

Tolling in the Puget Sound Region: Discussion of Commonly Raised Questions and Issues

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Introduction

People are accustomed to funding roads through fuel taxes and vehicle fees. These are tried and true methods; and while citizens may not like paying their fuel taxes and vehicle fees, they generally understand how these mechanisms work, and have built up their traveling behavior on the basis of this system. Since vehicle fees are paid once per year, and fuel taxes are mostly hidden in the price of fuel, drivers tend to treat driving as “free,” and it appears as if roads are provided by the government as a public good. By “public good,” it is meant that the roads are accessible to any citizen at any time; and that the cost of developing, operating, and maintaining the system is borne by the population as a whole.

Around the United States and around the world, tolling is seeing resurgence. There are two main drivers: 1) bridges and highways are increasingly expensive to build, and there is little public appetite for tax increases; and 2) modern electronic tolling technology allows creative new tolling applications that not only raise money, but potentially enhance transportation system performance through variable tolling.

The policy issues surrounding tolling have always been somewhat complicated, with the main question being, “why should my project have to be paid for with tolls when other projects are provided ‘for free’ by the state?” In the past, this public policy issue has been skirted because tolling has come about through local or regional initiative, with local elected officials taking matters in to their own hands when state governments have been unable to develop new highway capacity quickly enough. Traditionally, toll projects have paid for themselves – the capital, operating, and maintenance costs were bonded, and toll proceeds over the period of decades were used to pay off the debt. There are very few toll projects today that can be funded entirely with tolls, which complicates the public policy calculus.

There are now a variety of reasons to support and to carry out tolling. Tolling is hailed by some as the solution to transportation finance woes, as well as a means of solving congestion. Since all but the simplest of tolling applications are as yet untested, most people have little experience with these new approaches. It is not unusual for people engaged in a conversation about tolling eventually to realize that they are not talking about the same thing at all.

There are numerous tolling proposals in the Puget Sound region, yet the specifics of how this tolling would be carried out are unknown and untested. For every tolling application, there will be winners and losers. The winners may consider the toll a bargain, or at least feel indifferent between paying the toll and saving time. Those made worse off, either directly or indirectly, are likely to view tolling as expensive or as a less affordable alternative to new capacity funded with new taxes and fees. Even those made better off, however, may question tolling as the most appropriate or legitimate solution.

The public will need to be satisfied that other solutions to congestion and improving access such as, say, ramp metering, land use and parking policies, transit investments, and other forms of funding, including raising the fuel tax or requiring new development to fund its fair share of new capacity, are not superior to tolling or at least included in a portfolio of funding and demand management solutions.

New tolling projects, therefore, should start with studies that identify those portions of the public directly and indirectly affected by a planned tolling application and a reasonable assessment of the extent of these impacts. They should also consider the extent to which a tolling application is successful at achieving stated policy objectives.

What is the Purpose of this Working Paper?

As noted above, the questions and issues associated with tolling are complicated and multi-faceted. Puget Sound transportation agencies have worked together to define 12 key questions that cover the spectrum of issues that should be addressed when developing a tolling program or an individual project. The purpose of this document is to provide information that answers the question or helps address the issue. It is intended to be a resource for staff as tolling policy and projects are developed in 2008 and beyond.

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This product is dynamic and will undergo numerous updates over time as particular questions require more investigation. The initial version of the document is intended to provide context to these questions, bring in experience in answering these questions from other work done in Washington State or around the world, and identify future areas for investigation. Future versions will provide results from technical analyses that are conducted in 2008 and beyond. As such, the three-ring notebook format of the document is intended to allow easy replacement of individual sections.

What are We Really Talking About?

In the not-to-distant past, we built “toll roads”, “toll bridge”, “toll tunnels” and “turnpikes”. These all involved using direct user charges (tolls) that would be collected over a period of years to pay back the initial cost of building an expensive transportation improvement, and usually to operate and maintain it for that period. Often, legislation, policy, or practice resulted in these tolls being removed after the initial project debt was paid off, but just as often (or maybe more often), extensions or enhancements to the original facilities were needed, and the period of toll collection was extended. In a few cases, toll revenue was used to subsidize transit services in a particular area. In all cases, however, the purpose of tolling was unambiguous: to raise money.

In the 1990s, this simplicity changed forever. Non-stop electronic toll collection techniques allowed toll facility operators to become more creative with how tolls were applied. Toll could be varied by time of day or day of week, or even according to real-time traffic conditions. Over the years, the terms “congestion pricing” and “value pricing” have come in and out of fashion, but the basic idea was still the same – to use tolls as a mechanism to support something other than simply raising revenue.

Recent outreach efforts have shown that the general public does not understand the use of the word “pricing” in the same way that transportation practitioners might. As a result, we have tended to use the word “tolling” for all types of tolling applications, however the word “pricing” may still remain in some sections.

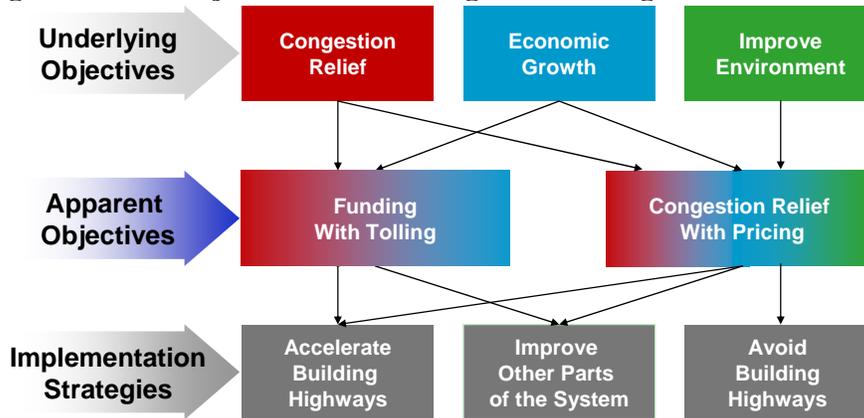
There are two key aspects of tolling that need to be considered: raising money for transportation projects and using the level of the toll to improve traffic conditions through influencing traveler behavior. Since different types of tolling are good at achieving different types of objectives, it is useful to think first about the question: “What are we trying to accomplish?” and only then consider the question: “How should we go about accomplishing it with tolling?” The answer to the first question may or may not involve tolling but it is helpful to the discussion to understand why tolling is being considered in the first place.

What are we trying to Accomplish through Tolling

The universe of objectives for tolling is varied, and not everyone involved may have the same objectives (see Figure 1). People often confuse the underlying objectives for tolling, such as congestion relief, improving the environment, or stimulating economic growth with the more apparent objectives, which might be summed up as funding or system management.¹

¹ Some of this discussion is adapted from a recent report by Cambridge Systematics for the Oregon Department of Transportation: *The Future of Tolling in Oregon: Understanding How Varied Objectives Relate to Potential Applications*, August 2007, available at: <http://www.oregon.gov/ODOT/HWY/REGION2PD/docs/Area5/TollingInOregonReport.pdf>

Figure 1 Objectives and Strategies of Tolling



But people do not tend to think of the objectives in that way. The list below is more representative of how people think about the reasons behind tolling:

1. Financial:
2. Congestion relief:
3. Improve environment:
4. Economic Development or Competitiveness

What are potential tolling applications?

It used to be that there were simple toll roads, bridges, and tunnels. Now, the universe of applications for toll projects has expanded considerably as advanced technology has allowed tolls to be collected without traditional toll booths. In general, the following typology represents the types of tolling projects that might be proposed:

1. Traditional projects:
 - a. New toll road; and
 - b. New toll bridge or tunnel.
2. Tolloed Managed lanes:
 - a. HOT lane;
 - b. Convert existing high-occupancy vehicle (HOV) to HOT;
 - c. Build new lanes and make HOT; and
 - d. Convert existing general purpose lane to HOT.
3. Express toll lane (like HOT, but without HOV priority):
 - a. Build new lanes as express toll lanes; and
 - b. Convert existing general purpose lane to express toll.

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4. Truck-only toll (TOT) lane:
 - a. Convert existing HOV lane;
 - b. Build new lane(s); and
 - c. Convert existing general purpose (GP) lane.

5. Toll existing corridors or systems:
 - a. Replacement bridge as toll bridge (potentially with expansion);
 - b. Convert existing freeway to tollway;
 - c. Cordon or area pricing around or within a defined area (e.g., a CBD); and
 - d. Convert system of freeways to tollways within a defined area.

Any of the above applications can work with time of day or dynamically adjusted toll rates, and the managed lanes concepts require them. Also, any of these applications may involve a project being 100 percent financed from future toll revenue, while others involve small or large contributions from other sources. And in some cases, the project itself is tolling; for example putting tolls on a cordon, where the objective may be to manage traffic demand, generate revenue for a system of improvements, or more likely both.

It Depends

The twelve questions within this document represent common concerns in the midst of uncertainty about specific proposals and future public policy directions. The questions, however, do not recognize the range of potential tolling applications, and as a result, the answer to many of these questions will be: “It depends on what you’re talking about”. For example, the potential user benefits of a tolling application will be very different for a toll on an existing bridge to pay for expansion than they will be for a high-occupancy toll (HOT) lane or a cordon tolling concept with no new highway capacity. As we try to put each of the twelve questions in to perspective, we will always need to keep in mind that the answers may depend on which specific application is being considered.

1 What are the user benefits of pricing and how are those benefits measured?

What are the benefits of pricing on freight, transit, HOV and SOV?

How do we measure the benefits of pricing?

Will individuals and businesses modify investment and other land use decisions based on different pricing scenarios?

1.1 What are the benefits?

Since any tolling concept asks users to pay for the use of a road facility, it is reasonable to expect that the intention of the program is to provide user benefits. The first question to ask is, “which users?” There are these user classes:

- Users that choose to use the tolled facility and pay a toll
- Users that choose not to pay a toll, and use another facility or another mode
- Users that would not find the tolled facility attractive under any circumstances, but are affected by users who choose not to pay a toll.

The second question to ask is, “under what kind of pricing concept?” Consider the following:

For a new terrain highway, all users that choose to use the new toll facility have a new choice, and choose to pay a toll. By definition, they benefit, because they choose the toll route over their previous alternatives. Users on other routes and other modes should also benefit through reduction in congestion, although you can make the argument that over time, the new highway might be growth inducing, and increase overall congestion levels.

New HOT lanes are likely to be similar to new terrain highways – new capacity equals new choices. Those that see a benefit will use the facility, and everyone else should see no change. The only possible disbenefit may be to disrupted traffic operations due to new merging, diverging, and weaving. When the I-394 HOV lanes were converted to HOT lanes in Minneapolis, the HOV operation changed from peak-period, peak-direction to all-day. This resulted in a general purpose lane being taken away in the reverse peak direction in the morning, causing new traffic jams. The Minnesota DOT was forced by the legislature to modify the hours of operation of the HOT lane as a result.

For a conversion of an HOV lane to a HOT lane, we have the same construct as above, except we need to make sure that existing HOV and transit riders do not see their level of service degrade as a result of letting SOV to use the HOV lane.

For systems where existing capacity is improved and then tolled, such as the Tacoma Narrows Bridge or the simpler proposals for the SR 520 Bridge, we need to be careful. Most users are likely to benefit from decreased congestion from the capacity increases. Some users that used the facility during non-congested periods are now facing a toll when they previously had a free ride. They may actually have a disbenefit.

For proposals that involve tolling existing capacity but providing no specific capacity improvement, the calculation is more complicated. Such systems might be a cordon or area tolling scheme such as London,

where one class of users was tolled (drivers into the CBD), while others directly benefited (transit riders). Those that continued to drive in the zone may have also benefited from less congestion, but they may just have found that continuing to drive a car and pay a toll was better than the other modal alternatives, and not necessarily worth the time savings. Whether those that were priced out of the zone (chose not to drive, changed modes, or changed destinations) benefited is an open question subject to considerable analysis.

For the sake of simplicity, we've limited the discussion above to passenger travel, but the same points apply to freight.

1.2 How do we measure (and/or forecast) the benefits?

The question relating to how we “measure” the benefits of pricing should really be two separate questions. The first relates to “measurement”, and the second relates to “forecasting”. Measurement would involve collecting detailed before and after data on travel times, travel reliability and travel experience for all types of users, using appropriate controls. The measurement techniques are really no different from any other transportation improvement project or system, and would need to be designed to specifically get at the variables that are important. Done correctly, such measurement is likely to be very expensive.

Forecasting is a separate matter. Forecasting relies on the ability of our travel demand models to adequately address the changes in travel behavior that would accompany the transportation system changes and associated prices that would go along with a pricing concept. Travel time is the measure most reliably forecasted. Travel reliability and travel experience are more difficult, and may rely on simplifying assumptions. In all cases, there is a considerable amount of uncertainty inherent in any forecast, since they are all heavily dependent about assumptions. Any analysis of future benefits should reflect the uncertainties in the forecasting techniques and translation of such forecasts into benefits.

PSRC is in the process of updating its travel demand modeling tools to be more responsive to the travel behavior effects of tolling. This update will reflect the data collected as part of its recently completed Traffic Choices study, and will represent a significant step forward in being able to forecast the impact of tolling.

1.3 Will individuals and businesses modify investment and other land use decisions based on different pricing scenarios?

Any purposeful change to the transportation system will influence these decisions. The changes will depend on the extent of the tolling, the amount of the benefits, and other factors going on in the economy at the same time. By the same token, doing nothing will also affect these decisions. If congestion continues to get worse, people will be influenced by these trends and their outlook on the future and make decisions accordingly. If a section of critical infrastructure fails as a result of neglect, this will also have dramatic impacts on business and housing location decisions.

Looking at one example may show how difficult or uncertain these analyses can be. Let's assume that the SR 520 Bridge is widened from four to six lanes, with the two center lanes as HOV, and that new toll is charged that varies by time of day. The intent of this concept would be two-fold. One would be to raise the dollars to fund a bridge in need of replacement and a corridor in need of expansion. The other would be to provide a mechanism to manage traffic demand across the bridge so as to improve the efficiency of the SR 520 corridor. There are several countervailing effects in place:

- Severe peak period congestion in the SR 520 corridor will be relieved from both the capacity increase and from the effects of pricing
- An improved HOV corridor will be created, improving flow for transit vehicles.
- The out of pocket cost of the crossing will be increased.

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Will the combined effect of these factors encourage or discourage development in Seattle and Bellevue? Will development be unaffected, but people's travel choices be changed? For example, will people choose to live and work on the same side of Lake Washington? Will these decisions be different than under a "do nothing" scenario whereby the cost increases across the Lake are taken in travel time and unreliability rather than out of pocket dollars?

These questions pertain primarily to the development issue, and do not even take into account the issue of total system effectiveness (impacts I-5, I-405, and I-90 of tolling only one link in the system).

2 What are the system effects of pricing or not pricing?

Questions about impacts and effects:

- **Will pricing improve the efficiency of the transportation system?**
- **Will pricing reduce travel demand?**
- **What are the short-term effects of pricing (i.e. diversion)?**
- **What are the long-term effects of pricing?**
- **What are the impacts of pricing to the freight community? Should toll prices vary depending upon size of truck? Will tolls create diversions for trucks to other facilities? How do operational differences on different highways impact freight movement?**
- **Does pricing SR 520 affect diversions to I-90, I-405 and SR 522? Will Active Traffic Management affect diversion rates?**

Do current transportation models adequately capture the near and long term effects of congestion pricing?

Is phasing or incrementally pricing corridors possible?

Understanding the system effects of tolling is among the more important questions to be asked, because the ultimate aim of tolling is to improve the transportation system, rather than simply build or improve one particular element of the system. We can be certain that people do pay attention to the toll rate, and that it will influence their behavior. While there is considerable experience with tolling single highways, bridges or tunnels, there is very little experience on more extensive variable tolling concepts.

2.1 Some examples

The following examples are intended to give a sense of the diversity of possible tolling applications and the potential behavioral reactions to them. They are by no means a complete list, and the discussion of impacts is presented more as a thought experiment than a formal impact analysis.

Consider first some traditional tolling applications:

- If we raise a toll on an existing toll facility by a nominal amount that is generally in line with overall price inflation, we can expect traffic to be reduced in the short term, but ultimately rebound as people try different alternatives and re-calibrate their understanding of the value of the toll facility. Recently, the Ohio Turnpike raised tolls significantly for trucks, and found significant diversion of trucks to parallel routes. In many other circumstances of nominal toll increases, however, the diversion effects are short term.
- Adding a toll to an existing free corridor has only been done once in North America, on the Tacoma Narrows Bridge. That toll was accompanied by an increase in capacity. On the one hand, the tolls should have reduced demand, but on the other hand, the added capacity cut costs for travelers, and increased the attractiveness of the Tacoma Narrows crossing. When the project was done, traffic across the Narrows increased. The particular circumstances on Tacoma Narrows led to this outcome

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however: toll rates were modest – only \$1.75 round trip for those paying with Good to Go! tags, and the alternatives were not attractive. How would this equation have changed if the toll were \$8.00 round trip? Or, if there were a free parallel route two miles away?

- The SR 520 Bridge project will allow the Puget Sound region to further explore the impacts of pricing. Although no decisions have been made, studies that have been done to date indicate that tolls on this crossing are likely to be considerably higher than on Tacoma Narrows. And, there is a good toll-free alternative just a few miles away. Like Tacoma Narrows, however, the toll will likely be accompanied by a capacity expansion. Will the net result be more, or less traffic across Lake Washington? If the tolls are high enough, will people's live and work decisions be impacted, such that some people decide to both live and work on the same side of the Lake? Or take fewer discretionary trips across the lake to see a movie or a show? These are all possible outcomes. The travel demand models can give us an estimate, but the reality is that with no similar experience to draw from, there is considerable uncertainty in the reliability of those outcomes.
- Let's say we want to take tolling the SR 520 Bridge to the next level of complexity, but varying the toll amount to optimize traffic flow. This might mean using higher tolls in peak travel periods, and lower tolls in off peak periods. Preliminary studies done for the Washington State Transportation Commission showed that such a strategy might be effective at maximizing traffic flow across the SR 520 Bridge, but might negatively impact other routes, because of diversionary impacts. Will the transportation system as a whole benefit from optimizing flow on the SR 520 Bridge? This is an important questions that will be difficult to answer definitively.
- An alternative approach to pricing the SR 520 Bridge might be to set the toll at the rate that optimizes the performance of the entire transportation system. This approach was explored in some previous studies. Theoretically possible, this approach presumes a high level of confidence in the ability of travel demand models to predict traveler behavior and/or a high level of flexibility of the toll-setting entity to adjust tolls frequently to achieve the desired result. It also increases the uncertainty of future toll revenues, which could impact the finance plan for the project.
- Tolling the I-90 Lake Washington Bridge adds an element to the complexity of the scenarios described above. In all of these cases, though, there is a strong likelihood that the status quo of the factors that make up *today's* travel patterns will change. Such change may be seen as a good thing by some, but as a threat to others, because of lives and business practices that have developed under the assumptions of that status quo. Changing the status quo may result in an overall benefit to society, but some of the changes may create "losers", or people that believe that they lose, thereby causing them to oppose these changes.
- If these tolling applications are combined with measures to enhance transit service, whether through direct use of toll revenue or through other funding sources, the effects could be very different.

HOT lanes are likely to have much less large scale impact on regional travel behavior if applied at their most modest application, such as the conversion of an existing HOV lane to an HOT lane. A guaranteed reliable mainline travel option will have benefits, but wholesale changes to travel patterns are unlikely. Applied more aggressively, however, such as with two HOT lanes in each direction in major freeway corridors coupled with extensive express bus service, the opportunities for long term changed behavior are more likely because it could change the character of bus transit service. These changes could influence people's decisions to live and work in certain places, and also decisions about whether to keep multiple autos per household.

More extensive use of pricing around the region, such as through tolling of all free ways and arterials as tested in PSRC's recent Traffic Choices demonstration project can be expected to have more wide-ranging impacts on travel behavior. If the cost of a typical 10-mile one-way commute by car is assessed 50 cents in the evening peak and 40 cents in the morning peak, the total daily out of pocket cost would be \$9.00. This amount could be expected to cause people to change both short and long term travel behavior

by either 1) shifting to a less expensive time of day; 2) carpooling to share the cost of the toll; 3) shifting to transit; 4) telecommuting some days; 5) changing their commute origin or destination. These changes can be influenced by the type of projects financed through the new toll revenue – highway improvements might encourage more highway travel, transit improvements might encourage more transit travel.

2.2 Freight

All of these tolling applications will have implications for freight movement depending on how the pricing is applied. Most toll facilities charge more for trucks, because trucks cause significantly more wear and tear to highways and bridges. However, truck tolls can be set at whatever level is deemed appropriate for the policy objectives that are desired. Recent studies have shown that many truckers are unable to shift their time of travel in response to time-of-day pricing because their delivery times are dictated by their customers. Under many circumstances, the truckers have limited ability to pass the additional cost of tolls on to customers. On the other hand, measures that improve travel time reliability may have benefits to the trucking community that outweigh the cost of the tolls.

Whether a toll project is oriented to benefit commuters (such as with a HOT lane) or more generally, the impact on or benefits to freight should be clearly studied.

2.3 Economic Theory, In Brief

From an economists viewpoint, more appropriately tolling all travel will create a more efficient transportation system, because the costs that people impose on others can be taken into account. The side effect of these changes are likely to be significant changes to the current patterns of living, working and recreating. These changes may be for the better in the long term, but there will be winners and losers from these changes.

2.4 Opportunities for Phasing

The current system is not tolled, but the Tacoma Narrows Bridge is the first tolling project in the region. Given the technological and public opinion obstacles, it is unlikely that a comprehensively tolled transportation system is feasible any time soon. Most industry observers, however, believe that the need to move beyond the motor fuel tax as the primary funding source for highways will propel us toward a system that would make pricing more feasible.

There are projects that need the revenue from tolling immediately – the SR 520 Bridge project is a prime example. It is likely that over the next decade or so, there will still be a need to develop toll projects one by one. The challenge will be to ensure that the operational and finance plans for these projects are flexible enough to fit effectively within the framework of a larger regional, statewide, or national pricing system.

The other challenge will be to make sure that as individual projects are developed, they are done so within the broader framework of transportation and social policy, and paying particular attention to the equitable application of this policy around the region and around Washington State.

3 What is the best way to structure pricing to achieve societal, environmental and land use benefits?

How should pricing be structured to reduce travel demand?

For some or all of the regional transportation system, what are the environmental, transportation and economic benefits that can be achieved by pricing?

Will pricing reduce vehicle miles traveled, vehicle hours of travel and related greenhouse gas emissions or shift those emissions outside of the tolled area?

Ideally, pricing systems would be structured to achieve the perfect alignment of revenue, environmental, societal and land use objectives. Since not everyone might agree on what those objectives are, the first step would be to work towards achieving that agreement, and then on designing the transportation pricing, land use, environmental, and infrastructure development policies that support those objectives. These challenges are being faced not only in the Puget Sound region, but around the country. As the third question above indicates, actions taken by people in other regions can impact the ability of decisions made in the Puget Sound region to have a meaningful impact, especially when impacts such as greenhouse gas emissions are portable.

Developing a long term transportation pricing strategy that fits with other policy choices is a challenging task without simple answers or analytical techniques that will be the subject of the work being done by the Pricing Task Force and others involved in developing an updated long range plan for the Puget Sound region.

4 What are the social equity issues of pricing?

What are the environmental justice implications of pricing? (Consider SR 520 and SR 167 HOT Lanes EJ work)

Who might be exempt from paying tolls? How will exemptions be defined? How are exemptions authorized?

What are the congestion relief, traffic, revenue and enforcement tradeoffs between charging two plus HOV, three plus HOV or all cars on a tolled facility? Is there a practical way to have a discounted rate for two person carpools?

Adding tolls to a system changes the status quo, and will create winners and losers. The argument that a “correctly priced” transportation system will lead to greater economic efficiency and more appropriate allocation of resources is of little comfort to a low-wage earner whose commute has suddenly had a new cost imposed on it that was not there before. As with the other issues, those related to social equity depend heavily on the specific approach being considered.

HOT Lanes have often come under criticism because of the impression that only the wealthy can afford to use them. The reality of HOT lanes to date, however, has been that people of all income groups use these lanes, and that people of low income sometimes exhibit a high value of time when they really need to get somewhere. A frequently used example is that of a low-income person that needs to get the day care center in time to avoid late penalties. An other example is of low-income workers who are more likely to be penalized if they do not show up on time for work, since their jobs have less flexibility. Attitude surveys of actual HOT lane implementations have shown general support by people of all income classes as well:

- On the I-394 HOT lanes in Minneapolis, the percent of people indicating that allowing solo drivers to pay a fee to use the HOV lane is a good idea was:
 - Low income: 64 percent
 - Middle income: 61 percent
 - High income: 71 percent.
- On the SR 91 Express Lanes in Orange County, California, over 50 percent of low-income commuters supported the Express Toll Lane concept, an amount similar to other income groups.

HOT lanes, however, have all historically involved increased capacity, either through construction of new lanes or through allowing previously prohibited vehicles from using a lane, thereby making more effective use of previously unused capacity. People of all income groups have a choice as to whether to use the lanes or not. Issues of social inequity have also been mitigated by using revenue from HOT lanes to improve transit service. The I-15 HOT lanes in San Diego, for example, have used toll revenue collected in the HOT lane to pay for additional express bus service in the corridor.

Other types of toll applications may not involve providing new services or capacity. Take, for example, a situation where the existing toll-free SR 520 corridor is built and tolled. People who are using that corridor today for free would have to pay a toll. They get a benefit from the reduced congestion, and from the improved reliability of the structure, but their non-toll choice may cause them to have to add many more

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miles and minutes to their trip. People using the bridge during off-peak hours will not see any congestion relief benefit, although they could be said to benefit from the improved reliability of the structure. For someone that is well off financially, the additional cost will be a nuisance, but for someone of more limited means, the additional toll cost could be a significant shock to their budget. Similarly, more extensive pricing applications may also have elements where something that was once seen as “free” is now priced.

Historically, toll roads have not addressed the issue of environmental justice, because 1) these issues had not been considered for any project in those years, and 2) they always involved new facilities that provided improved choices over the old facilities. The old facilities were always still available for free.

With the advent of newer toll mechanisms, these issues have become more prominent, as described above. The most common response to environmental justice concerns has been to reallocate some of the revenue collected from the priced facility and use it for transit service in the same corridor – thereby providing a subsidy or a benefit to presumably lower income travelers.

Some have suggested systems whereby low income travelers get subsidies or free passes, in a manner similar to food stamps. Such systems have never been tried before. Although not impossible, they do raise implementation issues, and would probably be difficult or expensive to operate.

The sub-question about exemptions is less about social equity than it is about optimal operations of a HOT lane or other tolled facility. Exemptions or discounts from tolls greatly increase the operational difficulty and cost of a HOT lane system. It is far easier to run a system if everyone has to pay the same price than if you have to distinguish vehicles based on occupancy. To date, there are no automated systems in operation that reliably distinguish single-occupant vehicles from multi-occupant vehicles, although such systems are under development, and may even be working as of this writing. However, all HOT Lane systems, by definition, allow free passage for HOV. The SR 91 Express Toll Lanes has a system that charges half price for 3+ HOV during PM peak hours in the eastbound direction, and is free at all other times.

Moving to an express toll lane system in the Puget Sound region that does not provide free passage for HOV would require modification to the HOV lane policy, since current proposals involve conversion of existing HOV lanes. Such a change would require serious consideration of the implications of changing the HOV policy.

5 What is the region's role in pricing?

How is regional input considered by that state wide pricing authority? (May be affected by I-960 interpretations)

Will there be votes of the people?

What other governance models exist around the country and could they be useful here?

What role is there for the private sector?

What are the legal barriers to be overcome? At what levels of government do they exist?

There is a long history of governance models for tolling in the United States, but virtually no history of governance for pricing. Governance in the past related to managing the cash flow and upkeep of toll facilities or systems of toll facilities. The usual models were:

- Divisions of state departments of transportation, or of regional/local governments
- State, multi-state, regional, or local quasi-public authorities
- Private companies with a charter from a state or bi-state (or bi-country) entity

More recently, there have been long term concession agreements with the private sector taking responsibility for the upkeep of a highway in exchange for some or all of the toll revenue, with contractual conditions stipulating performance. And, so some toll authorities have chosen to contract out significant portions of their operation, such as toll collection or maintenance. There are also public private partnership agreements to develop, operate and maintain a facility for a long period of time in exchange for toll revenue.

A good discussion of the types of governance structures in use around the U.S. can be found in Background Paper #5 prepared for the Transportation Commission's Comprehensive Tolling Study, available at this web link: http://wstc.wa.gov/Tolling/FR1_WS_TollStudy_Vol2_Paper03.pdf.

Governance related to pricing adds an element of complexity, in that it should take into account transportation system performance to a level that goes well beyond the financials of a set of particular facilities. The sub-questions raised above are all dependent upon the discussions and negotiations among the state, region, and individual jurisdictions. The Commission's Comprehensive Tolling Study proposed the following two policies to address the issue of decision making of governance:

6. State Toll Authority to Set Toll Policy. *Following broad statutory direction, the Washington State Transportation Commission, as the currently designated State Tolling Authority, should develop policies and criteria for selecting the parts of the transportation system to be tolled; propose the study of potential toll facilities; recommend toll deployments to the Governor and Legislature; and set toll rates. The Authority should engage in robust and continuous coordination with state-authorized regional or multistate entities that may propose toll facilities to the Authority;*

7. WSDOT to Implement Policy. *The Washington State Department of Transportation should be responsible for planning, development, operations and administration of toll projects and toll operations within the State.*

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These policies recognize that there is a vital connection between decisions made at a local/regional level and statewide departments and authorities. Resolution of the decision structure is a crucial early step in moving forward with any pricing initiatives.

The private sector can be an important player in developing a tolling or pricing system, but their role needs to be clearly defined and appropriate. Examples of private sector participation can include:

- Traditional – as a for-hire contractor
- Design build contractor
- Equity investor – with a defined payment schedule based on availability of the facility, but no revenue risk
- Equity investor with revenue risk

Most people think of private sector participation as involving revenue risk, but this may not be practical or desirable for projects that are trying to balance transportation system performance with revenue to pay back investors. The Washington State Transportation Commission prepared recommendations to the Legislature and the Governor regarding policy issues surrounding public private partnerships.

6 What could be the best approach to implement pricing in the region?

What short term investments would make the most sense?

Do project level decisions preclude system-wide strategies?

How could the various types of pricing work individually and together as a system:

- Bridge
- HOT/Express Toll lane (single lane)
- HOT Express Toll lanes (more than one lane)
- Corridor/route
- Area, such as city center (Stockholm)

Are HOT lanes the first step or a long range strategy?

What tiers of analysis are needed?

These questions should be the subject of additional study over the course of this year. As noted in the introduction, it would be most effective for the constituencies represented by the Pricing Task Force to come to an understanding of the goals and objectives they think they will achieve by pricing before considering specific applications such as HOT lanes or toll bridges.

Once the goals and objectives are understood, it would be appropriate to identify a set of potential applications that could be implemented over a short, medium, or long term, and evaluate those for how well they meet the objectives. These potential applications could be gathered into logical groupings of potential systems, and be evaluated using the best analysis tools available at the time. At all times, the analysts should be clear about the elements of the work that may have uncertainty due to any shortcomings of the available tools.

This first tier of analysis would likely lead to a small handful of projects that might be addressed in further detail, or taken to a level of study often called “investment-grade”. Investment-grade studies are typically needed to support finance plans that involve equity or debt. A system that does not have an element of toll revenue risk may not need an investment grade study, but will likely need a study that is adequate to convince the public sector decision makers. These studies need to address not only the financial aspects of the projects, but also the benefits and impacts to users, the economy in general, and to society.

7 How is privacy maintained?

What are the appropriate account privacy protections, how can toll data be used?

Does this require new institutional structures? Who has what information about users? What will be the logical steps to get there?

Are existing legal protections adequate?

Are records retained for too long? (How long should records be available?)

In getting the toll system up and running for the Tacoma Narrows Bridge, and the coming expansion of the toll system to the SR 167 HOT lanes, WSDOT has done extensive work in the area of privacy.

7.1 Good To Go! Accounts

WSDOT's toll collection program, Good To Go! has a number of privacy protections in place to protect toll payers' personal information. When a customer opens a Good To Go! account, they may choose to provide information such as their name, address, telephone number, email, and payment information such as a credit card or bank number. Alternatively, the customer may choose to open an account anonymously. This is referred to as an "unregistered" account. In order to maintain their anonymity, customers must make payments to their account in cash, and must keep track of their account balance to avoid toll violations. Many toll authorities offer anonymous ETC account options in consideration of privacy concerns from the public; however in Washington and elsewhere, only a very small percentage of customers request this option.

When a customer uses their electronic toll transponder, they signify their agreement with the Good To Go! Terms and Conditions. The Terms and Conditions include WSDOT's policy for customer data usage and the conditions under which such information may be disclosed to third parties, as outlined below.

"Good To Go! will not sell or share the Good To Go! customer list with outside marketers. Good To Go! will only collect and retain customer information that is necessary and essential to properly conduct and record transactions, deposits and fees and to inform Customers of their account status and/or changes to this Agreement. Information collected by the Customer Service Center relative to an individual customer's usage will not be released except under the following circumstances:

- *In response to a court order for specific information.*
- *At the request of authorized law enforcement officials/agencies in the conduct of criminal investigations.*
- *At the request of the individual account holder with proper identification.*
- *As reasonably necessary to collect unpaid tolls.*
- *Or as otherwise required by law.*

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Good To Go! may use the transponder data, or may authorize any other governmental agencies to use transponder data to collect anonymous traffic, travel or other statistical information.”

At both the system and operational level, WSDOT takes steps to safeguard customer information. Access to customer account data is limited to customer service staff on a “need to know” basis. Staff without the proper security clearance cannot access this information. Bank and credit card information is encrypted and not viewable (except for the last four digits of an account number) by anyone.

7.2 Photo Enforcement System

If a vehicle does not pay the toll on Tacoma Narrows Bridge, its license plate is captured by a Photo Enforcement System, and the registered owner identified via Department of Motor Vehicle records. The owner is then mailed a payment notice. Access to DMV records is again provided only to key staff assigned to violations processing. Staff must certify that they will only use the DMV data for purposes of payment enforcement.

7.3 Optional Usage or Cash Payments

At Tacoma Narrows Bridge, the availability of stop-and-pay tollbooths provides a completely anonymous method of toll payment. If the vehicle pays the correct toll in cash, there is no electronic record of that vehicle’s use of the facility. For the SR 167 HOT Lanes, use of the lanes is optional and drivers may choose instead to carpool or use the general purpose lanes. However, new toll facilities in Washington are considering all-electronic toll collection on all lanes. In this case, there would be no cash payment or opt-out options (other than taking an alternate route), and all toll payments would require identifying the registered owner of a vehicle either by its transponder or by its license plate.

7.4 Legal Protections

Under RCW 46.63.160 Section 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.”*

Under Section 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

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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.”²

This legislation protects customer privacy by prohibiting the capture of the driver or passengers’ images, and by prohibiting the use of the images for any purpose other than toll enforcement.

It is expected that electronic toll collection and photo enforcement legislation will need to be amended as new tolling projects progress. This process should include a review of privacy protections with a review of requirements for video tolling.

7.5 Data Retention

The Good To Go! back office retains 800 days of transaction data on-line. The data is then archived. As electronic toll collection has been operating in Washington for less than a year, long-term data retention is not currently a policy issue for WSDOT. Indefinite retention of transaction data is common practice among toll agencies. WSDOT will need to revisit its data retention policy as the statewide tolling program grows, and consider the business requirements for retaining data for financial audit and tax purposes. It may be adequate to maintain only summary data in some cases.

Over the short and long-term, toll system data is an excellent resource for historical traffic analyses, such as growth projections and origin-destination studies. If data is to be used for these purposes, it must be on an aggregate basis and stripped of all individually-identifying information.

7.6 Adequacy of Protections and Policies

At the current time, the privacy protection policies and practices in place appear to be adequate, and reflect common industry practice among toll authorities. However, they do not specifically address video tolling. As the tolling program moves towards non-stop tolling, there will be a lack of truly anonymous payment options (namely cash payments at toll booths). Current law and WSDOT policies will thus need to be revisited and updated to include provisions for video tolling.

Section prepared by IBI Group.

² RCW 46.63.160: Electronic toll collection, photo enforcement. <http://apps.leg.wa.gov/rcw/supdefault.aspx?cite=46.63.160>

8 How is the tolled facility financed to provide greatest benefit?

What are the legal priorities for the use of toll revenues, such as required operations, debt service, major maintenance, new capital expenditures on this or related or unrelated facilities?

What bond factors apply to provide the optimal balance between acceptable credit and ability to complete project on a timely basis?

What is the best long-term payment platform and approach (does the state serve as a financial institution)? Who best bears which risks? Are there advantages to revenue or general obligation bonds and what risks and costs are involved? What are the relative merits of pay as you go versus debt financing?

What development and management structure can best minimize policy risks associated with the bond rating process? How do management aspects such as toll authorization, rate setting and policy, exemption policy, operating and maintenance requirements, etc influence the bond rating process? What needs to be considered when developing new projects (state or local) that must operate in a system of integrated projects?

Material to be developed as part of financing study.

9 What is the public's understanding of pricing?

How should pricing be talked about and explained?

What topics should we begin to discuss with the public and when?

What is the strategy for the public and elected officials – state and local?

What questions should the strategy answer?

- What is the program?
- Why is it good?
- What does it do?
- What does it do for decision makers?
- What does it do for cities?
- What's in it for us?
- What messaging works?
- What happens to the rest of the system – diversion; connections at I-5 and I-405
- Why do we need more money from the Feds?
- Isn't this a double tax? Didn't we already pay for the roads and bridges?

The public is aware of tolling to fund construction projects and generally aware of electronic tolling and the Tacoma Narrows Bridge project. The results of three recent surveys and one round of focus groups in the area indicate there is general support for tolling:

- As a project funding source;
- For projects where people have the option to pay the toll or not (HOT lanes); and
- Perhaps for funding replacement of the existing SR 520 Bridge. However, the surveys do not provide enough information about support for tolling among regular users of the SR 520 and I-90 corridors

There is less understanding of, and therefore less support for, tolling as a tool to improve traffic flow.

Details also matter. In focus groups and the surveys, the more information people had about project specifics and benefits, the more apt they were to support the concept. For example, focus group participants indicated that support for tolling the existing SR 520 bridge would depend upon knowing things like how tolls would be implemented, how the revenue will be used, and what the actual project alternative/cost is. In the King County and WSDOT surveys, responses were more favorable of the concept when more information about the project and its benefits.

9.1 How should pricing be talked about and explained?

Terminology is important. Transportation professionals tend to use language that the public either doesn't understand or doesn't support. In local focus groups, participants universally shied away from words like "congestion pricing" and "pricing." The Governor's office has also requested that we avoid those terms in the public discussion, focusing instead on "variable tolling."

The term "congestion pricing" exists and is used across the country, as a kind of umbrella term that includes a variety of tolling strategies that can result in improving traffic. These strategies can range from full system tolling to HOT lanes or "city center" tolling. Often, it is the lack of specificity about which type of approach that can lead to public confusion over what is specifically being discussed.

In our region, we are using "variable tolling" to describe the general approach of using tolls to improve traffic. We should however take care to provide more specifics regarding implementation as a way to ensure that people are clear on the definition.

When explaining variable tolling, it is also important to address the potential benefits and the challenges. Variable tolling can benefit travelers by reducing travel times on the tolled highway. By charging a toll based on actual or historic traffic conditions, it is possible to regulate the traffic on a highway to keep it moving efficiently. Variable tolling also has the potential to benefit the transportation system by raising revenue for infrastructure improvements.

The main challenge of variable tolling is that when tolls are applied to one highway, some drivers may use other roadways to avoid the toll. This effect can be minimized by providing drivers with other options, such as transit or telecommute programs that are free or less costly than either paying the toll or using another facility that is farther away. Another perceived challenge is that low-income users may not be able to afford the toll. Other tolling programs have found that low-income users do choose to pay tolls when their time is very valuable to them and that they use toll facilities at similar rates and have similar acceptance levels as all other income groups.

In the abstract, it is difficult to talk about tolling and the potential benefits, because these benefits can vary from application to application. If properly done, the net effect could even be negative. We must be careful not to oversell the benefits when we do not have the analysis to back up the assertions.

9.2 What topics should we begin to discuss with the public and when?

Right now, Tacoma Narrows Bridge is the relevant example of tolls and electronic tolling technology in this area. That project has successfully introduced the concept of electronic toll collection to the public, as well as reintroduced the concept of using toll revenue to pay for major infrastructure. In the spring of 2008, the SR 167 HOT Lanes Pilot Project will open and introduce the concept of tolling to keep traffic moving and of paying a toll for a faster trip.

Other tolling applications are beginning to be discussed, in particular the SR 520 Bridge project. There are numerous options on the table, and it is important not to let the discussion outrun the actual proposals, or the analysis of the benefits or drawbacks of these proposals.

9.3 What is the strategy for the public and elected officials – state and local?

WSDOT, PSRC, King County and the Washington State Transportation Commission are working with state and local elected officials to provide a foundation of knowledge about the opportunities to use tolling as a way to provide strategic system investments, improve traffic, and provide travel options. The Washington State Legislature is in the process of discussing a bill that will encourage public engagement on the issue of tolling the existing SR 520 bridge as a way to raise funds for its replacement. This effort will include local officials.

9.4 What questions should the strategy answer?

Responses to the following questions will change as the public is introduced to additional tolling concepts. Right now we need to educate the public about Tacoma Narrows Bridge, SR 167 HOT Lanes Pilot Project, SR 520, and HB 3096. The answers below are for the general concept of variable tolling, rather than for specific projects, and explains why PSRC, WSDOT and King County are interested in the idea of variable tolling.

What is the program? Variable tolling is a highway toll that changes with traffic conditions with the aim of keeping traffic flowing smoothly.

Why is it good? Variable tolling can be net benefit users by decreasing travel times and be net benefit the transportation system by raising revenue for improvements.

What does it do? Variable tolling has the potential to keep traffic moving on our most important regional highways. Tolls are collected electronically and drivers choose whether to pay the toll for these highways or switch to another travel mode, time of day, or route.

What does it do for decision-makers? Variable tolling gives decision-makers a way to improve traffic flow for their constituents, and to raise funds for crucial safety and reliability improvements.

What does it do for cities? Cities can benefit from funds raised by drivers in their districts, and from solutions to congestion problems that slow commuters and freight in their areas.

What's in it for us? A faster commute, increased transit funding, newer and safer highways, more choices for travelers.

What messaging works? It works when you talk about the benefits. Variable tolling is designed to keep traffic moving, so you don't get stuck. Tolls raise money for important improvements, like replacing the aging SR 520 Bridge. It is important to make sure the messaging is consistent with the ability of the technical analysis to support the messaging assertions.

What happens to the rest of the system – diversion; connections at I-5 and I-405? Some drivers may choose to drive further to avoid paying a toll. Others will switch to transit, telecommute, or drive at a different time of day. Some toll revenue can be used to improve connections to other highways, by providing travelers with up-to-date information on the best routes, and by having onsite staff ready to clear accidents from the highway. As we continue to plan these projects, we will look carefully at mitigating potential impacts.

Why do we need more money from the Feds? The Federal government is interested in testing out new approaches to alleviating congestion through variable tolling. WSDOT, PSRC and King County submitted a proposal that was one of five selected for a variable tolling demonstration. The Federal government is making a considerable amount of money available to carry out the demonstration project – money that would not be available otherwise.

Isn't this a double tax? Didn't we already pay for roads and bridges? Tax dollars were used to build and maintain most of our roads and bridges. However, those roads and bridges are in need of rebuilding, and there is not adequate money available. Additional direct user fees in the form of tolls to pay for certain high-cost/high-need projects is a reasonable approach. For bridges in particular, Washington has a history of using tolling. Variable tolling is used when it can bring specific benefits to the travelers that choose to pay. Those benefits might be a new or improved highway or bridge, or they might be an improved quality of trip.

Section prepared by EnviroIssues, with contributions by Cambridge Systematics.

10 How do we set a toll rate?

Should the tolling rate be linked to the HOV performance standards?

What are the key factors in setting the tolling rate? How do the costs of building HOT facilities (direct access ramps and buffer strips) and the friction of traffic mergers compare to the benefits of faster/more reliable speed and consumer choice? Would it be better in some corridors to wait for full corridor pricing and skip the intermediate step of HOT lanes? What information is needed to decide?

How should pricing be talked about and explained?

What are the tradeoffs between charging a higher but flat rate during peak commutes hours and dynamically increasing the price to reflect real time traffic conditions?

Will a toll rate setting policy permit administrative increases in toll rates to achieve a desired facility performance (speed, flow, etc.)?

In thinking about setting toll rates, it is important first to understand the policy basis for setting tolls in the first place. In this section we consider two main categories: tolling to fund project construction and tolling to influence travel behavior. Some applications will be a combination of the two.

When thinking about tolling applications under consideration in Washington, the Tacoma Narrows Bridge is clearly about raising dollars for project finance. The SR 167 HOT Lanes is primarily about developing a project that can influence travel behavior and provide a reliable free-flow route under all levels of congestion. The SR 520 Bridge may be a combination of the two, with revenue so rely needed for construction, but a strong desire on the part of some to use tolls to influence travel behavior and thereby improve congestion.

10.1 Tolling to Fund Project Construction

In a traditional toll road or toll bridge, toll rates were set just high enough to pay for operations/maintenance expenses and a multiple of debt service called the “debt service coverage ratio”. There would be clauses in the bond documents that required certain financial performance to be met, and the toll authority would be obligated to modify the toll schedule to achieve that financial performance. If the toll authority wanted to change their system, by expansion, new interchanges, commuter discounts, or other means, they would need to prepare studies to demonstrate that the required financial performance measures were adhered to. Although there are some technical nuances to the finance plan, this is essentially the situation at the Tacoma Narrows Bridge.

Over time, the financial obligations of toll authorities in some locations has grown to include cross subsidies for other highway facilities, transit facilities, airports and seaports. In these cases, rate setting needed to account for these additional financial obligations.

In simple terms then, toll rate setting needs to accomplish certain financial performance goals, subject to any special policy considerations. Some examples of special policy considerations are:

- **Discounts for electronic toll collection.** At the Tacoma Narrows Bridge, cash customers pay \$3.00, while those using *Good to Go!* transponders pay \$1.75. This was done to encourage high initial transponder usage, to save on operating expenses and avoid backups at the toll plaza.

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- **Commuter or frequent user discounts.** Some toll authorities provide discounts for commuters or frequent customers. The business rationale for this is to provide a goodwill gesture to frequent customers.
- **Resident discounts.** Although relatively rare, there are some agencies that provide discounts to people in particular jurisdictions. For example, residents of East Boston get a discount on tolls through Boston Harbor tunnels. Such discount programs are difficult to administer and enforce, due to the need to confirm residency.

When there is a travel behavior modification element to a project, special discount programs for certain populations can interfere with the traffic management motivations of tolling.

10.2 Tolling to Influence Travel Behavior

Some modern applications of tolling involve setting the toll rates in order to achieve certain transportation management objectives. The most common application is in HOT or Express Toll lanes, where prices are set to maintain certain transportation performance. There are several ways these objectives can be achieved:

- **Flat Tolls** during a certain portion of the day. In the London Area Pricing concept, all vehicles entering the tolled area pay a flat fee during the business day (6 AM to 6 PM). The rest of the day is free. This is done to discourage motor vehicles from entering the zone during the most congested times.
- **Variable Tolls by Time of Day.** Some systems involve multiple toll rates over the course of the day that vary by time and direction of travel. The SR 91 Express Lanes use such a system. Toll rates are adjusted whenever traffic consistently exceeds certain thresholds. Appendix A shows the detailed tolling policy in use on this project. The current toll schedule is shown in Figure 2. The recently opened HOT Lanes in Denver on I-25 use a variable rate schedule by time of day.
- **Dynamic Tolls based on Real Time Traffic Levels.** Some systems attempt to manage traffic flow by monitoring real time traffic conditions and changing toll rates frequently to keep traffic at certain performance standards. This is the type of system used on the I-15 HOT lanes in San Diego and the I-394 HOT lanes in Minneapolis. On the former, toll rates can change as often as every six minutes, up to a maximum. On the latter, toll rates can change every three minutes. A dynamic toll system is planned for the SR 167 HOT lanes in Washington.

When thinking about which how to set rates to most effectively manage traffic it is important to consider how the toll information is communicated to the customer, and what ability the customer has to make a choice. For example, in a HOT lane situation, the customer has a choice to stay in the general purpose lanes, or move over to the HOT lanes at one or more locations on a freeway. The choice is immediate, and must be made very quickly. But the choice is relatively straightforward.

On the other hand, take the situation of tolling the SR 520 Bridge. In this case a dynamic toll may leave the customer with little option to respond. If the customer is faced with an unexpectedly high toll rate while on the approach to the bridge, there is not much that they can do at that point to change their behavior. If, however, tolls on the bridge were set based on time of day, the customer will know that traveling at 5:00 PM will result in a particular toll rate, but waiting an hour or two may yield a lower rate. They can make that choice while still at their place of employment.

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Figure 2: 91 Express Lanes Toll Schedule

91 Express Lanes Toll Schedule		Eastbound SR-55 to Riverside Co. Line						
Effective January 1, 2008		Sun	M	Tu	W	Th	F	Sat
Midnight		\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20
1:00 am		\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20
2:00 am		\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20
3:00 am		\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20
4:00 am		\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20
5:00 am		\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20
6:00 am		\$1.20	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$1.20
7:00 am		\$1.20	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$1.20
8:00 am		\$1.55	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90
9:00 am		\$1.55	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90
10:00 am		\$2.35	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$2.35
11:00 am		\$2.35	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$2.35
Noon		\$2.80	\$1.90	\$1.90	\$1.90	\$1.90	\$2.90	\$2.80
1:00 pm		\$2.80	\$2.65	\$2.65	\$2.65	\$2.90	\$4.50	\$2.80
2:00 pm		\$2.80	\$3.80	\$3.80	\$3.80	\$3.90	\$5.10	\$2.80
3:00 pm		\$2.35	\$4.10	\$4.70	\$5.95	\$5.70	\$10.00	\$2.80
4:00 pm		\$2.35	\$6.85	\$8.00	\$8.50	\$9.25	\$9.50	\$2.80
5:00 pm		\$2.35	\$6.65	\$8.50	\$8.50	\$9.25	\$8.00	\$2.80
6:00 pm		\$2.35	\$4.10	\$5.45	\$4.95	\$5.75	\$4.90	\$2.35
7:00 pm		\$2.35	\$2.90	\$2.90	\$2.90	\$4.15	\$4.55	\$1.90
8:00 pm		\$2.35	\$1.90	\$1.90	\$1.90	\$2.65	\$4.15	\$1.90
9:00 pm		\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$2.65	\$1.90
10:00 pm		\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.90	\$1.20
11:00 pm		\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20

91 Express Lanes Toll Schedule		Westbound Riverside Co. Line to SR-55						
Effective January 1, 2008		Sun	M	Tu	W	Th	F	Sat
Midnight		\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20
1:00 am		\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20
2:00 am		\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20
3:00 am		\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20
4:00 am		\$1.20	\$2.25	\$2.25	\$2.25	\$2.25	\$2.25	\$1.20
5:00 am		\$1.20	\$3.70	\$3.70	\$3.70	\$3.70	\$3.55	\$1.20
6:00 am		\$1.20	\$3.80	\$3.80	\$3.80	\$3.80	\$3.70	\$1.20
7:00 am		\$1.20	\$4.20	\$4.20	\$4.20	\$4.20	\$4.10	\$1.65
8:00 am		\$1.65	\$3.80	\$3.80	\$3.80	\$3.80	\$3.70	\$1.90
9:00 am		\$1.65	\$3.05	\$3.05	\$3.05	\$3.05	\$3.05	\$2.35
10:00 am		\$2.35	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$2.35
11:00 am		\$2.35	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$2.70
Noon		\$2.35	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$2.70
1:00 pm		\$2.70	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$2.70
2:00 pm		\$2.70	\$1.90	\$1.90	\$1.90	\$1.90	\$1.90	\$2.70
3:00 pm		\$2.70	\$1.90	\$1.90	\$1.90	\$1.90	\$2.35	\$2.70
4:00 pm		\$2.85	\$1.90	\$1.90	\$1.90	\$1.90	\$2.35	\$2.85
5:00 pm		\$2.85	\$1.90	\$1.90	\$1.90	\$1.90	\$2.35	\$2.85
6:00 pm		\$2.85	\$1.90	\$1.90	\$1.90	\$1.90	\$2.80	\$2.35
7:00 pm		\$2.35	\$1.20	\$1.20	\$1.20	\$1.20	\$1.90	\$1.90
8:00 pm		\$2.35	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20
9:00 pm		\$2.35	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20
10:00 pm		\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20
11:00 pm		\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20	\$1.20

11 How are tolls collected and enforced?

Does toll technology, or aspects of toll operations need to be interoperable with other regional systems?

Should we move toward an eventual transition to newly developing toll technology in order to add other functionality (safety applications, value added services) to tolling systems? For example, 5.8, 5.9 GHz DSRC is planned for the implementation of VII. Note that this comes with costs (risks, development costs, hardware/software) that in the short run may outweigh the benefits.

What is the payment processing approach, TNB-single public entity or multiple platforms and a payment clearinghouse?

How would approaches to customer services evolve as multiple pricing environments come on line?

What are acceptable levels of cost for enforcement efforts?

What penalties best match risks of being processed for a violation (civil and/or criminal offense)?

How will out-of-state penalties be recovered?

What approaches to enforcement should be common across all types of pricing implementations?

A key feature of the Electronic Toll Collection (ETC) system is the use of Automatic Vehicle Identification (AVI) technology to electronically collect tolls at highway speeds. AVI involves the transmission of an identification code between an in-vehicle device and a roadside reader. The in-vehicle device, called a transponder, is a Radio Frequency Identification (RFID) unit that transmits a radio signal to the roadside reader. The identification code is linked to the customer's account, which is automatically debited for the amount of the toll.

The deployment of ETC is well established in North America and overseas. The E-Z Pass Program, operating in the eastern part of the United States, involves over 23 separate toll agencies and 16 million transponders, all using a single proprietary AVI technology. The FasTrak Program in California has over 5 million transponders statewide and also using a single but different proprietary AVI technology. Based upon the success of these large-scale ETC deployments, the "Principle of One" for Washington State customer service expectations has been identified:

- **One "Gizmo."** Only one on-board device (i.e., transponder) is required in the customer's vehicle for electronic toll collection payment.
- **One Number.** A single customer service telephone number be available for all tolling customer inquiries.
- **One Statement.** A consolidated statement is provided to the customer for all activity at any tolling facility.

The most obvious technology consideration related to tolling is that customers expect a simple, interoperable toll system with a minimum of hassles. WSDOT has established a single customer service center, one point of contact for all operations, and interoperable transponders under the banner of the *Good To Go!* ETC program.

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At the Tacoma Narrows Bridge, tolls are collected both manually and electronically. Advances in toll technology have enabled the implementation of non-stop tolling. Called Open Road Tolling (ORT), it is defined as the collection of tolls by purely electronic means, through the installation of electronic tolling and enforcement systems designed to enable unhindered passage of vehicles through the toll point at normal highway speeds. ORT is ETC toll collection without any toll booths. ORT provides the technological approach to enabling the use of pricing for traffic management without requiring vehicles to stop and pay a toll. The key to ORT is that each vehicle can be uniquely identified as it passes a charging point. In most existing schemes, vehicles are still primarily identified via an in-vehicle electronic transponder. Vehicles without a tag are identified by a capturing a video image of the license plate, which is then matched against vehicles registered by drivers who have paid a toll over the telephone, Internet or other means. Identifying vehicles and collecting tolls via license plate images is referred to as video tolling or “pay by plate.” This allows infrequent users to use the toll facility without obtaining transponders. License plates that cannot be reconciled to an account and have not registered are identified as violators and processed accordingly. Generally, a surcharge above the amount of the toll is imposed to pay for the additional processing costs. It is anticipated that new tolling projects will allow for non-stop tolling and allow video tolling. (Note that current law does not appear to fully support the ability to use video tolling.)

WSDOT is currently implementing a pilot program along a congested segment of SR 167 between Auburn and Renton. This four-year pilot project will test a new congestion management tool that allows solo drivers to pay an electronic toll, without ever stopping, to use the carpool lanes. Toll rates fluctuate with the level of congestion to ensure that traffic in the HOT lane flows at least 45 mph, even when the regular lanes are congested. Carpools of two people or more, transit, vanpools, and motorcycles will use the HOT lanes toll free. The project is scheduled to launch in spring 2008. This pilot may be followed by other efforts on I-405. The key feature of this pilot project is the need to distinguish a solo driver from a high occupant vehicle. At this time, direct observation by enforcement personnel is the only proven method.

It is within this context that the questions above are addressed.

11.1 Does toll technology or aspects of toll operations need to be interoperable with other regional systems?

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.

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. This is the model adopted by WSDOT.

Accordingly, every new toll or pricing facility should use the same in-vehicle transponder technology and share a common format for video based transactions and violations. Toll transactions and violations should be transmitted to a common statewide payment and enforcement clearinghouse for processing.

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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, WSDOT would interface with a third-party service provider to bill their customers.

11.2 What is the payment processing approach, single public entity or multiple platforms and a payment clearinghouse?

Each tolling program or facility will have individual requirements for toll collection. For example, TNB collects manual and electronic tolls and captures images of violations for processing by the county court. SR 167 HOT Lanes Pilot project will only have electronic tolling for single occupant vehicles without video enforcement. The tolling on SR 520 is anticipated to be a full OR T deployment with both transponder and video transactions. The toll rate for single occupant vehicles on SR 520 may be higher than for HOVs. The pricing policy and rates will be different for each facility. Flexibility to address individual tolling requirements at each facility is desired.

As tolling is implemented throughout the Puget Sound Region on more and more roadways, it is anticipated that almost all owners will obtain transponders and establish accounts. There are over 3 million registered vehicles in the four counties of the central Puget Sound Region. Different customer service centers for each tolling facility would not support the principle of one for customer service expectations.

A central toll and violation enforcement clearinghouse with individual tolling facility tolling software applications that are appropriate to the pricing application would provide a preferred approach. The individual facility systems would transmit both transponder and video transactions and violations to the clearinghouse. The model is followed by many established tolling authorities that have multiple facilities throughout an area. Examples include the Port Authority of New York and New Jersey and the New Jersey Turnpike Authority.

11.3 How would approaches to customer services evolve as multiple pricing environments come on line?

As multiple pricing environments come on line, customer service representatives will be required to address questions concerning tolls and business rules for multiple facilities with different tolling schemes and business rules. It will become more important to use web sites and interactive voice response (IVR) technology that is customized to address frequently asked questions for specific facilities. Additional training for customer service representatives will be required not just on the specifics of each facility but also on the limits of their discretion in addressing customer inquiries.

The introduction of video tolling or “pay by plate” would add new system functionality and customer service requirements to address the increased volume of images needing review, matching images to owners, and linking payments to transactions.

The methods of payment would be expected to expand from cash, checks, debit cards and credit cards. The functionality of making payments over the internet would be improved. Additional methods of payment could include pay by phone, fleet cards, kiosks, SMS, transit smart cards, gift cards, and third party service providers. The latter could include rental car toll payment services and in-vehicle safety and communication services such as OnStar.

Given the expanding geographic scope of pricing environments; additional physical customer service facilities will most likely be required.

11.4 What are acceptable levels of cost for enforcement efforts?

The primary goal of a tolling enforcement program is to provide a fair and consistent enforcement process that results in an acceptable level of toll payment and compliance with eligibility rules. A well run program would endeavor to set the processing fees, fines, and penalties at a level that covers the cost of the enforcement process. The enforcement effort must also recognize that not all violations will be resolved and the marginal cost to collect some violators will not be justified. Costs of enforcement include law enforcement agency patrols, name and address acquisition, invoicing, adjudication, collection agencies, registration hold processing, and special enforcement efforts for flagrant scofflaws.

11.5 What penalties best match risks of being processed for a violation (civil and/or criminal offense)?

Tolling authorities have generally made toll violations civil offenses. This reflects the financial basis of the violation, minor nature of the offense (similar to parking ticket), added processing requirements for criminal offenses, and that the offense is based upon a vehicle and not the driver. When presented with first civil violation notice, between 50% and 60% of the violators will pay. A second notice will result in an additional payment of between 10% and 20%. The use of driver and vehicle license registration hold provides another powerful tool to resolve outstanding violations. Given this typical resolution situation, the civil approach yields acceptable results without the added burden of proving criminal offenses.

However, there will be a set of flagrant scofflaws who will defy civil efforts to resolve their violations. Consideration should be given to provide a means to criminally prosecute these most blatant offenders.

11.6 What approaches to enforcement should be common across all types of pricing implementations?

The common approaches for enforcement across all types of pricing implementations should include:

- Invoice requesting payment of video tolling customers,
- Issuance of notice of infraction,
- Roadside enforcement,
- Vehicle registration renewal hold,
- Driver's license renewal hold,
- Turnover to collection agency,
- Civil action to compel collection, and
- Authority to pursue flagrant scofflaws.

11.7 How will out-of-state penalties be recovered?

Recovering payments, fees, and penalties from drivers who do not live in a state has always presented a challenge. Given that 60 to 80% of drivers will eventually pay a request for payment or violation notice, the first step in collection is acquiring the name and address of the vehicle owner. State Departments of Motor Vehicles (in Washington, this is the Department of Licensing) will electronically share vehicle registration information with other entities. This would be the primary source of names and addresses. Other commercial services are available to enhance this process. Once names and addresses are obtained, then the notice can be sent. This approach provides a cost effective method to collect most penalties.

Another approach is to assign the outstanding violations to a collection agency. They can be effective in pursuing out-of-state violators, but charge fees commensurate with how collectable the debt is. The City of Seattle uses collection agencies to pursue delinquent parking tickets.

11.8 Should we move toward an eventual transition to newly developing toll technology in order to add other functionality (safety applications, value added services) to tolling systems?

WSDOT should remain an active participant in US DOT sponsored and funded programs that demonstrate and promote Vehicle Infrastructure Integration (VII) technologies. These evolving technologies will provide a set of national standards for vehicle and roadside equipment that will increase functionality, allow the almost universal ability to uniquely identify a vehicle, and significantly reduce the need for proprietary technology.

This section prepared by IBI Group.

12 How and/or where will toll revenues be spent?

Will it fund infrastructure investments?

What legal and constitutional issues are there related to toll revenue use?

How might uses for toll revenues change or be modified over time?

What will be the general balance between revenue generation, vehicle flows and other economic objectives? How will we examine the implications and trade-offs of each approach or toll policy?

To what extent should toll revenues be required or eligible to pay for incident response, active traffic management, transportation demand management and supplemental transit operations that increase the efficiency of a tolled facility?

Will toll revenues be dedicated to transportation purposes?

Will toll revenues be dedicated for investments in the geographic location they are generated?

Will toll revenues support non-toll facility capital and operations (transit and others)?

Should toll revenues cross subsidize new toll facility start ups?

Should toll revenues continue to be raised after the repayment of construction bonds (support maintenance, operations, support congestion management and raise funds for the next generation of investments)?

What legal issues may preclude sharing toll revenues across agencies and/or modes?

These are all policy questions that need considerable discussion. As important as these discussions are, the reality is that in the short term, the foreseeable toll projects are not expected to generate enough revenue to fully support themselves, so the concept of subsidizing other modes, projects or corridors is a purely academic discussion. There are examples of just about every use of toll revenue as you could imagine:

- **Tolls used to pay off construction debt and operations/maintenance.** This has been the historical approach in Washington State, and in many other places. Often, tolls are removed once the initial capital debt is paid off, and the obligation for maintenance and operations reverts to the state.
- **Tolls from early projects used to subsidize or guarantee debt from later projects.** This approach was used in Harris County, Texas and in Florida. Older projects with a demonstrated revenue stream provide seed capital, or a backstop finance source for newer projects. In some cases, this leverage has resulted in extending the original term of the construction debt through refinancing.
- **Tolls used to subsidize transit.** Several agencies use revenue from tolls to subsidize transit services. In the New York City metropolitan region, both the Port Authority of New York and New Jersey and the Metropolitan Transportation Authority cross subsidize. The Port Authority also subsidizes airport and seaport operations, as all its financing is commingled. In the San Francisco Bay Area, tolls from the Golden Gate Bridge subsidize ferries and buses that use the same corridor.

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The I-15 HOT lane in San Diego uses toll revenue to subsidize express bus service in the I-15 corridor.

The issue of when to remove tolls is an important one. The historical precedent in Washington State has been to remove tolls as soon as the initial construction debt was paid, and revert maintenance and operations to the State. The problem with this policy, however, is that the need for revenue does not end when debt is paid off – maintenance, operations, rehabilitation, and expansion needs continue. Both the Tacoma Narrows Bridge and the SR 520 Bridge might have benefited from a policy of keeping tolls on after initial construction debt was paid.

13 Appendix A: SR 91 Express Lanes Toll Policy

Obtained from the Orange County Transportation Commission website, at:
<http://www.91expresslanes.com/generalinfo/tollpolicy.asp>

Adopted July 14, 2003

Goals

The goals for the 91 Express Lanes toll policy are to:

- Provide a safe, reliable, predictable commute for 91 Express Lanes customers.
- Optimize vehicle throughput at free flow speeds.
- Pay debt service and maintain debt service coverage.
- Increase average vehicle occupancy.
- Balance capacity and demand to serve customers who pay tolls as well as carpoolers with three or more persons who are offered discounted tolls.
- Generate sufficient revenue to sustain the financial viability of the 91 Express Lanes.
- Ensure all bond covenants are met.
- Repay the Orange County Transportation Authority's (OCTA) internal borrowing and provide net revenues for Riverside Freeway/State Route 91 corridor improvements.¹

¹ *As allowable under Assembly Bill 1010.*

Definitions

Exhibit I, "Definitions", clarifies terms used in this 91 Express Lanes Toll Policy.

Super Peak Hours

The toll adjustment goals are to: a) reduce the likelihood of congestion by diverting traffic to other hours with available capacity; b) maintain free flow travel speed in the 91 Express Lanes; c) maintain travel time savings; d) accommodate projected growth in travel demand and; e) ensure that the toll road generates sufficient revenue to effectively operate the toll lanes and maintain a strong debt service position.

The toll for use of the 91 Express Lanes during a Super Peak hour shall be determined as follows:

1. Hourly, day, and directional traffic volumes will be continually monitored on a rolling 12 consecutive week period basis.
2. Hourly, day, and directional traffic volumes of 3,128 or more will be flagged for further review.
3. If the hourly, day, and directional traffic volume is consistently at a level of Super Peak then the toll rate for that hour, day and direction may be increased.
4. The toll for that hour, day, and direction shall be increased, based on the average vehicle volume of the flagged hour, day, and direction identified per Section 2 above, as follows:

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- a. if the average flagged vehicle volume is 3,300 or more, then the toll shall be increased by \$1.00.
- b. if the average flagged vehicle volume is between 3,200 and 3,299, then the toll shall be increased by \$0.75.
- c. if the average flagged vehicle volume is less than 3,200, then the toll shall not be changed.

Six months after a toll increase, the most recent 12 consecutive weeks (excluding weeks with a Holiday or a major traffic anomaly caused by an accident or incident) shall be reviewed for the hour, day and direction that the toll was increased. If the traffic volume is less than 2720 vehicles per hour, day, and direction in six or more of the weeks then the traffic volumes for that hour, day and direction for the 12 consecutive weeks shall be averaged. If the average traffic volume is less than 2720 then the toll shall be reduced by \$0.50 to stimulate demand and encourage 91 Express Lanes use.

OCTA's Board of Directors and customers will be informed of a toll adjustment 10 or more days prior to that toll adjustment becoming effective.

Non-Super Peak Hours

All Non-Super Peak tolls shall remain fixed at November 2001 levels except for an annual adjustment for inflation (see Exhibit IV). The Inflation Factor shall be identified and applied beginning July 1, 2004 and at the beginning of each fiscal year thereafter to all Non-Super Peak and Super Peak hours that were not adjusted in the previous 12 months. All tolls shall be rounded up or down to the nearest 5-cent increment.

Discounts

Vehicles with three or more persons (HOV3+), zero emission vehicles (ZEVs), motorcycles, disabled plates and disabled veterans are permitted to ride free in the 91 Express Lanes during most hours. The exception is Monday through Friday 4:00 p.m. to 6:00 p.m. in the eastbound direction when these users pay 50 percent of the toll. The exception that these users pay 50 percent remains in effect until such time as the Debt Service Coverage Ratio - inclusive of senior and subordinated debt - is projected to be 1.2 or greater for a six month period. At that time, HOV3+ users will ride free all day, every day.

Financing Requirements

OCTA shall charge and collect tolls that generate enough revenue to maintain the Debt Service Coverage Ratio to be at least 1.30 to 1.00. OCTA recognizes that it must maintain a strong debt service position in order to satisfy the existing taxable bond covenants as well as the bond covenants in the proposed taxexempt refinancing documents.

Holiday Toll Schedules

All existing holiday toll schedules shall apply. Existing holiday toll schedules are identified on Exhibit V and shall be adjusted by the inflation factor at the beginning of each fiscal year beginning July 1, 2004 in a similar fashion as with Non-Super Peak Hours.

Exhibit I

Definitions

Cash Available for Debt Service - for any Period, the excess, if any, computed on a cash basis, of:

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1. the amount of 91 Express Lanes cash receipts during such Period from whatever source, including, without limitation, toll receipts, transponder revenues, amounts paid to OCTA under the Facility Agreements, and investment earnings, excluding:
 - o proceeds of insurance,
 - o proceeds of the debt service letter of credit or other amounts held in or disbursed from the payment account, the debt service reserve account, the coverage account and the major maintenance reserve account, and
 - o the proceeds of any Additional Senior Bonds or Subordinated Bonds, over
2. All Operating and Maintenance Costs incurred during such Period and not deducted in the computation of Cash Available for Debt Service in a prior Period. In computing Operating and Maintenance Costs for any Period, an appropriate prorating will be made for expenditures such as insurance premiums and taxes that would be prorated if the computation were to be made in accordance with GAAP

Consistently - Any six weeks of twelve consecutive weeks, excluding any week that includes a Holiday or major traffic pattern anomaly caused by an accident or incident.

Debt Service - for any Period, all payments of principal, interest, premiums (if any), fees and other amounts made (including by way of prepayment) or required to be made by OCTA during such Period under the Bond Documents (debt service payments related to OCTA's internal subordinated debt borrowings are to be excluded from these calculations). In computing Debt Service for any Period prior to the issuance of the new bonds, OCTA will give pro forma effect to the transactions contemplated by the Bond Documents and the use of proceeds of the new bonds. In computing Debt Service for any prospective Period, OCTA will estimate in good faith such payments on the basis of reasonable assumptions. Such assumptions will include the absence of any waivers of or amendments to any agreements and the absence of any optional or extraordinary mandatory redemption of the bonds.

Debt Service Coverage Ratio - for any Period, the ratio of Cash Available for Debt Service for such Period to Debt Service for such Period.

Fiscal Year - July 1 to June 30

Holiday - Any of the following holidays that occur or are recognized any day between Monday through Friday: New Year's Day, Memorial Day, 4th of July, Labor Day, Thanksgiving and Christmas.

Inflation Factor² (Included in the present 91 Express Lanes Operating Agreement and subject to change with any new contractor agreement):

² The inflation factor shall be the same as in the OCTA - Cofiroute Global Mobility 91 Express Lanes Operating Agreement dated November 15, 2002 and effective January 3, 2003 or as in successor operating agreements.

1. 0.75 times the product of (A) the hourly toll for the immediately preceding fiscal year, times (B) a fraction, the numerator of which shall be the Labor Index Adjuster for June of the prior fiscal year and the denominator of which shall be the Labor Index Adjuster for June of the year immediately preceding such fiscal year, plus
2. 0.25 times the product of (A) the hourly toll for the immediately preceding fiscal year, times (B) a fraction, the numerator of which shall be the CPI Index Adjuster for June of the prior fiscal year and the denominator of which shall be the CPI Index Adjuster for June of the year immediately preceding such fiscal year.

Maximum Optimal Capacity - 3,400 vehicles per hour, per day, per direction in the 91 Express Lanes facility Non-Super Peak - Hourly period that is not Super Peak.

Operating and Maintenance Costs - all reasonable and necessary expenses of administering, managing, maintaining and operating the 91 Express Lanes and in accordance with the Bond Documents and the Facility Agreements.

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Period - the most recent twelve complete months.

Super Peak - Hourly period, per day, and per direction with traffic volume use which meets or exceeds the Trigger Point.

Trigger Point - 92 percent or more of Maximum Optimal Capacity (3,128+ vehicles per hour, per day, and per direction).

Week - 12:00 a.m. Sunday to 11:59 p.m. the following Saturday.

Some of the financial definitions will be modified to reflect the bond covenants in the tax-exempt refinancing documents.

Exhibit II

Toll Policy Decision Process

Congestion Management Pricing in Super Peak

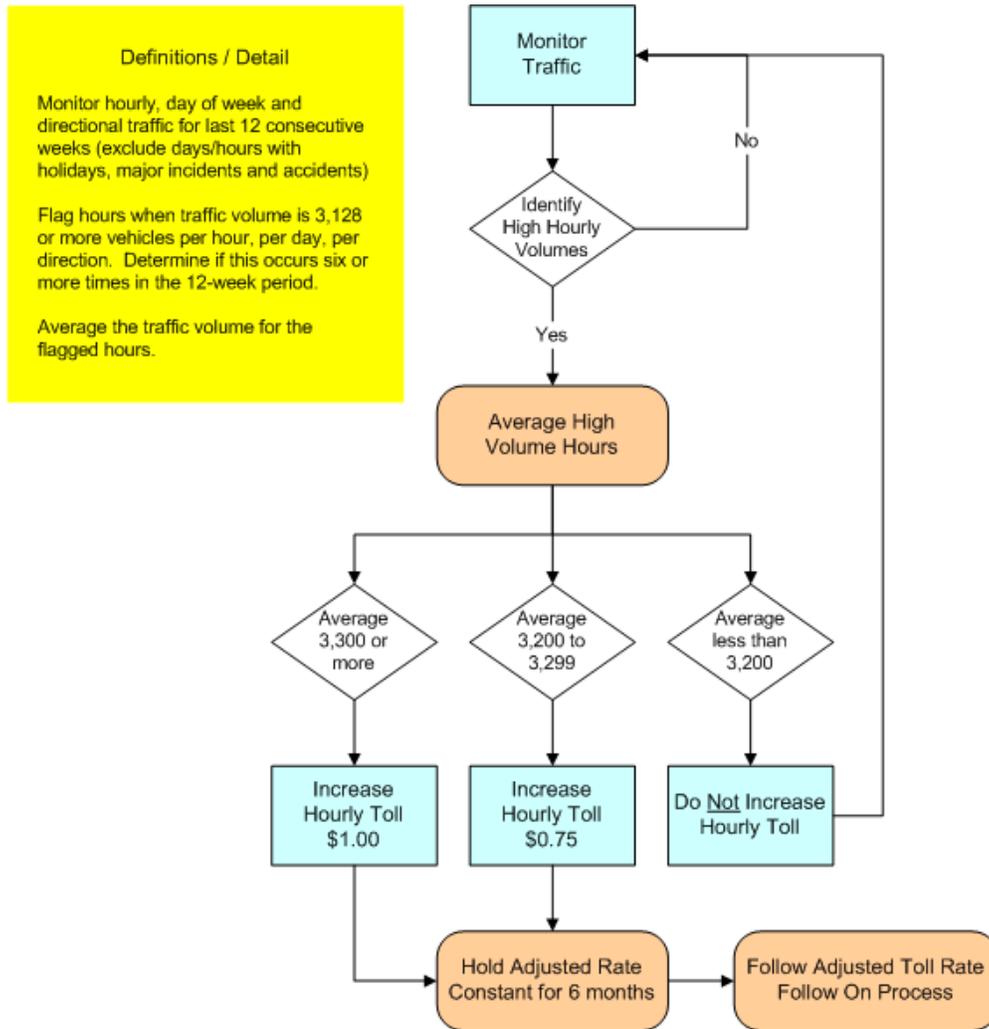
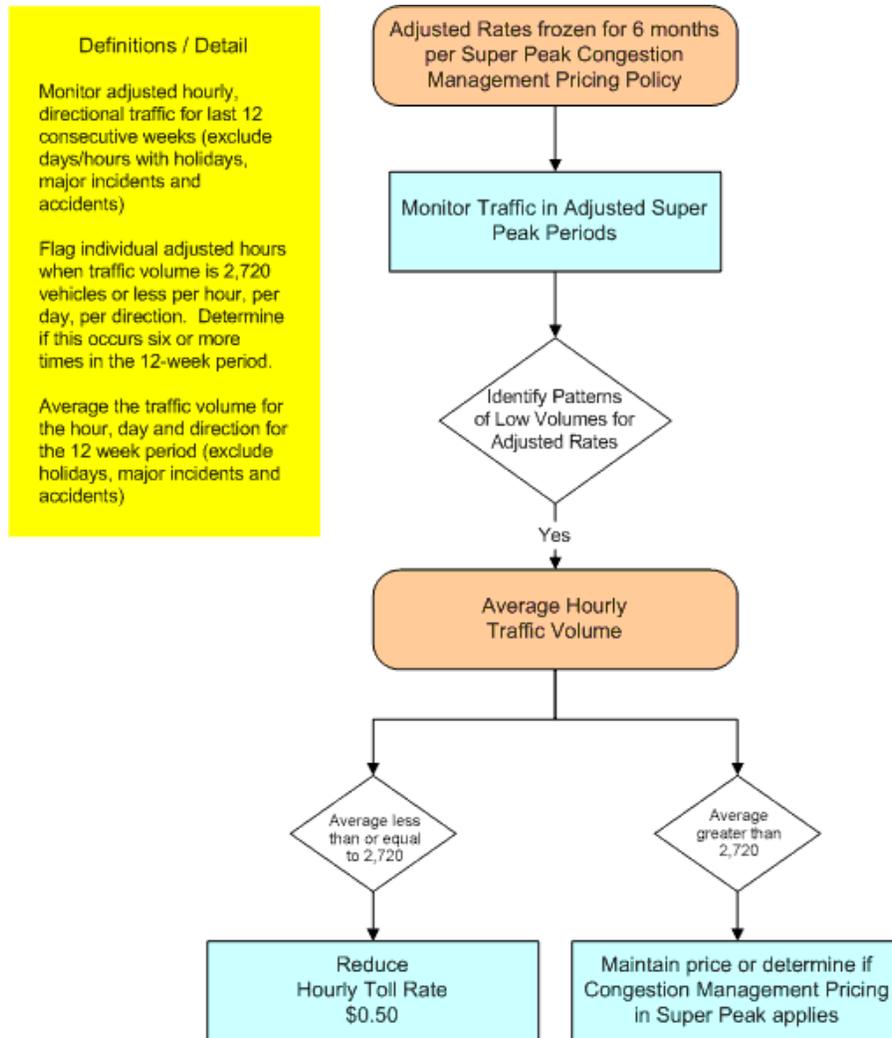


Exhibit III

Adjusted Toll Rate Follow On Process

(Super Peak Adjusted Rates Only)



Updated 6/28/2005