricing project serves to reduce overall vehicular use, or allocates use more efficiently throughout the roadway network. Among those who have supported congestion pricing are Environmental Defense, the Sierra Club, the Tri-State Transportation Coalition (in New York City), the Transit Alliance of Denver, the Pennsylvania Environmental Council, the Oregon Environmental Council, and the Clean Air Coalition (in Los Angeles). Some environmental groups support pricing with the goal of setting the tolls high enough to reduce driving, and then using revenues to fund non-highway projects, such as rail, transit, or bicycle improvements.

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<sup>74</sup>Gomez-Ibanez, J. A., and K. A. Small, 1994, *Road Pricing for Congestion Management: A Survey of International Practice*, National Cooperative Highway Research Program: Synthesis of Highway Practice 210, Transportation Research Board.

Although some environmental groups are supportive of value pricing applications when they help provide system efficiency and higher costs of travel by personal automobile, they generally oppose the construction of new highways or lanes that exacerbate greenfield development, encourage urban sprawl, or encourage travel by SOVs. For example, the Pennsylvania Turnpike Commission has been caught in legal battles with environmental advocates regarding the northern expansion of the Mon-Fayette Expressway, with a variety of issues cited, including noise and air pollution and environmental justice. This has contributed to a significant delay in the planned 70-mile, \$3.5 billion toll system expansion in Pittsburgh.

This example is not limited to new toll facilities outside of existing travel corridors. Environmental groups have opposed the construction of new express toll lanes on I-10 in Houston and the original SR 91 express toll facility. In both scenarios, only meaningful commitments to HOV benefits have been able to overcome the threat of legal battles.

### ***Government Leaders***

In dealing with government leaders, attention should be paid to two current trends: 1) a general distrust of the government at all levels; and 2) the devolution to local governmental control. Reflecting government distrust, the public has questioned the government's ability to effectively manage the revenues, as well as the complex technological systems involved with tolling. Furthermore, as evidenced by recent opposition to tolling in Texas, citizens do not accept at face value the case of declining gas tax revenue as a percentage of transportation need. In fact, with the rapid increase in gasoline prices in 2005, many falsely believe that tax revenue increases with price. But the success of current toll projects in California, Minnesota, New York, and Texas, combined with increasingly localized control, can help to increase the confidence level of both politicians and citizens. Although congestion does not adhere to political boundaries, a shift to local implementation of congestion pricing may be more efficient.

### ***Transportation Professionals***

Transportation professionals include planners, engineers, and economists. Transportation engineers and planners are often interested in tolling as it relates to overall system management and revenue generation, as well as the potential to reduce peak-period trips. Although the temptation is present to view tolls as a silver-bullet solution, tolling should be proposed in conjunction with other elements of a regional transportation strategy, such as land use regulations, transportation demand management strategies, intelligent transportation systems (ITS) technologies, and transit. Transportation professionals are a forgotten interest group when it comes to public opinion, yet they have the wherewithal to kill a pricing project before it comes to fruition.<sup>75</sup>

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<sup>75</sup>Ungemah, D., and M. Swisher, 2006, *So You Want to Make a HOT Lane? The Project Manager's Guide for an HOV to HOT Lane Conversion*, unpublished paper submitted to Transportation Research Board's 85<sup>th</sup> Annual Meeting, January.

When gauging support from different interest groups, it is important to keep the goals of the project in mind. Decisions about the use of revenue will be important in terms of maintaining support for the toll facility – for many groups, their support is almost entirely dependent on it. For example, environmental groups support value pricing with the assumption that revenues will be used to support alternatives to automobile use; whereas, many other supporting interests want revenues to pay for additional highways and expanded toll lanes, let alone the role a particular toll road or bridge will have in supporting toll corridors elsewhere in a region or state. It will be a challenge to retain support from both types of groups without sacrificing the goals of one or the other.

## Public Education Approaches

Public education in the new era of tolling is critical. Public education efforts must consider the geographical and historical context of the projects in addition to their related selling points, barriers, and interest groups. Different groups should be targeted in public education efforts to ensure they have information about what concerns them most. In the I-15 project, for example, carpoolers and transit users had the least favorable impression of the program. They were assured that they would retain top priority and continue to use the lanes for free. If it is the policy of the project to use excess revenues to improve transit and carpool service in the corridor, it is important for this particular user group to be aware of that.

In general, few citizens fully understand the current system of transportation financing, and are unfamiliar with issues like marginal cost and price elasticity as they relate to transportation. Many people feel that value pricing – in particular, differing toll rates by time of day or vehicle occupancy – would not change their travel behavior (or that of others). Developing a simple message for communicating the concept of pricing can be valuable in gaining support. For toll facilities, the messages can be simpler, including project advancement and construction timing. However, interest groups disinclined to new facilities in general (regardless to how these are financed) may use general apprehension towards tolling as the weak point of attack.

In the case of Houston's I-10 HOT lane project, it was determined during the evaluation phase that focused marketing and public education regarding the logistics of the program could enhance usage. One-half of the non-users was not aware of QuickRide; 60 percent had not heard of the program via mass media; and 50 percent were either unaware or misinformed regarding the logistics of the program, including the procedure for signing up. Initial and ongoing marketing is a key component of early and continuing success.

Efforts are necessary to increase general awareness of why states and regions are exploring tolling. In the early days of the I-15 HOT lane program, when asked what Express lanes were called, respondents were hard pressed to come up with an official name. The I-15 researchers recommended that the San Diego Association of Governments (SANDAG) clearly communicate the goals of the ExpressPass program, decide on a clear name for the lanes, and tell the public where the money is being spent. Minnesota learned

the lesson of San Diego, and made marketing and branding a key component of its MnPass project development. Similarly, the Colorado DOT also has placed a high value on branding and marketing for its upcoming HOT lane project, to be opened in spring 2006.

Across all efforts, there appear to be some general messages that resonate with the public – values of simplicity, efficiency, reliability, and project advancement. Messages can help to identify that tolling helps bring projects to fruition now – not 10 years from now. Messages can explain the concept of variable pricing, so that the public understands there is a maximum toll rate, and any variance on the price is perceived as a discount. “Travel time reliability” also can be dealt with in messages. The uncertainty of travel times has led to trips that involve large periods of “buffer time,” incorporated into the trip, characterized by early departure times from the origin. The reliability provided by value pricing applications substantially shortens that buffer time, and that benefit can be advertised.

There are additional messages that the public does understand and that resonate well. The public recognizes that toll projects can be built much faster than traditionally funded projects. In many cases, this has been the only selling point for a toll project in Texas, especially when coupled with the promise that revenues from toll projects will be used in the local area. Most people are knowledgeable of this message, but they are unsure what exactly the revenues will be used for. There are questions of whether revenues will only support toll roads and free roads will be neglected. Preparing answers to these questions will serve to reinforce messages.

## ■ Conclusions

The value pricing and tolling projects discussed above have used different methods to measure public acceptance. The I-15 evaluation study pioneered efforts in evaluation for value pricing, placing particular emphasis on the attitudinal and behavioral aspects of both users and non-users of the program. As this data provided important insight into the public acceptability of HOT lane projects, it has become a standard evaluation technique for Minnesota and Colorado, too. A significant lesson in public acceptance of value pricing can be learned from these projects: initial skepticism, as well as openly expressed opposition to the pricing concept, did not prevent the projects from carefully and judiciously moving forward. Post-implementation feedback has revealed a general reversal from negative to positive public opinion regarding the concept of pricing in HOV lanes, a common element across all three states.

New toll roads, lanes, and bridges will face a different type of scrutiny from the public – whether there should be a new facility or not. Ideally, these questions should be addressed in the purpose and need analysis, alternatives assessment, and environmental documentation. The role of tolling should not influence the need for a facility. However, reality does not work this way. Opponents of a facility will use apprehension towards

tolls as a reason to try and kill a project. Again, only through the careful and deliberate process of planning, documenting, and educating on the nature of proposed projects can negative reaction to tolls be overcome.

The political nature of a community and its interest groups should be considered, but not without the acknowledgment that political climates can change rather drastically. In 1978, the California State Transportation Board suggested that “users should be required to pay a fair share of the costs that occur from their use [of transportation facilities].” But this idea was strongly opposed at the time by interest groups.<sup>76</sup> Tolling in this part of California has since received much support, as evidenced by the success of SR 91, I-15, and SR 125.

According to the authors of *Road Pricing for Congestion Management*, projects that are politically acceptable should exhibit the following characteristics:<sup>77</sup>

- Be fairly simple in design;
- Build incrementally on previously existing arrangements or experience;
- Address clearly understood and widely supported objectives; and
- Involve transparent financial flows that facilitate public trust in the use of the monies.

The successful tolling and value pricing projects implemented thus far exhibit these qualities and consequently enjoy a high level of public support. Projects that have failed to become reality, or are experiencing strong controversy, generally fail one or more of these qualities.

*Background paper prepared by Texas Transportation Institute, with assistance from Cambridge Systematics, Inc. and Frank Wilson & Associates, Inc. in January 2006.*

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<sup>76</sup>Fielding, G. J., 1994, *Private Toll Roads: Acceptability of Congestion Pricing in Southern California*, Transportation Research Board Special Report.

<sup>77</sup>Small, K., and J. Gomez-Ibanez, 1994, *Road Pricing for Congestion Management: The Transition from Theory to Practice*, Lincoln Institute of Land Policy.

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## *Background Paper #6*

# **Limitations of Studies Used to Advance Toll Projects**

Developing toll projects rely on studies at every step of the way, and these studies are used by policy-makers to make important decisions about allocating scarce public resources. Those resources might be substantial dollars devoted to construction, or less substantial, yet important dollars devoted to planning and design or marshalling a public-private partnership proposal through review and negotiations. Although perfect information is never possible, it is important to understand the risk factors associated with the information used to make decisions at each stop of the project development process.

There are three legs that hold up the stool of a toll road development project: 1) traffic and revenue estimates; 2) cost estimates; and 3) financial plan. Limitations and risk factors of each of these are discussed below, including the limitations of these kinds of studies in general, as well as the work being done for this Comprehensive Tolling Study in particular.

### ■ **Traffic and Revenue Estimates**

When forecasting demand for any transportation facility, practitioners typically use complex computer models of the transportation system. These models are mathematical representations of the transportation system itself (i.e., the highways, arterials, and transit services), as well as of the demand for travel. The demand for travel is represented by various models of human behavior, including the amount of travel (trip generation), where that travel goes (trip distribution), what mode people choose (mode choice), and the path people choose to take (assignment). None of these models are perfect.

At any level of analysis, forecasting traffic and revenue for a potential toll project involves answering these questions:

- What is the basic demand for travel in the proposed corridor?
- How will that demand change over time?
- How many people will choose to use the facility if tolls are charged, and how will that number change with the amount of the toll?

It has never been easy to answer these questions with any kinds of certainty, and the complexity of toll projects being proposed today make these questions even more complex. Take, for example, a traditional toll road with these characteristics:

- Ten-mile urban limited access highway in a built up area;
- Parallel arterial routes (not limited access) that are heavily congested for many hours of the day; and
- A long-term history of growth in population and employment leading to rapid traffic growth.

Although this may be the simplest situation you can encounter in traffic and revenue forecasting, there are still uncertainties to be answered. For example:

- Is the traffic consistently congested everyday, or are there significant seasonal variations?
- What is the typical length of the trips causing the congestion? The entire length of the highway, or only a few miles?
- Is it easy for travelers to get to the highway? Will all the planned connections to the highway be built on time? Will there be adequate signage and marketing?
- Are the trips mainly by commuters, or for other trip purposes?
- What is driving the big increases in demand? Is the economy highly dependent on one industry, thereby, making it especially vulnerable to economic downturns?
- What is the distribution of income levels in the communities served by the project, and how does that translate into people's willingness to pay a premium to save time?

These factors, and many more cause uncertainty in even the simplest of circumstances. The situation becomes even more uncertain when a toll project is intended to serve traffic demand that has not yet materialized (e.g., for future growth), because even short-term hiccups in the economy can stall demand for traffic for years.

The new breed of toll road proposal adds even more complexity. These often involve tolling individual lanes of a highway, while the adjacent lanes have no toll (e.g., high-occupancy toll (HOT) lanes). In these cases, tolls are varied by time of day, or even dynamically depending on traffic levels. Since traffic levels can vary significantly from day to day, and are influenced by nonrecurring events around the transportation network, it is difficult to even get a good estimate of the time savings that would be realized by a new toll project.

Many of these issues are considerations when planning for non-tolled highways and transit systems as well. However, the consequences of forecasts not being met are less obvious on non-tolled projects. Although an underutilized free facility may cause the

public to receive less benefit from its investment than one that fully achieves its expected traffic levels, there are no impatient investors waiting for full and timely payment on their bonds. This feature of toll facilities puts tremendous pressure on the early years of tolling projects.

## Levels of Detail from Exploratory to “Investment-Grade”

Traffic and revenue studies can be done at a variety of levels of detail for different stages in the project development process:

- **Exploratory** studies are typically done with a limited amount of existing data, and simple analysis tools using basic assumptions. These might take existing traffic volumes in a corridor, make some assumptions about potential market for a new facility, assume certain levels of toll, and certain levels of capture. The purpose of such a study would be to gain a sense of the market potential for a project to determine if more detailed studies might be needed.
- **Preliminary** studies provide additional analysis, and typically rely on more and better data, and regional travel demand models. These would use forecasts of population and employment that already have been prepared by others (typically a regional planning agency), and existing transportation models that might be modified to accommodate the analysis of people’s choices between toll and non-toll projects. These would typically borrow data from elsewhere about responses to different price levels and time savings.
- **Investment-grade** studies are those used to support financing. The term “investment-grade” actually refers to a rating given by a bond rating agency to a transaction that is better than “junk bond” status. An “investment-grade” study does not guarantee an investment-grade rating. Rather, it is a traffic and revenue study done with the care, sufficient detail, and transparent assumptions so that investors can understand the risks that they are taking. Such studies would include extensive studies with new data regarding traffic levels over the course of the year, travel times by various routes, trip origins and destinations in the corridor, and surveys of people’s value of time. One of the most important elements of such studies is an objective assessment of the local economy and growth potential. Investment-grade studies also would explore numerous “what-if” scenarios to explore the potential downside (and upside) risks.

Just as an investment-grade study does not guarantee an investment-grade rating, it also does not guarantee that traffic and revenue will occur as forecast. Any forecast study is built upon layers of assumptions. Some of these assumptions relate to measurement of current conditions, such as traffic counts, traffic patterns, household incomes, and travelers perceived values of time. Even though these represent measurements of existing patterns, there are still bound to be inaccuracies in the measurements, no matter how carefully the studies are done. Even traffic counts, the most basic of measurement, varies from day to day and from season to season, making accurate measurement difficult.

Other assumptions relate to forecasts of the future. When and where will housing and employment grow? What is driving the economy, and how does the economic well-being of the region stack up against competing regions? What other transportation improvements will be built when? What will be the price and availability of fuel in the future? And finally, how will travel patterns change in response? Although sophisticated models can be built to try to anticipate these events, these allow for not much more than informed speculation. Consider the difficulties those top-level policy-makers, such as the Federal Reserve Bank, have of trying to forecast the national economy even quarter to quarter and make policy to try to influence it.

None of this is intended to degrade the value of a traffic and revenue study. These studies are disclosure documents that explore as accurately as they can current conditions, the potential for change in the future, and the traffic and revenue that would result from that change. The studies need to clearly lay out the assumptions used, and the forecasts that would result. Extensive sensitivity testing or the use of risk analysis mechanisms also is appropriate, thereby, providing the investor with a sense of the risks inherent in the forecasts.

Given the complexity and uncertainty of all the elements that go into a traffic and revenue forecast, it is not surprising that many forecasts are “inaccurate.” However, since so many elements of the forecasts are out of the control of the analyst, it may be unfair to use the word, “inaccurate” to characterize a particular forecast. It is almost certain that a forecast will be inaccurate and it is prudent for the toll road developer, whether they be the public sector or private sector, to take appropriate actions to mitigate these potential risks. This could include doing enough sensitivity analysis to be reasonably confident that reality will be within the envelope of scenarios tested with some reasonable probability. Monte Carlo simulation techniques, in which numerous sets of assumptions are combined in random ways to simulate potential future outcomes, also have been used to achieve this goal. While inaccuracies resulting from forecast assumptions not coming to fruition are common, it also is possible for inaccuracies to result from flawed analytic tools. This type of issue can be resolved through more thorough quality assurance/quality control efforts, as well as adequate time and resources to complete projects.

## Recent Studies of Forecast Inaccuracies

Although numerous projects have been built over the years that have achieved and/or exceeded the forecasts’ uses to finance them, there is always more attention paid to the projects that have not achieved their forecasts. In 2002, the bond rating agency Standard & Poor’s (SP) published a report on toll forecasting performance.<sup>78</sup> The basic argument in this report, and in three annual updates, has been that there is a considerable

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<sup>78</sup>Standard & Poor’s, *Credit Implications of Traffic Risk in Start-Up Toll Facilities*, August 15, 2002. Most recent update is *Traffic Forecasting Risk Study Update 2005: Through Ramp-Up And Beyond*, August 25 2005.

amount of optimism bias in toll revenue forecasts around the world. As noted in the discussion on investment-grade forecasts above, there is good reason to understand that actual results would vary, perhaps considerably, from the forecasts. However, if objective and balanced analyses were being performed, one would expect the variation to occur on both the upside and the downside. The point of the SP's work was that there was a considerable trend towards the overestimation of traffic and revenue, leading to their conclusion of an optimism bias.

S&P suggests that first-year toll revenue estimates have been overestimated by an average of 20 to 30 percent over the sample of projects that they studied. In the 2005 update to the study, they tested traffic performance through the fifth year, and did not find any marked improvement. They also looked at truck forecasts in particular, and found that these were a particular concern, because trucks typically pay considerably higher tolls than light vehicles, and variation in this forecast can have a much bigger effect on actual toll revenues. S&P also looked at the potential variation in traffic forecasts done by different consultants (or with different sets of assumptions). They found that the magnitude of the difference in forecasts can be significant over time, even if the differences in the input parameters are not significant.

On a similar note, Fitch Ratings published a report in 2003 that highlighted some of the difficulties associated with achieving “accurate” traffic and revenue forecasts.<sup>79</sup> Among the issues they cited were:

- **Model Input Risk** – Models used for regional planning do not necessarily consider the same factors that traffic forecasters for toll projects consider important. Regional forecasts of population and employment are often used to support other decisions that may not have the same need for conservatism in forecasting. Such models also are not concerned with the up and down cycles of the economy, which can cause significant variation in toll road forecasting.
- **Ramp-Up Risk** – Ramp-up is a term used to describe the period from when a toll road first opens to traffic until it achieves the steady-state traffic flows predicted by rational travel models. It accounts for the time needed for toll paying customers to find and become acquainted with the project, and to decide whether it offers a good value proposition. Ramp up is not well understood, and can last from a few months to several years.
- **Event and Political Risk** – Whereas, the ups and downs of the economy are clearly out of the control of the forecasters, so are the actions of governments. The timing of improvements that access or compete with a toll facility also is uncertain, and can lead to unexpected results.

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<sup>79</sup>Fitch Ratings, *Bliss, Heartburn, and Toll Road Forecasts*, November 12, 2003.

The lesson that can be learned from these studies is that recent trends are not necessarily indicative of future performance, and that it is crucial for the traffic and revenue studies to take a skeptical view of locally or regionally driven expectations of performance, and consider the very real potential of changing patterns over the course of the development time horizon of a project.

## **Limitations of This Comprehensive Tolling Study**

This Comprehensive Tolling Study is structured to take a preliminary look at several illustrative examples of potential toll projects in Washington State, with the purpose of guiding overall policy-making with regards to tolling. In the early phase of the project, the consultant team will work with the Commission to recommend the scenarios that best represent the kinds of projects that might be considered in the State in the near, medium, and long term. Since the entire universe of potential projects is not being considered, this study is not intended to definitively determine the suitability of any particular project for tolling or pricing, nor as a means to priority rank projects. And it is certainly not intended to be an investment-grade analysis.

### ***Travel Models***

Therefore, the traffic and revenue analysis in this project will use the best models and procedures available within the timeframe and resources of this study. For example, the Puget Sound Regional Council (PSRC) recently updated its regional travel demand model for use in the Congestion Relief Analysis Phase 2. The update now lets the model reflect changes when people travel in response to congestion and pricing. It also uses recent research on elasticity of demand to toll prices.

The revised model is well suited to considering the regional implications of pricing strategies. In addition to addressing time of travel, it also considers changes to travel patterns and travel modes. Regional changes in vehicle miles and vehicle hours of travel can be distinguished.

However, this regional model is not effective at analyzing the detailed operational nuances of a particular corridor. While a lot of congestion can be attributed to traffic demand and too little mainline capacity, the true problems in the system are at bottlenecks and incidents of nonrecurring events. These are interchanges, on/off ramps, lane drops, grades, narrow lanes, solar glare, and other particular highway features. Such features cause traffic congestion that is not well represented in regional travel demand models, and can only be addressed through microsimulation procedures. Such modeling is time consuming and costly, and not feasible for this study.

When we look at projects outside of the PSRC region, they will not have access to the same modeling tools, so more caution is needed. We will consider the specific circumstances of each non-PSRC-region project in developing the appropriate strategy to assess traffic and revenue related to pricing. It may be appropriate for us to migrate toll elasticity factors from similar projects in the PSRC region, or develop other techniques entirely.

### ***Socioeconomic Data***

One of the most important drivers of travel demand is growth in household and employment growth and income levels. We are using the socioeconomic data approved for use by the planning agencies within each of the regions. Although these forecasts may be developed with care for the purpose for which they were intended, they have not been evaluated for their suitability for use in traffic forecasts intended to provide conservative assumptions for purpose of revenue estimates. Indeed, planning forecasts for typical projects may be “conservative” in the other direction, trying to anticipate the worst-case situation for future highway needs. An investment-grade study would consider factors influencing the regional economy, as well as factors within a particular corridor that might vary considerably from the generally accepted forecasts.

### ***Verifying Local Conditions and Trends***

Since this study is looking at numerous corridors and systems throughout the State, we are not in a position to carefully evaluate current traffic conditions for each project corridor. Although we will attempt to validate the travel models for the corridors, we will not be doing extensive field analysis of travel times and conditions for each.

### ***Values of Time***

A key determinant as to whether someone chooses to pay a toll or use an option that does not involve a toll is how they value the time savings (or other benefits, such as reliability or safety) over the alternative. The changes to the PSRC model have reflected the most recent national data for values of time, but do not incorporate local conditions.

### ***Future Travel Behavior Will Be Similar to Current Travel Behavior***

This is one of the most troublesome realities of forecasting. The only tools we have are to look backwards, try to forecast today’s conditions from history, and assume that those relationships will hold over time as we use forecasts of different parameters (e.g., land use, incomes) to try to estimate future travel patterns. The reality is that things change over time. For example, between the 1950s and the 1980s, women entered the work force at a far greater pace than anyone in 1955 might have anticipated. Increasing disposable income led to higher-car ownership rates and growth in vehicle miles of travel well in excess of what a simple model based on population would have revealed.

Future changes in the social and economic relationships are unknown. We can only speculate, and be sure that we will be surprised in the future. An example apropos of today’s headlines would be trying to forecast the price of fuel five years from now, and how that might impact travel behavior over the long term.

## ■ Cost Estimates

The cost estimates for this project will be conceptual in nature, based largely upon available data, with some additional analysis where necessary. In the normal project development process, cost estimates are refined as the scope of a specific project is developed and defined to a point where all issues that could influence project costs are known. A tiered evaluation process is used to screen and identify candidate projects early in the process of project development. In the preliminary phases of a tiered process, cost estimates are prepared using existing project documents and planning-level assumptions.

As the project advances, tolling plans are revised and the project is developed through the design process. Generally, the design of tolled highways is nearly completed before the plan of finance is prepared as part of the offering document, thus, allowing detailed estimations of cost with a high degree of confidence.

For planning-level analyses and at the early project screening process, “off-the-shelf” estimates are often adapted from environmental studies, or unit costs derived from comparable projects are used to estimate cost. These cost estimates need to include all related project costs that may be part of the project financing. Related project costs include soft costs (design and professional fees), right-of-way acquisition (including property damages), operating and maintenance costs, capital renewals, payment systems and the costs of administration.<sup>80</sup>

### Specific Assumptions and Limitations

The limitations on the cost estimates developed for the preliminary screening process are briefly outlined below.

#### *Project Scope*

A limiting factor of the cost estimates is that project scope may change as specific projects advance towards implementation. Projects that are under development through planning studies and environmental clearance process will be reasonably well defined in terms of project scope, including typical sections and alignment. For well developed projects, some adjustments that may be needed are those required to accommodate toll collection systems, specialized signing, advance traveler information systems, back-office needs, and customer service facilities.

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<sup>80</sup>The cost of finance is addressed in the subsequent section addressing limitations related to the financial plan.

For other less developed projects, the alignments themselves, along with the basic sections, will have to be established. For this study, it will be important to recognize that project scope may change as specific projects advance towards implementation.

### *Price Volatility*

Construction prices have become volatile due to a wide range of factors that include local construction volume, material supply and demand, oil prices, and environmental issues. To account for this volatility, contingencies are included at the project conceptual level, and, as the design is developed, the contingencies are reduced to reflect an increasing level of confidence in the definition of the scope of the project.

At the conceptual level, cost estimates have a degree of uncertainty that is at least partially addressed by the inclusion of responsible contingencies in the estimate. To manage this limitation, it is recommended that a range of possible costs be developed for larger projects spanning several years of design and construction, and where there is a long-term risk of escalating costs over time.

The Association for the Advancement of Cost Engineering (AACE) publishes risk factors for cost estimates. These recommended accuracy factors are summarized in Table 6.1. These expected accuracy ranges reflect the limitations and uncertainty in predicting construction costs for projects in the screening, or feasibility stages. It is important to understand, however, that even Class 1 cost estimates have had variations greater than those shown here for a variety of reasons. Most recently, this has been caused by many factors, including but not limited to, high fuel costs, “China effect” (increased demand by China for steel and cement), and effects of natural disasters (short- and long-term impact of Gulf region reconstruction).

**Table 6.1 AACE Expected Accuracy Ranges for Cost Estimates**

Estimate Class	Level of Project Definition	End Usage	Expected Accuracy Range (L = Low; H = High)
Class 5	0% to 2%	Screening or Feasibility	L: -20% to -50% H: +30% to +100%
Class 4	1% to 15%	Concept Study or Feasibility	L: -5% to -30% H: +20% to +50%
Class 3	10% to 40%	Budget, Authorization, or Control	L: -10% to -20% H: +10% to +30%
Class 2	30% to 70%	Control or Bid/Tender	L: -5% to -15% H: +5% to +20%
Class 1	50% to 100%	Check Estimate or Bid/Tender	L: -3% to -10% H: +3% to +15%

Source: Skills & Knowledge of Cost Estimating, AACE International, Fifth Edition.

### ***Right-of-Way Acquisition***

The cost of right-of-way and property damages are a very significant component of the overall project cost, and can be subject to great uncertainty, especially if the project's anticipated construction is many years away. For projects in the conceptual stages, right-of-way costs are developed based on per square foot costs from comparable projects. As the candidate projects advance, designs can be optimized to reduce the impact and cost of new rights-of-way and property damages. Toll roads funded without use of Federal funds may be able to take advantage of advance purchase programs and/or more efficient right-of-way acquiring processes. The use of comparable projects, rather than reliance on specific project data to estimate right-of-way costs and property damages, are limitations of the conceptual level cost estimates.

### ***Procurement and Project Delivery***

For this study, cost estimates will be prepared assuming conventional design-bid-build project delivery process. In reality, other procurement methods might be used. These methods could change (usually reduce) the cost. However, it is not possible to anticipate what these savings would be without knowing which alternative procurement process is utilized.

### ***Soft Costs and Construction Engineering/Inspection***

Soft costs represent all of the design and professional fees that will accrue during the project development process and implementation phases. These costs and the costs for construction engineering/inspection need to be estimated using percentages of the construction cost estimates. For this study, the percentages will be derived from comparable projects. Since these estimates are derived as a percentage of the construction costs, these will be adjusted as the project scope is refined.

### ***Operating, Maintenance, and Administrative Costs***

Annual operating, maintenance, and administrative costs need to be estimated for the life of the proposed bond issue and escalated annually. The tolling components of these costs will be derived from comparable toll projects at existing toll agencies, while the roadway and bridge structure components will be based on established WSDOT data. A limitation of this analysis is that technology, the administrative structure of the operating agency, and the size of the system are not certain at the conceptual phase. Also, annual escalation factor can often exceed the rate of inflation, and may vary from the experience of other agencies depending on the administrative structure and technology deployed.

### ***Capital Renewals***

The cost of periodic capital renewal for major infrastructure items, such as pavement and bridges can be reasonably estimated based on life-cycle estimates. The replacements of

technology, Intelligent Transportation Systems (ITS), and payment systems are components of the capital renewal estimates. A limitation of the early cost estimates is that technology, ITS, and payment systems are not fully defined at the conceptual phase.

### *Technology, ITS, Payment Systems, Customer Service, and “Back Office”*

Detailed specifications and building programs for these elements will not be available during the conceptual phase. Over time technology choices and the range of available options could change. Also, the “back office” functions can vary in scope and allocation to a single project, depending on whether a single project or a system of projects is evaluated. These factors are all limitations of the estimation of technology, ITS, payment systems, customer service functions, and “back office” facilities.

### *Schedule Limitations*

The length of the construction period from the close of financing through opening of the project (and the collection of toll revenues) is a critical factor in the estimation of finance costs, when sale of bonds is used in financing the project.

In order to minimize the finance costs during construction, the schedule needs to be relatively aggressive, but at the same time responsible and achievable. The potential for weather delays and cost premiums for provisions such as liquidated damages could impact both schedule and the cost of the project.

## ■ Financial Plan

For this project, a simplified plan of finance needs to be developed in order to identify the potential bonding capacity of the toll project. To keep things simple, level debt service can be assumed, although more favorable terms can probably be achieved as more detailed finance plans are prepared as projects progress. The factors used in the finance plan used for this study, as well as when individual projects might progress, need to be based on conservative assumptions and include the cost of finance, interest rates, coverage ratios, and reserve accounts.

Most start-up toll projects today need some kind of credit enhancements and guarantees sufficient to gain an investment quality rating of BBB, or above. Absent this level of credit rating, it is practically impossible to market bonds. Even alternative finance strategies involving private equity investments are difficult to structure if the underlying credit rating would not achieve an investment grade.

Revenue guarantees from an established toll system/network can be utilized as toll equity for credit enhancement of a new toll project within that system.

## **Specific Assumptions and Limitations of Those Assumptions**

The specific limitations of the financial plan are as discussed below.

### ***Credit Quality***

Most new stand-alone toll projects and projects undertaken by start-up agencies involve project equity contributions and guarantees for both capital investment and ongoing operations. These can take the form of project development costs, direct capital contributions, assumption of schedule risk, operating and maintenance subsidies, and ridership guarantees.

### ***Statutory Limitations***

Legislation must be in place to allow an agency to form, issue investment quality debt, and for the State to support the financing of the project at the levels necessary to achieve an investment-grade rating. An element of this study will be to review those limitations.

### ***Debt Service Repayment***

For the purposes of this project, level debt service payments may be assumed. As the candidate projects are advanced, the tolling agency will want to hire a Financial Advisor to evaluate other potential debt structures to maximize bond proceeds.

### ***Debt Service Reserve Accounts***

The finance plan needs to include debt service reserve accounts funded by the bond issue. The reserve accounts in the preliminary finance plan are usually equal to 125 percent of the average annual debt service amount. In the event that additional reserve amounts are needed to achieve an investment-grade rating, other sources of funds will be needed to create these additional reserves.

### ***Debt Service Coverage***

When projects are financed, one of the mechanisms used to protect investors from revenue risk is to require that annual revenues exceed debt service by a certain ratio. The riskier the project, the higher this ratio will be. A debt service coverage ratio range of 1.4 to 1.7 times the annual debt service repayment amount is typically required for senior lien debt. This value could be even higher for a project that is perceived to be riskier. For this study, we will apply an appropriate value to the project within this range. The use of this coverage ratio is appropriately conservative based on the start-up nature of the projects and the underlying assumption of a BBB rating.

### ***Capitalized Interest During Construction***

Interest rate payments for the period between issuance of bonds and the start-up of revenue collection need to be capitalized and included in the bond amount. As noted above, it is desirable to minimize the need to capitalize interest during construction without risking the quality of the project itself.

### ***Cost of Finance***

Finance costs include bond underwriter fees, rating agency costs, preparation of bond documents, and other costs of issuance. For this project, we will assume that the cost of issuance is 1.5 percent of the bond size. This assumes that the debt is not insured to gain a higher rating. Ultimately, an evaluation as to whether insurance costs are offset by reduced interest rates would need to be conducted by a financial advisor as the candidate projects advance and more detailed plans of finance are prepared.

### ***Period of Finance and Interest Rates***

In today's cost and finance environment, a 40-year plan of finance is most suitable for the purposes of this preliminary study. In the past, this was closer to 30 years. Most private concession contracts are now 40, 50, or in the case of the recent Chicago Skyway sale, 99 years. The interest rates used need to be commensurate with a BBB rating, plus 50 basis points. Given current conditions, we anticipate that an interest rate in the range of 5.0 to 6.0 percent is reasonable. Interest rates are volatile, and changing rates over time can impact the feasibility of projects and the financial structure. We will test the impact of higher rates to determine the impact on project finances.

### ***Underlying Revenues***

The preliminary finance plan is to be based upon the traffic and revenues that are produced as part of this preliminary study. As the candidate projects advance, more detailed, investment-grade revenue studies need to be conducted, and the plan of finance would be refined accordingly.

### ***Project Equity and Secondary Sources of Funds***

Project equity and secondary sources of funds that might include subordinate debt, Transportation Infrastructure Finance Innovation Act (TIFIA) loans,<sup>81</sup> or direct contributions to the project may be required in order to finance the candidate projects. The need for project equity and secondary sources can be identified in the preliminary

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<sup>81</sup>TIFIA is a Federal program developed in Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) that provides credit enhancements to major projects. Credit enhancements could include subordinate loans or loan guarantees.

screening process, but these strategies need to be addressed in specific detail as the candidate projects advance to the preparation investment-grade revenues and more detailed plans of finance.

### *Implications for This Study*

The overall financial feasibility approach involves screening and evaluating toll policies and candidate toll projects. The ultimate goal of these toll feasibility tests is to provide an estimate of the total project cost compared with the economic value of a candidate toll project, typically expressed as the potential for the project to be funded through bonds. Due to conservative nature of these analyses, a further fine tuning of assumptions and a more detailed screening process may be necessary before an investment-grade analysis leading to a bond sale can take place.

As the results of this study are developed, we will:

- Clearly identify key risk factors in traffic/revenue, cost, and finance;
- For each factor, make conservative assumptions for analysis; and
- Perform range of sensitivity tests for each key factor or identify level at which (say for bond interest cost) project likely to not be viable.

This will provide the audience for the work an appreciation for the risk factors and limitations of the analysis.

*Background paper prepared by Cambridge Systematics, Inc. and PBS&J in January 2006.*

## Background Paper #7

# Tacoma Narrows Bridge Toll Policy

This contract has a separate and distinct task of addressing specific policy issues related to tolling on the Tacoma Narrows Bridge (TNB). Since the TNB is the first new toll facility to be implemented in Washington State, issues that have been raised on that project will provide insight into issues that might arise statewide.

The legislation (*ESSB 6091, Section 206, 1 (a)*) mandating this study, specifically states:

*“(a) The study must include an analysis of the only currently authorized toll facility, the Tacoma Narrows Bridge project. The study findings must include i) the development of more uniform and equitable policies regarding the distribution of financial obligations imposed on those paying the tolls on the Tacoma Narrows Bridge, and (ii) opportunities and options for reducing the outstanding indebtedness on the bridge project, including the possibility of buy-downs and other means of spreading the cost of the project more equitably.”*

From discussions with Commission and Washington State Department of Transportation (WSDOT) staff, as well as discussion at the September 20, 2005 Commission meeting, we understand that the motivation behind this directive is to consider policies to reduce the amount of project funding paid directly by TNB users. To undertake this analysis, we have conducted the following tasks:

1. Describe the TNB new construction project financing, based on official documentation and Washington statutes. This analysis will consider the underlying financial arrangements, payback mechanisms, and guarantees.
2. Describe the current toll policy projected in the TNB Financial Plan and the rationale for the projected toll rates. This will involve a review of available documents and discussions with those responsible for the toll policy.
3. Describe a few alternatives for toll setting on TNB to achieve the objective of reduced financial responsibility borne by toll payers.
4. Evaluate the alternatives identified in Item 3, from the following perspective:
  - Describe the proposed alternative.
  - Quantify or describe the assumptions used to form the alternatives.
  - Develop an approach to how an alternative could be carried out in a practical sense. This might include toll collection mechanisms and fiscal considerations. As part of this, we will identify the strengths and weaknesses of each alternative.
5. Consider the results of the analysis in Item 4 from the perspective of statewide tolling policy.

This analysis gives the Commission and the Legislature the information with which to make informed policy choices on this issue.

## ■ What is Equity and Uniformity?

At the heart of this task is the directive for “*the development of **more uniform and equitable** policies regarding the distribution of financial obligations imposed on those paying the tolls on the Tacoma Narrows Bridge.*” In order to carry out this task, it is important to lay out our understanding about the meaning of the key words “*more uniform and equitable.*”

The implication of these words is that the legislature may consider the current policies to be *less* uniform and equitable than desired. Based on our understanding of the criticism of the current policy, we understand the concerns to be as follows:

- The Tacoma Narrows Bridge will be the only toll facility in Washington, and tolls pay for almost 100 percent of the new span.<sup>82</sup>
- There are other high-value/high-cost facilities in the State that are not tolled.
- Although there are tolls on the ferries, the cost of operating the ferries is subsidized by fuel tax revenue, and the cost of buying ferries is entirely subsidized by fuel tax revenue.
- Therefore, users of the TNB have been singled out for special treatment, in that they have to pay tolls, while users of other facilities do not. This is the source of the characterization of the tolls on the TNB as less uniform and equitable.

In seeking a *more* uniform and equitable policy, it is important to understand two constraints:

1. The financial plan for the Tacoma Narrows Bridge relies on toll collections to reimburse the motor vehicle fuel tax fund. Any change in the toll policy would require a change in the financial plan for the Tacoma Narrows Bridge.
2. Few revenue collection policies are perfectly uniform and equitable.

Some stakeholders have expressed that TNB users have been singled out in that they have to pay tolls while users of other facilities do not. This is why the proposed TNB tolls are

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<sup>82</sup>WSDOT indicates that there are significant portions of the Tacoma Narrows Bridge projects that are paid for by tax revenues; therefore, the project is not 100 percent paid for from tolls. However, this does not change the fact that Tacoma Narrows is currently the only toll project in the State.

viewed as not being equitable or uniform. In seeking a more equitable and uniform TNB tolling policy, it should be noted that equity can be defined in various ways:<sup>83</sup>

- **Geographic** – Are we being treated fairly with respect to other geographic areas?
- **Income** – Are we adversely impacting low-income populations?
- **Participation** – Are we being inclusive with respect to community participation?
- **Opportunity** – Were candidate projects given equitable consideration?
- **Modal** – Are different modes of transport being treated equitably?

The equity concerns that have been raised by stakeholders on the proposed TNB tolls pertain primarily to **geographic equity**, as well as opportunity and modal equity to a limited extent. Since the bridge project was developed with extensive public participation, including extensive evaluation of alternatives, participation and opportunity equity are not really issues here. Income equity has not been raised as a particular concern.

In order to resolve geographic and opportunity equity concerns, policies to expand the use of tolls around the State should be considered. This is exactly the scope of the tolling study as a whole. If multiple tolling projects in the State are implemented, the TNB will no longer be the only toll facility in Washington. A more complete discussion of geographic equity with respect to the TNB is provided in Background Paper #4: Equity, Fairness, and Uniformity.

With respect to modal equity, the key consideration is how the TNB tolls compare to those of the Washington State Ferries. The current round trip vehicle/driver fare between Fauntleroy and Southworth is \$20.60 peak and \$16.40 off-peak; the round trip vehicle/driver fare between Seattle and Bremerton is \$26.60 peak and \$21.20 off-peak.<sup>84</sup> These fares do not include other passengers in addition to the driver, who are charged separately. Ferry fares are significantly higher on a per passenger basis than the TNB tolls, which currently are envisioned to be \$3.00 in the opening year.

In considering potential ways that could make the TNB toll policy more uniform and equitable, we explore two types of approaches:

1. Various ways of reducing the toll amount to users of the Tacoma Narrows Bridge, both as a whole, and for particular groups; and
2. Various ways of expanding the use of tolls around the State.

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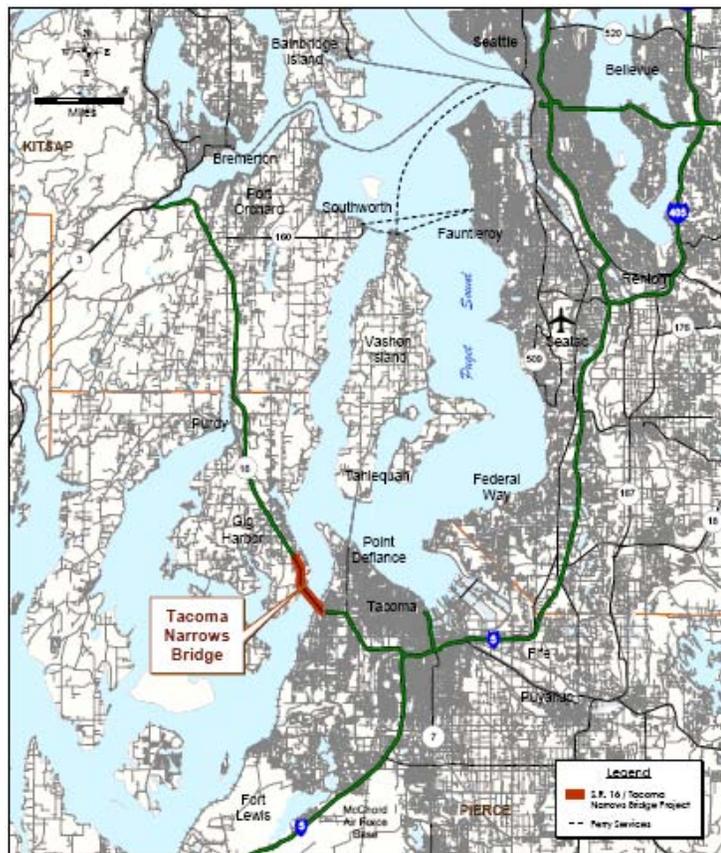
<sup>83</sup>See also *Background Paper #4: Equity, Fairness and Uniformity and Tolling*.

<sup>84</sup>Washington State Ferries web site: [http://www.wsdot.wa.gov/ferries/info\\_desk/fares/](http://www.wsdot.wa.gov/ferries/info_desk/fares/).

## ■ About the Tacoma Narrows Bridge Project

The TNB connects the Kitsap Peninsula with the City of Tacoma on State Route 16 (SR 16). The existing TNB was completed in 1950 as a toll bridge, with a toll rate of \$1.00, which is equivalent to \$8.77 in 2005 dollars. Tolls were removed in 1965 after the bonds that financed the project were retired. The existing bridge has four general purpose lanes (two in each direction) and is the only roadway connection between the Kitsap Peninsula and the south and east side of Puget Sound. In 2004, the TNB carried about 86,000 vehicles per day. Ferries serving the Kitsap peninsula carried about 19,000 vehicles per day.<sup>85</sup> Exhibit 7.1 shows the location of the TNB project.

### Exhibit 7.1 Tacoma Narrows Bridge Project Location



Source: *Tacoma Narrows Bridge Traffic and Revenue Study Update – Base Case*, Figure 1, Wilbur Smith Associates, September 2005.

<sup>85</sup> *Tacoma Narrows Bridge Traffic and Revenue Study Update – Base Case*, Table 1, page 2; Wilbur Smith Associates, September 2005.

The TNB project involves the construction of a new suspension bridge, adjacent to the existing bridge, to provide three eastbound lanes – two general purpose lanes and one HOV lane. The existing bridge will be reconfigured to provide three westbound lanes – also two general purpose and one HOV. The TNB project also includes improvements to 3.4 miles of SR 16 in the immediate vicinity of the bridge, from the Jackson Avenue interchange in Tacoma to a new interchange at 24<sup>th</sup>/36<sup>th</sup> Streets. The provision of additional traffic capacity; standard-width lanes and shoulders; separation of eastbound and westbound traffic; improved pedestrian and bike travel; improved interchange connections; and higher seismic design standards will help improve safety and traffic movement.<sup>86</sup> The TNB project is scheduled to open to the public in April 2007. The legislature has allocated \$849 million for the project, which includes project development and financing costs.

The TNB project is one element of an overall corridor improvement on SR 16. The other SR 16 project elements involve widening the highway to accommodate a new HOV lane in each direction between Tacoma and Gig Harbor. These other SR 16 project costs are estimated to be another \$384 million, bringing the total cost of projects in the SR 16 corridor to \$1,233 million.

## ■ Tacoma Narrows Bridge Project Financial Plan

WSDOT has developed a finance plan<sup>87</sup> for the TNB project which assumes the sale of several rounds of general obligation bonds to fund the project. A summary of the plan is provided below.

### Capital Funding Sources

In the 2002 session, the Washington State Legislature specified a funding arrangement for up to \$849 million for the TNB project. Of this amount, WSDOT was authorized to arrange with the State Treasurer for the sale of up to \$800 million in tax-exempt bonds, backed by the State's gas tax issued under the authority of RCW 47.10.843. Not all of the bonds will necessarily be sold. Only those amounts necessary to pay for the project and/or project financing will be offered. For planning purposes, it was assumed that bonds would sell throughout the project at an interest rate of 5.85 percent, a projected interest rate that was 50 basis points above the current market conditions at the time the projection

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<sup>86</sup>Tacoma Narrows Bridge Project Financial Plan Version 1.0, page 1, WSDOT, July 2002.

<sup>87</sup>Tacoma Narrows Bridge Project Financial Plan Version 1.0, page 1, WSDOT, July 2002. Note that this plan currently is being updated by WSDOT to reflect an updated traffic and revenue study and recent trends in bond interest rates.

was made. The balance of the funds will be from state cash sources (the Motor Vehicle Fund and investment income).

In practice, the bonds are to be paid by Tacoma Narrows Bridge tolls. Details on how this works are provided below. This means that tolls will be paying for 94.2 percent of the cost of the Tacoma Narrows Bridge project itself, and 64.9 percent of the entire corridor improvement.

The capital costs are expected to be expended from FY 2002 to FY 2008. About \$761 million in construction and development costs and \$88 million of financing and toll preparation costs bring to the total cost to \$849 million (see Table 7.1).

**Table 7.1 Sources and Uses of Capital Construction Funds**

State Fiscal Years 2002-2008	Millions of Dollars
<b>Sources of Funds</b>	
Bond Proceeds	\$800
Cash Transfer from Motor Vehicle Fund	39
Investment Income	10
<b>Total Source of Funds</b>	<b>\$849</b>
<b>Uses of Funds</b>	
Design-Build Contract	\$615
Construction Management and Oversight	41
Project Contingency and Toll System Supply	64
Phase 1 Development Costs	41
<b>Subtotal</b>	<b>\$761</b>
Minimum Fund Balance	6
Toll Preparation	1
Financing Costs	8
Reserve for Capitalized Interest	73
<b>Total Uses of Funds</b>	<b>\$849</b>

Source: Tacoma Narrows Bridge Project Financial Plan Version 1.0, page 9, WSDOT, July 2002.

## Operating Costs, Debt Service, and Toll Revenue

The revenue expected from tolling the TNB eastbound bridge, starting in 2007, will be used to serve two functions:

1. Payment of ongoing TNB operations and maintenance (O&M) costs; and
2. Payment for principal and interest on the bonds that were issued to fund the TNB project capital costs.

These cost projections, shown in Table 7.2, have been updated since the July 2002 version of the Financial Plan.

**Table 7.2 TNB Project Operations and Maintenance Costs**

State Fiscal Year	Estimated Operations and Maintenance Costs (Millions of Dollars)			
	Toll Operating and Maintenance	Renewal and Replacement (R&R)	Deferred Sales Tax	Total Toll Operations Costs
2007 <sup>a</sup>	\$8.615	-	-	\$8.615
2008	13.961	0.162	-	14.123
2009	14.370	0.251	-	14.621
2010	14.833	0.182	-	15.015
2011	15.290	0.245	-	15.535
2012	15.746	0.304	2.851	18.901
2013	16.264	0.208	5.702	22.174
2014	16.734	0.237	5.702	22.673
2015	17.206	2.193	5.702	25.101
2016	17.789	3.751	5.702	27.242
2017	18.440	2.851	5.702	26.993
2018	18.692	1.654	5.702	26.048
2019	19.170	0.724	5.702	25.596
2020	19.652	0.311	5.702	25.665
2021	20.156	0.549	5.702	26.407
2022	20.678	1.056	2.851	24.585
2023	21.219	2.486	-	23.705
2024	21.773	1.993	-	23.766
2025	22.345	0.977	-	23.322
2026	23.048	2.737	-	25.785
2027	23.687	3.877	-	27.564
2028	24.146	2.683	-	26.829
2029	24.781	1.395	-	26.176
2030	25.434	2.697	-	28.131

Source: *Toll Operations Summary*, Excel forecast spreadsheet, WSDOT, transmitted December 2005.

EHB 2723 and RCW 47.46.060 allow WSDOT to defer payment of state and local sales taxes on construction costs until five years after the commencement of tolling (FY 2012).

This tax payment method allows toll revenues to grow before the taxes are paid and is expected to help keep an opening toll rate at \$3.00. The deferred sales taxes will be paid back from FY 2012 to FY 2022, as shown in the second column to the right.

The toll schedule assumed in the current finance plan involves an initial TNB toll in the eastbound direction of \$3.00 per automobile in 2007, with future increases in \$1.00 increments every three years until a maximum of \$6.00 is reached. This base case was projected to pay off all TNB project debt service by FY 2030, as shown in Table 7.3.

Table 7.3 shows the sum of FY 2007 to FY 2030 TNB gross toll revenue as being \$2.159 billion. While this represents a revision downward of 6.4 percent from the July 2002 version of the Financial Plan, TNB project debt service is still projected to be paid off by FY 2030. This is because the estimated debt service costs were revised downward by 12.0 percent due to a substantial amount of debt having been sold at lower rates than what was originally assumed.<sup>88</sup> The year all debt will be paid off will ultimately be determined by the final financing costs of the project and the actual toll revenue collected.<sup>89</sup>

## Relationship Between Bonds and the Motor Vehicle Fund

Through **EHB 2723** and **RCW 47.46**, the State Legislature requires that the gas tax revenues used for debt service on bonds sold for the TNB project be reimbursed from future deposits to the Tacoma Narrows Toll Bridge account (from tolls and other revenues). Furthermore, RCW 47.56.165 (4) states that the fund must be replenished on or before each debt service date:

*Toll charges must remain on any facility financed by bonds issued by the State for a length of time necessary to repay the motor vehicle fund for any amounts expended from that fund for the design, development, right-of-way, financing, construction, maintenance, repair, or operation of the toll facility or for amounts transferred from the motor vehicle fund to the highway bond retirement fund under RCW 47.10.847 to provide for bond retirement and interest on bonds issued for the Tacoma Narrows public-private initiative project.*

This implies that the tolls must stay on until all of those expenditures occur. It does not necessary say that they must be taken off after a specified period of time. However, RCW 47.46.110(3)(a) provides that once the Tacoma Narrows Bridge bonds are repaid, the facility must be operated as a toll free facility.

Buying down the debt on the TNB would mean that the legislature would need to appropriate funds into the MV fund specifically to pay for debt service. Funds would have to be transferred into the TNB account, then transfer them back when debt is due to reimburse the MV fund. This would be a complex arrangement but would not require any changes to underlying laws.

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<sup>88</sup>TNB Financial Plan 2005 JULY Forecast, Excel spreadsheet, WSDOT, transmitted September 2005.

<sup>89</sup>Tacoma Narrows Bridge Project Financial Plan Version 1.0, page 11, Washington State DOT, July 2002.

**Table 7.3 Expected Use of TNB Toll Revenue Through 2030**

Net Toll Revenue and Debt Service Coverage (Millions of Dollars)					
State Fiscal Year	Gross Toll Revenue	Projected O&M Costs and Deferred Sales Tax <sup>b</sup>	Net Toll Revenue <sup>c</sup>	Estimated Debt Service	Debt Service Coverage <sup>d</sup>
2007 <sup>a</sup>	\$10.215	\$8.615	\$1.600	(e)	0.0%
2008	43.177	14.123	29.054	21.390	135.8%
2009	45.070	14.621	30.449	30.254	100.6%
2010	53.173	15.015	38.158	37.746	101.1%
2011	61.777	15.535	46.242	44.440	104.1%
2012	63.349	18.901	44.448	42.929	103.5%
2013	72.519	22.174	50.345	48.094	104.7%
2014	82.127	22.673	59.454	56.026	106.1%
2015	84.005	25.101	58.904	55.794	105.6%
2016	92.977	27.242	65.735	62.574	105.1%
2017	101.878	26.993	74.885	71.525	104.7%
2018	103.053	26.048	77.005	74.040	104.0%
2019	104.240	25.596	78.644	76.247	103.1%
2020	105.441	25.665	79.776	78.009	102.3%
2021	106.837	26.407	80.430	79.098	101.7%
2022	108.439	24.585	83.854	82.339	101.8%
2023	110.066	23.705	86.361	84.522	102.2%
2024	111.717	23.766	87.951	85.166	103.3%
2025	113.392	23.322	90.070	87.654	102.8%
2026	114.814	25.785	89.029	86.692	102.7%
2027	115.962	27.564	88.398	86.092	102.7%
2028	117.122	26.829	90.293	87.643	103.0%
2029	118.293	26.176	92.117	89.367	103.1%
2030	119.475	28.131	91.344	88.394	103.3%

Source: *Toll Operations Summary*, Excel forecast spreadsheet, WSDOT, transmitted December 2005.

Notes: <sup>a</sup> It is assumed that the project will be ready for tolling April 2007. The base toll is scheduled to increase from \$3.00 to \$4.00 in January 2010, from \$4.00 to \$5.00 in January 2013, and from \$5.00 to \$6.00 in January 2016.

<sup>b</sup> O&M costs and deferred sales taxes displayed previously in Table 7.2.

<sup>c</sup> Gross toll revenue minus O&M costs and deferred sales taxes.

<sup>d</sup> Ratio of net toll revenue to debt service.

<sup>e</sup> Paid from escrow.

If the tolls turn out to be inadequate to meet the debt service payment schedule, the toll levels may need to be adjusted upwards or else the transfers described above would need to take place. Since the projected debt service coverage ratio through 2030 from the original Financial Plan is 1.04, the risk of inadequate toll revenue (assuming the base case toll structure) is not insignificant.

## ■ What is the Tolling Policy for the Tacoma Narrows Bridge?

The Transportation Commission is the State's tolling authority, and as such, has the responsibility of setting tolls:

*(1) The commission shall fix the rates of toll and other charges for all toll bridges built under this chapter that are financed primarily by bonds issued by the State. Subject to RCW 47.46.090, the commission may impose and modify toll charges from time to time as conditions warrant.<sup>90</sup>*

A governor-appointed citizen advisory committee consisting of nine permanent residents of the affected area is to be established to provide advice to the Commission on the toll to be set.<sup>91</sup> As of this writing the Commission has not yet taken action on toll setting for the Tacoma Narrows Bridge. WSDOT staff advised us that the anticipated schedule of toll setting activities is as follows:

1. Governor appoints Citizen Advisory Committee (CAC): Early 2006;
2. CAC Workshops: Spring-summer 2006;
3. Transportation Commission workshops on toll setting: April and July 2006;
4. CAC recommends toll amounts to Commission no later than 90 days prior to toll commencement (about December 2006 based on an April 2007 opening);
5. Commission hearing on toll setting: January 2007; and
6. Commission sets tolls: March 2007.

### **Toll Rates Assumed in the Financial Plan**

The Financial Plan assumes the collection of tolls from all vehicles on the new eastbound bridge, with the following conditions (see Table 7.4):

- The completed TNB project will be open to the public and tolls will be collected on the eastbound bridge starting on April 2, 2007.
- The toll rate for all vehicles will be \$3.00 for all of 2007.

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<sup>90</sup>RCW 47.46.100.

<sup>91</sup>RCW 47.46.090.

- The toll rate per automobile will be \$3.00 from 2007 to 2009, \$4.00 from 2010 to 2012, \$5.00 from 2013 to 2015, and \$6.00 from 2016 on.
- Beginning in 2008, vehicles with more than two axles (i.e., autos with trailers; trucks) will be charged higher tolls than two-axle vehicles in proportion to the number of axles (capped at a maximum of six axles). For example, a four-axle vehicle is charged twice the auto toll; a vehicle with six axles or more is charged three times the auto toll.

**Table 7.4 Tacoma Narrows Bridge Toll Rates Assumed in Current Financial Plan**

	2007	2008-2009	2010-2012	2013-2015	2016-2030
Automobiles (Two Axles)	\$3.00	\$3.00	\$4.00	\$5.00	\$6.00
Three-axle Vehicles	\$3.00	\$4.50	\$6.00	\$7.50	\$9.00
Four-axle Vehicles	\$3.00	\$6.00	\$8.00	\$10.00	\$12.00
Five-axle Vehicles	\$3.00	\$7.50	\$10.00	\$12.50	\$15.00
Six- or More Axle Vehicles	\$3.00	\$9.00	\$12.00	\$15.00	\$18.00

Source: WSDOT.

Note: The toll would apply to all vehicles that use the eastbound TNB. Automobiles with a trailer would be charged according to the total number of axles (two axles for the auto plus the axle(s) for the trailer).

Development of the initial TNB \$3.00 toll and the graduated toll schedule was the result of planning, engineering, financing, and public involvement work by the United Infrastructure Washington, Inc. (UIW), their subconsultants, and WSDOT prior to the 1998 Public Advisory Election that proposed the improvements and imposition of tolls. Those conditions were maintained as the project transitioned to public financing since public expectation had been set – especially with respect to the opening toll of \$3.00. The Commission has yet to take a formal action on setting the TNB tolls.

## ■ Public Attitudes Regarding TNB Tolls

A survey of 800 TNB users conducted in March 2005 by Lawrence Research regarding the TNB project found that:<sup>92</sup>

- Sixty percent were under the impression that the initial toll would be \$3.00;
- Twenty-three percent thought the initial toll would be more than \$3.00;
- Five percent thought the initial toll would be less than \$3.00; and
- Twelve percent had no opinion.

The same TNB user survey also asked respondents to pick a statement that came closest to their own feelings regarding the plan to increase the toll from \$3.00 to \$6.00 in dollar increments every three years. The survey found that:

- Forty-six percent dislike the plan but will live with it;
- Thirty-two percent dislike the plan and intend to complain;
- Ten percent thought this was a good plan;
- Ten percent thought the plan was not a big deal; and
- Two percent had no opinion.

## ■ Evaluation of Alternative Toll Structures

Cambridge Systematics worked with the Commission and with WSDOT staff to develop several policy options that would reduce the amount of project funding that is paid directly by TNB users:

1. Reduced toll for frequent users;
2. Buying down the toll amount for everyone;
3. Subsidizing the toll during the later years of operation; and
4. Policies to expand the use of tolls around the State.

The primary rationale of policy Scenarios 1 to 3 is clearly to reduce TNB tolls for affected groups. Scenario 1 targets a specific group; Scenarios 2 and 3 are more general.

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<sup>92</sup>A Study of Tacoma Narrows Bridge Users, Lawrence Research, March 2005.

Scenario 4 is different. Rather than developing toll reductions, it looks to achieve geographic equity by expanding the use of tolls around the State. This is a potential outcome of actions that evolve from this Comprehensive Tolling Study.

Scenarios 1 to 3 are each evaluated to follow based on the following perspectives:

- **Description** – What is the illustrative toll policy being tested?
- **Equity and Uniformity** – Is the proposed policy more uniform and equitable than the base case?
- **Operational Impacts** – What effects would the proposed policy have with respect to TNB operations (i.e., toll collection and enforcement processes)?
- **Traffic Impacts** – What effects would the proposed policy have on traffic volumes?
- **Fiscal Impacts** – What effects would the proposed policy have on toll revenue, and the ability of toll revenue to pay back the motor vehicle fund for bond repayment?

In evaluating the traffic and fiscal impacts, we made use of the most recent traffic and revenue study prepared for the project:

- In August 2002, WSA prepared the *SR 16 Tacoma Narrows Bridge Traffic and Revenue Study*. Traffic and revenue projections for the expanded TNB were developed from 2007 to 2030 on the basis of data that included extensive travel pattern and trip characteristic surveys, historical traffic trends, projections of regional economic growth, and stated-preference surveys conducted by Resource Systems Group on motorists' value of time and willingness to pay tolls.<sup>93</sup>
- In September 2005, WSA prepared the *Tacoma Narrows Bridge Traffic and Revenue Study Update – Base Case* which updated the 2002 results by taking into account more recent traffic volume data and demographic forecasts.<sup>94</sup> The primary impact of the study update was a reduction in the projected traffic volumes and toll revenue due to lower experienced traffic growth than previously expected and reductions in regional employment and housing growth forecasts.

Our analysis is based on the WSA forecasts prepared in 2005. WSA projected that if the TNB toll was held at a flat rate, TNB traffic volumes and toll revenue would increase by 2.5 percent annually from 2007 to 2015, by 1.2 percent annually from 2016 to 2020, by

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<sup>93</sup>S.R. 16 *Tacoma Narrows Bridge Traffic and Revenue Study*, Transmittal Letter page 1, Wilbur Smith Associates, August 2002.

<sup>94</sup>*Tacoma Narrows Bridge Traffic and Revenue Study Update – Base Case*, page 3, Wilbur Smith Associates, September 2005.

1.5 percent annually from 2021 to 2025, and by 1.0 percent annually from 2026 to 2030.<sup>95</sup> The forecast period for this analysis is through the year 2030, which is when the TNB bonds are projected to be paid off (i.e., all debt service payments have been made).

The WSA report also investigates the elasticity of traffic and revenue to higher toll rates. Elasticity is the percent change in traffic volumes resulting from every one percent change in the toll rate. The WSA study does not provide TNB elasticity estimates directly. However, background data provided by WSA does contain sufficient information for the elasticity to be derived.<sup>96</sup> The elasticity used for TNB is about -0.07, meaning that a 100 percent toll increase (i.e., doubling the toll) would result in a 7 percent drop in traffic volumes. This is relatively inelastic (a limited reduction in travel relative to the change in toll) when compared to other tolling applications, but makes sense for TNB given the absence of alternative routes in the area.

Note that WSA currently is under contract to WSDOT to study alternative toll schedules, including discounts for specific types of travelers and time-of-day pricing. These estimates were not available in time for this report.

## **Scenario 1: Reduced Toll for Frequent Users (TNB Discount Program)**

### *Description*

Various means to provide frequent users with a toll discount were considered. The scenario that is presented for this analysis is based on the Chesapeake Expressway Discount Program in Virginia. Users of the Chesapeake Expressway have the option to enroll in the discount program with payment of an upfront membership fee each month, and are then entitled to tolls that are significantly discounted from the regular tolls.<sup>97</sup>

The scenario selected for this analysis is shown in Table 7.5:

- The TNB Discount Program membership fee starts at \$9.00 per month in 2007, escalating to \$12.00 per month in 2010, \$15.00 per month in 2013, and \$18.00 per month from 2016 on.
- TNB Discount Program members are then entitled to tolls that are 50 percent of the regular TNB tolls. For two-axle automobiles, this equates to \$1.50 in 2007, escalating to \$2.00 in 2010, \$2.50 in 2013, and \$3.00 from 2016 on. For vehicles with more than two axles, the discounted toll is higher in proportion to the number of axles (capped at a maximum of six axles).

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<sup>95</sup> *Tacoma Narrows Bridge Traffic and Revenue Study Update – Base Case*, Table 3, page 11, Wilbur Smith Associates, September 2005.

<sup>96</sup> *Annual Transactions and Revenue\_To Client.xls*, transmitted by WSA, November 2005.

<sup>97</sup> <http://www.chesapeakeexpressway.com/discount.cfm>.

**Table 7.5 Potential TNB Toll Structure**  
*Scenario 1: Reduced Toll for Frequent Users*

	2007	2008-2009	2010-2012	2013-2015	2016-2030
Regular Toll	\$3.00	\$3.00	\$4.00	\$5.00	\$6.00
Or: Monthly Membership Fee	\$9.00	\$9.00	\$12.00	\$15.00	\$18.00
Plus Discounted Toll	\$1.50	\$1.50	\$2.00	\$2.50	\$3.00

Source: Cambridge Systematics.

Note: Enrollment in the TNB Discount Program is voluntary. Users who enroll in the program pay an upfront membership fee each month and pay the discounted toll (instead of the regular toll) each time they cross the eastbound TNB.

Starting in 2008, vehicles with more than two axles are charged a toll in proportion to the number of axles (capped at a six-axle maximum toll). This is applicable to both the regular toll and the discounted toll.

As with the Chesapeake Expressway, enrollment in the TNB Discount Program is voluntary. In order to receive savings from enrolling in the program, users must make an average of roughly two round trips across the TNB per week (i.e., eight round trips per month). The total savings each month for users of two-axles automobiles in the year 2007 are roughly as follows:

- **Two trips per week** (8 trips per month) – \$3.00 monthly savings (13%)
- **Three trips per week** (12 trips per month) – \$9.00 monthly savings (25%)
- **Four trips per week** (17 trips per month) – \$16.50 monthly savings (32%)
- **Five trips per week** (22 trips per month) – \$24.00 monthly savings (36%)
- **More than six trips per week** (30 trips per month) – \$36.00 monthly savings (40%)

Total monthly savings will increase from the year 2010 on. The percent savings will remain roughly the same.

### *Equity and Uniformity*

By reimposing a toll on the Tacoma Narrows crossing, the State is changing the rules. For people that use the bridge infrequently the toll amount may be uncomfortable, but may not be a significant factor. For people that rely on crossing the Tacoma Narrows on a regular basis, the higher level of toll is seen by some as a burden. The discount concept in Scenario 1 is intended to mitigate this burden.

A toll system based on frequency of use is less uniform than a flat toll schedule. In terms of equity, travelers that have built their lives around crossing the Narrows without tolls

may be seen as having inequitable treatment from others around the State that can cross other bridges for no toll. It is important to remember, though, that Washington has a history of using tolls to finance bridge crossings. The current situation of having no tolls on any bridges is actually an anomaly. Depending on the decisions taken by the legislature after this study is completed, it could be that more bridge crossings will be tolled in Washington as the need to fund improvements continues.

Washington may choose to allow a frequent user discount for business reasons. Businesses often use frequent-user programs to encourage customer loyalty (such as airline clubs). Since there are no other business alternatives to the TNB (aside from the ferries, which also charge tolls, the revenue for which goes to the State), there is little case to be made on these grounds. Sometimes, frequent user discounts are used simply as a goodwill gesture. This could be an appropriate use, should the legislatures choose to do so, however as will be shown later, there is a considerable revenue shortfall that will need to be made up to accomplish this.

### ***Operational Impacts***

A range of technical and operational issues would need to be addressed if such a frequent user discount program was implemented. The key issues are described to follow.

- **Electronic Toll Collection (ETC) Accounts Only** – Implementation of this discount should only be allowed for users whose vehicles are equipped with transponders. This is because the difficulty of tracking and accounting for individual users in the manual lanes would result in a decreased level of efficiency, require cumbersome user identification verification processes, and require extensive modifications to the electronic toll collection software system.
- **Up-Front Processing** – The toll collection system being installed at TNB does not at this time have the capability to address up-front payments to purchase an alternative toll amount. However, changes to the software application would be possible.
- **Who is Eligible for Discounts** – The revenue analysis assumed that discounts would be applied at the vehicle level – meaning that the \$9.00 up front payment applies to individual vehicles, not to accounts with multiple vehicles.

In summary, although introducing volume discounts into the tolling system would require changes to the system now being designed, it would not cause significant long-term operational impacts, and the cost of these changes should not be significant in the larger scheme of the project.

### *Traffic and Fiscal Impacts*

The 2002 WSA study found that 40.6 percent of surveyed TNB weekday trips were regular work trips, and the other 69.4 percent were for other trip purposes (mostly personal business, social, and recreation). This helps provide insight on the weekday trip frequency findings, which were as follows: <sup>98</sup>

- **44.2 percent of TNB round trips** involve drivers who make the trip one time a week or less. Such drivers would have no financial incentive to enroll in the TNB Discount Program.
- **9.1 percent of TNB round trips** involve drivers who make the trip two times a week, which is roughly eight to nine trips per month. Such drivers could receive monthly savings of about 13 percent by enrolling in the TNB Discount Program.
- **8.3 percent of TNB round trips** involve drivers who make the trip three times a week, which is roughly 12-13 trips per month. Such drivers could receive monthly savings of about 25 percent from the TNB Discount Program.
- **5.7 percent of TNB round trips** involve drivers who make the trip four times a week, which is roughly 17-18 trips per month. Such drivers could receive monthly savings of about 32 percent from the TNB Discount Program.
- **21.4 percent of TNB round trips** involve drivers who make the trip five times a week, which is roughly 21-22 trips per month. Such drivers could receive monthly savings of about 36 percent from the TNB Discount Program.
- **10.2 percent of TNB round trips** involve drivers who make the trip six or more times a week, which equates to 26 trips per month or more. Such drivers could receive monthly savings of about 40 percent from the TNB Discount Program.
- **1.1 percent of TNB round trips** did not have trip frequency stated. For purposes of this analysis, these trips were not assumed to be made by frequent users.

Assuming that all drivers who could receive monthly savings by enrolling in the TNB Discount Program do enroll (i.e., all drivers who make two or more round trips across the TNB per week), an estimated total of **54.7 percent of total TNB trips** would receive a frequent user discount, with the monthly discount ranging from roughly 13 to 40 percent. This is projected to result in **4.7 million more vehicle trips (+1.18 percent)** and a **\$358.3 million loss in revenue (-16.14 percent)** over the 2007 to 2030 forecast period, relative to the base case tolling scenario. There also will be some additional operations costs associated with administration of a TNB Discount Program. The traffic and fiscal impacts of this scenario on an annual basis are provided in the Summary of Traffic and Fiscal Impacts section to follow.

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<sup>98</sup>SR 16 Tacoma Narrows Bridge Traffic and Revenue Study, Tables 10 and 11, pages 23-24, Wilbur Smith Associates, August 2002.

## **Scenarios 2 and 3: Buying Down the Toll Amount for Everyone, or Subsidizing the Toll During the Later Years of Operation**

### *Description*

Scenario 2 involves starting with a \$2.00 toll in 2007, then raising the toll in \$1.00 increments every three years until it becomes \$5.00 in 2016, after which it would remain flat. Relative to the base case tolling scenario, this keeps the auto toll amount lower by \$1.00 throughout the 2007 to 2030 forecast period. As with the base case, the toll for vehicles with more than two axles would be higher in proportion to the number of axles starting in 2008 (capped at a six-axle maximum toll).

Scenario 3 involves starting with a \$3.00 toll in 2007, then keeping the toll fixed at \$3.00 through 2030 rather than having the toll escalate over time. The toll for vehicles with more than two axles would be higher starting in 2008.

### *Equity and Uniformity*

As with the base case tolling scenario, Scenarios 2 and 3 provide a toll structure that has a uniform axle-based toll for all vehicles. These scenarios offer a lower average toll to travelers than the base case over the 2007 to 2030 forecast period. This gets the cost closer to the “free” level that other drivers experience currently on other highways and bridges, and is more equitable from that perspective. This distinction would change, however, if additional toll projects, especially for bridges, were developed in Washington.

### *Operational Impacts*

These scenarios have no particular operational impacts that differentiate them from the base case tolling scenario.

### *Traffic and Fiscal Impacts*

With Scenario 2, the TNB toll for autos would be \$1.00 lower than the base case when the new bridge opens in 2007, and would stay \$1.00 lower through 2030. Doing this is projected to result in **5.5 million more vehicle trips (+1.38 percent)** and a **\$391.0 million loss in revenue (-17.61 percent)** over the 2007 to 2030 forecast period.

With Scenario 3, the TNB toll for autos would stay fixed at \$3.00 through 2030. Doing so is projected to result in **11.5 million more vehicle trips (+2.87 percent)** and a **\$941.7 million loss in revenue (-42.41 percent)** over the 2007 to 2030 forecast period.

The annual traffic and fiscal impacts of these scenarios are provided next in the “Summary of Traffic and Fiscal Impacts” section.

## Summary of Traffic and Fiscal Impacts

Table 7.6 shows the projected annual traffic volumes of Scenarios 1 to 3 from 2007 to 2030, as compared to the base case. The scenarios are sorted in order, with the base case having the lowest total traffic volumes and Scenario 3 having the highest.

**Table 7.6 Annual Traffic Volumes by Scenario**

Year	Base Case: \$3.00 Toll Ramping to \$6.00 Toll	Scenario 1: TNB Discount Program	Scenario 2: Buy-down Toll by \$1.00 Each Year	Scenario 3: Toll Constant at \$3.00
2007	10,525,171	10,649,820	10,770,733	10,525,171
2008	14,311,316	14,480,804	14,645,213	14,311,316
2009	14,670,159	14,843,897	15,012,429	14,670,159
2010	14,709,500	14,883,704	14,966,916	14,966,916
2011	15,084,126	15,262,766	15,348,098	15,348,098
2012	15,468,292	15,651,483	15,738,987	15,738,987
2013	15,663,846	15,849,353	15,883,140	16,102,434
2014	16,022,077	16,211,826	16,246,386	16,470,695
2015	16,388,500	16,582,588	16,617,939	16,847,378
2016	16,281,976	16,474,803	16,471,970	16,851,845
2017	16,469,589	16,664,638	16,661,773	17,046,025
2018	16,659,364	16,856,661	16,853,763	17,242,442
2019	16,851,326	17,050,896	17,047,964	17,441,123
2020	17,045,500	17,247,369	17,244,404	17,642,093
2021	17,301,183	17,506,080	17,503,070	17,906,724
2022	17,560,700	17,768,671	17,765,616	18,175,325
2023	17,824,111	18,035,201	18,032,100	18,447,955
2024	18,091,472	18,305,729	18,302,582	18,724,674
2025	18,362,844	18,580,315	18,577,121	19,005,544
2026	18,546,473	18,766,118	18,762,892	19,195,599
2027	18,371,938	18,953,779	18,950,521	19,387,555
2028	18,919,257	19,143,317	19,140,026	19,581,431
2029	19,108,450	19,334,750	19,331,426	19,777,245
2030	19,299,534	19,528,098	19,524,740	19,975,018
<b>Total</b>	<b>399,896,705</b>	<b>404,632,666</b>	<b>405,399,809</b>	<b>411,381,752</b>

Table 7.7 shows the projected annual toll revenue of Scenarios 1 to 3 from 2007 to 2030, as compared to the base case. The scenarios are sorted in order, with the base case having the highest total toll revenue and Scenario 3 having the lowest. While Scenarios 1 to 3 all have higher traffic volumes than the base case, the average toll paid per vehicle is lower which has a net result of lower toll revenue.

**Table 7.7 Annual Toll Revenue by Scenario**

Year	Base Case: \$3.00 Toll Ramping to \$6.00 Toll	Scenario 1: TNB Discount Program	Scenario 2: Buy-down Toll by \$1.00 Each Year	Scenario 3: Toll Constant at \$3.00
2007	\$31,575,512	\$26,480,497	\$21,541,467	\$31,575,512
2008	\$44,522,503	\$37,338,365	\$30,374,172	\$44,522,503
2009	\$45,638,865	\$38,274,591	\$31,135,777	\$45,638,865
2010	\$61,015,006	\$51,169,642	\$46,562,076	\$46,562,076
2011	\$62,568,953	\$52,472,845	\$47,747,932	\$47,747,932
2012	\$64,162,477	\$53,809,238	\$48,963,990	\$48,963,990
2013	\$81,217,044	\$68,111,886	\$65,883,266	\$50,094,673
2014	\$83,074,469	\$69,669,597	\$67,390,009	\$51,240,332
2015	\$84,974,373	\$71,262,933	\$68,931,211	\$52,412,193
2016	\$101,306,455	\$84,959,675	\$85,407,167	\$52,426,091
2017	\$102,473,785	\$85,938,645	\$86,391,293	\$53,030,184
2018	\$103,654,565	\$86,928,895	\$87,386,759	\$53,641,238
2019	\$104,848,952	\$87,930,556	\$88,393,695	\$54,259,333
2020	\$106,057,101	\$88,943,758	\$89,412,234	\$54,884,550
2021	\$107,647,958	\$90,277,915	\$90,753,418	\$55,707,818
2022	\$109,262,677	\$91,632,083	\$92,114,719	\$56,543,435
2023	\$110,901,617	\$93,006,565	\$93,496,440	\$57,391,587
2024	\$112,565,141	\$94,401,663	\$94,898,887	\$58,252,461
2025	\$114,253,618	\$95,817,688	\$96,322,370	\$59,126,248
2026	\$115,396,155	\$96,775,865	\$97,285,594	\$59,717,510
2027	\$116,550,116	\$97,743,623	\$98,258,450	\$60,314,685
2028	\$117,715,617	\$98,721,060	\$99,241,034	\$60,917,832
2029	\$188,892,773	\$99,708,270	\$100,233,444	\$61,527,010
2030	\$120,081,701	\$100,705,353	\$101,235,779	\$62,142,280
<b>Total</b>	<b>\$2,220,357,433</b>	<b>\$1,862,081,207</b>	<b>\$1,829,361,183</b>	<b>\$1,278,640,337</b>

Table 7.8 shows the 2007 to 2030 summary results of Scenarios 1 to 3, as compared to the base case scenario. As indicated previously, Scenario 3 has the largest projected changes from the base case, both in terms of increased traffic volumes and decreased toll revenue.

**Table 7.8 Estimated Changes in Traffic and Revenue by Toll-Reduction Scenario**  
*Cumulative from 2007-2030*

	<b>Base Case: \$3.00 Toll Ramping to \$6.00 Toll</b>	<b>Scenario 1: TNB Discount Program</b>	<b>Scenario 2: Buy-down Toll by \$1.00 Each Year</b>	<b>Scenario 3: Toll Constant at \$3.00</b>
Traffic Volumes	399,896,705	404,632,666	405,399,809	411,381,752
# Change		4,735,961	5,503,105	11,485,048
% Change		1.18%	1.38%	2.87%
Toll Revenue	\$2,220,357,433	\$1,862,081,207	\$1,829,361,183	\$1,278,640,337
# Change		-\$358,276,226	-\$390,996,251	-\$941,717,096
% Change		-16.14%	-17.61%	-42.41%

## ■ Conclusions

Any scenario that reduces the amount of TNB toll revenue collected would require that the Legislature find substitute funding to cover the lost toll revenue. In summary, our analysis of the Tacoma Narrows Bridge Toll Policy by scenario found that:

- **Scenario 1**, involving frequent user discounts through an up-front monthly payment should be feasible to develop and administer. It would create a toll system that is less uniform than the flat toll system now proposed, but does provide some toll relief to those that use the bridge more frequently. Some basis for this policy could be made from the perspective of a goodwill gesture. The roughly 16 percent in lost toll revenue would need to be made up through legislative appropriations.
- **Scenarios 2 and 3** both involve reduction in tolls, and would create significant cash flow shortfalls that would have to be made up from other sources. Under current conditions, where there are no other tolls in the State, the buydowns could be seen as generating a more equitable transportation funding system, bringing the tolls closer to zero. However, in the longer-term perspective of how major bridge crossings have been funded in Washington, bridge tolls remain an appropriate mechanism. As long

as future bridge projects continue to be advanced through the use of tolling, the current rates are equitable.

- **Scenario 4** does not involve any changes to the toll rate on the Tacoma Narrows Bridge. Rather, it relies on future policy decisions that might be made by the legislature. If significant use of tolls is advanced to fund major projects in Washington, then customers of the Tacoma Narrows Bridge will no longer be a special case. This is not to say that there might not be details to be worked out related to equitable toll amounts on future toll projects, but that issue is being addressed in the remainder of the tolling study.

*Background paper prepared by Cambridge Systematics, Inc., with assistance from Frank Wilson and Associates and the Texas Transportation Institute in January 2006.*

## Background Paper #8

# Toll Technology Considerations, Opportunities, and Risks

## ■ Introduction

This report focuses on the technology required to support the collection of tolls, both manual and electronic, for the range of potential toll facilities under consideration in Washington State. We describe the different types of toll collection methods, how they are applied to various toll facilities, note lessons learned from past experiences, and identify the advantages and disadvantages.

## ■ Toll Collection Technology Overview

The appropriate combination of technology and operational procedures is needed to meet the functional requirements of the emerging tolling program in Washington State. Furthermore, the combination also must provide a path for migration from a single facility to multiple facilities, and be able to evolve along with changes in technology. Toll collection, in all of its forms, consists of the following five primary components:

1. **Setting the Toll Rate.** The toll rate must be determined, and the fees clearly conveyed to the user. Traditionally, tolls are fixed amounts based upon vehicle characteristics such as number of axles. Tolls can be assessed at a point on a road, or based upon the distance traveled. Advances in traffic conditions monitoring now allow toll rates to vary based on the level of congestion.
2. **Collecting the Toll.** Toll collection can involve a direct cash transfer at a toll booth or a transfer of data via electronic technology, with actual money changing hands through other means. Either way, it is necessary to ensure the correct toll is collected, and that user and collector fraud is discouraged.
3. **Enforcement against Violations.** Although most users want to be honest, some will try to evade payment. Like any business, toll collection enterprises must identify, quantify, and mitigate these potential losses. The primary goal of enforcement is to ensure that there is an acceptable level of compliance, and enforcement efforts are fair and consistent.

4. **Management and Accounting.** Finally, toll collection, audit, accounting, maintenance, security, customer service, and enforcement must be managed, with a full accounting of all revenue and costs associated with the operation.
5. **Interoperability.** As customers use different toll facilities in the State, they have an expectation that electronic toll collection mechanisms will be fully compatible at all toll facilities.

The remainder of this section provides an overview of the basics of toll collection technology.

## Manual Toll Collection

Until somewhat recently, the most common approach for collecting tolls was to have the driver stop and pay a toll collector sitting in a tollbooth. The toll collector determines the amount to be paid by each vehicle based upon its characteristics or classification. Generally, vehicle sensors (called Automatic Vehicle Classification) are used to crosscheck these characteristics against the toll collected by the toll attendant. Enforcement was mainly addressed by the use of gates that were raised after the toll was paid. Manual lanes can accept an extensive variety of payment means, such as cash, checks, credit/debit cards, and smart cards.

A manual lane can process approximately 400 vehicles per hour in comparison to a free-flow freeway lane, with capacity approaching 2,000 vehicles per hour. Meeting peak-period demand required the construction of large toll plazas as illustrated in Exhibit 8.1. Traffic demand, coupled with the need for each vehicle to stop, still resulted in significant congestion at many of these toll plazas.

An early attempt to improve productivity and reduce labor costs involved installing Automatic Coin Machines (ACM) for accepting coin payments in an unattended lane. These lanes can process 600 vehicles per hour for lower value tolls (under \$1.00). Again, gates were used as the primary method of ensuring payment. As toll rates increased, the ACM offered less benefit. Newer deployments at lower-volume locations have incorporated automatic card payment machines for payment by credit/debit cards and smart cards.

## Electronic Toll Collection (ETC)

Automatic Vehicle Identification (AVI) technology can accurately identify a specific vehicle at highway speeds, thereby, enabling a wide variety of ETC applications. In its basic form, a vehicle passing through a toll collection point has its identification device read, after which the toll is deducted from the customer's preexisting account or the customer is sent an invoice. The driver pays the toll without stopping and tollbooths are not required. ETC also determines whether the cars passing are enrolled in the program, and gathers information on the vehicle for further collection or enforcement action.

## Exhibit 8.1 Typical Traditional Toll Plaza *George Washington Bridge*



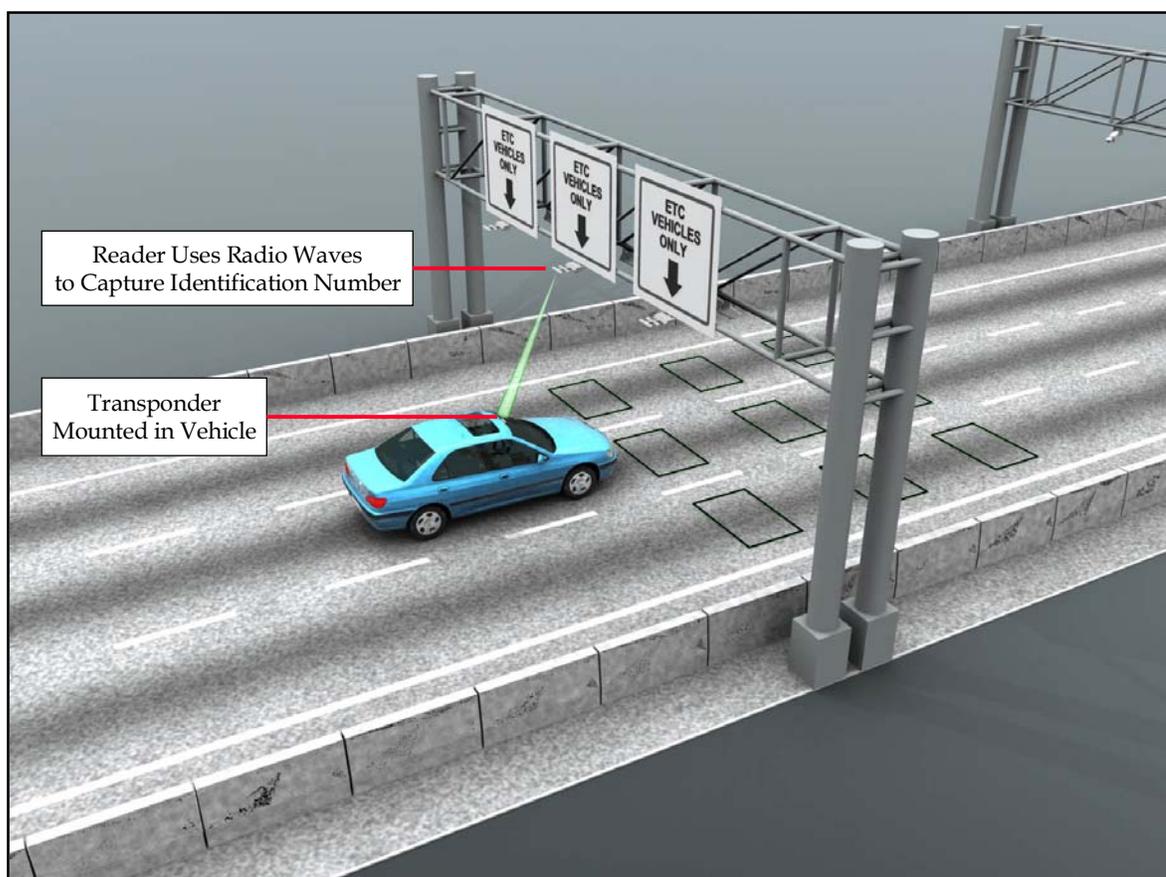
ETC systems incorporate four major components, namely AVI, Automated Vehicle Classification (AVC), Customer Service, and Violation Enforcement. Each component is described below.

### **Automated Vehicle Identification (AVI)**

The automatic identification of a vehicle involves the transmission of an identification code between an in-vehicle device and a roadside reader. Vehicles are identified at fixed points along the roadway as shown in Exhibit 8.2. The in-vehicle device, called a transponder, is a Radio Frequency Identification (RFID) unit that transmits radio signals. The transponder is a two-way radio with a microprocessor, operating in the 900 MHz radio frequency band (within the United States) using dedicated short-range

communication (DSRC) protocols. Stored in this RFID transponder is basic information, such as an identification number, toll facility, vehicle type, etc. The roadside electronic readers use antennas to emit radio frequencies that communicate with the transponder. These two devices, the transponder and the roadside reader, interact to complete the transaction. For ETC, the vehicle identification number is linked to the customer's account from which the appropriate toll is automatically deducted or the customer is billed.

## Exhibit 8.2 Automatic Vehicle Identification *Identification Number Used to Charge Customer*



Transponders have additional common characteristics:

- Transponders can be read-only or read-write. Read-write transponders allow information to be sent back to and stored on the transponder (e.g., the last time that the transponder was read).

- Nonbattery transponders use radio wave energy to “bounce” information back to the reader. Nonbattery transponders have an “official” life of 15 years but could theoretically last forever.
- Battery transponders can incorporate lights, audible tones, or LED displays that provide information to the driver. However, the initial cost is higher and the overall life-cycle cost is increased because of the need to replace batteries or the entire transponder. Most toll agencies are phasing out transponders that provide driver feedback.
- Transponders, until recently, have been packaged in small plastic cases that are generally mounted with Velcro strips to the windshield of a vehicle. The case is required for the internal electronics, battery and any lights or tones. Recently, nonbattery-powered transponders are packaged as stickers (or decals) that are applied to the windshield of a vehicle.
- Transponders used for high-speed toll collection can range in cost from \$10.00 to \$40.00 apiece. Most battery powered transponders used for toll collection application range from \$20.00 to \$35.00 per unit. The sticker tags cost approximately \$10.00 per unit.

Over the years, various agencies have expressed an interest in using transponder technology as electronic license plates. There are available transponder models that can be attached to the license plate frame for exterior mounting. This concept is technically feasible, but has policy and cost implication. The decision to install transponders on all vehicles raises privacy concerns. The cost of equipping all vehicles is certainly higher than the cost of equipping vehicles that would use the nearer term toll facilities. The transponders that can be mounted on license plates are more expensive than the newer sticker transponders.

Recently, policy considerations have suggested that vehicles that generate reduced emissions should pay reduced tolls. The identification of “green” vehicles can be accomplished through the use of transponders.

While transponders have many common features, the deployment of five different DSRC protocols for electronic toll collection in the United States have significant impact on interoperability. These deployments are generally geographically separated with limited need for interoperability initially. However, the lack of interoperability among these AVI technologies has been recognized as a significant problem. Accordingly, U.S. Department of Transportation (DOT) has commissioned a consortium of the major transponder manufacturers to develop a national DSRC standard. The device is being built around a newly allocated radio frequency (5.9 GHz) and the specific requirements of DSRC for transportation applications. The new DSRC transponder should be available for testing in early 2006, with a deployment decision by the U.S. DOT and the automotive industry expected in 2008. The new transponders could be part of new vehicles shortly after 2010. This means that it will take until at least 20 years for transponders to be incorporated into

all U.S. autos, since it takes approximately 15 years for the entire America car fleet to turn over.

To bridge this gap between available and future technology, the Washington State DOT has:

- Selected the e-Go™, battery-less, sticker transponders from a single vendor as the primary AVI technology for ETC in the State;
- Installed dual DSRC protocol readers to allow the reading of the existing battery powered, transponders installed on commercial vehicles participating in the WSDOT electronic weigh station bypass program, in addition to the e-Go™ tags; and,
- Developed and implemented a plan for migrating to the new U.S. standard 5.9 GHz transponder so that multiple vendors can supply a standard toll transponder to the State in the future.

## **Other Approaches to Vehicle Identification**

Another approach is to install a Global Positioning System (GPS) in a vehicle to locate itself within a given charge area or network. The on-board unit will contain the appropriate charging structure, as well as information concerning when the vehicle should be charged. Charges are applied using the position information provided by the GPS system. The charge can either be deducted directly from a smart card located in the on-board unit or stored for later uploading and charging against the customers account or billing the customer. Charged corridors can be defined around specific zones in urban or rural areas where all vehicles (or specific categories) using the roadway will be subject to charges. The cost of the on-board units is estimated at between \$200 and \$400, depending on the level of sophistication of the device.

Vehicle location pricing technology is being used for truck tolling systems in Germany and Switzerland. The Puget Sound Regional Council (PSRC) is conducting a demonstration of value pricing using this approach. The intent of this pilot project is to determine traveler response to value pricing and the effect of pricing on traveler decision-making, and to help identify a potential path towards implementation. This technical approach is better suited to regional pricing applications as opposed to facility-based tolling.

A third approach to vehicle identification involves the use of License Plate Readers to capture an electronic image of a vehicle's license plate. This information is used to charge the accounts of customers who have registered vehicles in advance. For vehicles that are not registered, this license plate number is used to determine the owner's name and address. The owner is then sent an invoice for the toll and a service fee. Highway 407 in Toronto uses a combination of transponders for regular customers and license plate readers for infrequent users to collect tolls. There are no tollbooths on this facility. Some facilities allow infrequent users to register their vehicle for the day over the telephone or

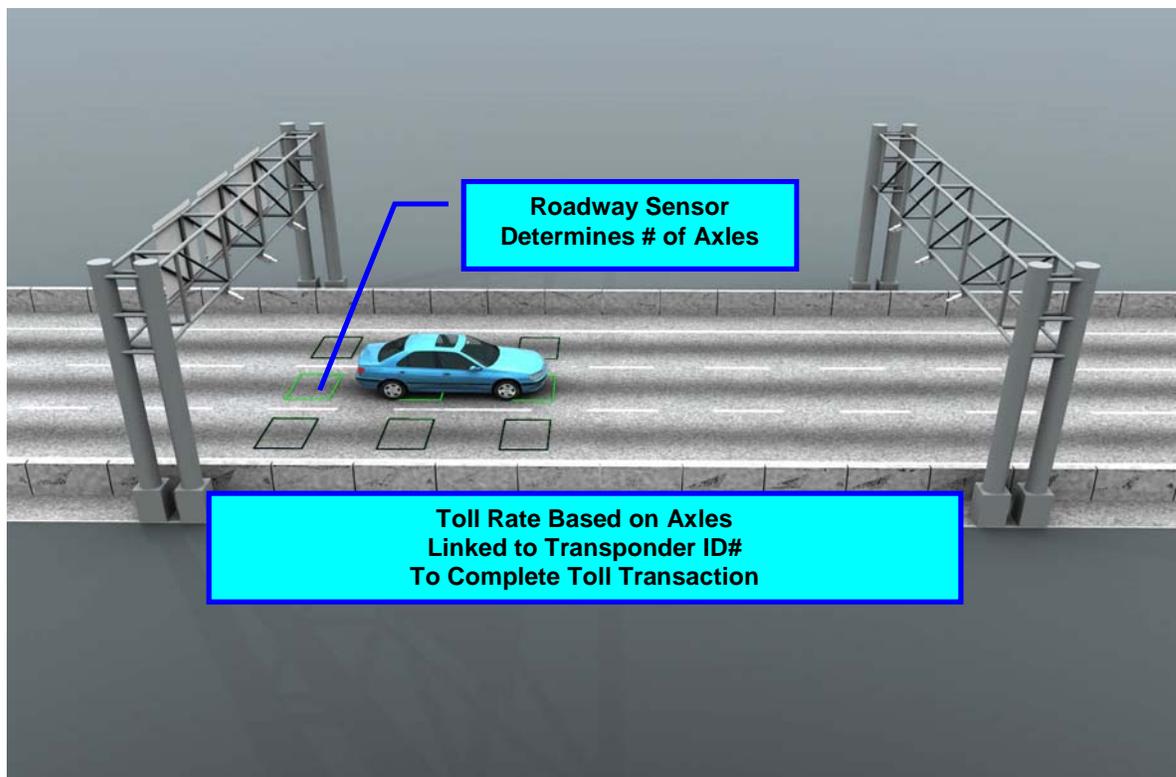
Internet to pay their toll. This reduces the administrative cost of finding the owner and sending an invoice.

## Automated Vehicle Classification (AVC)

The inherent potential for fraud on the part of toll collectors led to the deployment of vehicle sensor technology that can classify a vehicle based upon its characteristics. The number of axles is the most common vehicle toll classification scheme. AVC equipment can provide a check on manual toll collection and determine the proper vehicle classification for electronic toll collection. AVC equipment has been demonstrated to work at highway speed and under congested traffic conditions.

A variety of vehicle sensors are used. Treadles count the number of axles as a vehicle passes over them. Light-curtains and laser profilers record the shape of the vehicle, which can help distinguish trucks and trailers. Advanced Inductive Loop sensors embedded in the road surface can determine length, speed, and number of axles of vehicles at highway speeds as illustrated in Exhibit 8.3.

### Exhibit 8.3 Automatic Vehicle Classification



## Customer Service

Customer service may be provided at a physical customer service center, by telephone, or over the Internet. Most customer service operations provide for all three. The functions of the customer service center include:

- **Creation and Maintenance of Customer Accounts** – The customer service center is responsible for the creation and maintenance of customer accounts, adding funds, and assisting customers with account questions.
- **Issuing Transponders** – The customer service center assigns a transponder to each vehicle under a given account. These transponders must be requested from the toll authority’s tag warehouse and tracked as inventory. Once assigned to an account, the status of the transponder (active, inactive, lost/stolen, etc.) becomes part of a customer’s account history. For accounts opened via mail or online, the customer service center may mail transponders to customers along with instructions on installation.
- **Accounting** – There is a significant financial element to the customer service center, in regards to accurate reconciliation of toll transactions and payments against customer accounts. Customer account balances are constantly fluctuating in real time as a result of toll transactions, automatic replenishment via credit cards and/or bank account transfers, customer invoicing, and in-person transactions at the customer service center.

Typically, an individual toll authority serves a single region or facility, resulting in multiple authorities and multiple customer service centers across a given state. In order to provide a more seamless customer experience, these disparate toll authorities frequently work together to interface their systems to accept transponder transactions from each other’s customers, and to reconcile these transactions “behind the scenes” via a financial clearinghouse. In launching a new statewide tolling program, there is the opportunity to provide toll patrons with a single point of contact (one telephone number, one web site, one account) for their toll accounts.

Many auto manufacturers will be installing transponders as factory equipment in new cars because of the anticipated adoption of the national DSRC standard. These transponders will go far beyond toll payment, potentially to include a wide variety of retail (such as drive-through restaurant service), traveler information, and road safety applications. Essentially, these transponders would function as an in-vehicle credit card, with the likely expectation from the customer that they will receive a single invoice for all of their in-vehicle transactions. With built-in transponders, the state tolling authority would interface with a third-party service provider to bill each customer’s account.

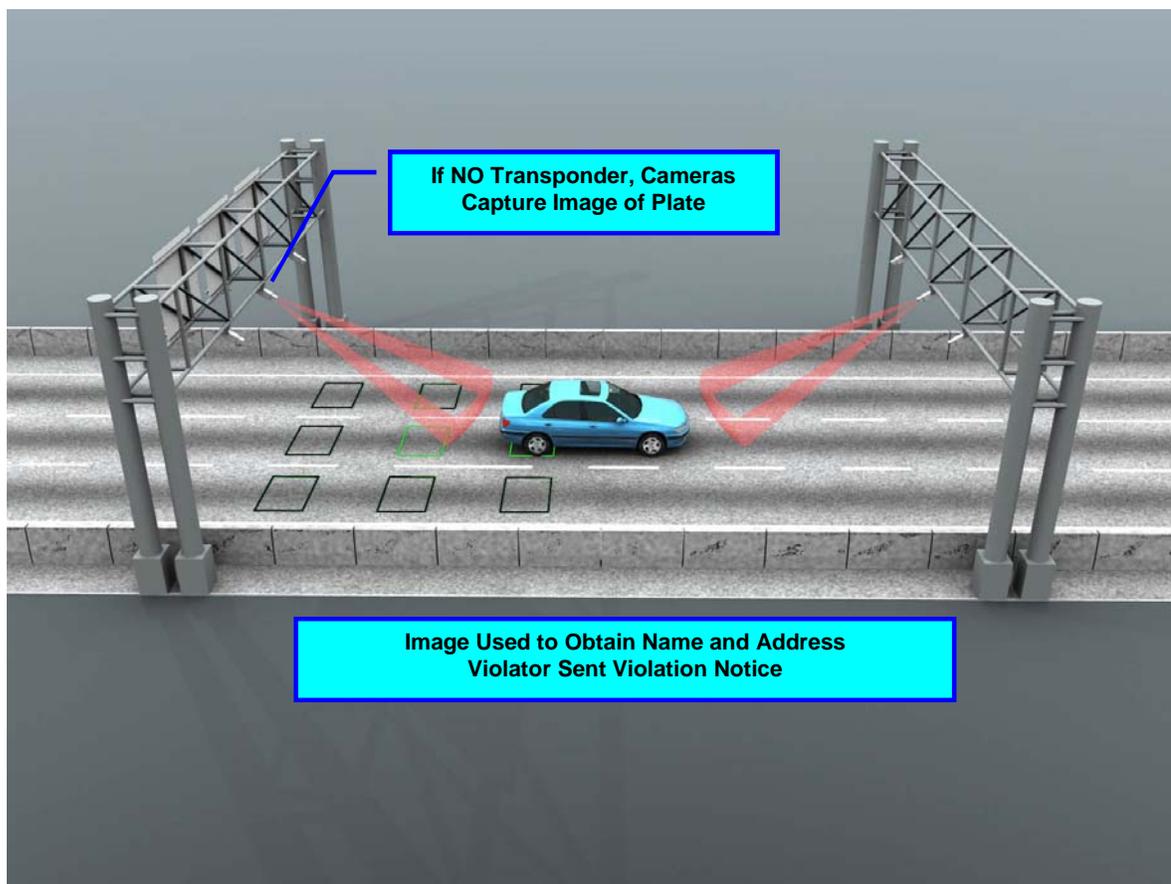
## Violation Enforcement

Manual toll collection operations sometimes use gates in toll lanes to discourage drivers from driving straight through and not paying the toll. Other systems rely on toll collectors noting the license plate numbers of violators. Some operations work on the honor system, with spot enforcement by police.

The introduction of ETC without gates and toll collectors has resulted in the deployment of technology to automatically identify toll evaders and demand the payment of the required tolls. The primary goal of enforcement is to ensure that there is an acceptable level of compliance, and enforcement efforts are considered to be fair and consistent. The following are the key elements of violation enforcement:

- **License Plate Image Capture** - When a vehicle fails to pay the correct toll at either a manual or electronic toll collection point, cameras installed at the lane electronically capture images of the vehicle's license plate. The cameras are configured to capture license plates from the full range of vehicle makes and models, to zoom in only on the plate itself, and to capture multiple photos so as to improve the probability of a legible image. Washington State law allows images of the vehicle or the license plate to be used in photo enforcement activities. In-lane image capture for violations enforcement is show in Exhibit 8.4.
- **Name and Address Acquisition** - Critical to the collection of outstanding tolls, fees, and fines is determining the name and address of the toll evader. Using the license plate number obtained from the image of the toll evader's vehicle, an electronic request is made to the appropriate Department of Motor Vehicles (DMV) or other source to obtain the registered owner's name and address. According to the U.S. Bureau of Census, 17 percent of Americans change their residence every year. As a result, hit rates for successfully obtaining current names and addresses from the DMV are generally between 80 percent and 90 percent. The effort is compounded for out-of-state vehicles and vehicles from Canada. The implication is that, for a certain portion of violators, it will not be possible to mail them a notice to request payment.
- **Violator Payment** - Experiences from other toll authorities and similar programs (e.g., parking tickets) indicate that most people will pay their toll and service processing fees upon receipt of a demand letter. At this point, monies collected are remitted to the toll authority. A second means of enforcement for in-state violators is placing a hold on annual vehicle registration renewal process until outstanding tolls and related fees are paid. However, a certain portion will continue to violate. Additional focused efforts to identify and locate flagrant violators will be required for all types of toll facilities.

## Exhibit 8.4 In-Lane Violation Enforcement



- **Legal System Interfaces** - While the laws and legalities surrounding the collection of delinquent tolls vary from state to state, at some point, toll violations become a citable offense, generally under traffic or parking laws and regulations. For legal enforcement of toll violations, toll authorities must look to law enforcement officers and the local courts. In jurisdictions where citations may be issued electronically, officers may review an online “evidence package” that includes the photo(s) of the violator’s license plate, the date and time of the violation, and the violator’s name and address. The officer can use an electronic signature to sign the citation, which is then printed and mailed by the toll authority. This mitigates the resource demands placed on the officers for reviewing citations.

As with any traffic or parking ticket, some violators will wish to appeal the citation to the courts. New tolling authorities must work with local courts to determine the legal, technical, and resource-related issues surrounding toll enforcement, in terms of how toll violations will be processed in the court computer system, what are the evidentiary requirements, and what is a reasonable violation penalty. The penalty must effectively discourage violators without being so harsh as to potentially tax the resources of the courts with a large number of appeals.

The enforcement program will need to be balanced against the desire to bring more travelers into compliance. Many toll agencies are initially treating violators as potential customers before they start aggressive enforcement measures. The initial enforcement efforts at Tacoma Narrows Bridge (TNB) will be a mixture of education and enforcement.

Interestingly, while the toll authority usually bears the cost of enforcement, the money collected from traffic or parking fines is distributed to the general fund, courts, relevant local jurisdictions, and enforcement agencies, and not the toll authority. Therefore, enforcement costs are a real cost to the toll authority, not completely offset by revenue collection.

## Interoperability

The deployment of ETC is well established in North America and overseas. The E-ZPass Program, under the Interagency Group in the eastern part of the United States, involves over 20 separate toll agencies and 11 million transponders. The FasTrak Program in California has over 1.25 million transponders and is statewide. Out of this experience, key customer service expectations have been identified based upon experience at other toll facilities, and market research, including surveys and focus groups.

- **One “Gizmo”** – Only one on-board device (i.e., transponder) would be required in the customer’s vehicle for electronic toll collection payment;
- **One Number** – A single customer service telephone number would be available for all tolling customer inquiries; and
- **One Statement** – A consolidated statement would be provided to the customer for all activity at all tolling facilities.

Interoperability issues are in play at several levels.

At the **transponder level**, a customer can use the same physical transponder on all of the interoperable facilities, but the customer must set up a separate account with each agency or facility. This approach is used for electronic weigh station bypass programs, where trucks are equipped with the same transponder, but must register for the program that is used by a specific state. For example, the program in Washington State uses the same transponder for the program in California, but the trucker must be registered with both programs.

**Peer-to-Peer** interoperability means that separate customer service centers are maintained by agencies that have agreed that they will exchange transactions and account files so that the customer has only one transponder and one account. However, for transaction and violation inquiries, customers may be required to deal with separate customer service centers, depending on the facility that they used. The E-ZPass Program, which extends from Maine to Virginia with over 20 separate toll agencies and 11 million transponders, is an excellent example of the successful implementation of a Peer-to-Peer approach.

**Consolidated Operations** is the ultimate form of interoperability. It establishes a single customer service organization where there is one account, one system, and one point of contact. The single consolidated operations approach has evolved in many areas, because of the potential cost savings and the provision of consolidated customer service. A recent example is the consolidation of systems and customer service centers in the San Francisco Bay Area from two to one.

## Open Road Tolling

Open Road Tolling (ORT) is defined as the collection of tolls by purely electronic means, through the installation of gantry-based electronic tolling and enforcement systems designed to enable unhindered passage of vehicles through the toll gantry at normal highway speeds. ORT is ETC toll collection without any toll plazas. ORT provides the technological approach to enabling the use of pricing for traffic management without requiring vehicles to stop and pay a toll. Exhibit 8.5 illustrates an operational installation in Chile.

The key to ORT is that each vehicle can be uniquely identified as it passes a charging point. In most existing schemes, vehicles are identified via an electronic transponder, which is mounted inside vehicle windshields.

Vehicles without a tag are identified by a video image of the license plate, which is then checked against a record of ETC account holders, or vehicles registered by drivers who have paid a toll over the telephone or Internet. Identifying vehicles and collecting tolls via license plate images is called “pay by plate.” License plates that cannot be reconciled to an account and have not registered are identified as violators and processed accordingly.

To avoid the need for transponders, some systems, notably the London Congestion Charge scheme, use Automatic Number Plate Recognition (ANPR). Here, a system of cameras captures images of vehicles passing through tolled areas, and the image of the license plate is extracted and used to identify the vehicle. This allows customers to use the facility without any advance interaction with the toll agency. The disadvantage is that fully automatic recognition has a significant error rate, leading to billing errors. Systems that incorporate a manual review stage have much lower error rates, but require a continuing staffing expense.

### *Example ORT Implementations*

- *SR 91 Express Lane in California USA, opened in 1995;*
- *Westpark Tollway in Houston Texas, opened in 2004;*
- *Highway 407 in Toronto Canada, opened in 1997;*
- *Melbourne City Link in Australia, opened in 2000;*
- *Cross Israel Highway, opened in mid 2002;*
- *Autopista Central in Santiago Chile, opened at the end of 2004;*
- *Costanera Norte in Santiago Chile, opened in April 2005;*
- *Vespucio Sur in Santiago Chile, to be opened at the beginning of 2006; and*
- *Vespucio Norte Express in Santiago Chile, to be opened at the beginning of 2006.*

## Exhibit 8.5 ORT Gantry Installed on the Santiago Urban Concessions in Chile

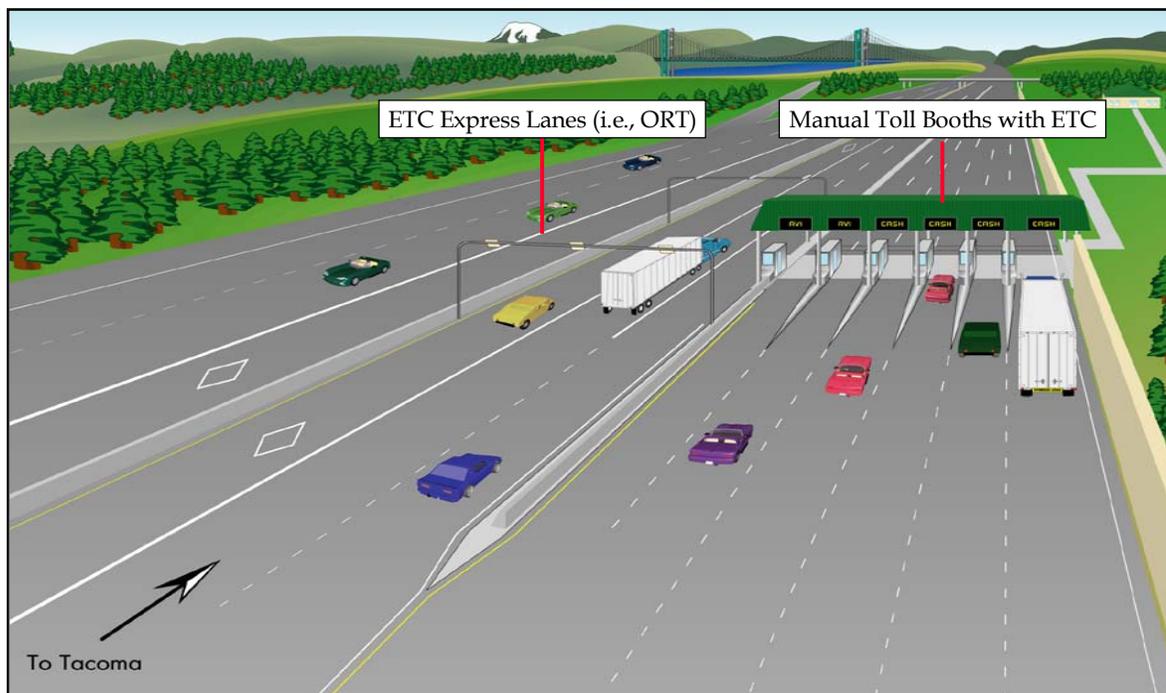


The primary challenge with ORT is finding the balance between transponder and image payment methods. Transponders enable the means to pay tolls without requiring human intervention in the payment processing. The use of ANPR requires customer service staff to review images to ensure that the correct customer is charged for the toll. While optical character recognition technology automates much of work in determining license plate numbers, accuracy and quality control do require this level of review. Experience has shown the image processing costs are higher per transaction than transponder-based toll collection.

### Electronic Tolling at Tacoma Narrows Bridge

The planning for toll collection at the Tacoma Narrows Bridge (TNB) began near the beginning of the transition period in the industry from manual toll collection to ETC to the current trend of ORT. Given the state of technology at the time and the operational need to accommodate infrequent users, a combination of manual toll collection and ORT lanes was selected as illustrated in Exhibit 8.6. Six lanes of manual toll collection will be provided in a small toll plaza to the right of the mainline of SR 16. Each manual toll collection lane also will be equipped with ETC capabilities to allow these lanes to be operated as manual or ETC-only lanes. The three-lane mainline of SR 16 will continue past the toll plaza for the nonstop collection of tolls using an ORT configuration. The concept does require that a high percentage of users enroll as ETC customers, and install transponders in their vehicles. The approach provides a combination of toll collection capabilities intended to meet the needs for this facility, while minimizing the amount of right-of-way required for the toll plaza.

## Exhibit 8.6 Toll Collection at Tacoma Narrows Bridge



The implementation of electronic toll collection at TNB will provide the complete functionality and capability required for a toll customer service center and violations processing. Staff and systems will be in place to perform ETC customer account establishment, transponder distribution, account management, account financial replenishment, call center for customer inquiries, customer Internet-based account access, and statement generation. Violation processing capabilities will include manual and automated license plate image review, owner name and address acquisition, violation notice generation, notice of infraction generation, call center for violator inquiries, and interface to the court system. This operation can be expanded to provide service for new facilities in Washington.

The toll collection system for TNB was designed with the capacity to process more toll transactions than the anticipated initial daily volume of 45,000 manual and electronic transactions. The system also has the ability for expansion to handle a higher volume of customers.

The toll collection system also was designed to accept toll transactions from remote toll collection points using a defined data format, and to transmit information on valid transponders to remote toll collection points. Accordingly, the toll collection system can accept toll transaction data from other facilities, post these transactions to a customer's account, and generate a consolidated statement for all of the customer's toll transactions. A toll transaction from another facility would be treated in the same way as a transaction from TNB.

Finally, according to current law, revenue generated at TNB and the associated cost of operations at TNB can only be applied to TNB-related requirements. Accordingly, the operational costs associated with any additional toll facility that uses the customer services and violation-processing services provided by TNB will be required to pay a proportional share of these operational costs.

Beyond the cost aspect is the customer service element. By having a single customer service center, WSDOT can be assured that customers will have a single, consistent point of contact regarding tolling issues. As the additional toll facilities are brought on-line in the State, it is important to provide a uniform, consistent interaction with the public. A single customer service center would provide this single point of contact.

### *Lessons Learned*

Previous implementation of toll collection systems around the world offer valuable lessons for Washington State, including:

- **More Than Manual Toll Collection Is Required** – Manual toll collection alone cannot provide an acceptable solution for toll collection because of the traffic congestion and right-of-way requirements. The toll industry has embraced Electronic Toll Collection as a proven means to provide a better level of service to toll patrons and reduce congestion.
- **Electronic Toll Collection Works** – The deployment of electronic toll collection with the use of transponders has gained the public’s acceptance in one toll authority after another.
- **The Public Expects Interoperability** – As more toll facilities implemented electronic toll collection, customer expect that their transponders will work on adjacent facilities.
- **Violation Enforcement Is Required** – There is a clear need for an enforcement program. While enforcement systems have mostly achieved the desired results, there is an operational cost associated with this success. Truly understanding the costs of lost revenue and enforcement actions is important to have a complete picture of the enforcement program. With the proper identification of both, an enforcement program can be tuned to mitigate the potential loss of revenue balanced against cost of enforcement.
- **ORT Is Required for Traffic Management** – The use of pricing to manage traffic congestion in urban areas can only be provided by ORT deployments and not stop-and-go manual toll collection.
- **ORT Presents Technical And Operational Challenges** – ORT represents a significant technical jump, compared with the traditional tolling systems. From an operational point of view, the handling of violators and the control of the operational costs also need to be carefully addressed. The reduction in labor costs for toll collectors might be

somewhat offset by the increase in need for image-based transactions and violation processing.

- **Maximize Transponder Usage** – Costs associated with tolling operations are highly dependant on the level of nontransponder transactions (i.e., those processed using license plate images), as the processing costs of nontransponder transactions are significantly higher than for transponder transactions. There are several reasons for this:
  - Processing transponder data is easy:
    - Simple business rules;
    - No human intervention;
    - Few business interfaces; and
    - Limited customer contact.
  - Processing images is complex:
    - Complex business rules;
    - Multilevel human interventions;
    - Many business interfaces; and
    - Frequent customer contacts.

Assuming that all vehicles in the State would not be required to be equipped with transponders, maximizing transponder usage depends in part on the following:

- A successful marketing and public relations campaign that reaches all prospective customers and clearly explains the ORT system, its services, and its benefits;
- Providing incentives to encourage transponder use, such as issuing tags free of charge, post-payment for tolls charges incurred, and preferential rates for tag users; and
- Limiting the number of times a customer can be charged by video tolling (to a maximum number of transactions per year, for example) without incurring additional fees.

**Optimize Back Office Operation.** Back office operations include customer service and violations processing. One of the main ways to control operational costs is to optimize the allocation of work between automated and manual processes. This means guaranteeing the minimum level of accuracy and efficiency of the tolling and image capture subsystems. Experience suggests that there is a balance to be struck between investment and operations – there is clearly a threshold beyond which investment in automation costs more than the operational savings it ultimately delivers.

Critical determinants of the efficiency of the back office include:

- Accuracy of the license plate recognition and image validation subsystem.
- Minimizing of customer service center staff time through emphasis on “self-service” techniques, such as online account access and Interactive Voice Response.
- Integration of nonautomated customer service channels for inbound communications (faxes, e-mails, voice recorded messages) with the automated portion. This requires ‘connectors,’ which are software modules parsing the events from nonautomated channels and generating input necessary for activating back office interventions.
- Efficient use of technology to reduce the costs of communicating with customers (e.g., voice mails with text-to-speech technology).
- Integration of a centralized workflow management tool that monitors and maximizes the efficiency of operational activities at both an individual and departmental level.

**Avoid Toll and Violation Processing Errors.** Avoiding errors (such as sending an invoice to somebody who has never used the toll road) are of crucial importance, since such errors might induce negative reactions, which could be relayed and amplified by the media. Implementing multiple validations for selected sensitive operations should minimize these errors.

**Manual Toll Collection Still Has a Place.** Some potential toll facilities may still have a need for manual or self-service toll collection, depending upon the level of demand and characteristics of the users. Lower volume facilities that serve mostly infrequent users would be the best candidates, but in combination with other technologies. This will generally be the case for these specific situations until most vehicles are equipped with transponders.

**Toll Collection Requires a Strong Audit Function.** Toll collection requires that strong cross checks, using automatic vehicle classification technology, revenue reports, and audit trails are in place to ensure that internal fraud is deterred and identified.

## ■ Toll Technology to Support Traffic Management

The advent of electronic toll collection has provided new tools for the traffic management. Manual toll collection's inherent limitations did not provide the flexibility required to use pricing as a means to manage traffic.

### Time-of-Day Tolling

With time-of-day tolling, the toll rate is set by a fixed time-of-day schedule. The typical motivation for this tolling strategy is to push traffic demand away from peak hours. Both the New Jersey Turnpike and the Port Authority of New York and New Jersey introduced time-of-day-based-toll price schedules during toll increases over the past several years. The Turnpike Authority reports that traffic growth during rush hours has flattened since it adopted the time-of-day-based toll schedule. Port Authority reports also suggest that relatively lower prices attract some motorists to off-peak driving times.

Under this approach, the toll rates are fixed by time of day and day of week, usually at one-hour intervals. Peak prices on weekdays are generally highest, and pricing is adjusted typically every few weeks based on hourly volumes. Setting price based on time of day is relatively simple to implement from a technology perspective. TNB has this feature included in its toll collection system.

This approach is easy for the driving public to understand, but it does not support more frequent updates to pricing, as rate schedules are generally published. Public outreach efforts are made to publicize the schedule. The concept is relatively easy to convey to the public, and has achieved the desired impact.

### Dynamic Pricing

Advances in tolling, traffic management, and traffic sensor systems over the last decade have significantly increased the number of options available in terms of setting the price of using a toll facility. Dynamic pricing adds a level of traffic management sophistication over time-of-day pricing. With dynamic pricing, tolls are based on actual traffic conditions, changing to maximize some specific objective. Typical traffic management objectives are:

- **Speeds** – A classic measurement of the conditions on a facility, is easily collected using available sensor technologies, and is easily understood by the public. It also allows for frequent pricing adjustments based on changing conditions. However, speeds can vary greatly across a facility, particularly between differing sensor sites, and are not always an effective measurement of true level of service. Speeds are generally best used in conjunction with volume and/or occupancy to allow more accurate setting of prices.

- **Volumes** – Can be averaged over time to support less frequent pricing changes, or they can be used together with speeds to set prices on a more frequent basis. Volumes can be relatively accurately measured with existing sensor technologies.
- **Traffic Density** – A measure of speed and volume over a set period of time, and is considered a very accurate measure of actual level of service. Use of traffic density has been proposed for several High-Occupancy Toll (HOT) lane facilities. Its disadvantages include that it requires greater sensor accuracy and reliability, and it is difficult for the driving public to understand when compared with other measures.
- **Travel Time** – Perhaps the truest measure of value to drivers, travel time also can be the most difficult to measure. Travel times can be collected from transponder-equipped vehicles by matching transponder identification numbers at two points. However, this results in a lag in time for availability of the measurement based on the time that it takes a transponder-equipped vehicle to travel the distance. It may be necessary to estimate travel times based on speed/volume sensors placed at regular intervals along the facility with calibration based on less frequent RF tag reads.

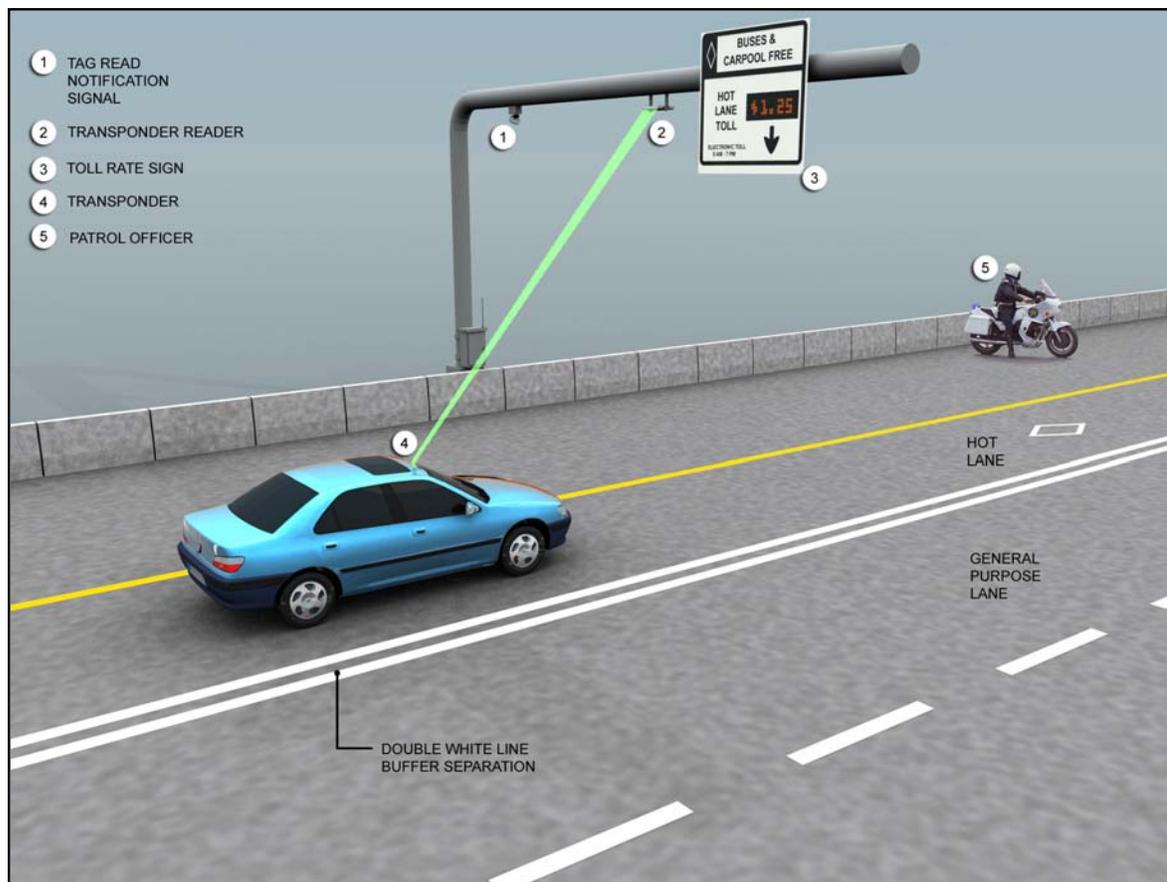
Regardless of the measure used, high levels of accuracy are crucial. Generally, existing field traffic sensor infrastructure needs to be updated to properly support dynamic pricing. Existing infrastructure has generally been deployed for traffic management and monitoring purposes where occasional failure of individual sensors does not drastically impact the overall effectiveness of the system. However, with toll systems, high accuracy and reliabilities of greater than 99 percent are necessary to ensure accurate toll rates and to maintain public confidence. The tighter the frequency or greater the number of segments, the more important accuracy and reliability becomes.

## **HOT Lanes**

### *Characteristics*

HOT lane facilities charge Single-Occupant Vehicles (SOV) for the use of a High-Occupancy Vehicle (HOV) lane. Access into the HOT lane remains free for transit, vanpools, and carpools. The toll charged for SOVs is dynamically adjusted to ensure traffic congestion does not exceed an established threshold for all vehicles in the HOV lanes. Toll collection is done electronically to provide nonstop toll collection. Tolls are charged at fixed points along the facility. The SR 167 HOT Lane Pilot Project will be such an implementation (see Exhibit 8.7). Selected considerations when implementing HOT facilities are discussed next and are under consideration for the SR 167 project.

## Exhibit 8.7 SR 167 HOT Lane



### *Technical Considerations*

#### **Pricing for HOT Lane Capacity Versus Corridor Throughput**

The first consideration is what will drive the calculations that determine the toll rate at any point in time or along the facility (i.e., pricing algorithm)? With HOT lanes, there are two basic approaches:

1. **Maximize efficient throughput of the HOT lane alone.** Under this pricing philosophy, the goal is to maintain acceptable operations (e.g., level of service (LOS) C, speed or traffic density) on the HOT lanes, regardless of the level of operations on the adjoining general-purpose lanes.
2. **Maximize efficient throughput of the entire corridor.** This pricing philosophy is quite different from the first approach; in that, traffic conditions on the general-purpose lanes more directly influence pricing on the HOT lanes. The overall goal is to

maximize the throughput of the entire corridor (HOT and general-purpose lanes), while maintaining acceptable operations on the HOT lanes. In actual operations, the key difference here is that, if congestion levels are heavy on the general-purpose lanes, prices on the HOT lanes may actually be lowered to try and attract more drivers until such time that the HOT lanes are near-capacity.

It is important to understand that this decision drives the larger pricing concept for the facility, and can result in drastically different toll rates and schedules. The first approach is relatively simple to implement, while the second approach is significantly more complex.

### Frequency and Segmentation of Pricing Adjustments

Once a basic pricing approach has been selected, a determination needs to be made regarding how often prices will be adjusted, and whether or not prices will be set for the entire facility or on a segment by segment basis.

- **Frequency of Price Adjustment** – Frequencies for toll rate adjustments can vary greatly from facility to facility. Some set prices based on average volumes across several weeks and establish a time-of-day toll schedule. Some adjust prices every few minutes. As a general rule, allowing frequent price changes can be considered too confusing to drivers. However, frequency can be a key factor in how much the toll rate can influence the amount of SOV traffic that enters the HOT lane. While infrequent price changes can reflect seasonal and growth trends, they do not allow for reactions to abnormal conditions that may occur within any single peak period or day. Increased frequencies also increase the complexity of the required pricing algorithm and the supporting systems (such as traffic sensors and variable toll rate signs).
- **Corridor Segmentation** – Many HOT lane facilities set different toll rates for separate segments of a corridor, as well as the distance or number of segments crossed by drivers. Segmenting facilities allows dynamic pricing to reflect different conditions along the facility. As with frequency, tighter segmentation provides for more control, but segmentation also increases complexity and cost of the supporting systems. Excessive segmentation of a facility can create a confusing pricing scheme that is difficult for drivers to understand, and it also becomes more difficult to provide adequate signage.

Recent deployments of HOT lanes (including the MnPass program in Minnesota) have dynamically set the toll rate based on near real-time traffic conditions.

For single-lane HOT lane implementation, frequent price changes based on actual conditions are probably the only way to reliably kept traffic flowing at some guaranteed performance level. For two-lane HOT lanes, time-of-day pricing based on historical patterns may be possible, since there is more capacity, and hence, more room for demand fluctuations.

## **Enforcement**

One of the challenges for a HOT lane implementation is enforcement. Besides addressing toll evasion, the enforcement of HOV regulations also is required. An SOV must pay to be in the HOT lane. The enforcement official must be able to verify that a transponder has been read and the toll paid. This requirement leads to a two-step process – the enforcement officer visually identifies the SOV, and then verification of payment is determined. This enforcement action must be conducted along the side of the roadway and is a manual process. This manual enforcement requires the deployment of enforcement officers at additional cost to ensure compliance with HOT lane regulations.

Unfortunately at this time, there is not a fully operational mechanism to electronically determine the number of persons in a vehicle. Promising methodologies are being field tested and do offer some potential for automated HOV enforcement in the future.

The second complication is making sure that a transponder-equipped vehicle that is an HOV and can use the HOT for free is not charged. Accordingly, a means to prevent a transponder from being read is required. These operational issues are being addressed as part of the SR 167 HOT Lanes Pilot Project.

## **Express Toll Lanes**

Express lane tolling is just like the HOT approach, but for all vehicles not just SOVs. With an express lanes tolling scheme, tolls are charged to all vehicles using the express lanes. The other vehicles not willing to pay a toll can use an untolled, usually parallel facility. Express toll lanes are designed to guarantee performance on a managed facility. Tolls are collected either by manned tollbooths or ORT.

The SR 91 express lanes in California implement a combined HOT and express toll lanes scheme. During most hours of the day, high-occupancy tolls are charged only to operators of SOVs using the lanes. But during peak commute hours, the lanes turn into a full toll road, charging all users. Projects are under consideration in Maryland and Minnesota.

## **HOT or Express Lane Systems**

### *Characteristics*

The next logical step is the combination of individual HOT or Express lane corridors into a regional system of roadways. As expected, this would add another level of complexity. This complicates the development of pricing algorithms; in that, there is the potential to optimize for the entire network, and not just the corridor. Once the price is set, the next challenge will be to inform the driver of what they are paying. As a driver moves along the network, the price may change. The difficulty is determining when to inform them in a manner that allows for a timely decision. These issues and others are being explored as the San Francisco Bay Area, San Diego County, Texas, and Minnesota consider systems of HOT lanes.

## ***Technical Considerations***

Dynamically priced toll facilities implemented to date have been relatively simple, using only one or two tolling zones. As WSDOT looks to potential networks of managed facilities, the technology challenges multiply. The main challenges are to set rates and communicate the price information to the traveling public so that the system is managed to its optimum flow.

Since traffic levels and available capacity might vary over the network, prices should ideally be set by segment. The network could be divided into logical travel segments with prices set based upon maintaining an acceptable level of traffic flow. Before the start of each new segment, travelers could be presented with information on the current toll rate for the next segment. The roadway design would need to allow drivers adequate time to make a decision whether to continue on the tolled portion or move to the free portion of the facility.

The question is: how far in advance can you guarantee a price to the customer for a portion of the network, and how does this uncertainty affect the ability to maintain traffic flowing at the optimum rate? This is a problem that has not yet been solved in the industry, and will require additional research and experimentation.

## **Pricing All Roads**

### ***Characteristics***

In response to increasing concerns about the ability of the fuel tax to remain a reliable source of revenue into the future, the idea of pricing all roads, potentially through some kind of fee on vehicle miles, is being discussed in some places. Pricing all roads also raises the opportunity to apply pricing techniques to traffic management problems.

One way to accomplish pricing on all roads involves the installation of GPS in a vehicle to locate itself within a charge area or along the highway network. The on-board unit will contain the appropriate charge structure, as well as information concerning when the vehicle should be charged. Charges are applied using the position information provided by the GPS system. The charge can either be deducted directly from a smart card located in the on-board unit, or stored for later uploading to be charged against the customer's account. The charging scheme can be based on location, time of day, distance traveled, type of vehicle, emissions, or any combination.

The charging of drivers based upon vehicle miles traveled has been implemented for commercial vehicles in both the United States and Europe. Some states have added commercial vehicle characteristics, generally weight, to the fee calculations. With weight-distance truck tolling, freight carriers are charged a fee for use of the road system that depends on weight and total distance traveled over a given period. The usual motive for such fees is to recover fully the costs associated with the operation of heavy vehicles on the road network.

## ***Technical Considerations***

Pricing all roads would require charging different fees based upon distance traveled on defined categories of road (such as freeways or major arterials) at certain times of day (some roads may only be tolled during peak hours). A means of accurately determining the distance traveled and identifying the class of road is a fundamental requirement of the system. Distance traveled can obviously be measured by a simple odometer reading; however, this does not provide the location information needed to assess a toll for only those miles traveled within the tolled network or the date/time data that is needed to determine miles traveled during peak hours. Additional issues arise about ensuring the accuracy of the data, ensuring that user privacy is not compromised, and communicating the data to a central system for calculating the toll amount due.

- **On-board Equipment Cost** – While the proliferation of vehicles with integrated on-board GPS makes vehicle location data somewhat more available, not all vehicles are equipped. The current cost of on-board units remains expensive and requires custom installation.
- **Accuracy of Location Data** – Highly accurate GPS location data is needed to ensure that drivers cease to be charged once they have left the toll network. This location accuracy requirement is particularly important when considering a roadway that may be tolled in one direction during peak periods, but not in the other, or discerning one lane over another.
- **Informing the Driver of Charges** – Drivers will make cost-effective decisions for travel if they have the cost data required to make these decisions in a timely manner. Providing dynamic pricing information to a moving car before a driver reaches an appropriate decision point presents series of technical and human factor issues. The GPS device only knows where the vehicle is and not where it is going. So providing toll rate information in the vehicle would not work for this purpose. Another approach is to set up a schedule by time of day and route, but this approach is contrary to the desire to provide dynamic pricing.
- **User Privacy** – While privacy laws vary from region to region, many users are not comfortable with the idea of their vehicles' location data being shared with a government agency; and in fact, toll authorities may not wish to have this information due to the liabilities involved. Privacy concerns may be addressed by configuring the system so that no vehicle location data is stored by or transmitted to the authority, and the only information received by the authority is the total miles traveled within a certain pricing zone.
- **Data Communications** – At some point, vehicle use data must be transmitted to a central system for the calculation of the applicable user fees. Cellular networks and DSRC are potential options.

- **System Updates** – Every software application requires periodic updating and refreshing. The task of ensuring timely updates of the software contained in the on-board units presents a technical challenge.

### *Enforcement*

The need for an enforcement infrastructure is common to all road user charging systems – independent of charging policy or the approach used for charging. Although there have been numerous strategies proposed to prevent toll evasion, they can generally be grouped into two categories: 1) designing the On-Board Unit (OBU) that tracks the vehicle’s road usage in such a manner as to prevent tampering or disabling, and 2) observing the vehicle from fixed or mobile check points to ensure that charges are being recorded. The two are not mutually exclusive, however, and can be employed in parallel for the sake of redundancy.

Strategies proposed to prevent tampering with the OBU include the following:

- Disabling the engine unless the OBU also is activated;
- Ensuring that the components of the OBU can be accessed only by certified professionals; and
- Checking the OBU’s distance monitoring records against the odometer reading each time the unit is turned on, and flagging any discrepancies.

Strategies for observing the vehicle from fixed or mobile checkpoints include:

- Using roadside readers to transmit queries to passing vehicles to ensure that their OBUs are in fact operating as intended.
- Using video cameras to capture images of vehicles that have passed a given check point; this information can later be cross-referenced against billing records to ensure all identified vehicles did in fact pay the corresponding tolls.

### *Example Projects and Programs*

Two all-road pricing pilot projects currently are underway in Washington and Oregon. The PSRC’s Traffic Choices Study investigates whether participants might opt to change their travel patterns (such as opting to telecommute, take transit, or travel during off-peak hours) if they are charged a fee for travel on all freeways and major arterials in the Puget Sound area with higher fees during peak hours. An OBU is installed in each participating vehicle and provides a running tally of the user’s assessed cost per trip. This amount is then debited from a prepaid account (funded by the study). At the conclusion of the study, participants will get to keep any money not used in the account. The system architecture uses cellular communications to transmit data from the OBU to the central system for processing. Participants may log on to the project web site to view their “account activity” online.

The Oregon DOT's Road User Fee Pilot investigates the potential for Road User Charging to replace the state gas tax. Participants are assessed a per-mile charge based on miles driven in Oregon by zone. Participating vehicles will be equipped with an OBU that tracks the vehicle's mileage traveled in each zone. This data will be downloaded wirelessly at the gas pump when the vehicle stops to refuel. The usage fee is then added to the total due, while the gas tax is credited. Both amounts are shown on the user's receipt. By collecting the fee at the gas pump, Oregon could continue to charge a gas tax to non-equipped vehicles.

While both ODOT and PSRC are installing a vendor-provided OBU in each vehicle participating in the pilot projects, it is anticipated that the technology provided by the OBU will eventually be standard equipment in all new cars. By continuing to collect the gas tax from non-equipped vehicles, ODOT leaves the door open to implement Road User Pricing without waiting for the majority of citizens to purchase new cars.

Other examples of international implementations include the following:

- **Heavy Vehicle Fee (HVF) or LSVA System in Switzerland** – Switzerland introduced a toll system for trucks over 3.5 tons in January 2001. The supporting technology includes an OBU (mandatory for all Swiss vehicles and optional, though encouraged, for foreign vehicles) featuring GPS and DSRC, as well as a connection to the vehicle's tachometer (including odometer information).
- **“GO” Weight-Distance Truck Toll Program (LKW) in Austria** – Austria introduced an electronic toll collection system for trucks over 3.5 tons in January 2004, based on DSRC microwave technology.
- **“Toll Collect” Weight-Distance-emissions Truck Toll Program in Germany** – Germany followed suit with some delay through technical problems on January 1, 2005. The German Toll Collect system is based on a GPS technology; truck operators may choose to either install OBUs for automated tracking of movements, or to book their route in advance using the Internet or computerized booking terminals.

## ■ Toll Technology Considerations, Opportunities, and Risks

The deployment of toll collection technology to meet the operational requirements of the various types of toll collection approaches described above comes with a wide range of potential challenges, issues, opportunities, and risks. Understanding the factors and their implications is required when selecting an overall approach to tolling within the State of Washington. Policy and toll project decisions will influence the technology choices, but technology also will have an impact on policies and projects. The remainder of this section identifies specific areas to be considered and their potential implications.

## Toll Collection Methods

### *State of the Practice*

The choice of toll collection method should be based on the operational requirements of the individual toll project, recognizing the need for interoperability with other systems around the State. The following types of systems currently are available:

- **Manual Toll Collection** – This traditional approach has been around for centuries. A driver stops at a tollbooth and pays the required toll directly to a toll collector. Cash and agency issued payment cards are generally accepted modes of payment, and some systems now accept third-party credit or debit cards, though this is rare in the U.S. Toll plazas can be located on highway mainlines or at entrances or exits to the facility. Manual toll collection can accommodate up to 400 vehicles per hour in a pure-cash environment. Credit transactions reduce this rate considerably. Typically, tollbooths are provided in a ratio of three or four for every lane of through travel, which requires considerable right-of-way.
- **Unattended Toll Collection** – An early step in automation was the introduction of automatic coin machines, where drivers placed the required toll payment in a basket and the machine counted the amount. While coin machines have become less popular with toll agencies because of high maintenance requirements and the introduction of ETC, a related approach is still being used at locations and times of low-traffic volume. A self-service machine – similar to parking pay and display machines – is used to allow the driver to pay the toll with currency or credit card when a toll collector is not present. The need for right-of-way remains, but staffing costs are reduced. This practice is used for low-volume facilities and during late night hours at many facilities.
- **ETC** – This method uses automatic vehicle identification technology that identifies a toll customer while the vehicle passes through a toll plaza, sometimes at highway speeds. Customers need to have an identification tag, usually an electronic transponder that is linked to the customer’s account, which is automatically debited for the amount of the toll. ETC may be used in dedicated lanes, or combined with manual toll collection. Cameras are used to identify violators.
- **Open Road Tolling (ORT)** – This is a form of electronic toll collection without tollbooths. Customers pass through a highway toll collection zone at full highway speed, and capacities over 2,000 vehicles per hour. Most deployments require vehicles to be equipped with transponders for the payment of tolls, and cameras are used to capture the images of violators. Some installations now allow drivers without transponders to “pay by plate,” which allows customers to register their vehicle with the toll authority and pay the applicable toll either before or after they access the facility via telephone or Internet. If customers do not register, their name and address is obtained via the license plate, and they are sent a payment notice.

- **Global Positioning System (GPS) Tolling** – Under this approach, a GPS unit and wireless communication link are installed in a vehicle to track its location within a charge area or network. The OBU will contain the appropriate charge structure, as well as information concerning when the vehicle should be charged. Charges are applied using the position information provided by the GPS system. PSRC is conducting a demonstration of value pricing using this approach, and a countrywide installation of GPS tolling was recently introduced for tolling trucks in Germany.

### *Methods To Be Used in Washington State*

The TNB toll collection system currently under construction will have three ORT lanes for patrons with transponders, and six manual toll lanes for customers using cash. Vehicles without transponders that use the ORT lanes will be treated as violators. Pay by plate will not be allowed, although this approach may be considered in the future based upon operational experience. The SR 167 HOT Lane pilot project will use ORT to allow for dynamic pricing, and to avoid the need for space-consuming toll plazas. HOT lane toll facilities are only being developed as strictly open-road tolling systems.

### **Interoperability**

Washington is moving toward a consolidated operations model for interoperability under which customers will have a single account, transponder and phone number to call. WSDOT has selected a common transponder technology to be utilized at all future toll facilities. The customer service center and related back office system for the TNB will most likely serve as the customer service center for the SR 167 HOT Lanes Demonstration Project. Transaction data from SR 167 will need to be transmitted to the TNB back office system for processing. In turn, transponder status information will be made available at the lane level for SR 167.

An additional complicating factor is that revenue collected at the Tacoma Narrows Bridge (minus operational and maintenance costs) is legally designated to pay back the motor vehicle fund which financed the bridge construction (RCW 47.46.140). Therefore, the costs for providing services to other facilities as part of a statewide interoperable toll collection system must be fully accounted for.

The consolidated approach is what customers expect. However, as toll facilities outside of the Puget Sound Region develop, there may be a need to consider regional customer service operations. The potential new crossing of the Columbia River in the Vancouver/Portland region is one such example.

### **Toll Collection Without Toll Booths**

Modern technology has eliminated one of the main complaints about toll facilities: stopping to pay the toll. Nonstop toll collection is enabled by either vehicle-mounted

transponders or devices to automatically read license plates. In an urban setting with a primarily local population, projects being developed today can safely do away with manual toll collection, since the majority of the customers can be encouraged to get transponders. Those that choose not to get transponders can have tolls collected through the automated license plate recognition systems. ORT requires less right-of-way, no toll collectors, and no stopping for toll patrons. It is possible that, if the TNB were being designed today, there would be no manual tollbooths.

On the flip side, ORT means that operational costs are shifted to customer service and violation enforcement activities. Violation enforcement activities can be time-consuming, because they rely on people reading license plate images captured by potential violators, and a sometimes cumbersome process to verify, process, and collect tolls and fines. It is still unclear whether current operations that are 100 percent ORT have lower operational costs than manual operations.

As Washington looks forward to projects beyond TNB, it should actively consider whether any manual toll collection should be provided. In the immediate term, 100 percent ORT should be actively considered for all new toll facilities, especially for high volume, urban settings with limited right-of-way, and all HOT lane implementations. The combined manual/ORT configuration might best be used in lower volume locations with a lower percentage of repeat customers. Over time, this conclusion might change, as national standards emerge for built-in in-vehicle transponder technology.

### ***Third-Party Service Providers***

Looking towards the future, many auto manufacturers will be installing transponders as factory equipment in new cars, once the national roadside to vehicle communications protocol has been firmly established. These transponders will go far beyond toll payment to potentially include a wide variety of retail (such as using the transponder account to pay for drive-through restaurant service), traveler information, and road safety applications. Essentially, these transponders would function as an in-vehicle credit card, with the likely expectation from the customer that they will receive a single invoice for all of their in-vehicle transactions. In this scenario, the government tolling authority would interface with a third-party service provider to bill each customer's account. The means to securely activate this on-board interface will need to be determined.

### **Setting the Toll Rate**

Traditionally, the toll rate for a facility has been set to pay for the capital, operating, and maintenance costs of the facility or authority. This toll rate has generally been fixed based upon the classification of a vehicle, with heavy commercial vehicles paying more than passenger cars. However, charging drivers a fee that varies with the level of traffic on a congested roadway can allocate roadway space in a more economically efficient manner. Toll rates for individual vehicles can be determined in the following manner:

- **Fixed Toll Rates** – The most common practice is to set a fixed toll rate based upon vehicle characteristics such as the number of axles.
- **Time of Day** – Because travel demand varies based upon the time of day, toll rates can be set based upon historic traffic levels. SR 91 Express Lanes in Orange County, California use a time-of-day schedule. The public generally easily understands time-of-day schedules.
- **Dynamic or Traffic Conditions-based Pricing** – Time-of-day pricing is based upon historical information and does not account for actual conditions each day. By using traffic sensor information, real-time traffic conditions can be determined and used to update prices as conditions change. When developing dynamic pricing algorithms, the balance between revenue generation and mobility will need to be determined. To ensure that a driver is charged the correct toll under a dynamic pricing approach presents a technical challenge. The driver must be informed of the price of the trip, and the price must remain constant for the duration of the trip. This is more easily done for a corridor with limited access points than an entire network of roadways.

## Enforcement

Since the first construction of toll facilities, users have attempted to avoid payment of the required toll. The introduction of ETC without gates and toll collectors has resulted in the deployment of technology to automatically identify toll evaders and demand the payment of the required tolls. The primary goal of enforcement is to ensure that there is an acceptable level of compliance, and enforcement efforts are considered to be fair and consistent. The changing attitude in the toll industry is to treat violators first as potential new customers, and secondly as violators. The enforcement program will need strike a balance with the desire to bring more travelers into compliance.

The second aspect of enforcement is the acceptance that not all tolls will be collected. Like any business, this potential loss must be identified, quantified, and mitigated in a cost-effective manner.

## Out-of-State Drivers

Infrequent users of a toll facility will have little incentive to enroll as ETC customers and obtain transponders. For tolling projects without manual toll collection, images of their license plates will be captured for further processing. If a pay-by-plate options exists for the facility, the driver may register their vehicle and pay over the telephone, Internet, or upon receipt of a notice. If no payment were received, they would become a violator.

Acquiring information on the registered owner of a vehicle from out of state is a common practice. Within the United States, most state DMVs will accept requests from other states for no or little costs. Once an address is obtained, a demand letter can be sent.

Unfortunately, enforcement mechanisms available against in-state vehicle owners cannot be brought to bear against out-of-state owners (e.g., registration hold, notice of infraction, etc.). The cost to collect these tolls from out-of-state residents will be higher. Particular attention will be required in establishing the bi-state toll enforcement requirements for the potential new Columbia River crossing between Washington and Oregon.

Unfortunately, the ability to obtain names and addresses for the owners of vehicles registered in Canada currently is not available. British Columbia and other provinces are unwilling to share private information on their citizens that would be stored in databases in other countries. Enforcement of violators from Canada will require further attention.

## **HOT Lanes – Operational Considerations**

HOT lanes have specific functional requirements to be considered. Because the concept is to “sell” excess capacity of the HOV lanes, traffic conditions must be monitored in real time to ensure that there is excess capacity available to sell at a given time of day. This information is used to dynamically set the toll rate for SOV drivers who wish to use the HOV lanes. This concept of operations leads to a set of requirements that include:

- **ETC Only** – Stopping traffic to collect tolls is antithetical to the idea of providing a higher level of service for a fee. The HOT lane concept implies that toll collection must be electronic to provide for nonstop toll collection. However, the operational difficulty lies in not charging an HOV vehicle that also happens to be equipped with a transponder for using the HOT lanes. While this issue can be successfully resolved with technology, customer service and driver education issues will need to be addressed.
- **Manual Enforcement** – For now, all HOV enforcement requires a police officer to verify on the spot that the vehicle is an HOV. This places the operational burden of providing enforcement on the Washington State Patrol. This additional duty will require funding and additional staff beyond currently available resources.
- **Notification of Toll Rates** – SOV drivers will need to be notified of the toll rate at a point before they enter the HOT lanes, and be assured that the posted rate is the rate they will be charged. For a corridor, this can be addressed even with multiple access points. For a network of HOT lanes across the region, it will present additional challenges.

## **Public-Private Partnerships**

Under the Transportation Innovative Partnerships Program, Washington State is reviewing and updated its approach to Public-Private Partnerships (PPP) for transportation projects. It is anticipated that some of the potential projects under this program would include a tolling component. The tolling technology and operational

aspects of these projects must be coordinated with the overall WSDOT tolling program. Issues to be coordinated will include toll setting authority, interoperability, customer service, enforcement policy and procedures, cost allocation, and technology upgrades. The first four items are the most critical from a customer perspective.

## **Proprietary Technology**

Currently, there is not a national standard for the sharing of information between the transponder in a vehicle and the roadside transponder reader. There are regional and programmatic standards with a small number of suppliers. The national standard is under development and should be on the market within the next several years. It is anticipated that manufacturers will install transponders that are compliant with the new national standard in new vehicles.

WSDOT has selected as its primary transponder one that is proprietary to a single supplier. This selection was made to provide a shorter-term, cost-effective solution to fill the gap between current technology and the new standard. WSDOT policy is, and should remain, to move to national technology standards in an orderly fashion as they are adopted. In this way, multiple suppliers will become available, and use of proprietary technology can be minimized over time.

## **Technology Refresh**

Within less than 10 years, a technology investment has generally reached the end of its economic life, especially with the rapid advancement of technology. The same is true for ETC systems. The State and any potential private partners should consider this lifespan and be ready to upgrade relevant components of the ETC system at all levels. Flexibility will be required as the technology marketplace moves the toll industry in directions that have not been anticipated.

The State should actively monitor the progress of developing a national standard for transponders and consider becoming a test bed for early deployment of this standard. This would provide an opportunity to fully test the standard and integrate it into toll and other applications. The toll collection system should be reviewed on a two-year cycle to determine its overall performance against current toll technology and operational benchmarks.

## **Privacy**

To date, participation in electronic toll collection programs by equipping a vehicle with a transponder has been voluntary. Any toll system that requires the use of electronic toll collection will mandate the identification of individual vehicles, which in theory could be used to record time, location, and speed of travel. At least some segment of the population will oppose any new technology that may enable the government to monitor their movements.

Current Washington State law provides ETC account protection, which prohibits the release of information to third parties. However, pressure remains to allow the release of individual travel records to third parties. For example, current law allows media access to transit smart card information. Once ORT, which will enable toll collection without transponders, is deployed, the same safeguards provided to ETC accounts should be extended to the patrons without transponders.

## **Project Cost Allocation**

WSDOT is primarily organized to deliver a completed highway project. If more than one toll project is implemented and customer service functions are shared, then a means for the proper allocation of operational and capital costs among the various projects will need to be developed. Many toll projects are financed under strict bonding covenants and enabling legislation that restricts how toll revenue can be spent. TNB is one such example for which revenues and costs cannot be shared with other projects. If the TNB customer service center is used for projects beyond TNB, then a means to quantify and charge other projects for services will be required. This requirement for project cost accounting also implies that an internal means to track operational costs for providing services must exist, in order to provide a basis for the allocation of costs.

## **Routine Operations and Maintenance**

Toll collection programs require a level of overall system and operational availability not generally demanded by most business and government activities. If the components of the toll collection system and operations are not working, then customers are not being served adequately and revenue can be lost. Trained staff provided at adequate levels is required to maintain and operate enterprises of this extent.

*Background paper prepared by the IBI Group, with assistance from Cambridge Systematics, Inc. in January 2006.*

## Background Paper #9

# Analysis of Illustrative Examples

### ■ Introduction

One element of the Comprehensive Tolling Study is an analysis of traffic, revenue and other considerations of potential tolling and pricing projects in Washington State. The approach to this effort was developed in consultation with the Washington State Transportation Commission (“the Commission”) and Washington State Department of Transportation (WSDOT) staff.

### Important Note about the Illustrative Examples

As noted above, the illustrative examples were chosen for their use in illustrating policy concepts as the Transportation Commission considered its policy recommendations to the Legislature. *The selection of the illustrative examples does not imply that these projects will be considered for tolling. If any of the illustrative examples were to move forward, considerable additional study would be needed to estimate traffic and revenue, operations and implementation considerations, project costs, and appropriate toll rates.*

### Selecting the Illustrative Examples

Our first step was to compile a comprehensive list of potential tolling projects, and then identify projects that could serve as illustrative examples of different policies that the State may wish to pursue. Cambridge Systematics then worked with WSDOT staff to develop a proposed list of illustrative examples to use for this study, keeping in mind the following constraints and opportunities:

- Certain projects were named in the legislation that mandated the Comprehensive Tolling Study:
  - Cross Base Highway (SR 704);
  - SR 520 Floating Bridge;
  - I-405 Managed Lanes; and
  - Alaskan Way Viaduct.

- The legislation also directed that this study provide information to support the Regional Transportation Investment District (RTID) to determine the feasibility of value pricing on a facility or network of facilities in King, Pierce, and Snohomish counties.
- WSDOT has a parallel study underway in the Puget Sound region addressing a variety of congestion relief efforts, including those involving pricing, the Congestion Relief Analysis, Phase 2 project.
- The project scope is statewide.

In reviewing the project list, we considered the policy being illustrated; geographic location, aiming for state diversity; and availability of quantitative tools and to evaluate the scenario.

The first step in the process was for the consultant team to work with WSDOT staff and the Commission’s Toll Study Committee to develop a comprehensive list of potential tolling applications. That comprehensive list is provided in Appendix A. From that list, we applied the criteria described above to identify those that would be most effective for the policy discussion. The resulting examples are summarized in Table 9.1.

**Table 9.1 Illustrative Examples**

Project	Illustrates
<b>1. SR 704 Cross Base Highway</b> Two lanes each direction, as designed; one toll point on either side of the center interchange. All-electronic toll collection.	Funding a highway project
<b>2. Snoqualmie Pass Improvements</b> Safety improvements and some capacity enhancement	Funding a highway improvement, maintenance, and operations project
<b>3. SR 520 and I-90 Bridges over Lake Washington</b> <b>SR 520:</b> <ul style="list-style-type: none"> <li>• 3 lanes each direction, one of which is a 2+ HOV lane;</li> <li>• everyone but HOV3+ tolled</li> <li>• variable tolls to manage demand</li> </ul> <b>I-90:</b> <ul style="list-style-type: none"> <li>• R8A project (adds one HOV2+ lane each direction in outside roadway) and existing center lane operations.</li> </ul> Everyone but HOV3+ tolled	System of tolled bridges for traffic management and funding

**Table 9.1 Illustrative Examples (continued)**

Project	Illustrates
<p><b>4. SR 167 and I-405 HOT Lane System: Sumner to Bellevue</b></p> <p><b>SR 167:</b></p> <ul style="list-style-type: none"> <li>• Add one HOT lane and convert existing HOV lane to HOT lane; add HOV lane south of SR 18); results in two HOT and two general purpose lanes in each direction.</li> <li>• HOV2+ are free.</li> </ul> <p><b>SR 405:</b></p> <ul style="list-style-type: none"> <li>• Add one HOT and one general purpose lane, and convert existing HOV lane to HOT lane in each” direction; results in two managed and three GP lanes in each direction. Consistent with “Option D.”</li> </ul> <p>HOV2+ are free.</p>	<p>HOT lane system corridor for traffic management. Anticipates that additional non tolling capital would be required.</p>
<p><b>5. I-405 North HOT Lanes – SR 520 north to I-5 (Swamp Creek)</b></p> <p><b>Project Capacity Improvements:</b></p> <ul style="list-style-type: none"> <li>• Nickel plus TPA Projects from SR 520 north;</li> <li>• Nickel only from SR 520 South.</li> </ul> <p><b>HOT Lane Definition:</b></p> <ul style="list-style-type: none"> <li>• Two lanes each direction from 520 to 522 (one added lane plus the existing HOV lane);</li> <li>• One lane each direction from 522 to I-5 (convert existing HOV lane).</li> </ul> <p>HOV2+ are free</p>	<p>HOT lane that can be implemented in the near term, consistent with current planning efforts, that includes additional capacity, not just conversion of existing HOV lane.</p>
<p><b>6. I-5 in Lewis County</b></p> <p>Two tolling points were assumed, located in segments aimed at mitigating potential diversion while generating significant revenue. The southern tolling location is near the Toutle River Safety Rest Area and the northern tolling location is within the Grand Mound to Maytown segment of I-5.</p>	<p>Toll an existing freeway to generate revenue for major improvements.</p>
<p><b>7. I-5 and Alaskan Way Viaduct in Seattle</b></p> <p>Tolling of I-5 from I-405 at Tukwila northward to Northgate for a distance of 18 miles. The Alaskan Way Viaduct would be tolled from Spokane Street to Roy Street for a distance of 4.5 miles. Both facilities were assumed to have all electronic time-of-day distance-based pricing.</p>	<p>Toll existing freeways in a dense urban area to generate revenue for major improvements, with an element of traffic management.</p>
<p><b>8. Statewide Truck Tolling</b></p> <p>Commercial vehicles charged a per mile charge in Washington State.</p>	<p>Tolling commercial vehicles to increase system effectiveness, revenue, and as a precursor to more extensive highway tolling.</p>
<p><b>9. Container Fees</b></p> <p>Application of a direct user charge to international freight that does not involve a general tax increase.</p>	<p>The use of fees to fund intermodal improvements that aid freight flows in the region.</p>

## ■ Overall Approach

We customized the approach to each example to conform to the analytical tools that were available. For projects in the Puget Sound region, we used the regional travel demand model improved by PSRC and WSDOT for use on the Congestion Relief Analysis study. For projects outside of Puget Sound, we used other available data and sketch planning techniques to estimate how travelers might respond to tolls.

In addition to the traffic and revenue components of the study, we also looked at performance measures relating to travel time savings and the value of those savings, and overall efficiency of the system. We built upon cost estimates already prepared by WSDOT for many of the projects, and developed independent, planning level estimates of the additional cost of tolling particular projects.

The financial elements of the analysis were brought together using a spreadsheet analysis which incorporates assumed inflation rates, debt service coverage, and bond interest rates with the 35-year net revenue stream for each project, resulting in an estimate of the amount of construction funds that might be generated for each project.

### Travel Demand Modeling Approach in Puget Sound Region

Since several of the illustrative examples were in the Puget Sound region, an important part of the project was use of the modified travel demand model in that region for testing tolling and pricing concepts.

Traffic and revenue forecasts are challenging because they must anticipate the behavior of millions of people, consider the uncertainty of future economic conditions, and take account of policy actions by many government agencies. Numerous traffic and revenue forecasts have been off the mark in recent years. The CRA project worked to develop better methods of analyzing tolling projects and explain the risks and uncertainties inherent in toll road traffic and revenue forecasts. The most important thing about traffic and revenue studies – even if they are not investment grade – is that they be reasonable, conservative, transparent, and supported by the analysis. Regardless of the results, it is important that the Commission and WSDOT understand the assumptions that go into an analysis and the limitations of that analysis.

Traditionally, analyses to support the development of tolling projects focused on one factor – revenue generation. Since tolling is now being asked to accomplish traffic management goals, the analysis needs include the impact on traffic flow – both on and off the target facility.

Improvements to the travel demand model for the Puget Sound region increased its sensitivity to pricing changes. The model incorporates techniques that allow travelers to choose not only their destination and mode based on price, but also whether they will

shift time of travel or their route in reaction to congestion or toll prices. These improvements can be summarized as follows:

- **Value of time by market segment** – Research and updates on value of time for nine different market segments, which is used in trip distribution, mode choice, time-of-day choice, and trip assignment model components.
- **Time-of-Day Choice Model** – This component was updated to evaluate congestion and pricing impacts for 30-minute time periods in the peak periods.
- **Modal Impacts on Destination Choice** – Additional processing of transit and HOV3+ trip tables to allow these travelers to choose destinations based on a free pass for pricing alternatives compared to other travelers, who will choose destinations based on various pricing alternatives.
- **Toll Optimization Model** – This model evaluates volumes by time period (15), direction of travel and by link segment to identify the optimum toll rate for any scenario. It is run in an iterative process with the travel demand model to produce an optimum toll structure.
- **Performance Measures** – A series of performance measures and software tools to produce these performance measures were developed to evaluate the performance of each scenario.

Because toll forecasting with regional travel forecasting models is fairly new, many of these techniques were adapted for use in this toll study based on an initial evaluation of the toll forecasting results. For example, since the actual value of time by market segment is not known and is expected to vary considerably among different travelers even within a single market segment, we implemented a range of values of time based on the current research. This enables us to understand the overall impacts of this variable on the results, which is significant.

In addition to the advancements that were made for traffic and revenue forecasting purposes, it is important to recognize the remaining limitations of this analysis. These limitations were described in an earlier working paper and are summarized here for completeness. The remainder of the paper describes the travel forecasting methods, the toll optimization model and the future network assumptions.

## Limitations of this Comprehensive Tolling Study

This Comprehensive Tolling Study is structured to take a preliminary look at several illustrative examples of potential toll projects in Washington State, with the purpose of guiding overall policy-making with regards to tolling. In the early phase of the project, the consultant team worked with the Commission to recommend the scenarios that best represented the kinds of projects that might be considered in the State in the near, medium, and long term. Since the entire universe of potential projects is not being



considered, this study is not intended to definitively determine the suitability of any particular project for tolling or pricing, nor as a means to priority rank projects. And it is certainly not intended to be an investment-grade analysis.

## ■ SR 167/I-405 HOV/Express Toll Lanes

### Description

The SR 167/I-405 corridor is the main north-south artery serving the growing communities on the east side of Lake Washington. WSDOT is in the midst of a planning process considering alternatives to improve mobility in this corridor. The policy objective of this project was to evaluate a set of HOT lanes that can be managed through variable pricing. The lanes would provide a motorist with a choice to travel at near free flow speeds when they have a need or desire to do so.

The toll concept evaluated in this corridor would provide come additional capacity in the form of managed lanes, where price would be used to keep the special lanes free flowing at all times. The illustrative project 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. The new lane, plus the existing HOV lane would be operated as HOV/express toll lanes, and there would also be two general purpose lanes in each direction.

On the I-405 portion, the HOV/express toll lanes would extend from the SR 167 interchange north to SR 522 in Bothell, a distance of about 20 miles. On I-405, two lanes would be added in each direction from SR 167 to I-90, consistent with the “Implementation Plan” configuration being designed by the I-405 project team. One of these new lanes would be a general purpose lane. The other new lane would become a HOV/toll express lane, together with the existing HOV lane,

resulting in two HOT lanes in each direction. Between I-90 and SR 522 in Bothell there would be two HOT lanes and three General Purpose lanes in each direction, except at the N.E. 6<sup>th</sup> Street interchange where one of the HOT lanes would exit at a HOT interchange, with the other HOT lane continuing through the interchange to just beyond SR 520. This is the same amount of overall capacity expansion anticipated by the State’s “Nickel” and TPA funding programs.

Access to the HOT lanes would be provided at slip ramps between the HOT and general purpose at various designated locations, generally between each interchange along the project limits. The HOT lanes could also be accessed by a new freeway-to-freeway ramp at the SR 167/I-405 interchange and a few other HOT direct access ramps along I-405. Those vehicles with two occupants or less would be required to pay a toll, while vehicles with three or more occupants would be allowed free access to and from the facility.

## Comparison Scenario

Typically, potential transportation improvement projects are compared to a “no build” alternative to evaluate project effectiveness. However, since HOT lanes represent a policy choice of how to provide additional capacity in this corridor, we compared the HOT lane concept to one where the additional capacity was devoted entirely to general purpose traffic. This scenario is called the “Build HOV” condition.

## Corridor Performance

With HOT Lanes, the most direct comparison of performance is to consider the overall vehicle miles and hours by travelers in special lanes, in the general purpose lanes, and in total between the HOT lane and Build HOV scenarios (see Table 9.2). The total VMT divided by the total VHT provides a measure of the average system speed, an easy-to-understand performance measures.

The HOT lane scenario is expected to carry more VMT along the corridor as compared to the Build HOV particularly in the northbound peak direction in the a.m. peak period. Even with higher VMT, the Build HOT scenario has lower VHT, indicating overall better utilization of the available capacity than the Build HOV scenario. When looking at average speeds in the corridor, the HOT lanes are expected to be slightly slower than the HOV lane since they allow more vehicles in the HOV lane while still providing for free-flow conditions through pricing. The significant difference is shown in the general purpose lanes where under the Build HOT scenario average speeds are 5 to 9 mph faster in the corridor as compared to the Build HOV scenario. In addition, the overall total average speeds are expected to be 6.6 to 11.1 miles per hour faster under the Build HOT compared to the Build HOV condition. The value of these time savings was conservatively estimated at \$43 million per year.

**Table 9.2 Comparison of HOT Lanes and Build HOV Scenarios**  
*A.M. Peak Period*

Scenario/Lanes	Vehicle Miles Traveled		Vehicle Hours Traveled		Average Speed	
	SB	NB	SB	NB	SB	NB
<b>Build HOT</b>						
GP Lanes	467,750	478,186	10,236	10,471	45.7	45.7
HOT Lanes	110,668	211,697	1,910	3,623	57.9	58.4
Total	578,418	689,883	12,146	14,095	47.6	48.9
<b>Build HOV</b>						
GP Lanes	566,885	638,081	13,975	17,255	40.6	37.0
HOV Lane	19,577	38,513	326	642	60.0	60.0
Total	586,462	676,594	14,301	17,897	41.0	37.8
<b>Differences (Build HOT minus Build HOV)</b>						
GP Lanes	-99,135	-159,895	-3,739	-6,784	5.1	8.7
HOV Lane	91,091	173,184	1,584	2,981	-2.1	-1.6
Total	-8,044	13,289	-2,155	-3,803	6.6	11.1

## Revenue Estimates

HOV/toll express lanes work by setting the price at a level that maximizes flow in the toll lane. Since HOV 3+ traffic would be allowed free access to the lanes under this example, toll rate levels are adjusted to managed the amount of toll paying vehicles that access the facility in order to preserve free flow operations of the lanes. In actual operation, toll rates would be adjusted dynamically in response to real-time traffic conditions, which vary from day to day and minute to minute. A regional travel demand model cannot capture this level of precision, but we are able to get a rough estimate of the toll rates that would be needed to achieve the flow-maximizing objective. Since traffic conditions vary at different locations on the highway, the toll rates would vary as well.

The project was divided into seven segments. The estimated a.m. peak period per mile toll rates needed to manage demand ranged from \$0.10 to \$0.90 in the northbound direction along SR 167 and \$0.10 to \$0.95 along I-405 in the southbound direction. Toll rates in the hours immediately before and after the peak periods were estimated to vary from \$0.10 to \$0.40 along SR 167 and \$0.10 to \$0.25 per mile along I-405. A minimum per-mile toll rate of \$0.10 was assumed for all time periods.

We estimated average weekday revenue for each time period and direction by multiplying the segment VMT by the per mile toll rate for that segment (see Table 9.3). A.M. peak period average weekday revenue is estimated to be \$56,908 as shown below, with the same amount for the p.m. peak period.<sup>1</sup> Peak-period revenue is estimated to account for more than 70 percent of the estimated revenue. This is because the peak periods not only have higher usage during these time periods due to congestion, but also would have significantly higher toll rates to manage demand. Total estimated annual revenue for year 2030 is \$41.3 million in year 2000 dollars.

**Table 9.3 2030 Estimated Revenue**  
*2000 Dollars*

Period	Average Weekday	Average Weekend Day	Annual
A.M. Peak Period	\$56,908	\$5,691	\$14,881,400
Midday Period	\$25,252	\$2,525	\$6,603,300
P.M. Peak Period	\$56,908	\$5,691	\$14,881,400
Evening Period	\$16,248	\$1,625	\$4,248,800
Night Period	\$2,746	\$275	\$718,100
Total Day	\$158,061	\$15,806	\$41,333,000

## Costs

Although the most recent project cost estimates for the 39 mile project are not available, we do know that this project would be extremely expensive to build. Tolling construction cost estimates were developed assuming a total of 42 access points (tolling zones) for northbound and southbound HOT traffic. It was assumed that the roadway improvement projects will include provision for the fiberoptic communication infrastructure for both ITS and tolling purposes. It is similarly assumed that newly constructed general-use lanes will have adequate loop detectors for both ITS and dynamic tolling purposes.

<sup>1</sup> We found that 2030 traffic conditions in the region's travel demand model were so saturated in the p.m. peak period that the estimates of traffic choosing to use a HOT lane in that period were unreliable. As a result, we made the simplifying (and probably conservative) assumption that revenue in the p.m. peak period would match that in the a.m. peak period.

Due to the large number of estimated toll transactions for this system (in excess of 60 million per year) a dedicated central host building and associated infrastructure for toll collection, customer service, and administrative functions has been included in the project tolling costs. Assuming the construction of 42 tolling zones, a central host building and associated infrastructure a tolling cost of \$80.2 million is estimated.

## Financial Analysis

A financial analysis was performed to estimate the amount of revenue that could be expected to contribute to the corridor improvements. Since the project cost estimates are anticipated to be extremely high, toll revenue is not anticipated to contribute significantly toward this cost. Since HOT lanes have transaction and revenue growth patterns that are not typical of traditional toll facilities, multiple-year forecasts are usually carried out to ensure reflection of the significant elasticity of these projects. In order to perform the financial analysis, forecasts of earlier year transactions and revenue potential were estimated. An assumed 5.0 annual percent rate of growth was assumed between 2010 and 2030 on transactions, with a corresponding 10.0 annual percent growth in revenue. The higher growth assumption on revenue is a result of the need to have real increases in rates beyond inflation to manage demand. Beyond 2030, conservative growth assumptions of 1.0 and 2.0 percent annually were used on transactions and revenue, respectively. At the selected toll rates and assumed growth rates, it is estimated that \$228 million (see Table 9.4) could be contributed toward capital improvements. Although this would not cover the cost to construct the facility, it would be more than enough to cover the additional cost of toll collection.

## Policy Findings

The policy objective of this project was to evaluate a set of HOT lanes that can be managed through variable pricing. The lanes would provide a motorist with a choice to travel at near free flow speeds when they have a need or desire to do so. Dedicating additional capacity in a congested highway corridor to HOT lanes can improve corridor operations as compared to a nonpricing alternative. Such a system is attractive because it provides drivers a clear choice between improved speed and reliability when they really need it and basic service when they do not.

Revenue generation is expected to be relatively low in comparison to the significant expenditure needed to make the improvements, however more than 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 HOT lanes a reasonable option to consider in this corridor, pending further detailed investigations.

**Table 9.4 Financial Analysis of HOT Lanes on SR 167/I-405**

Calendar Year	Year of Collection Dollars						
	Passenger Car Toll Rate <sup>a</sup>	Average Toll Rate	Annual Gross Revenue	Annual Operating Expenses	Net Revenue	Senior Lien Debt Service	Present Value
2010						3,810,684	\$3,615,450
2011						3,810,684	\$3,430,218
2012						3,810,684	\$3,254,476
2013						3,810,684	\$3,087,739
2014	0.49	0.49	12,925,827	6,257,130	6,668,697	3,810,684	\$2,929,543
2015	0.53	0.53	14,644,962	6,767,187	7,877,775	4,501,586	\$3,283,385
2016	0.57	0.57	16,592,742	7,318,745	9,273,997	5,299,427	\$3,667,285
2017	0.62	0.62	18,799,577	7,915,157	10,884,420	6,219,669	\$4,083,592
2018	0.67	0.67	21,299,921	8,560,174	12,739,747	7,279,855	\$4,534,791
2019	0.72	0.72	24,132,810	9,257,986	14,874,824	8,499,900	\$5,023,515
2020	0.78	0.78	27,342,474	10,012,358	17,330,116	9,902,923	\$5,552,860
2021	0.84	0.84	30,979,023	10,828,403	20,150,620	11,514,640	\$6,125,803
2022	0.91	0.91	35,099,233	11,711,032	23,388,201	13,364,686	\$6,745,759
2023	0.98	0.98	39,767,431	12,665,491	27,101,940	15,486,823	\$7,416,411
2024	1.06	1.06	45,056,499	13,697,577	31,358,923	17,919,385	\$8,141,678
2025	1.14	1.14	51,049,014	14,813,898	36,235,116	20,705,781	\$8,925,691
2026	1.23	1.23	57,838,533	16,021,317	41,817,216	23,895,552	\$9,772,973
2027	1.33	1.33	65,531,058	17,327,165	48,203,893	27,545,082	\$10,688,409
2028	1.43	1.43	74,246,688	18,739,272	55,507,417	31,718,524	\$11,677,271
2029	1.54	1.54	84,121,498	20,266,463	63,855,034	36,488,591	\$12,745,148
2030	1.67	1.67	95,309,657	21,918,180	73,391,477	41,937,987	\$13,898,078
2031	1.72	1.72	100,132,326	22,914,486	77,217,839	44,124,480	\$13,873,504
2032	1.79	1.79	105,199,021	23,955,737	81,243,284	46,424,734	\$13,848,903
2033	1.85	1.85	110,522,092	25,044,675	85,477,416	48,844,238	\$13,824,158
2034	1.91	1.91	116,114,510	26,182,854	89,931,656	51,389,518	\$13,799,370
2035	1.98	1.98	121,989,904	27,372,973	94,616,931	54,066,818	\$13,774,471
2036	2.05	2.05	128,162,593	28,617,021	99,545,572	56,883,184	\$13,749,516
2037	2.12	2.12	134,647,620	29,917,643	104,729,977	59,845,701	\$13,724,479
2038	2.20	2.20	141,460,790	31,277,312	110,183,477	62,961,987	\$13,699,374
2039	2.27	2.27	148,618,706	32,698,920	115,919,786	66,239,877	\$13,674,177
2040	2.35	2.35	156,138,812	34,185,177	121,953,635	69,687,791	\$13,648,903
2041	2.45	2.45	164,039,436	35,562,850	128,476,586	73,415,192	\$13,642,262
2042	2.55	2.55	172,339,832	36,995,877	135,343,954	77,339,402	\$13,635,173
2043	2.65	2.65	181,060,227	38,486,800	142,573,427	81,470,530	\$13,627,612
2044	2.75	2.75	190,221,875	40,037,921	150,183,953	85,819,402	\$13,619,592
						Par Amount	\$330,741,568
					Subtract Reserve Account	10.0%	\$33,074,157
					Subtract Capitalized Interest		\$15,242,737
					Subtract Expenses	1.5%	\$4,961,124
<b>Estimated Contribution of Tolls to Construction Fund in 2010</b>							<b>\$277,500,000</b>

<sup>a</sup> Note that toll rates would likely be rounded to the nearest five cents.

Construction Period	3 years
Bond Sale January 1 of	2010
Earning Period	35 years
Inflation Rate - CPI	3%
Inflation Rate - Costs	3%
Debt Service Coverage Ratio	1.75
Rating	BBB
Bond Interest Rate	5.40%
Assumed Toll Evasion	5%

## ■ I-405 North

### Description

This project would provide a HOT lanes system on I-405 extending from SR 520 in Bellevue to I-5 in Lynnwood. Two HOT lanes in each direction would extend from a point north of SR 520 to the SR 522 interchange in Bothell. A single HOT lane would continue north from SR 522 to the I-5 Swamp Creek interchange. HOV3+ vehicles could travel for free in the special lanes, and all other vehicles would have to pay the designated toll. The total distance of the project would be about 14 miles. The policy objective of this project was to evaluate a set of HOT lanes that can be implemented in the near term, consistent with current planning efforts, that includes additional capacity, not just conversion of existing HOV lanes.

In order to provide the HOT lanes, additional capacity would be added to the freeway from SR 520 to SR 522, consistent with the “Nickel plus Transportation Partnership Act

(TPA)” configuration being designed by the I-405 project team. This design generally would add one lane in each direction between SR 520 and SR 522. This lane would be designated as a HOT lane (combined with the existing HOV lane). In the section between SR 522 and I-5, the scenario would convert the existing HOV lane to a HOT lane without the addition of new lanes, except for a new northbound auxiliary lane between the N.E. 195<sup>th</sup> Street and SR 527 interchanges.



Access to the HOT lanes would be provided at slip ramps located approximately every two miles between the express toll and general purpose lanes.

### Comparison Scenario

Typically, potential transportation improvement projects are compared to a “no build” alternative to evaluate project effectiveness. However, since HOT lanes represent a policy choice of how to provide additional capacity in this corridor, we chose to compare the HOT lane concept to one where the additional capacity was devoted entirely to general purpose traffic. This scenario is called the “Build HOV” condition.

## Corridor Analysis Measures

With HOT Lanes, the most direct comparison of performance is to consider the vehicle miles and hours by travelers in special lanes, in the general purpose lanes, and in total between the HOT lane and Build HOV scenarios (see Table 9.5). When VMT and VHT are converted to speed, we can easily see the change in performance in the corridor for different corridor users.

**Table 9.5 Comparison of HOT Lanes and Build HOV Scenarios**  
*A.M. Peak Period*

Scenario/Lanes	Vehicle Miles Traveled		Vehicle Hours Traveled		Average Speeds	
	SB	NB	SB	NB	SB	NB
<b>Build HOT</b>						
GP Lanes	212,066	136,669	5,247	2,467	40.4	55.4
HOT Lanes	98,119	2,872	1,714	48	57.2	60.0
Total	310,185	139,541	6,961	2,515	44.6	55.5
<b>Build HOV</b>						
GP Lanes	273,257	129,196	9,070	2,280	30.1	56.7
HOV Lane	14,850	2,584	248	43	59.9	60.0
Total	288,107	131,780	9,318	2,323	30.9	56.7
<b>Differences</b>						
GP Lanes	-61,191	7,473	-3,823	187	10.3	-1.3
HOV/T Lane	83,269	288	1,466	5	-2.7	0.0
Total	22,078	7,761	-2,357	192	13.7	-1.2

The HOT lane scenario produces more VMT along the corridor as compared to the Build HOV scenario. It is particularly higher in the southbound, peak direction during the a.m. peak period. Even with higher VMT, the Build HOT scenario has lower VHT, indicating overall better utilization of the available capacity than the Build HOV scenario. When looking at average speeds in the corridor, the HOT lanes are expected to be operating at the same or at slightly slower speeds than the HOV lane since they allow more utilization of the lanes as compared to the HOV lane, while still ensuring free flow conditions through pricing. The significant difference is shown in the general purpose lanes where under the Build HOT scenario average speeds in the peak direction are 10 mph faster in the corridor as compared to the Build HOV scenario. Also, the overall total average speeds are 13.7 miles per hour faster under the Build HOT compared to the Build HOV condition. The value of these time savings was conservatively estimated at \$15.6 million per year.

During this same a.m. peak period, the off-peak direction (northbound) shows slightly slower speeds within the general purpose lanes in the Build HOT scenario versus the Build HOV. This is due to a couple of reasons. Since there is little or no congestion in the northbound direction during the a.m. peak period, the minimum toll rate of \$0.10 per mile is pricing out most of the non-HOV3+ eligible toll paying traffic demand. This coupled with having one less general purpose lane as compared with the Build HOV scenario causes some degradation in the travel speeds within the general purpose lanes, although they are still estimated to perform at an average speed of 55.4 mph. If we had used a minimum per mile rate of \$0.05 we would have likely seen this phenomenon disappear, as much more demand in the off-peak direction would be present in the HOT lanes, therefore reducing the volumes in the general purpose lanes resulting in an average speed of 60 mph in the general purpose lanes

## Revenue Estimates

Toll rates by segment for each time period were chosen so as to manage demand within the HOT lanes. The project was divided into three segments for the analysis, with each segment potentially having different per mile toll rates to ensure free flow conditions within each segment. The estimated a.m. peak per mile toll rates needed to manage demand ranged from \$0.35 to \$0.70 in the southbound direction. Shoulder toll rates ranged from \$0.10 to \$0.20 per mile. A minimum per mile toll rate of \$0.10 was used for all time periods.

Average weekday revenue estimates were calculated for each time period and direction by multiplying the segment VMT by the per mile toll rate for that segment. A.M. peak period average weekday revenue is estimated to be \$17,060 as shown in Table 9.6. Peak-period revenue is estimated to account for more than 74 percent of the estimated revenue. Total estimated annual revenue for year 2030 is \$12.0 million in year 2000 dollars.

**Table 9.6 2030 Estimated Revenue**  
 2000 Dollars

Period	Average Weekday	Average Weekend Day	Annual
A.M. Peak Period	\$17,060	\$1,706	\$4,461,200
Midday Period	\$6,968	\$697	\$1,822,200
P.M. Peak Period	\$17,060	\$1,706	\$4,461,200
Evening Period	\$3,862	\$386	\$1,009,900
Night Period	\$972	\$97	\$254,200
Total Day	\$45,922	\$4,592	\$12,008,700

## Costs

This project includes lane additions and HOV lane conversions for I-405 North, between SR 520 North and I-5 (Swamp Creek). The most recent and readily available project cost expressed in 2003 dollars for the I-405 North project is \$429 million.

Tolling construction cost estimates were developed for two HOT lanes in each direction, from SR 520 North to SR 522 and a single HOT lane, in each direction, from SR 522 to I-5. A total of 16 access points (tolling zones) for northbound and southbound HOT lanes traffic were considered in cost estimating. It was assumed that the roadway improvement projects will include provision for the fiber optic communication infrastructure for both ITS and tolling purposes. It is similarly assumed that the proposed general-use lanes will have adequate loop detectors for both ITS and dynamic tolling purposes.

An independent operation/toll center for this project would cost an estimated \$42.7 million. This includes construction cost of a central host building (containing all the associated equipment, hardware, and software to host the customer service and administrative functions).

If this project was part of a regional toll system with an existing host, in-place and operational, a tolling cost of \$20.7 million is estimated. This cost estimate is for construction of the above mentioned tolling collections (16 zones) and interface/modification costs associated with joining an existing operational central host for this region.

## Financial Analysis

A financial analysis was performed to estimate the amount of revenue that could be expected to contribute to the corridor improvements. Since HOT lanes have transaction and revenue growth patterns that are not typical of traditional toll facilities, multiple-year forecasts are usually carried out to ensure reflection of the significant elasticity of these projects. In order to perform the financial analysis, forecasts of earlier year transactions and revenue potential were estimated. An assumed 3.75 percent annual rate of growth was assumed between 2010 and 2030 on transactions, with a corresponding 7.5 annual percent growth in revenue. The higher growth assumption on revenue is a result of the need to have real increases in rates beyond inflation to manage demand. These are slightly lower than those assumed for the SR 167/I-405 project, reflecting lower overall growth in the I-405 corridor as compared to the SR 167 corridor. Beyond 2030, conservative growth assumptions of 1.0 and 2.0 percent annually were used on transactions and revenue, respectively. At the selected toll rates and assumed growth rates, it is estimated that \$84.0 million (see Table 9.7) could be contributed toward capital improvements, about 20 percent of the cost of highway construction, but more than enough to cover the additional cost of toll collection.

**Table 9.7 Financial Analysis of HOT Lanes on I-405 North**

Calendar Year	Year of Collection Dollars						
	Passenger Car Toll Rate <sup>a</sup>	Average Toll Rate	Annual Gross Revenue	Annual Operating Expenses	Net Revenue	Senior Lien Debt Service	Present Value
2010						1,746,315	\$1,656,846
2011						1,746,315	\$1,571,960
2012						1,746,315	\$1,491,423
2013						1,746,315	\$1,415,012
2014	0.55	0.55	5,425,070	2,369,018	3,056,052	1,746,315	\$1,342,516
2015	0.58	0.58	6,006,908	2,531,541	3,475,367	1,985,924	\$1,448,502
2016	0.62	0.62	6,651,149	2,705,375	3,945,775	2,254,728	\$1,560,307
2017	0.66	0.66	7,364,485	2,890,996	4,473,489	2,556,280	\$1,678,354
2018	0.71	0.71	8,154,326	3,089,405	5,064,921	2,894,240	\$1,802,890
2019	0.76	0.76	9,028,878	3,301,326	5,727,552	3,272,887	\$1,934,305
2020	0.81	0.81	9,997,225	3,527,877	6,469,348	3,696,770	\$2,072,887
2021	0.86	0.86	11,069,427	3,770,073	7,299,354	4,171,059	\$2,219,009
2022	0.92	0.92	12,256,623	4,028,799	8,227,824	4,701,614	\$2,373,116
2023	0.98	0.98	13,571,146	4,305,182	9,265,964	5,294,837	\$2,535,619
2024	1.05	1.05	15,026,651	4,600,620	10,426,032	5,957,732	\$2,706,898
2025	1.12	1.12	16,638,260	4,916,400	11,721,860	6,698,206	\$2,887,412
2026	1.19	1.19	18,422,713	5,253,888	13,168,825	7,525,043	\$3,077,646
2027	1.27	1.27	20,398,549	5,614,308	14,784,241	8,448,138	\$3,278,159
2028	1.36	1.36	22,586,293	5,999,633	16,586,661	9,478,092	\$3,489,388
2029	1.45	1.45	25,008,673	6,411,272	18,597,401	10,627,086	\$3,711,949
2030	1.55	1.55	27,690,853	6,851,434	20,839,420	11,908,240	\$3,946,342
2031	1.60	1.60	29,092,011	7,162,730	21,929,280	12,531,017	\$3,939,970
2032	1.66	1.66	30,564,066	7,488,341	23,075,726	13,186,129	\$3,933,537
2033	1.72	1.72	32,110,608	7,828,633	24,281,975	13,875,415	\$3,927,094
2034	1.78	1.78	33,735,405	8,184,515	25,550,890	14,600,509	\$3,920,602
2035	1.84	1.84	35,442,416	8,556,393	26,886,023	15,363,442	\$3,914,107
2036	1.90	1.90	37,235,803	8,945,246	28,290,556	16,166,032	\$3,907,572
2037	1.97	1.97	39,119,934	9,351,820	29,768,115	17,010,351	\$3,901,002
2038	2.04	2.04	41,099,403	9,776,889	31,322,514	17,898,579	\$3,894,403
2039	2.11	2.11	43,179,033	10,221,263	32,957,770	18,833,011	\$3,887,778
2040	2.19	2.19	45,363,892	10,685,783	34,678,108	19,816,062	\$3,881,132
2041	2.27	2.27	47,659,305	11,116,562	36,542,743	20,881,568	\$3,880,284
2042	2.37	2.37	50,070,866	11,564,607	38,506,258	22,003,576	\$3,879,298
2043	2.46	2.46	52,604,451	12,030,601	40,573,851	23,185,058	\$3,878,175
2044	2.56	2.56	55,266,237	12,515,247	42,750,990	24,429,137	\$3,876,919
						Par Amount	\$102,822,409
					Subtract Reserve Account	10.0%	\$10,282,241
					Subtract Capitalized Interest		\$6,985,261
					Subtract Expenses	1.5%	\$1,542,336
<b>Estimated Contribution of Tolls to Construction Fund in 2010</b>							<b>\$84,000,000</b>

<sup>a</sup> Note that toll rates would likely be rounded to the nearest five cents.

Construction Period	3 years
Bond Sale January 1 of	2010
Earning Period	35 years
Inflation Rate – CPI	3%
Inflation Rate – Costs	3%
Debt Service Coverage Ratio	1.75
Rating	BBB
Bond Interest Rate	5.40%
Assumed Toll Evasion	5%

## Policy Findings

The policy objective of this project was to evaluate a set of HOT lanes that can be implemented in the near term, consistent with current planning efforts, that includes additional capacity, not just conversion of existing HOV lanes.

As with the SR 167/I-405 concept, this HOT lane idea can provide increased utilization of the highway corridor and provide people a meaningful travel choice and time savings. The toll revenue is not expected to cover the cost of constructing the additional lanes, but it more than covers the additional cost of toll collection.

## ■ SR 520/I-90

### Project Description

SR 520 and I-90 are the only East-West crossings of Lake Washington directly linking Seattle with the fast growing communities on the east (see Exhibit 9.1.)

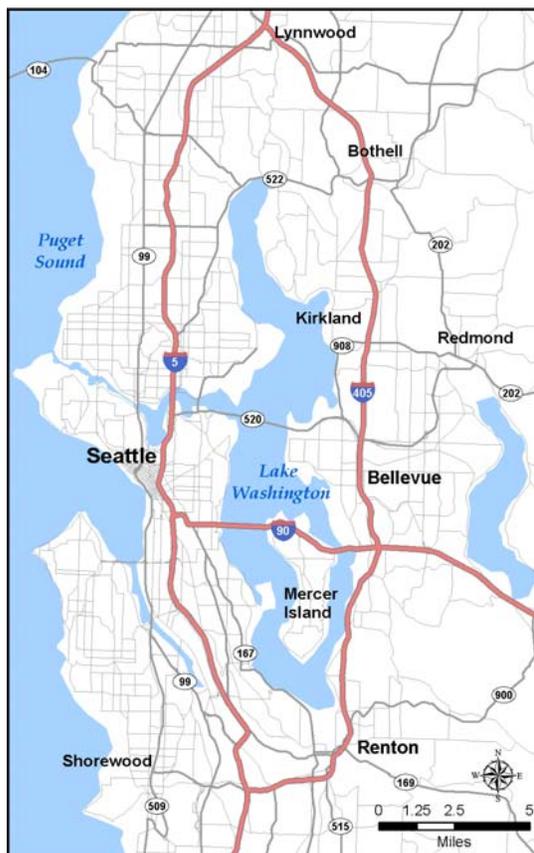
The SR 520 Evergreen Point Floating Bridge is over 42 years old, does not meet current standards, and is susceptible to damaging windstorms and earthquakes. Two bridge replacement alternatives are being evaluated in an ongoing WSDOT project development process, with both alternatives providing a structure that reduces risks associated with storm and seismic damages. One alternative would have four lanes; the other would have six. All of WSDOT's planning activities have assumed some level of tolling would be required to help pay for the bridge replacement, but these studies did not consider tolling both SR 520 and I-90.

The I-90 bridge is also being studied by WSDOT for future improvements, including alternative uses of the existing center roadway that currently functions as a reversible HOV lane. Some of the alternatives under consideration include converting the center roadway to fixed guideway transit.

For this illustrative analysis in the Tolling Study, we considered an alternative that provided for mobility improvements, including potential use of tolls to manage traffic flow across Lake Washington. The specifics of the scenario included:

- **SR 520** – A new six-lane bridge with two of those lanes dedicated to HOV2+ traffic. All traffic using the general-purpose lane would be tolled, as well as the HOV traffic that only had two occupants. HOV3+ traffic would be toll free.
- **I-90** – Improvements were assumed to include the addition of one HOV lane in each direction located on the outside roadway. These lanes would also operate with an HOV2+ definition with HOV2 traffic required to pay a toll. All traffic using the general-purpose lanes would be tolled. The effect of the additional HOV lane would be that there would always be an HOV lane available, even in the reverse-peak direction.

## Exhibit 9.1 SR 520 and I-90 Location Map



The policy objective of tolling the facilities is twofold. One is to raise significant revenue to fund the SR 520 bridge reconstruction and the other is to potentially manage traffic demand across Lake Washington.

### Toll Analysis

Two pricing options were analyzed under 2030 traffic in which both the SR 520 and I-90 Bridges would be tolled. Under both tolling options, HOV3+ traffic would be toll free. The first pricing option assumed time-of-day pricing where toll rates would vary by facility, time of day, and direction but follow a fixed schedule. This variable pricing mechanism is a tool to manage the amount of traffic crossing the bridge with the aim of providing a free flow ride across Lake Washington during the peaks, while still ensuring significant utilization of the bridge in the off-peak periods through the use of much lower tolls. The second tolling option was to have a \$1.50 flat rate toll all day for passenger vehicles. Commercial vehicles under both scenarios were tolled at a proportionately higher rate.

As with the other scenarios, the analysis year was 2030. Toll rates are expressed in 2000 dollars, and would need to be inflated to current dollar levels to have the traffic management effects forecasted.

### *Variable Pricing Scenario*

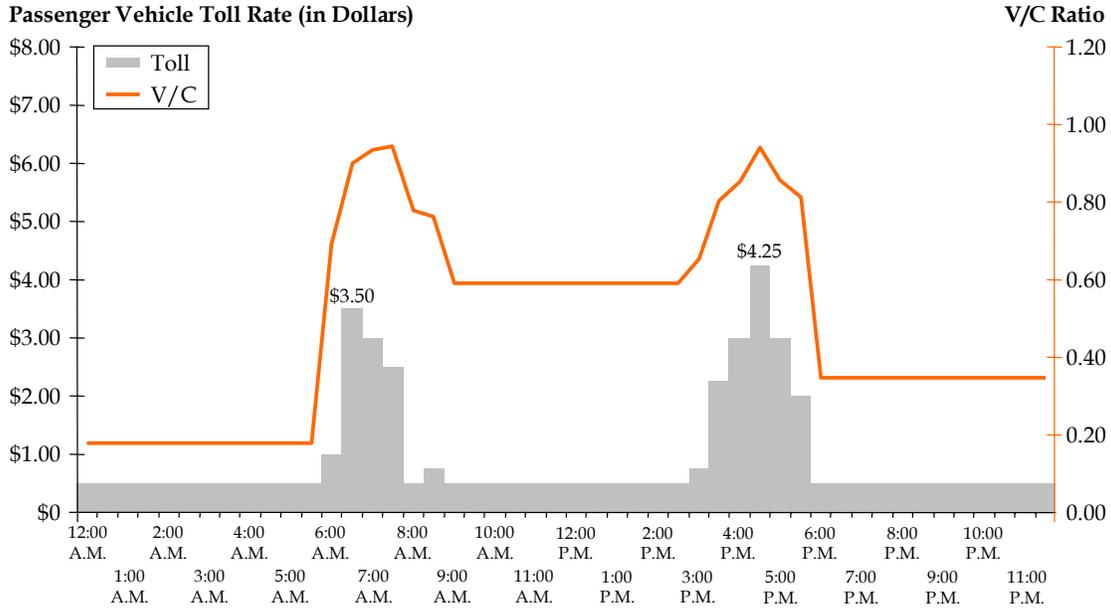
When studying the variable pricing scenario, the objective was defined as keeping the flow of traffic at a level that would maximize throughput across the lake, assumed to be about 1,600 passenger cars per hour per lane (pcphpl). This would ensure a free flow travel path across the Lake and prevent any breakdowns of traffic flow that may occur when traffic reaches capacity levels and thus diminishes traffic throughput. However, since revenue generation was a secondary objective of this scenario, we set a minimum toll of \$0.50 at any time, even though traffic levels were below the 1,600 threshold. If ultimately adopted, there are numerous ways that tolls might be set to achieve these, or similar objectives, including letting traffic go toll free during noncongested periods.

Exhibit 9.2 displays the passenger vehicle toll rate levels (in gray shades) on I-90 westbound that are estimated to be needed to meet the objective described above. The chart shows the 24-hour profiles of toll rates and the forecast volume to capacity ratios in the westbound direction. The pricing profile follows the demand profile with tolls reaching their highest levels of \$3.50 during the a.m. peak and \$4.25 during the p.m. peak. Six half-hour time periods were analyzed within each of the three-hour a.m. and p.m. peak periods. The a.m. peak is estimated to need a \$3.50 toll rate during the 6:30 to 7:00 a.m. time-frame, reducing to a \$3.00 toll during the period of 7:00 to 7:30 a.m. and further reducing to a \$2.50 toll during the 7:30 to 8:00 a.m. period to meet the demand objective. Volumes shown during the midday, evening, and night periods are shown evenly distributed, because these times were evaluated as larger periods and not as individual hours within those periods. Because the volume to capacity levels are well below the threshold level, these variations are not likely to result in a significant deviation from the \$0.50 toll rate shown for these periods.

Exhibit 9.3 displays the forecast toll rates and volume/capacity ratios for the eastbound direction on I-90. Demand is expected to be highest in the eastbound direction during the p.m. peak period resulting in a passenger vehicle toll rate of \$5.25 during the 4:30 to 5:00 p.m. period. Tolls in the shoulder periods on either side of the p.m. peak are forecast to range from \$2.75 to \$4.00. Demand is expected to be much lower in the a.m. peak in the eastbound direction resulting in an estimated toll rate of \$2.00 from 6:30 to 7:00 a.m. and \$1.00 and \$0.75 during the next two half-hour periods.

In practice, it may be more practical to have tolls assessed over slightly longer periods during the peaks than shown while also having smoother transitions in rates from peaks to shoulders, and from shoulder periods to adjacent off-peaks hours. These details would need to be worked out in analysis that is more extensive.

### Exhibit 9.2 Forecast 2030 Toll Rates and Volume/Capacity Ratios I-90 Westbound



### Exhibit 9.3 Forecast 2030 Toll Rates and Volume/Capacity Ratios I-90 Eastbound

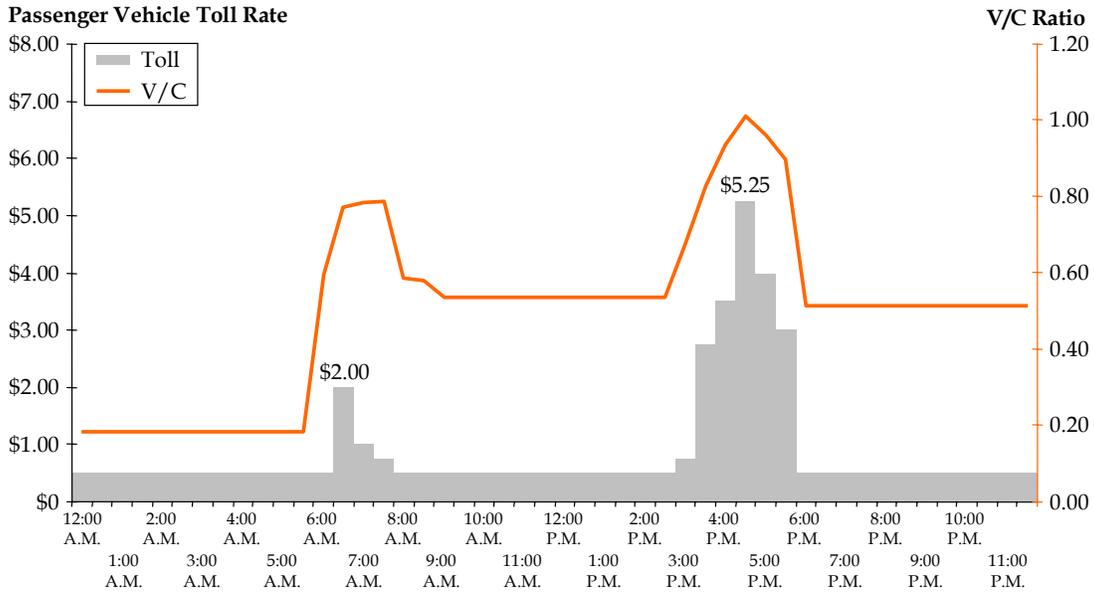


Exhibit 9.4 displays the passenger vehicle toll rate levels (in gray shades) on SR 520 westbound that are estimated to be needed to meet the tolling objective of 1,600 pcphpl. Forecast p.m. peak tolls range from \$4.00 to \$5.50 during the 3:30 to 6:00 p.m. peak period. The

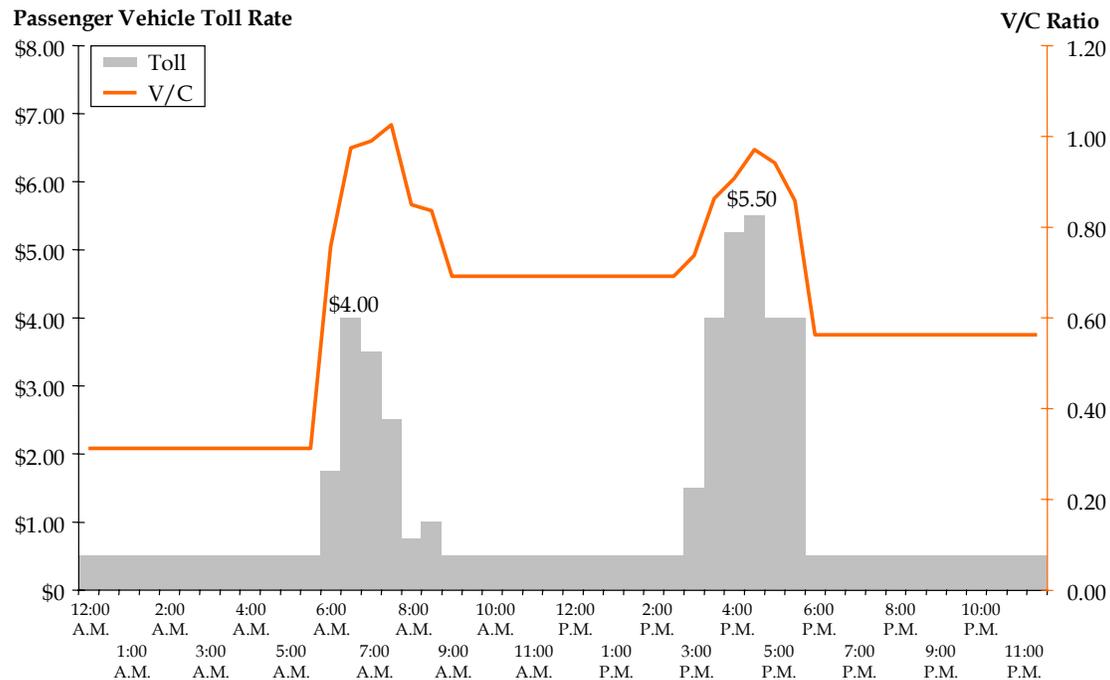
a.m. peak period follows the demand profile with tolls reaching their highest levels of \$3.50 to \$4.00 during the 6:30 to 7:30 a.m. hour with shoulder tolls on either side ranging between \$1.75 and \$2.50.

The eastbound direction results for SR 520 are shown in Exhibit 9.5. The p.m. peak period has the most traffic and thus the highest rates are needed to manage the demand across the facility. The profile of tolls in the p.m. is indicative of the demand build up and the need to keep stepping up the toll to meet the volume to capacity criteria. A maximum toll rate of \$5.50 is estimated to be needed during the 4:30 to 5:00 p.m. period with slightly lower tolls in the shoulders.

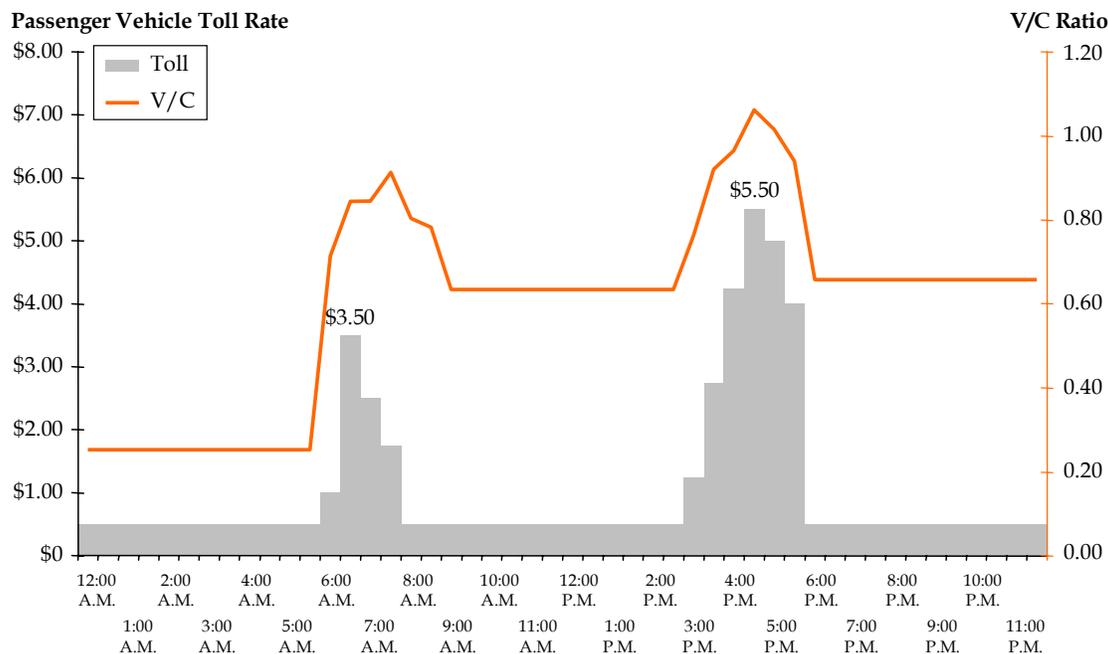
**Flat Rate Pricing Scenario**

Under the flat rate pricing scenario, toll rates would remain constant all day. In this case, there may be times when traffic demand exceeds capacity and bottleneck-induced congestion results.

**Exhibit 9.4 Forecast 2030 Toll Rates and Volume/Capacity Ratios  
 SR 520 Westbound**



### Exhibit 9.5 Forecast 2030 Toll Rates and Volume/Capacity Ratios SR 520 Eastbound



#### Composition of Diverted Person Trips

Because the effects of tolling were introduced into the trip distribution and mode choice modeling components of the traffic model in addition to trip assignment, the reduction in traffic is a combination of destination changes, carpool formation, and route diversion (see Table 9.8).

**Table 9.8 Expected Composition of Diverted Daily Person Trips**

Diversion Type	Variable Toll Pricing	\$1.50 Flat Toll
Destination Change	51.4%	60.5%
Alternate Route	16.0%	36.1%
Mode Shift	32.6%	3.4%

Under the variable pricing scenario, the majority of the diversion is expected to be due to a driver changing his or her destination to avoid paying the toll. There is also a significant mode shift forecast, with about one-third of the diversion resulting from low-occupant vehicles (drive-alone and 2+ carpools) forming 3+ carpools to avoid paying the toll while

benefiting from a free flow movement across the facility. We attribute the forecast mode shift to the relatively high peak-period toll rates. Only 16 percent of the total expected diversion is related to route diversion due to the alternate routes being fairly unattractive during the peak periods and the use of relatively low off-peak-period tolls where diversion is usually more prevalent.

The high rates of diversion away from the bridge crossings during peak periods is expected to be effective at keeping traffic flowing across the lake. Despite these benefits, however, we found that overall system performance might deteriorate when the toll levels are set so high. This may be possible because the high toll rates are causing drivers to seek alternative destinations and routes, which are also quite congested. Since the regional travel demand model cannot address traffic operational impacts, we cannot verify this finding, but it does signal the need for caution when applying tolling strategies on one part of the system for traffic management purposes.

Under a \$1.50 flat toll rate scenario, we expect the majority of the diversion to still be related to a destination change. However, we find the route diversion to play a larger role in the diversion estimates than the variable tolling scenario, reflecting the relatively high tolls in the off-peak periods, when route diversion is more attractive.

## Traffic and Revenue Estimates

Average weekday traffic and revenue estimates for the year 2030 are shown in Table 9.9. There is estimated to be 266,840 vehicles using both bridges on an average weekday under the optimized variable pricing option. The flat rate pricing option resulted in 19 percent fewer forecast vehicles than the variable priced scenario. Assuming 250 typical weekdays and 115 typical weekend or holiday days per year, and that weekend days and holidays would carry 50 percent of an average weekday, the optimized variable pricing scenario is forecast to produce \$109.4 million in 2030, while a flat rate of \$1.50 is forecast to produce \$97.6 million. Under both options, SR 520 revenue would account for about 47.6 percent of the total revenue.

**Table 9.9 2030 Estimated Traffic and Revenue**

Pricing Option	Average Weekday Traffic			Annual Revenue (2000 Dollars)		
	SR 520	I-90	Total	SR 520	I-90	Total
Optimized – Variable	120,650	146,190	266,840	\$52,090,500	\$57,318,000	\$109,408,500
Flat Rate – All Day	104,940	111,030	215,970	\$46,524,800	\$51,115,700	\$97,640,500

## Cost Estimates

According to the project fact-sheet as published by WSDOT, the project cost range for the SR 520 project is \$2.3 to \$2.8 billion in 2013 dollars (midpoint of project construction expenditure period). The duration of construction is expected to be from 2009/2010 to 2015/2017.

Assuming one tolling zone along the bridge with electronic toll collection only (i.e., no cash toll plazas), the additional cost of tolling equipment is estimated to be \$27.4 million. This includes construction cost of a central host building containing all the required equipment, hardware, and software in support of customer service and administrative functions.

If this project was part of a regional toll system with an existing host, in-place and operational, then the estimated capital cost of introducing tolling is \$5.1 million.

The cost of adding HOV lanes to the I-90 outer roadway, the on and off-ramps on Mercer Island and improving I-90 access at Bellevue Way according to the WSDOT fact-sheet is about \$128 million. The additional cost of tolling I-90 is estimated to be \$5.1 million and includes the construction of three ETC only toll lanes per direction plus interface/modification costs associated with joining an existing operational host such as the one that would be built for the SR 520.

## Financial Analysis

Under the optimized variable pricing scenario, we estimate that \$1,029.9 million could be contributed toward capital improvements (see Table 9.10) or about 41 percent of the amount needed for SR 520 alone. Under the assumed flat rate pricing structure, we estimate that \$941.7 million could be contributed toward capital improvements as is shown in Table 9.11.

**Table 9.10 Financial Analysis of SR 520 and I-90**  
*Optimized Toll Scenario*

Calendar Year	Year of Collection Dollars						Senior Lien Debt Service	Present Value
	Passenger Car Toll Rate <sup>a</sup>	Average Toll Rate	Annual Gross Revenue	Annual Operating Expenses	Net Revenue			
2010							63,719,223	\$60,454,671
2011							63,719,223	\$57,357,372
2012							63,719,223	\$54,418,759
2013							63,719,223	\$51,630,702
2014	2.06	2.13	137,085,776	25,577,136	111,508,640		63,719,223	\$48,985,485
2015	2.13	2.20	142,412,655	26,570,978	115,841,676		66,195,244	\$48,281,763
2016	2.19	2.26	147,946,526	27,603,518	120,343,007		68,767,433	\$47,588,119
2017	2.26	2.33	153,695,432	28,676,245	125,019,187		71,439,535	\$46,904,416
2018	2.32	2.40	159,667,729	29,790,536	129,877,193		74,215,539	\$46,230,581
2019	2.39	2.47	165,872,098	30,947,979	134,924,118		77,099,496	\$45,566,475
2020	2.46	2.55	172,317,555	32,150,586	140,166,969		80,095,411	\$44,911,847
2021	2.54	2.62	179,013,471	33,399,915	145,613,556		83,207,746	\$44,266,627
2022	2.61	2.70	185,969,577	34,697,759	151,271,818		86,441,039	\$43,630,685
2023	2.69	2.78	193,195,982	36,046,176	157,149,806		89,799,889	\$43,003,841
2024	2.77	2.87	200,703,192	37,446,710	163,256,482		93,289,418	\$42,386,077
2025	2.86	2.95	208,502,116	38,901,975	169,600,141		96,914,366	\$41,777,109
2026	2.94	3.04	216,604,092	40,413,442	176,190,650		100,680,371	\$41,176,974
2027	3.03	3.13	225,020,893	41,983,917	183,036,976		104,592,558	\$40,585,396
2028	3.12	3.23	233,764,755	43,615,223	190,149,532		108,656,876	\$40,002,359
2029	3.22	3.32	242,848,386	45,310,156	197,538,230		112,878,989	\$39,427,650
2030	3.31	3.42	252,284,989	47,070,687	205,214,301		117,265,315	\$38,861,248
2031	3.41	3.53	261,802,440	48,846,570	212,955,870		121,689,069	\$38,261,160
2032	3.51	3.63	271,678,937	50,689,217	220,989,721		126,279,840	\$37,670,378
2033	3.62	3.74	281,928,025	52,601,643	229,326,382		131,043,647	\$37,088,674
2034	3.73	3.85	292,563,760	54,585,927	237,977,833		135,987,333	\$36,515,999
2035	3.84	3.97	303,600,727	56,645,302	246,955,425		141,117,386	\$35,952,131
2036	3.96	4.09	315,054,065	58,782,012	256,272,053		146,441,173	\$35,397,020
2037	4.07	4.21	326,939,480	60,999,525	265,939,955		151,965,688	\$34,850,454
2038	4.20	4.34	339,273,271	63,300,875	275,972,396		157,698,512	\$34,312,304
2039	4.32	4.47	352,072,356	65,688,890	286,383,465		163,647,695	\$33,782,483
2040	4.45	4.60	365,354,285	68,167,130	297,187,155		169,821,232	\$33,260,827
2041	4.59	4.74	378,196,488	70,563,253	307,633,235		175,790,420	\$32,665,977
2042	4.72	4.88	391,490,095	73,043,524	318,446,571		181,969,469	\$32,081,774
2043	4.86	5.03	405,250,972	75,610,886	329,640,086		188,365,763	\$31,508,026
2044	5.01	5.18	419,495,543	78,268,754	341,226,790		194,986,737	\$30,944,516
							Par Amount	\$1,451,739,879
							Subtract Reserve Account 10.0%	\$145,173,988
							Subtract Capitalized Interest	\$254,876,891
							Subtract Expenses 1.5%	\$21,776,098
<b>Estimated Contribution of Tolls to Construction Fund in 2010</b>								<b>\$1,029,900,000</b>

<sup>a</sup> Note that toll rates would likely be rounded to the nearest five cents.

Construction Period	3 years
Bond Sale January 1 of	2010
Earning Period	35 years
Inflation Rate – CPI	3%
Inflation Rate – Costs	3%
Debt Service Coverage Ratio	1.75
Rating	BBB
Bond Interest Rate	5.40%
Assumed Toll Evasion	5%

**Table 9.11 Financial Analysis of SR 520 and I-90**  
*Flat Rate Toll Scenario*

Calendar Year	Year of Collection Dollars						
	Passenger Car Toll Rate <sup>a</sup>	Average Toll Rate	Annual Gross Revenue	Annual Operating Expenses	Net Revenue	Senior Lien Debt Service	Present Value
2010						58,264,682	\$55,279,585
2011						58,264,682	\$52,447,424
2012						58,264,682	\$49,760,364
2013						58,264,682	\$47,210,972
2014	2.27	2.39	122,340,802	20,377,609	101,963,194	58,264,682	\$44,792,193
2015	2.34	2.46	127,094,721	21,169,505	105,925,216	60,528,695	\$44,148,672
2016	2.41	2.53	132,033,368	21,992,020	110,041,348	62,880,770	\$43,514,458
2017	2.48	2.61	137,163,921	22,846,652	114,317,269	65,324,154	\$42,889,295
2018	2.55	2.69	142,493,836	23,734,300	118,759,536	67,862,592	\$42,273,183
2019	2.63	2.77	148,030,862	24,656,575	123,374,287	70,499,593	\$41,665,874
2020	2.71	2.85	153,783,045	25,614,811	128,168,234	73,238,991	\$41,067,251
2021	2.79	2.94	159,758,747	26,610,026	133,148,721	76,084,983	\$40,477,308
2022	2.87	3.03	165,966,652	27,644,007	138,322,645	79,041,511	\$39,895,811
2023	2.96	3.12	172,415,784	28,718,249	143,697,535	82,112,877	\$39,322,644
2024	3.05	3.21	179,115,517	29,834,303	149,281,214	85,303,551	\$38,757,695
2025	3.14	3.31	186,075,587	30,993,567	155,082,021	88,618,298	\$38,200,903
2026	3.23	3.41	193,306,113	32,197,908	161,108,205	92,061,831	\$37,652,102
2027	3.33	3.51	200,817,601	33,449,058	167,368,543	95,639,167	\$37,111,182
2028	3.43	3.61	208,620,972	34,748,817	173,872,155	99,355,517	\$36,578,036
2029	3.53	3.72	216,727,566	36,099,049	180,628,517	103,216,295	\$36,052,555
2030	3.64	3.83	225,149,165	37,501,691	187,647,475	107,227,128	\$35,534,634
2031	3.75	3.95	233,642,918	38,916,501	194,726,417	111,272,238	\$34,985,927
2032	3.86	4.07	242,457,097	40,384,765	202,072,331	115,469,904	\$34,445,679
2033	3.98	4.19	251,603,791	41,908,223	209,695,568	119,826,039	\$33,913,807
2034	4.10	4.31	261,095,544	43,489,200	217,606,343	124,346,482	\$33,390,139
2035	4.22	4.44	270,945,373	45,129,852	225,815,521	129,037,441	\$32,874,553
2036	4.35	4.58	281,166,787	46,832,410	234,334,377	133,905,358	\$32,366,927
2037	4.48	4.72	291,773,804	48,599,192	243,174,612	138,956,921	\$31,867,139
2038	4.61	4.86	302,780,971	50,432,599	252,348,372	144,199,070	\$31,375,073
2039	4.75	5.00	314,203,383	52,335,121	261,868,262	149,639,007	\$30,890,610
2040	4.89	5.15	326,056,706	54,309,341	271,747,365	155,284,208	\$30,413,637
2041	5.04	5.31	337,517,599	56,218,501	281,299,098	160,742,342	\$29,869,692
2042	5.19	5.47	349,381,342	58,194,370	291,186,972	166,392,556	\$29,335,516
2043	5.35	5.63	361,662,097	60,239,977	301,422,120	172,241,211	\$28,810,865
2044	5.51	5.80	374,374,519	62,357,414	312,017,105	178,295,489	\$28,295,604
						Par Amount	\$1,327,467,308
					Subtract Reserve Account	10.0%	\$132,746,731
					Subtract Capitalized Interest		\$233,058,728
					Subtract Expenses	1.5%	\$19,912,010
<b>Estimated Contribution of Tolls to Construction Fund in 2010</b>							<b>\$941,700,000</b>

<sup>a</sup> Note that toll rates would likely be rounded to the nearest five cents.

Construction Period	3 years
Bond Sale January 1 of	2010
Earning Period	35 years
Inflation Rate – CPI	3%
Inflation Rate – Costs	3%
Debt Service Coverage Ratio	1.75
Rating	BBB
Bond Interest Rate	5.40%
Assumed Toll Evasion	5%

## Policy Findings

This policy objective of this scenario tests the potential of tolling more than one facility as a system to both manage traffic and raise revenue. Pricing can be effective at managing flow on an individual facility or system of facilities. However, changes in travel patterns at other locations around the network could offset any of the gains in that one particular corridor. This emphasizes the policy recommendation that system impacts be fully considered. More moderate levels of time-of-day pricing may be effective at encouraging some changes in travel behavior without disrupting the rest of the system.

One question we have not definitively answered is whether tolling both SR 520 and I-90 is needed to maintain balance in the trans-Lake system. As traffic grows over the next decade or two, congestion on both sides of Lake Washington will be such that I-90 will be less of a diversion route for most trips. Regardless, there is a compelling argument that the entire Trans-Lake corridor should be treated as a system, including transit, and that a consistent policy on tolls should be applied if only to achieve geographic equity.

The issues associated with tolling an existing corridor are considerable. Further research into the traffic operations of the corridor is needed before coming up with a tolling strategy that maximizes the benefits of the infrastructure improvements as well as the tolling.

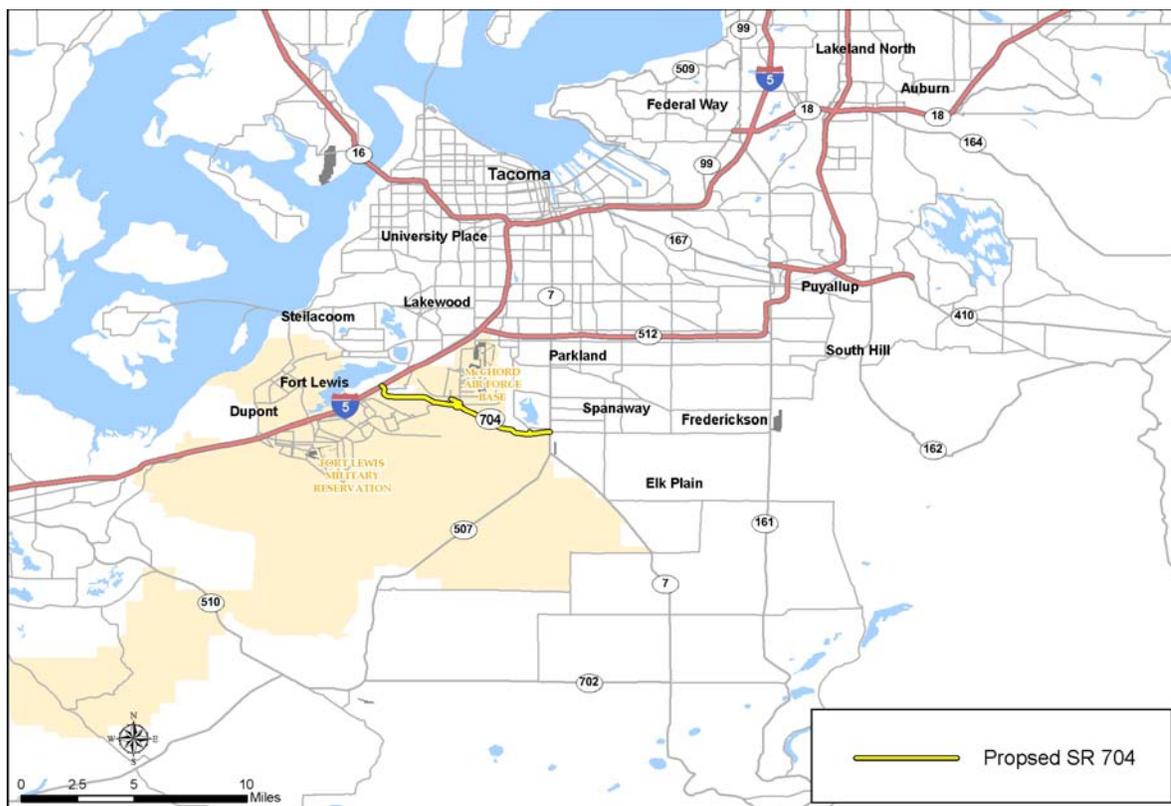
## ■ SR 704 – Cross Base Highway

### Project Description

The Cross-Base Highway (SR 704) would be a new six-mile-long, four-lane highway connecting I-5 at the Thorne Lane interchange at the west end with 176<sup>th</sup> Street at SR 7 at the eastern terminus. Shown in Exhibit 9.6, it is intended to improve the transportation system linkage between eastern Pierce County and the I-5 corridor for the efficient movement of people and goods. The policy objective of this project was to fund a new highway project through the use of tolling.

SR 704 would have four intermediate access locations with three of the four having signalized intersections. The easternmost intermediate access point would be a signalized intersection at the southward extension of Spanaway Loop. Moving west, there would be a full interchange at A Street, allowing access to and from the McChord Air Force Base and the Fort Lewis Military Reservation. West of this interchange would be the proposed toll collection point, with two more signalized intersections provided at Woodbrook Drive and 150<sup>th</sup> Street S.W. at the west end of the project.

## Exhibit 9.6 SR 704 Cross-Base Highway Regional Location Map



A few of the characteristics of the proposed project have a bearing on the traffic and revenue potential. One is that the limited access portion of the project is four miles long, and that the design speed is 50 miles per hour, relatively slow for a new toll project. The other is that the tolling location has been set to allow drivers to and from the military bases to use the project for free. Traffic to and from the east headed to the bases could exit at A Street before encountering a toll collection point. Traffic to and from the west could exit at Woodbrook Drive or 150<sup>th</sup> Street S.W., also before passing the toll collection point. In practice, then, the project is set up to toll only the through movements. Also, military personnel could potentially use part of the project to and from the east, exit at A Street, and proceed through McChord Air Force base to get to I-5 at Bridgeport Way. This movement would require passing through military checkpoints with proper military ID.

The new route is intended to help reduce traffic volumes and congestion on Interstate 5, State Routes 512 and 7, Spanaway Loop Road, and 174<sup>th</sup> Street by providing a more direct travel route through the Fort Lewis and McChord Military Bases.

### *Project Setting*

The I-5 freeway has six lanes south of the Thorne Lane interchange increasing to eight lanes north of the interchange. Current average daily traffic volumes range between 100,000 and 145,000 vehicles on I-5 between SR 510 and SR 512, with volumes steadily

increasing as one heads northward. SR 7 is a five-lane arterial connecting SR 512 at the north and SR 507 at the south with average daily traffic volumes of around 40,000 vehicles. Extensive traffic congestion is common on this route. SR 512 is a six-lane limited-access highway with average daily volumes of about 90,000 vehicles between I-5 and SR 7.

## Traffic and Revenue Analysis

The regional transportation model developed by PSRC and modified by WSDOT was used to estimate changes in travel that would result from implementation of SR 704 as a toll road. It should be noted that the travel model used for this analysis has been extensively updated since the last published traffic studies were prepared.

The base year (2000) model was reviewed against available count data indicating the study area to be reasonably validated. The project configuration was coded into the future year (2030) highway network and the full model was run multiple times under a toll free condition and a range of toll rate levels.

The following sections of this report focus on toll sensitivity analysis, average weekday traffic estimates, travel time benefits, and cost and financial feasibility estimates.

### *Toll Sensitivity*

The analysis of traffic was done at 2030 levels. The project was first evaluated as under toll-free conditions, and then several toll rates were tested. Since funding is the primary objective for potentially tolling the Cross Base Highway, we developed a recommended toll schedule that sought to maximize revenue.

If Cross Base Highway were built as a toll-free facility, the average weekday traffic is expected to be 20,100 vehicles in 2030 at the proposed toll collection point. Toll rates ranging from \$0.05 to \$0.30 per mile for passenger cars were tested to understand the relationship of toll rate to traffic. These toll sensitivity tests were done with currency values at year 2000 levels, which is consistent with how currency is handled in the PSRC model. When these values are then used to consider financial performance, we have assumed that toll rates would increase over time to generally match the rate of inflation, meaning that the actual toll that someone might pay in 2030 would be considerably higher than the rates shown.

Toll rates for trucks would be proportionally higher, based upon the relationship between passenger car and truck tolls anticipated at the Tacoma Narrows Bridge. A five-axle truck would pay 2.5 times the amount that a passenger car would pay at any given toll rate.

The top portion of Exhibit 9.7 shows the estimated average weekday revenue that could be expected over the range of toll rates, while the bottom portion shows the number of average weekday transactions. As toll rates increase, traffic would be expected to decrease, but would yield rising revenue through a toll rate of \$1.25, after which additional toll increases would be expected to result in declining revenue. A toll rate of \$1.00 would be an appropriate toll to select, just short of the maximum revenue level, but leaving room for additional toll increases should additional revenue be needed. At this toll rate, a full length trip on the facility, covering about 6.0 miles would pay about \$0.167 per mile. This per-mile toll rate is in the range of per-mile rates for recently opened toll facilities around the country.

At the chosen \$1.00 toll rate there are estimated to be 11,500 average weekday users at the toll collection point, about 57 percent of the toll-free level.

### **Estimated Average Weekday Traffic**

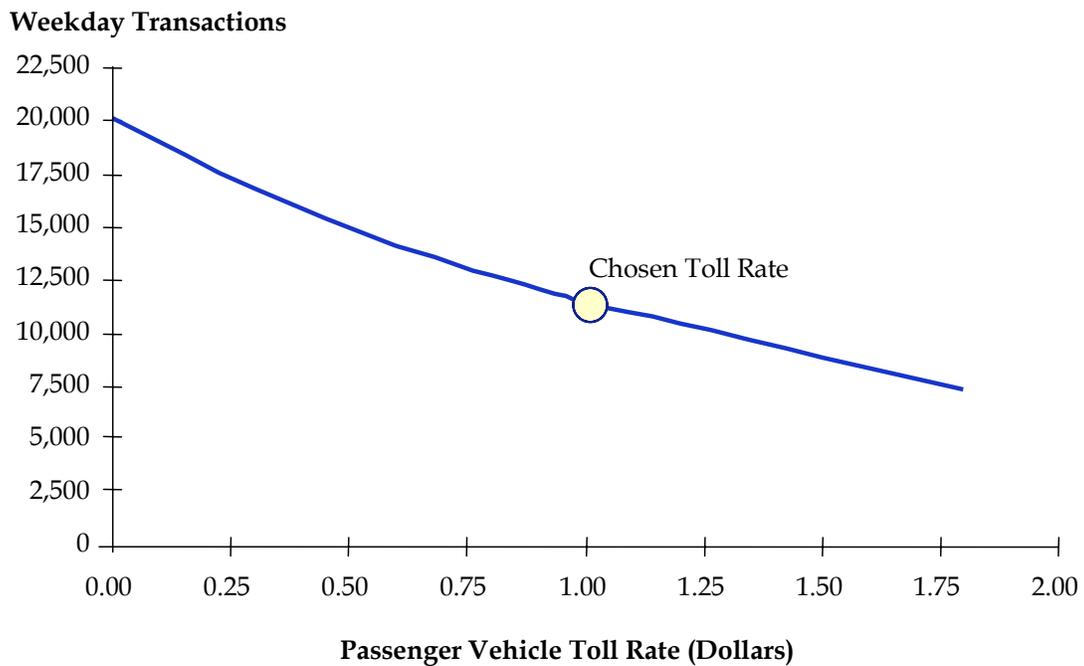
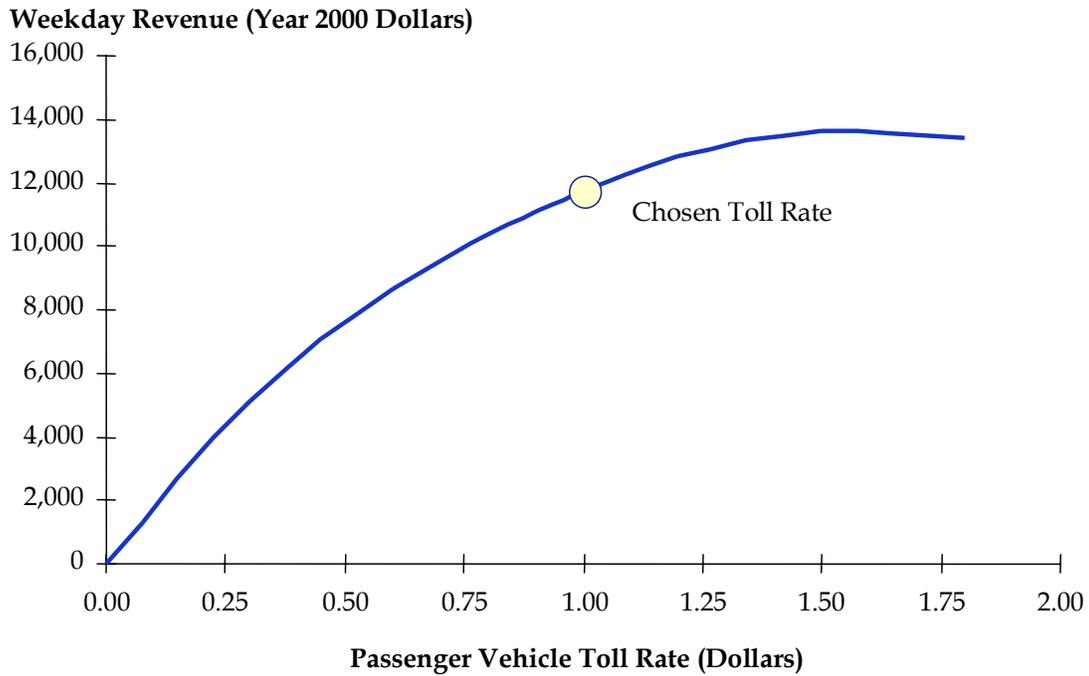
Average weekday traffic along the mainline sections of SR 704 in 2030 at the recommended toll rate are shown in Exhibit 9.8. At the west end of the facility the average weekday volume is estimated to be 18,500 vehicles, while east of the A Street intersection traffic is estimated to be 29,400 vehicles, with 11,500 vehicles passing through the toll collection point. The large variation in volumes west and east of A Street is due to military traffic accessing SR 704 to and from the east at the A Street interchange. The tolling zone was proposed at this location just to allow this toll-free movement.

### **Time-Distance Relationships**

The main reason people will be willing to pay a toll to use a new facility is that the travel time savings provided by the project outweigh the toll cost. A saving in travel distance and a sense of increased safety are other reasons for choosing a toll road over a free facility. We compared the travel times expected by typical combinations of movements between surrounding local communities for trips that might choose to use the SR 704 or an alternate toll free travel routing, based on the results of the 2030 travel demand model.

### Exhibit 9.7 SR 704 Toll Sensitivity

#### 2030 Estimated Average Weekday Revenue and Transactions



## Exhibit 9.8 Estimated Average Weekday Traffic 2030 Levels



Table 9.12 shows the combinations of movements and the estimated time and distance savings that the SR 704 would provide. The names of the cities used to create the table of movements are listed at the bottom of the table and can be located by referring back to the regional location map of Exhibit 9.6. For example, a trip from Dupont to Frederickson is estimated to save about 8.6 minutes and 4.6 miles. These represent time savings of 30.0 percent and distance savings of 30.9 percent.

The time savings is attributed solely to the distance savings as both the toll path and non-tolled path average about 31 mph. Note that the toll routing for a through trip would encounter several signalized intersections on SR 704 itself. In addition, the relatively high volume of traffic entering eastbound from A Street during the p.m. peak period is expected to reduce speeds along this segment.

**Table 9.12 Typical Time-Distance Relationships**  
2030 Levels

<b>Movement</b>	<b>Routing</b>	<b>P.M. Peak Period Time (Minutes)</b>	<b>Time Savings (Minutes)</b>	<b>Percent Savings</b>	<b>Distance (Miles)</b>	<b>Distance Savings (Miles)</b>	<b>Percent Savings</b>
	SR 704	20.1			10.3		
D-F			8.6	30.0		4.6	30.9
	Alternate	28.8			14.9		
	SR 704	14.1			10.3		
F-D			5.9	29.5		4.2	28.9
	Alternate	20.0			14.5		
	SR 704	29.3			13.9		
S-F			4.9	14.4		1.0	6.9
	Alternate	34.3			15.0		
	SR 704	23.4			13.9		
F-S			1.8	7.0		0.4	2.7
	Alternate	25.1			14.3		
	SR 704	23.3			11.4		
L-F			2.5	9.8		-1.1	-10.9
	Alternate	25.8			10.3		
	SR 704	16.6			11.4		
F-L			-0.4	-2.2		-1.8	-18.5
	Alternate	16.2			9.6		

Note: D = Dupont, S = Steilacoom, L = Lakewood, F = Frederickson.

## Revenue Estimates

The financial performance of a toll project depends on early year revenue even more than revenue at a distant time horizon. This is especially important in the case of brand new highways without a demonstrated traffic history. For purposes of this preliminary feasibility study, we assumed that the Cross Base Highway would open in 2010. We estimated 2010 traffic by evaluating the traffic expected to use Cross Base Highway were it to have opened in 2000. We found that the average annual growth rate from 2000 to 2030 was 1.9 percent, which we applied to the 2030 revenue estimates to develop a revenue stream.

We used an average toll rate of \$1.02 per vehicle, which reflects the estimate of less than 2 percent trucks that are expected to use the highway. Medium and heavy trucks are assumed to pay 1.5 and 2.5 times the passenger vehicle toll rate, respectively.

Annual revenue estimates were calculated by multiplying the average weekday estimates by 250 nonholiday weekdays and 115 weekend or holiday days. The weekends and holidays were assumed to generate 65 percent of the traffic expected on weekdays.

Estimated weekday transactions at the toll collection point are expected to be 7,900 in 2010 and 11,500 in 2030 (see Table 9.13). These transactions would generate \$2.6 million per year in 2010 and \$3.8 million per year in 2030, both expressed in 2000 dollars.

**Table 9.13 Estimated Transactions and Toll Revenue**

<b>Average Weekday</b>	<b>2010</b>	<b>2030</b>
Transactions	7,900	11,500
Average Toll	\$1.02	\$1.02
Revenue (2000 Dollars)	\$8,058	\$11,730
<b>Average Weekend Day</b>		
Transactions	5,100	7,500
Average Toll (2000 Dollars)	\$1.02	\$1.02
Revenue (2000 Dollars)	5,202	\$7,650
<b>Annual Transactions</b>	2,561,500	3,737,500
<b>Annual Revenue (2000 Dollars)</b>	2,613,000	3,812,000

## Cost Estimates

According to the latest project fact-sheet by WSDOT, preliminary designs are scheduled to finish by the fall of 2006. More than \$41 million of funds have been committed with a remaining shortfall of \$216 million.

Assuming one tolling zone with two ETC only toll lanes per direction, a stand-alone project tolling cost of \$26.7 million is estimated. This includes construction cost of a central host building (containing all the associated equipment, hardware, and software to host the customer service and administrative functions). If this project was part of a regional toll system with an existing central host, in-place and operational, then a tolling cost of \$4.3 million is estimated. This cost estimate includes construction of two ETC only

toll lanes per direction plus interface/modification costs associated with joining an existing operational central host.

## **Financial Analysis**

A financial analysis was performed to estimate the amount of revenue that could be expected to contribute to Cross Base project. At the selected, it is estimated that \$35.1 million could be contributed toward capital improvements in the corridor (see Table 9.14). This falls well short of the estimated cost to construct the facility. It should be noted that this project is tolling only through trip users of the facility, and therefore, revenue potential could be significantly higher if this assumption was changed.

## **Equity Analysis**

New facility tolls provide a mobility option that does not currently exist. Provided the facility itself is warranted, the only question that pertains to mobility is how toll operations affect the community's mobility options and efficiency. In the case of SR 704, low-income communities exist within a couple of miles, primarily along the I-5 corridor. These communities have an unusually high concentration of households below the poverty level. This, alone, raises the issue of environmental justice.

However, the existing Perimeter Road route is not sustainable and is not a comparative option to the SR 704. As a result mobility for these communities has not been harmed by toll operations, and have actually benefited when situational value of time exceeds the toll charge. The time-distance relationship analysis shows certain scenarios whereby the new facility reduces net distance traveled. When valued at the total cost of ownership per mile (generally \$0.30 to \$0.45 per mile), paying the facility toll as opposed to driving the additional distance evokes a net economic benefit, regardless of income. Furthermore, to the extent this facility reduces traffic on SR 7 and SR 512, positive spillover effects will be realized for regular travelers of these corridors.

**Table 9.14 SR 704 Financial Analysis**

Calendar Year	Year of Collection Dollars						
	Passenger Car Toll Rate <sup>a</sup>	Average Toll Rate	Annual Gross Revenue	Annual Operating Expenses	Net Revenue	Senior Lien Debt Service	Present Value
2008						1,691,415	\$1,604,758
2009						1,691,415	\$1,522,541
2010						1,691,415	\$1,444,536
2011	1.38	1.41	3,501,904	541,928	2,959,976	1,691,415	\$1,370,528
2012	1.43	1.45	3,676,039	568,879	3,107,161	1,775,520	\$1,364,968
2013	1.47	1.50	3,858,866	597,253	3,261,613	1,863,779	\$1,359,411
2014	1.51	1.54	4,050,791	626,968	3,423,822	1,956,470	\$1,353,907
2015	1.56	1.59	4,252,238	658,085	3,594,153	2,053,802	\$1,348,446
2016	1.60	1.64	4,463,651	690,826	3,772,825	2,155,900	\$1,342,960
2017	1.65	1.69	4,685,492	725,270	3,960,223	2,262,985	\$1,337,444
2018	1.70	1.74	4,918,244	761,328	4,156,916	2,375,381	\$1,331,946
2019	1.75	1.79	5,162,409	799,073	4,363,337	2,493,335	\$1,326,458
2020	1.81	1.84	5,418,514	838,758	4,579,756	2,617,004	\$1,320,920
2021	1.86	1.90	5,687,107	880,477	4,806,629	2,746,645	\$1,315,328
2022	1.92	1.95	5,968,758	924,137	5,044,621	2,882,641	\$1,309,729
2023	1.97	2.01	6,265,940	969,820	5,296,119	3,026,354	\$1,304,578
2024	2.03	2.07	6,577,512	1,017,820	5,559,692	3,176,967	\$1,299,338
2025	2.09	2.14	6,904,128	1,068,455	5,835,673	3,334,670	\$1,293,963
2026	2.16	2.20	7,246,470	1,121,643	6,124,827	3,499,901	\$1,288,499
2027	2.22	2.27	7,605,249	1,177,283	6,427,966	3,673,123	\$1,282,990
2028	2.29	2.33	7,983,380	1,235,481	6,747,899	3,855,943	\$1,277,844
2029	2.36	2.40	8,379,593	1,297,054	7,082,540	4,047,166	\$1,272,499
2030	2.43	2.48	8,790,088	1,360,723	7,429,365	4,245,351	\$1,266,425
2031	2.50	2.55	9,189,598	1,422,546	7,767,052	4,438,315	\$1,256,156
2032	2.58	2.63	9,607,265	1,487,368	8,119,897	4,639,941	\$1,245,940
2033	2.65	2.71	10,043,915	1,554,799	8,489,116	4,850,924	\$1,235,858
2034	2.73	2.79	10,500,411	1,625,484	8,874,928	5,071,387	\$1,225,830
2035	2.81	2.87	10,977,655	1,699,573	9,278,082	5,301,761	\$1,215,859
2036	2.90	2.96	11,476,589	1,776,645	9,699,945	5,542,826	\$1,206,017
2037	2.99	3.04	11,998,200	1,857,408	10,140,792	5,794,738	\$1,196,232
2038	3.07	3.14	12,543,518	1,941,726	10,601,793	6,058,167	\$1,186,540
2039	3.17	3.23	13,113,621	2,030,064	11,083,557	6,333,461	\$1,176,905
2040	3.26	3.33	13,709,635	2,122,282	11,587,354	6,621,345	\$1,167,363
2041	3.36	3.43	14,262,134	2,207,790	12,054,344	6,888,197	\$1,152,192
2042	3.46	3.53	14,836,898	2,296,864	12,540,034	7,165,734	\$1,137,206
						Par Amount	\$45,342,114
		Subtract Reserve Account				10.0%	\$4,534,211
		Subtract Capitalized Interest					\$5,074,245
		Subtract Expenses				1.5%	\$680,132
<b>Estimated Contribution of Tolls to Construction Fund in 2008</b>							<b>\$35,100,000</b>

<sup>a</sup> Note that toll rates would likely be rounded to the nearest five cents.

Construction Period	3 years
Bond Sale January 1 of	2008
Earning Period	35 years
Inflation Rate – CPI	3%
Inflation Rate – Costs	3%
Debt Service Coverage Ratio	1.75
Rating	BBB
Bond Interest Rate	5.40%
Assumed Toll Evasion	5%

## ■ Snoqualmie Pass

### Project Description

Interstate 90 (I-90) is the principal east-west highway corridor in Washington State connecting the Puget Sound region to the farms and industries in Eastern Washington, as well as to the rest of the United States. I-90 crosses the Cascade Mountains at the Snoqualmie Pass (see Exhibit 9.9). This connection is vital and directly impacts the health of the State's economy. Snoqualmie Pass travelers experience periodic delays due to avalanche closures and rock slides, and deteriorating pavement conditions. There is also occasional congestion during periods of high recreational traffic. Wildlife crossings and low-clearance bridges are also a significant safety issue common to this stretch of I-90.

WSDOT has improvement plans for the Snoqualmie Pass that include capacity improvements such as a widening to a six-lane freeway, longer truck climbing lanes, reconstructed interchanges, and other safety improvements to increase slope stability and sight distance. Cost estimates for needed improvements range from \$300 million to \$600 million. 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.

In analyzing I-90 as a toll road, one-way toll collection points were assumed to be located on each side of the pass. The eastbound tolling location would be located east of North Bend, while the westbound tolling location would be near Cle Elum. The intent of this configuration is to allow tolls to be collected from all traffic using the Pass, even if one end of the trip terminates in the pass area itself, for example at the ski area at the top. The policy objective of this project was funding a highway improvement, maintenance, and operations project.

### Historical Traffic Counts

In 2004, the pass carried 27,000 vehicles on an average daily basis. This is almost triple of all other passes in Washington combined (refer back to Exhibit 9.9). I-90 is also a major freight corridor with commercial vehicles consisting of about 15 percent of the average weekday traffic. The closest pass to I-90 is Stevens Pass on SR 2 that carries 4,500 vehicles on an average day, while the less competitive crossings of North Cascades or Rainy Pass (SR 20) and SR 12/SR 410 (Chinook Pass and White Pass) carry about 1,800 and 4,300 vehicles on an average day, respectively. Rainy Pass and Chinook Pass are closed in the winter.

Table 9.15 displays historical count data from WSDOT's automated data collection sites along I-90 as well as the average annual growth rates.



**Table 9.15 I-90 Historical Count Data**

<b>Year</b>	<b>R039 – w/o 468 Avenue S.E. – North Bend</b>	<b>S901 – At Tinkam Road</b>	<b>S902 – At SR 906 Bridge</b>	<b>S903 – At Cabin Creek Road</b>	<b>B04 – West of Cle Elum Off- Ramp</b>
1996	27,900	24,493	20,541	N/A	N/A
1997	29,252	25,349	N/A	N/A	23,602
1998	30,137	25,657	22,436	N/A	24,271
1999	30,553	N/A	N/A	24,241	23,951
2000	N/A	N/A	25,527	25,172	25,119
2001	30,864	N/A	25,698	25,678	26,043
2002	31,564	28,961	27,087	26,968	27,230
2003	32,047	29,262	27,440	N/A	27,285
2004	31,482	29,568	26,985	27,105	27,778
<b>Average Annual Growth Rates to 2004</b>					
<b>From Year</b>					
1996	1.5%	2.4%	3.5%		
1997	1.1%	2.2%			2.4%
1998	0.7%	2.4%	3.1%		2.3%
1999	0.6%			2.3%	3.0%
2000			1.4%	1.9%	2.5%
2001	0.7%		1.6%	1.8%	2.2%
2002	-0.1%	1.0%	-0.2%	0.3%	1.0%
2003	-1.8%	1.0%	-1.7%		1.8%

Source: Washington State Department of Transportation.

Average annual rate of growth in daily traffic at these stations from 1996 to 2004 is shown to have been between 1.5 and 3.5 percent. The relatively high growth experienced from 1996 to 2002 had a significant influence on this overall average. For instance at Station 902, traffic increased from 20,541 in 1996 to 27,087 in 2002 at an average rate of 4.7 percent annually. From 2002 to 2004 traffic has decreased at this station. Growth at the other four stations shown has followed a similar pattern with recent growth significantly reduced as compared to the growth experienced in the late nineties.

As mentioned above, the eastbound tolling location would be located in the vicinity of North Bend, while the westbound tolling location would be located near Cle Elum. Therefore, the volumes at Stations R039 and B04 were averaged resulting in an average daily toll free volume of 29,630 vehicles for 2004. The assumed annual percent rate of growth used to estimate future year traffic for use in toll analysis is shown below:

- 2004-2010 – 2.5 percent;
- 2010-2020 – 2.0 percent;
- 2020-2025 – 1.5 percent; and
- 2025-2030 – 1.0 percent.

## Traffic and Revenue Analysis

The Snoqualmie Pass is at the far eastern boundary of the PSRC travel demand model, making this model unsuitable for direct use in estimating the reaction of travelers to tolls on this route. We therefore used existing traffic count data and travel pattern information obtained from WSDOT's origin and destination survey on I-90 (conducted in 2005)<sup>2</sup> as the basis for understanding travel patterns across the pass, and used travel time and distance measurements between points where travelers could choose to use I-90 or the next best alternate path such as SR 2. Considering the overall cost of taking I-90 versus the best alternate route, including potential tolls, we estimated to diversion of traffic from I-90 to these routes.

Passenger car toll rates ranging from \$1.00 to \$6.00 were tested in developing a toll sensitivity relationship and estimates of annual transactions and revenue. Proportionally higher rates were assumed for larger vehicles, based upon the relationships proposed for the Tacoma Narrows Bridge.

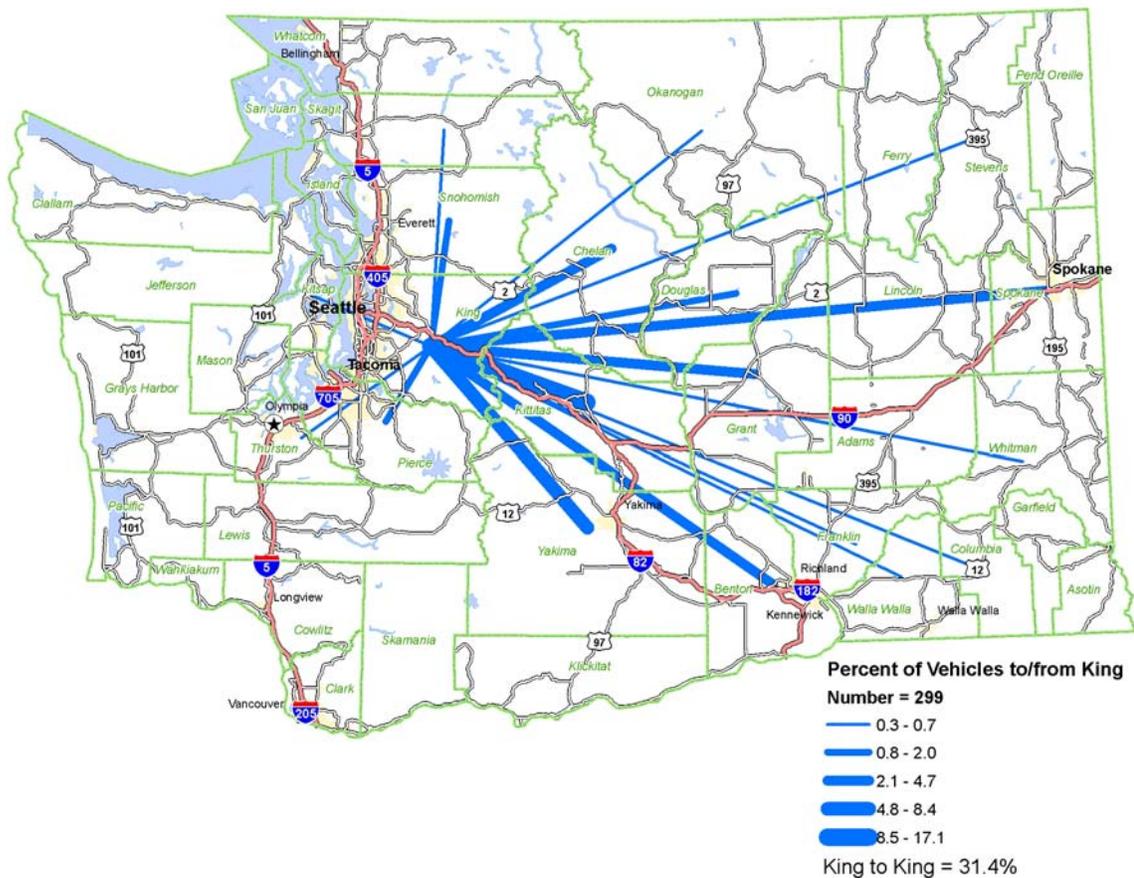
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<sup>2</sup> The mail back survey on I 90 was located at 436<sup>th</sup> Avenue S.E. in North Bend and in the direct vicinity of the proposed eastbound tolling zone. Data was collected via license plate video recording on May 17, 2005 between 6:00 a.m. and 7:00 p.m. Legible license plate reads were matched up with the Department of Licensing (DOL) database and mail back travel surveys were then sent out to the registered owners of the videotaped license plate numbers. The survey also included questions beyond origin and destination such as trip purpose, trip frequency, and vehicle occupancy.

### Geographical Distribution of Users

King County was at least one end of the trip for the highest number of origins and destinations using I-90 near North Bend. Exhibit 9.10 displays the desire lines for these King County trips.<sup>3</sup> A significant number of these trips were internal to King County, meaning that one end of the trip was east of North Bend, but still west of the Snoqualmie Pass (the highest point of the Snoqualmie Pass is the eastern boundary of King County). For trips going all the way across the Snoqualmie Pass, the highest percentage of trips was recorded to and from Kittitas and Yakima counties. The next tier of movements includes those to and from Spokane, Benton, Grant, and Chelan.

**Exhibit 9.10 King County Desire Lines at Survey Station**



<sup>3</sup> Similar desire line maps were prepared for other movements, but are not shown here for the sake of brevity.

### ***Time-Distance Relationships***

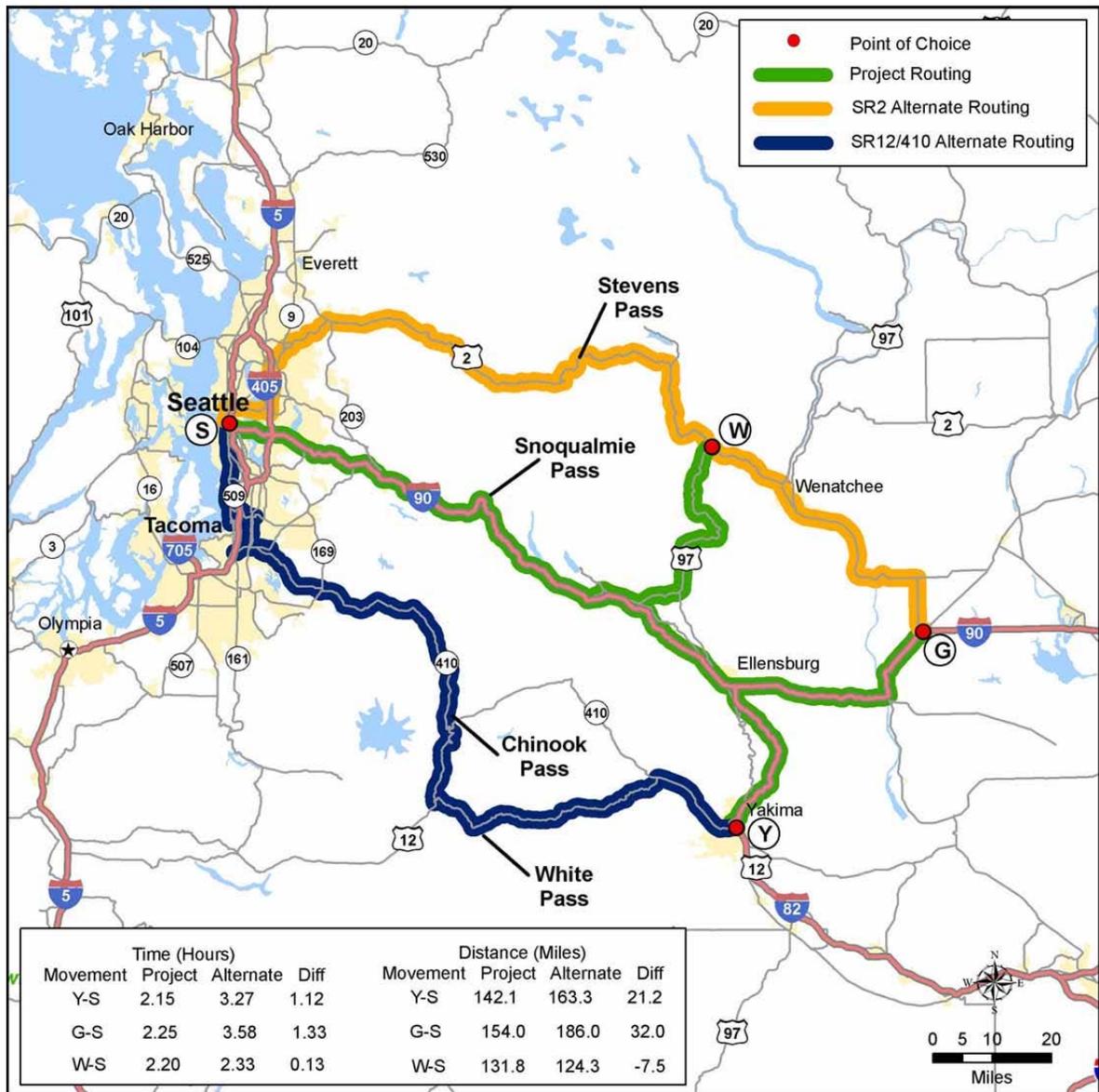
After review of the major county to county movements, we identified points of choice for trips that could divert to a nontolled corridor so as to avoid the toll. Then, we estimated travel times and distances for toll and nontoll paths from point of choice locations.

Exhibit 9.11 displays an example of the toll and alternate path routings to Seattle from three points of choice. The travel times and distances measurements associated with those travel paths are shown. For example:

- A trip between Yakima and downtown Seattle (shown as the movement between Y-S) would have an alternate routing choice of SR 12 and SR 410. Compared to using I-90 for this movement, this alternate routing is estimated to be 1.12 hours and 21.2 miles longer.
- A movement between Spokane or Grant County to Seattle is identified as G-S. Again, the alternate routing of SR 2 is not very viable since it would add an additional 1.33 hours and 32.0 miles onto the overall trip as compared to the I-90 routing.
- A trip from counties such as Chelan or Douglass to Seattle is shown with the point of choice movement W-S. In this case, I-90 saves minimal time and actually would be longer by about 7.5 miles than the alternate routing of SR 2. Actual time and distance savings would vary somewhat based on the exact location of the trip origin and destination within Seattle.

Similar comparisons were completed for combinations of movements covering county to county movements determined from the origin and destination survey database. Note that the travel times reflect typical free flow travel times and have not been field verified. Also, people's choice of route involves not just travel time and distance, but also safety and comfort considerations. As a high-grade Interstate route, I-90 offers much better service than its competitors, as evidenced by the significant difference in traffic counts. These factors would tend to make the alternative routes less attractive than portrayed here, making the toll revenue estimates conservatively low.

### Exhibit 9.11 Time and Distance Comparisons



### ***Estimated Traffic Growth through 2030***

Future levels of traffic in 2030 were estimated using the growth schedule discussed previously. Future toll-free average daily traffic is expected to be 47,425 vehicles by 2030 when combining the one-way traffic at each of the proposed tolling locations.

### ***Traffic Response to Tolls***

We tested toll rates ranging from \$1.00 to \$6.00 for passenger cars to understand the relationship of toll rate to traffic. These toll sensitivity tests were done with currency values at year 2000 levels. When these values are then used to consider financial performance, we have assumed that toll rates would increase over time to generally match the rate of inflation, meaning that the actual toll that someone might pay in 2030 would be considerably higher than the rates shown.

Toll rates for trucks would be proportionally higher, based upon the relationship between passenger car and truck tolls anticipated at the Tacoma Narrows Bridge. A five-axle truck would pay 2.5 times the amount that a passenger car would pay at any given toll rate.

The estimate of traffic response to tolls consisted of two parts. The first was an evaluation of route diversion that compares the tolled route to the next best alternative. The other considers the potential suppression of trips that might occur since many of the existing trips across the Snoqualmie Pass have no reasonable alternative. Trip reduction factors were derived from findings reported in the “Tacoma Narrows Bridge Investment-Grade Traffic and Revenue Study” report<sup>4</sup> in which a stated-preference survey was conducted to estimate trips reduction rates under several toll rate levels (see Table 9.16).

**Table 9.16 Trip Reduction Factors**

<b>Toll Rate</b>	<b>Reduction Factor</b>
\$1.00	0.981
\$2.00	0.962
\$3.00	0.944
\$4.00	0.926
\$5.00	0.907
\$6.00	0.889

<sup>4</sup> SR 16 Tacoma Narrows Bridge Traffic and Revenue Study. Prepared by Wilbur Smith Associates, August 20, 2002.

The top portion of Exhibit 9.12 shows the estimated average daily revenue that could be expected over the range of toll rates, while the bottom portion shows the number of average daily transactions. As toll rates increase, traffic would be expected to decrease, but would yield increasing revenue through the toll rate of \$6.00. Because of the lack of viable alternate routes and long trip lengths in general, we would expect traffic in the corridor to be insensitive to the toll rate. Tolls higher than \$6.00 would be expected to continue to yield increasing revenue. In view of the passenger vehicle toll rate that will be charged on the Tacoma Narrows Bridge, a \$3.00 toll rate was chosen for use in this analysis.

## Estimated Average Daily Traffic

Average daily toll transactions for 2030 are estimated to be 44,865 at a \$3.00 passenger vehicle toll rate in 2030. This is 2,560 vehicles or 5.4 percent less than what we would expect under toll-free conditions. At 2010 levels there is estimated to be 32,510 average daily toll transactions versus a toll free estimate of 34,360. Of the 2,560 vehicles in 2030 estimated to be reduced on I-90 under a tolled condition when compared to a nontolled condition, 45 percent are estimated to divert to SR 2, 25 percent are estimated to divert to SR 12 and/or SR 410, with the remaining 30 percent reduction occurring due to reduction in trip-making.

## Revenue Estimates

For purposes of this preliminary feasibility study, we assumed that the tolling locations on I-90 would be open in 2010.

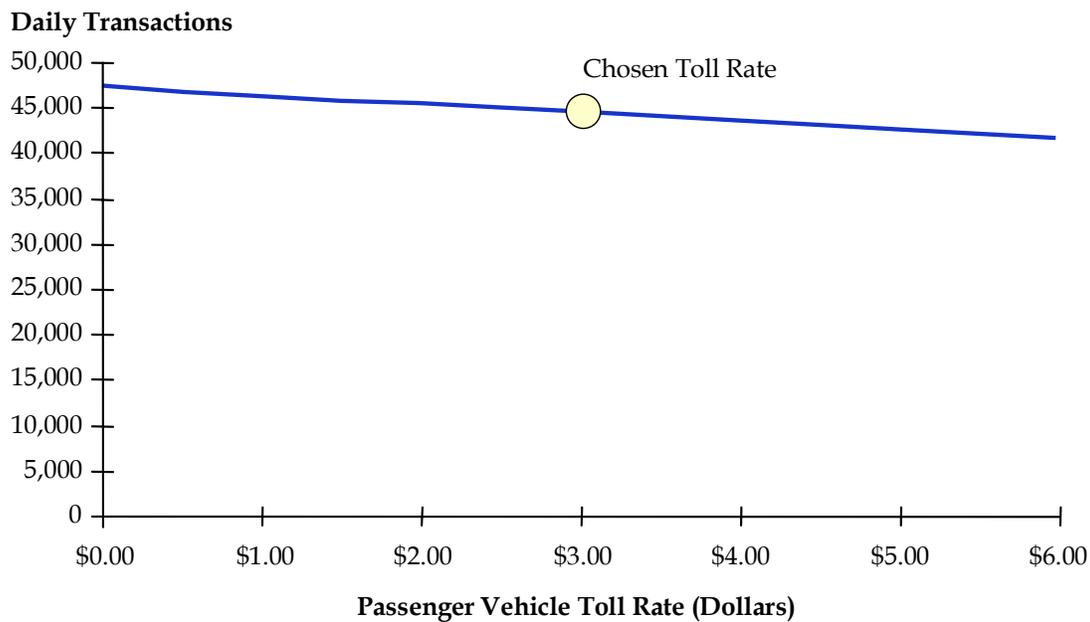
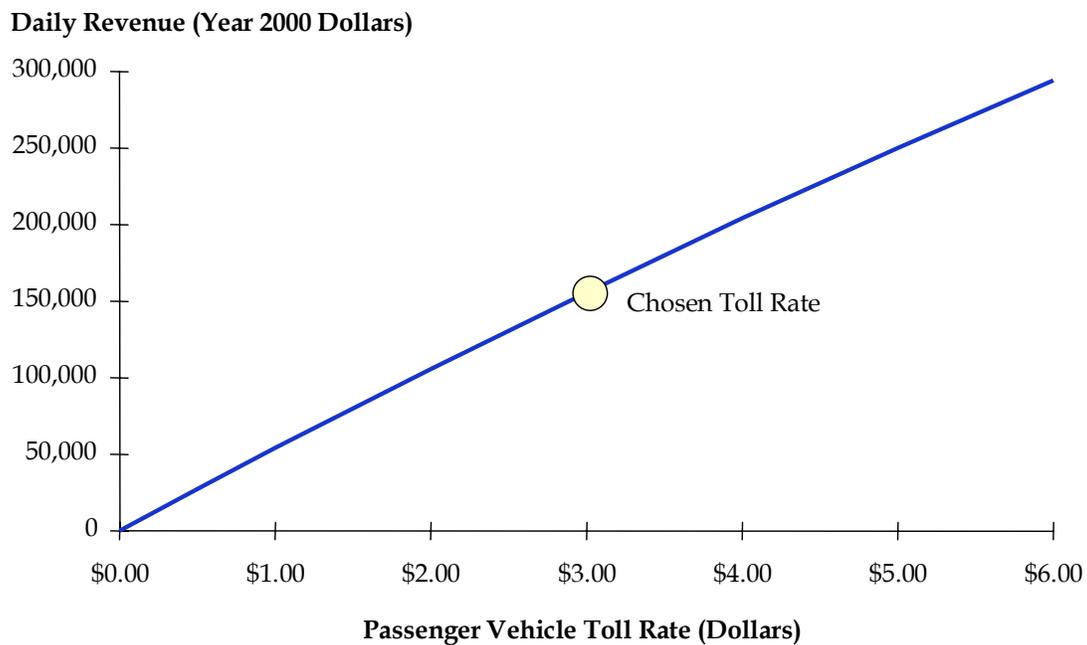
We used an average toll rate of \$3.48 per vehicle reflecting the 13 percent trucks on I-90 on an average daily basis. Three quarters of those trucks are assumed to have at least five axles, paying 2.5 times the passenger car toll rate. The remaining 25 percent are assumed to have less than five axles and would pay 1.5 times the passenger car toll rate.

Annual transaction and revenue estimates were calculated by multiplying the average daily estimates by 365 days. These transactions would be expected to generate about \$41.3 million per year in 2010 and \$57.0 million per year in 2030, both expressed in 2000 dollars (see Table 9.17).

**Table 9.17 Estimated Transactions and Toll Revenue**

	2010	2030
Average Daily Transactions	32,500	44,900
Average Toll (2000 Dollars)	\$3.48	\$3.48
Annual Toll Revenue (2000 Dollars)	\$41,294,000	\$56,988,000

### Exhibit 9.12 Snoqualmie Pass Toll Sensitivity 2030 Estimated Average Daily Transactions and Revenue



## Cost Estimates

This project assumed there would be both manual and electronic toll collection. The rationale behind this is that tolls could, theoretically, be installed right away, and that all-electronic tolling on a major Interstate route with few options could be troublesome.

This project is divided into two sections, Snoqualmie Pass-East from Hyak to Keechelus Dam, a five miles section and a west section of 10 miles in length from Keechelus Dam to Easton. WSDOT proposes to widen I-90 to six lanes to improve traffic flow and ensure continuous use of the I-90 through construction of tunnels and/or other mitigation measures to eliminate avalanche and rockfall closures.

A draft Environmental Impact Statement (EIS) was released on June 10, 2005 by WSDOT and a preferred alignment will be determined by May 2006. The EIS is to be completed by spring 2007. Construction on Snoqualmie Pass-East project is to begin in 2010.

Total project construction cost estimate of \$923 million was provided in October 2005 by the project team. On April 2005, the Washington State legislature passed the 2005 Transportation Partnership Funding Package, providing \$387.7 million for the five-mile Hyak to Keechelus Dam project. Tolling cost for this project is estimated at \$31.8 million. This cost includes two mainline toll plazas with four mixed (ETC and manual) toll lanes for each direction of traffic and two ETC only toll lanes per direction.

As stated above, due to the noncommuter nature of users of this facility, manual collection was also provided. An ETC participation of 35 percent initially and gradually increasing to 65 percent was assumed. A manual toll processing rate of 350 vehicles per hour was utilized in plaza sizing calculations. Due to the right-of-way constrains a split plaza configuration was assumed in preliminary plaza layout design and project cost estimating. It is anticipated that the cash paying customers will exit the mainlines to a split toll plaza and will merge back to the main line after paying their tolls manually, while the ETC customers will pass under a series of toll zone gantries at normal freeway speed for their toll collection activities.

The cost estimate included construction of one medium and one small administration buildings for housing the customer service and administrative functions of the toll collections and operations.

## Financial Analysis

A financial analysis was performed to estimate the amount of revenue that could be expected to contribute to the corridor improvements. At the \$3.00 toll rate (2000 dollars), it is estimated that \$501 million could be contributed toward capital improvements in the corridor (see Table 9.18). The toll level could be adjusted to match the needed funding amount.

**Table 9.18 Financial Analysis for the Snoqualmie Pass Project**

Calendar Year	Year of Collection Dollars							Senior Lien Debt Service	Present Value
	Passenger Car Toll Rate <sup>a</sup>	Average Toll Rate	Annual Gross Revenue	Annual Operating Expenses	Annual Maintenance Expense	Net Revenue			
2006								24,669,493	\$23,405,591
2007								24,669,493	\$22,206,443
2008								24,669,493	\$21,068,732
2009	3.91	4.54	50,367,246	3,808,633	3,387,000	43,171,613	24,669,493		\$19,989,309
2010	4.03	4.68	52,721,157	3,986,728	3,488,610	45,245,819	25,854,754		\$19,876,383
2011	4.15	4.82	55,184,906	4,173,188	3,593,268	47,418,449	27,096,257		\$19,763,581
2012	4.28	4.96	57,762,849	4,368,246	3,701,066	49,693,536	28,396,306		\$19,650,680
2013	4.41	5.11	60,461,148	4,572,280	3,812,098	52,076,770	29,758,154		\$19,538,045
2014	4.54	5.26	63,286,603	4,785,834	3,926,461	54,574,308	31,185,319		\$19,426,058
2015	4.67	5.42	66,243,450	5,009,333	4,044,255	57,189,863	32,679,921		\$19,314,119
2016	4.81	5.58	69,339,044	5,243,378	4,165,583	59,930,083	34,245,762		\$19,202,603
2017	4.96	5.75	72,578,027	5,488,281	4,290,550	62,799,196	35,885,255		\$19,091,001
2018	5.11	5.92	75,968,351	5,744,860	4,419,267	65,804,224	37,602,414		\$18,979,632
2019	5.26	6.10	79,518,431	6,013,298	4,551,845	68,953,288	39,401,879		\$18,868,978
2020	5.42	6.29	83,233,733	6,294,298	4,688,400	72,251,035	41,286,306		\$18,758,446
2021	5.58	6.47	87,123,362	6,588,233	4,829,052	75,706,076	43,260,615		\$18,648,458
2022	5.75	6.67	91,193,301	6,896,056	4,973,924	79,323,321	45,327,612		\$18,538,409
2023	5.92	6.87	95,453,400	7,218,393	5,123,141	83,111,866	47,492,495		\$18,428,670
2024	6.10	7.07	99,914,066	7,555,896	5,276,836	87,081,335	49,760,763		\$18,319,576
2025	6.28	7.29	104,582,323	7,908,827	5,435,141	91,238,355	52,136,203		\$18,210,723
2026	6.47	7.50	109,469,435	8,278,076	5,598,195	95,593,165	54,624,666		\$18,102,392
2027	6.66	7.73	114,585,193	8,664,804	5,766,141	100,154,248	57,230,999		\$17,994,421
2028	6.86	7.96	119,939,804	9,069,345	5,939,125	104,931,333	59,960,762		\$17,886,818
2029	7.07	8.20	125,543,906	9,492,953	6,117,299	109,933,655	62,819,231		\$17,779,435
2030	7.28	8.45	131,407,492	9,936,970	6,300,818	115,169,705	65,811,260		\$17,671,969
2031	7.50	8.70	137,379,963	10,388,584	6,489,842	120,501,537	68,858,021		\$17,542,790
2032	7.73	8.96	143,623,882	10,860,927	6,684,538	126,078,418	72,044,810		\$17,414,307
2033	7.96	9.23	150,151,587	11,354,382	6,885,074	131,912,132	75,378,361		\$17,286,600
2034	8.20	9.51	156,975,977	11,870,402	7,091,626	138,013,949	78,865,114		\$17,159,602
2035	8.44	9.79	164,110,535	12,409,978	7,304,375	144,396,183	82,512,105		\$17,033,321
2036	8.69	10.09	171,569,359	12,974,143	7,523,506	151,071,710	86,326,692		\$16,907,763
2037	8.96	10.39	179,367,186	13,563,676	7,749,211	158,054,299	90,316,743		\$16,782,966
2038	9.22	10.70	187,519,425	14,180,286	7,981,687	165,357,451	94,489,972		\$16,658,871
2039	9.50	11.02	196,042,183	14,824,853	8,221,138	172,996,192	98,854,967		\$16,535,515
2040	9.79	11.35	204,952,300	15,498,594	8,467,772	180,985,934	103,420,534		\$16,412,903
							Par Amount		\$650,455,110
							10.0%		\$65,045,511
									\$74,008,479
							1.5%		\$9,756,827
									<b>\$501,600,000</b>

<sup>a</sup> Note that toll rates would likely be rounded to the nearest five cents.

Construction Period	3 years
Bond Sale January 1 of	2006
Earning Period	35 years
Inflation Rate – CPI	3%
Inflation Rate – Costs	3%
Debt Service Coverage Ratio	1.75
Rating	BBB
Bond Interest Rate	5.40%
Assumed Toll Evasion	5%

## ■ Tolling I-5 in Lewis County

### Description

WSDOT is developing an improvement project that focuses on improving the mobility of traffic, particularly freight in combination with enhancements aimed at prolonged economic development and safety along the 40-mile-long section of I-5 from the Toutle River Safety Rest Area in Cowlitz County to the Maytown interchange in Thurston County. Currently, this section of freeway is only four lanes (two in each direction) with increasing congestion levels. The following list highlights the improvements and enhancements that are currently planned and funded within the 40-mile segment. The blue highlights in the map represent those funded sections.

- The Grand Mound to Maytown Widening project will include widening this seven-mile section of roadway from four to six lanes. Construction is expected to begin in 2008. Funding will be provided through the 2003 Gas Tax (Nickel Funding) as well as existing funds totaling \$79 million.
- The seven-mile Mellen Street to Grand Mound project will include three phases beginning with a widening of I-5 to six lanes between the Blakeslee Railroad Junction (MP 83.5) and Grand Mound interchange (Exit 88) in 2009. Phase 2 will include replacing the existing Mellen Street interchange, and will begin in 2010. Phase 3 to begin in 2011 will include a widening of I-5 to six lanes with additional auxiliary lanes between the Mellen Street interchange and the Blakeslee Railroad Junction; \$160 million in gas tax money was approved to complete this segment.
- The Rush Road to 13<sup>th</sup> Street (4.5 miles) project will include a widening of the freeway to six lanes and will include the construction of a new interchange at LaBree Road which is intended to provide improved access to and from the Port of Chehalis.



- The Chehalis River Basin Flood Reduction project is result of the severe flooding that has occurred in the river basin, impacting regional transportation and the economic well being of the local area. The project aims at providing flood protection for roads and structures by using levees and other measures. Construction could begin in 2006 if approved. Currently, \$30 million is funded through the Nickel Funding with another \$65 million anticipated through Congress to the U.S. Army Corps of Engineers.

These funded projects account for 18.5 miles of the 40 miles that are in need of widening and safety improvements. There are two major gaps accounting for the rest of the 21.5 miles that are not funded. These occur between interchanges 76 and 81 through Chehalis and from 71 to the southern extent of the project at the Toutle River Safety Rest Area in Cowlitz County.

The policy objective of evaluating tolling in this area would be to generate funds to expedite these types of major highway improvements. Several issues are envisioned that would need to be addressed if tolling was to take place:

- The difficulty of tolling an existing freeway such as I-5.
- Who and how to toll. Trying to capture the through movements while mitigating any diversion impacts to undersized local roads.
- Mitigating local diversion impacts by utilizing the revenue to improve the local arterials and local roads.
- Implications of possible tolling on the sections of the project that already have funding.

Many different tolling options are possible, ranging from a completely “closed” system where everyone would pay along the 40-mile section to the option of having two or three mainline tolling locations aimed at tolling the through traffic and keeping the local diversion to a minimum. The closed system would be expected to produce significantly more revenue as you would be tolling the whole market as opposed to a percentage of the market, but would also be more costly to operate and may have significant negative impacts to the local roads.

We worked with WSDOT staff to identify a reasonable tolling system for purposes of this illustrative example. Tolling would occur at two locations in both directions, positioned along sections of the freeway that are expected to have less disturbance to the local movements of the corridor:

- The most southern proposed tolling location would at the southern terminus of the project around the Toutle River Safety Rest Area between interchange 52 and interchange 57. This location is also the start of the largest stretch of unfunded portions of the 40-mile corridor. The average daily traffic in 2004 at this location was 43,000 vehicles.

- A second tolling location would be in the northern part of the project north of the U.S. 12/Old Highway 99 interchange within the Grand Mound to Maytown segment. The average daily traffic in 2004 at this location was 55,000 vehicles.

Since the tolling locations are fairly far apart, only those traveling for a significant distance would pay twice. Others whose trip originates or terminates within one of the zones would only pay once.

### Traffic and Revenue Estimates

In estimating the extent of diversion under a tolled scenario, we compared the travel times and distances for a trip diverting around the tolling location to those travel times and distances of remaining on I-5. A summary of the toll path and non toll path travel times and distances are shown in Table 9.19.

**Table 9.19 Estimated Average Travel Time and Distance Comparison**

Tolling Location	Travel Time (Minutes)		Travel Distance (Miles)	
	I-5 Path	Diversion Path	I-5 Path	Diversion Path
North	6.5	18.0	7.0	11.7
South	4.9	13.0	5.3	5.6

At the northern tolling location, the alternate path is estimated to take an additional 11.5 minutes and be almost five miles longer than I-5. At the southern tolling location, the travel distances between I-5 and the alternate route are comparable, but it would take an additional eight minutes to divert around the toll due to the significantly lower operating speeds of the alternate route as compared to I-5.

Using these relationships, we estimated the diversion of traffic from I-5 at several toll rates. Table 9.20 summarizes the average daily traffic and annual toll revenue (2000 dollars) that could be expected by the indicated tolls at each tolling location in both directions in 2010.

Diversion percents range from 2.9 percent at a \$0.50 toll rate to more than 50 percent at a \$3.00 toll rate. From the table, one can see that a toll of about \$1.50 at each tolling location might be appropriate since we are nearing the maximum revenue potential, while keeping the amount of diversion to less than 18 percent.

**Table 9.20 Estimated Average Daily Transactions and Toll Revenue  
2010**

<b>Toll Rate (2000 Dollars)</b>	<b>Average Daily Transactions</b>	<b>Estimated Percent Diversion</b>	<b>Annual Revenue (2000 Dollars)</b>
\$0.00	107,100		
\$0.50	104,000	-2.9%	\$24,255,200
\$1.00	97,600	-8.9%	\$45,525,100
\$1.50	88,300	-17.6%	\$61,780,800
\$2.00	76,800	-28.3%	\$71,646,100
\$2.50	63,300	-40.9%	\$73,815,100
\$3.00	49,800	-53.5%	\$69,687,000

### **Financial Analysis**

At the \$1.50 toll rate (2000 dollars) at each tolling location, it is estimated that \$778 million could be contributed toward capital improvements in the corridor (see Table 9.21). The toll level could be adjusted to match the needed funding amount to complete the remaining 21.5 miles and for operation and maintenance costs of the facility.

### **Policy Findings**

The policy objective of evaluating tolling in this area would be to generate funds to expedite these types of major highway improvements. As with Snoqualmie Pass, tolling an existing freeway can produce considerable revenue, especially when there are not many alternatives. The I-5 market in this region is not as captive as that on Snoqualmie Pass. The diversion of 18 percent of existing traffic on I-5 at a \$1.50 toll rate could cause issues on local roadways, however some of the toll revenue could be used to fund improvements on arterials in the corridor. Shorter trips are more likely to divert than longer trips, which can provide an operational benefit to the freeway.

**Table 9.21 Financial Analysis of Tolling on I-5 in Lewis County**

Year of Collection Dollars							
Calendar Year	Passenger Car Toll Rate <sup>a</sup>	Average Toll Rate	Annual Gross Revenue	Annual Operating Expenses	Net Revenue	Senior Lien Debt Service	Present Value
2008						40,677,097	\$38,593,071
2009						40,677,097	\$36,615,817
2010						40,677,097	\$34,739,864
2011	2.08	2.65	82,512,382	11,327,463	71,184,919	40,677,097	\$32,960,023
2012	2.14	2.73	86,263,666	11,842,227	74,421,439	42,526,537	\$32,693,165
2013	2.20	2.82	90,183,904	12,380,473	77,803,430	44,459,103	\$32,427,766
2014	2.27	2.90	94,283,272	12,943,230	81,340,042	46,480,024	\$32,164,890
2015	2.34	2.99	98,568,158	13,531,414	85,036,744	48,592,425	\$31,903,893
2016	2.41	3.08	103,048,150	14,146,450	88,901,700	50,800,971	\$31,645,103
2017	2.48	3.17	107,731,782	14,789,515	92,942,267	53,109,867	\$31,388,395
2018	2.55	3.26	112,627,949	15,461,667	97,166,282	55,523,590	\$31,133,706
2019	2.63	3.36	117,745,915	16,164,345	101,581,570	58,046,611	\$30,880,871
2020	2.71	3.46	123,098,762	16,899,060	106,199,702	60,685,544	\$30,630,727
2021	2.79	3.57	128,058,865	17,579,970	110,478,895	63,130,797	\$30,232,407
2022	2.87	3.67	133,220,347	18,288,441	114,931,906	65,675,375	\$29,839,628
2023	2.96	3.78	138,589,389	19,025,571	119,563,818	68,322,182	\$29,451,807
2024	3.05	3.90	144,174,194	19,792,300	124,381,894	71,075,368	\$29,068,909
2025	3.14	4.01	149,983,280	20,590,003	129,393,278	73,939,016	\$28,690,801
2026	3.23	4.13	156,027,545	21,419,696	134,607,849	76,918,771	\$28,317,880
2027	3.33	4.26	162,316,363	22,282,861	140,033,502	80,019,144	\$27,949,992
2028	3.43	4.39	168,857,299	23,180,826	145,676,473	83,243,699	\$27,586,623
2029	3.53	4.52	175,662,517	24,115,206	151,547,311	86,598,463	\$27,228,063
2030	3.64	4.65	182,742,523	25,086,971	157,655,552	90,088,887	\$26,874,301
2031	3.75	4.79	190,105,859	26,097,839	164,008,021	93,718,869	\$26,524,816
2032	3.86	4.94	197,768,544	27,149,613	170,618,932	97,496,533	\$26,180,257
2033	3.98	5.08	205,737,533	28,243,922	177,493,611	101,424,921	\$25,839,779
2034	4.10	5.24	214,027,432	29,381,915	184,645,518	105,511,724	\$25,503,761
2035	4.22	5.39	222,654,005	30,566,144	192,087,861	109,764,492	\$25,172,408
2036	4.35	5.56	233,920,298	31,797,881	202,122,417	115,498,524	\$25,130,360
2037	4.48	5.72	245,756,665	33,079,297	212,677,368	121,529,924	\$25,087,934
2038	4.61	5.89	258,191,952	34,412,362	223,779,590	127,874,052	\$25,045,141
2039	4.75	6.07	271,256,465	35,799,440	235,457,025	134,546,871	\$25,001,960
2040	4.89	6.25	284,982,042	37,242,033	247,740,009	141,565,719	\$24,958,469
2041	5.04	6.44	299,402,133	38,742,995	260,659,139	148,948,079	\$24,914,613
2042	5.19	6.63	314,551,881	40,304,303	274,247,578	156,712,902	\$24,870,434
						Par Amount	\$1,017,247,631
		Subtract Reserve Account				10.0%	\$101,724,763
		Subtract Capitalized Interest					\$122,031,290
		Subtract Expenses				1.5%	\$15,258,714
		<b>Estimated Contribution of Tolls to Construction Fund in 2008</b>					<b>\$778,200,000</b>

<sup>a</sup> Note that toll rates would likely be rounded to the nearest five cents.

Construction Period	3 years
Bond Sale January 1 of	2008
Earning Period	35 years
Inflation Rate – CPI	3%
Inflation Rate – Costs	3%
Debt Service Coverage Ratio	1.75
Rating	BBB
Bond Interest Rate	5.40%
Assumed Toll Evasion	5%

## ■ Tolling Alaskan Way Viaduct and I-5

### Project Description



The replacement of the Alaskan Way Viaduct (AWV) is a high-profile, high-cost project that has often been discussed as a candidate for tolling. Previous studies by WSDOT have raised concerns about the amount of diversion to I-5 and the relatively low amount of revenue generated compared to the cost. One way to address this issue would be to include I-5 in the tolling plan, where the revenue could pay for upcoming I-5 rehabilitation needs as well as the AWW project. Since both I-5 and AWW are in the heart of Seattle, tolling could also be used to influence people's time or location of travel, so that the highway system can be used more effectively.

Tolling along I-5 would extend from I-405 at Tukwila northward to Northgate for a distance of about 18 miles. The AWW tolling project would cover 4.5 miles and extend from Spokane Street to Roy Street as highlighted. Three levels of toll rates were analyzed to get a range of potential diversion impacts and revenue generation. As is shown in Table 9.22 we considered peak-period toll rates ranging from 10 to 45 cents per mile, with off-peak rates at less than half those amounts, and early nighttime rates of roughly one quarter those values.

Due to the dense urban environment of these corridors, we assumed that all toll collection would be by electronic means only, meaning a user would be required to have a transponder in order to the road. Since this is an existing Interstate highway, we have

assumed that some combination of transponder and video toll collection would be used, thereby reducing the number of people that could not pay a toll because of lack of the needed technology. The policy objective of this project is the tolling of existing freeways in a dense urban area to generate revenue for major improvements, with an element of traffic management.

**Table 9.22 I-5 and AWW Per-Mile Toll Rate Levels**  
2000 Dollars

Time Period	Level 1 Rates		Level 2 Rates		Level 3 Rates	
	I-5	AWV	I-5	AWV	I-5	AWV
6:00 a.m.-9:00 a.m.	\$0.35	\$0.35	\$0.15	\$0.15	\$0.10	\$0.10
9:00 a.m.-3:00 p.m.	\$0.15	\$0.15	\$0.05	\$0.05	\$0.05	\$0.05
3:00 p.m.-6:00 p.m.	\$0.45	\$0.45	\$0.20	\$0.20	\$0.15	\$0.15
6:00 p.m.-10:00 p.m.	\$0.10	\$0.10	\$0.05	\$0.05	\$0.05	\$0.05
10:00 p.m.-6:00 a.m.	-	-	-	-	-	-

## Traffic and Revenue

We analyzed changes in traffic patterns at the three toll rate levels using the PSRC travel demand model. Table 9.23 summarized the expected change in VMT for I-5 and AWW under the toll free and tolled conditions at the different toll rates.

Estimated diversion from both I-5 and AWW ranges from 6.6 to 26.5 percent on a daily basis depending on the toll rate. Larger diversion percents are shown during the peak periods where per-mile toll rates are significantly higher than the rest of the day. Significant loss of traffic is shown during the peak periods under toll Level 1 where per-mile rates were 35-45 cents per mile depending on the facility.

**Table 9.23 Forecast Percentage Changes in Vehicle Miles Traveled on I-5 and AWW under Pricing**

Toll Rate Level	2030 VMT Percent Impact					
	Peak		Off-Peak		Total Day	
	I-5	AWV	I-5	AWV	I-5	AWV
1	-44.7	-33.4	-15.5	-14.0	-26.5	-21.9
2	-14.5	-14.2	-4.8	-4.6	-8.5	-8.6
3	-9.8	-8.9	-5.0	-5.0	-6.8	-6.6

Tolling is expected to result in some improvement to travel times along I-5, however these improvements may be offset by degradation in travel times on other routes from added diversion. More study would be needed to generate results that are more definitive.

Table 9.24 displays the VMT for the I-5 and the AWV under each toll rate level. The corresponding average per-mile toll rate is shown, as is the resulting annual toll revenue estimates for 2030. Total annual toll revenue in year 2030 is estimated to range from \$146.1 million to \$294.7 million (2000 dollars) depending on the toll rate. Estimated annual transactions range from 15.2 to 18.1 million on the AWV and from 184.7 to 234.3 million on I-5. An average trip distance of nine miles was assumed in converting VMT to estimated transactions.

**Table 9.24 2030 Average Weekday Vehicle Miles and Annual Toll Revenue**  
 2000 Dollars

Toll Rate Level	VMT - Average Weekday (Thousands)		Average Per-Mile Toll Rate		Annual Toll Revenue (Thousands)		
	I-5	AWV	I-5	AWV	I-5	AWV	Total
1	4,806	394	\$0.183	\$0.203	\$270,142	\$24,599	\$294,741
2	5,988	462	\$0.089	\$0.92	\$164,709	\$13,133	\$177,842
3	6,095	472	\$0.072	\$0.074	\$135,346	\$10,757	\$146,103

## Financial Analysis

An assumed 1.0 annual percent rate of growth was assumed prior to and after 2030. The revenue from tolling these projects is conservatively estimated to be sufficient to fund from \$1.2 billion at the lowest rates to nearly \$3.0 billion at the highest (see Table 9.25). AWV revenue is expected to account for about 7 to 8 percent of total revenue.

**Table 9.25 Financial Analysis Summary**

Toll Rate Level	Estimated Contribution of Toll Revenue to Construction Fund (Millions)		
	I-5	AWV	Total
1	\$2,737.5	\$252.3	\$2,989.8
2	\$1,458.3	\$117.4	\$1,575.7
3	\$1,117.3	\$89.7	\$1,207.0

## Policy Findings

The policy objective of this project is the tolling of existing freeways in a dense urban area to generate revenue for major improvements, with an element of traffic management. Tolling I-5 and AWV could generate a significant amount of revenue to contribute to needed rehabilitation and reconstruction. Such tolling would result in diversion to other facilities, and it is unclear whether the negative impacts of the diversion would outweigh the benefits of the improved performance on the freeways.

Another concept to consider in this corridor would be tolling *only* during peak periods, leaving the highways free the rest of the time. Although this would generate less revenue, it would provide drivers a clear choice relating to time of travel.

## ■ Statewide Truck Tolling

### Project Description

The policy objective of this project was tolling commercial vehicles to increase system effectiveness, revenue, and as a precursor to more extensive highway tolling. Both Austria and Germany have recently implemented a nationwide truck tolling system for their autobahn systems. The overriding policy objective in both cases was to raise revenue from truckers in a way that more closely matched actual usage, and to encourage a shift of some freight from trucks to rail. In both cases, the tolls replaced a flat rate system of tax stickers (available in both annual, and 10-day versions) to use the highways. Although fuel taxes in Europe are much higher than in the United States, the taxes are not dedicated to transportation. Both Austria and Germany are in central Europe, where a considerable share of truck traffic is just passing through – the tolls provide a more effective way to capture revenue from those through-trucks than the flat rate system. The Austrian system

uses standard electronic toll collection technology (i.e., transponders and overhead gantries along the highway), and the German system uses new Global Positioning System (GPS) technology. Early reports from both systems is that they have been successful at generating the expected revenue, but less successful at diverting truck traffic to rail. There have also been reports about trucks diverting to secondary roads to avoid the tolls.

Does such a system make sense for Washington? The revenue generation potential of such a system is substantial. If single-unit trucks were charged 10 cents per mile and multi-unit trucks were charged 20 cents per mile, the annual revenue from tolling in 2004 statewide would have been over \$500 million. However, in the United States, we have solved the problem of trucks paying their fair share of taxes in each state through the International Fuel Tax Agreement (IFTA) system, whereby truckers pay fuel taxes quarterly to their home state, and the revenues are distributed to other states based on reported mileage in each state. Systemwide tolling, even if just on the freeway system is an expensive way to collect revenue – raising fuel taxes on diesel would be far simpler.

Using tolling to encourage trucks to change their time of travel is another option in the congested part of Washington. Tolling trucks only on highways, however, may not be the best way to accomplish this objective, at least in the short term. The infrastructure and administrative requirements for such a system would be extensive; as would the complications involved in signing up truck drivers from around the country for a system that only pertains to one urban area. In the short to medium term, these practical considerations probably outweigh any potential congestion-relief benefits. Over the long term, the spread of telematics technologies into trucks could make such a system more manageable to implement, and tolling trucks may be a good first step towards a more extensive system that includes autos as well.

## **Policy Findings**

A tolling system devoted to charging trucks is not needed to address a revenue problem – that problem can be solved through traditional tax increases. Tolling to improve system effectiveness is an intriguing idea, however, the details of making it work in one metropolitan area is an idea that is probably ahead of its time due to the complexities of system implementation. In the long term, truck tolling could be a precursor to more extensive highway tolling.

## **■ Container Fees**

### **Project Description**

The policy objective of this project was the use of fees to fund intermodal improvements that aid freight flows in the region. Washington's extensive port facilities generate a large

volume of rail and truck traffic that must be accommodated by the State's transportation facilities. Puget Sound area ports handled over 2.8 million TEU (20-foot equivalent) containers in 2002, with that number forecast to rise to over 6.9 million by 2025. To illustrate the revenue potential of a container fee, if a \$10 fee per TEU was to be applied in the Puget Sound, annual gross revenue is estimated to be around \$42.3 million by 2010, growing to \$69.5 million by 2025.

Although Washington is the beneficiary of the employment opportunities generated by the existence of these ports, it still has trouble keeping up with the associated transportation infrastructure needs. Container fees provide a mechanism to apply a direct user charge to international freight that does not involve a general tax increase. The dollars could be used to fund intermodal improvements that aid freight flows in the region, such as the FAST Corridor, extension of SR 167 to the Port of Tacoma, and key improvements to rail bottlenecks.

In many respects, container fees would be similar to the passenger facility charges (PFC) that airports may charge air passengers for airport infrastructure improvements. The fees could be applied by the State or by the Port – collected by the carrier, but passed on directly to the shipper. As with PFC, the fees would be used to pay for a specific list of improvements directly related to the improvement of freight movements in Washington. Ideally, the list of improvements would confer benefits on the shippers and carriers in excess of the cost of the fee itself.

The advantage of container fees over the more general truck-only tolling concept is that the fee could be incorporated into the existing accounting process related to freight movements. Although there would be administration expenses, they would not be as extensive as roadside or GPS-based tolling concepts.

The only application of container fees being applied in the United States is the Alameda Corridor, where a 20-mile-long rail cargo expressway links the ports of Long Beach and Los Angeles to the transcontinental rail network near downtown Los Angeles. Container fees of \$33.50 per loaded 40-foot container (lower fees for other types of rail cars) are collected to pay a portion of the project cost. The secret to success of this project was the clear benefits to all of those participating in the finance plan, including the ports, railroads and various levels of government, and the partnership those groups formed to carry out the project. The Alameda Corridor is a unique situation – replicating that success in Washington will require a clear definition of objectives, a focused list of projects to be funded with the fees, and financial commitments from other partners to contribute to the projects.

The ports of Los Angeles and Long Beach have also recently rolled the PierPASS traffic management program aimed at spreading the peak traffic loads at the port. PierPASS assesses a fee of \$80 per 40-foot container for cargo that moves through truck gates during peak hours (Mondays-Fridays from 3:00 a.m. to 6:00 p.m.). The program has effectively shifted about 30 percent of freight traffic to off-peak times, thereby reducing congestion. PierPASS came about as a voluntary program instituted by the ports to avoid the potential of a threatened program to be enacted by government. The success of the PierPASS

program is the extreme congestion evident in the region, and the willingness of all parties to extend the normal hours of port operation.

## ■ Implications of Findings on Tolling Policy

The interim report recommended a tolling policy for Washington State that uses pricing to encourage effective system management and congestion relief and provides a supplementary source of funding for appropriate projects. The report suggests that determining how and where tolling should be used should be based on consistent standards that recognize not only localized benefits but also potential negative system impacts. We analyzed nine illustrative examples of potential tolling applications to put the policy framework to a practical test. This section describes the findings that have emerged from those example projects.

The bottom line of our analysis points toward several basic recommendations:

1. Conversions of HOV lanes to HOT lanes is a proven, relatively inexpensive way to use excess capacity and preserve transit and vanpool performance. Following the example of the SR 167 HOT lane pilot project, additional HOV to HOT lane conversions should be considered in the short to medium term.
2. Using tolls to help fund bridge, or bridge-like improvement projects (including Snoqualmie Pass) is an effective finance tool that also can be used to influence travel behavior to improve system performance when used carefully. These tolling applications also can be considered in the short to medium term.
3. The cost and benefits of building additional HOT lane capacity should be carefully weighed against the risk that this type of project will be made obsolete by more extensive road pricing applications that come about over time. This choice does not have to be made right away, but can be addressed with additional study.
4. Tolling the Cross Base Highway is expected to pay for only 15 percent of the capital cost of the project (after subtracting out operations expenses), making it a poor candidate for tolling.
5. Tolling an existing freeway can generate significant revenue, but implications on diversionary routes should be measured and mitigated if possible. If variable pricing is done in a dense urban area such as Seattle, the potential to improve the efficiency of the freeway needs to be weighed against the potential to degrade performance on other highways in the region. Further study on such effects is recommended.
6. Network-wide truck tolling has been recently implemented on the German and Austrian Autobahn systems. In looking at whether such a system makes sense for Washington, we concluded that the revenue-generation motivations in those countries is not matched in Washington, since revenue distributed to each state in the United

States reflects actual truck usage within each state through the International Fuel Tax Agreement (IFTA). Over the longer term, as the technology to allow pricing becomes more widespread, trying out systemwide tolling applications with trucks may have some merit.

7. The use of Container Fees would be a way to apply a direct user charge to waterborne freight. The dollars could be used to fund intermodal improvements that aid freight flows in the region. The concept may be more cost-effective than the general truck-only tolling concept.

*Background paper prepared by Cambridge Systematics, Inc. with assistance from PBS&J in May 2006.*

## Background Paper #10

# Legal and Regulatory Issues

### ■ Introduction

This Background Paper addresses the legal and regulatory issues associated with carrying out the proposed tolling policies in Washington State. The first section summarizes the key issues and observations particularly as they relate to implementation of the Study's Proposed Tolling Policies for Washington State. That is followed by a more in-depth analysis of the relevant legal and regulatory issues. We have also prepared documentation that summarizes state and Federal statutes that directly relate to the imposition of tolls within the State, which is an appendix to this paper.

### ■ Key Issues and Observations

- In 2005, the legislature repealed many restrictions on tolling specific facilities that had previously borne tolls until related bond issues were paid off. At the same time, lawmakers required that no new tolls could be imposed on state highways or bridges without express statutory authorization. This raises the basic policy question of whether future decisions to impose tolls should be made by elected lawmakers on a case-by-case basis, or whether tolls should be imposed by the Transportation Commission or WSDOT pursuant to basic policies and a process established by the legislature. *To implement Proposed Tolling Policies 1, 2, 6 and 7, it would be appropriate to enact legislation by which the legislature would establish the basic policies and criteria governing the imposition of tolls in Washington State. These policies would provide "high-level" direction to the Transportation Commission and WSDOT, and they might be similar to the Study's Proposed Tolling Policies. The legislation should also specify the responsibilities of the legislature, the Transportation Commission, WSDOT, local and multistate entities, respectively, in proposing and selecting facilities for tolling, in rate-setting, and in implementing tolls.*
- Under existing law, the Transportation Commission is the basic tolling authority in the State. There is, however, authorization for special purpose subunits of government to establish tolls. These include a Regional Transportation Improvement District in the central Puget Sound area, local Transportation Benefit Districts, cities, and port districts. Tolls established by some of these local districts must also be approved by the Commission and by the voters within the jurisdiction establishing the tolls. *To implement Proposed Tolling Policies 7 and 8, various statutes would need to be amended to clarify*

*the scope of the state tolling authority's role and responsibilities with respect to local tolls. For example, in order to ensure operational coordination and consistency, legislation should delineate the procedures for approving new local toll projects. Statewide polices (perhaps refined by WSDOT and the Transportation Commission) should delineate specific practices related to toll collection activities. It may be appropriate to require that prior to imposing tolls on any streets, highways or bridges, all local governments would be required to obtain approval from the Transportation Commission, as tolling authority. Where voter approval is required before new tolls can be imposed, perhaps Commission approval should be obtained before submitting a measure to the electorate.*

- Tolls on Federally funded facilities (e.g., Interstate highways) are generally prohibited by Federal law, although there are some exceptions, such as for “HOT Lanes” and “reconstruction” of existing bridges. Also, Congress has established various programs (including specific demonstration programs) that enable tolling of certain types of projects proposed by states and selected by the Federal Highway Administration. *To implement Tolling Policies 1 and 2 with respect to Federally funded highways, Washington State will need to act swiftly and decisively to identify those facilities, to implement the basic policy and legal framework for tolling, and to apply to FHWA for clearance to impose tolls (including being included in demonstration programs). To the extent necessary, Washington should work with its Congressional Delegation to support amendments to Federal law, including the continuation of pilot programs, so that Federal Highway Administration approval may be obtained where necessary the State's tolling policies and program.*
- Apart from statutes providing for State Ferry tolls (RCW 47.60.150 and .326), for SR 167 HOT lanes (RCW 47.56.403), and for the use of Tacoma Narrows Bridge tolls to reimburse the Motor Vehicle Fund for debt service on bonds issued to construct that facility (RCW 47.56.165), State law does not currently address the disposition of revenue from tolled facilities in a manner that would address the Commission's proposed policies. For example, RCW 47.56.160 remains as a general statement, dedicating toll revenue to bond repayment, in the expectation that the legislature will continue to authorize toll facilities on a specific, project-by-project basis, rather than on a comprehensive basis. *To implement Proposed Tolling Policies 3 and 4, legislation, and more detailed policies, should address the accounting and disposition of toll revenues to pay for toll system operation and maintenance, to fund construction and maintenance of highways and to pay for other parts of the transportation system, similar to authority now provided for Transportation Innovative Partnership accounts in RCW 47.29.240.*
- The legislature recently strengthened privacy protections for persons who use transponders or other technology to facilitate payment of tolls. However, lawmakers may wish to continue to evaluate whether sufficient protections exist for citizens who want to reduce their vulnerability to tracking by government agencies or others. The Transportation Commission and WSDOT will obtain important experience and information from the implementation of an automated tolling system on the Tacoma Narrows Bridge, including data on the anonymous purchase of prepaid cards and feedback from users about whether they feel the character and level of privacy protections are adequate. The Transportation Commission and WSDOT may then be in a

position to determine whether to recommend additional legislation that would require or strengthen anonymous purchases or other approaches to ensure consumer privacy.

- Environmental regulations will continue to play a key role in the process of selecting specific facilities for tolling. Attention must be paid to complying with applicable requirements of the State Environmental Policy Act (SEPA), the National Environmental Policy Act (NEPA), and Washington’s Growth Management Act (GMA).

## ■ Discussion of Legal and Regulatory Issues

### Tolls – The Legislative Context

The State has a history of being cautious about tolls and requiring specific legislative authorization for any toll bridge or highway. Recently there has also been a trend to require a public vote before new tolls can be imposed. Two statutes, adopted in 2005 and 2002 respectively, encompass that principle:

#### **47.56.031 Approval of tolls.**

No tolls may be imposed on new or existing highways or bridges without specific legislative authorization, or upon a majority vote of the people within the boundaries of the unit of government empowered to impose tolls. This section applies to chapter 47.56 RCW and to any tolls authorized under chapter 47.29 RCW, the transportation innovative partnership act of 2005.

#### **47.56.075 Toll roads, facilities – Legislative authorization or regional or local sponsorship required.**

The department shall approve for construction only such toll roads as the legislature specifically authorizes or such toll facilities as are specifically sponsored by a regional transportation investment district, city, town, or county.

The State has also been reluctant to allow tolls to remain on any facility once the initial capital costs (usually funded by a bond issue) are paid off. An example of this type of restriction was incorporated in RCW 47.60.445 (now repealed) restricting the use of tolls on the Hood Canal Bridge:

#### **[Repealed] 47.60.445 Hood Canal Bridge – Tolls, upkeep costs.**

Notwithstanding the provisions of RCW 47.56.240 and 47.56.245 the transportation commission shall not collect tolls on the Hood Canal bridge for any purpose except where necessary to comply with bond covenants.

The cost of maintenance upkeep, and repair may be paid from funds appropriated for the construction and maintenance of the primary state highways of the State of Washington.

In 2005, the legislature passed a comprehensive repeal of most of the numerous, specific toll road and bridge designations of the past and adopted the general statement in RCW 47.56.075 quoted above (Laws of 2005, Chapter 335). In essence, the voluminous list of historic toll authorizations was wiped clean. But for the time being the legislature has retained the power to allow tolls to be imposed on any new or existing facility. This raises the basic policy question of whether future decisions to impose tolls should be made by elected lawmakers on a case-by-case basis, or whether tolls should be imposed by the Transportation Commission or WSDOT pursuant to basic policies or a basic framework established by the legislature.

Under RCW 47.56.240, the Transportation Commission is the tolling authority for any toll projects authorized under Chapter 47.56, RCW. The Commission must also approve of the tolls established under local, special purpose district authority described below.

One issue that is not currently addressed in state law is whether toll revenues are to be deposited in single transportation fund to be used for a broad array of transportation projects, or whether tolls from a specific facility are to be dedicated to financing capital and/or operating costs of that facility. Tolls from the expanded Tacoma Narrows Bridge will be used to reimburse the State for gas tax revenues used to repay bonds issued for that facility. RCW 47.56.245, a feature of the specific revisions related to the Tacoma Narrows Bridge, contains a classic pledge for the benefit of bondholders – that tolls must remain until bonds are paid off. However, the legislature and the Transportation Commission may wish to consider whether a broader, systemwide approach to use of toll revenues is beneficial, and if so, to implement such an approach by statute or by rule.

## **Additional Authorization for Tolls**

In addition to the general requirement in RCW 47.56.031, for legislative authorization of new toll projects, there are a number of other Washington statutes that authorize toll roads and bridges, either in the context of “public-private partnerships” or in the context of newly created special purpose districts.

The Transportation Commission, pursuant to RCW 47.46.100, remains the tolling authority for partnerships authorized under RCW Chapter 47.46. Under RCW Chapter 47.29, the Commission has the power to select and control “innovative partnership” agreements, and thus can retain control of the tolling authority. In the creation of special purpose districts for tolling described below, the Commission either retains the direct tolling authority, as in the case of RTID, or must approve the tolls, as in the case of local transportation benefit districts.

### ***Public-Private Partnerships in RCW 47.46 and 47.29***

Public-private partnerships in transportation projects are authorized by the Public-Private Transportation Initiatives Act, RCW Chapter 47.46, first enacted in 1993. The purpose of the statute was to supplement state transportation funds with private funds in up to six

demonstration projects. In 1995, the statute was amended to require an advisory election on any preferred alternative (under SEPA) for a specific project. Other 1995 amendments made it relatively difficult to accomplish projects under the statute. In 2004, the act was amended again to specifically authorize systems that include manual cash collection, electronic collection, and photo monitoring, including restrictions on the use of photo documentation only for toll collection purposes. RCW 47.46.105.

The principal example of use of this statute is the second span of the Tacoma Narrows Bridge, currently under construction. The design-construction team for that project was selected through the Chapter 47.46 process. But litigation ensued when the project began. A collection of citizen plaintiffs sued the Washington State Department of Transportation (WSDOT) and initially blocked the imposition of tolls because the original Tacoma Narrows Bridge had been specifically required to be toll-free when its construction debt was retired. *Peninsula Neighborhood Association v. DOT*, 142 Wn.2d 328, 12 P.3d 134 (2000). The Supreme Court in *Peninsula* did, however, uphold the constitutionality of the public-private partnership construction under the act, as it had “sufficient standards and guidelines as well as procedural safeguards to satisfy the constitutional challenge.” *Id.*, 142 Wn.2d at 346. Tolls were later authorized by an amendment to the original law.

In place of earlier public-private partnerships, the legislature promulgated the Transportation Innovative Partnership Program in Chapter 47.29 RCW. The Tacoma Narrows Bridge is expected to be the last example of the prior partnership program. The new statutory authority is an outline, with the details to be filled in by future specific project partnership agreements. Required elements that must be included in one of these agreements are listed in RCW 47.29.140. These include part (c) providing that “If there is a tolling component to the project, then it must be specified that tolling technology used in the project must be consistent with tolling technology standards adopted by the department for transportation-related purposes.” To come within the approved ambit of the Supreme Court’s approval of public-private partnerships under RCW, Chapter 47.46 in *Peninsula*, these required elements must be carefully adhered to.

### ***Local Transportation Benefit Districts RCW 36.73***

Following a long-standing trend in Washington law to address a problem by creating a new special purpose subunit of government, this 2005 statute allows local governments – cities towns and counties – to create a special purpose district to address local transportation needs. Laws of 2005, Chapter 336, codified in RCW Chapter 36.73.

The Transportation Benefit District has both taxing power and the power to adopt fees, charges and tolls, but any of those taxes, fees or a range of tolls must first be approved by voters in the district. RCW 36.73.065. In addition, any tolls on city or county streets must be approved by the Transportation Commission, and tolling on Federal or state highways within the district must be administered by the Commission. RCW 36.73.040(d). This ensures that local tolling, at least by a Local Transportation Benefit District, fits into a statewide framework.

## ***Cities and Towns***

For many years cities and towns have had independent powers to build and maintain toll bridges and to create their own systems to establish and operate those tolls. RCW 35.74.050. While it may be unlikely that any city or town will now create an independent toll authority, this statute would need to be amended to guarantee statewide tolling consistency.

## ***Regional Transportation Investment Districts RCW 36.120***

In 2002, the legislature authorized the creation of a Regional Transportation Investment District (RTID) in the central Puget Sound area. RCW, Chapter 36.120. The RTID has the authority to develop a “regional transportation investment plan” for various improvements. One of the important powers of an RTID is to use the “design build” procedure for transportation projects developed by it. RCW 36.120.110(7).

Pursuant to RCW 36.120.050(1)(g), the RTID may propose vehicle tolls on new or reconstructed facilities. The tolling proposal, together with the whole plan, must be approved by a majority of voters within the boundaries of the RTID. Once tolls are approved by the voters in the RTID, the tolls are administered by WSDOT and the tolling authority is the Transportation Commission. RCW 36.120.050(1)(g).

## ***High-Occupancy Toll Lane Pilot Project RCW 47.56.403***

Another 2005 amendment to Washington transportation law provides authority for WSDOT to create a demonstration project for High-Occupancy Toll lanes on SR 167. The Transportation Commission is given guidance in the statute for the types of tolls to apply and the types of vehicles that must be exempt. Toll charges are to be imposed on single-occupancy vehicle users who would be permitted to enter the lanes to the extent that average vehicle speeds are maintained at 45 miles per hour at least 90 percent of the time during peak hours. Tolls would not be assessed on transit and vanpool vehicles. Tolls on other multiple occupancy vehicles would be discretionary, as determined by the Commission. This is set up as a pilot project with performance reporting requirements and a four-year implementation window.

## **Tolls on Federally Funded Facilities**

Federal law imposes substantial constraints on tolling Federally funded highways. 23 U.S.C. §301. However, in August 2005, Congress passed the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). In addition to certain preexisting exceptions, such as HOT lanes (23 U.S.C. §149) and reconstructed bridges (23 U.S.C. §129(a)(1)), SAFETEA-LU enabled three new exceptions, and modified one existing exception, to the general prohibition on the imposition of tolls by states on Federally funded facilities. The legislation permits states and other qualifying agencies to

impose tolls on certain Interstate highways, tunnels, and bridges. All tolling and pricing programs are coordinated by the Federal Highway Administration (FHWA).

The application process for all tolling and pricing programs is a two-step process. The first step involves submitting an Expression of Interest to an FHWA “Tolling and Pricing Team” (which does not approve projects, but acts as a clearinghouse for all applications). After receiving the Expression of Interest, the Tolling and Pricing Team assists the applicant in identifying the range of available options and directs the applicant to the most appropriate program office to accomplish the goals stated in the Expression of Interest. The Team will make comments on the Expression of Interest, to which the applicant must respond. The applicant must then formally apply to the appropriate program office for review (second step), in compliance with any specific procedural requirements of the selected program office.

The number of opportunities for these demonstration projects or new highway funding opportunities is limited to three projects in three different states, so there will be competition for the limited demonstration slots. Early approaches to the Federal Highway Administration on any specific toll proposals would be important, and at least two of the demonstration opportunities have been taken in Virginia, and Missouri. More information on SAFETEA-LU, is available at: [http://ops.fhwa.dot.gov/tolling\\_pricing/announcement/tolling\\_announcement.htm](http://ops.fhwa.dot.gov/tolling_pricing/announcement/tolling_announcement.htm)

If Washington State desires to have tolls imposed on an existing Interstate highway or other Federally funded facility, the State should move as swiftly as practicable to identify those facilities, to implement the basic policy and legal framework for tolling, and to apply to FHWA for clearance to impose tolls. There is expected to be a new highway authorization bill in 2009, under which additional toll demonstrations may be permitted.

## **Interstate Commerce Issues**

Federal courts have consistently upheld tolls linking different states. For example, in 1972, the Supreme Court distinguished an 1868 decision barring Nevada from imposing exit tolls on travelers leaving that state. The 1972 decision held that a tax designed merely to impose upon an interstate traveler the traveler’s fair share of the government’s costs in maintaining the public facility used is not an unconstitutional burden on the constitutionally guaranteed right to travel. *Evansville-Vanderburgh Airport Auth. Dist. v. Delta Airlines*, 405 U.S. 707, 712-14, 92 S.Ct. 1349, 1353-54, 31 L.Ed.2d 620 (1972). The Supreme Court established a three-part test for making this determination: whether the toll 1) discriminates against interstate travelers, 2) represents a fair approximation of the use conferred on those who pay, and 3) is excessive in relation to the costs incurred. These standards appear straightforward, and are the ones that the Transportation Commission would itself use in setting toll rates on any project in Washington.

The issue of interstate commerce has been raised in the multiple toll bridges and tunnels in New York metropolitan area. In 1991, for example, the Third Circuit ruled against a challenge by New Jersey citizens to increased tolls on the bridges and tunnels to New

York imposed by the Port Authority of New York and New Jersey. *Wallach v. Bresnoff*, 930 F.2d 1070 (3<sup>rd</sup> Circle, 1991). There, the court rejected the attack on a 50 percent rate increase for tolls and found that there is “no dispute by appellants that the tolls in place before the increase were inadequate to operate the interstate system of tunnels, bridges, the bus terminal and PATH and also finance a necessary capital program, nor that the river crossing system as a whole gets only a fair rate of return on its service.” *Id.*, 930 F.3d at 1072.

## Rate Setting

Rate setting for state toll facilities is considered to be an administrative function, and not a delegation of legislative authority. *State ex rel. Wash. Toll Bridge Auth. v. Yelle*, 61 Wn.2d 28, 47, 377 P.2d 466 (1962); *Peninsula Neighborhood Ass’n, v. DOT*, 142 Wn.2d 328, 338, 12 P.3d 134 (2000). This is an important principle, because it enables the legislature to charge WSDOT or the Transportation Commission with responsibility to select specific facilities for tolling and to set the rates. However, legislation must establish the purpose and basic components of a tolling mechanism, and the Transportation Commission (or WSDOT) must follow the Administrative Procedures Act when establishing and altering tolls. However, current toll requirements may be too restrictive. RCW 47.56.240, for example, requires that the Commission set tolls “at rates to yield annual revenue equal to annual operating and maintenance expenses including insurance costs and all redemption payments and interest charges of the bonds issued for any particular toll bridge.”

The Washington Administrative Procedures Act (RCW Chapter 39.34) follows the Federal model and provides for public notice of rule-making and an opportunity to challenge administrative decisions in court based on lack of statutory authority, lack of supporting evidence, or on the basis of arbitrary and capricious conduct. In essence, this provides the Commission with a fair amount of flexibility in how it determines tolls, so long as the tolls are not set arbitrarily.

Apart from any Federal restrictions that may be imposed, the location of toll booths or the creation of an electronic system for collecting tolls rests with the Transportation Commission or WSDOT under an general delegation to administer and establish tolls. An example of the kind of detail that would result from establishing tolls on any facility can be seen in WAC Chapter 463-300, in which specific tolls are established by regulation for the use of the state ferries, and within which certain flexibility is delegated to the state ferry system itself.

Tolls generally need to be related both to the cost of operating the system and paying for the capital and operating expenses of the tolled roadway, bridge, or broader system of tolled facilities and related transportation facilities. With legislative direction, however, other considerations, such as congestion management and off-peak usage, may be employed. The legislative authorization for State Ferry tolls in RCW 47.60.326, for example, lists additional considerations the Transportation Commission can incorporate into the adoption of State Ferry tolls. A new statute enacted in 2005, authorizing tolls for transportation benefit districts, likewise contains flexible toll purpose language the

Commission may wish to recommend to the legislature in other toll statutes: “... shall impose tolls, only with the permission of the transportation commission, in amounts sufficient to implement the district’s transportation improvement plan. Tolls may vary for type of vehicle, time of day for traffic conditions, and/or other factors designed to improve performance of the facility or the transportation network.” RCW 47.56.078.

## **Toll Enforcement**

The classic government mechanism for enforcing collection can be employed to collect tolls, at least for in-state vehicles. RCW 46.16.216 provides that licensing of vehicles is contingent on first paying off all stopping or moving violations charged against the vehicle when registered to the owner. Under RCW 46.16.216(1) and RCW 46.63.030(1)(d), failure to pay a toll can block reissuance of a vehicle license if the infraction was detected through a photo enforcement system. It may be useful to clarify the relevant statutes so that failure of pay a toll will prevent relicensing even if a photo enforcement mechanism is not in use. It may also be useful to have legislation enacted in Washington State and in nearby states and provinces, so that vehicles licensed in those other jurisdictions also must pay tolls in Washington prior to being relicensed by their home government. Further, it may be appropriate to adjust current statutes so that when a toll evader is charged with an infraction, and eventually pays a fine, a portion of the amount paid (representing the evaded toll plus subsequent costs) is returned to the toll system.

## **Privacy Concerns**

RCW 47.46.105(1)(c) provides that toll payment monitoring photographs may be used solely for toll enforcement purposes and must then be destroyed. A provision of the public disclosure act, RCW 42.56.070(9), (42.17.260(9) until July 1, 2006) provides that an agency cannot provide any lists of names to a requestor seeking to use the list for commercial purposes.

This provides some protection from the commercial use of information about those who purchase electronic toll payment devices for their vehicles. Substantially more protection was added in 2005 by the enactment of RCW 42.17.310(1)(ggg), (42.56.330 beginning on July 1, 2006). The exemption provides:

The personally identifying information of persons who acquire and use transponders or other technology to facilitate payment of tolls. This information may be disclosed in aggregate form as long as the data does not contain any personally identifying information. For these purposes aggregate data may include the census tract of the account holder as long as any individual personally identifying information is not released. Personally identifying information may be released to law enforcement agencies only for toll enforcement purposes. Personally identifying information may be released to law enforcement agencies for other purposes only if the request is accompanied by a court order.

Privacy remains a significant public concern, and lawmakers may wish to continue to evaluate whether sufficient protections exist for citizens who want to reduce their vulnerability to tracking by government agencies or others.

## SEPA/NEPA Issues

A number of actions may be taken by the State related to tolling. They range from the adoption of statutes by the legislature, to policy or programmatic decisions by the Transportation Commission, to the siting and construction of individual tolling facilities by the WSDOT. Actions taken by the state legislature are exempt from the State Environmental Policy Act (SEPA), chapter 43.21C RCW.<sup>1</sup> Decisions by the Commission establishing or changing toll rates are also exempt.<sup>2</sup> However, at least some of the actions taken by the Commission or WSDOT to develop additional tolling facilities will likely require an analysis of environmental impacts under SEPA.

SEPA requires a threshold determination for any proposal that meets the definition of an “action” and is not exempt.<sup>3</sup> The purpose of the threshold determination is to decide whether a full-blown environmental impact statement (EIS) is necessary. An EIS is required if the proposed action has a reasonable likelihood of causing more than a moderate adverse impact on the environment.<sup>4</sup> Decisions on policies, plans, or programs are considered “nonproject actions”<sup>5</sup> and typically require a programmatic EIS if they have probable significant adverse impacts.<sup>6</sup> The Transportation Commission or the Department of Transportation may make programmatic or policy decisions concerning where and under what conditions to place tolling facilities, which could require the preparation of a programmatic EIS. However, the agency would need to be at a stage in the decision-making process where the environmental effects of the proposed decisions could be meaningfully evaluated.<sup>7</sup> In addition, any proposal to site and build a particular tolling facility would be a “project action” and, at a minimum, would require a threshold

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<sup>1</sup> WAC 197-11-800(10).

<sup>2</sup> WAC 197-11-800(14)(i); WAC 468-12-800(2).

<sup>3</sup> WAC 197-11-310(1).

<sup>4</sup> WAC 197-11-330; WAC 197-11-794(1).

<sup>5</sup> WAC 197-11-704(2)(b).

<sup>6</sup> WAC 197-11-442.

<sup>7</sup> Preliminary information gathering and conceptual planning leading to a proposal may be exempt. WAC 197-11-800(17). A proposal exists triggering SEPA when an agency has a goal and is actively preparing to make a decision on one or more alternative ways of meeting that goal and the environmental effects of the proposal can be meaningfully evaluated. WAC 197-11-055(2)(a).

determination.<sup>8</sup> It may also require an EIS, depending on the significance of the impacts of the facility.

Tolling facilities may cause a number of potential environmental impacts that would need to be evaluated under SEPA. The most likely impacts would be increased traffic on alternate routes to avoid the toll booths, with all of the associated impacts, such as air emissions and noise. There may also be air quality and noise issues associated with cars slowing and stopping at toll booths, as well as any impacts from actual construction of the booths.

Finally, if any of the decisions involved Federal action such as approval or funding (e.g., requiring tolls on an interstate route), the National Environmental Policy Act (NEPA), 42 U.S.C. 4321 *et seq.*, may be triggered in addition to SEPA. In that event, WSDOT and the Commission could possibly rely on a NEPA EIS prepared by or for the Federal government,<sup>9</sup> or prepare a joint NEPA/SEPA EIS.

## **Growth Management Act Backdrop**

A transportation element is a critical feature of growth management plans under the growth management act. RCW 36.70A.070(6). Therefore, any proposal to establish tolls on a highway will inevitably be seen to have significant consequences on the adjacent transportation plan elements in urban growth areas.

While there is generally a “concurrency” requirement for state agencies to comply with local growth management plans, RCW 36.70A.103, there is an exception for concurrency within the local plans for state highways of statewide significance. RCW 36.70A.070(6)(a)(iii)(C). Of course, it is likely that tolls will largely be established on highways of statewide significance.

The GMA is a ripe area for litigation, however, and the effects of any toll proposal on local growth management plans should be closely scrutinized.

*Background Paper prepared by Foster Pepper PLLC in May 2006.*

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<sup>8</sup> WAC 197-11-704(2)(a) (“project action” is a decision on a specific project, such as construction in a defined geographic area).

<sup>9</sup> WAC 197-11-610.

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# Appendix

Below is a summary of Washington statutory authority to establish toll facilities, enforce toll collection, and state privacy laws regarding electronic tolling systems. Also included is a brief discussion of the programs and exceptions which permit the imposition of tolls on Federally funded facilities.

## ■ Authority to Set Tolls

### Chapter 47.56 RCW: State toll bridges, tunnels and ferries

#### RCW 47.56.010 Definitions

**“Toll bridge”**: a bridge upon which tolls are charged, together with all appurtenances, additions, alterations, improvements, and replacements; approaches; lands used therefor; and buildings and improvements thereon.

**“Toll road”**: any express highway, superhighway, or motorway constructed or to be constructed as a limited access highway, and including but not limited to: all bridges, tunnels, overpasses, underpasses, interchanges, entrance plazas, approaches, toll houses, service areas, service facilities, communications facilities, and other buildings deemed necessary for the project; and all property, rights, easements and interests acquired by the department [of transportation] for the construction or operation of the project.

#### RCW 47.56.030 Powers and duties regarding toll facilities

(1) “Except as permitted under chapter 47.46 RCW [see below]:

(a) The department of transportation shall have full charge of the construction of all toll bridges and other toll facilities...and the operation and maintenance thereof.

(b) **The transportation commission shall determine and establish the tolls and charges thereon**, and shall perform all duties and exercise all powers relating to the financing, refinancing, and fiscal management of all toll bridges and other toll facilities...”

#### RCW 47.56.031 Approval of tolls

**“No tolls may be imposed on new or existing highways or bridges without specific legislative authorization, or upon a majority vote of the people** within the boundaries of the unit of government empowered to impose tolls. This section applies to chapter 47.56

RCW and to any tolls authorized under chapter 47.29 RCW, the transportation innovative partnership act of 2005.”

**RCW 47.56.075 Toll roads, facilities – authorization or sponsorship required**

“The department shall approve for construction only such toll roads as the legislature specifically authorizes or such toll facilities as are specifically sponsored by a regional transportation investment district, city, town, or county.”

**RCW 47.56.076 Regional transportation investment district – Tolls – Voter approval  
\*effective 06/07/2006\***

“Upon approval of a majority of the voters within its boundaries voting on the ballot proposition, and with the approval of the state transportation commission or its successor statewide tolling authority, a regional transportation investment district may authorize vehicle tolls on a local or regional arterial or a state or Federal highway within the boundaries of the district. The department shall administer the collection of vehicle tolls authorized on designated facilities unless otherwise specified in law or by contract, and the commission or its successor statewide tolling authority shall set and impose the tolls in amounts sufficient to implement the regional transportation investment plan under RCW 36.120.020.”

**RCW 47.56.xxx \*new section effective 06/07/2006\***

“Notwithstanding any provision to the contrary in this chapter, a regional transportation investment district may authorize tolls on either Lake Washington bridge within its boundaries to implement a regional transportation investment plan as authorized in chapter 36.120 RCW and RCW 47.56.076.”

**RCW 47.56.240 Toll bridges – fixing of toll rates authorized**

**“The [transportation] commission is hereby empowered to fix the rates of toll and other charges for all toll bridges built under the terms of this chapter. Toll charges so fixed may be changed from time to time as conditions warrant.** The commission, in establishing toll charges, shall give due consideration to the cost of operating and maintaining such toll bridge or toll bridges including the cost of insurance, and to the amount required annually to meet the redemption of bonds and interest payments on them. The tolls and charges shall at all times be fixed at rates to yield annual revenue equal to annual operating and maintenance expenses including insurance costs and all redemption payments and interest charges of the bonds issued for any particular toll bridge or bridges as the bonds become due....”

**RCW 47.56.245 Toll charges retained until costs paid**

“The department shall retain toll charges on all existing and future facilities until all costs of investigation, financing, acquisition of property, and construction advanced from the motor vehicle fund, and obligations incurred under RCW 47.56.250 and chapter 16, Laws of 1945 have been fully paid.”

(2) “Where a state toll facility is constructed under chapter 47.46 RCW [see below] adjacent to or within two miles of an existing bridge that was constructed under this chapter, revenue from the toll facility may not be used to pay for costs of maintenance on the existing bridge.”

**RCW 47.56.247 Credit permits for vehicular passage**

“The department may issue permits for the passage of vehicles on any or all of its toll bridges, toll tunnels, toll roads, or for the Washington State ferry system on a credit basis upon such terms and conditions as the department deems proper.”

**RCW 47.56.248 Credit permits – deposit or bond – revocation of permit**

“The department may require the holder of the permit to furnish to and maintain in force with the department a cash deposit or a corporate surety bond.” The department may require the bond to be increased, may require an additional surety bond, or may revoke any permit for failure to comply with any of its terms.

**RCW 47.56.403 High-occupancy toll lane pilot project**

*This section provides the authorization and requirements for a pilot project for high-occupancy toll lanes on State Route 167. It provides for Transportation Commission establishment of tolls on SR 167 for use of high-occupancy toll lanes. Toll charges are to be imposed on single-occupancy vehicle users who would be permitted to enter the lanes to the extent that average vehicle speeds are maintained at 45 miles per hour at least 90 percent of the time during peak hours. Tolls would not be assessed on transit and vanpool vehicles. Tolls on other multiple occupancy vehicles would be discretionary, as determined by the Commission.*

**Chapter 47.58 RCW: Existing and additional bridges****RCW 47.58.0140 [Existing and new bridges within two miles as single project] – Tolls**

“...The department has the right to impose tolls for traffic over the existing bridge as well as the additional bridge for the purpose of paying the cost of operation and maintenance of the bridge or bridges and the interest on and creating a sinking fund for the retirement of revenue bonds issued for account of such project, all in the manner permitted and provided by this chapter.”

**RCW 47.58.030 Construction/operation – collection of tolls – charges**

“The secretary shall have full charge of the construction of all such improvements ...that may be authorized under this chapter...as well as the collection of tolls and other charges for services and facilities thereby afforded. The schedule of charges for the services and facilities shall be fixed and revised from time to time by the commission so that the tolls and revenues collected will yield annual revenue and income sufficient, after payment or allowance for all operating, maintenance, and repair expenses, to pay the interest on all revenue bonds outstanding under the provisions of this chapter...The charges shall be continued until all such bonds and interest thereon and unpaid advancements, if any, have been paid.”

**Chapter 47.46 RCW: Public-private transportation initiatives****RCW 47.46.020 Definition**

“As used in this chapter, “transportation systems and facilities” means capital-related improvements and additions to the State’s transportation infrastructure, including but not

limited to highways, roads, bridges, vehicles, and equipment, marine-related facilities, vehicles, and equipment, park and ride lots, transit stations and equipment, transportation management systems, and other transportation-related investments.”

**RCW 47.46.080 State toll facilities authorized for public-private transportation projects**

“The department [of transportation] may provide for the establishment and construction of state toll bridge facilities upon any public highways of this state together with approaches to them under agreements entered into under this chapter to develop such facilities. A state toll bridge facility authorized under this section includes, but is not limited to, the construction of an additional toll bridge, including approaches, adjacent to and within two miles of an existing bridge, the imposition of tolls on both bridges, and the operation of both bridges as one toll facility.”

**RCW 47.46.090 Citizen advisory committee – Tolls**

For any project developed under this chapter that imposes toll charges, a citizen advisory committee must be created. The committee is to serve in an advisory capacity to the commission on all matters related to the imposition of tolls, including but not limited to: “a) the feasibility of providing discounts to frequent users, electronic transponder users, senior citizens, or students; b) the tradeoff of lower tolls versus the early retirement of debt; and c) a consideration of variable, or time-of-day pricing.” **No toll charge may be imposed or modified unless the committee has been given at least 20 days to review and comment on any proposed toll charge schedule. In setting toll rates, the commission SHALL give consideration to any of the committee’s recommendations.**

**RCW 47.46.100 Tolls – Setting – Lien on**

(1) “The commission shall fix the rates of toll and other charges for all toll bridges built under this chapter that are financed primarily by bonds issued by the state. Subject to RCW 47.46.090, the commission may impose and modify toll charges from time to time as conditions warrant.”

(3) “The toll charges must be imposed in amounts sufficient to: a) Provide annual revenue sufficient to provide for annual operating and maintenance expenses, except as provided in RCW 47.56.245; b) Make payments required under RCW 47.56.165 [Tacoma Narrows toll bridge account] and 47.46.140, including insurance costs and the payment of principal and interest on bonds issued for any particular toll bridge or toll bridges; and c) Repay the motor vehicle fund under RCW 47.46.110, 47.56.165, and 47.46.140.”

**RCW 47.46.105 Tolls – Collection**

(1) “Tolls may be collected by any system that identifies the correct toll and collects the payment. Systems may include manual cash collection, electronic toll collection, and photo monitoring systems.” [this section defines “electronic toll collection” and “photo monitoring systems”]

(2) “The department shall adopt rules to govern toll collection.”

**RCW 47.46.110 Tolls – Term, use**

Toll charges must be retained on any existing and future facilities constructed under this chapter which are financed primarily by bonds issued by the state, until 1) all costs

advanced from the motor vehicle fund have been repaid; 2) obligations incurred in the construction of the facility have been repaid; and 3) the motor vehicle fund is fully repaid under RCW 47.46.140.

This section does *not* prohibit the use of toll revenues to fund maintenance, operations or management of facilities constructed under this chapter (except as prohibited by RCW 47.56.245), nor does it require repayment of funds specifically appropriated as a nonreimbursable state contribution to a project.

However, **upon satisfaction of the repayment conditions enumerated above, the facility must be operated as a toll-free facility**, and the operation and maintenance of the facility must be repaid from funds appropriated for the construction and maintenance of primary state highways.

#### **RCW 47.46.120 Toll increases in excess of fiscal growth factor**

“Pursuant to RCW 43.135.055 [state expenditures limitations], the legislature authorizes the transportation commission to increase bridge tolls in excess of the fiscal growth factor.”

### **Chapter 36.73 RCW: Transportation benefit districts**

#### **RCW 36.73.040 General powers of district**

(3) “To carry out the purposes of this chapter, and subject to the provisions of RCW 36.73.065, a district is authorized to impose the following taxes, fees, charges, and tolls:

(d) Vehicle tolls on state routes or Federal highways, city streets, or county roads, within the boundaries of the district, unless otherwise prohibited by law. The department of transportation shall administer the collection of vehicle tolls authorized on state routes or Federal highways, unless otherwise specified in law or by contract, and the state transportation commission, or its successor, may approve, set, and impose the tolls in amounts sufficient to implement the district’s transportation improvement finance plan. The district shall administer the collection of vehicle tolls authorized on city streets or county roads, and shall set and impose, only with approval of the transportation commission, or its successor, the tolls in amounts sufficient to implement the district’s transportation improvement plan.”

#### **RCW 36.73.065 Taxes, fees, charges, tolls – Voter approval required**

(1) “Taxes, fees, charges, and tolls may not be imposed by a district without approval of a majority of the voters in the district voting on a proposition at a general or special election. The proposition must include a specific description of the transportation improvement or improvements proposed by the district and the proposed taxes, fees, charges, and the range of tolls imposed by the district to raise revenue to fund the improvement or improvements.

(2) Voter approval under this section shall be accorded substantial weight regarding the validity of a transportation improvement as defined in RCW 36.73.015.

(3) A district may not increase any taxes, fees, charges, or range of tolls imposed under this chapter once the taxes, fees, charges, or tolls take effect, unless authorized by the district voters pursuant to RCW 36.73.160.”

## **Chapter 36.120 RCW: Regional transportation investment districts**

### **RCW 36.120.050 Taxes, fees, and tolls\*effective 06/07/06\***

(1) ”A regional transportation investment district planning committee may, as part of a regional transportation investment plan, recommend the imposition or authorization of some or all of the following revenue sources, which a regional transportation investment district may impose or authorize upon approval of the voters as provided in this chapter:

(g) Vehicle tolls on new or reconstructed local or regional arterials or state or Federal highways within the boundaries of the district, if the following conditions are met:

(i) Any such toll must be approved by the state transportation commission or its successor statewide tolling authority;

(ii) The regional transportation investment plan must identify the facilities that may be tolled; and

(iii) Unless otherwise specified by law, the department shall administer the collection of vehicle tolls on designated facilities, and the state transportation commission, or its successor, shall be the tolling authority.

(2) Taxes, fees, and tolls may not be imposed or authorized without an affirmative vote of the majority of the voters within the boundaries of the district voting on a ballot proposition as set forth in RCW 36.120.070. Revenues from these taxes and fees may be used only to implement the plan as set forth in this chapter. A district may contract with the state department of revenue or other appropriate entities for administration and collection of any of the taxes or fees authorized in this section.”

## **Chapter 47.29 RCW: Transportation innovative partnerships**

### **RCW 47.29.140 Partnership agreements**

(1) ”The following provisions must be included in any agreement to which the state is a party:

(c) If there is a tolling component to the project, then it must be specified that tolling technology used in the project must be consistent with tolling technology standards adopted by the department for transportation-related projects.”

## Chapter 47.60 RCW: Puget Sound ferry and toll bridge system

### RCW 47.60.010 Ferry system, toll bridges, and facilities authorized – Power to contract, sell and lease back

“The department is authorized to acquire by lease, charter, contract, purchase, condemnation, or construction, and partly by any or all of such means, and to thereafter operate, improve, and extend, a system of ferries on and crossing Puget Sound and any of its tributary waters and connections thereof, and connecting with the public streets and highways in the state. The system of ferries shall include such boats, vessels, wharves, docks, approaches, landings, franchises, licenses, and appurtenances as shall be determined by the department to be necessary or desirable for efficient operation of the ferry system and best serve the public. The department may in like manner acquire by purchase, condemnation, or construction **and include in the ferry system such toll bridges, approaches, and connecting roadways as may be deemed by the department advantageous in channeling traffic to points served by the ferry system.**”

## Chapter 53.34 RCW: Toll facilities (Ports)

### RCW 53.34.010 Toll bridges, tunnels authorized – Highway approaches

“In addition to all other powers granted to port districts, any such district may, with the consent of the department of transportation, acquire...construct, reconstruct, maintain, operate...any one or more of the following port projects, within or without or partially within and partially without the corporate limits of the district whenever the commission of the district determines that any one or more of such projects are necessary for or convenient to the movement of commercial freight and passenger traffic a part of which traffic moves to, from, or through the territory of the district:

(1) Toll bridges”;

...

“In connection with the acquisition or construction of any one or more of such projects the port district may, with the consent of the state department of transportation, further acquire or construct, maintain, operate, or improve limited or unlimited highway access approaches...to provide means of interconnection of the facilities with public highways and of ingress and egress to any such project, **including plazas and toll booths**...all for the purpose of obtaining revenues for the payment of the cost of the project.”

## Chapter 35.74 RCW: Streets – drawbridges (Cities and Towns)

### RCW 35.74.050 City may operate as toll bridges

“A city or town may build and maintain toll bridges and charge and collect tolls thereon, and to that end may provide a system and elect or appoint persons to operate the same, or the said bridges may be made free, as it may elect.”

## ■ Toll Enforcement

### **RCW 46.61.690 Violations relating to toll facilities**

Any person who, at a toll facility or approach thereto, which is clearly marked as a toll facility, “does not pay, refuses to pay, evades or attempts to evade the payment of such tolls, or uses or attempts to use any spurious, counterfeit, or stolen ticket, coupon, token, or electronic device for payment of any such tolls” has committed a traffic infraction.

### **RCW 46.63.075 Toll evasion – Presumption**

“(1) In a traffic infraction case involving an infraction detected through the use of a photo enforcement system under RCW 46.63.160, or detected through the use of an automated traffic safety camera under RCW 46.63.170, proof that the particular vehicle described in the notice of traffic infraction was in violation of any such provision of RCW 46.63.160 or 46.63.170, together with proof that the person named in the notice of traffic infraction was at the time of the violation the registered owner of the vehicle, constitutes in evidence a prima facie presumption that the registered owner of the vehicle was the person in control of the vehicle at the point where, and for the time during which, the violation occurred.

(2) This presumption may be overcome only if the registered owner states, under oath, in a written statement to the court or in testimony before the court that the vehicle involved was, at the time, stolen or in the care, custody, or control of some person other than the registered owner.”

### **RCW 46.63.160 Electronic toll collection, photo enforcement**

This section applies to traffic infractions issued for evading toll collections, under the following toll collection systems: manual cash collection, electronic toll collection, or photo enforcement.

“The department of transportation shall adopt rules that allow an open standard for automatic vehicle identification transponders used for electronic toll collection to be compatible with other electronic payment devices...or other toll collection systems to the extent technology exists.” The rules must also allow for multiple vendors providing the devices or transponders.

Infractions detected through the use of photo enforcement systems are not part of the registered owner’s driving record.

If the registered owner of a vehicle is a rental car business, the business may be liable for the applicable toll and fee if timely response is not made to a written notice of infraction.

### **RCW 46.16.216 Payment of parking fines required for vehicle license renewal**

Under this section, all listed standing, stopping, and parking violations, and other infractions issued under RCW 46.63.030(1)(d) [by **photo enforcement**] must be satisfied before a vehicle license may be renewed. “Listed” infractions include only those violations for which notice has been received by the department at least 120 days before the license expires, and which have been placed in department records.

## ■ Privacy

### **RCW 46.63.160 Electronic toll collection, photo enforcement**

(6)(b) "The department of transportation may not sell, distribute, or make available in any way, the names and addresses of electronic toll collection system account holders."

(7) "The use of a photo enforcement system for issuance of notices of infraction is subject to the following requirements:

(a) Photo enforcement systems may take photographs, digital photographs, microphotographs, videotapes, or other recorded images of the vehicle and vehicle license plate only.

(c) Notwithstanding any other provision of law, all photographs, digital photographs, microphotographs, videotape, or other recorded images prepared under this chapter are for the exclusive use of the tolling agency and law enforcement in the discharge of duties under this section and are not open to the public and may not be used in a court in a pending action or proceeding unless the action or proceeding relates to a violation under this chapter. No photograph, digital photograph, microphotograph, videotape, or other recorded image may be used for any purpose other than enforcement of violations under this chapter nor retained longer than necessary to enforce this chapter or verify that tolls are paid.

(d) All locations where a photo enforcement system is used must be clearly marked by placing signs in locations that clearly indicate to a driver that he or she is entering a zone where traffic laws are enforced by a photo enforcement system."

### **RCW 47.46.105 Tolls - Collection**

(1)(c) "No photograph, digital photograph, microphotograph, videotape, or other recorded image may be used for any purpose other than toll enforcement, nor retained longer than necessary to verify that tolls are paid, or to enforce toll evasion violations."

## ■ Tolls on Federally Funded Facilities

In August 2005, Congress passed the **Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)**. This legislation enabled three new exceptions, and modified one existing exception, to the general prohibition on the imposition of tolls by states on Federally funded facilities. These programs and exceptions permit states and other qualifying agencies to impose tolls on certain Interstate highways, tunnels, and bridges. All tolling and pricing programs are coordinated by the Federal Highway Administration, Office of Operations.

The application process for all tolling and pricing programs is a two-step process. The first step involves submitting an Expression of Interest to the newly established “Tolling and Pricing Team” (which does not approve projects, but acts as a clearinghouse for all applications). After receiving the Expression of Interest, the Tolling and Pricing Team will assist the applicant in identifying the range of available options and will direct the applicant to the most appropriate program office to accomplish the goals stated in the Expression of Interest. The Team will make comments on the Expression of Interest, to which the applicant must respond. The applicant must then formally apply to the appropriate program office for review (second step), in compliance with any specific procedural requirements of the selected program office.

Summarized below are the new programs and other exceptions that permit states to charge and collect tolls on Federally funded facilities. More information about these programs, including contact information, is available at [http://ops.fhwa.dot.gov/tolling\\_pricing/announcement/tolling\\_announcement.htm](http://ops.fhwa.dot.gov/tolling_pricing/announcement/tolling_announcement.htm).

### **Express Lanes Demonstration Program**

**Available:** Fiscal years 2005-2009

This program authorizes up to 15 demonstration projects in which tolls are imposed for the purposes of managing high levels of congestion, reducing emissions in a nonattainment or maintenance area, or financing additional Interstate lanes for the purpose of reducing congestion. States, public authorities, or designated public or private entities may collect tolls at an eligible facility (highway, bridge, or tunnel, including on the Interstate). For purposes of tracking the 15 available slots, each agreement executed between an authority and the Federal Highway Administration (“FHWA”) constitutes one “demonstration project,” although more than one facility may be involved.

Eligible facilities include those that accomplish any of the following:

- Managing high levels of congestion by varying the toll price by time of day or by traffic level;
- Reducing emissions in a nonattainment or maintenance area (under Clean Air Act amendments); and
- Financing the expansion of a highway to reduce traffic congestion, by constructing one or more additional lanes (including bridges, tunnels, supports, or other necessary structures) on the Interstate System.

Qualified Demonstration Projects may include:

- Variable pricing by time of day or traffic level, as appropriate to manage congestion or improve air quality (required if an HOV facility is tolled, optional for non-HOV facility);
- Motor vehicles with fewer than two occupants may be permitted to use HOV lanes as part of a variable toll pricing program;

- **Automatic toll collection is required in express lanes;** and
- Toll revenue may only be used for debt service, reasonable rate of return on private financing, O&M costs, or any eligible Title 23 or Title 49 project if the facility is being adequately maintained.

## **Interstate System Construction Toll Pilot Program**

**Application Deadline: August 10, 2015**

This program authorizes up to three facilities on the Interstate System to toll for the purpose of financing the construction of new Interstate highways. States or interstate compacts of states are eligible for this program. Each state or compacts of states may submit a single candidate project under this program. There is no special funding authorized for this program.

There is no requirement that facilities be in different states. Tolling must be the “most efficient and economical way” to finance the project, but doesn’t have to be the only way. Other requirements include:

- A facility management plan must be submitted;
- **Automatic toll collection is required;**
- Noncompete agreements between the state and a private entity, under which the state is prevented from improving or expanding the capacity of public roads in the vicinity of the toll facility, are prohibited;
- Revenues may only be used for debt service, reasonable return on private financing, and O&M costs (regular audits will be conducted); and
- Interstate Maintenance funds may not be used on the facility while it is tolled.

## **Value Pricing Pilot (VPP) Program**

**Available:** Through fiscal year 2009

**Funding:** \$12 million maximum per fiscal year

**Application Deadline:** October 1 for funding the following year (Expression of Interest must be submitted by August 1)

**Note:** This program provides grant funds, and therefore applicants must comply with the requirements for timely solicitation, review, and award of grants.

This program authorizes the FHWA to enter into cooperative agreements with up to 15 states, local governments, or other public authorities to establish, maintain, and monitor value pricing pilot programs, each including an unlimited number of projects. There are currently 14 established VPP programs, so only one open slot remains.

“Value pricing” describes a number of strategies to reduce traffic congestion on highways, including tolling of highway facilities. It also encompasses nontolling methods such as mileage-based charges for insurance, taxes, leasing fees, and car sharing. Simply put, the concept is to assess relatively higher prices for travel during peak periods than for travel during nonpeak periods. Charges may vary by time of day, location, severity of congestion, vehicle occupancy, or type of facility.

Funds available for this program may be used for pre-implementation studies as well as for project implementation costs. States may permit toll-paying vehicles with fewer than two occupants to operate in HOV lanes, if the vehicles are part of a local value pricing pilot program. Possible mitigation measures may be required to offset the financial impact of VPP projects on low-income drivers, but such measures may be included as part of the project implementation costs.

Examples of potential project types include:

- Applications of value pricing that are comprehensive or regional and involve currently free facilities, such as regional or areawide pricing, pricing of multiple facilities and/or corridors, and combinations of road and parking pricing;
- Pricing at key traffic bottlenecks, such as tunnels and bridges, including “queue jumps”;
- Innovative strategies, such as time-of-day pricing or charges reflective of congestion conditions;
- Pay-as-you-drive pricing;
- Projects that do not have adverse effects on alternative routes, or on low-income or other transportation-disadvantaged groups;
- Projects that lead to substantial reduction of congestion and supplement existing tax-based approaches for generating transportation revenues; and
- Projects that result in free-flow peak-period roadway conditions, where motorists earn credit for their discretionary use, allowing them a limited amount of free or discounted access before having to pay full fees.

### **Other provisions permitting tolling of Federally funded highway facilities**

- **23 U.S.C. 129 (Toll Agreements)** permits the imposition of tolls on free non-Interstate highways, bridges and tunnels and on free Interstate bridges and tunnels in accordance with Title 23 U.S.C. 129(a)(1). Federal participation is allowed in the following five types of toll activities:

- Initial construction (except on the Interstate System) of toll highways, bridges, and tunnels, including the approaches to these facilities;
- Reconstructing, resurfacing, restoring, and rehabilitation work on any existing toll facility;
- Reconstruction or replacement of free bridges or tunnels and conversion to toll facilities;
- Reconstruction of a free Federal-aid highway (except on the Interstate System) and conversion to a toll facility; and
- Preliminary studies to determine the feasibility of the above toll construction activities.

If Federal-aid funds are used for construction of or improvements to a toll facility or the approach to a toll facility, or if a state plans to reconstruct and convert to a toll facility a free highway, bridge or tunnel previously constructed with Federal-aid funds, a toll agreement must be executed. There is no limit to the number of agreements that may be executed.

- The **Interstate System Reconstruction and Rehabilitation Pilot Program** permits up to three existing Interstate facilities (highway, bridge, or tunnel) to be tolled, for funding reconstruction or rehabilitation on Interstate highway corridors that could not otherwise be maintained or functionally improved without the collection of tolls. Each of the three facilities must be in a different state. There is no special funding authorized for this program. Interstate maintenance funds may not be used on a facility for which tolls are being collected under this program. Currently, only one open slot remains.
- The **HOV Facilities Program** authorizes states to create High-Occupancy Toll (HOT) lanes. It also permits states to charge tolls to vehicles that do not meet the established occupancy requirements to use an HOV lane, if the state establishes a program that addresses the selection of certified vehicles and procedures for enforcing the restrictions. Tolls may be imposed under this section on both Interstate and non-Interstate facilities. There is no limit on the number of projects or the number of states that may participate.

## Background Paper #11

# Public and Stakeholder Outreach

### ■ Executive Summary

The Public Outreach Program for the Washington State Transportation Commission's Comprehensive Tolling Study was structured to *give* information to the public about the Study and nine draft policy recommendations and to *get* feedback through personal interaction with stakeholders and the citizens, written and web-based feedback surveys, and meetings to discuss the purpose and outcome of the study with newspaper editorial boards and reporters around the Washington State.

The outreach took place across Washington State, on-line, and in five cities from June 20 to June 29, 2006. The Commission's consultant, Cambridge Systematics, employed Frank Wilson & Associates to assist in presenting the policy recommendations to the public and stakeholders and to obtain public and stakeholder comments and opinions on the Commission's preliminary recommendations. Participants offered valuable insights about the challenges that face the State's transportation system and the difficult choices that lay ahead for decision-makers. This input generally confirmed what was heard during the public attitude research conducted earlier in the study.

Participation in the outreach included:

- About 5,000 citizens visited the project's web site or attended one of five evening public open houses. The project web site received more than 38,000 visits.
- Nearly 100 local leaders attended roundtables and participated in a 90-minute discussion.
- Commissioners and outreach team members visited the offices of eight newspapers and met with editorial boards and reporters. This resulted in more than 15 editorials and articles that will further inform the public about the Commission's Study.
- In all venues, comments and opinions were solicited informally through discussion opportunities with the Commissioners and WSTC staff, and formally via a concise 12-question quantitative survey that also invited qualitative comments.

In addition to asking the public to comment on the nine tolling policy recommendations, the outreach program was designed to help bridge the gap between Washingtonian's current perceptions of tolling and the advances that have been made in electronic tolling and the use of tolls – or “pricing” – for better management of the transportation system.

In general, the following findings were confirmed and/or brought to light:

- There was general agreement that traffic congestion is a very real concern and acknowledgment that tolling is a potentially viable solution for system management.
- The devil will be in the details of implementation; many are concerned about fairness and it will be very important for the State to take into consideration the needs among particular groups such as carpoolers, commercial vehicles/trucking, low-income drivers, etc.
- There were many questions and concerns about tolling as a state policy.
  - Some think taxes, rather than tolls, should fund transportation;
  - Some are concerned with how tolling revenue will be used; and
  - Some are concerned about how tolls will be set, how long they will last and how revenue will be used.
- The issues surrounding tolling – especially its use for system management – are complex and not at all well understood by the general public. The State will need to continually educate the public and stakeholders about how tolling benefits users and how the system works more efficiently when tolling/pricing is used to manage traffic.
- The video simulations of nonstop electronic toll collection were an eye opener for participants and did much to dispel objections that were based on the outdated “buckets and toll attendants” perception of toll collection. More education is needed to explain how electronic tolling works, its various applications (e.g., toll booth versus HOT lane configurations), and how *Good To Go!*<sup>1</sup> will work on projects statewide.
- The public is concerned about more taxes, and many expressed the opinion that taxes currently collected should be sufficient for transportation.
- The public seems willing to accept tolling under specific conditions and for specific projects. Citizens have many different ideas on where and when it should be used.
- Many were concerned that tolling will result in too much diversion of traffic onto free roads or local streets.
- The trucking community was concerned that tolls would erode the already thin margins in the industry, with no ability to pass the cost on to customers.

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<sup>1</sup> *Good To Go!* is Washington State’s brand name for electronic tolling to be used throughout the State.

- Those who attended an event personally had positive remarks about the Commission’s outreach campaign and stressed the need for ongoing education and communication.
- Specific Projects – Most of the comments revealed a need for more specific information about the details, layout, and operation of specific projects.
  - Though somewhat reluctantly, many comments about the illustrative example about tolling Snoqualmie Pass agreed with it. More information on the specifics and proposed benefits will need to be provided;
  - Vancouver area residents are concerned with the bridges and how tolling will work between Washington and Oregon; and
  - Many from the Tacoma Narrows Bridge area feel that they are being unfairly treated because a toll is being charged to fund their project while others in the State are not.
- It would helpful to the reader for each of the nine recommendations to be framed with a headline or to note the question that it addresses in order to quickly clarify the intent of each recommendation.

A summary of all the feedback from Stakeholders, the general public, and editorial commentary is provided in the Goal 3 section found on page 10.9. Although feedback from the outreach is qualitative in nature and not statistically reliable, the results of this outreach supplement a comprehensive public attitudes study performed earlier and provide WSTC with additional insight into what local elected officials, public officials, community leaders, and interested citizens think about the Commission’s preliminary recommendations.

## ■ Introduction

The Washington State Transportation Commission (“the Commission”) was directed by the State Legislature to conduct a Comprehensive Tolling Study for the State of Washington and to present policy recommendations regarding future use of tolling in the State of Washington. WSTC contracted with Cambridge Systematics to conduct the Study, which resulted in nine policy recommendations.

Cambridge Systematics commissioned Frank Wilson & Associates and Lawrence Research to conduct public attitudes research to determine the public’s views on tolling and the key issues being addressed in the Study. That effort resulted in a report on public attitudes, which was based on interviews with opinion leaders from across the State, focus groups conducted in three areas of the State, and a statewide survey of almost 1,200 motorists and voters.

The public attitude research informed the Commission’s deliberations on developing policy recommendations to the legislature. The Commission wanted to engage the public in a discussion of the preliminary recommendations prior to finalizing and submitting them to the Legislature. Cambridge Systematics tasked Frank Wilson & Associates to assist the Commission in presenting the policy recommendations to the public and stakeholders across the State of Washington and to document public input and feedback on the recommendations.

This working paper documents the public outreach program undertaken by WSTC to support the Comprehensive Tolling Study.

## ■ Public Outreach Program Goals

WSTC wanted to *give* information to the public about its comprehensive Study and *get* information and feedback from the public concerning nine policy recommendations before submitting its report to the Legislature. To that end, the public outreach program had these goals:

- Identify concerned groups, individuals, stakeholders, and elected officials whose views and voices should be heard. Reach out to the public, encourage their participation, and maximize distribution of information to encourage the broadest possible input.
- Provide citizens and stakeholders with the facts they need in order to contribute their ideas and concerns about methods, criteria, and technical findings in a way that can be clearly understood by the general public.
- Ensure that public input is obtained and considered *before* final decisions are made.

## ■ Public Outreach Program

The Commission operates in an open meeting environment, and at all of the meetings held to discuss the Tolling Study, the public has had an opportunity to listen. Nonetheless, to ensure the broadest participation and greatest response possible within the available project budget, an integrated communications strategy was employed to inform the public and to solicit and obtain public input to the Study recommendations. The following is a summary of the Commission’s outreach.

## Goal 1: Publicity and Promotion

### *Invite Stakeholders and the Public to Participate in the Study*

**Stakeholder Roundtable Invitations** – Approximately 500 invitations were sent to elected officials, agency staff, local community leaders, and other local opinion leaders throughout the State. The Commission provided an initial list of names from its previous outreach efforts. Additional names that represent assorted local governments, WSDOT regional offices, tribes, ports, transportation service providers, private employers, and others with an interest in transportation topics were provided by Regional Transportation Planning Organizations (RTPO). These lists were further supplemented with suggestions from other local leaders and RTPO executive directors. Invitation letters were e-mailed or mailed to each of these individuals from the Commission’s Chair. In addition, invitees were reminded of the event through e-mails, announcements at RTPO meetings, and follow-up phone calls.

Also, each member of the State Legislature was sent a letter from the Commission’s Chair specifically inviting them to preview the policy recommendations at the regional roundtables.

**Public Open House Invitations** – The public outreach program was extensively promoted and publicized through these means:

- **Public Notices** – One hundred city halls, chambers of commerce, employers, and other organizations agreed to announce the outreach program and to urge their members, employees and the public to attend one of the public open houses or, alternatively, to visit the interactive web site,
- **E-mail Blasts** – More than 8,000 people were contacted weekly by e-mail during the month of June. Names were obtained from organizations such as the RTPOs, Discovery Institute’s Cascadia Center and other Commission studies;
- **Local News Media** – There are about 130 local newspapers across the State of Washington. Each of these publications was contacted with a news release that included the schedule of activities on the outreach program plus the web site address and
- **Advertising** – Third-page display ads were placed in the paper of record located in each of the five regional areas in which the outreach meetings took place. Each ad was customized for each newspaper to highlight that region’s meeting. The ads were designed as invitations to the public to both attend the public open houses and/or visit the project’s web site. The ads ran the week prior to the day of the region’s Public Open House, on Sunday to allow time for scheduling and on Friday as a reminder.

Table 11.1 shows the newspapers that ran ads inviting the public to participate in the outreach program. A sample copy of the ad can be found in Appendix A.

**Table 11.1 Advertising**

Newspaper	Open House City	Ad Size	Dates	Number of Ads
Columbian	Vancouver	1/3 page	Sunday, June 11; Friday, June 16	2
Seattle Post Intelligencer	Mercer Island	1/3 page	Sunday, June 11; Friday, June 16	2
Seattle Times	Mercer Island	1/3 page	Wednesday, June 14	1
Bellingham Herald	Bellingham	1/3 page	Sunday, June 11; Friday, June 16	2
Tri-City Herald	Yakima	1/3 page	Sunday, June 18; Friday, June 23	2
Yakima Herald	Yakima	1/3 page	Sunday, June 18; Friday, June 23	2
Review Independent	Yakima	1 page tab	Wednesday, June 21	1
The Spokesman Review	Spokane	1/3 page	Sunday, June 18; Friday, June 23	2

**Goal 2: Giving Information**

*Clearly Communicate Study Information*

Although tolling is the traditional way in which major transportation projects have been funded in the State, the use of tolling to manage congestion plus today’s nonstop electronic technologies for collecting tolls are new ground for most Washingtonians. In addition, the information, analytical methods, data, and evaluation criteria developed for the Comprehensive Tolling Study were both voluminous and complex, and they needed to be reduced and presented in an easily understandable manner.

To address this, of the team conducted a “road show” in five regions of the State between June 20 and 29, 2006. The public meetings and the virtual open house were heavily publicized prior to the events and received considerable media coverage during and following the events.

The Commission selected five areas of the State to encourage statewide representation and personal interaction between the Commissioners and the public:

- Southwest (Vancouver);
- Central Puget Sound (Mercer Island);
- Northwest (Bellingham);
- Central (Yakima); and
- East (Spokane Valley).

**Information Kit** – The information was simplified into 20 display boards and slides. In addition, two video simulations, one of a modern electronic toll plaza and the other of the proposed SR 167 HOT lanes were used to illustrate and simplify the discussion of modern nonstop electronic tolling. The public attitude research had revealed that an outdated image of tolling was a major barrier to acceptance. The video simulations proved to be a revelation to program participants and helped to move the conversation along.

The information kit for the Commission’s outreach program included:

- Invitation, e-vites, ads, and notices;
- Web site as an information repository and location for the virtual open house;
- Press kit;
- Fact sheets on electronic tolling and the use of tolling in other parts of the United States; and
- Display boards and video simulation of electronic toll collection and the operation of HOT lanes.

**Events** – The program consisted of three events in each city that afforded Commissioners an opportunity to interact with the local citizens, stakeholders, and media. In addition, the outreach used an interactive web site as a “virtual open house.” WSTC’s outreach program included the following:

- **Public Open Houses** – Scheduled for greatest public convenience, the early evening time provided the opportunity for the public to view the Commission’s preliminary recommendations and to discuss the work and concerns one-to-one with Commissioners, staff and consultants. The open houses received good coverage from local news media.
- **Stakeholder Roundtable Meetings** – A 90-minute roundtable featured a 20-minute presentation and extended discussion was held with local elected officials, public agency staff, and community leaders about the study and the draft recommendations.
- **Editorial Board Meetings** – Commission members and technical staff met with editorial boards and reporters in each of the cities visited, as well as media outlets in several nearby communities.
- **Virtual Open House** – To further encourage participation throughout the State, especially for those living in other regions or those unable to attend the meetings, an interactive web site was created which focused on project background, information on the use of tolling to fund major infrastructure projects and to manage congestion, and preliminary policy recommendations. The site recorded more than 38,000 hits and 5,000 unique visitors during the outreach program.

- **Informal Survey** – In addition to the in-person interaction at the open houses and roundtables, participants were asked to complete a 14-question survey that provided feedback to WSTC relating to tolling in general, as well as the proposed tolling policies. This survey form also was available on the web site. A total of 207 surveys were completed. Although this is a significant number, it should not be viewed as representative because survey participants were self-selected and no random sampling technique was used.

A calendar of the regional outreach activities is shown in Table 11.2.

**Table 11.2 Public and Stakeholder Outreach Schedule**

Date	City	Time	Event
Tuesday, June 20	Vancouver	7:30 to 9:00 a.m.	Stakeholder Roundtable
Tuesday, June 20	Vancouver	1:30 to 2:30 p.m.	Editorial Board at Vancouver Columbian
Tuesday, June 20	Vancouver	5:00 to 7:00 p.m.	Public Open House
Wednesday, June 21	Tacoma	11:00 to 12:00 p.m.	Editorial Board at Tacoma News Tribune
Wednesday, June 21	Seattle	11:00 to 12:00 p.m.	Editorial Board at Seattle Post Intelligencer
Wednesday, June 21	Everett	2:00 to 3:00 p.m.	Editorial Board at Everett Herald
Wednesday, June 21	Mercer Island	5:00 to 7:00 p.m.	Public Open House
Thursday, June 22	Mercer Island	7:30 to 9:00 a.m.	Stakeholder Roundtable
Thursday, June 22	Seattle	1:30 to 2:30 p.m.	Editorial Board at Seattle Times
Thursday, June 22	Bellingham	5:00 to 7:00 p.m.	Public Open House
Friday, June 23	Bellingham	7:30 to 9:00 a.m.	Stakeholder Roundtable
Friday, June 23	Bellingham	10:00 to 11:00 a.m.	Editorial Board at Bellingham Herald
Tuesday, June 27	Yakima	11:00 to 12:00 p.m.	Editorial Board at Yakima Herald Republic
Tuesday, June 27	Yakima	5:00 to 7:00 p.m.	Public Open House
Wednesday, June 28	Yakima	7:30 to 9:00 a.m.	Stakeholder Roundtable
Wednesday, June 28	Spokane	1:30 to 2:30 p.m.	Editorial Board at Spokane Spokesman Review
Wednesday, June 28	Spokane Valley	5:00 to 7:00 p.m.	Public Open House
Thursday, June 29	Spokane Valley	7:30 to 9:00 a.m.	Stakeholder Roundtable

### Goal 3: Get Information

#### *Ensure that Public Input is Obtained Before Final Decisions are Made*

In general, comments received from stakeholders and members of the public during the outreach confirmed what was heard in the public attitude research conducted earlier for the project. The following is a summary of comments received from stakeholders who attended the roundtables, citizens who attended the open houses and citizens who made comments on the on-line survey.

**Stakeholder Roundtable Comments** – More than 100 local elected officials, agency staff, and community leaders attended the roundtable meetings. Comments made by local officials and other opinion leaders at the local roundtable discussions varied greatly and touched on numerous topics ranging from the draft policy recommendations and tolling in general to such topics as taxes and specific local transportation needs.

- There was general agreement that traffic congestion is a very real concern and acknowledgment that tolling is a potentially viable solution for system management.
- The devil will be in the details of implementation and it will be very important for the State to take into consideration the needs of commercial vehicle owners and operators and low-income individuals as it implements the tolling program.
  - There is a concern that the trucking industry should weigh-in on the study.
- Stakeholders, generally felt that the greatest need was in the area of using tolls to generate revenue to create and maintain an efficient transportation system. Thus, closing funding gaps and incorporating “sunset provisions” were more important than using variable tolls to obtain better utilization of capacity and to keep traffic moving.
- There were many questions and concerns about tolling as a state policy.
  - Some think taxes, rather than tolls, should fund transportation;
  - Some are concerned with how tolling revenue will be used; and
  - Some are concerned about how tolls will be set, how long they will last and how revenue will be used.
- The issues surrounding tolling – especially its use for system management – are complex and not at all well understood by the general public. The State will need to continually educate the public and stakeholders about how tolling benefits users and how the system works more efficiently when tolling/pricing is used to manage traffic.

- The video simulations of modern electronic tolling and *Good To Go!*<sup>2</sup> on Tacoma Narrows Bridge and SR 167 HOT lanes were a revelation to participants. More education is needed to explain how electronic tolling works, its various applications (e.g., toll booth versus HOT lane configurations), and how *Good To Go!* will work on projects statewide.
- It would helpful to the reader for each of the nine recommendations to be framed with a headline or to note the question that it addresses in order to quickly clarify the intent of each recommendation.

Table 11.3 documents the various questions and comments made at the Stakeholder Roundtables, organized by topic.

**Table 11.3 Stakeholder Questions and Comments by Topic**

<p><b>Electronic Tolling and Good To Go!</b></p> <p><i>More education is needed to explain how electronic tolling works and how Good To Go! will work.</i></p>	<ul style="list-style-type: none"> <li>• How far developed is electronic tolling?</li> <li>• What are the enforcement policies for ETC?</li> <li>• I hope we won't spend too much money on enforcement – the HOV enforcement works well.</li> <li>• Can we use debit cards for tolls?</li> <li>• When/how will Good To Go! be available? Is it renewable?</li> <li>• Will Good To Go! integrate with the ferry systems?</li> <li>• How will WSDOT deal with tourists? How will they learn about the system to keep it efficient? What if they don't have Good To Go!?</li> <li>• With technology being accepted and implemented, will tolling become more effective and profitable as other areas adopt tolling?</li> <li>• Any discussion about how much the electronic mechanism would cost to put in? Will that outweigh any profit?</li> <li>• How do you keep track of the amount of money kept in your personal account?</li> </ul>
<p><b>Economic Inequity</b></p>	<ul style="list-style-type: none"> <li>• Will tolls make it so some can't afford to go to work?</li> </ul>
<p><b>Pricing for Traffic Management</b></p>	<ul style="list-style-type: none"> <li>• Isn't pushing people off roads through traffic management social engineering?</li> <li>• Are we heading toward congestion pricing for long-term transportation answers?</li> </ul>
<p><b>Taxes</b></p> <p><i>Some think taxes rather than tolls should help fund transportation.</i></p>	<ul style="list-style-type: none"> <li>• How about an employee tax for businesses instead of tolling?</li> <li>• Would you consider a different user-pay system besides tolling?</li> <li>• Could we index the gas tax instead of tolling?</li> <li>• In 15 years the gas tax won't mean anything; I think we should start to look toward a per mile tax. Do any states do per mile tax?</li> <li>• The State asked for a new gas tax and now we are being asked to supplement that tax. DOT is getting more and more money.</li> </ul>

<sup>2</sup> *Good To Go!* is Washington State's brand name for electronic tolling to be used throughout the State.

**Table 11.3 Stakeholder Questions and Comments by Topic (continued)**

<p><b>Tolling Revenues</b></p> <p><i>Stakeholders are concerned with how tolling revenue will be used.</i></p>	<ul style="list-style-type: none"> <li>• Will tolls be taken off when the facility is paid?</li> <li>• I am concerned with keeping revenues local/regional.</li> <li>• I have a problem with tolling for facilities that we already have bought and paid for but do not have a problem if we fund new projects.</li> </ul>
<p><b>Tolling Study and Legislation</b></p> <p><i>General questions.</i></p>	<ul style="list-style-type: none"> <li>• Has the commission formally adopted the nine policies?</li> <li>• What other policies besides tolling were looked at for fixing infrastructure?</li> <li>• Is tolling the only solution the commission is working on?</li> <li>• Did this study look into tolling roads before they need to be replaced – setting aside funds for the future...?</li> <li>• We are shifting the responsibility of tolling from an elected body to the appointed commission and I'm concerned with that.</li> <li>• Why do we need to spend all this time and money to create policies? Can't the Legislature just legislate?</li> <li>• I appreciate the overall policies and the consideration of working between ODOT and WSDOT.</li> </ul>
<p><b>Commercial Trucking</b></p> <p><i>There is a concern that the trucking industry weigh-in on the study.</i></p>	<ul style="list-style-type: none"> <li>• Did freight interests get involved in this Study? What are their preferences with tolling?</li> <li>• Tolling for commercial vehicles at the ports should not be a revenue enhancer. It shouldn't single out one user and have their revenues pay for other or future users.</li> <li>• Tolling will increase costs for truckers, who already operate on very thin margins.</li> </ul>
<p><b>I-167 HOT Lanes/Managed Lanes</b></p> <p><i>Many Washingtonians have not experienced managed lanes, so they had many questions about how and if they work or if they are fair.</i></p>	<ul style="list-style-type: none"> <li>• What types of HOT lane experiences are there in other parts of the country? Are they successful? What are the violator fines like?</li> <li>• What is the cost of the SR 167 HOT lane project? Where will the revenue go?</li> <li>• What is the plan to monitor accidents in the corridor?</li> <li>• How did you arrive at the toll for HOT lanes?</li> <li>• How are we going to educate people on HOT lanes being traffic management rather than revenue project?</li> <li>• Going into an HOV and someday a HOT is good – but what do you do when you're behind grandma and grandpa and they are going slow? What about slow traffic moving in and out of the lanes? Will the lane really be efficient?</li> <li>• Are HOT lanes safe for people moving in and out of lanes from fast to slow traffic?</li> <li>• What will happen to the drivers who cross the double white lines on the HOT lanes?</li> <li>• You talk about optimizing the “system” through HOT lanes, but you are really just optimizing that lane.</li> <li>• SR 167 won't pay for itself – so it is a waste of money because it is adding to the budget gap.</li> </ul>
<p><b>Quality of Life</b></p>	<ul style="list-style-type: none"> <li>• Transportation is a quality of life issue and people are willing to pay for a better quality of life.</li> </ul>

**Table 11.3 Stakeholder Questions and Comments by Topic (continued)**

<p><b>Toll Roads and Tolls</b></p> <p><i>Stakeholders are concerned about how tolls will be determined, how long they will last and what will be done with them.</i></p>	<ul style="list-style-type: none"> <li>• Are you working with Translink? And with interoperability with Oregon?</li> <li>• How about private roads? Will their systems be interoperable?</li> <li>• How will this be fairly and equitably be used across the State if small areas would not create enough revenue to significantly contribute to the cost of a project?</li> <li>• Do we know which projects can be reasonably tolled? Is there a list/ determination made?</li> <li>• What is the estimated tolling revenue versus state funding on projects?</li> <li>• Why are some tolling monies going toward transit when we have such a big deficit on road projects? How will this monetary diversion affect the \$38 billion gap?</li> <li>• Will the Legislature have the ability to sunset a toll?</li> <li>• Is the tolling concept always going to be used for new projects?</li> <li>• Tolling is a false choice for the public because they think tolls solve problems but we can't maintain a free flowing system by using tolls.</li> </ul>
<p><b>Regional Issues</b></p> <p><i>Stakeholders from different regions have different concerns.</i></p>	<ul style="list-style-type: none"> <li>• Is there a danger to lower populated areas? Is it fair to them? We won't have the ability to toll for profit or to pay for significant portion of the project.</li> <li>• In a community like Bellingham the gas tax doesn't build anything in Whatcom County. So will we have to toll to get something built?</li> <li>• Based on all this information what kind of traffic management tolled facility can we do from Everett to Olympia?</li> <li>• It is hard to imagine where in Eastern Washington there could be tolls.</li> <li>• All the modern toll roads in Washington will be in Western Washington, so how will that work for Easterners?</li> <li>• From an Easterners perspective, this is a way for us to get roads in a part of the State where they need it – this is equitable.</li> <li>• Did you look at any other Eastern Washington projects besides the Snoqualmie Pass?</li> <li>• What about diversion to other roads from the Snoqualmie Pass?</li> <li>• How about working with the business community to stagger work times instead of tolling?</li> </ul>
<p><b>Policy #2 (Tolling as significant revenue source)</b></p>	<ul style="list-style-type: none"> <li>• Policy 2 says tolling should “contribute a significant share of revenue”; what is the minimum percentage?</li> <li>• What is meant by a “significant portion” of a project?</li> </ul>
<p><b>Policy #3 (Toll revenue stays in system)</b></p>	<ul style="list-style-type: none"> <li>• How do you propose to safeguard Policy 3 – keeping toll revenue within the tolling system?</li> <li>• Policy 3 is contradictory with other things you are saying – you can collect money on a bridge in Seattle and build a new road in Eastern Washington. That money could be spread everywhere to maintain and operate, etc. Why should the monies only go back into the tolled project?</li> </ul>

## Public Comments

The general public had two specific opportunities to participate in the Study – a well-publicized public open house in each of five cities and a “virtual open house” at the project web site for those who could not attend one of the open houses. The following is a summary of the comments received among the more than 5,000 people who participated at a public open house or who visited the web site.

- Many people were concerned about the State’s growing traffic congestion problem and don’t see it improving.
- Although in the minority, some citizen participants could see tolls as a potential way to manage traffic congestion, but had many questions about how such a program would be implemented, especially its impact on carpool drivers, low-income users and on specific roadways.
- The video simulations of nonstop electronic toll collection were an eye opener for participants and did much to dispel objections that were based on the outdated “buckets and toll attendants” perception of toll collection.
- The public is concerned about more taxes, and many expressed the opinion that taxes currently collected should be sufficient for transportation.
- Some citizens cautioned about using tolling as a “social engineering” tool.
- Some public comments reflect a concern about those who may not be able to afford tolls but the majority of comments related to personal concerns based upon the individuals own driving habits and needs.
- The public seems willing to accept tolling under specific conditions and for specific projects. Citizens have many different ideas on where and when it should be used.
- Many think the trucking industry should be tolled.
- Again, the illustration of modern nonstop electronic toll collection was a revelation. Once described or demonstrated, the public appreciated the convenience of modern electronic toll collection and the need for a uniform system for collection.
- Many were concerned that tolling will result in too much diversion of traffic onto free roads or local streets.
- Those who attended an event personally had positive remarks about the Commission’s outreach campaign and stressed the need for ongoing education and communication.
- Specific Projects – Most of the comments revealed a need for more specific information about the details, layout, and operation of specific projects.

- Many comments about the illustrative example about tolling Snoqualmie Pass agreed with it, but many others were concerned about tolling the “lifeline” of eastern Washington. More information on the specifics and proposed benefits will need to be provided.
- Vancouver area residents are concerned with the bridges and how tolling works between Washington and Oregon.
- Many from the Tacoma Narrows Bridge area feel that they are being unfairly treated because a toll is being charged to fund their project while others in the State are not.

Table 11.4 documents the various questions and comments made at the Public Open Houses and at the project’s web site.

### Table 11.4 Public Comments

<p><b>Gas Tax/Other Taxes</b></p> <p><i>The public is concerned about more taxes and many express concern that taxes collected should be sufficient for transportation.</i></p>	<ul style="list-style-type: none"> <li>• We just had a large increase in the gas tax – that should cover road improvements.</li> <li>• We have the highest gas tax in the nation and we pay other taxes; tolls are unnecessary.</li> <li>• We pay the highest gas tax in the nation; we need to stop wasting money on studies and start building more lanes.</li> <li>• The gas tax is a user fee and should be used for roads, not mass transit.</li> <li>• The gas tax should not be used for social programs, those should be funded through sales tax.</li> <li>• I’d rather you raise my income tax than toll me.</li> <li>• Using existing taxing infrastructure will allow for more dollars to go to transportation, rather than having to spend the money to set up tolling systems.</li> <li>• Gas tax and general fund should pay for transportation.</li> <li>• Gas taxes should be higher to discourage use of gas.</li> <li>• As I believe the financial productivity of the gas tax is going to decay very rapidly, the toll authority should develop a plan for supplementing tolling that can be put into effect quickly.</li> <li>• Gas prices should be taxed through the roof to force efficient and effective alternatives to petroleum and better public transportation.</li> <li>• Current tax revenue exceeds our needs if the tax money is spent efficiently.</li> <li>• Use current taxes wisely, don’t toll.</li> <li>• I supported the gas tax so we wouldn’t have to have tolls.</li> <li>• Tolling is like an income tax and DOT wouldn’t know when to stop raising them.</li> <li>• I would be more supportive if money in gas taxes wasn’t subsidizing a waterfront park in downtown Seattle (a.k.a. the viaduct tunnel)</li> <li>• 60K people work in Oregon and pay 9% taxes – that and tolls is unfair.</li> <li>• Tolling in Vancouver to fund projects elsewhere constitutes a tax!</li> </ul>
<p><b>Privacy</b></p>	<ul style="list-style-type: none"> <li>• I am worried that toll roads will allow the government to track residents.</li> <li>• Privacy issues can be overcome.</li> </ul>

**Table 11.4 Public Comments (continued)**

<p><b>Economic Inequity</b></p> <p><i>Some public comments reflect a concern about those who may not be able to afford tolls.</i></p>	<ul style="list-style-type: none"> <li>• Outreach and education about tolls prior to implementing is key. More areas in low- to moderate-income groups are affected.</li> <li>• Needs to be affordable. Wages have not kept up with inflation.</li> <li>• Tolling should be used cautiously to avoid penalizing low-income people.</li> <li>• I'm concerned about the burden on workers who have to commute long distances owing to economics.</li> <li>• Will tolls allow the wealthy to use public state roads while the poor will not be able to?</li> <li>• Tolls discriminate against poor people.</li> <li>• Tolling is economically burdensome.</li> <li>• There is a fundamental difference between funding a new project partially with tolls and providing the well-to-do with private express, HOT lanes on existing roads.</li> <li>• The State exercises too much power over regional authorities, typically; screwing Seattle in favor of influential "burbs."</li> <li>• You will always want more. There is never enough!</li> </ul>
<p><b>HOV Lane</b></p>	<ul style="list-style-type: none"> <li>• Define the transportation system to include transit/HOV.</li> <li>• Build toll roads not just HOV lanes.</li> <li>• I don't think we should allow SOVs to use the HOV lanes because we need to shift the paradigm to carpooling.</li> <li>• We need to keep carpool lanes – if we got rid of them there would be more traffic.</li> <li>• Tolls should be uniformly applied to all lanes.</li> <li>• Conversion of HOV to HOT lanes is a good idea to increase use. But keep free for carpools.</li> <li>• HOV lanes increase pollution because they make us sit in traffic rather than taking advantage of an extra lane.</li> <li>• No HOV lanes to favor the well-off over average people who must drive further for affordable housing. HOV lanes should only be in effect during times when car pooling is effective to reduce traffic.</li> </ul>

**Table 11.4 Public Comments (continued)**

<p><b>Tolling</b></p> <p><i>The public seems to accept tolling but has many different ideas on where and when it should be used.</i></p>	<ul style="list-style-type: none"> <li>• Tolling should not be used to fund general transportation needs.</li> <li>• Tolls should continue on all projects without consideration of “paid off” status.</li> <li>• I would caution against tolling major interstates.</li> <li>• Tolls should tax single car commuting and congestion.</li> <li>• Those of us who use ferries already are paying a toll. Others also should pay tolls.</li> <li>• Toll entire transportation system to reduce congestion and pollution.</li> <li>• Each toll project needs an extensive cost/benefit study.</li> <li>• Tolling should only be used for traffic management and if you are an HOV you shouldn’t be charged.</li> <li>• Tolling is the first step in a utilities type system for transportation.</li> <li>• Only new roads should be tolled.</li> <li>• All of WA benefits from our transportation system even if we do not drive a given road personally. Our goods and services travel them and as such the cost should be shared by all in the State.</li> <li>• Tolls should only be used for mega projects.</li> <li>• Conversion of HOV to HOT lanes is a good idea to increase use. But keep free for carpools.</li> <li>• Tolls should only be used for that facility – building and maintaining, not on other projects.</li> <li>• I think tolling is a great idea, especially if it means we can pay off large projects quicker.</li> <li>• Instead of tolls we could have car tab fees.</li> <li>• Tolling is the only fair way to pay for and maintain roads.</li> <li>• Do it!</li> <li>• Tolling bridges makes sense.</li> <li>• One of the reasons I retired to Washington eight years ago was because there are no tolls.</li> <li>• Tolls restrict commerce.</li> <li>• If the DOT would use our tax dollars wisely, tolling would not be necessary.</li> <li>• No tolls, no tolling.</li> <li>• Toll booths cause traffic jams.</li> </ul>
<p><b>Trucks and Tolling</b></p> <p><i>Many think the trucking industry should be tolled.</i></p>	<ul style="list-style-type: none"> <li>• Tolling commercial trucks is the only tolling there should be.</li> <li>• 4 x 4 trucks should be tolled the same amount as commercial trucks.</li> <li>• Trucks do not carry their fair share burden.</li> <li>• Vehicles which are the biggest and heaviest or cause the most damage and wear on the roads should pay the highest tolls. Motorcycles should pay the least with vehicle appropriately for size and weight.</li> <li>• Truck commerce is extremely important in Washington State. Please don’t price trucks out of their jobs.</li> </ul>

**Table 11.4 Public Comments (continued)**

<p><b>Electronic Tolling</b></p> <p><i>The public appreciates the convenience of modern electronic toll collection and a uniform system for collection.</i></p>	<ul style="list-style-type: none"> <li>• Use Good To Go! on ferries too.</li> <li>• ETC should be implemented, especially if it solves congestion.</li> <li>• Use ETC as much as possible and avoid toll booths.</li> <li>• Avoid toll booths, use electronic tolling as much as possible.</li> <li>• Electronically tolling is subject to hackers.</li> <li>• ETC is an inefficient way of collecting tax dollars.</li> </ul>
<p><b>Diversion Caused by Tolling</b></p> <p><i>Many believe tolling will cause diversion traffic.</i></p>	<ul style="list-style-type: none"> <li>• I am worried that people will crowd other routes to avoid paying tolls.</li> <li>• Tolling will just cause people to divert their routes onto other roads.</li> <li>• I strongly recommend a rapid (10 years or less) move to tolling of the entire regional freeway system for purpose of congestion-easing, and reduce adverse environmental aspects, redisburse diverters to the “free” roads.</li> <li>• Some diversion is a necessary result of tolling; short trips shouldn’t be tolled anyway. Include transit and parallel routes and enforcement.</li> <li>• Extreme care should be exercised in siting commercial routes, low-volume use and consideration of adding to the congestion problem should be major considerations.</li> </ul>
<p><b>Mass Transit</b></p>	<ul style="list-style-type: none"> <li>• Will mass transit rates rise to cover the cost of tolls?</li> <li>• Tolls should not fund transit.</li> <li>• I think an additional benefit of tolls may be to encourage more use of public transportation.</li> <li>• I will support tolls to help fund public transit.</li> <li>• Stop building roads and start building more mass transit.</li> </ul>
<p><b>Public and Stakeholder Outreach Program</b></p> <p><i>Those who attended an event personally had positive remarks about the outreach campaign and stress ongoing education and communication.</i></p>	<ul style="list-style-type: none"> <li>• Have a meeting by the Tacoma Narrows Toll Bridge.</li> <li>• Commission needs to assume full responsibility that a project once completed; it will automatically improve that roadways performance.</li> <li>• The public needs to clearly understand what time period the State is proposing along with dollar amount total as time goes by. The whole story is never told.</li> <li>• Educate the public by having the local office working with the neighborhoods.</li> <li>• You need continued PR efforts to help people understand.</li> <li>• Keep up the good work!</li> <li>• Keep educating people on the benefits of tolling.</li> <li>• Continue educating locally.</li> <li>• Keep the traffic moving!</li> <li>• Be bold, people get it!</li> <li>• Sounds like a good idea, show me more!</li> <li>• Being able to discuss items with a representative was most helpful.</li> <li>• I enjoyed listening and learning, but the best part was being able to talk one-on-one.</li> <li>• This was PR to dupe the public into giving more money to DOT.</li> <li>• Prove your point or make it clear to the public why.</li> <li>• Not sure how this open house advances the understanding or acceptance of tolls.</li> </ul>

**Table 11.4 Public Comments (continued)**

<b>SR 520</b>	<ul style="list-style-type: none"> <li>• Tolls on the SR 520 must be prorated: less money for short trips.</li> <li>• Provided that the project being funded offers additional capacity to the payer (e.g., we must have additional GP capacity on 520 to justify).</li> </ul>
<b>Alaskan Way Viaduct</b>	<ul style="list-style-type: none"> <li>• We should build the tunnels with a toll.</li> <li>• Alaskan Way should be tolled.</li> <li>• Will tolls be used to replace the viaduct with a tunnel? I am opposed to that.</li> <li>• Why shouldn't those using the Viaduct pay for it? I'm being forced to pay for the TNB.</li> </ul>
<b>I-167/Managed Lanes</b>	<ul style="list-style-type: none"> <li>• Makes sense if they don't fill up.</li> <li>• This already was tolled and paid for. Why are we going to pay for it again?</li> <li>• Letting people pay for the HOV lanes is selective and wrong.</li> <li>• Managed lanes have not proven to be effective.</li> </ul>
<b>Snoqualmie Pass</b>	<ul style="list-style-type: none"> <li>• This will add to the disconnect between Western and Eastern Washington.</li> <li>• Snoqualmie is a Federal highway and the burden of its upkeep should be shouldered by all Americans.</li> <li>• Toll all mountain passes not just Snoqualmie.</li> <li>• You shouldn't toll the "lifeblood" of the State.</li> <li>• Many people cannot afford the West Coast housing prices. Now they will not be able to afford visiting there either.</li> <li>• A toll would discriminate against my disabled daughter on her doctor's trips to Western Washington.</li> <li>• We have not seen repairs on Snoqualmie Pass in years.</li> <li>• Paying \$8 to visit my grandchildren in Western Washington is unfair.</li> <li>• Charging college kids \$4 to go to college is extreme.</li> <li>• Tolling the Snoqualmie Pass taxes the poor folk from Eastern Washington more and that is not fair.</li> <li>• Snoqualmie Pass should not be considered a tolling point. Many people use the pass many times a year and it would be an unfair toll on a few people to pay for larger projects. The tolls should be applied to the specific major highway it will improve.</li> <li>• We already paid for an interstate. We shouldn't have to pay again.</li> </ul>

*Most comments about Snoqualmie Pass were against tolling it.*

**Table 11.4 Public Comments (continued)**

<p><b>Columbia River Bridges</b></p> <p><i>Those in the Vancouver area are concerned with the bridges and how tolling works between Washington and Oregon.</i></p>	<ul style="list-style-type: none"> <li>• The two states should partner.</li> <li>• I would support tax dollars for the extension of Portland’s light rail across the bridge.</li> <li>• Those who commute to Portland for work should live in Portland. I shouldn’t have to pay for a commuter.</li> <li>• A new bridge won’t solve the congestion problem; we need more continuous flow lanes across the bridge.</li> <li>• Tolling the bridges will discourage people in Portland from shopping in Washington and will cause a downturn in the local economy.</li> <li>• A new bridge will only cause more congestion because more people will commute to Portland, this will cause more pollution.</li> <li>• I live in Washington and work in Portland and pay taxes in both states. Now you want to charge me more taxes?</li> <li>• The carpool lane across the bridge made my commute longer; tolled bridges will do the same.</li> <li>• We don’t need to reconfigure or add HOV lanes, we need a new bridge.</li> </ul>
<p><b>Tacoma Narrows Bridge</b></p> <p><i>Many in the TNB area feel that they are being unfairly imposed with tolls while others in the State aren’t.</i></p>	<ul style="list-style-type: none"> <li>• Why don’t you have an open house for us in the Tacoma area?</li> <li>• DOT gerrymandered second Tacoma Narrows Bridge ballot in violation of state law. No tolls anywhere!</li> <li>• When tolls were placed on the TNB, we were told that tolls would be on other projects like I90 and viaduct.</li> <li>• Tolls should be voted in by users, not nonusers like the TNB.</li> <li>• I never understood why the tolls were taken off the TNB, maintenance is costly.</li> <li>• Kitsap and Gig Harbor residents should not be taxed with the TNB to pay for King County projects.</li> <li>• Why hasn’t the State helped with the Narrows Bridge in Tacoma/Gig Harbor the same way they’re planning for Seattle area bridges, roadways?</li> </ul>

Additional verbatim comments are included in Appendix C.

## Outreach Survey

Table 11.5 summarizes the results of the nonscientific survey that was available to the public at the open houses, to the stakeholders at the roundtables, and at the project web site. Please note these represent only an anecdotal response and is in no way statistically reliable as the respondents were self-selected.

**Table 11.5 Survey Results**

Question	Strongly Agree		Somewhat Agree		Somewhat Disagree		Strongly Disagree		Total
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
• Washington should use tolling to encourage effective use of the transportation system.	77	37%	30	14%	17	8%	83	40%	207
• Washington should use tolling to provide a supplementary source of transportation funding.	76	37%	33	16%	18	9%	80	39%	207
• 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.	77	37%	54	26%	20	10%	56	27%	207
• Tolling should be used when it can be demonstrated to optimize system performance, such as with an HOV/Tolled Express lane.	79	38%	37	18%	29	14%	62	30%	207
• Tolling should be fairly and equitably applied in the context of the statewide transportation system.	107	52%	38	18%	13	6%	49	24%	207
• Tolling should not have significant adverse impacts through diversion of traffic to other routes.	103	50%	56	27%	13	6%	34	17%	207
• Toll revenue should be used only to improve, maintain, or operate the transportation system.	120	58%	30	14%	18	9%	39	19%	207
• Toll rates should be set to optimize system performance, recognizing necessary tradeoffs to generate revenue.	72	35%	53	26%	27	13%	55	27%	207
• 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.	56	27%	39	19%	27	13%	85	41%	207

**Table 11.5 Survey Results (continued)**

Question	Strongly Agree		Somewhat Agree		Somewhat Disagree		Strongly Disagree		Total
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
<ul style="list-style-type: none"> <li>Following broad statutory direction, the WSTC, 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.</li> </ul>	71	34%	43	21%	28	14%	65	31%	207
<ul style="list-style-type: none"> <li>The Washington State Department of Transportation should be responsible for planning, development, operations and administration of toll projects and toll operations within the State.</li> </ul>	75	36%	51	25%	22	11%	59	29%	207
<ul style="list-style-type: none"> <li>Toll systems in the State of Washington should be simple, unified, and interoperable, and avoid attended tollbooths wherever possible.</li> </ul>	124	60%	38	18%	13	6%	32	15%	207
<b>Totals</b>	<b>1,035</b>	<b>42%</b>	<b>501</b>	<b>20%</b>	<b>244</b>	<b>10%</b>	<b>699</b>	<b>28%</b>	
How useful was the information presented?	Very Useful		Somewhat Useful		Not Very Useful				
	58	29%	92	46%	52	26%			202

**Editorial Summary** – Eight meetings with editorial board of local newspapers were attended by outreach team members. These meetings were set up at the major newspaper(s) in each of the five regions that were visited. As a result of the visits, four newspapers ran editorials about tolling, addressing the outreach activities, and commenting on the proposed policies. In addition, proactive press relations garnered 14 articles in eight different papers, plus additional media coverage at two radio stations and two television stations.

The response from the editorial boards was excellent – Commissioners gave each a message seemed to resonate. As keen followers of public policy, current events, and new ideas, editors were able to significantly add to the discussion with the public about the ways in which tolling can be used to advance Washington’s transportation system. The one criticism garnered in an editorial was that the Commission was not proposing to move quickly enough on implementing tolling.

These editorials will serve to help bridge the gap between public perceptions about tolling and how tolling will benefit the citizens of Washington. Several key points were picked up in the editorial coverage that will serve to help move Washingtonians to a better understanding of tolling:

- Tolling has a rich history in Washington, and has been used often to raise funds for large infrastructure projects;
- Tolls are a user fee, with those using the facility paying for the facility;
- If implemented, tolls on all Washington facilities will be interoperable and hassle free;
- The Commission is recommending a policy that tolls collected will be used only for the transportation system; and
- Tolling is a welcome advance that will both help to build roads and bridges and help make traffic move more efficiently.

Table 11.6 provides a list of the Editorial Board Meetings and Table 11.7 shows the Media Coverage garnered from all press relations efforts.

**Table 11.6 Editorial Board Meetings**

Region	Newspaper	Date
Southwest	Vancouver Columbian	6/20/2006
Puget Sound	Tacoma News Tribune	6/21/2006
Puget Sound	Seattle Post Intelligencer	6/21/2006
Puget Sound	Everett Herald	6/21/2006
Puget Sound	Seattle Times	6/22/2006
Northwest	Bellingham Herald	6/23/2006
Central	Yakima Herald Republic	6/27/2006
Eastern	Spokane Spokesman Review	6/28/2006

**Table 11.7 Media Coverage**

<b>Newspaper</b>	<b>Date</b>	<b>Type of Article</b>	<b>Article Title</b>
King County Journal	6/19/2006	Article	“Better Bridge Traffic? Sure At a Price”
The Columbian	6/19/2006	Article	“State Seeks Public Input on Toll Report”
Yakima Herald	6/20/2006	Article	“Road Tolls May Come To Pass”
The Seattle Times	6/20/2006	Editorial	“Tolls Proposed For 20 Bridge, Pass on I-90”
The Columbian	6/20/2006	Editorial	“Learn About Tolls”
The Columbian	6/21/2006	Editorial	“Highway Toll Ideas Spark Little Interest”
The Columbian	6/22/2006	Article	“High-Tech Tolls”
Bellingham Herald	6/24/2006	Article	“State To Try Toll Lanes Near Seattle”
The Herald	6/25/2006	Article	“Tolls A Promising Tool To Get Traffic Moving”
Spokesman Review	6/26/06	Article	“Toll Talk”
Yakima Herald	6/28/2006	Article	“I-90 Toll Suggestion Draws Mixed Reaction”
Spokesman Review	6/28/2006	Article	“Toll Road Proposal To Get Airing”
Seattle Post Intelligencer	7/2/2006	Editorial	“Highway Capacity: Tolling For Thee”
The Herald	7/6/2006	Article	“Tolls On I-90 Could Make U.S. 2 Busier...”
<b>TV/Radio Station</b>	<b>Date</b>	<b>Type of Clip</b>	<b>Program</b>
KUOW PBS in Seattle	6/29/2006	Interview	Ross Reynolds show interview
KTU Channel 2 in Vancouver	6/19-21/2006	News clip	WSTC’s Tolling Study
KIRO 710 AM in Seattle	6/22/2006	News clip	Morning news
KIMA CBS channel 29 in Yakima	6/27/2006	Interview	Interview with Aaron Kellogg on 11 p.m. news

## ■ Conclusion

WSTC's Comprehensive Tolling Study Public and Stakeholder Outreach program achieved its goal to elicit participation from citizens and local stakeholders across Washington, with more than 5,000 citizens either participating via the program web site (there were 38,000 visitors to the web site) or by attending local meetings. The information, comments, suggestions, and concerns that were communicated by citizens will provide valuable input to the Commission as it fashions its final recommendations to the Legislature.

Overall, all of the people who participated were interested in the Study and truly concerned about Washington's transportation future. Almost all agreed that the State's transportation infrastructure needs to be improved. This is an important message for leaders to acknowledge during the planning phases of improvements. Citizens want relief from traffic congestion and all have strong opinions on how to best solve the State's transportation problems. They all want Washington's elected officials to ultimately use their leadership to improve the State's aging infrastructure.

While the results of the informal 14-question survey are not representative of the State as a whole, they do reflect the hopes and frustrations of more than 5,000 people who cared enough and took the time to participate in the Commission's Study.

*Background paper prepared by Frank Wilson & Associates in July 2006.*



## Washington State WSTC Comprehensive Tolling Study

# Public and Stakeholder Outreach

## Appendices

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General Public Comments	
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# Appendix A

## Outreach Materials

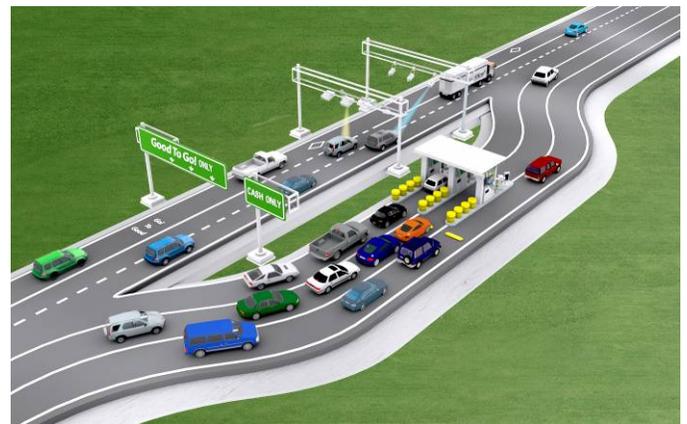
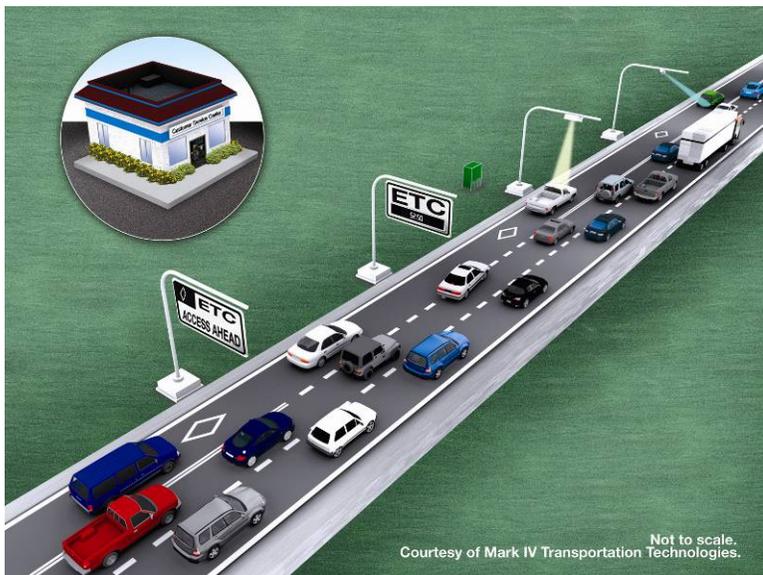
## Electronic Toll Collection *Fast, Convenient, Reliable*

### **Electronic Toll Collection (ETC) Means Convenience and Non-Stop Toll Collection**

Electronic toll collection is a system that allows drivers (cars, motorcycles and commercial vehicles) to pay tolls at highway speeds without stopping at a tollbooth. These systems are in use throughout the U.S. and have been embraced by drivers worldwide.

In Washington, electronic toll collection will debut in 2007 on the new Tacoma Narrows Bridge and later in 2008 on SR-167 HOT lanes, two projects sponsored by the Washington State Department of Transportation.

WSDOT's new system is called *Good To Go!*™ and uses a small electronic sticker that adheres to the inside of a vehicle's windshield and can be read by an antenna mounted over the roadway. Each time a vehicle passes under the antenna at the toll collection area, it links the e-sticker to the user's prepaid account and the system automatically debits the correct toll from the account.



On bridges, mountain passes and new toll highways, non-stop electronic toll collection can be used in conjunction with traditional cash toll plazas to accommodate the needs of visitors.

ETC can be used to get more efficient use of existing road capacity. HOV/toll lane configurations, like the one shown above, allow solo drivers to pay a toll and use the existing carpool (HOV) lane when there is available space in the lane. With HOV/toll lanes, about 13% more people can be moved through a corridor using existing road capacity.

## About WSDOT's *Good To Go!*<sup>™</sup> Electronic Toll Collection System

To make driving throughout Washington more convenient, WSDOT has adopted the easy-to-recognize *Good To Go!* name for all electronic toll collections. *Good To Go!* allows drivers to pay tolls electronically while traveling at highway speeds and without leaving the highway to stop at a tollbooth. *Good To Go!* means that commuters, business users, commercial vehicle operators and others who use the system will have a faster, more reliable and convenient trip.

## How to Get a *Good To Go!* E-Sticker / Transponder

When the new service is available early next year, *Good To Go!* will be easy to get and simple to use. Drivers can set up a prepaid *Good To Go!* account by visiting a Web site, service center and/or by mail or phone.

The *Good To Go!* e-sticker will initially be distributed at no charge, but the account will require a minimum deposit (approximately \$30) payable with credit card, debit card, cash, check or money order.



*Good To Go!* e-sticker – easy to get and simple to use.

## How does the *Good To Go!* prepaid account work?

When you open a prepaid account, you will receive a *Good To Go!* e-sticker that is linked to your account. Affix the sticker to the windshield behind the rear view mirror and you are ready to use *Good To Go!*.

The correct toll is automatically debited from the prepaid account each time you make a toll trip. The account will be replenished from your credit card, debit card or auto-draft check whenever two toll trips are left on the balance. However, customers who open an account with cash or a check will be responsible for maintaining a minimum account balance. You will be able to review your account activity online or request a quarterly statement detailing usage.

## What happens if a driver doesn't pay the toll?

Violators who use the *Good To Go!* ETC lanes without paying will be subject to a considerable fine. Typically, cameras will take a picture of the violator's license plate and a notice will be mailed.

**To sign up for updates and to be notified when *Good To Go!* is available, visit [wsdot.wa.gov/goodtogo](http://wsdot.wa.gov/goodtogo).** You will not be obligated to set up an account when you provide your contact information for the interest list.

## Case Studies Tolling Experiences in North America

### **I-15 HOT Lanes near San Diego, California**

Interstate 15 is a heavily traveled highway in the San Diego region of California. It connects several north inland communities with major employment centers to the south. Prior to 1996, there was excess capacity on the I-15 high occupancy vehicle (HOV/carpool) lanes and rush hour congestion on the regular freeway lanes. There also was limited transit service in the corridor.

To address the traffic concerns, in March 1998, an eight-mile reversible (one direction in the morning, the other direction in the afternoon) HOT Lane facility opened in the median of I-15, opening up the carpool-only lanes to solo drivers. The new facility allowed solo drivers to pay a per trip fee to use the existing high occupancy vehicle (HOV) lanes, while carpoolers, motorcycles and transit riders continue to use these HOV lanes for free. The I-15 HOT Lanes are a prime example of how states can use existing transportation infrastructure more efficiently.

The I-15 HOT Lanes operate using an electronic toll collection system called Fastrak™. Tolls are automatically charged using a transponder that is affixed to the commuter's windshield and deducted from a prepaid account. To keep traffic flowing smoothly, the cost for using the HOT Lanes changes dynamically, reflecting the capacity in the lanes. The toll varies, up to \$8, to ensure a fast, reliable commute for many drivers. Revenue from the HOT Lanes helps to fund road projects in the area and also an express bus service along I-15.

I-15 commuters overwhelmingly support the HOT Lanes project and Fastrak™ has proven to be a successful program that supports reduced travel time, reliability of on-time transit arrival and improved traveler safety.

The I-15 Fastrak™ program has optimized the use of previously underutilized capacity on the HOV lanes, and demand for the program continues to grow.

### **The 91 Express Lanes in Orange County, California**

The 91 Express Lanes is a four-lane, 10-mile toll road built in the median of California's Riverside Freeway (State Route 91) between the Orange/Riverside County line and the Costa Mesa Freeway (State Route 55). The state-of-the-art facility boasts several firsts: the first privately financed toll road in the U.S. in more than 50 years, the world's first fully-automated toll facility (no stopping, no tollbooths), and the first application of time-of-day pricing on a toll road to maintain free-flow conditions.

The 91 Express Lanes employs a Fastrak™ system that is interoperable with the I-15 HOT Lanes facility. Tolls on the facility range from \$1.10 to \$7.75, depending on capacity on the road. This facility only offers electronic toll collection, which has eliminated the need for drivers to stop and pay tolls at traditional tollbooths, thus ensuring the free flow of traffic.

The 91 Express Lanes were born of the need for congestion relief on the 91 Freeway when no public funds were available to solve this critical transportation problem. The concept was unique—the private sector would take the risk, and the state would get congestion relief at no cost to taxpayers.

Since the 91 Express Lanes carried its first vehicle on December 27, 1995, this world-class transportation facility has logged more than 64 million vehicle trips, saving customers over 32 million hours of commuting time. These time savings have produced measurable benefits, including some \$480 million in added economic productivity and quality-of-life benefits for commuters, their families and businesses.

### **MnPASS I-394 Express Lanes, Minneapolis, Minnesota**

Since May 16, 2005, Minneapolis commuters have been afforded a fast, reliable commute from the western suburbs into downtown Minnesota by using on an 11-mile HOT Lane conversion project known as the MnPASS I-394 Express Lanes. By converting of high occupancy vehicle (HOV) lanes into high occupancy toll (HOT) lanes, single occupant drivers were able to access the lanes by paying a user fee.

Tolls on the MnPASS I-394 Express Lanes change dynamically, depending on traffic flow. Ranging between \$1.00 and \$4.00, tolls are collected through an electronic tolling system, and revenues go for I-394 corridor upkeep and capital improvements. Carpoolers and transit vehicles ride for free.

This project was the first of its kind in Minnesota and presented a new and significant change in highway management for the state. Developed and completed through a public/private partnership, the MnPASS project is another example of how states can make better use of the capacity in high occupancy vehicle lanes.

### **The 407 Express Toll Route (ETR) in Canada's Greater Toronto Area**

Highway 407, officially called the 407 Express Toll Route (ETR), is a pay-per-use limited access highway located in Canada's Greater Toronto Area. It runs east-west just north of Toronto and extends 108 km (67 mi) through the surrounding cities of Toronto. Plans are currently underway to extend the highway further east. It allows traffic to bypass Highway 401, the main highway through Toronto. Overall there are 40 different junctions on Highway 407 connecting the toll road with the main transportation network in the Greater Toronto Area. It's the world's first all-electronic, open access toll highway. By January 2006, 694,405,856 total trips had been taken since opening 407 ETR in October 1997.

The road was financed and built by the Province of Ontario and sold to a private consortium in 1999.

Visit [www.wstc.wa.gov](http://www.wstc.wa.gov) to get the latest news about tolling in Washington.

## The History of Tolling in Washington State

### Toll Roads Pave the Way to Prosperity

For centuries—from the ancient Greeks to today’s most modern cities—governments have collected tolls to help pay for burgeoning transportation systems. In the United States, tolling has a long history as well. George Washington was one of the first proponents of toll roads and utilized them to expand the country westward. One of the earliest toll roads in the United States was the Philadelphia and Lancaster Turnpike Road built in 1795.

Since then, some of America’s greatest engineering feats, such as the Holland Tunnel in New York and the Golden Gate Bridge in San Francisco, were funded through tolls. The state of Washington is no stranger to tolls either. The Washington State Ferry System was put in place in 1951 and to this day collects a toll from all riders.

Furthermore, tolls have been the traditional method of financing the construction of major bridges in Washington since 1930.

Bridge	Tolling Period	Toll (When First Opened)	Toll Adjusted for Inflation to 2005 Prices
Longview (SR 433)	1930-1965	\$2.00	\$23.74
Tacoma Narrows Bridge (SR 16) (First Bridge)	1940 (collapsed)	\$1.10	\$15.57
Lacey V. Murrow Memorial Bridge (1-90)	1940-1949	\$0.50	\$7.08
Agate Pass Toll Bridge (SR 305)	1950-1951	\$0.50	\$4.11
Tacoma Narrows Bridge (SR 16) (Second Bridge)	1950-1965	\$1.10	\$9.05
Fox Island Bridge (SR 303)	1954-1965	\$0.75	\$5.53
Port Washington Narrows Bridge (SR 303)	1958-1972	\$0.20	\$1.37
Spokane River Bridges (SR 2/SR 395)	1958-1990	\$0.40	\$2.74
Vancouver/Portland Bridge (1-5)	1960-1966	\$0.40	\$2.68
Hood Canal Bridge (SR 104) (First Bridge)	1961-1979	\$2.60	\$17.23
Biggs Rapids Bridge (US 97)	1962-1975	\$2.00	\$13.13
Evergreen Point Bridge (SR 520)	1963-1979	\$0.70	\$4.53
Vernita Toll Bridge (SR 24)	1965-1976	\$1.50	\$9.44
Hood Canal Bridge (SR 104) (Second Bridge)	1982-1985	\$5.00	\$10.27
Tacoma Narrows Bridge (SR 16) (Third Bridge)	2007-	\$3.00	\$3.00

Throughout the years, establishing and maintaining transportation infrastructure in Washington State has proven to be no easy task. With the state's diverse landscape of dense forests, mountains and vast waterways, building new roadways has presented engineers with many challenges, not to mention the challenge of securing the funds to pay for major public works projects.

Today, with continued budget shortfalls, continually growing demands being placed on our existing roads and bridges, and a resistance to increases in taxes, the State of Washington, along with many other states, has looked to more innovative solutions to address its transportation needs. Currently, the Washington State WSTC is engaged in a Tolling Study that will provide a framework for exploring the possibility of developing a toll system for roads and bridges, and creating policies for fair implementation of tolling in the state. The report will be submitted to the legislature during the 2007 legislative session.

**In states such as Texas, California, Florida and Colorado and in countries around the world, tolls have remained a popular way to raise large amounts of capital to cover the costs of new transportation projects. Minnesota, California and Texas have used tolling to improve the capacity of existing roads, using express lanes that offer easy mobility and a more reliable commute. In Florida, a network of modern toll roads serves motorists in all corners of the state. Recently, with the advent of electronic toll collection, tolling has become an even more viable and efficient solution to raise revenue and to manage congestion on heavily traveled urban highways. Both in funding new projects and in optimizing the use of existing roads, innovative tolling solutions have met with considerable success, and studies have shown that they are popular with motorists from all walks of life.** As state leaders consider implementation of tolling in Washington, existing toll projects both here and in other states will provide valuable lessons from which Washington will benefit. The statewide framework for tolling will have at its foundation, the goal of maintaining a vibrant economy through a sound and efficient transportation system.

Visit [www.wstc.wa.gov](http://www.wstc.wa.gov) to get the latest news about tolling in Washington.

Washington State WSTC  
Comprehensive Tolling Study  
**Public Outreach Questionnaire**

Thank you for taking a few moments to answer a few questions about the Comprehensive Tolling Study. Now that you have learned about the study's findings, please tell us your opinion of some of its recommendations.

Below is a list of policy recommendations for implementing tolling in Washington. Please take a few minutes to tell us your opinion on each of the policy recommendations by checking the appropriate box. Your comments are also welcome.

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Comment
1. Washington should use tolling to encourage effective use of the transportation system.					
2. Washington should use tolling to provide a supplementary source of transportation funding.					
3. 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.					
4. Tolling should be used when it can be demonstrated to optimize system performance, such as with an HOV/Tolled Express lane.					
5. Tolling should be fairly and equitably applied in the context of the statewide transportation system.					
6. Tolling should not have significant adverse impacts though diversion of traffic to other routes.					
7. Toll revenue should be used only to improve, maintain or operate the transportation system.					
8. Toll rates should be set to optimize system performance, recognizing necessary tradeoffs to generate revenue.					
9. 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.					

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Comment
10. Following broad statutory direction, the Washington State WSTC, 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 multi-state entities that may propose toll facilities to the Authority.					
11. The Washington Sate Department of Transportation should be responsible for planning, development, operations and administration of toll projects and toll operations within the state.					
12. Toll systems in the State of Washington should be simple, unified, and interoperable, and avoid attended tollbooths wherever possible.					
13. Please use this window to tell us what advice you would give us about tolling in Washington State.					
14. How useful was the information presented in the Virtual Open House presentation you saw before filling out this questionnaire?	Very useful	somewhat useful	Not very useful		Comment

If you would like to be kept informed regarding the Washington State WSTC's Comprehensive Tolling Study, please provide the following information:

First name \_\_\_\_\_ Last name \_\_\_\_\_ Daytime phone (optional) \_\_\_\_\_  
Street address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_  
E-mail \_\_\_\_\_ Preference for contact:  Postal Mail  Email (saves money)

*Your personal information will not be sold or used for any purpose other than keeping you informed of transportation issues in the state of Washington.*

Thank you for taking time to give us your opinion.

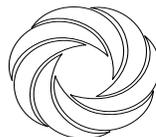
**You may also visit a virtual Open House and complete this questionnaire online at [www.wstc.wa.gov](http://www.wstc.wa.gov) between June 20 and June 30, 2006**

## News Announcement

June 7, 2006

### For Immediate Release

Contact Information  
Lisa Woolery  
lisa@frankwilson.com  
(949) 218-1850 x224



## Washington State Transportation

### WASHINGTON STATE WSTC INVITES THE PUBLIC TO HEAR AND BE HEARD ON ITS COMPREHENSIVE TOLLING STUDY

Olympia, Wash. – During the last two weeks in June, Washington State WSTCers and staff will present the preliminary results of the Washington State Comprehensive Tolling Study at a series of public meetings throughout Washington. The public is encouraged to attend an open house in their area or take a “virtual tour” of the open house online at [www.WAtollingstudy.com](http://www.WAtollingstudy.com) between Monday, June 19 and Friday, June 30. In addition to learning about the tolling study, participants in any of the open houses, and visitors to the virtual Web-based open house will have the opportunity to express their opinions and fill out a questionnaire about the proposed tolling policies for Washington. Responses to the questionnaire will be included in the Commission’s final report to the legislature.

The dates, times and locations for the open houses are as follows:

<b>Southwest Washington</b> <b>Vancouver Public Open House</b> <b>Tuesday June 20, 5:00pm – 7:00pm</b> WSDOT Southwest Division Building 11018 NE 51 <sup>st</sup> Circle Vancouver, WA 98682	<b>Central Puget Sound</b> <b>Seattle Public Open House</b> <b>Wednesday June 21, 5:00pm – 7:00pm</b> Mercer View Community Center 8236 SE 24 <sup>th</sup> Street Mercer Island, WA 98040
<b>Northwest Washington</b> <b>Bellingham Public Open House</b> <b>Thursday June 22, 5:00pm – 7:00pm</b> Hampton Inn 3985 Bennett Drive Bellingham, WA 98225	<b>Central Washington</b> <b>Yakima Public Open House</b> <b>Tuesday June 27, 5:00pm – 7:00pm</b> Clarion Hotel 1507 N. First Street Yakima, WA 98901
<b>Eastern Washington</b> <b>Spokane Public Open House</b> <b>Wednesday June 28, 5:00pm – 7:00pm</b> Center Place 2426 N. Discovery Place Spokane Valley, WA 99216	

“Clearly there is more need for transportation improvements in Washington than there are resources available. In an effort to solve gridlock and create opportunities that will positively affect Washingtonians’ lives and the future of our state’s economy, we are exploring new ideas to help fund our roads and bridges and make the most of the highways we already have. Tolling has worked effectively in other states, and it can in Washington as well,” said WSTC Chair, Dan O’Neal.

In 2005 the Washington State WSTC was given legislative direction to study where, when, and how to use tolling in the State of Washington, and to develop a statewide tolling strategy for the state. With two tolling projects currently under construction and others in discussion stages, the State legislature recognized that a statewide policy framework would be desirable to ensure consistent decision making throughout the State.

After months of study, a set of policy recommendations emerged for implementing tolling in Washington. The eight recommendations are summarized below, along with several hypothetical scenarios that provide a relevant and meaningful context to help visualize the broad spectrum of possibilities for using tolling as a transportation solution. Other than the current tolling projects already underway—Tacoma Narrows Bridge and SR 167 HOT Lanes Pilot Project—these scenarios are not proposals for tolling at this time.

#### **Draft Policy Recommendations\***

1. Washington should use tolling to encourage effective use of the transportation system and provide a supplementary source of transportation funding.
2. Tolling should be used when it can be demonstrated to:
  - a. Contribute to a significant portion of the cost of a project that cannot be funded solely with existing sources; and/or
  - b. Optimize system performance, such as with an HOV/Tolled Express lane.

Such tolling should in all cases:

- c. Be fairly and equitably applied in the context of the statewide transportation system.
  - d. Not have significant adverse impacts through diversion of traffic to other routes.
3. Toll revenue should be used only to improve, maintain or operate the transportation system.
4. Toll rates should be set to optimize system performance, recognizing necessary tradeoffs to generate revenue.
5. 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. Following broad statutory direction, the Washington State WSTC, 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 multi-state entities that may propose toll facilities to the Authority.
7. 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 systems in the State of Washington should be simple, unified, and interoperable, and avoid attended tollbooths wherever possible.
9. The setting of transportation priorities in the state should not be influenced by the potential availability of toll revenues.

### **Hypothetical Examples of Tolling**

#### **Converting carpool lanes (HOV lanes) into high occupancy toll lanes (HOT lanes)**

This concept demonstrates a proven, relatively inexpensive way to optimize the existing transportation system by giving solo drivers access to the carpool lane for a fee. HOT lanes provide a relief valve for people who absolutely need to be somewhere on time. This type of project has proven very popular with drivers in Minneapolis and California. Following the example of the SR 167 high occupancy toll (HOT) lane pilot project, consideration should be given to converting additional high occupancy vehicle lanes (HOV or carpool) lanes to HOT lanes.

#### **Tolling Bridges**

Bridges are natural candidates for tolling and could provide a source of funding to cover the high cost of bridge construction, improvements operations and maintenance. Tolling of bridges can also serve as a convenient traffic management tool. Studies have shown that modest variations in tolls by time-of-day can influence travel behavior and improve mobility.

The SR 520 bridge over Lake Washington is badly in need of improvements to reduce the risks associated with storm and seismic damage. Additional capacity is also needed. The study

analyzed improving and tolling both the SR 520 bridge and the alternate route, I-90. The study found that tolling at a level designed to keep traffic moving at about 45 mph would require a relatively high toll price, and while the tolls would improve cross-Lake Washington travel times, they could negatively impact the overall traffic system due to the rearrangement of traffic flow. More moderate, flat tolls would result in improved travel with less disruption of travel patterns. It is still uncertain as to whether tolling both SR520 and I-90 would be needed to maintain balance in the system. Using tolls to help fund bridges can be an effective finance tool that can also be used to influence travel behavior and improve system performance.

### **Tolling a Mountain Pass is Conceptually Like Tolling a Bridge**

Tolling presents a unique opportunity to provide additional funding for much needed safety and capacity improvements, and ongoing maintenance and operations for projects like Snoqualmie Pass. This pass is frequently closed due to rockslides, avalanches and adverse road conditions, and improvement costs are extremely high. Snoqualmie Pass is a vital segment of I-90 – the lifeline of eastern Washington, and charging tolls could be an effective way to raise the funds needed to ensure reliability of travel in that corridor. Tolling at a modest level could raise a significant portion of revenue needed for the project and pay for enhanced maintenance activities.

### **Traditional Toll Road Development**

The proposed Cross Base Highway (SR 704) is an example of a traditional toll road development project, where tolls are used to help fund the construction of a new highway. This particular project, however, has unique elements that limit the potential of tolling as a source of funds. The highway is adjacent to two military bases and toll-free access between the bases would likely be provided. This corridor serves one of the lowest income areas of Pierce County making it sensitive to toll pricing. These factors reduce revenue potential, and toll revenue is only expected to contribute about 15 percent to total construction costs. Due to the unique nature of the Cross Base Highway project, the limited amount of revenue expected, and taking into consideration some geographic and social equity concerns, this project is a poor candidate for tolling at this time.

The study will conclude in July 2006, after which it will be up to the Washington State Legislature to take legislative action.

### **About the Washington State WSTC**

The Washington State WSTC is an independent state agency whose seven citizen members are appointed by the Governor and confirmed by the Senate. The Commission exercises responsibilities in preparing the state's transportation plan, proposing the state's transportation investment plan, and working with the Governor, the State Legislature, the Secretary of Transportation and others across the state in formulating transportation policy. The Commission also sets ferry fares, oversees the implementation of the state's Public/Private Partnership program, and is currently designated as Washington's toll authority.

**###**

**Editor's Note:** \* Draft Policy recommendations as of June 1, 2006

The Washington State Transportation Commission invites you to

## Hear and Be Heard

at a public open house to be held this month:



## Roads, Bridges & Mobility

The potential role of tolls in our transportation future.

### You Have Choices: Put Yourself in the Driver's Seat

Learn about the Washington State Tolling Study that examines how tolls can improve our transportation system. Come speak with Transportation Commissioners and tell us what you think before the Commission makes final recommendations to the Washington State Legislature later this year.

For more information, visit [WATollingStudy.com](http://WATollingStudy.com) today.

### Central Washington (Yakima)

Tuesday June 27, 5:00 – 7:00pm

Clarion Hotel  
1507 N First Street  
Yakima, WA 98901

### Southwest Washington (Vancouver)

Tuesday June 20, 5:00 – 7:00pm  
WSDOT Southwest Division Building  
11018 NE 51<sup>st</sup> Circle  
Vancouver, WA 98682

### Northwest Washington (Bellingham)

Thursday June 22, 5:00 – 7:00pm  
Hampton Inn  
3985 Bennett Drive  
Bellingham, WA 98225

### Central Puget Sound (Mercer Island)

Wednesday June 21, 5:00 – 7:00pm  
Mercer View Community Center  
8236 SE 24<sup>th</sup> Street  
Mercer Island, WA 98040

### Eastern Washington (Spokane)

Wednesday June 28, 5:00 – 7:00pm  
Center Place  
2426 N. Discovery Place  
Spokane Valley, WA 99216

For more information, visit [www.WATollingStudy.com](http://www.WATollingStudy.com) today

## Proposed Tolling Policies for Washington State (as of June 2006)

1. 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)	<ul style="list-style-type: none"> <li>• Accelerate implementation of high-cost/high-need projects such as SR 520, Columbia River Crossing at Vancouver, and Snoqualmie Pass.</li> <li>• Use price differentials as appropriate to make most effective use of the system.</li> <li>• Convert HOV lanes to HOV/tolled express lanes to optimize performance and maintain free-flowing service for transit, vanpools and carpools.</li> </ul>
Medium Term (within 20 years)	<p>Consider potential for building additional capacity as tolled express lanes through more extensive study of long-term costs and benefits.</p> <p>Consider broader use of tolling to optimize system performance.</p>
Long Term (beyond 20 years)	<p>Consider more extensive use of tolls as the ability to build more capacity is constrained, traditional revenue sources decline, and technology advances.</p>

2. 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.
  - Not have significant adverse impacts through diversion of traffic to other routes.
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9. The setting of transportation priorities in the state should not be influenced by the potential availability of toll revenues.

# Outreach Open House and Meeting Presentation



Washington State  
Transportation Commission

# **Roads, Bridges and Mobility**

**The potential of tolls  
in our transportation future.**

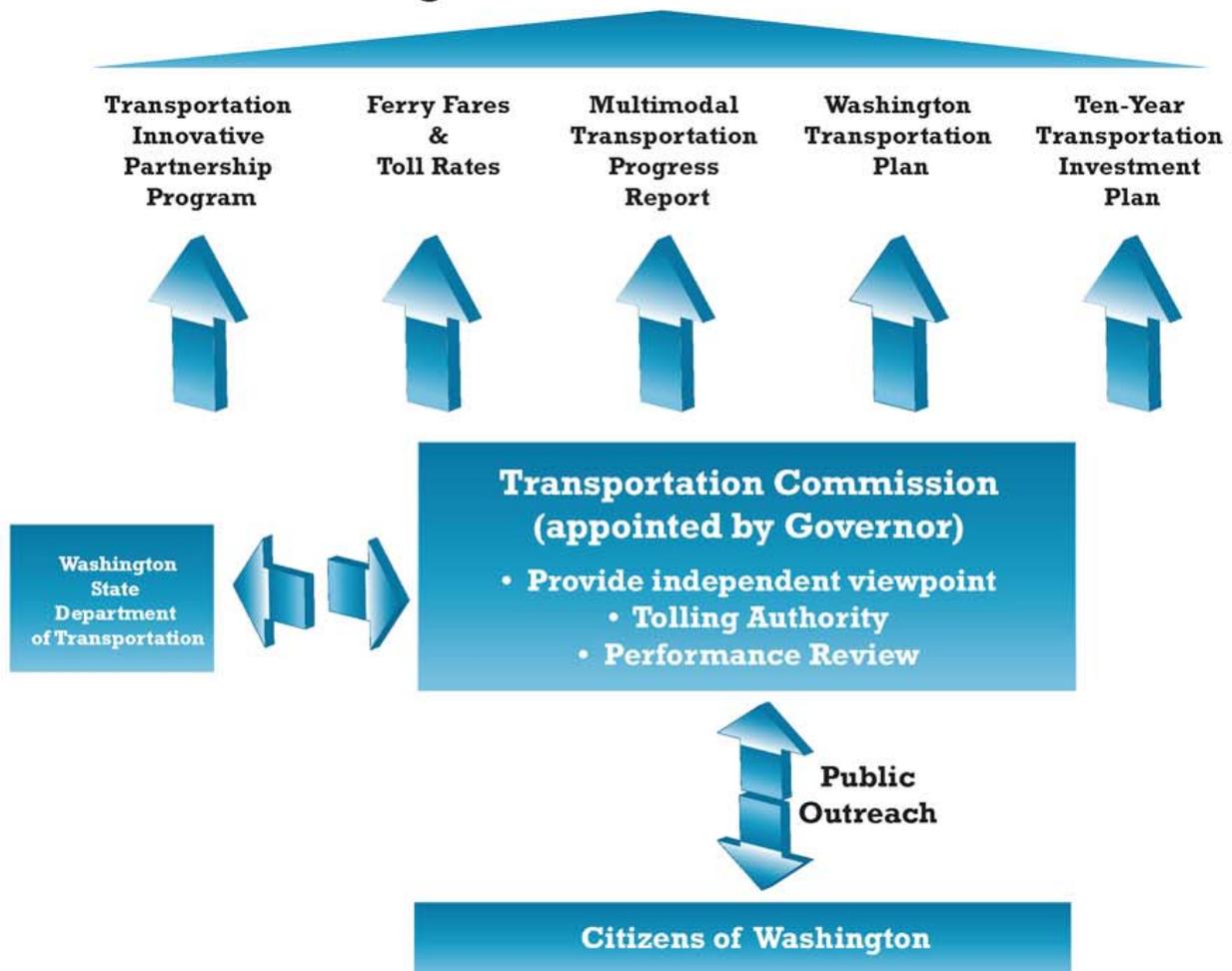
# **Welcome Hear and Be Heard!**

# About the Transportation Commission

## The Role of the Commission

State Legislature

Governor's Office



### Why the tolling study?

The State Legislature charged the Washington State Transportation Commission with evaluating if, when and how to use tolling in the State of Washington.



# Why Toll?

## Funding Gap: \$38.2 Billion

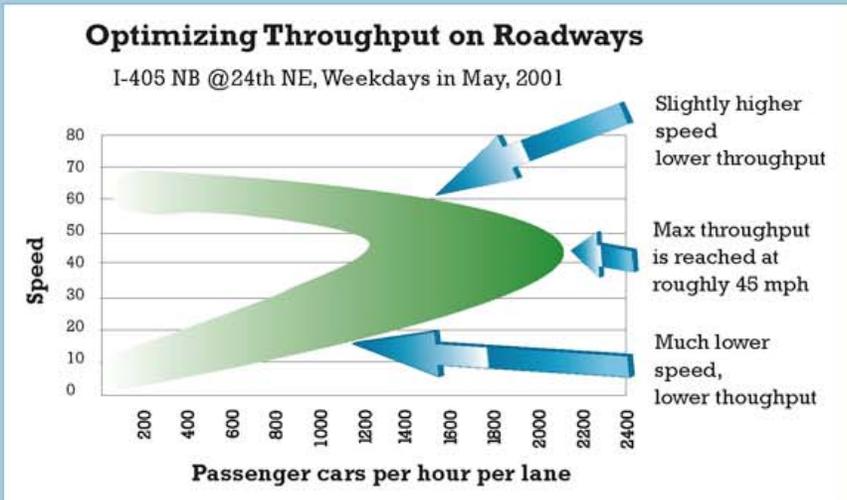
Washington State Long Range  
Transportation Needs (2007-2026)



We pay for the  
congestion in  
stress, frustration,  
and higher-cost  
goods.

## System Efficiency

**Congestion  
reduces the  
efficiency of our  
system.**

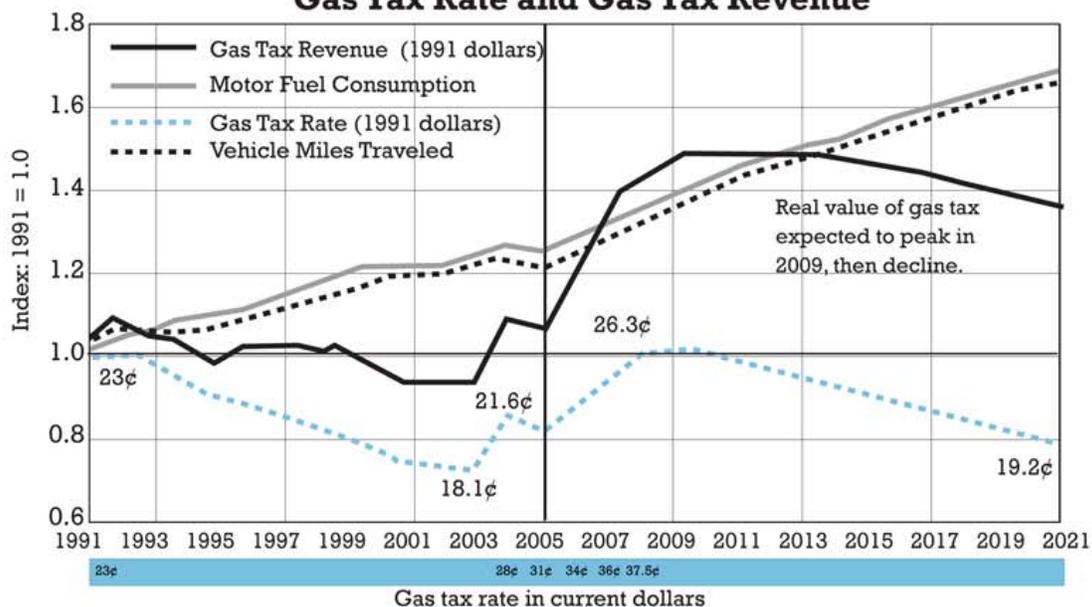




# Why Not Raise Taxes?

- Gas tax does not keep up with inflation and improved fuel economy.
- Closing the \$38.2 billion funding gap would require a gas tax increase of about 50 cents in 2009, with subsequent increases to track inflation. However, tolling alone will not eliminate the funding gap.
- People prefer a “user pays” scenario to a tax increase.
- People tell us tolls make sense for high-cost projects.
- Tolling can help optimize traffic flow, and potentially reduce future capacity expansion needs.

**Growth Comparison of Vehicle Miles Traveled, Motor Fuel Consumption, Gas Tax Rate and Gas Tax Revenue**



**It costs more to collect tolls than taxes, but over time taxes won't be able to provide the needed funds. Also, taxes can't address system efficiency objectives the way tolls do.**



Washington State  
Transportation Commission

# Comprehensive Tolling Study

## Next Steps

Project sponsors recommend  
and develop tolling proposals.



Commission develops detailed  
roadmap in consultation with  
interested agencies and  
elected officials.



Legislature takes action.

Final Policy Recommendations

July 2006



We Are Here

Broad public outreach

Draft Policy Recommendations



Illustrative Examples  
Analysis



Focus groups and  
public attitude surveys

Interim Report, including  
potential policy direction



Background Research  
on the toll industry  
and transportation in  
Washington



Stakeholder  
Interviews

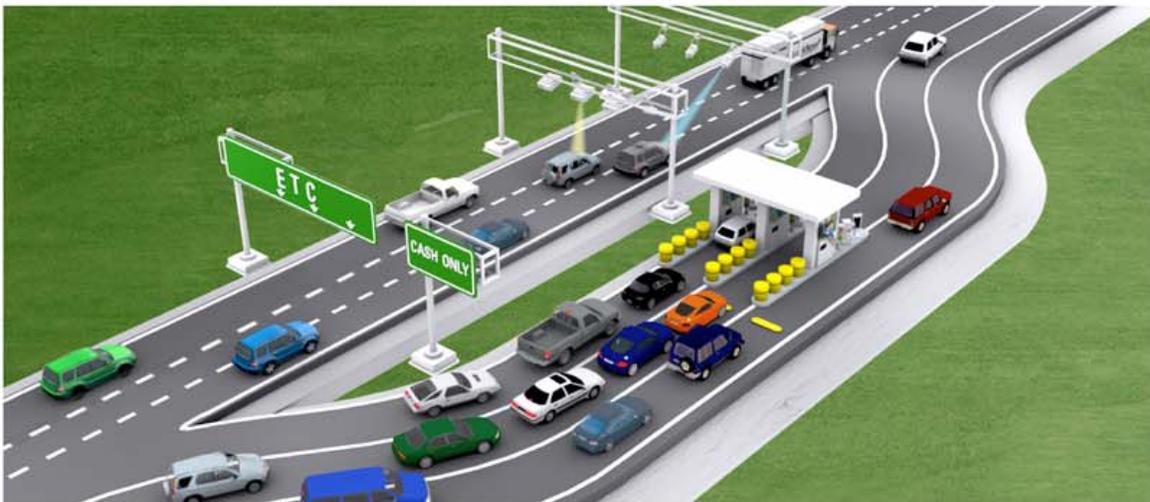


Washington State  
Transportation Commission

# **This Ain't Your Grandfather's Toll Road**

## **What is modern tolling?**

- **Electronic toll collection opens new opportunities:**
  - **No more stopping at toll booths**
  - **Pricing by time of day or congestion level to optimize the system**
- **Electronic tolling offers:**
  - **Increased reliability**
  - **Increased roadway and transit speeds**
  - **Moving more people and goods**



Conceptual illustration—not to scale

In this portion of the presentation, two videos, representing electronic tolling and managed lanes were shown.



Washington State  
Transportation Commission

# Washington's History of Toll Bridges



# Washington's Tolling History: Building Bridges

<b>Bridge</b>	<b>Tolling Period</b>	<b>Toll When first implemented</b>	<b>Toll Adjusted for Inflation to 2005 prices</b>
Longview (SR 433)	1930-1965	\$2.00	\$23.74
Tacoma Narrows Bridge (SR 16) (First Bridge)	1940 (collapsed)	\$1.10	\$15.57
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Vernita Toll Bridge (SR 24)	1965-1976	\$1.50	\$9.44
Hood Canal Bridge (SR 104) (Second Bridge)	1982-1985	\$5.00	\$10.27
Tacoma Narrows Bridge (SR 16) (Third Bridge)	2007-	\$3.00*	\$3.00

**In addition to these toll bridges, Washington has had tolls on its ferries since the early 1900s.**

\*Assumed, based on current finance plan. Toll rates will be set by Commission in 2007.

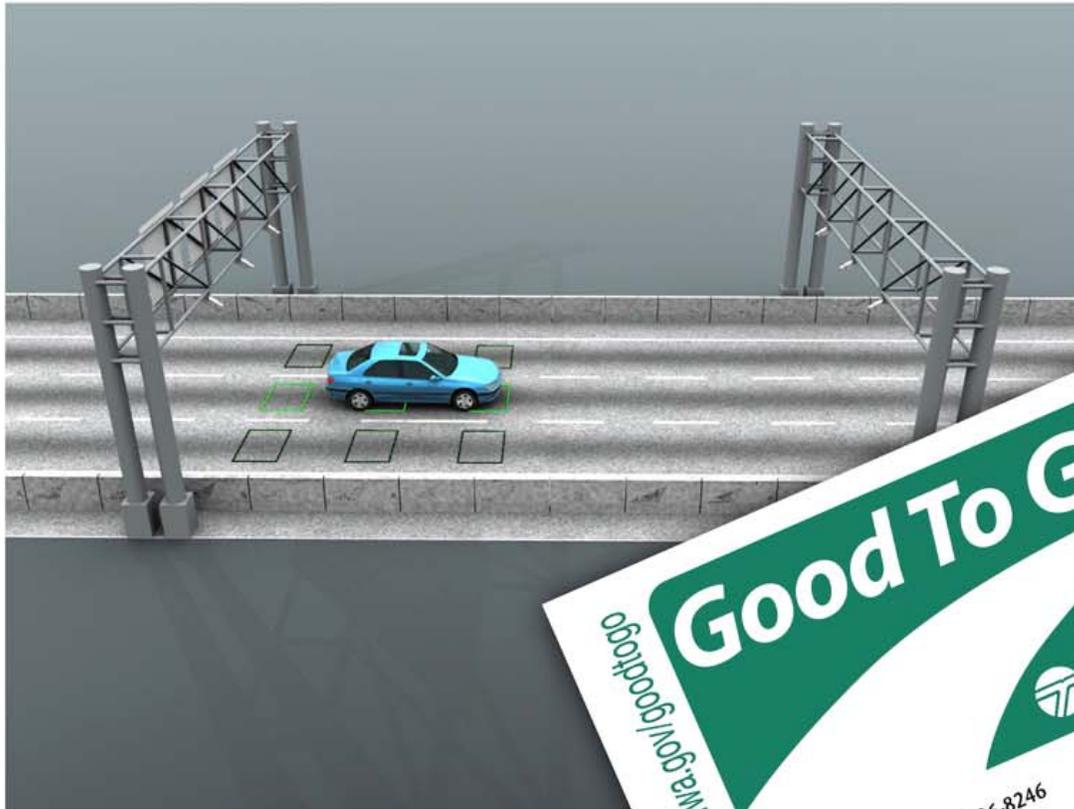




Washington State  
Transportation Commission

# ***Good To Go!*** **Washington's non-stop electronic toll collection system.**

- **Interoperability will allow drivers to use any toll facility in the State using the same transponder.**



# Tolling around North America

**Not every tolling application has been a success,  
but there have been many—we've looked at the  
good and the bad, and learned from them all.  
Here are a few examples.**

## **I-15—San Diego, California**

In San Diego, the existing eight-mile reversible carpool lane in the median of I-15 was opened up to single occupant vehicles willing to pay a toll in 1997. Carpoolers, motorcycles and transit riders continue to use these HOV lanes for free. The price changes dynamically to ensure that the express lane stays congestion-free, and some of the revenue is used to fund improved transit service in the corridor.

## **MnPASS—Minneapolis, Minnesota**

Since May 2005, Minneapolis drivers along I-394 have had a fast, reliable trip from the western suburbs into downtown Minneapolis by using an 11-mile conversion of an HOV lane to a HOT lane known as the MnPASS 394 Express Lanes.

## **91 Express Lanes—Orange County, California**

The 91 Express Lanes is a four-lane, 10-mile toll road built in the median of California's Riverside Freeway. The prices vary by time of day and day of week based on historical patterns, aimed at keeping the lanes free-flowing.

## **407 ETR—Toronto, Canada**

The 407 Express Toll Route (ETR) in Toronto, Canada, is the world's first all-electronic, open access toll highway. It is a 67-mile facility that allows traffic to bypass Highway 401, the main highway through Toronto.



States, provinces and commonwealths highlighted in yellow have toll facilities. (Does not include ferries.)



# Policy

## Recommendation #1

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:

<b>Short Term</b> (within 10 years)	<ul style="list-style-type: none"><li>• Accelerate implementation of high-cost/high-need projects such as SR 520, Columbia River Crossing at Vancouver, and Snoqualmie Pass.</li><li>• Use price differentials as appropriate to make most effective use of the system.</li><li>• Convert HOV lanes to HOV/tolled express lanes to optimize performance and maintain free-flowing service for transit, vanpools and carpools.</li></ul>
<b>Medium Term</b> (within 20 years)	<p>Consider potential for building additional capacity as tolled express lanes through more extensive study of long-term costs and benefits.</p> <p>Consider broader use of tolling to optimize system performance.</p>
<b>Long Term</b> (beyond 20 years)	<p>Consider more extensive use of tolls as the ability to build more capacity is constrained, traditional revenue sources decline, and technology advances.</p>



Washington State  
Transportation Commission

# **Policy Recommendation #2**

**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.
- Not have significant adverse impacts through diversion of traffic to other routes.



Washington State  
Transportation Commission

# **Policy Recommendation #3**

Toll revenue should be used only to improve, maintain or operate the transportation system.

# **Policy Recommendation #4**

Toll rates should be set to optimize system performance, recognizing necessary tradeoffs to generate revenue.



Washington State  
Transportation Commission

# **Policy Recommendation #5**

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.



# **Policy Recommendation #6**

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 multi-state entities that may propose toll facilities to the Authority.



Washington State  
Transportation Commission

# **Policy Recommendation #7**

The Washington State Department of Transportation should be responsible for planning, development, operations and administration of toll projects and toll operations within the State.



Washington State  
Transportation Commission

# **Policy Recommendation #8**

Toll systems in the State of Washington should be simple, unified, and interoperable, and avoid attended tollbooths wherever possible.

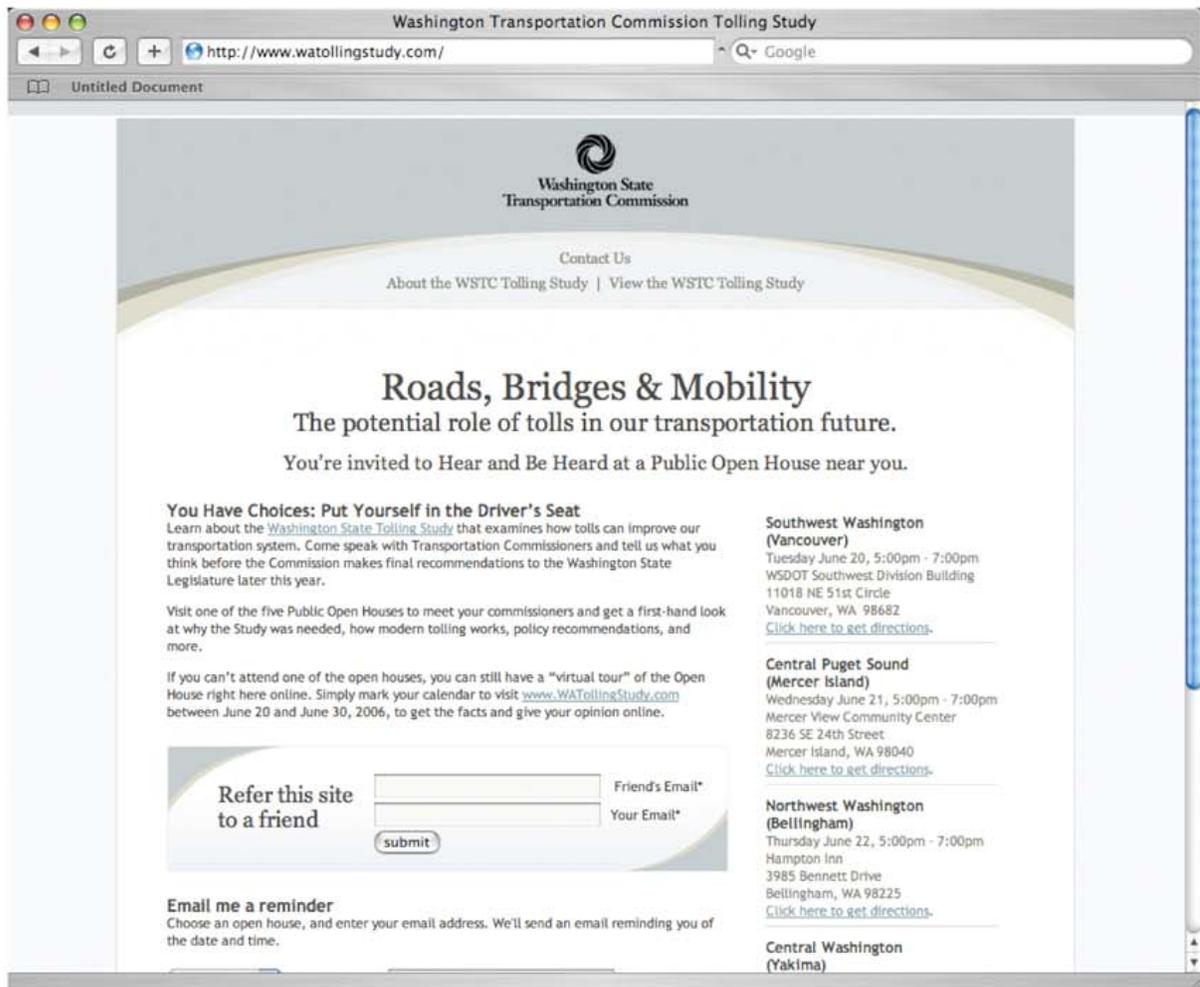
# **Policy Recommendation #9**

The setting of transportation priorities in the state should not be influenced by the potential availability of toll revenues.

# Be Heard Here!

**Now that you have learned about  
the results of the tolling study,  
tell us what you think.**

**Please fill out our survey.**



The screenshot shows a web browser window with the URL <http://www.watollingstudy.com/>. The page content includes the Washington State Transportation Commission logo, navigation links for "Contact Us" and "About the WSTC Tolling Study | View the WSTC Tolling Study", and a main heading "Roads, Bridges & Mobility" with the subtitle "The potential role of tolls in our transportation future." Below this, it invites users to a public open house. The page is divided into sections: "You Have Choices: Put Yourself in the Driver's Seat" with a paragraph about the study and a link to a virtual tour; "Southwest Washington (Vancouver)" with event details for Tuesday, June 20; "Central Puget Sound (Mercer Island)" with event details for Wednesday, June 21; "Northwest Washington (Bellingham)" with event details for Thursday, June 22; and "Central Washington (Yakima)". At the bottom, there is a "Refer this site to a friend" form with fields for "Friend's Email\*" and "Your Email\*" and a "submit" button, and an "Email me a reminder" section with a text input field and a "submit" button.

**[www.wstc.wa.gov](http://www.wstc.wa.gov)**

# Appendix B

## Verbatim Public Comments

## General Public Comments

I just discovered that a study on an I-90 toll is in the works, and that WSDOT was seeking opinions of residents. I live in Kirkland. Here's my opinion: We just approved a huge increase in the gas tax to improve the roads. This comes on top of a huge increase in gas prices. We've been gouged enough for now; thank you - a toll would be insult on top of injury.

I cannot attend the special meeting on tolling, since I will be out of the country at that time. However, I want to make a short comment: my concerns are that 1) a tolling system will be used which will allow WSDOT (and the federal government) to track the location of vehicles. In this country, we should have the right to travel without our government knowing where we are at all times. If the Feds desire to use your tolling system for such purposes, you will have no grounds to deny the feds access. This issue of privacy and freedom to travel has already been raised several times at bar association meetings I've attended on Transportation issues. 2) will tolling requirements have an adverse impact upon the poor? Will tolls prevent the poor from using the same roads as others? Or, conversely, will tolls allow the wealthy to use the state's roadways (resources) more than those who are less wealthy? If so, this simply isn't fair. 3) will tolls be used as the mechanism to force the viaduct tunnel upon us--to fill the funding gap for the tunnel that Nickels wants so much? The majority of citizens oppose replacing the viaduct with a tunnel; yet, this majority does not seem to be heard by the decision-makers. Will tolling be used as a path around the public will? Thanks!

I strongly DISAGREE with tolling, especially on I-90 Snoqualmie pass. I travel from east to west to support my developmentally disabled daughter (doctor visits, activities, home visits) and think that it would amount to punishment to the disabled to make me pay even more in toll than gas is already costing me. Also, many commuters who can't afford to live in the high housing areas of King county would be forced to fork over more money to work where they can't afford to live. And not to mention the costs of goods being inflated by the toll to truckers. And also the cost of services being inflated by the toll on business owners traveling to get supplies or perform services. Where does all the money go that is already being raised for road construction? Who is monitoring the quality of the work being performed? There are many people and businesses that benefit from travelers going back and forth; why don't those people have to pay their share as well as the actual travelers? Tolls are just another tax, and I think the public should be able to decide via a vote.

Putting toll booths on public highways and bridges is nothing more than to steal more money from hard working Americans trying to make a living. I have lived in Washington all my life and the one thing I have noticed more than anything else is how greedy the government is. You try everything you can to take from the hard working people in the state. If I or anyone else in the state tried doing what you do we would be in prison for the rest of our lives for extortion. But sense you liberal California loving people want to take our money from us so we can not live the American lifestyle but a lifestyle that you wish to force us to. To control every part of our life and if there is something that is not taxed you find away to tax it. If it happens to be a golden horse say like the cigarettes you will tax it until no-one can afford something that is legal. Now you wish to put toll booths up on something that the tax payers in this state have paid for many times over to tell us that it will be used for repairs. Has the concept of living within your means have any meaning to the Washington government or is the mentality of the state employees is that the people will pay for it. They won't mind paying a few cents more a day to use the bridge or part of a road that has already been paid for many times over and over. If I remember right the toll booths on 167 were taken off in the late 60's or early 70's because the bridge had been paid for and you tried once before to put the toll booths back on

to be told that you could not. What happened sense then. Oh wait we have a liberal government now and they think they can do what ever the hell they want to. Well I will tell you this, the people of this great state are fed up with the way you do business and find ways to tax the great people of this state. We work hard for our money and it's about time you stayed out of our pockets and thought about the ones who pay your salaries. This has to come to an end and if you don't then the people of this state will. It is time someone from the private sector looked at the books and budget of this great state to find out where all the stolen money has gone. We see a lot of money taken out of our pockets and getting nothing in return except things that were voted down but when has our votes counted. Has the concept of taxation without representation. You need to think about it. Yes you will say that those who do not wish to pay the toll do not need to use them. But knowing this state you will put them where people need the road or bridge to go to and from work and then tell us that it is their decision to use it. That is BULL and you know it. When will you leave the people of this state alone so we can live our lives with out worrying how much you are going to steal from us or how we are going to pay the fees, tolls and new taxes that you put on us?

Your grand idea of placing a TOLL on the use of I-90 Snoqualmie Pass is beyond unconscionable for many reasons. Having been born in this state and paid gas tax for over 40 years, I find the idea totally unacceptable. Go place it on a new 520 bridge, but the "life blood" of this state is Snoqualmie Pass....maybe the Commission and Doug McDonald might try and get some economy of scale into what the hell you people are doing!

Dear WSTC. I like your ideas about I 90 but I don't think making it a toll road would be good. We here in Washington have the highest fuel tax in the state for our roads and we pay taxes thru our property taxes. WE PAY ENOUGH get the job done with the money you take from us and no more. Thank you

I was out of town and unable to attend the recent informational meeting in Vancouver. If the Columbian report was correct, one option is to allow SOV's to use HOV lanes by paying a "toll". If this is true, I wish to oppose such a proposal. We need to change our paradigm of one-car-one-occupant and this would just perpetuate that attitude. This attitude has occurred over many decades and will not change overnight. To me, this is "bribe WSDOT" and you can cheat and use the HOV lane. I was disappointed when the HOV lane in Vancouver was removed from I-5. On your web site, the short term goal of "conversion to HOV/tolled express" appears to be that related goal. If there is additional information on this issue, I would appreciate knowing how to access it. Thank you

I do NOT agree with tolling on Snoqualmie pass I 90 . You have continuously stated that more State gas Tax will fix most problems , but now , after hitting us with one of the Nations highest State gas tax , you always want more . We need a lot less useless studies and more actual construction for our \$\$ . D.O.T has way too many management people in offices that need to be either be working in the field or fired . The reopening of the Stampede RR line has done nothing to remove the thousands of trucks off I 90 either .Not happy !

I think the toll is a great idea! I would not be opposed to increasing it slightly if we could pay it off faster that way.

Regarding Tolls: I attended an open house regarding tolls, on Mercer Island a couple of weeks ago. This is the first opportunity that I have had to respond and these are my feelings. 1. We would not be in this predicament if it had not be for Tim Eyman and his outrageous duping of the people to get the car tabs lowered. We needed the money and the state will have to get it to maintain the roads, one way or another. The car tab way, those who could afford it, paid for it. Tolls are very hard on lower income travelers. 2.

Living on Mercer Island and working as a clinic nurse at a Medical Center in Seattle, forces me to take I-90 west every morning and east every evening. Without the HOV lanes for us and high occupant users of the bridge, the congestion would be HUGE! I have experienced this when the HOV lanes were closed for problems. The HOV lanes need to stay!( I have lived on the island since the mid 1980s and suffered the dirt, noise, confusion, loss windshields and of a few of our businesses for this bridge.) 3. I would take the bus if there were a better afternoon/evening schedule for the 205 metro bus. This is a great bus and delivers me a block from my office door and 4 blocks from my home. 4. People like myself, who are unable to walk long distances, due to medical issues, but work full time, need reasonable options for getting to work in a safe, timely and reasonably priced fashion. If there were tolls on I-90, it would be economically burdensome. Thank-you for considering my opinions.

I believe that tolls are an inappropriate way to generate funding. This practice restricts the freedom of movement which is what America is all about. This favors people with money and discriminates against those who do not. It slows traffic flow and creates unlimited fees against the people. We voted for the gas tax, tolls are not an option. I suggest taking away the federal tax subsidies from the oil companies and paying for the roads that way. They are the biggest recipients of our road systems, yet pay nothing. They reap tremendous profit and manipulate prices without helping. The toll prices suggested are way too high. At least make it reasonable, everyone does not have the money you are suggesting, small businesses will be crippled and other businesses will raise prices to compensate, leading to inflation. Toll is not the answer, please find other solutions. I along with family and friends will vote or support any opposition to tolls.

We had several criteria when we went looking for a place to retire eight years ago. One of my highest was not to live where essential roads were toll roads, which instantly excluded the Northeast. When we visited the Northeast one year that really annoyed me, so I am about as toll opposed as they come. The only toll road I would endorse is one limited to and required for use by commercial traffic, such as the ports. I wonder where you could even afford to put toll booths. You would practically have to use photo vehicle ID to automatically ticket each violator, which would be impractical outside of rush hour only tolls. Any automatic electronic tolls are also subject to hacking for free travel. You would need more officers for enforcement as well, since currently I have yet to see a single car pulled over and ticketed for having polarized covers over the license plate to avoid photo radar tickets.

I didn't object to the tolls for ferry travel simply because everyone knows the exceptional costs of operating ferries, and people who need them chose to live where they knew they would have to use them. You aren't paying for a ferry per se but for the cost of operations including huge amounts of fuel annually. Likewise you don't have to pay a toll to get to the Olympic Peninsula, but you can choose to. What you are proposing is to take existing toll free roads and to make them toll roads. I would sooner see them torn down entirely.

Because we live near the river it is also not unusual for us to cross the river on I-205 to get the closest of any kind of store. We thoroughly avoid the bridges (or for that matter Portland) proximate to rush hour. Charging us a toll to support traffic by daily commuters who should be seeking homes close to their jobs doesn't sit well with me. Practically speaking it means that each trip to Portland would have to be judged on its economic merits and when ultimately heading East on I-84 we would instead likely take the scenic route on the Washington side to the Bridge of the Gods to cross.

A new bridge ultimately doesn't solve any problems either. I have tried in the past to come back from a trip south of Portland to Vancouver during rush hour. I have also traveled much of the United States and the Western U. S. especially. With the exception of I-205, which only has a bottleneck when it narrows to two lanes, the I-5 design is fundamentally flawed, especially compared to what a Colorado Highway

engineer would design. There is actually only one true, totally continuous lane you can stay in all the way through the city. The minimum in the rest of the West I have seen is two true, totally continuous lanes. A bridge won't solve Portland's design problems. It never narrows down below two in any place but they wrong lanes merge among other problems. The only efficient way to get around Portland is by light rail and bus. I would support a tax increase to connect Portland's light rail to a park and ride on our Vancouver side of the river, but not necessarily within Vancouver itself. That could easily be done without nearly the expense of a bigger bridge, etc.

Tolls would adversely impact the willingness of Oregon residents to shop at stores in Vancouver forcing more of our residents to see employment in Portland and adding to toll bridge traffic or depressing home prices and property taxes. They don't have to pay sales tax here with an Oregon ID. That was done to make our retail outlets more competitive. If you insert a toll our retail becomes less attractive to Oregonians. It is even possible that tolls could cause a net loss in local tax revenue.

When you talk about the high cost of the bridge replacement I don't even blink an eye. Look at what Colorado spent to build the Eisenhower Tunnels. It took the lion's share of the state's gas tax revenue for the years of construction, even with high federal match. The Eisenhower Tunnels are still free roads access even though there is a free road over Loveland Pass that is only 9 miles longer. What the state achieved was an increase in safety and reduction in air pollution. The same could be said of any project on I-5. Bumper to bumper traffic puts a lot of air pollution out, and a bigger bridge will just wind up making rush hour congestion even worse in Portland, further slowing traffic.

I am a tax paying citizen who resides in the State of Washington, but works in the State of Oregon. I am already taxed by Oregon without representation and I feel that this is just another way that my hard earned money is mis-managed by government entities. Money that is taken away from myself and my family to fix problems that the government should have been on top of all along. Did the Dept of Transportation just wake up one morning and realize that there were transportation issues? Just like when they had the big idea to impose the 15 southbound HOV lane to Portland. It actually made the commute worse! Can you imagine the traffic nightmares that will be caused by a toll bridge? Why don't we apply the Oregon State income taxes paid by Washitonians to improve the roads and bridges?

if your going to put a toll in place dont do what indiana did keep the money in washington charge the 4 wheelers the same as the trucks if not ill find a way around your toll to not have to pay a toll

I reviewed the information provided through a link in an e-mail I received concerning tolling. I certainly don't know a lot about the details of the whole tolling concept but from the information provided, it seems like something that would be helpful from a revenue standpoint and from a transportation performance perspective. I do worry that other roadways/routes might be impacted though, from people trying to avoid the tolls, even though the study information said that would not happen.

I'm not sure if tolls would encourage more people to take mass transit, but that is what I would like to see. Anything to help get more people out of individual cars would be a great idea! What will happen regarding tolls and buses (or other mass transit)? Will fares go up to cover the cost of tolls - say for example if tolls were implemented on I-90 or 520 into Seattle and back to the eastside?

I feel very strongly that the use of this state's gas tax by a variety of unrelated services as if it is for "General Fund" usage is the major source of a shortcoming of funds for highway construction and maintenance in this state. Mass transit, public transit, and social programs can no longer be aloud to drain

funds from this revenue source. Tolling is defined as a "user Tax". If cities and counties want mass transit or public transit, a user tax should be submitted to the public to support such concerns. As far as social programs utilizing these funds that is totally in error. If it is necessary to support these essential social programs at a higher level, then submit to the public for an increase in the Sales Tax. There are very few people I have spoken to who commute or use the highways of this state daily, who do not support the necessary Gas Tax to improve and maintain the highways, but they do not support the use of the funds for the areas I have mentioned. If your purpose in implementing this state tolling program is to hear from the people, you are going to hear in a very loud and clear manner in the form of an initiative to ban all tolls and create a dedicated fund from gas tax.

Many of us have retired in Eastern Washington because King County and Olympia have never seen a tax they didn't love. We still just paid 9.5 cents a gallon in new taxes and you want me to pay \$8 to go see my grandkids and kids who live on the west side. If you charge a toll, you will drop the Cascade curtain down solid. With all of the money over the last several years paid you have never fixed a simple paving job over the big cracks in I-90 near Price Creek. Now you will spend a fortune on bridges to move I-90 away from the rocks. All goods and workers flowing from Eastern Washington - Ag products, thousands who commute, painters, gardeners, construction crews who can't afford to live in Seattle will go up in cost. I and my family will fight the I-90 toll through our Representatives and petitions. We vote. Dick Ford may think he is above the wrath of the taxpayer but we will find a way to end the toll.

I HATE toll roads! Part of the reason I don't live back East is because I hate them. And now you're talking about them here? Why not raise the car registration fee? I don't mind paying the money for new roads, but having to find change or get some sort of card just to drive on roads -- and INTERSTATES!!! -- is too much of an inconvenience and will annoy me every single time I take a trip versus once a year. I have happily voted yes for every road tax put before the voters. Do this, however, and I will start voting no on every single one in protest. Snoqualmie Pass is used by WSU, EWU and CWU students not to mention several others. I haven't been in college for years, but requiring college students to pay \$4 just to drive to college seems a bit extreme. Also, it would be nice to provide an actual address in case people want to provide real written comments on this instead of just an e-mail. Nice public access.

This is the most horrible idea I could imagine. I moved to eastern Washington because I could drive easily on I-90 without traffic or your proposed pay toll. As if our gas taxes and licenses fees are not enough, lets punish the people who live in eastern WA more. Our roads are horrible over on the east side of the state as it is, most all of the road (tax)money is used on the Westside any ways, now make us pay to drive on the only viable route to Seattle. This is unfair and I'm sure all the " Westside Weekend Warriors" who migrate over I-90 don't mind the toll at all but poor folk from the eastside will really be punished.

Get real, you cannot toll the eastsiders for working in downtown Seattle (north or south). That leaves no penalty for the west side. Toll the Alaskan Via Duct, I for one am not going let this happen.

why is there not a place near tacoma to have a talk about tolls? scared to many pissed off folks from gig harbor will come chew you ass? and why not on a weekend when more folks could show up? its a scam not to make it easier for us to show up.

Tolling is an extremely inefficient way to collect taxes because of the incremental infrastructure required to collect the new tax (e.g., toll booths, electronic readers, user education, employees, pensions, health benefits, enforcement, etc.). These incremental costs reduce the overall effectiveness of the tax because the government has less money to spend on the "good" it is seeking to accomplish with the tax money

raised. Why can't Washington use existing tax-collection infrastructure such as property taxes to raise the money it needs? It seems like a much more efficient way to collect taxes than to create a brand new toll-collection infrastructure (not to mention the increase in traffic congestion that collecting tolls inevitably will cause). (I would say increase income taxes, but that would also require incremental tax-collecting infrastructure. Our sales taxes are already among the highest in the nation, so I wouldn't raise those. The same is true with our gas prices relative to other states – quite high. Plus, our property values have increased in value at a double digit rate for the last several years, and all the infrastructure is already in place to collect property taxes, so it seems like property taxes is the most efficient way to increase taxes.) Also, your study seems to ignore all the bad case studies of tolls – like Chicago. You should also look at the bad toll projects – of which there are many.

I've never understood why Washington has devotes 33%+ of its transportation infrastructure to the 1% of the population who uses HOV lanes. It seems like the users vote loud and clear with their actions by severely underutilizing these transportation options. HOV lanes are so bad for the environment and society. By making 99% of the population sit in traffic twice as long while 1% of the population uses the HOV lanes (and sometimes it's a big truck that gets 10 mpg with 2 people in it verses a small car that gets 30 mpg with 1 person in it --which scenario is better for the environment and yet which scenario is the government encouraging?), you're doing far more damage to the environment than if you just let everyone use all the lanes. I view this latest tolling initiative as another way to "convince" people to modify behavior, and these types of initiatives have a very high risk of failure. For example, if a business operated like this (instead of doing things that their customers wanted), businesses would go out of business. Washington should instead be trying to make the most with what it has to work with that will result in the greatest amount of "good" for the greatest number of citizens – namely use existing property tax collection infrastructure to raise required funding for efficiency, and opening HOV lanes to all users to maximize throughput which will dramatically improve the environment by reducing the amount of time the overwhelming majority of users have their engines running. Right now the HOV solution is clearly broken. I'm not sure if it ever worked in terms of the cost per user metric, but any trip during the extremely long rush hours in the Puget Sound today proves that the current system is broken. I don't want to see the government add incremental tax-collection infrastructure when other forms of tax collection options exist today. And I don't want to see the government try to add additional complexity to the broken HOV process to try to get more people to use that extremely expensive and underutilized transportation option which does extremely bad things for the environment by making the majority of the population wait in traffic twice as long.

## Responses to Survey Distributed at Open Houses, Roundtables, and the Virtual Open House

### Question 1.) Washington should use tolling to encourage effective use of the transportation system.

There is a fundamental difference between funding a specific new (e.g. bridge) project partially with tolls (okay) and providing the well-to-do with private express, HOT lanes (very not okay) on existing roads.

Who will stand up and make a commitment that tolls will solve real problems?

I think an additional benefit of tolls may be to encourage more use of public transportation. I will support tolls to help fund public transit, as well, after the other costs are met. But that may not be politically feasible.

60K people work in Oregon & pay 9% taxes-that and tolls is unfair.

To use toll initially to pay for a project at a higher rate to pay for project and then reduce it and make the cost less dramatic to pay for maintenance of the project. I think a lot more people would accept it.

Tolling is just a bad idea. Learn to prioritize your spending!

Not supportive of tolling as a management tool.

All transportation-Not roads only.

I can only see it in certain areas

Gas tax was supposed to eliminate toll booths in the 70's

Gas tax increases won't keep up with needs.

Need a hierarchy of funding, including tolling, local option revenues and a state (national). VMT-based revenue generation to replace (over time) the gas tax.

Tolling should be used cautiously to avoid penalizing low income people. Tolling revenue should not be used to fund other forms of transportation such as transit.

Extreme care should be exercised in siting-Commercial routes, low volume use and consideration of adding to the congestion problem should be major consideration

### Question 2.) Washington should use tolling to provide a supplementary source of transportation funding.

Tolls system wide should eventually be the major source of funds.

I would be more supportive if money in gas taxes weren't subsidizing a waterfront park in downtown Seattle (a.k.a. the viaduct tunnel).

Tolling should not be used to fund general transportation needs.

In a limited amount.

Ferries are the greatest on going and highest cost which the only one on this side of the Cascades is Ferry County

**Question 3.) 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.**

Not when there are no alternative transit/HOT systems.

Provided that the project being funded offers additional capacity to the payer. (e.g., we must have additional GP Cap)

Yes!

Prove your point or make it clear to public why.

Should be less criticize

**Question 4.) Tolling should be used when it can be demonstrated to optimize system performance, such as with an HOV/Tolled Express Lane.**

Conversion of HOV to HOT lanes is a good idea to increase use. But keep free for carpools.

Build toll roads-not just HOV lanes.

Sounds like a good idea, show me more.

This is tough to control

**Question 5.) Tolling should be fairly and equitably applied in the context of the statewide transportation system.**

Primarily in urban centers where alternative transit/HOV programs are available

Key word: Must eventually be systemwide, also avoid piece meal application. I90 & 520 must both be tolled.

Should go into reserve fund for new capacity for toll payer only.

Sure, whatever that means?

Sounds good. Depends on how you implement it. What will tolls on 520 do to I90 traffic-very important.

Allow for regional idiosyncrasies

Vehicles which are the biggest and heaviest or cause the most damage & wear on the roads should pay the highest tolls. Motorcycles should pay the least with vehicle appropriately for size and weight.

Can we afford it, and what's the benefits.

Should be used for specific locations.

**6.) Tolling should not have significant adverse impacts through diversion of traffic to other routes.**  
But it is inevitable that it will (e.g. Ferry vs. TAC Narrows Bridge)

User fees is a good idea.

No "squeeze the balloon" effect.

That's what tolling does.

Other routes may not be constructed to handle the traffic.

Free alternative routes should be available (reasonable alternatives

**Question 7.) Toll revenue should be used only to improve, maintain or operate the transportation system.**

Define the transportation system to include transit/HOV

This is a bit confusing-Is the proposal for toll revenues to be used for the entire transportation system or are toll revenues to remain tied to maintain or operate the system the toll is tied to.

General fun NOT-Obviously

Transportation System broadly interpreted to mean any made thing that rolls on the ground or floats?

Construct too!

Use only for the specific tolled project

Some diversion is a necessary result of tolling; short trips shouldn't be these any way. Including transit and parallel routes and enforcement.

Time!

Including public transit

Improvements only.

would create to many hands reaching for the revenue.

What does system mean?

**Question 8.) Toll rates should be set to optimize system performance, recognizing necessary tradeoffs to generate revenue.**

This response has to do with HOT lanes only-Not Bridge tolls

Goal should be to minimize required amounts for new lanes. Optimize use of existing system and promote transit, car-pooling and reduce SUV travel.

Is really different for HOT vs. new capacity roadways.

Concerned about over flow to other streets.

This makes sense and should be tried.

Depends on the area being tolled.

Plan for the future, far in the future.

The public needs to clearly understand what time period the state is proposing along with dollar amount total as time goes by. Put up readers board or have a website showing the cost including maintenance.

This is the point I find hardest to agree with. Would much rather see higher gas taxes.

You will always want more. There is never enough. There are no bottoms to your pockets.

Needs to be affordable. Wages have not kept up with inflation.

This implies too much latitude. Rates must be predictable.

**Question 9.) 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.**

Manage the system particularly at the peak hours

Toll collection should be used on that particular highway only-not on other highways or other things.

How is the "transportation system" defined? Roadway/highways?

When the bonds are paid the toll goes off. Other funding should be authorized separately and not be a "pot of gold" for the "transportation-contractor complex".

Only if broadly applied to many parts of overall system.

Tolls should be removed when the project is paid off. WA state should then take over maintenance.

Tolls seem to be standard & accepted in other parts of the country-it's time for WA to get with it. I would also support tolls on any new roads, not just bridges.

Sounds ok-But make sure we stick to #7 above.

Tolling of public transportation systems that have already been paid for by taxes, tolls, etc. should not be subsidized to tolls again to compensate for the inefficiency of our transportation system to get things done in a timely manner.

This is good in principle but will make it politically difficult.

Tolls should continue on all projects with out consideration of "paid off" status.

Tolling in Vancouver to fund projects elsewhere constitutes a tax!

The public needs to clearly understand what time period the state is proposing along with dollar amount total as time goes by. Put up readers board or have a website showing the cost including maintenance.

This is the point I find hardest to agree with. Would much rather see higher gas taxes.

The RCW should be updated to include tunnels as well as bridges and interstates and after a project is paid for, a small toll should be kept to pay for maintenance, insurance, and repairs.  
And to pay off the border prior to road closures requiring repair.

Additional capacity only

Gas Tax to increase should be strongly considered.

Continuing the tolling on an indefinite basis should be avoided.

**Question 10.) Following broad statutory direction, the Washington State WSTC, 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 continuous coordination with state-authorized regional or multi-state entities that may propose toll facilities to the Authority.**

A private sponsorship of state toll roads is being done elsewhere in the US, Canada and the rest of the world. The WSOOT Commission needs to represent the major metro regions in order to assume this role.

The state exercises too much power over regional authorities. Typically, screwing Seattle in favor of influential "burbs".

Must avoid the Eyman syndrome of citizens voting on any of everything

Don't put too many road blocks to allowing local/regional tolling

Roads, bridges, expressways, ferries are all part of Washington transportation structure and cost real money to build and maintain. Tolls are an inevitable and realistic way to pay for them. We need to pay for the costs of living.

WSTC needs to assume full responsibility that a project once completed, will automatically improve that roadways performance.

Local inspection toll amounts.

An organization should be set up (under the commission) to manage the tolling-possibly WASPOT personnel.

I would sooner see a better taxing system in WA state but the public needs to be encouraged to become better educated on what is happening first. They need to learn what works and what doesn't.

You want the tax payer to pay huge amounts to help primarily 5 hours of rush traffic a day. We don't need that kind of a system. You want a Taj Mahal when a 5 bedroom house is enough?

**Question 11.) The Washington State Department of Transportation should be responsible for planning, development, operations and administration for toll projects and toll operations within the state.**

May have to consider the need to share this responsibility with an RTID or other future Reg. Transp. Authority

How would the two work together?

There is no less competent government agency then WSDOS. But certainly who else would be responsible for administering state roads.

Allow partnerships with counties etc.

With local and regional output and with contracting to private sector.

This may be obvious, but partnership with local agencies in which a project may occur, is a critical need.

**Question 12.) Toll systems in the State of Washington should be simple unified, and interoperable, and avoid attended tollbooths wherever possible.**

Build networks not single roads

Mother and apple pie-duh! But no electronic -toll only locs.

Good selling point

Your plan not to use toll booths on SR 520 is a radical proposal that will never work.

**Question 13.) Please use this window to tell us what advice you would give us about tolling in Washington State.**

**NO TOLLS! USE THE GAS TAX!**

It's the most equitable tax there is - "Use Tax". These questions are some of the most "skewed" survey questions I've ever seen! Statistically - they won't provide a "fair, representative sample"!!!!

Tolls are fine as a funding source. HOP lane concept is just wrong - paying to get selective access to public resources is not right.

Tolling outside of bridges amounts to nothing but being taxed double for the same road system. If you are going to collect tolls then do not collect road taxes.

All of these surveys are VERY biased towards tolls, as if it is a foregone conclusion. The gas tax should be used for multi purpose roads only. The general fund can subsidize public transportation on a merit basis. Tolls restrict commerce.

If the DOT would use our tax dollars wisely, tolling would not be necessary

Tolling is an inefficient way to collect taxes because of the incremental infrastructure required to collect the tax (e.g., toll booths, readers, user education, employees, pensions, health benefits, enforcement, etc.). Use property taxes instead.

Tolling is a bad idea. Current tax levels already exceed \$ necessary for transportation if it is managed properly without pork and without consultants and excessive studies. Delete excess management staff and fund transportation.

I am vehemently opposed to tolling!!

I'm not sure I like the fact that you can change the toll rates whenever you want, tolls should be used to maintain that road and not other projects throughout the state. Whatever road is being worked on should have their own tolls

the fact that you think you shouldn't put tolls on the Alaskan way viaduct is dumb. why should the people who use it not pay for it? i am being forced to pay for the narrows bridge which we (the voters) did not want. how bullshit is that? get a clue.

Snoqualmie Pass should not be considered a tolling point. Many people use the pass many times a year and it would be an unfair toll on a few people to pay for larger projects. The tolls should be applied to the specific major highway it will improve.

Tolling in Washington State is absolutely unacceptable. I in no way endorse any statewide or region wide tolling places, since they only serve to divert traffic to areas where there are no tolls. The poorer among us shouldn't be penalized.

You people are already awash in money with buckets more already in the pipeline. Stop throwing it away and make do with the current billions. I just know you can do it. No tolls. No more taxes.

DOT gerrymandered 2nd Tacoma Narrows Bridge ballot in violation of State Law. 83% of the Gig Harbor/Peninsula residents voted AGAINST 2nd bridge & tolls, but DOT forced 1 BILLION+ in debt on us in violation of State Law. NO TOLLS! DOT lies!

WA must quit building simply roads and get its mass transportation act together. Communities must be planned in conjunction to optimize mass transport use. Alaskan way should be tolled as like everyone else.

Tolls should be primarily implemented to encourage HOV commuting and manage congestion, particularly on the 520 bridge. Vehicles with 2+ people should always be free at all tolls. When there is minimal congestion, tolls should be eliminated.

Tolling is an added burden to already overtaxed consumers. In SW WA we have already paid for the Interstate Bridge with tolls. We shouldn't have to pay a second time. Tolls will only add to the congestion.

Lose the toll notion. The public has long memories of past tolls and want no part of it. Use existing budgets within the state to prioritize and spend responsibly

Tolls are simply not necessary in this state which collects one of the highest gas taxes in the nation. Only use gas taxes for highway construction and improvement

There should be NO TOLLS. Toll systems are not proven in any way shape or form to alleviate traffic congestion. This is nothing more than a money grab to feed our greedy, broken state government.

Tolling is just a baby step toward a more comprehensive utility-like approach to transportation financing. It's a baby step that has to be taken. As technology continues to evolve, the primitive methods (gas tax) we use today will have to be phased out.

Do not create tolls on roads which are already paid for! Our taxes are supposed to go to keep our road systems safe and operable. Only new roads should have tolls and the tolls should disappear when the road is paid for.

All of WA benefits from our transportation system even if we do not drive a given road personally. Our goods and services travel them and as such the cost should be shared by all in the state.

Do not permit the wealthy to be able to "Buy" privileges - why should a solo driver be able to use the carpool lane because they can afford to pay more? This is a democracy and we should all be equal! How about light rail -give commuters a real alternative

On highways, tolls should be uniformly applied to all traffic. Wash state's policies on HOV lanes are largely inappropriate (compared to East Coast states).

Why toll I-90 Snoqualmie pass when there is already a disconnect between Eastern and Western Washington. I understand the tolling of the via duct since most people don't want it and don't want to pay for it unless they use it directly and daily

I HATE tolls and DO NOT want to see them on any roads, let alone major interstates like I-90. Enact this and I will vote down every transportation tax increase put before the voters in protest (something I've always supported in the past).

WA has the second highest gas tax in the nation, and in the top 5 total taxation rates in the nation. And our state Government "needs" yet more? If the State we to stop things like funding union personnel during contact talks they could pay for roads!!!

Reduced tolls for mass transit/carpooling should be included. Tolls should be equitably distributed, esp. when a high ticket item is required. Most will accept paying a toll if other large projects have a toll too (ie. Narrow bridge vs 520 bridge)

If we build the Alaskan way tunnel it to should have a toll, If people want to drive around and sit in traffic so be it. We could have automatic collectors as they have in other states that collect change maybe 1.00 dollar would work

When tolls were placed on the Narrows Bridge, we were promised that other projects would receive the same treatment. Now the 520 Bridge and the Viaduct may be reconstructed without tolls. When did the State Capital move from Olympia to King County?

I hope the Good to Go system will work on ferry routes as well. The toll booth system is really antiquated. If tolling can help reduce congestion, that is a much more reasonable approach than attempting to build more lanes/highways.

hope the Good to Go system will work on ferry routes as well. The toll booth system is really antiquated. If tolling can help reduce congestion, that is a much more reasonable approach than attempting to build more lanes/highways.

any tolls should be voted on by the users. voting should be done by the users that most use the venue - not as was done for the Tacoma Narrows Bridge where people that will not use the bridge swayed the final outcome.

I carpool from GH to Seattle 5 days a week. I disagree with private business partnering with DOT. I disagree with allowing someone to buy their way into the carpool lane. I disagree with allowing citizens to vote on tolls for projects that won't p ?????????

Tolling on I-90 east of Snoqualmie Pass will widen the division between east and west at a time when the two sides are already far apart. The frequency of trips to the other side of the mountains will decrease.

I believe tolls should only be used to pay for mega-projects bridge structures that are to be built throughout the state such as Alaska Way viaduct, 520 bridge

I never understood why tolls were removed from the Tacoma Narrows Bridge in the first place. Preventative maintenance is costly and should be paid for by the user. User fees save budget revenue for other services to the people.

Tolls are a bad idea in general. My experience on the East Coast has been that the toll plazas create more traffic than they alleviate as those needing change backup access to debit lanes, causing massive backups. No to tolls.

Good idea, however the introductory material and corresponding survey are disappointing. Both are too blue sky and do not go far enough to explore perspectives (and yes I have one regarding 520).

I have followed this all along with displeasure. I supported the gas tax increase solely to avoid tolls. I will strongly support repeal of the gas tax increase if there is a toll bridge connecting regular vehicle traffic between Portland and Vancouver.

NO tolls!

I feel strongly that tolling should be limit to funding specific new projects. HOV lanes and public transportation should be higher priorities for reducing congestion in our state.

I am adamantly opposed to any tolling. However, if it comes to fruition, then as "easypass" type system should be implemented, with no tollbooths.

Toll the rest of the state like you did us in Gig Harbor to build the Narrows Bridge. If you cannot pay for our project, you shouldn't pay for anything in Seattle or the rest of the state. What is good for us is good for everyone else.

All tolls should be \$1.00 per vehicle when crossing a bridge. Freeways would be at least 25 miles for a \$1.00 AND NO GAS TAX EVER!!! The money collected for a certain bridge can only be applied to that bridge and no other, ever.

My spouse and I both agree that the only fair way to pay for our highway system is through the use of tolls. If I use a highway it's only fair that I pay for that use - and if I don't use it - let somebody else pay for it.

I live in Kitsap County. I feel that if we have to pay tolls here the whole state should have tolls on new roads and bridges. Also keep tolls lower than the ones on the bridge. Some of us can not afford these. Thank You

Tolls need to be in place to cover costs to rebuild major freeway/bridge (ie.520, Al.Way viaduct) so that it will not place an unfair burden on others in the state that may not use the road at all. Tolls should pay for build/repair only, not future needs

Tolls should TAX traffic congestion and single car commuting. Tolls should encourage vehicle energy efficiency and place the cost burden on the user, a targeted "road user" tax. The same applies to pricing on the Ferry System.

NO TOLLS. To much is spent by individual users in highway related taxes and fees now! Trucks do not carry their fair share of the life cycle cost of highways.

Forget tolls. Work on the Federal level to re-route the taxes paid by Washington residents to Oregon to fund a third bridge. We are being ripped off and this is a better use of those tax dollars. At least we are getting something for it.

Many of us have retired in Eastern Washington because King County and Olympia have never seen a tax they didn't love. We still just paid 9.5 cents a gallon in new taxes and you want me to pay \$8 to go see my grandkids and kids who live on the west side.

I believe that tolling should take place on the major highways that are in need of expansion and or repair, ie. I5 in the Seattle area and the 521 Bridge. The burden of the expense should be born by the people who use the facility and not by a state tax.

What deceptive P.R. to gain more revenue by the DOT!! The locations of your few meetings and the wording of the questionnaire shows your need to control and gerrymander the result. Quit trying to dupe the public and stay within your present budget!!

Toll would be like an income tax. Trans. dept would not know when to stop expanding and collecting.

VERY SIMPLE NO TOLLS into OREGON AT ALL. TRAFFIC IS BAD ENOUGH WHEN I TRY TO GET TO WORK AND A TOLL BRIDGE WOULD SIMPLY COMPOUND THE PROBLEM FUTHER.

If you are going to make me pay tolls, I want the 520 project and the viaduct project in Seattle to be toll situations too! After-all those people voted to make me pay tolls on the Narrows bridge. I strongly oppose paying tolls past the original cost.

Tolls should be avoided. When needed, they should exist only until the specific structure to which they are attached is paid for. The idea of a toll on I-90 is abhorrent!  
WA tolls must be approved by a vote of the legal voters of WA!

If you drop the gas tax, all of it, then you can toll the roads. We have one of the largest gas taxes in the Nation and now you want to toll us? When are you going to be financially responsible and realize it is not your money it is ours?

Kitsap and Gig Harbor residents MUST NOT be taxed/tolled for King Co. traffic improvements. Seattle MUST pay for incremental Alaska Way costs beyond simple viaduct replacement.

I do not want to have a toll for a HOV lane or the entire I-5 bridge crossing the Columbia - period. We need a 3rd bridge, not a reconfiguration of what we already have. There also needs to be a light rail or use of existing rail lines

Tolls should only be used when the public, in the county where the toll is proposed, has voted to approve such tolls, including the amount and duration of the toll.

If the State of Washington was run efficiently there would be very little need for tolls. That being said, I agree that tolls should be used to help fund expensive projects and HOV hot spots. With the taxes we pay, we should not have tolls like NJ, NY and Penn.

Highways should be paid for by the users, its that simple. Roads should not be subsidized by those who do their part in reducing traffic by alternative modes. In addition to tolls, alternative modes should receive certain advantages over SOV's.

Those of us who rely on the ferry system (as part of the state highway system)pay a "toll" each time we board the vessel. Why not others who must use bridges, roadways, etc.? Each requires ongoing maintenance which in turn requires funds.Thank you.

No tolls. No new taxes. Your bleeding us to death already.

If there is to be a toll on the Narrows bridge then all new roads and highways - including the Alaska Way improvement and the Cross-Base highway, SR 704 must also have tolls.

Thousands of people cross Snoqualmie Pass every day just to get to work. Putting a toll there would add yet another tax burden on the middle class workers. We are one of the most heavily taxed states in the nation. Stop it!

Why hasn't the state helped with the Narrows Bridge in Tacoma/Gig Harbor the same way they're planning for Seattle area bridges, roadways?

HOV/express toll lanes are a bad idea. You're clearly cutting out the occasional user. I see no provisions for those not formally in car pools but travel with more than one occupant. Clearly another ploy for mass transit use

Expedite the process-Need the pilot project results to move on in the P.S. region. If tolls are placed on SR520 they must be pieced.

Avoid toll booths, use electronic tolling as much as possible.

Strongly recommend a rapid (10 yrs or less) move to tolling of the entire regional freeway system-for purposes of congestion-easing & reduce adverse environmental impacts.

Outreach and education of tolls prior to implementation is key. Outreach to business frequently using the tolled corridor should be prioritized. Most were in low income.

Not sure how this openhouse advanced the broad understanding or acceptance of tolling.

Tolls should be utilized to help fund replacement spans & freeway expansion on I-5 across the Columbia River at Vancouver, & that the two states should partner on span replacement & toll collections & freeway expansion.

Be bold, people get it.

As well as bridges, toll express ways at judicial points

Each toll project needs extensive cost-benefit study. Who will commit that after a project is built that there will be less consistency?

As I believe the financial productivity of the gas tax is going to decay very rapidly the toll authority should develop a plan for supplementing tolling that can be put into effect quickly.

You need a good PR campaign (such as these open houses) and lobbying of the gov. & legislature, as well as plans in place to push back against the inevitable "anti" movement.

Do it!

Hot lanes are great as long as they don't fill up. Also, tolling on bridges makes sense.

Keep up the good work! Keep the traffic moving!

You do not have Texas on your State list. Your survey, web site, and two videos are great (minus leaving of Texas). I work for TxDOT in a supportive roll s the Dallas Districts CDA/Tollway Director. Keep up the good work.

Use the fuel tax for roads and not for buses or rail. Stop wasting the tax payers money on bullshit projects, there is enough money in fuel tax to pay for all the hiway projects if it wasn't wasted, like the state industrial is.

Don't use tolls to finance transit.

No tolls, no roads

Do it!

Reach out to Oregon.

Do not private (for profit) companies in charge of collecting/administring tolls.

Gas prices should be taxed through the roof (think tobacco) to force efficient and effective alternatives to petroleum and public transportation. Study all countries for best alternatives. In corporate, university and government research.

Develop local support groups. Educational programs are a needed element to provide better understanding of positive side.

Don't do it!

I'm concerned about the burden on workers who have to commute by distance owing to economics.

You're going too slow. The entire plan should be set up in place within 10 years.

Keep educating people about the benefits of tolling.

Educate the public by having the local office working with the neighborhoods here in Bellingham and throughout Whatcom County.

Spent a lot of time explaining these ideas to a very broad audience before even finalizing ideas.

Gas Tax, Cigarette Tax highest or close to it of all states and you want more??

Don't make Washington pay for it, make Oregon take all the income taxes they are making on Washington workers and fix the problems

What is wrong with this picture. Since when is WSDOT a business?? If it was a business it would have been bankrupt a long time ago!!! Yes our growth rate has exceeded all expectations and of course the enviromentals have cost us all more than we will ever

It's been obvious for a while that we need a widespread, systemic, electronic tolling (user fees) for Washington State highways, both to raise revenues and optimize our use of this limited resource. Privacy is a solvable issue.

We strongly support the idea of tolls on roads, bridges etc that meet the criteria stated in the questionnaire.

Obviously your slant on the questions proposed above show you wish to have no direct request addressing whether we should have a toll at all. I live in Vancouver but due to regular and odd hour work requirements in Oregon, I'd incur great continuous costs

The \$.09 gas tax was to cover projects-Why are more tolls required? #5 tolls should be fairly applied statewide. All were allowed to vote on tolls for the Narrows Bridge, passing vote for tolls when 80% of Pierce County voted "NO" with no alternate route!

I am against any toll except to construct individual projects, then toll should be removed. No long term state or private employment positions should be created to collect tolls. All current fees and taxes on vehicles/fuel should go to infrastructure

Tolling, wonderful idea but it will wind up just like the current HOV lanes in King County, people abuse it and who is going to go out and collect the fines?

The United States needs to utilize and implement rail travel and subways get people OFF the road

Since I live in north central Washington and rarely travel to the west side of the state I feel like I am pay gas tax now for projects I will never use. I have never been on a ferry, but I am paying for them!

Taxes collected already for transportation should go directly into the transportation system and not into a general fund used for other things

We have nearly the highest gas and fuel taxes in the nation. Not enough money without tolls? Don't do the project. Need the project? Try a savings account like anyone else and when there is enough money saved, do the project.

Why do we need tolls to begin with when our Governor & state legislators keep asking for raises & money from other projects not related to transportation for the transportation industry? Why did we have to take highway funds to fund 2 new ball fields?

I supported the gas tax, but I am not satisfied with the accountability being offered for how that money is being spent. Until I see specific projects and total costs, with specific allocations of gas tax monies, I will not support tolls any where.

Reorganize wasted tax dollars into fixing these problems instead of taxing us more.

The gas tax was supposed to solve the transportation issues in Washington. Since that was obviously untrue, I don't think giving the DOT more money is the solution. One waste in spending is millions of dollars on Metro ramps in the centers of Hwys???

All you will accomplish is more traffic congestion with tolls. You would think that the .09 cent a gallon tax on fuel is more than adequate. When is enough, enough? The thought of a toll on Sno. Pass is ridiculous and not cost effective.

We already have one of the Highest gas taxes in the country.....where is it being spent ? I am only for any tolls if those taxes have already been exhausted on meaningful projects (not a tunnel)

I think you need to take Semi - trucks into consideration of LOW TOLLS. Don't toll by weight or axles, TRUCKS (18 wheelers) ALREADY PAY A ROAD TAX or USAGE TAX!! DON'T DOUBLE TAX TRUCKERS!!! You can call it a TOLL all you want, but it's STILL a TAX.

To ensure fair and equitable treatment to all WA citizens, all WA mega projects need to be 100% funded through tolls as is the new Tacoma Narrows bridge. The WA DOT needs to treat King County projects just the same way as the new Narrows Bridge.

The cost of our transportation system should be shared by everyone. I strongly disagree with tolling Snoqualmie Pass. It is a Federal Highway and the benefits and costs should be shared by the nation.

I would like to see tolling replace future large increases in fuel tax.

One requirement is stated as "Toll revenue should be used only to improve, maintain or operate the transportation system.". Where are all the gas taxes and auto licensing fees going?

How about charging Oregon residents sales tax. I am tired of paying Oregon income tax, just because I work in Oregon AND also have to pay Washington sales taxes. I will start purchasing items in Oregon, until the taxing system changes.

if toll roads come, MUST STAY UNDER WA STATE OWNER AND MAINTAINCE. Do not sell our roads, especially those that are built and maintained with Washington fuel tax funds.

Public highways should be supported by all the state's taxpayers, not just by local users.

Tolls on all the mountain passes not just I-90. Recommend 10 rather than 4 dollars. This way they would not have to be raised for years...see inflation adjusted tolls slide Tolls should be concentrated between economic regions rather than within.

THERE SHOULD BE NO TOLLS ANYWHERE. WE ALREADY PAY A TAX AT THE PUMP... START LEARNING WAYS TO CUT SPENDING INSTEAD OF ACTING LIKE TEEN AGE KIDS THAT KEEP SPENDING MORE THAN THEY HAVE.

as long as it is inexpensive and has discounts for frequent users it would be very beneficial. I also believe the revenue from tolling should be used to balance out the cost of transportation for certian school districts like the Battle Ground District.

Toll revenues should only pay for the stretch of roadway, bridge, etc. for which they are collected, not as a general income source for the DOT.

I live in West Seattle and work in Redmond. I am concerned about having a huge toll bill - I don't want to quit my job and I don't want to have to move from West Seattle. This kind of system seems to punish someone like me.

Regional toll authorities may be less costly to operate. Also, toll rates may be less politicized when set and adjusted by a regional body (see Orange County, California).

As an elected official in North Bend, I find the entire concept of tolling the Snoqualmie pass TOTALLY unacceptable. The solutions to the operation and maintenance budgets can and should be found without the implementations of tolls.

tolling should only be used in metropolitan areas , cities , bridges ,

Not sure how this openhouse advanced the broad understanding or acceptance of tolling.

Not both gas tax and toll booths

I have studied this subject and am pleased.

Obviously research the various techniques used throughout the U.S. to optimize efficiency.

Truck commerce is extremely important to WA state please don't price trucks out of their jobs.

What about offering an annual pass for the people who think they may use the road enough to justify and keeps it reasonable for the commuter.

I would caution against tolling major interstates

Be careful-Take the time to educate and develop buy-in by the electorate. Eyman is looking for work.

**Question 14.) How useful was the information presented in the Virtual Open House presentation you saw before filling this questionnaire?**

Need handouts of the display cards & name tags & time for group discussion or testimony.

Only the video was useful. Could not read the boards and too noisy to hear anything.

No references to study document details-very short time for public input regarding these open houses-No address site for written input.

Open house near you? Up here from Tacoma is preposterous. I got the impression from the website that this experience would be more substantive and informative. The nay-sayers will roll right over you without a more effective campaign to encourage the citizenry. Well meaning supporters must be mobilized to avoid more political heartache for local government.

I enjoyed listening and learning but the best part was being able to talk one on one.

Being able to discuss items with a representative was most helpful.

The whole story is never told.

I have studied this subject and am pleased.

I had already read about much of this.

# Appendix A

*A Two-Phase Study of Attitudes of Washington State Voters  
Toward Transportation Issues*

Prepared by Gary C. Lawrence, Lawrence Research,  
April 11, 2006

The Washington State Transportation Commission tested the public attitudes toward the policy concepts that emerged in the *Interim Report* published in January 2006. The results of that policy research are provided in this Appendix.



**A Two-Phase Study of Attitudes  
Of Washington State Voters  
Toward Transportation Issues**

**Prepared For**

**Washington State Transportation Commission**

**In Conjunction With**

**Cambridge Systematics  
and  
Frank Wilson & Associates**

**by**

**Gary C. Lawrence  
Lawrence Research**

**April 11, 2006**

**#5656-57**

## Methodology

This analysis covers the attitudes of Washington State voters as measured with two research approaches: qualitative focus group research and a quantitative survey.

The first phase was six focus groups conducted as follows:

Group 1	February 21	Bellevue area (11 participants)
Group 2	February 21	Bellevue area (11 participants)
Group 3	February 22	Yakima (10 participants)
Group 4	February 22	Yakima (6 participants)
Group 5	February 23	Vancouver (10 participants)
Group 6	February 23	Vancouver (9 participants)

The second phase was a telephone survey conducted March 8-12. The statewide base sample was 600 registered voters who are licensed drivers, plus an additional 518 overload interviews to produce four data sets:

	<b>Statewide</b>	Overload	Totals
<b>Puget Sound</b>	332	68	<b>400</b>
<b>I-90 Corridor</b>	103	197	<b>300</b>
<b>Vancouver</b>	47	253	<b>300</b>
Rest of state	118	0	118
	<b>600</b>	518	1118

In those instances where findings from the qualitative and the quantitative phases may diverge, more weight should be placed on the quantitative. Not all of the qualitative findings had a counterpart measure in the surveys, so certain findings from the focus groups have to be considered on the merits and analysis of what people said. In almost all cases, however, the same theme had to be mentioned in at least two groups before we concluded that the theme or observation is present among the public as a whole.

We should note especially that focus group findings are useful to reveal the inner workings of how people think but are not statistically projectable to the entire population. The themes arising from the focus group discussions should be viewed in the context of all other findings of this research project and excessive emphasis on the focus group discussion is not warranted.

## Presentation

Analysis of the focus groups and observations in general will use this font.

The analysis of the survey findings will be found in this font.

Where survey findings are displayed in a chart or table, unless otherwise noted, the numbers shown represent the response percentages.

In addition to the findings of the focus groups and the survey, this report will reference, as appropriate, the results of 16 stakeholder interviews with community leaders and interest group representatives conducted by Frank Wilson & Associates between October 13 and November 16, 2005. These will be shown in half-tone boxes such as this when the relevant topics or themes are being discussed.

## Overview

### Context:

- Issues of education, crime and the economy are more important than transportation and traffic congestion.

### Funding

- Most are aware how transportation projects are funded but are split whether gas tax money goes into the general fund or is earmarked.
- The gas tax is generally fair.
- Additional funds are needed, but would not be if government would spend the gas tax efficiently.

### Tolling

- Attitudes toward tolling are split.
  - Tolls can be seen as fair because users pay.
  - Tolls can be seen as unfair because, if government were more efficient with the gas tax, tolls would not be necessary.
- People are aware of HOV lanes, electronic toll collection and, to a lesser extent, HOT lanes.
- An outdated mental picture of tolling systems is hobbling people's acceptance of it in spite of having heard about ETC.
- Conditions for acceptance of tolling include:
  - Applied on a project-by-project basis; there is general apprehension about a statewide tolling system
  - Tolls should be spent on the tolled facility
  - Tolled routes must have alternative free routes
  - Don't toll anything already built

- A statewide tolling system generates apprehension because of its complexity and fears of abuse, fraud and writing a blank check.
- Revenue-generating tolling is preferred over congestion-management tolling.
- Cynicism about government spending blocks acceptance of creative funding approaches.
- Cordon tolling and an annual mileage fee are considered unacceptable and unfair.

### **Specific Areas**

- Puget Sound residents would support converting existing I-405 carpool lanes but resist converting existing lanes into HOT lanes.
- Tolling Snoqualmie Pass should trigger less opposition than putting tolls on other locations.
- Tolls on Columbia River bridges will only be accepted if they are part of a larger traffic circulation plan.

### **Point of Caution**

*The findings represent a snapshot of today's attitudes, not necessarily those that may hold in the future. Concerns raised by the focus group participants and the survey respondents are not impossible to deal with.*

## Analysis

### 1. Of eight issues tested, maintenance of roads and highways ranks fourth most important and traffic congestion is seventh.

When survey respondents were asked to rate issues on a four-point scale of importance ranging from “extremely important” to “not that important”, the three most important issues (where “extremely important” was worth 3 points, “very important” worth 2, etc.) are schools and education, crime and drugs and jobs and the economy. The maintenance of our roads and highways, taxes, environmental issues, and traffic congestion are second tier issues of importance. Illegal immigration has to be considered a third-tier issue.

Issue	Points
Schools & education	218
Crime & drugs	206
Jobs & the economy	205
Maintenance of roads and highways	186
Taxes	184
Environmental issues	176
Traffic congestion	168
Illegal immigration	150

The intensity of importance is quite pronounced between major issues and the transportation issues we are dealing with. As a comparison, 38% said schools and education were extremely important while road maintenance and traffic congestion were about half that.

Those most concerned about the maintenance of roads and highways are college grads, 35-44 year olds and those who feel the system needs additional funds. Those most sensitive about traffic congestion are newer residents, Puget Sound residents, college grads and those who feel the system needs additional funds.

### 2. Government gets only lukewarm scores for the way it is handling transportation issues.

Of three issues tested, government’s handling of the state’s economy gets slightly better approval scores (56% approve to 39% disapprove) than its handling of traffic congestion (42%-50%) and how it is “using transportation funds to maintain and build our transportation system for the future” (47%-

46%). Looking at the intensity of the feelings, twice as many people strongly disapprove than strongly approve of the way government is handling the economy and five times as many strongly disapprove rather than strongly approve of the way it is handling traffic congestion. This reflects the normal complaints about government in general, but especially an intensity about traffic congestion that does not appear when people are simply asked its level of importance. In other words, traffic may not be the most important thing on their minds, but when it *is* on their minds, they are not happy.

Highest disapproval of the way the state is handling traffic congestion occurs, no surprise, in the Puget Sound region and among 35-44 year olds (a very mobile segment of society), post grads, those who feel the system needs additional funding, western Washington in general and high occupancy households.

The most important transportation-related issues for stakeholders were safety, economy, congestion relief, fairness and tolling.

The stakeholders took special note of the relationship between transportation and economic well being. An efficient transportation system and the ability to move product to market is critical to the economy and future of the state. The need to accelerate projects through toll financing should be explained to the citizenry in terms of economic benefits and not only the benefits of greater personal mobility.

### **3. Cars and traffic dominate the mental picture when the transportation issue is mentioned.**

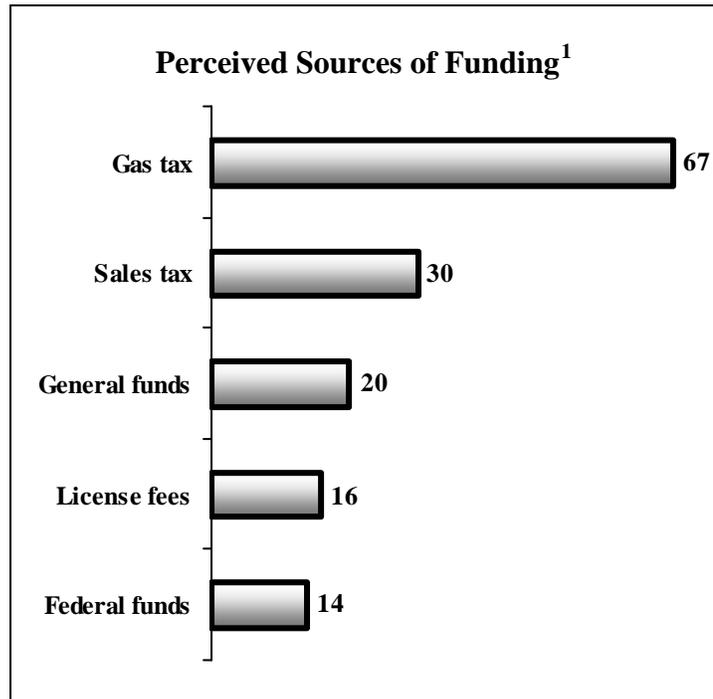
To warm up the focus group participants and get an idea of the context in which they view transportation issues, I asked them at the beginning of each group what picture comes to mind if someone says the phrase “transportation in the State of Washington.” The picture was primarily one of cars and traffic, but there was also a decent number of comments about light rail, buses and other mass transit. Bridges and ferries were a minor part of the picture.

### **4. Most people are aware of the major source of transportation funding.**

The gas tax was invariably the first answer when focus group participants were asked where the money comes from to fund the state’s transportation system. When pushed for other sources, they mentioned federal funds, license fees, vehicle registration fees, tonnage fees, sales tax, developer fees, road mitigation fees, and even cigarette taxes as sources of funding.

Overall, the satisfaction level with the way the state is collecting funds and paying for transportation projects was rated slightly above an 8 on a 10-point scale – a solid B grade – among the two otherwise cynical Bellevue groups.

When the survey respondents were asked an open-ended question on this same issue – where do funds come from to pay for transportation projects in the state – over half mentioned gasoline tax as the first answer out of their mouths and two-thirds volunteered it is a source of funds in this multi-mention question. No other answer came close.



Highest awareness that the gas tax is the prime source of funding occurs among those who know the gas tax is dedicated to transportation needs, those would raise the gas tax for additional funds, 45-54 year olds, men, higher occupancy households, and those opposed to tolling for either revenue or traffic management.

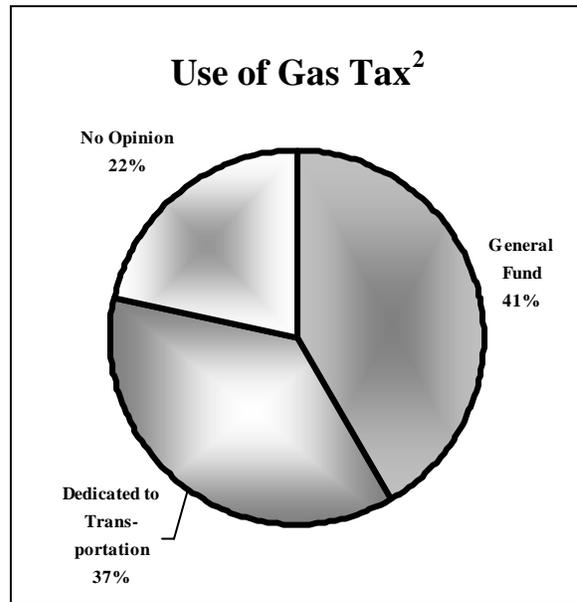
## 5. The state is split in its understanding of how gas tax funds are used.

By a 41-37 margin, people are more of the opinion that gas tax funds go into the state's general fund to be used as the legislature determines than they are of the opinion that gas tax funds are dedicated to transportation projects.

<sup>1</sup> To the best of your knowledge, where do the funds come from to pay for transportation projects in the state ... things such as road construction and maintenance? Please name as many as you are aware of. (All numbers are percentages unless otherwise identified.)

Those most likely to believe that the gas tax is diverted to general funds include such groups as 35-44 year olds, people in the I-90 corridor, three-vehicle households, Vancouver, long-time residents and eastern Washington.

Those who are most sure that the gas tax has to be used for transportation projects include post grads, 55-64 year olds, those who would raise the gas tax if more funds are needed, those aware of tolling as a tool for traffic management, and single-person households.



**6. Most believe theirs is a money-exporting area.**

Quite consistently, participants in the focus groups thought that their gas taxes went to help fund projects in other parts of the state more than taxes from other people came to help them. Only in the second Yakima group did the participants second-guess their initial we're-not-getting-our-fair-share position.

This is not an unusual pattern; we see it all the time in perceptions of which state gets the most return on federal tax dollars. It is human nature to think that the other guy is getting the free ride. Nonetheless, we should at least be aware of this mother-loves-you-more-than-me pattern when messages to various populations are crafted. The key, as the stakeholders brought out, is to broaden their horizons so that transportation projects are seen in the totality of the movement of people and goods. The economic benefit to the whole state is how the issue must be framed. Otherwise, you will constantly be battling parochialism.

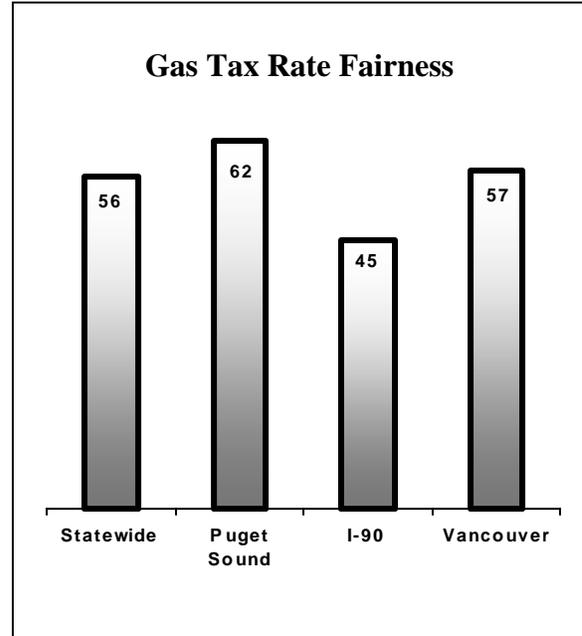
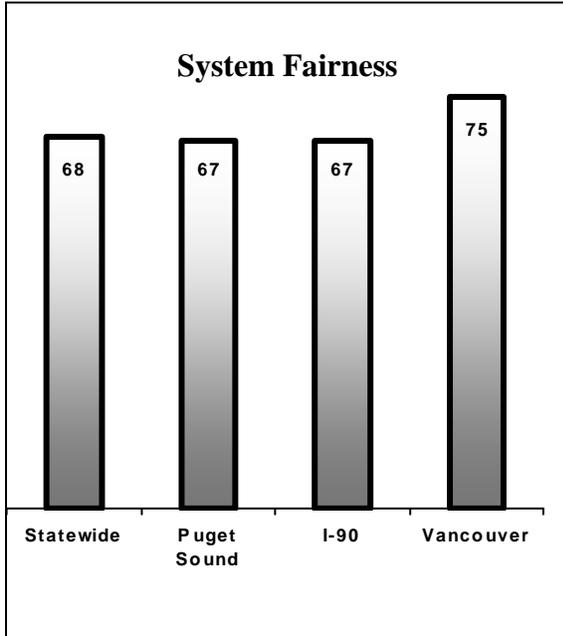
*“We export tax dollars to the eastern part of the state.” (Man, Bellevue)*

*“The majority of funds go to King County.” (Man, Bellevue)*

<sup>2</sup> From what you understand about it, do gas tax funds go into the state’s general fund to be used as the legislature determines, or are they dedicated to fund only transportation projects?

**7. The gas tax system is seen as more fair than the gas tax rate, but majorities think both are more fair than not.<sup>3</sup>**

By a 68-28 margin, the gas tax system for funding highway projects is fair rather than unfair, and by a 56-40 margin, the current gas tax rate is fair. The 28% and 40% minorities can, of course, be vociferous in their opinions.

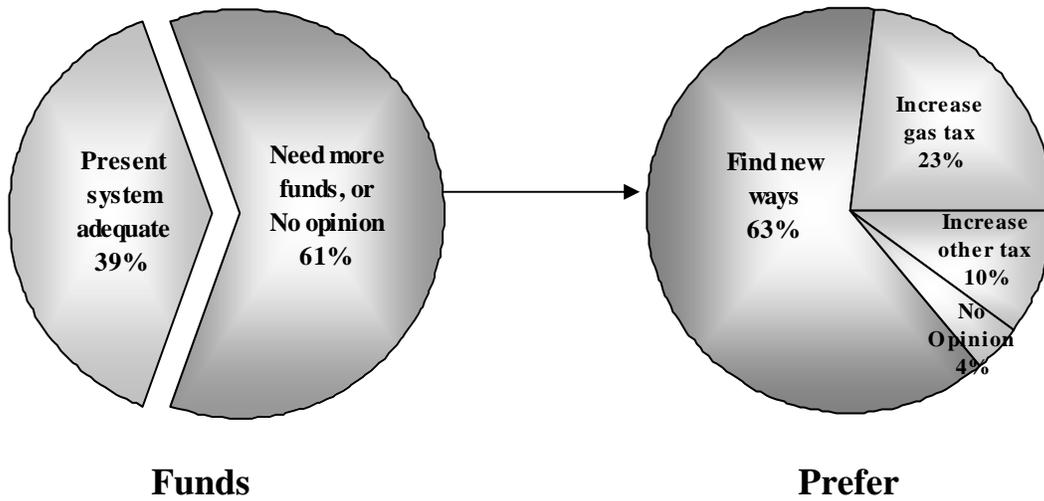


**8. A slight majority feels that additional funds beyond the present system need to be raised to build and maintain the transportation system.**

A slight majority of 51% feels that more funds need to be raised than will be raised in the near future by the present system of taxes and fees. In contrast, 39% of the population feel the present system is adequate. Those who said more funds are needed were then asked what they would prefer the state do – increase the gas tax, increase other taxes or find new ways.

<sup>3</sup> As you may recall, the gasoline or fuel tax is the major provider of funds for state highway projects, with lesser amounts coming from other sources. Do you feel that the gas tax [system for funding highway projects / rate] is ... very fair, somewhat fair, somewhat unfair or very unfair?

## Adequate or Not<sup>4</sup>



Whether the recognition for additional funds is correlated with a willingness to provide those funds is, of course, another question. It is interesting to note that of the 61% of the population that either said we need to raise additional funds or had no opinion, only a third were in favor of raising taxes (23% favor raising the gasoline tax and 10% favor raising other taxes). Because we gave them a third option – find news ways of paying for our transportation system – 63% (or 38% of the total statewide sample) chose that category. When they were asked what new ways they feel should be considered, here are the answers given by at least 3% of those eligible to answer the question:

<sup>4</sup> Do you feel that the present system of raising funds for transportation projects is adequate to meet our transportation system needs, or do you feel that additional funds need to be raised to build and maintain our transportation system? [If more funds, or if no opinion:] To raise additional funds, would you prefer that the state ... increase the gasoline tax, ... increase other taxes, or ... find new ways of paying for our transportation system.

News Ways to Consider <sup>5</sup>	Percentage of Those Eligible to Answer
No opinion	27
Toll roads and toll bridges	21
Better budgeting of funds	9
Alcohol & tobacco taxes	5
Corporate & industry taxes	5
Lottery	5
Cut government salaries	4
User fees	4
Income tax	4
Donations & contributions	3
New taxes	3

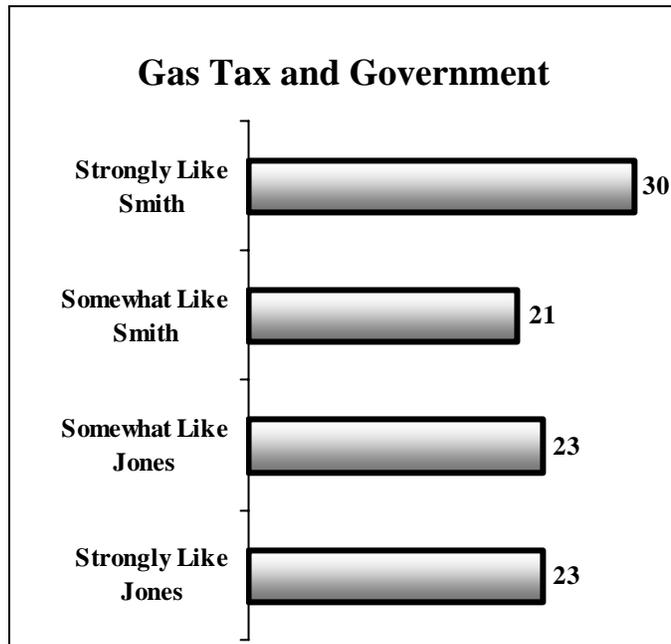
What is interesting is that a fifth of those in this particular attitudinal boat volunteered on their own that they would welcome toll roads and/or toll bridges. The other themes are spending reductions and increasing taxes already in place.

**9. A slight majority believes the gas tax would be sufficient if government were more efficient.**

If voters are asked if the present system of raising funds (mainly the gas tax) for transportation projects is adequate to meet our needs, only 39% say yes and 51% say additional funds need to be raised. But if one injects government spending practices into the mix, then the picture reverses and 51% say the gas tax would be a sufficient source of funds if government would use the money efficiently. The attitude was measured using a Smith-Jones format: “Smith says that the gasoline tax provides adequate funds for our transportation needs if government would use the money efficiently.” “Jones says the gasoline tax does not provide adequate funds for our transportation needs even if government were more efficient. He feels more funding must be found if Washington State is to have a quality transportation system.” The results, as shown in the accompanying chart, give the edge to the Smith position 51-46.

<sup>5</sup> And what do you feel are some new ways that should be considered?

At its bare bones simplest, people sense the gas-tax funding model is not keeping up with needs. But give them a reason not to have to pony up the extra money from their own pockets, such as suggesting that government would have enough money if it used the funds more efficiently, and enough people clamber on board that bandwagon to constitute a majority, albeit a slight one. If the transportation system is judged just as it stands, more people than not would say it needs more funds. But if the issue is framed up or down on government spending patterns, then the story has a different ending.



**10. Tolling as a potential source of funding came up early in two focus groups, but was not initially an idea on the top of most people’s minds.**

Tolling as a viable option came up unaided (once in Yakima and once in Vancouver) only when I asked the participants to imagine that residents were lined up on the state’s borders and in a manner akin to the Oklahoma land rush were ready to swoop in, claim land, build cities and establish a transportation system. Under these hypothetical conditions, tolling came up unaided in the two groups mentioned, but in general the gas tax is the first funding source thought of.

When the idea of tolling occurred to the participants unaided, it was seen only as a means of generating revenue, not as a means for traffic management.

*“Our tax structure is taxed to the maximum, except for tolls.” (Man, Yakima)*

*“I do not want it to be a source of continuing state revenue.” (Man, Yakima)*

Stakeholders felt that tolling is the way of the future – that it is inevitable and there is no other way to build what we need. The stakeholders felt that acceptance of tolling among the general public will take time, that the state should do some pilot or demonstration projects first, such as the Tacoma Narrows Bridge and SR 167.

## **11. The vast majority of voters have used toll roads, toll bridges and HOV lanes.**

When 84% have driven on a toll road, 89% have used a toll bridge, and 88% have used HOV lanes, penetration of such ideas and practices has to be considered virtual saturation. In the case of HOV lanes, 62% of those who are aware of them strongly approve and 25% somewhat approve; only 11% disapprove.

## **12. Tolls trigger a mixed reaction.**

With a couple of exceptions, most participants' first reaction to the idea of tolls was negative. But as the conversation went on, they moderated their position and began to admit that there might be a place for them.

A few people mentioned toll roads they have driven on both in the U.S. and abroad. They praised their beauty (Florida) and prompt roadside service (Mexico), among other traits. After they took their first potshots at tolls, it seems they wanted to be fair to those who favor them and, therefore, looked for reasons why they, themselves, might support them under certain conditions. Those conditions were:

- The money collected has to be applied to the facility or project at hand
- There have to be alternative cost-free routes in case one can't pay the toll
- Don't toll anything already built

Obviously, the values expressed with these conditions are the need for control, the need for freedom and the need to be respected – the need for reassurance that the government is not disrespecting the people by double billing.

The specific tolling locations or ideas that gained the most favor in the focus groups were (1) Snoqualmie Pass, (2) a new bridge in Vancouver, and (3) HOT lanes where there are underutilized HOV lanes. The reasons for favoring the first two are because they are one of a kind and they are such big-ticket items. Other options to getting across the Columbia or across the Snoqualmie Pass are fewer and less attractive, and doing anything in this regard is seen automatically to cost big dollars, whereas introducing a HOT lane in some location is not that big of a deal and will not be a big ticket item in the normal sense.

One thing in favor of tolls for a new bridge is that state residents have a history of paying for bridges with tolls, or paying relatively larger amounts to cross bodies of water with the ferries. In the second Bellevue group, few had ever crossed the Tacoma Narrows Bridge, but they were unanimously in favor of tolling for the new

TNB. The reason: friends, relatives and others would have a benefit of it even though they themselves might not. It was the one aberration in the groups from the usual what's-in-it-for-me approach and is instructive as to when magnanimity might kick in – with visible, big-ticket items for which there are few alternatives.

In short, Snoqualmie Pass improvements and a new bridge at over the Columbia are tolling naturals.

*“Toll roads definitely serve a purpose. They may be extremely unpopular, but there’s a place for them.” (Man, Vancouver)*

*“Tolling existing roads would be like paying for them twice.” (Man, Bellevue)*

*“I’m not in favor of tolls on highways already built, but in favor of building a new bridge and putting a toll on it.” (Woman, Vancouver)*

*“[Tolls okay] as long as toll roads are constructed new, not taking over roads that we paid for already.” (Man, Bellevue)*

*“I’m all for tolls in any conditions as long as it’s not compulsory.” (Man, Bellevue)*

*“Most would agree with a toll if it’s reasonable and temporary.” (Woman, Vancouver)*

Stakeholders indicated that bridges have traditionally been tolled and it may be the only natural way to pay for them. Projects with a clear need and conditions that make tolling practical were mentioned.

The projects that received the most frequent mentions as tolling candidates were:

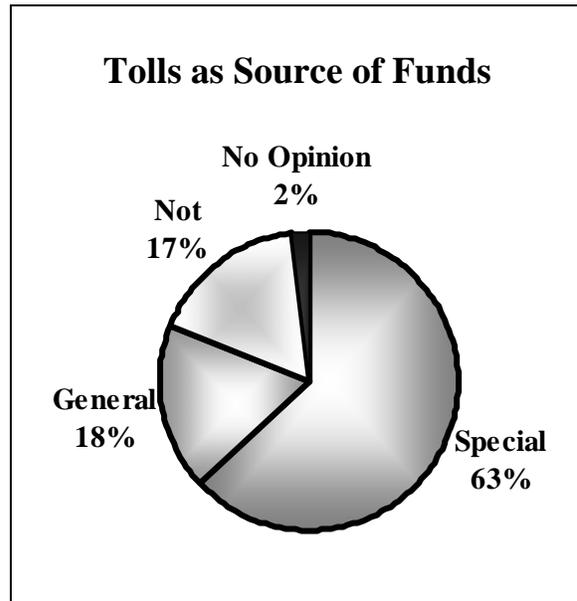
- SR 520 and I-90 bridges, with SR 520 mentioned most frequently because of urgent safety issues
- SR 167 HOT lanes
- I-5 through Seattle with special mention of the Convention Center problem (i.e. the convention center built on the air rights over the freeway making expansion virtually impossible)
- I-405 for its entire length
- I-90 additional capacity from Lake Washington across Snoqualmie Pass
- Columbia River bridges

- A new north-south corridor through eastern Puget Sound linking Kent and Everett, possibly as a TOT (Truck-Only Toll) project

### **13. Tolls are acceptable as a source of funds if considered mainly for special project-by-project situations.**

The statewide respondents were asked: “As a general matter, do you feel that tolls ... should be considered as a general source of transportation revenue in Washington State, ... should be considered only in special project-by-project situations or should never be considered?”

This finding that 63% of the people prefer tolls be considered only in special project-by-project situations verifies the often-heard comments in the focus groups that tolls should be directly applied to a particular need, and it ties in with the user-pays belief many of the participants expressed.



### **14. For some people, tolling is a solution to a problem they do not believe exists.**

To reach our focus group research objectives, we framed the issue in terms of financing and voters’ satisfaction with the financial methods of constructing and maintaining the state’s transportation system. We did not start the discussions by asking participants whether they felt there was a funding shortfall for growing, improving and maintaining the system. To have done so might have conditioned the participants and precluded certain lines of questioning.

Nonetheless, the topic surfaced unaided in most groups and some participants questioned whether a financing problem truly existed or whether tolling was simply a disguised way of increasing revenues for use on transportation projects in other parts of the state or, worse, on non-transportation issues. Cynicism is alive and well in and around discussions of tolling.

Those who eat and breathe transportation problems are far down the road of finding additional financial resources to solve them, but they first need to convince the public

that the problems are real and the funding sparse before people will think seriously about one or more of the alternative financing methods under consideration.

*“If this [tolling] is a thinly veiled way of extracting money from people, it won’t go over very well.” (Man, Bellevue)*

*“I don’t believe tolls will be used to make improvements. They’ll go to the general fund.” (Man, Bellevue)*

The stakeholders do not share this denial of the problem. They know the true status of the funding apparatus and see tolling as the way of the future.

Communicating with the public about tolling is important. Not only is there an information void about how modern toll-collection systems work, there is little knowledge about tolling for congestion management purposes. The comprehensive tolling study is a good vehicle to initiate a discussion about tolling in all its forms. The Tacoma Narrows Bridge and SR 167 projects are viewed by the stakeholders as good test cases from which people can learn the practical side of how tolling works.

#### **15. People are evenly split between the universal-payment philosophy and the user-pays philosophy.**

The first philosophy is that certain services should be provided regardless of how evenly they are used by various public segments. Schools are the prime example where senior citizens who, for example, never had children are nonetheless expected to pay the same tax rate as a household with half a dozen kids in school.

The second philosophy is that those who use a publicly provided good should be the prime, or perhaps only, payers for that good or service. The participants in the focus groups swung back and forth between the two with each philosophy getting in its blows. No consensus emerged.

While most people found the user-pays argument to be a reasonable and strong argument in favor of tolls, there were some (particularly a group in Vancouver) who felt that the gas tax was more fair because they could choose what type of car to drive and how often, and hence a smaller car would use less gas and therefore pay less in taxes.

*“All have the opportunity to use roads. They may not use them now, but will in the future. We need to help each other out, whether east or west. ... It can’t be user-dictated exclusively.” (Woman, Bellevue)*

*“You cannot support roads specifically by tolls; you have to have a gas tax as well. Tax money should be used for all.” (Woman, Yakima)*

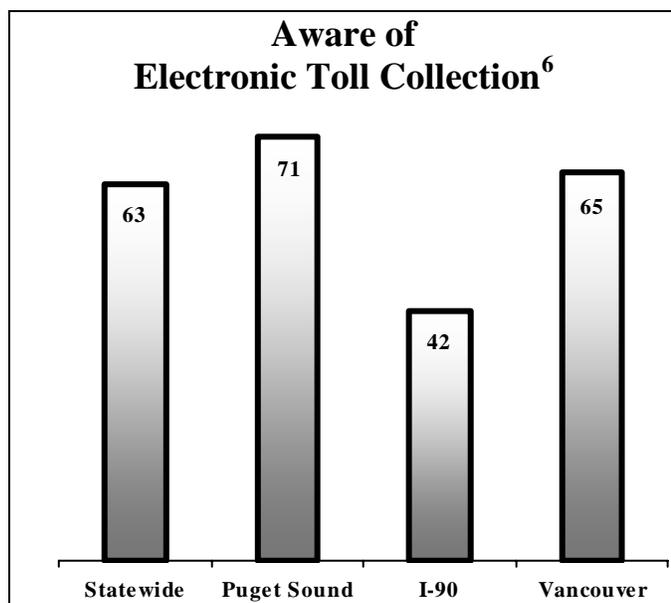
*“If you use the I-5 bridge, you pay for it.” (Man, Vancouver)*

*“The gas tax seems appropriate: those who buy the most gas use the roads the most.” (Man, Vancouver)*

**16. A solid majority is aware of electronic toll collection.**

The explanation of electronic toll collection was presented to the survey respondents as follows: “Some toll roads and bridges have a system where a driver is not required to stop at a toll booth but continues driving at full highway speeds while a scanner reads a transponder, or electronic device, in the car and deducts the toll from a pre-paid account.” With this as the reminder, then five out of eight voters statewide claimed they were aware of it.

However, even with this claimed awareness, it was obvious in the focus groups that the new picture has not fully taken root and that people still visualize the old toss-the-coins-in-the-basket routine.



**17. Awareness of HOT lanes is relatively low but among those who are aware, more than three out of five approve.**

A split-sampled question was read to half of the sample as follows:

“Have you ever heard of HOT lanes, that is, H-O-T or high-occupancy toll lanes, where carpools use the lanes for free and solo drivers can

<sup>6</sup> Some toll roads and bridges have a system where a driver is not required to stop at a toll booth but continues driving at full highway speeds while a scanner reads a transponder, or electronic device, in the car and deducts the toll from a pre-paid account. Have you heard or read anything about this system of toll collection?

choose to use the lanes for a toll? The toll would vary based on the number of cars in the toll lanes to keep the lanes free flowing.”

The second half of the sample heard the same wording with the following phrase tacked on at the end:

“...and give everyone an opportunity for a faster, reliable trip when they really need it.”

Those who said they were aware were then asked whether they strongly approve, somewhat approve, somewhat disapprove or strongly disapprove of H-O-T lanes. The results show that gilding the lily adds about four percentage points to the approve column.

	Aware	Strongly Approve	Somewhat Approve	Somewhat Disapprove	Strongly Disapprove
SS1: Basic	30	21	40	13	21
SS2: Extra Reasons	36	32	33	11	21

Even more important, the extra phrasing about a faster, reliable trip improves the intensity of the approval rating by 11 percentage points. This shows that the public’s attitudes are semi-fluid on the issue and open to be persuaded, within bounds, of the value of pricing for traffic management.

**18. An outdated mental picture of tolling systems is hobbling people’s acceptance of it.**

Say the word “tollroad” to the average person and he or she will visualize a Chicago-style toll booth with a basket to throw coins into and a mile-long backup. Although the majority claimed to have heard of, or even seen a friend in another state use, electronic toll collection, they are not yet freed from the image of old, low-grade technology.

They lack a compelling visual. If they could be shown a simple video illustration (driven, of course, by sufficient exposure) of how ETC traffic flows through unimpeded while cash payers have to pull to a *side* toll plaza, it would clear up a lot of distortion. Even a still photo would help. The state will never make requisite progress with any tolling idea until the old pictures have been driven from the public’s collective mind so that tolls are seen as an enhancer of traffic flow rather than a hindrance.

The lack of an accurate visual also affected people’s perceptions of HOT lanes. Everyone has seen people driving across the single white line that usually separates

an HOV lane from a general purpose lane, so some assumed a HOT lane is just an HOV lane with another name and no particular physical differences, and wondered how the state will keep people from sneaking in. The physical layout has to be shown to them.

*“I’d pay an extra \$2 to drive in the HOT lane. Maybe \$3 or \$4.” (Woman, Yakima)*

### **19. People are more apt to visualize tolling as a traffic-slowing rather than a traffic-flowing mechanism.**

This is very much related to the picture they carry in their heads of toll booths and baskets where traffic spreads out over multiple lanes at a toll plaza that stretches from one side of the freeway to the other, and everyone has to go past a toll booth. Again, the Chicago picture of “a mass of cars at the toll booths.” Add to this the perception that one has to stop at another toll plaza every three or four miles and it’s little wonder that tolling (pricing) is not perceived as a traffic-freeing system.

Even when others mentioned that many states have a FastPass or EZ-Pass option, most still visualized vehicles having to go through a toll plaza structure instead of traveling on free-flowing lanes significantly distanced from a toll plaza.

The fears they connected with this stereotype were the normal ones: they (or, worse, someone in the car ahead of them) would not have the change, the basket would not count it right, someone would use the pause to ask the toll booth attendant for directions, and so forth.

*“I worry about the guy from Seattle who takes a wrong turn and doesn’t have the money or a transponder.” (Man, Vancouver)*

*“[Tolls] slow down traffic even with the electronic system.” (Man, Vancouver)*

*“I can’t see stopping to pay a toll.” (Man, Vancouver)*

*“I don’t like the stop and go of the toll system.” (Man, Yakima)*

*“If it doesn’t slow traffic, it would be worth it.” (Man, Vancouver)*

### **20. Announcements of tolling projects will stimulate a wide variety of questions and concerns.**

About a third of the way into the focus group discussions, I passed out a hypothetical newspaper article that “announced” that the state plans to toll I-405, Snoqualmie Pass and a new Vancouver crossing (a copy of which is found in the appendix of this report). The participants were given time to read the 800-word article and then were asked to write the questions that the article triggered – things they would want to

know as a result of receiving the information. This exercise builds on the idea that questions are windows on people's concerns which in turn are precursors to their fears which in turn are building blocks of opposition. With that as prelude, here are the categories of questions that were written down by at least three people across the groups:

**Most Frequently Asked Questions  
About the Hypothetical Newspaper Article  
By Focus Group  
(Number of Mentions)**

Questions	Blv 1	Blv 2	Yak 1	Yak 2	Van 1	Van 2	Totals
Amount of toll (\$.50-\$8.00)	1	4	4	2	4	4	19
Fee fairness / Now and later	2	4	4	2	2	2	16
Tolls vs occupants per car	3	2	1	2	4	3	15
Status of gas tax	4	3	2		1	2	12
Use of toll revenue	3	2	3	2	1		11
Annual mileage fee		5	1		1	4	11
Tolls effect traffic reduction	5	1	1	3			10
HOV lanes	3		2	2	1		8
Toll collection process	2	3		1			6
Mass Transit	2				2	1	5
Other funding sources avail	1	1		1	1	1	5
Locations chosen	1	1				2	4
Affect on other nearby states	1	2			1		4
Consideration for commuters	1	2			1		4
HOT lanes		1		1	1	1	4
Lane enforcement		1		1		2	4
Future solutions	1	1			1		3
Other success stories	2			1			3
Construction period	2				1		3
Toll station locations	3						3
Reduce spending; no tolls	1				1	1	3
Safety considerations	1		2				3
Timeline		1	1	1			3
Additional lanes		3					3
Motorcycles - Use / Safety		1	1		1		3
Tolling: existing vs new		2	1				3
Trucks / Buses / # of wheels			2		1		3
Urban Area					1	2	3

More detailed explanations of the comments are found in the text below.

A full listing of the verbatim questions can be found in the appendix of this report and a reading of them will convey the tone that was present in the focus groups. As can be seen, there were questions about every single topic in the newspaper article. Here are examples of their question phrasing about the seven most frequently mentioned items:

<i>Amount of toll</i>	How much is the toll / why so large a difference on I-405: \$.50 to \$8.00 / why such a wide gap / why does the toll vary so drastically / will the tolls be higher at first to pay for the build and then reduced to cover only the annual maintenance expenses?
<i>Fee fairness</i>	Roads could be built to last much longer for less money / tolls seem too high / how long will the tolls be there / would this be indicative of future improvement funding; would the state just start a new toll every time it needs funding for transportation / two or more [occupants] should pay something; not a free system / it's hard if you work each day and drive I-405; would there be a reduced rate / why shouldn't everyone pay the toll / do you get charged 8 bucks because someone screwed up [car breakdown]?
<i>Tolls versus occupants</i>	I-405: why are carpoolers getting off scot free / can you effectively manage one person cars in a HOT lane / why should only the one-occupant drivers have to pay; everyone is using it / carpoolers – how would you know; occupants – who would qualify / how would allowing two passengers or more not paying give the state the revenue they need?
<i>Status of gas tax</i>	What about gas taxes / instead of the gas tax / should we take a look at existing spending from gas tax and make sure we are spending efficiently / if toll roads, would gas tax decrease or be additional / is the gas tax actually being used for roads / is this actually for improvements or a solution to get rid of gas tax / how is the gas tax money currently used / is this going to be instead of the gas tax or in addition to?
<i>Use of toll revenue</i>	What would tolls be used for / \$.50 to \$8.00 is way too much leeway to give the fee controllers for anything; looking to the future, Big Brother is there / where is the money going – directly to that city / how is it dispersed / what are the assurances that the money goes for the road maintenance / would tolls just be used for upkeep on existing bridge or other roads / how can “politics” be avoided in the distribution of various new road revenues?
<i>Annual mileage fee</i>	How would it be done if they were to eliminate the gas tax and fund it by the number of miles driven / seems unfair to people who have green cars / how could they tell how many miles a person drives in a year?

*Effect on traffic* Too high a cost on toll prices; still does not take care of congestion / would a toll really reduce traffic / is this an effective traffic management tool in other states / would [tolls] slow traffic down more / would toll decrease traffic / should congestion be considered for amount of toll / what studies are being done on cost effectiveness of supposed traffic solution of tolls?

Some of the questions in this exercise are simply harmless attempts to build a store of information – how do things work, what will the physical layout be, what will it cost, and so forth. And then there are the questions that mask concerns – is it fair, will it work, how much change will there be, who will benefit – in short, will I like the outcome? These indicate deeper values that must be addressed, as will be analyzed in the following sections.

## **21. People want reassurance that new ideas will work before they will be supportive.**

The main example is the effect of tolls on traffic. Their questions show a bit of doubt on the surface, but underneath there is strong hope that the idea could work to relieve traffic congestion. They want it to work (given their complaints about traffic congestion, who wouldn't?) and are asking for proof – a track record somewhere that others have tried it and pricing is an effective tool to manage traffic.

*“Can we take a look at some other successful plans with toll roads and see what they did to make them successful?” (Woman, Bellevue)*

*“What has worked for other countries and states?” (Man, Yakima)*

## **22. Pricing for traffic management is not a concept near the tops of their minds.**

Before the idea was presented in the newspaper article, tolls as a traffic management tool did not come up spontaneously in the focus groups. Almost all of the discussions about tolling focused on such things as the physical structures, the costs, what might go wrong (ETC mistakes), etc. The closest participants came to discussing unaided any aspect of traffic management was when they mused about the time they might save. While a few saw the advantage of having the car in front of them take a HOT lane, they still did not go to the next step and see tolls – more correctly, pricing – as a deliberate way of managing traffic, at least not until we put the idea on the table.

In a couple of groups, I allowed the discussion about tolling to continue for awhile and then shifted focus by asking them how they felt the state was doing managing traffic. They dutifully gave their opinions. But even though I butted these two topics

up against each other, the participants still did not make the bridge that tolls could possibly be used as a traffic management tool. In the second Bellevue group they still didn't get it even after I suggested the connection. As far as they were concerned, we had just had two separate discussions; they did not grasp the link.

Until the idea of tolls-as-traffic-management is more in play in water-cooler and work-bench conversations, the public is not ready for a debate on its merits.

The second Yakima group voiced a suspicion about it using their perceptions of gas prices. They claimed that when gas prices go up, they do not see a correlative decrease in the number of cars on the road. Hence, and it was the consensus, they thought that tolls would not decrease the number of cars either.

As for incentives to go into work earlier or later to take advantage of varying toll prices, some said they did not have the luxury of flextime.

*“Many of us are stuck with when we drive to work.” (Woman, Bellevue)*

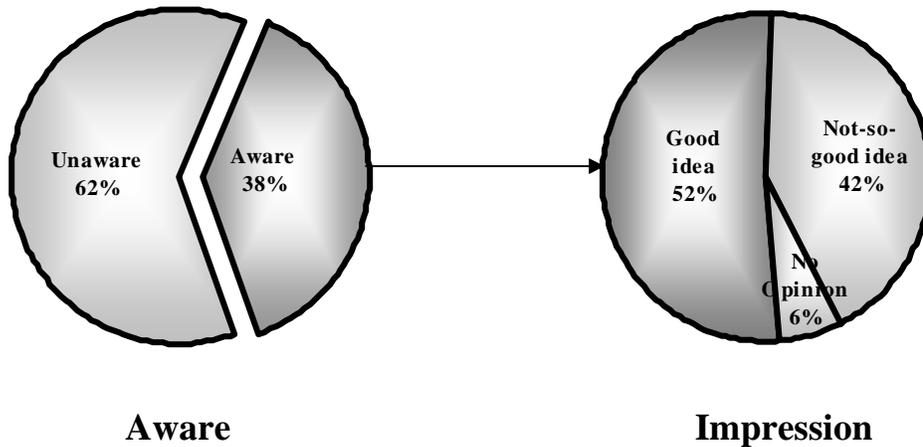
*“The toll is not just to cover cost; it's to control behavior.” (Man, Vancouver)*

The stakeholders familiar with the concept of congestion management thought it is a fair way to add capacity to existing roads. They believe it is a low-cost, practical way to fix existing roads – and it represents a choice. Those who were unfamiliar with congestion management had a harder time imagining how it would work, but liked the idea if it could show itself to work in certain environments.

**23. In the survey, claimed aided awareness of pricing for traffic management is a respectable 38% and a majority of those people think it's a good idea.**

The respondents in the statewide survey were asked: “Have you heard or read anything about tolling roads or bridges as a way to shift traffic patterns and spread out road usage by charging higher tolls when there is a lot of traffic and lower tolls when there is less traffic?” Those who claimed to be aware of this management tool were then asked: “From what you understand about it, does this strike you as a good idea or a not-so-good idea?”

## Pricing for Traffic Management



Claimed awareness is highest among Vancouver residents, 45-54 year olds, higher education, men and western Washington. Those most likely to view it as a good idea include the I-90 corridor residents, college grads, eastern Washington, younger residents and seniors.

### 24. Suspicion of hidden beneficiaries will always accompany change.

Another values example, as with all ideas that involve change, is the concern that someone else might be a hidden beneficiary, the change-producing concept itself being only a mask, a front. That “someone else” might be a city in the next county that is using toll revenue from other counties to benefit its own citizens. Or, more problematic, that toll money might be used for general purpose government programs not related to transportation. Again, it is better to address such concerns while they are still nascent and *before* the problem enjoys majority status. People’s attitudes toward such other issues as pricing, use of the revenues, and fairness are also in this state of attitudinal fluidity and, therefore, susceptible to being influenced.

Suspicion even came up about Snoqualmie Pass. A participant in Yakima claimed that because of bills pending the legislature, “The more DOT keeps the pass closed this winter, the better for chances of bill passage.” An interesting example of linkage and suspicions.

*“The legislature should have hands off. They have a way of getting in there and spending money on other stuff. [Tolls] should be for transportation only.”  
(Man, Vancouver)*

## 25. Fairness is a multi-faceted value.

Fairness, another value that will be in play, came up in the discussions in three ways: is it fair for the low-income or fixed-income driver, and is it fair to allow solo drivers to pay to use HOT lanes, is it fair as a general source of revenue? There was significant confusion, even distortion, on the HOT lanes. Rather than see better usage of HOV lanes by converting them to HOT lanes and allowing solo drivers to use them for a toll, some objected saying that if it's a lane that collects a toll from anyone, it should collect a toll from every user of it.

*“Why shouldn't everyone pay the toll and not just the single drivers?”  
(Woman, Vancouver)*

As has been found in many other focus groups about HOT lanes, there is an initial tendency to view them as unfair to low-income and fixed-income drivers – “... *they want to go places, too.*” That first-blush impression was also present in the first Bellevue group, but it ended up with a twist in this exchange:

*Woman: “I'm thinking of low-income people. The people in the \$100,000 BMWs will be whizzing by them.”*

*Man: “If people driving BMWs are willing to buy me a new road, fine.”*

As for fairness in terms of using tolls as a general source of revenue to be used elsewhere, one man had this insight, but this argument did not sway the rest from their “spend it here” stance:

*“There are projects that benefit specific groups of people; they should be paid for by them. Then there are projects that benefit the state in general – commerce that goes across the mountains, for example. The state has to maintain the projects that affect and benefit the state in general. But if it's specific benefits to specific people, let them pay for it.” (Man, Bellevue)*

A man in the second Yakima group said, “The Snoqualmie Pass toll should not be used for the Alaskan Viaduct.” The people in the first Yakima group brought up a different example:

*“We all had to pay for that new stadium and people over here didn't think that was fair. People say I'm not using it so why should I pay for it?” (Woman, Yakima)*

In answer to the question of what is fair, a man and a woman in the second Bellevue group had this to say:

*Woman: “If you use it, you pay for it; that’s fair.”*

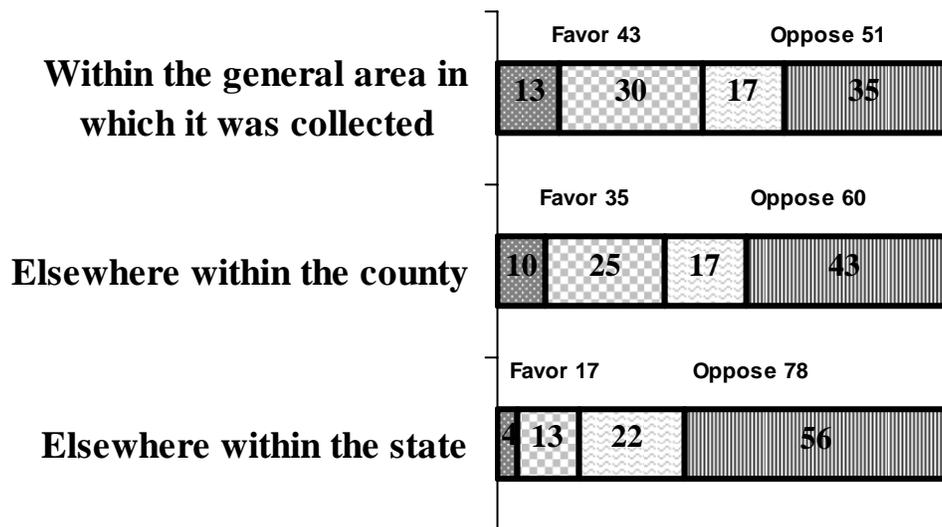
*Man: “The unfair part is if you toll an existing road. It gives the public the sense you’re double dipping again. (Moderator: How would you explain it?) Politicians are good at explaining it. The bottom line is they want more money and this is an easy way to get it.”*

The results from the survey are instructive regarding how difficult it may be to dislodge people from their geocentric chauvinism. Near the end of the interviews, respondents were asked under what geographic constraints they would allow tolls collected in their area to be spent somewhere else, the condition being that they had to be spent on transportation-related projects. Here’s how it was worded:

“Let’s say there was a toll on a road or bridge in your area, and there was a proposal to use some of the toll money for other transportation projects or services besides the road or bridge on which the toll is collected. Would you ... strongly favor, somewhat favor, somewhat oppose or strongly oppose using some of the toll money for other transportation projects or services ...

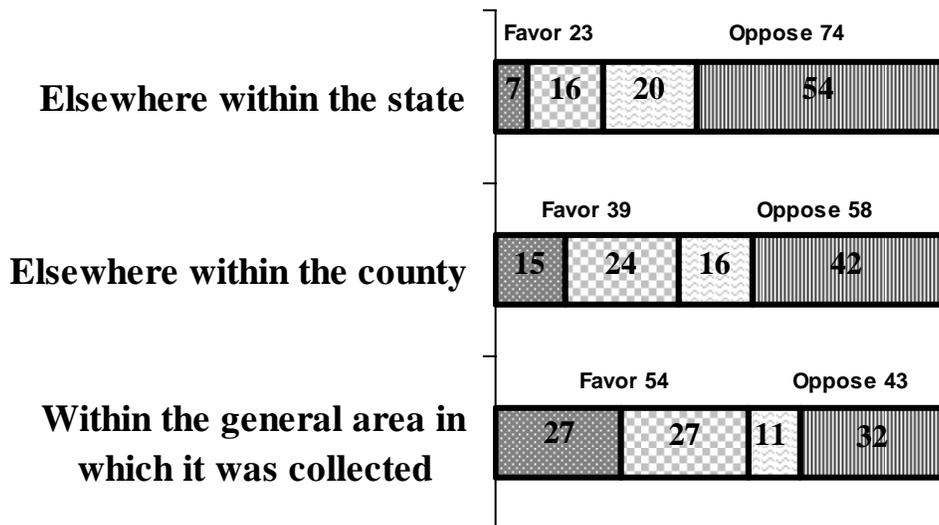
The choices were then read to them in split samples – half of them heard the sequence moving from near to far, and the other half from far to near.

### SS1: Near to Far



Strongly Favor
  Somewhat Favor
  Somewhat Oppose
  Strongly Oppose

### SS2: Far to Near



Strongly Favor
  Somewhat Favor
  Somewhat Oppose
  Strongly Oppose

The results are fairly dismal in terms of the overall good to society. People are very geocentric and protective of turf. The one thing that is instructive for building messages is that if we start with the idea of spending such accumulated toll revenues in far corners of the state, then people are more supportive of such spending when the proposed locale is closer to home. But if the message begins with a proposal for spending someplace nearby, but not immediately connected to the place where the tolls were collected, then a distinctly parochial and miserly mood takes over. The broader proposal – spending funds in a far-away place within the state – does not work. Framing and pre-conditioning are distinct influences on a person’s eventual acquiescence in such a plan. In terms of the results of the survey, only 43% would be willing to allow such spending “within the general area in which it was collected” if that is the first proposal a person hears. But if the person first hears a proposal for spending such locally collected tolls elsewhere in the state, and then the state backs off and proposes spending the funds “within the general area,” then favorability goes up to 54%.

*“I’m not excited about paying for something in another county.” (Man, Vancouver)*

**26. When tolling and pricing concepts are compared side by side, tolling for revenue outpoints pricing for traffic flow as a rationale for tolling.**

Here are the two written concepts focus group participants were asked to read and evaluate.

Tolling for Revenue	Pricing for Traffic Management
<p>Tolling has been used since ancient times to raise funds to fund expensive roads and bridges. Since 1930, 14 toll bridges have been built in Washington State using bonds supported by toll revenue. The last toll in Washington came off the Hood Canal Bridge in 1984.</p> <p>Today, we still have the need for major infrastructure that goes above and beyond what can be funded through the usual taxes. It makes sense for the users to pay extra for expensive projects.</p>	<p>Traffic congestion continues to grow at a faster pace than our ability to pay for and build improvements. Even if we wanted to, we are finding that we cannot build our way out of congestion. Most businesses, including public utilities, use price to manage the use of expensive facilities. Electric companies charge more during the day to encourage homeowners to wash their dishes at night when there is more electricity capacity. Airlines and hotels charge more for seats and rooms during busy times. Movies offer discounts for matinees. Our gas tax is paid by the gallon, which means that every mile costs just about the same, no matter where or when it is driven.</p> <p>With technology, we can manage the flow on highways by charging higher prices at congested times, and lower prices (or no price) during non-congested times. If we can get even a few people to take some trips during non-congested times, the whole system will flow better, benefiting everyone. As we look to a future with more and more traffic, pricing highways can provide us congestion-free alternatives that were impossible before the advent of modern toll collection technology.</p>

The power of precedent was apparent in the vote. Of 53 participants who voted on this, the tolling rationale out-pointed the pricing rationale 34-19. It was comforting for participants to know, or be reminded, that tolling for revenue is not a new concept in the state. History is a track record and showed them that it worked. Pricing for traffic management, however, was a harder sell, even with very good analogies to airlines, hotels and movie theaters that manage finite capacity through variable pricing.

The advantages to tolling for revenues that participants brought up included:

- Specificity of spending;
- Speed of payoff;
- Ability to underwrite big-ticket construction; and
- What you pay for is what you get.

The disadvantages to tolling for revenues included:

- Fear that tolls would not be lifted or the tolls reduced once the capital construction costs have been met;
- Double paying if the toll is applied to an existing road or bridge;
- Fear tolling will slow traffic; and
- Fear that tolls might be used for more than existing project needs.

The advantages to pricing for traffic management included:

- Facilitates better traffic flow;
- People can plan to take advantage of variable pricing;
- Safety because of better spacing and flow;
- Use is tied directly to cost; and
- Choice of whether to use or not in cases of HOT lanes.

And the disadvantages seen in pricing for traffic management:

- Many don't have option of when they must use highways and therefore must pay peak prices;
- Temporary fix – more capacity needs to be built;
- Fear of manipulation and government intrusions; and
- Fear it will become compulsory.

The interesting thing about the exercise is that even though the traditional outvoted the new, people came up with ideas. Prime among them from several groups was the suggestion that a tax benefit could be given to employers who institute flex time for their employees, thus freeing them to take advantage of better variable-pricing travel times. Others speculated about various incentives, such as discounts to commercial users or seniors or low-income drivers as well as the discounts based on congestion or times. It was also suggested that trucking firms be given special incentives to travel more during the night or mid-day.

The most persuasive points about tolling for revenues were history and track records. They know it works to pay for bridges. The most persuasive points about pricing for traffic management were the comparisons to airlines, hotels and movies. Most liked the analogies, but a few noted again that whereas people have a choice of when they want to see a movie, not everybody has a choice of when he or she must show up for work.

*“Is this an effective traffic management tool in other states?” (Man, Bellevue)*

*“They would have to show me that the toll would help me, how it will benefit me. I'm selfish.” (Woman, Bellevue)*

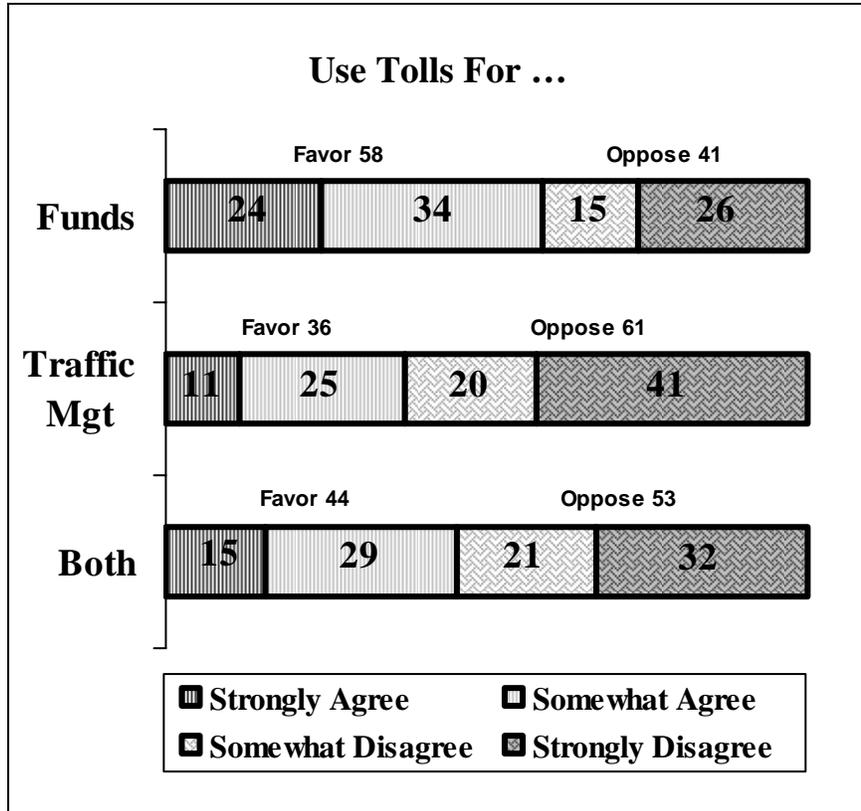
**27. A similar pattern obtained when the survey sample was asked about tolling and pricing.**

The respondents were read three statements and asked to agree or disagree with each one on a four-point scale from strongly agree to strongly disagree:

“We should use tolls as a way to provide *funds* to improve our highway system.”

“We should use tolls as a way to shift *traffic* patterns and spread out road usage by charging higher tolls to discourage use when there is a lot of traffic and lower tolls when there is less traffic.”

“We should use tolls *both* to raise funds and to shift traffic patterns and spread out road usage.”



Note the intensity in the answers. Tolling has approximately equal numbers of intense supporters (24%) and intense opponents (26%), while intensity of feelings toward pricing is about a 4:1 ratio in opposition. The answers to the third statement, a combination of the two, reveal that pricing for traffic management is a heavier drag on acceptance of tolling overall.

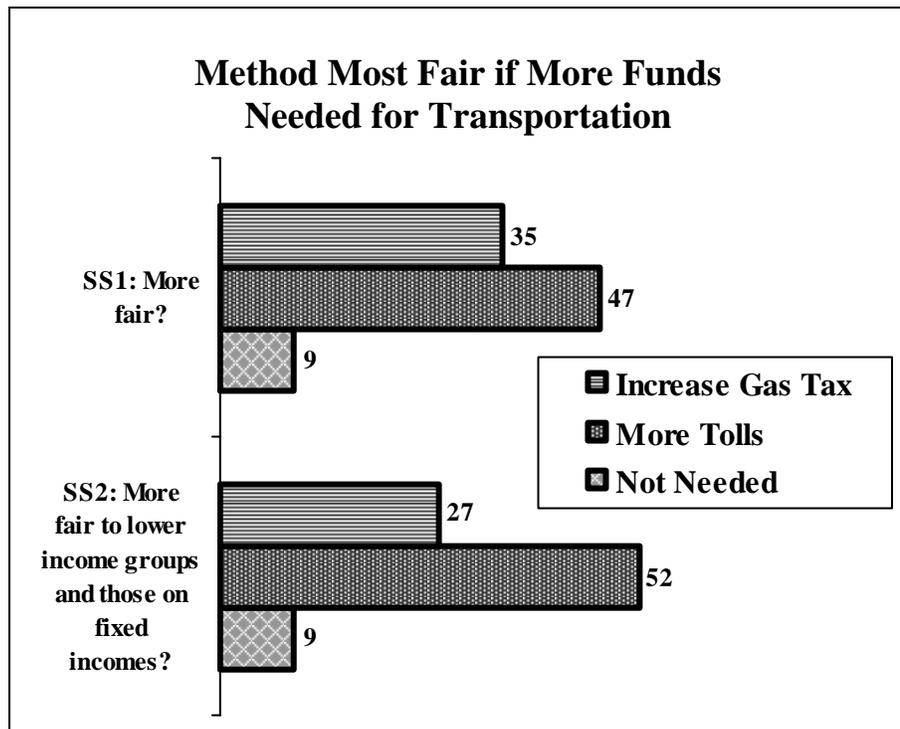
Of those who disagreed with the pricing philosophy, we tested to see if it might be due to the perception that drivers had to stop at toll booths. The answer, in short, was that the fear of having to stop was only a minor consideration: 24% of the disagreeing public (or only 15% of the total population) switched to the agree side once they were informed that pricing would not require them to stop at toll booths. Almost 7 out of 10 still disagreed with pricing for traffic management, so obviously there are other considerations at play and our

supposition would be the same factors that were brought up in the previous section – fear of government manipulation and/or intrusion, and sympathy for those who do not have flexible work hours.

**28. Concern about low-income and fixed-income groups gains tolls five percentage points in preference over an increase in the gas tax.**

Once the idea of tolling was on the table and a straightforward comparison with the gas tax could be made, we tested perceptions of fairness – that is, which method of raising funds would be considered more fair to lower-income and fixed-income groups, raising the gas tax or putting tolls on more highways.

Using a split-sample technique, half of the sample heard this question: “All in all, if more funds had to be raised for transportation within the state, which method do you feel would be more fair ... increase the gasoline tax or put tolls on more highways and roads?” The two offered choices were rotated.



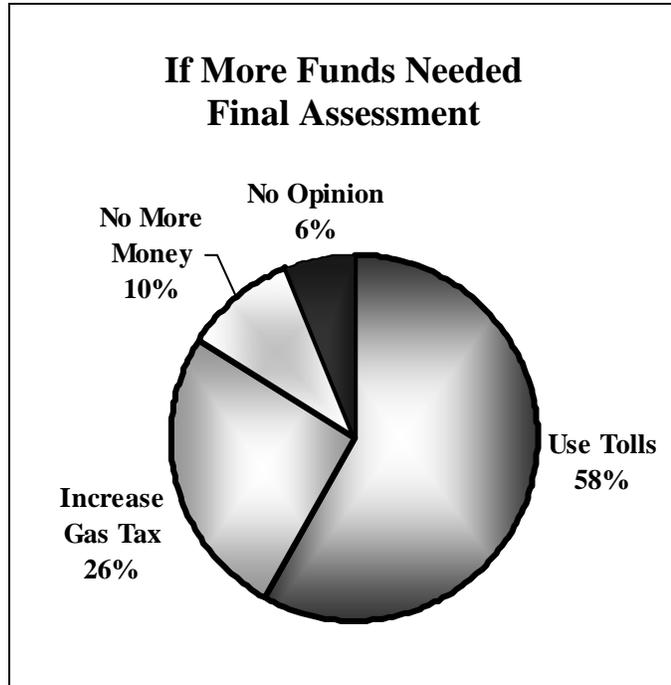
The other half of the sample heard the same wording but with the added phrase “... be more fair to lower income groups and those on fixed incomes ...”

As can be seen on the accompanying chart, referencing lower SES (socio-economic status) groups pushes sentiments five percentage points in the direction of using tolls more. In other words, tolls are seen as less onerous for lower-income groups than an increase in the gas tax.

**29. By the end of the interviews, support for toll roads as a preferred way to provide additional funds had substantially improved.**

After all other substantive questions had been asked in the interview and the only remaining items were demographic questions, the respondents were asked for their summary position about additional funds:

“All things considered, if additional funds were needed to fund future transportation improvements, which of these would you prefer – increase the gasoline tax to pay for the improvements ... or ... Use tolls from the drivers who use the improvements?” These choices were rotated and we also captured those who volunteered that they rejected both choices and preferred that no additional funds be raised.



What this says is that the more people are exposed to the issue, and the more they are given various points of view to think about, the greater the attraction to tolling as a source of revenue over an increase in the gasoline tax.

**30. Focus group results are early warning indicators.**

One thing to keep in mind about focus groups is that a little bit of cynicism or a distorted understanding expressed by one person can cause others to exaggerate their concerns. And we find in follow-on, statistically projectable surveys, as we have on a couple of points in the present study, that a majority of people may not share their fears. Nonetheless, there is a pattern that should be noted: surveys measure attitudes as they exist within a 15-minute focus on a topic; focus groups can reveal what *may* (and I emphasize it only as a possibility) happen if and when people pay more attention to an issue, as we simulate during a two-hour discussion..

At the very least, focus group results, when they may differ from the survey results, can be an early warning mechanism. In the present case, the cynicism about government use of the toll revenues did not achieve majority status. But consider it an attitude just underneath the surface (and held by a vociferous minority in some

cases) that at any rate we must take pains to address. In the present examples of fairness or workability of traffic management, people are looking for reassurances, for track records and histories of the ideas under discussion, for they want to believe the best will out, a measure of cynicism notwithstanding.

**31. People are more open to tolling if they have an alternative non-toll option.**

A few participants voiced concern about the fairness of tolling if a low-income or fixed-income person does not have a viable non-tolling option. Whether this was a legitimate concern for others (I have my doubts) or a convenient hide-behind excuse to oppose certain types of tolls was not clear. Either way, we can expect the fairness issue to be an important element of any debates.

*“Some can’t afford it. What about the people who don’t have alternative modes of travel?” (Man, Vancouver)*

*“I like the idea of individual lanes instead of the entire road being tolled. If it’s a lane, it’s a premium lane and goes faster. You have the option. I don’t like being forced to pay a toll. If I have the option and I’m in a hurry, then I’ll do it. Otherwise I’ll sit in traffic.” (Man, Bellevue)*

Stakeholders were generally not that enamored with the tolling of an entire road, but did like the idea of HOT lanes where drivers had a choice.

Regarding parallel or alternate facilities, a dilemma exists between the belief that an alternative is needed for those who don’t want to use a toll facility, but also the need to toll parallel facilities (as in the 520 and I-90 bridges) to avoid “toll avoidance” impacts on the toll-free alternative. Important to this discussion was the need to offer choices to travelers.

**32. People will pay if they feel they are gaining more control over their lives.**

Control over one’s life is an often-expressed value in behavioral research that is stronger than may initially appear on the values radar. People will spend time or money if they can see a clear ability to gain more control over their lives. But they will resist if they feel they are being forced to do something which provides few benefits and/or if they feel they do not have an alternative.

I asked a Yakima group what conditions they would place on any new tolling facility and their immediate answer was that the revenues had to be spent on the facility under consideration and not transferred to some other project. This is, in essence,

an indicator of control. They feel they have control because they, as users of the facility, can then believe that their dollars are providing an immediate benefit to them.

**33. HOV lanes are not viewed as generators of new carpools.**

Almost all of the participants in the focus groups agreed that people use the HOV lanes mainly when they are already traveling together, such as a social evening, rather than forming a carpool with the express purpose of taking advantage of the HOV lanes. As one woman in Bellevue put it, “The only time I used it was when I had a baby. I never considered pairing up with anybody.” In the other Bellevue group, two women brought up the same theme:

*“I have mixed emotions about carpool lanes. The true purpose of carpool lanes is to get cars off the road. Driving a 10-year-old kid doesn’t get a car off the road.”*

*“Carpool lanes don’t encourage carpools. Few form a carpool to use the lane. They’re either formed already or not.”*

The same sentiment was also expressed in the second Yakima group.

**34. People did not think highly of six of eight funding ideas.**

Each group was read eight ideas for paying for transportation facilities and asked to rate each on a 0-10 scale. Two of them scored above 5, considered the mid-point between acceptance and rejection while six fell below:

<b>Funding Idea</b>	<b>Average Score (0-10 Scale)</b>
Build a new road or bridge and put a toll on it to help pay for construction and operations	7.8
Offer more incentives for high-occupancy vehicles (HOV), such as allowing them to use toll facilities for free	6.4
Toll an existing road or bridge to help pay for its improvement, maintenance and upkeep	4.6
Use tolls that vary by time of day or congestion levels to manage traffic flow, so we don't have to build as many highway lanes	4.4
Increase the gasoline tax	3.3
Charge drivers a fee to enter congested urban areas – known as cordon tolling – such as is done in London	2.6
Eliminate the gas tax and replace it with an annual fee based on how many miles you drive	2.4
Eliminate the gas tax and put tolls on the whole roadway system with different prices based on where and when you travel	2.3

**35. There is a substantial difference between tolling a new facility and an existing general purpose facility.**

This has been known for a long time, but it was clearly expressed in the discussions. Tolling an existing general purpose facility brings cries of double payment while placing a toll on a new facility can be seen as a reasonable move. Because of their present perceptions of tolling, let alone the fact that the idea of tolls for traffic management is still a distant concept to them, they do not grasp how converting an existing lane into a HOT lane will speed traffic. To them, it's the same volume and the same capacity with tolls as the only new feature. It doesn't compute for them.

When a new facility comes on line, however, it's a different story. If they're ever likely to believe that there may not be enough money generated from the gasoline tax to cover a project, it will be when that project is being built – when it is visible and they see actual work underway.

### **36. There is general apprehension about a statewide tolling system.**

The participants in the focus groups did not take to the idea of a comprehensive tolling system and built their answers to this idea around five responses:

- Complexity
- Too drastic of a change
- Comfortable with the gas tax
- Fear of abuse and fraud
- Fear of writing a blank check

The blank-check fear was based on lack of detail. They asked where the dividing line would be between tolled and non-tolled roads. Some feared that government over time would turn more roads into toll roads than needed because it would be seen as an easy way to increase funds.

In answer to a question of whether a comprehensive tolling system would benefit or hurt people in the less populated areas of the state, the Yakima participants were split. They could see how they might be hurt if tourists would not pay to visit their part of the state. On the other hand they could see a benefit to a total system if it got rid of the gas tax, but as one man said, “I would be inclined to support one or the other, but don’t give me both.” And another one opined, “The gas tax system is not a broken system. We have problem areas, but the system should be tweaked, not reinvented.”

*“In lieu of state funding, they’d turn it over to bidders. A company would put it in and then they would charge. I don’t want to be part of that.” (Man, Yakima)*

If Regional Transportation Investment Districts (RTIDs) receive tolling authority, some stakeholders foresee the possibility of the RTIDs becoming the preferred source of funding for local projects wherever they are created. The fear is that if they were to be created in the more populous counties of the state (which are the only places they are seen as feasible), then we could see the development of a series of fiefdoms that help themselves, with no one willing to pay for statewide improvements. This could leave the less populated rural areas without transportation funding.

### **37. Cordon tolling generates heat on both sides.**

All in all, this idea is probably ahead of its time if the focus groups are indicative of statewide voter sentiments. While, for example, the last Vancouver group was split 50-50 philosophically, the intensity of opinion was definitely on the anti side. An urban area would have to have the enticements and popularity of London to with-

stand cordon tolling. As one woman said, she'd simply find other places to shop. The European model where the most desirable homes are closer to the center of the city is not duplicated in America, where the reverse obtains. Hence, cordon tolling may not be that transferable.

*"If I had to pay a fee to get into my own area, no way." (Woman, Bellevue)*

*"It's a terrible idea, a recipe for recession in that congested area. I'd find another area to shop." (Woman, Vancouver)*

*"Is it realistic and can it be done? I think it was an excellent idea." (Man, Vancouver)*

### **38. The annual mileage fee idea is a loser.**

This one definitely does not make the grade at the present time although one never knows how attitudes may change in the future. The more people thought about it, the more questions they had. They talked about complexity and that a mile is not a mile because of the different vehicles people drive. They saw too many opportunities for abuse and too much government intervention. They also felt it was unfair to those who drive lighter weight cars, that is, the vehicles that don't cause as much wear and tear on roads as heavier cars driving the same number of miles. No one in the six groups rose to its defense.

*"It punishes people who have tried to be ecologically conscious." (Woman, Bellevue)*

*"How would they be able to organize the annual mileage fee?" (Woman, Vancouver)*

*"It's almost unworkable." (Man, Vancouver)*

### **39. One group's glimpse into the future suggests that several of the tested ideas will become fact.**

In conjunction with the presentation of the eight ideas, I asked the first Yakima group how they saw the future of these ideas – what the situation would be 10 or 15 years from now. They unanimously felt that the gas tax will have been increased at a rate exceeding the rate of inflation, that Seattle area roads would be mostly tolled, incentives for use of HOT lanes would be common, and that cordon tolling was a 50-50 possibility. They did not believe they would see an annual mileage fee or pricing the dominant reason for tolling; tolling would still be instituted mainly for revenue.

#### **40. Cynicism about government spending blocks acceptance of creative funding approaches.**

First there is the well-known cynical belief that government never rescinds a tax. So, many focus group participants said that tolls, once established, will never go away even after their initial objective has been reached.

Second is the suspicion of the unknown. Because people fear change, new ideas will always arouse suspicion of hidden costs and hidden ways of funding them. This is why publicizing the track record of tolling methods in other locales is so important in gaining the trust of the people. While everyone likes to view their state, county, city, neighborhood as innovative and forward looking, they simultaneously do not want to be the guinea-pig pioneers. Much better to show how creative tolling has worked in other states before expecting a state where there are presently no toll roads to embrace the tolling idea in general.

Third is the suspicion that government has an ulterior motive – to so complicate the funding process with taxes, tolls and fees that people will give up and accept a broad taxing system, such as imposing a state income tax, because of the annoyance of it all.

Whether these are true in fact is not the point. In cases of public persuasion, perceptions are the reality we must deal with.

*“They’ll never give up the tolls. They’ll never give up money once they have it.” (Woman, Vancouver)*

*“They haven’t shown us they’re using the money well that we’re already giving them.” (Woman, Bellevue)*

*“Government takes a whole lot of our money and I’m not pleased that it keeps going up ... now we learn they have a horrendous surplus. Would just as soon have my money back. They get a lot of money from everywhere.” (Woman, Vancouver)*

*“What they want to do is hit us with a state income tax. At some time we’ll give in and say it’s better than all this other kind of stuff.” (Woman, Bellevue)*

Even with all that said there was a deeper understanding among some participants in the group that tolls had to be calculated to buy more than the physical plant, that money had to be set aside for ongoing maintenance.

*“You can’t pay all that money [for a tolling facility] and then don’t pay for maintenance.” (Man, Yakima)*

#### 41. Miscellaneous points:

- If left up to them and given only two choices, people in the focus groups would collect 80% of transportation funds from the gas tax and 20% from tolls.
- Vancouver participants claimed that traffic on I-5 moved faster when they got rid of the HOV lanes.
- There was strong agreement in Yakima that WSDOT should put in a tunnel over Snoqualmie Pass for passenger vehicles only and turn the present route into a trucks-only highway.
- Many participants who spoke to the financial situation seemed to have a distorted view of bonds, as if bonds were a magic solution to funding projects. At least on the surface, few indicated that they knew that bonds by themselves are not a source of money, only a means of advancing funds that have to have a source.
- Yakima participants thought trucks should be charged double whatever passenger cars are charged.
- No one in the last Yakima group remembered unaided anything on the ballot last year about the gas tax; there was no mention of Initiative 912. When I said the number of the initiative, it was only vaguely familiar to a few. As one man said, “After the election is over, I forget about it.” For all their complaining about taxes, people do not have much memory of related issues even only a few months later.
- The role of public transportation came up periodically in the groups. The problem, they said, was the time it takes to get somewhere, what with transfers and waits.
- The first Yakima group was asked which government agencies they trusted and distrusted. They trusted the attorney general and emergency services. Their distrust was mainly social service agencies.

#### **42. Final advice to the Washington State Transportation Commission.**

At the end of the four Yakima and Vancouver groups, the participants were asked to write down the advice, suggestions, ideas and recommendations they would give to the Washington State Transportation Commission. There were six main themes:

- Consider alternative transportation ideas; mass transit
- Use transportation dollars for transportation projects only
- More public communication and involvement
- Consider affordability factors
- Improve existing roadways
- Use tolls to help specific areas

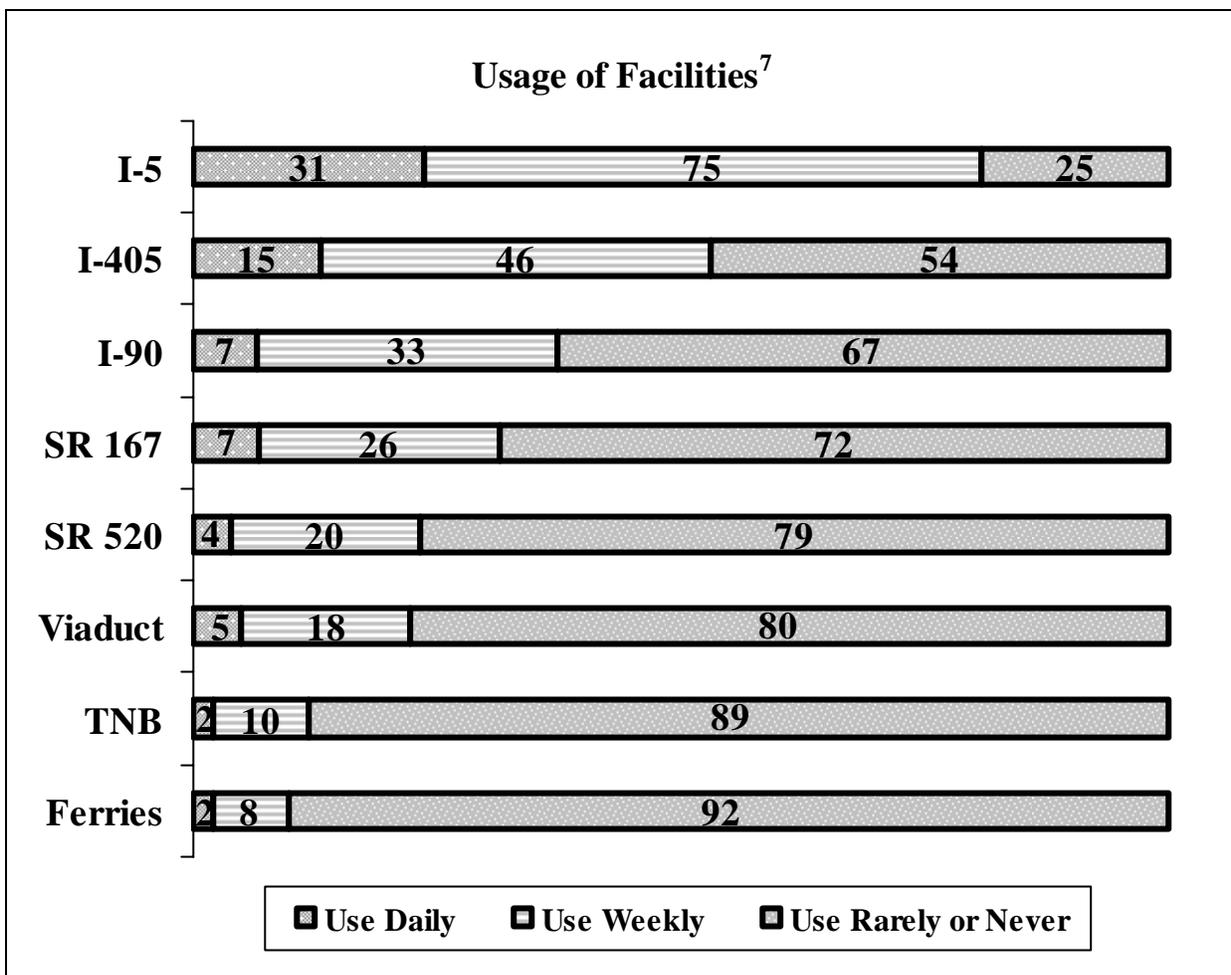
Communicating the need for transportation improvements as part of the economic health of the state is essential. Stakeholders understand the importance of goods movement to the state's economy and to the future transportation system, and they believe that raising awareness about the importance of the economy and goods movement to all citizens is an important rationale for explaining why we need tolling. We have to explain that if we don't pay to improve the transportation system, the whole state will simply lose business to competing states and countries.

## Specific Area Analysis: Puget Sound

Respondents in the four-county Puget Sound market were administered an additional 24 survey questions.

### 43. Usage of facilities follows predictable patterns.

I-5 and I-405 are used respectively by 31% and 15% of the respondents almost daily. Average weekly use of key freeways, highways and bridges is as follows:



<sup>7</sup> During an average week, how many days do you use the following freeways, highways or bridges ... 5 to 7 times a week, 3 to 4 times a week, once or twice a week, rarely or never?

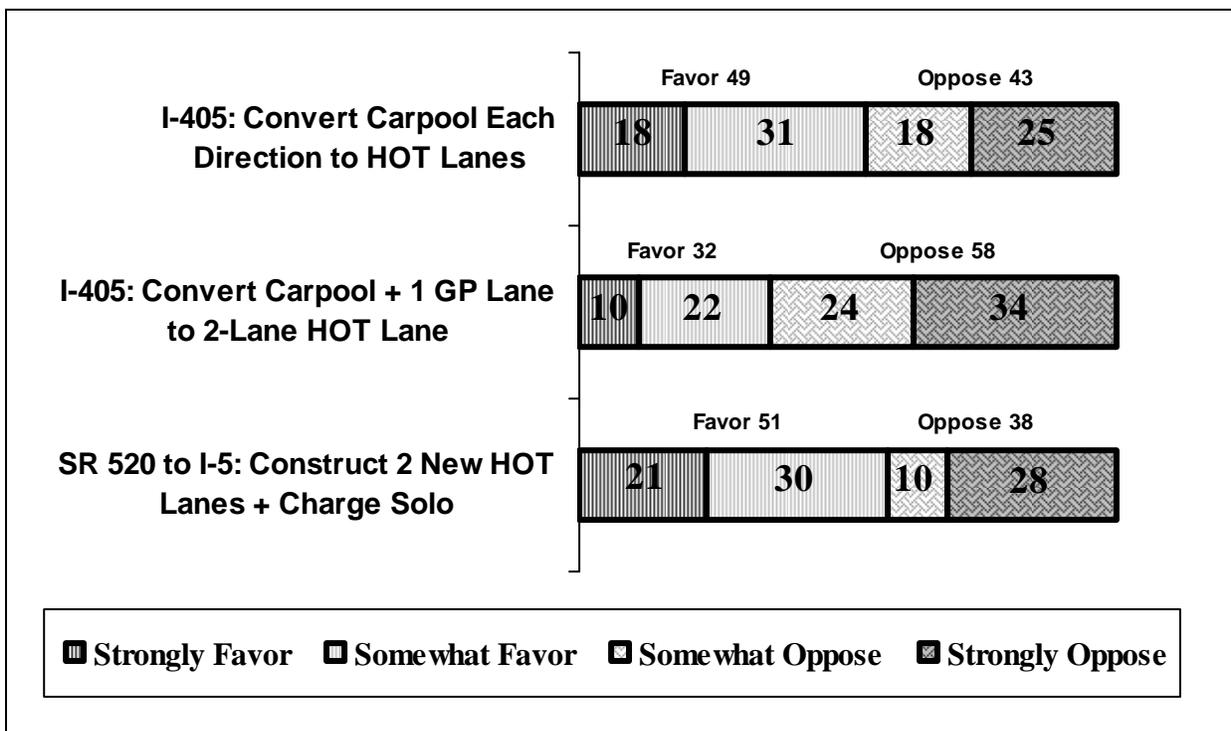
**44. Snoqualmie Pass is used by most Puget Sound residents at least once a year.**

One out of seven traveled over the Snoqualmie Pass within the last 30 days, 56% within the last six months, and 79% within the last year. Of those who traveled over the pass within the last year, 25% of them encountered a time when they wanted to travel over the pass but decided not to because of road conditions in the pass or because it was closed.

Such results suggest there should be substantial support for tolling on the pass and using the funds for improvements as discussed elsewhere in this report.

**45. Puget Sound residents would support converting existing I-405 carpool lanes but resist converting existing general purpose lanes into HOT lanes.**

These questions about HOT lanes came after all of the general questions in which such concepts as HOT lanes had already been described. Here is how the Puget Sound sample responded to three favor-oppose statements:



Two of the three proposals garner a plurality of support over opposition mainly on the strength that the proposals would make more capacity available, either in newly constructed lanes or HOV lanes to people who do not currently use HOV lanes. The question might be why only a bare majority of 51% would favor two new HOT lanes, and the answer might lie in the focus group discussions where people did not readily catch that HOT lanes are HOV for carpoolers but solo drivers can pay to use them. This should be made clear in any messages to the public. Otherwise they may think that only solo drivers can use them, as odd as that misunderstanding might sound.

As for converting an existing GP lane into a HOT lane, the 58-32 opposition to it bears out what virtually every focus group told us – what’s mine is mine and any changes should be in the direction of providing new lanes.

**46. Reactions to changes on Interstate 5 were very similar to attitudes about Interstate 405.**

Two of the same statements were asked about I-5:

Proposal	Strongly Favor	Somewhat Favor	Somewhat Oppose	Strongly Oppose
On I-5 in King County, convert the existing carpool lane in each direction into a H-O-T, or high occupancy vehicle lane.	16	32	14	32
	<b>Favor 48</b>		<b>Oppose 46</b>	
On I-5 in King County, convert both the existing carpool lane and one existing general purpose lane into a two-lane H-O-T lane.	11	22	22	39
	<b>Favor 33</b>		<b>Oppose 61</b>	

Opposition to these two ideas was stronger about I-5 than I-405. In a world where the proposals have a fighting chance, one would expect to see the strongly favor and the strongly oppose numbers about the same. In the cases of these identical propositions for each of two major freeways, the intensity is on the side

of the opposition, especially when it comes to converting a GP lane. It will take time and ongoing public open houses and explanations to win over a majority of the population.

**47. Cordon tolling and replacing the gas tax with a blanket tolling system are too big of a change for Puget Sound to support at present.**

Only 20% of Puget Sound residents took a liking to the idea of identifying the most congested part of downtown Seattle and charging vehicles a fee to enter that area. The intensity against this idea was 11:1.

Similar numbers obtained when people were presented with two ideas in split-sample format:

“Eliminate the gasoline tax completely and in its place make every major highway in the state a tollroad, assuming no stops to pay tolls will be required. Assume the same amount of money is collected either way.”

“Make every major highway in the state a tollroad, assuming no stops to pay tolls will be required, and use the funds to eliminate the gasoline tax. Assume the same amount of money is collected either way.”

Both versions of what is actually the same concept achieved the same one-out-of-five support. There was greater intensity against the idea if the elimination of the gas tax is the first thing out of the chute. Much as people may complain about the tax rate, they’re comfortable with it. Their resistance to the idea is not as much the fear they would have to stop to pay the toll (as we discussed earlier) as much as it is too big of a change and too much to institute in one fell swoop. Again it will take time for comprehensive tolling to catch on. And cordon tolling will take at least an equivalent time to become accepted by a majority.

**48. A combination of gas tax and specific tolled projects is one of the three most acceptable forms of tolling at the present time.**

The statement presented was phrased:

“Keep the gasoline tax the way it is and use tolls to help pay for specific big-ticket transportation projects.”

Support for this concept reached 65% and the intensity was also on its side by a 3:2 margin. This is the general fall-back philosophy when it comes to tolling, but it does not mean that all big-ticket projects will enjoy the same level of support. As always, details and locations matter.

**49. The two other most popular tolling projects involve the 520 bridge.**

Two proposals were presented:

“Put a toll on the 520 floating bridge to help pay for its replacement and improvement.”

“Put a toll on both the 520 floating bridge and the I-90 bridge for a variety of transportation improvements across Lake Washington, including transit.”

Here tolling enjoys its highest support, 74% and 60% respectively. And in each case the intensity is on the proponent side. The key word in each proposal is *improvements*.” While opposition will surface, as it always does, messages about improvements should carry the day.

**50. Converting the existing carpool lane on SR 167 is a toss-up.**

The stretch of road under consideration is between I-405 in Renton to 15<sup>th</sup> Street in Auburn and the favor-oppose percentages are 39-40. But intensity is on the side of the opposition by better than a 2:1 margin.

**51. Although there is evidence people want something done over Snoqualmie Pass, specifics may trigger defections.**

Even though a fourth of the Puget Sound sample has been frustrated in attempts to cross over the pass in recent months, support for tolls to pay for a climbing lane for trucks and for better maintenance falls short of a majority by a 42-52 margin. As we’ll see in the next section, even the I-90 corridor in the eastern part of the state gives it only four more percentage points in support, 46-50. But all in all, support (even without intensity) is close enough to the majority status that this public outreach and education program can be successful.

As for what Puget Sound voters say would be a fair amount to pay if a toll over the pass were established, the median amount is a little over one dollar. Note that people will always volunteer the low end of the range of acceptability. Further, we don't need all of Puget Sound traveling over the pass to make a toll there viable. There were 14% of the sample who said they would consider tolls in excess of \$2 to be fair.

## Specific Area Analysis: I-90 Corridor

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The nine-county I-90 corridor residents were asked four additional questions, but first a few more observations from the focus groups.

### **52. Tolling Snoqualmie Pass should trigger less opposition than putting tolls on other locations.**

There are two reasons for this: (1) in comparison to other possible tolling locations, Snoqualmie Pass presents more visible things the state could do (and in the eyes of many, should do) to improve the road and the safety of drivers; and (2) there is an widespread recognition of the importance of this east-west artery to the economic well-being of the entire state.

Both the visible the need for improvements and the connection to the economy produce a high likelihood that the public will support tolls over the pass that fund improvements. The things people said they wanted done read like they had a copy of WSDOT's wish list: build a tunnel under the most dangerous segments of the pass, improve the road bed, widen the corridor to provide wider lanes and better shoulders, construct a new lane for slow trucks, more webbing for rockslides, and so forth. Whatever the state decides to do to the pass should meet with general approval from the traveling public, if the participants in the Yakima groups are indicative.

Tolls came up unaided quite early in both Yakima groups. It seems that they had already figured out that improvements over the pass would not happen fast enough if they had to wait for the normal funding processes to play out.

When asked what they would consider a fair toll one way over the pass (with the assumption that tolls will only be collected in one direction), the amounts ranged from one dollar to five dollars. The two Yakima groups seemed less price-sensitive on this matter than the groups in Bellevue and Vancouver were about tolling facilities in their areas.

*“\$1.50 to \$2.50 is not a big deal.” (Man, Bellevue)*

**53. Travel over Snoqualmie Pass does not differ markedly from patterns on the western side, but more from the eastern side have been frustrated because of pass closures.**

One in five has traveled over the pass within the last month, 58% within the last six months and 76% within the last year. The frequency of travel is higher in the I-90 corridor counties than from Puget Sound, but the total percent of travelers within a year's period is higher by a touch on the western side of the Cascades.

While a fourth of Puget Sound residents have been frustrated in their desires to travel over the pass within the last 12 months, that figure for the east side is one third.

As stated in the previous section, support for a toll over the pass for a truck lane and better maintenance reaches 46%, but 50% say they would oppose it and the intensity is stronger for the opponents. Nonetheless, this is a winnable situation if framed to the frustration travelers have felt.

The median toll considered to be fair for a trip over the pass is about the same as given by the voters in Puget Sound – just over a dollar a trip in each direction. In the same way, an equal percentage of voters in the I-90 counties are willing to view tolls in excess of \$2 as fair, just the same as the Sound.

## Specific Area Analysis: Vancouver

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The Vancouver market was defined as two counties and voters in this area received an additional nine questions.

### **54. Tolls on Columbia River bridges will only be accepted if they are part of a larger traffic circulation plan.**

Those who have taken the Tacoma Narrows Bridge (mainly discussed in the Bellevue and Vancouver groups) and those who use the Columbia River bridges lodged similar complaints: it's what happens after one crosses the bridge that is the problem.

For users of the Tacoma Narrows Bridge, the chokepoint is getting onto the I-5: As one Vancouver participant who has used the bridge put it, "The problem is I-5 at the Tacoma Dome; it's not the bridge." For those crossing from Vancouver to Portland, the problem is Delta Park. Snippets from three men in the first Vancouver group reveal the perception of even an international problem at that point:

*"The bridge here connects to Delta Park and then you're nowhere."*

*"To put a better road thru Delta Park, you'd have to buy hundreds of acres."*

*"There should be moneys available from NAFTA because I-5 becomes a bottleneck in the Delta Park area. Commerce from Canada and Mexico stops at Delta Park."*

Obviously, as WSDOT has known for some time, it's a system problem rather than a component problem.

The "captive audience" dilemma is a desirable condition for tolling, but also lends itself to the outcry of unfairness for the same reason that makes it desirable. In the view of some stakeholders, Vancouver faces the same potential dilemma as Kitsap Peninsula if bridge improvements toll both the I-5 and I-205 bridges. This would affect the 60,000+ people who commute daily across the river to jobs in Portland.

**55. The idea of a new toll bridge across the Columbia triggered several interesting observations.**

The annoyance of slowing traffic across the bridges is more of a hindrance to the acceptance of tolling than the cost of the toll itself. The idea of bridge tolls did not bother the Vancouver participants from a cost standpoint as much as it did from a time standpoint. The first Vancouver group was unanimous in its concern that tolls for bridge crossings would slow traffic rather than facilitate it.

Should a new bridge be built, the second Vancouver group was unanimous that it should be funded with tolls rather than by an increase in the gas tax.

Should a new bridge be built, the Vancouver participants thought, on average, that a fair amount to charge would be \$.85. What they would be willing to pay would be \$1.35. As in other groups we've tested, neither the perceived fair price nor what they claim they would be willing to pay comes up to the probable true cost. This is not a worrisome item, however, in that it is human nature to always be on the low side of one's true willingness, just in case a lower stated willingness might have an influence on those setting the prices.

The Vancouver groups were splattered in their opinions of where a new third bridge should be built: 9 would put it closer to or even west of the I-5 bridge, 5 near the I-205 bridge, and 2 east of the 205 bridge. Not much consensus other than their overall favorability toward having a new one.

*"I'm not against a new bridge, but you'll still get to Delta Park and it's bumper to bumper." (Man, Vancouver)*

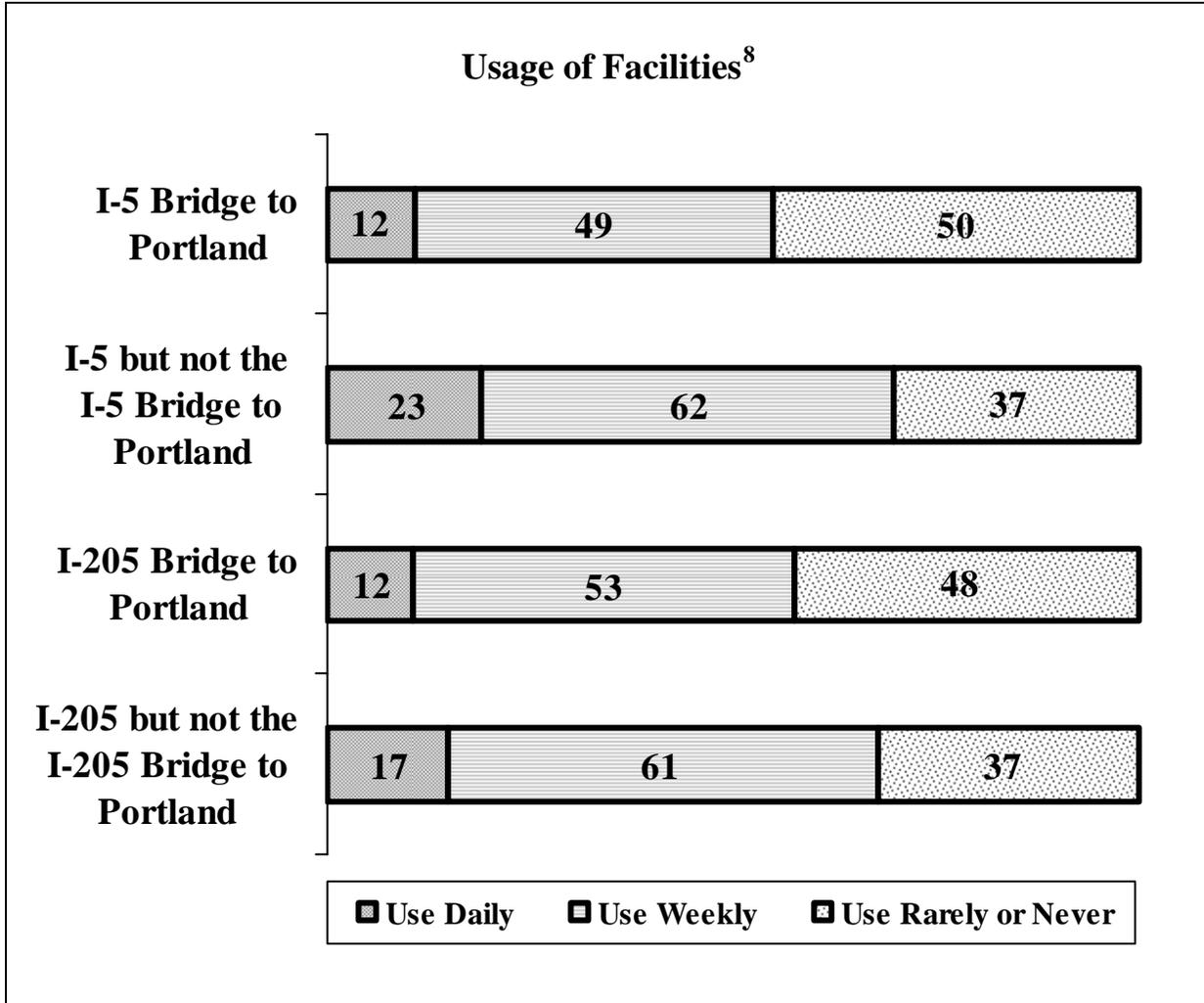
*"I can visualize express lanes on 205 [bridge] going under, but good luck on 5." (Man, Vancouver)*

But the best comment ...

*"You have to put it so you can get somewhere." (Woman, Vancouver)*

**56. A majority of the Vancouver market will use the bridges once or more times a week.**

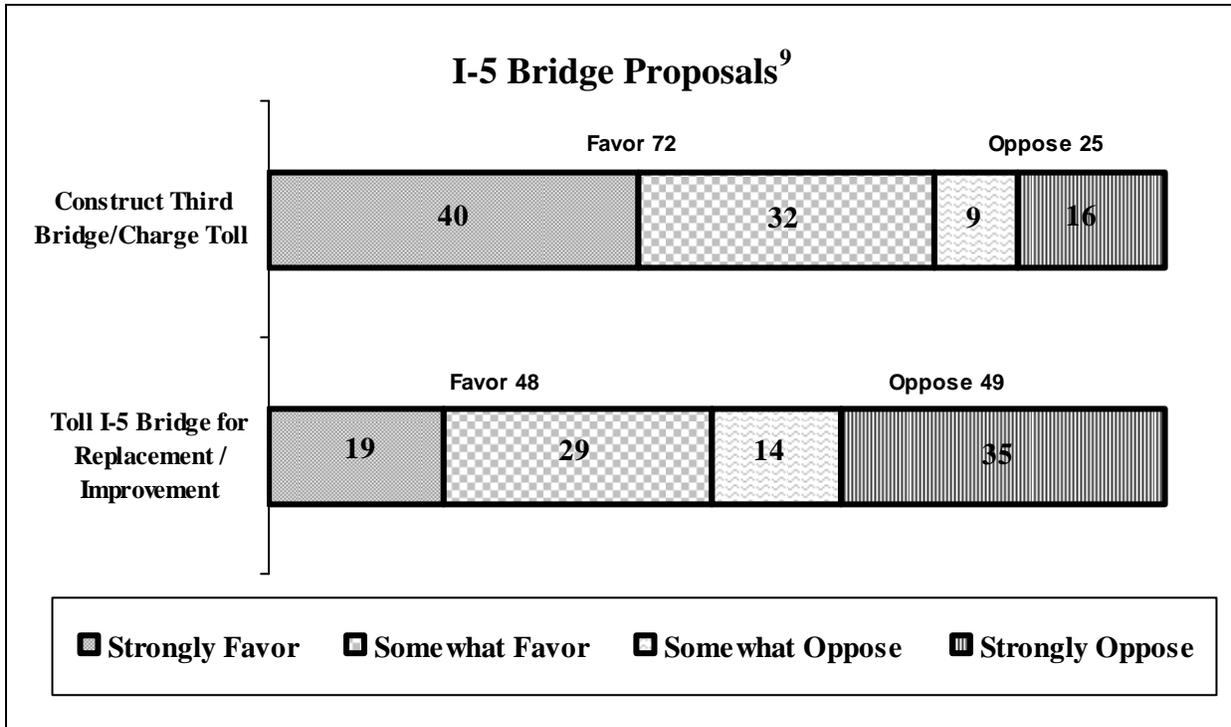
Four questions about use of freeways and bridges were put to the Vancouver market:



<sup>8</sup> During an average week, how many days do you use the following freeways, highways or bridges ... 5 to 7 times a week, 3 to 4 times a week, once or twice a week, rarely or never?

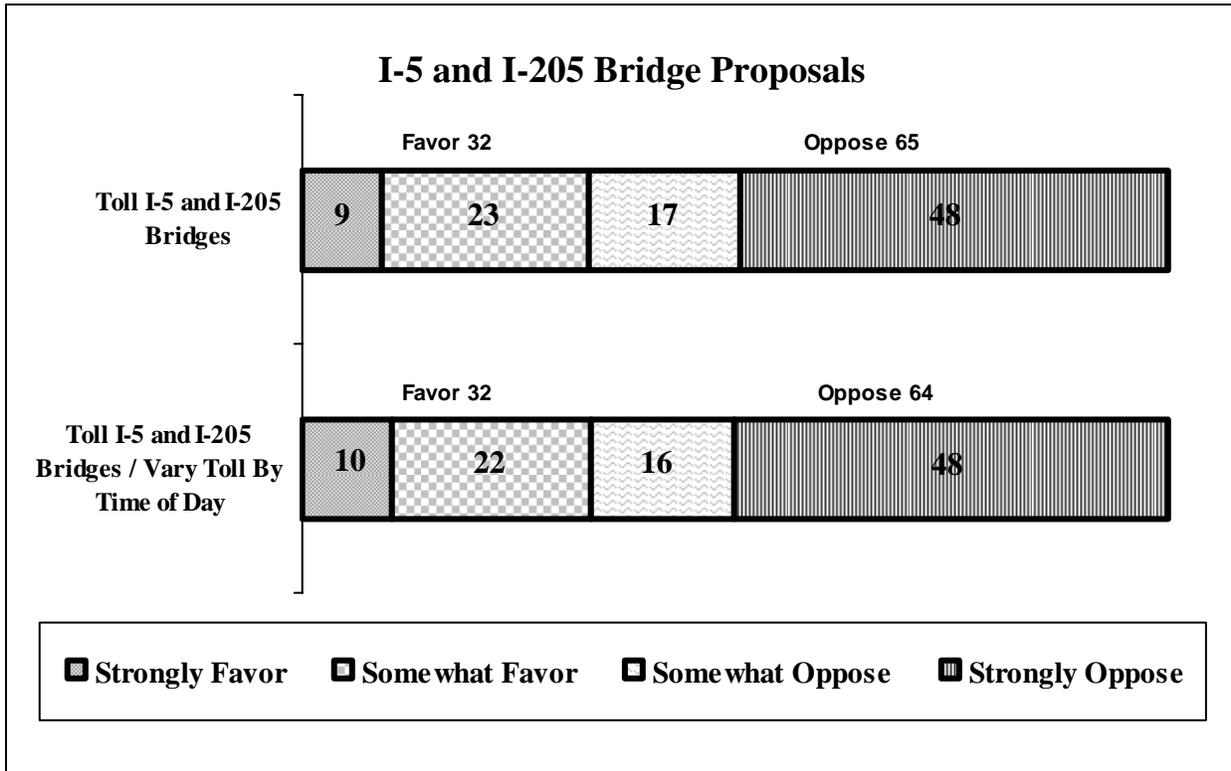
**57. There is strong support for the construction of a new third bridge but ideas for the I-5 bridge are opposed.**

When the idea of building a new third bridge and making it a toll bridge was presented, 72% said they would favor it and 40% said strongly favor. This compares to only 25% opposed. Putting a toll on the existing I-5 bridge, on the other hand, is a dicier prospect. Note this comparison:



<sup>9</sup> For each project I read you, please tell me whether you would ... strongly favor, somewhat favor, somewhat oppose, or strongly oppose ... placing a toll on it if the toll funds had to be used only for that project.

Two other ideas, presented to split samples, fared worst of all:



Note that the reference to traffic management and the enticement of better traffic flow did not decrease the intensity of the opposition. Of all the proposals put before the Vancouver market sample, this one faces the toughest sledding.

If and when tolls for traveling over the Columbia River are established, over half of the sample thought that a toll of less than a dollar in each direction would be a fair charge. Another 15% said it should be free, and 14% said a fair toll would be somewhere between one and two dollars. In comparison to what I-90 travelers would deem a fair toll going over Snoqualmie Pass, voters in Vancouver are substantially below them. Perhaps they view their bridges and the need to cross them as more of a right the state owes them.

As we have seen elsewhere in this report, time and a constant education program will be required to build support for these proposals that the Commission and stakeholders at various levels all know must come sooner or later.

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