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## Meeting Notes 2005-10-27 [Finance Committee]

Joint Policy Advisory Committee on Transportation

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**METRO**

TEL 503-797-1916 FAX 503-797-1930

**MEETING:** JPACT Finance Committee  
**DATE:** Thursday, October 27, 2005  
**TIME:** 7:30 A.M. – 9:00 A.M.  
**PLACE:** Conference Room 370 A & B, Metro Regional Center

---

**Welcome and Introductions**

**Rod Park**

**Variable Tolling: Background, Recent Initiatives and  
Upcoming Issues**

**1. Regional Experience**

**Richard Brandman &  
Bridget Wiegart**

- Traffic Relief Options Study
- Regional Pricing Policy
- Highway 217 Corridor Study

**2. State Experience**

**Jim Whitty, Fred  
Eberle & Jason Tell**

- I-5 Columbia River Crossing
- Oregon Innovative Partnerships Program
- Tolling Network

**3. Policy Issues**

**4. Discussion**

**Adjourn**



**Oregon Transportation Commission  
Tolling Issues Discussion and Workshop**

**Topics to Address:**

**1. Policy Development**

- a. Toll existing capacity or just new capacity?
- b. Revenue maximization or congestion / demand management?
  - i. HOV / occupancy goals
- c. System network potential
  - i. Phasing and coordination with other toll projects
    - 1. standardization

**2. Toll Collection Methods**

- a. Manual
- b. Automatic coin machines
- c. Electronic Toll Collection (ETC)
  - i. Electronic toll collection issues
    - 1. Toll system standards
    - 2. Toll transponder standards
      - a. Battery-powered
      - b. Low cost "sticker" tags
    - 3. Image tolling
    - 4. Interoperability

- a. Statewide
  - b. Among concessions
  - c. Interstate
  - ii. Preference for all ETC?
  - d. Mixed mode
- 3. Toll Facilities**
- a. Traditional
  - b. Open road tolling / express lanes
  - c. High Occupancy Toll (HOT) lanes
  - d. Area / cordon / corridor tolling
  - e. Network tolling
- 4. Restrictions on Access to Facilities**
- 5. Toll Rates**
- a. Fixed price / flat rate or mileage-based?
    - i. Discounts for local residents? frequent users?
    - ii. Environmental justice issues / low income discounts?
  - b. Value pricing
    - i. Time of day? Dynamic?
  - c. Pricing by Vehicle Classification
    - i. Discounts for hybrids? HOVs?
  - d. Pricing by toll collection method
    - i. Discounts for ETC
  - e. “Supportive” revenue options
    - i. Value capture

1. system development charges, traffic impact charges
- ii. Shadow tolling
- iii. Traditional sources
  1. gas tax, registration fees
- f. Toll rate Increases
6. Federal Tolling Programs
  - a. HOT lanes
  - b. Express Lane Demonstration
  - c. Interstate Toll Pilot
7. Integration of Tolling into Planning Process
  - a. Project prioritization process
  - b. Development impacts / Interchange Management Plans
  - c. Diversion impacts
8. Public Information, Communication and Acceptance
9. Organization for Management and Administration of Tolling (ODOT / Other)
  - a. Customer Service Centers
    - i. Setting deposits, payment policies, etc.
    - ii. Issues if multiple concessions
  - b. Violation enforcement
    - i. Legislative powers
      1. Enforce non-payment of toll
      2. Enforce via mail using digital license plate images
      3. Access to Department of Motor Vehicle records

4. Ability to require payment prior to renewal of registration

5. Use of courts or administrative proceedings

ii. Video tolling

iii. Occupancy enforcement for HOT lanes

iv. Implications of concessions

10. Maintenance of the Facility

11. Law Enforcement on a Privately-Operated Facility

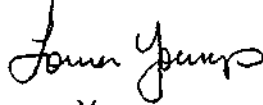
a. Non-payment of toll



# Oregon

Theodore R. Kulongoski, Governor

Department of Transportation  
Office of the Director  
355 Capitol St. NE  
Rm 135  
Salem, Oregon 97301-3871

**DATE:** October 6, 2005  
**TO:** Oregon Transportation Commission  
**FROM:**   
Lorna Youngs  
Interim Director  
**SUBJECT:** Workshop # 3 ~ Tolling Issues

FILE CODE: *to Andy*  
*CC Rod*  
*Ref*  
*RB*  
*Bridgette*  
*Robin*  
*Tom K.*  
*Ted L.*

**Requested Action:**

Discuss issues relating to the tolling of existing, as well as new facilities. No formal action is requested.

**Background:**

In April 2005 staff presented an overview of tolling issues related to the Columbia River Crossing. Tolling has been raised as a potential source of revenue for the construction of potential public-private partnerships on other large projects. At the September 2005 meeting, the Commission further discussed tolling as a possible revenue source for other infrastructure needs.

**Attachment**

**Copies (w/attachment) to:**

Doug Tindall	Craig Greenleaf
Mike Marsh	James Whitty
Patrick Cooney	Lori Sundstrom
John Jackley	Region Managers



# **Tolling Issues White Paper**

**Oregon Department of Transportation**

**October 5, 2005**

**Carter INC Burgess**



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## **Glossary**

<b>Acronym</b>	<b>Definition</b>
<b>AVC</b>	Automatic Vehicle Classification
<b>AVI</b>	Automatic Vehicle Identification
<b>CSC</b>	Customer Service Center
<b>DSRC</b>	Dedicated Short-Range Communication
<b>ETC</b>	Electronic Toll Collection
<b>FHWA</b>	Federal Highway Administration
<b>GPS</b>	Global Positioning System
<b>HOT</b>	High Occupancy Toll
<b>HOV</b>	High Occupancy Vehicle
<b>OCR</b>	Optical Character Recognition
<b>OIPP</b>	Oregon Innovative Partnerships Program
<b>ORS</b>	Oregon Revised Statutes
<b>ORT</b>	Open Road Tolling
<b>RFID</b>	Radio Frequency Identification
<b>SAFETEA-LU</b>	Federal Transportation Bill for 2005
<b>SOV</b>	Single Occupant Vehicle
<b>TEA-21</b>	Transportation Equity Act for the 21 <sup>st</sup> Century
<b>VTOLL</b>	Video Tolling

## Tolling Issues White Paper

### 1.0 Toll Roads Overview

Across the continental United States, surface transport toll facilities generate some \$5.5 billion in revenue on almost 5,000 miles of toll bridges, tunnels and roadways in 29 states, and the industry is on the cusp of rapid growth and change.

Two major forces have combined to drive this growth: the lack of funds for transportation, and technological advancements in toll collection. Even though the Federal Transportation Bill (SAFETEA-LU) was passed with a six year funding level of \$286.4 billion (compared to the \$208 billion in TEA-21), there are still enormous gaps between available funding and transportation needs. Many agencies are turning to tolling as a solution.

A second major force causing transportation agencies to take a new look at tolling is the advent of Electronic Toll Collection (ETC). Automating toll collection via advanced technologies improves "throughput" on toll facilities; reduces the cost of toll collection; promotes travel demand management by creating pricing to maintain free flow conditions during peak periods, and allows toll collection to occur without the need for large, expensive and right-of-way consuming toll plazas.

This White Paper will briefly explore the variety of issues that must be addressed as the Oregon Department of Transportation considers the use of tolling.

### 2.0 Oregon Legal Authority

ODOT has two sources of authority under Oregon law to operate or participate in the operation of toll roads: (1) the tollway statutes, ORS 383.003 to 383.027; and (2) the Oregon Innovative Partnerships Program (OIPP) statutes, ORS 367.800 to 367.824.

#### Tollway Statutes

The Tollway Statutes authorize ODOT and, pursuant to an agreement with ODOT, a private entity or a unit of government, to operate a tollway project. As stated in ORS 383.005(2), the operator of the tollway also has the statutory authority to "impose and collect tolls on the tollway project." ODOT's agreement with the operator may prescribe limits on the operator's discretion to set or modify tolls.

## OIPP Statutes

The OIPP statutes authorize ODOT to enter into agreements with public or private entities for, among other things, the financing, development, construction, leasing and operation of "transportation projects." Under ORS 367.806(1)(b), ODOT may include in any such agreement "any financing mechanisms including, but not limited to the imposition and collection of franchise fees or user fees and the development or use of other revenue sources." Tolls are a type of user fees. The tollway statutes found in ORS Chapter 383 expressly "do not apply to any tollway project entered into under" the OIPP statutes (see ORS 367.806(4)). For an OIPP project involving tolls, the agreement will prescribe the amount of the toll or the method to establish or modify toll amounts.

## 3.0 Toll Collection and Technology

As stated in the Overview, the collection of roadway tolls has advanced significantly from stopping and handing your money to a toll collector at a tollbooth to the point where tolls can be collected electronically at highway speeds without requiring the driver to stop. This section of the document provides a brief summary of toll collection approaches, facilities, technology, customer interfacing, and potential issues or implications.

### 3.1 Types of Toll Collection.

The operational approaches to toll collection can be divided into manual, unattended, electronic, and mixed mode approaches. The selection of a toll collection approach depends upon the operational requirements of a specific type of toll facility.

**Manual Toll Collection:** Under this operational approach, a driver stops at a tollbooth and pays the required toll directly to a toll collector. Cash or tokens issued by the toll agency are the primary form of payment. In some cases it is also acceptable to use credit cards, debit cards, checks, and agency-issued payment cards as a mode of payment. However, cards and checks are normally prohibited or at least discouraged due to the transaction time required which impacts the throughput of the facility. Tollbooths are normally found at mainline toll plazas and at interchange entrances or exits to the facility.

**Unattended Toll Collection:** An early step in automation of toll collection was the introduction of automatic coin machines where drivers placed the required toll payment in a basket and the machine counted the amount. While coin machines have fallen out of use because of high maintenance requirements and the introduction of electronic toll collection, a related approach is still being used at locations and times of low traffic volume. A self-service machine - similar to a parking pay and display machine - is used to allow the driver to pay the toll with currency or credit card when a toll collector is not present.

**Electronic Toll Collection (ETC):** The development of automatic vehicle identification technology changed the face of toll collection by providing the ability to accurately identify a specific vehicle at highway speeds. The vehicle identification is linked to the customer's account, which is automatically debited the amount of the toll, thus the driver pays the toll without stopping and no tollbooths are required.

**Mixed Mode Toll Collection:** Most tolling authorities today operate a combination of manual, unattended, and electronic toll collection.

### 3.2 Types of Toll Facilities

Toll facilities can be categorized as follows:

**Traditional Toll Facility:** At a traditional toll facility, a driver pays at a fixed tolling point, which is generally a toll plaza that provides a combination of manual, unattended, and electronic toll collection lanes. The size of the toll plaza will depend upon traffic demand and the split between manual and electronic toll collection. For high volume facilities, a toll plaza can be quite large. While non-stop electronic tolling may be offered, a traditional facility will also provide manual or unattended methods of toll payment.

**Open Road Tolling (ORT):** Open Road Tolling only provides for electronic toll collection, manual toll collection is not provided. Tolls are charged at fixed points along the facility.

**High Occupancy Toll (HOT) Lane:** High Occupancy Toll lane facilities charge single occupant vehicles (SOVs) for the use of a high occupancy vehicle (HOV) lane. Access into the HOT lane generally remains free for transit, vanpools, and carpools. The toll charged for SOVs is automatically adjusted to ensure traffic congestion does not exceed an established threshold. Toll collection is done electronically, and tolls are charged at fixed points along the facility.

**Area or Cordon Tolling:** This method involves charging vehicles for entering a specific area such as a central business district. The London Congestion Charge and Singapore Area Licensing Scheme are two examples. Tolls are charged at fixed points and use electronic toll collection.

**Regional Pricing:** Vehicles are charged for the use of highways throughout a region generally based upon time of day and length of trip. Electronic toll collection is required.

Each of these tolling systems or designs has unique functional, operational, and technical requirements to enable implementation. The issues surrounding these requirements are discussed below.

### 3.3 Automated Toll Collection

The cornerstone of electronic toll collection is the ability to automatically identify a specific vehicle. A variety of methods have been implemented in the toll industry.

**Automatic Vehicle Identification (AVI):** 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 the amount of the toll. Tolls are collected at fixed points along the roadway.

The transponder is a two-way radio with a microprocessor, operating in the 900 MHz radio frequency band (within the United States) using one of five different dedicated short-range communication (DSRC) protocols. The ability to read the transponder's unique identification number while in a vehicle traveling at highway speeds is a key feature. Some transponders allow a small amount of data to be written to the transponder (read-write). Battery powered transponders can incorporate lights, audible tones, or LED displays that provide feedback to the driver. However, the initial cost of battery transponders is higher and the overall life cycle cost is increased because of the need to replace the transponder or its battery. Most battery powered transponders used for toll collection range from \$20 to \$35 per unit. Non-battery transponders are available for under \$10 per unit.

**Interoperability:** All existing transponders are not compatible and therefore there is not currently an option to have nationwide interoperability between toll agencies. Some of this is handled by adjoining states choosing compatible technology and in some cases more advanced AVI readers can enhance compatibility.

To address the lack of interoperability among AVI technologies, US DOT has commissioned a consortium of the major transponder manufacturers to develop a national DSRC standard. The device is being built around a newly allocated radio frequency (5.9 GHz) and the specific requirements of DSRC for transportation applications. The new DSRC transponder should be available for testing in early 2006. A deployment decision by US DOT and the automotive industry is expected in 2008. The new transponders could be part of new vehicles shortly after 2010. (It takes approximately 15 years for the entire American car fleet to turn over.)

**License Plate Readers:** Another approach to vehicle identification involves the use of License Plate Readers to capture an electronic image of a vehicle's license plate. This information is used to charge the accounts of customers who have registered vehicles. For vehicles that are not registered, this license plate number is used to determine the owner's name and address to whom an invoice is sent. The Highway 407 in Toronto uses a combination of transponders for regular customers and license plate readers for infrequent users to collect tolls, and is an all-electronic toll collection facility.

**Day Passes:** On some toll roads outside the US, all-electronic facilities allow users to purchase a Day Pass by calling and providing license plate and payment information within 24 hours of using the facility.

**Global Positioning System:** Some preliminary testing is being conducted on the concept of installing a Global Positioning System (GPS) in a vehicle to locate itself within a charge area or network. One of the key pilot programs is the one being conducted by the Oregon DOT as part of the investigation of the Road User Fee Program.

### 3.4 Toll Rate Determination

Traditionally, the toll rate for a facility has been set to pay for the capital, operating, and maintenance costs of the facility or authority. This toll rate has generally been fixed based upon the classification of a vehicle, with heavy commercial vehicles paying more than passenger cars. However, charging drivers a fee that varies with the level of traffic on a congested roadway can allocate roadway space in a more economically efficient manner. Toll rates for individual vehicles can be determined in the following manner.

**Manual Rate Determination:** The toll collector determines the type of vehicle based upon characteristics such as number of axles, height, weight, or number of tires per axle, and collects the appropriate toll.

**Automatic Vehicle Classification (AVC):** The inherent potential for fraud on the part of toll collectors led to the development of vehicle sensor technology that can classify a vehicle based upon its characteristics. The number of axles is the most common vehicle toll classification design. AVC equipment is used to provide a check on manual toll collection, and to determine the proper vehicle classification for electronic toll collection. AVC equipment works at highway speeds and under congested traffic conditions.

**Time of Day:** Because travel demand varies based upon the time of day, toll rates can be set based upon historic traffic levels. The express lanes on SR 91 in Orange County, California use a time of day schedule.

**Dynamic or Traffic Conditions Based Pricing:** Time of day pricing is based upon historical information and does not account for actual conditions each day. By using traffic sensor information, real time traffic conditions can be determined and used to set prices. The use of dynamic pricing is required for HOT lane implementation to ensure that HOV levels of service remain adequate. When developing dynamic pricing algorithms, the balance between revenue generation and mobility must be determined.

Finally, ensuring a driver is charged the correct toll under a dynamic pricing approach presents a technical challenge. The driver must be informed of the price of the trip and the price must remain constant for the duration of the trip. This is more easily done for a corridor with limited access points than an entire system of roadways.

### 3.5 Customer Service

Providing customer service to toll patrons is a key element of the overall toll program. Customer service may be provided via the web, telephone, or a physical customer service center. The functions of a customer service center will include the following:

**Creation and Maintenance of Customer Accounts:** The customer service center is responsible for the creation and maintenance of customer accounts, including opening and closing accounts, adding funds, and assisting customers with account questions. These activities are typically conducted both over the phone and in-person, and many toll authorities are now offering online account access.

**Issuing Transponders:** The customer service center is also responsible for assigning a transponder to each vehicle under a given account. These transponders must be requested from the toll authority's tag warehouse and tracked as inventory. Once assigned to an account, the status of the transponder (active, inactive, lost/stolen, etc.) becomes part of a customer's account history. For accounts opened via mail or online, the customer service center may mail transponders to customers along with instructions on installation.

**Accounting:** There is a significant financial element to the customer service center regarding accurate reconciliation of toll transactions and payments against customer accounts. Customer account balances are constantly fluctuating in real time as a result of toll transactions, automatic replenishment via credit cards and/or bank account transfers, and in-person transactions at a customer service center.

Often an individual toll authority is established to serve a single region or facility, resulting in multiple authorities and multiple customer service centers across a given state. In order to provide a more seamless customer experience, these disparate toll authorities frequently work together to interface their systems to accept transponders from each other's customers and to reconcile these transactions "behind the scenes" via a financial clearinghouse. This collaboration has now been extended across multiple states with the Interagency Group in the Northeast U.S.

In launching a new statewide tolling program, there is the opportunity to provide toll patrons with a single point of contact (one phone number, one web site, one account) for their toll accounts.

Looking towards the future, it is expected that many auto manufacturers will be installing transponders as factory equipment in new cars. 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 in-vehicle credit cards, with the likely expectation from the customer that they will receive a single invoice for all of their in-vehicle transactions. In this scenario, the state tolling authority would interface with a third-party service provider to bill each customer's account.



### 3.6 Violation Enforcement

Since the first construction of toll facilities, users have attempted to avoid payment of the required toll. Manual toll collection operations have incorporated gates in the lane to discourage drivers from driving straight through and not paying the toll. The introduction of electronic toll collection without gates or toll collectors has resulted in the deployment of technology to automatically identify toll evaders and demand the payment of the required tolls.

**License Plate Capture:** When a vehicle fails to pay the correct toll at either a manual or electronic toll collection point, cameras installed at the lane take an image of the vehicle's license plate. The cameras are configured to capture license plates from the full range of vehicle makes and models, to zoom in only on the plate itself (most jurisdictions are prohibited by law from capturing any image of the vehicle's occupants), and to capture multiple photos so as to improve the probability of a legible image.

**Optical Character Recognition (OCR):** To relieve human operators from having to review thousands of violator images per day, OCR is used to scan the license plate images and process the characters comprising the license plate into the violations processing system. OCR has a configurable "confidence level" that can be set to determine how "confident" the system needs to be in its reading before passing the image on to a human operator for manual review.

**Video Tolling:** For a variety of reasons (tag improperly installed, equipment failure, etc.) some valid customers are captured as toll violators. As the customer provides their vehicle information when opening an account, the system can look up this information, determine whether funds are available, and automatically deduct the toll from the customer's account. This process is called a "VTOLL" as shorthand for video tolling. The customer may be sent a notice of the VTOLL transaction and a reminder to use their transponder properly. A fee may be assessed for excessive VTOLLs.

**Name and Address Acquisition:** Critical to the collection of outstanding tolls, fees and fines is determining the name and address of the toll evader. Using the license plate number obtained from the image of the toll evader's vehicle, an electronic request is made to the relevant Department of Motor Vehicles or other sources to obtain the specific name and address. According to the US Bureau of Census approximately 17% of Americans move every year and as a result, hit rates for names and addresses are between 80% and 90%. The implication is that a certain portion of violators will not be located and an additional number will not pay. Additional focused efforts to identify and locate flagrant violators will be required for all types of toll facilities.

**Legal System Interfaces:** While the laws and legalities surrounding the collection of delinquent tolls vary from state to state, at some point, toll violations become a citable offense generally under traffic or parking laws and regulations. For legal enforcement of toll violations, toll authorities must look to law enforcement officers and the local courts. In jurisdictions where citations may be issued electronically, officers may review an online "evidence package" that includes the photo(s) of the violator's license plate, the date and time of the violation, and the violator's name and address. The officer can use an electronic signature to sign the citation, which is then printed and mailed by the toll authority. This mitigates the resource demands placed on the officers for reviewing citations.

As with any traffic or parking ticket, some violators will wish to appeal the citation to the courts. New tolling authorities must work with local courts to determine the legal, technical, and resource-related issues surrounding toll enforcement, in terms of how toll violations will be processed in the court computer system, what legal "loopholes" may interfere with enforcement, and what is a reasonable violation penalty. The penalty must effectively discourage violators without being so harsh as to potentially tax the resources of the courts with thousands of appeals.

#### 4.0 Key Technology Considerations

The implementation of toll technology requires consideration of a range of policy, operational, and technical issues. Key areas of consideration are discussed below.

**Vehicle Identification Technology Selection:** At the core of electronic toll collection is the vehicle identification technology. When making the choice of vehicle identification technology, key considerations will include:

- The selection must be based upon the nature of the tolling facility and its operational requirements. If manual toll collection is not going to be supported, then an electronic, non-stop approach will be required.
- If a transponder-based ETC is selected for a facility, a primary decision will be the selection of a transponder for use during the transition period until the new DSRC transponder standard is established.
- The cost of on-board units is another factor in selecting vehicle identification technology. Transponder costs are significantly lower than GPS units. While the up-front capital costs for the license plate reader approach are lower, the operational cost for obtaining names and addresses, invoicing and collections are significantly higher than transponder approach.
- The allocation of cost of on-board units among the user, state and the concessionaires will need to be balanced. Some agencies charge for the units and others give them away to increase the use of transponders over other methods of toll collections.

- The ability to use the same vehicle identification technology across multiple facilities is one key factor to enable interoperability among individual tolling projects within and outside the state.
- If HOT lane projects are contemplated, the requirement to have all vehicles, both HOV and SOV, equipped with transponders will need to be considered.
- Given the nature of potential toll projects in the state, the use of transponder-based DSRC technology is probably the appropriate solution for the near future.

**Interoperability:** At the heart of interoperability between toll facilities is a set of customer service expectations. These expectations have been identified based upon experience at other toll facilities and market research including surveys and focus groups.

- One Device - Only one on-board device would be required in the customer's vehicle for electronic toll collection payment and this device would be accepted at all state tolling facilities.
- One Statement – A consolidated statement would be provided to the customer for all activity at all state tolling facilities.
- One Number – A single customer service telephone number would be available for all tolling customer inquiries.
- One "Look and Feel" – All interactions with customers would provide a consistent image and approach.

Within this context, interoperability can occur on several levels: System, Peer-to-Peer, and Full Interoperability. At the System 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. Peer-to-Peer means that separate customer service centers (CSC) are maintained by the agencies that have agreed to exchange transactions and transponder files so that the customer has only one transponder and one account. However, if the customer has inquiries they may be required to deal with separate CSCs. Full Interoperability establishes a single CSC where there is one account and one point of contact.

All of these approaches have been implemented in North America. In analyzing the choices, public expectations, implementation costs, operational costs, and concessionaire input would all need to be considered. The single regional or statewide customer service center 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 customer service centers in the San Francisco Bay area.

**Revenues and Costs:** Technology choices will have an impact on the implementation and operational costs of the toll facilities, and the allocation of those costs among the public, state, and concessionaries. For example:

- **Transponder:** Transponders range in cost from under \$10 per unit to nearly \$30. If hundreds of thousands are purchased, this can have a significant financial impact. With the national DSRC standard ready for testing early next year, the chosen technology should allow for a graceful migration to this new standard.

Many agencies require that customers provide a deposit for the transponder to offset the cost of the units. However, this practice can reduce the number of customers using the transponder. It should be noted that cost is not the only consideration in the selection process; transponder capabilities to meet the operational requirements of the facility are at the very least, equally important for success.

- **Method of Tolling:** The selection of the method of tolling presents a range of cost trade-offs in capital and operational costs. The elimination of manual toll collection eliminates the cost of building a toll plaza. The operational cost trade off replaces toll collectors with customer service representatives and violation enforcement clerks. Violation rates are generally higher in non-stop toll collection lanes. This can reduce projected revenues unless fines and fees are used to cover this loss.
- **Cost Allocation Among Facilities:** If more than one toll project is implemented and customer service functions are shared, the proper allocation of operational and capital costs among the projects will need to be determined. Many toll projects are financed under strict bonding covenants and enabling legislation that restricts where toll revenue can be spent.

**Violation Enforcement:** A fair but aggressive violation enforcement program should support toll collection efforts. The overall program should encourage and reward desired behavior while fostering compliance. Public education can be used to explain the toll collection and supporting enforcement program, but it needs to be combined with solid laws and regulations, clear processes, cooperative and timely enforcement actions, local court support, and measured penalties to provide an effective enforcement program.

**Technology Upgrades:** Typically, a technology investment has reached the end of its economic life in less than ten years. This is especially true today with the rapid pace of technological advancements. The same is true for electronic toll collection systems. The state and the concessionaires should stand ready to upgrade relevant components of the ETC system as necessary. Flexibility will be required as the technology marketplace moves the toll industry in directions that have not been anticipated.

**Privacy:** Privacy may or may not be an issue depending on the approach taken. Most electronic toll collection programs are voluntary with the customer choosing to join the program. Under an Open Road Tolling approach, all vehicles would either participate by having transponders or pay by receiving an invoice once their license plate is used to identify the owner. This method is on one side of the privacy spectrum. On the other side is the GPS approach which has the potential to track individual vehicle movements. Public perceptions are critical to successfully implementing a GPS approach.

**Routine Operations and Maintenance:** Toll collection programs require a level of overall system and operational reliability not generally demanded by most business and government activities. If the components of the toll collection system and operations are not working, then customers are not being adequately served and revenue can be lost. It is necessary to have adequate levels of appropriately trained staff to maintain and operate a reliable and successful toll enterprise.

## 5.0 Planning, Policy, and Implementation Issues

### 5.1 Planning

In the big picture, the planning process for toll facilities is not much different than that of traditional roadways. All of the normal work related to transportation plans, environmental documents and land use planning must occur. One critical decision for an agency is to determine how tolling options will be incorporated into the planning process. This could be handled through one or more of the following methods:

- Integral Portion of Planning Process
- Project by Project Basis
- As Suggested by Unsolicited Proposal Process

If tolling is to be considered on a more systematic basis, then screening and analysis processes should be undertaken to identify and prioritize potential tolling corridors and/or projects. As part of this process, general toll operation goals and parameters should be established, including toll technology standards, customer service center approaches, outsourcing decisions, etc.

The tolling aspect is also becoming more integrated into the environmental process with clarifications from FHWA that allow the ability to incorporate financial viability of the facility as an essential element of the purpose and need. This is also benefited by the fact that electronic toll collection eliminates many of the environmental impacts found with cash toll collection and allows tolling to become a travel demand management tool as well as a revenue generator.

## 5.2 Policy Issues

There are other high level policy issues that must be reviewed by an agency undertaking tolling, particularly if private sector parties are involved in the project delivery. Some of these are discussed below.

**HOV Usage:** A primary concern for ODOT is policies related to high occupancy vehicle (HOV) usage. Stated policies aimed at reducing single occupancy vehicle travel and encouraging increased occupancy through carpooling, vanpooling, transit, etc., can directly conflict with a need for toll facilities to generate sufficient revenues to cover costs. One way to address this is to provide free or reduced tolls for HOV usage on the facility. This can, however, impact the financial feasibility of a project. A different approach would be to provide incentives to HOV users separate from the toll collection process. In locations where HOV usage has been flat, the emphasis has switched to improving commuter transit services to mesh with a peak period pricing model that encourages modal shifts. How the HOV issue is addressed must be resolved as part of negotiations on concession agreements.

**Diversion Impacts:** When expansion is created via tolling there is always concern about diversion impacts onto other facilities. Drivers can and will make irrational route choices to avoid paying a toll. A way to minimize this "perverse effect" is to toll the entire corridor including the existing capacity. This greatly reduces the chance that drivers will make the choice to avoid the toll facility via neighborhood streets or local roads. Reducing diversion from the tolled facility may also be accomplished by creating travel restrictions or additional traffic controls on the existing roadway. An argument can be made for corridor tolling because there is an improvement to the entire facility by adding capacity, but it can take a significant effort to make this argument publicly acceptable.

**Development Impacts:** The revenues — and if a concession is involved, the return on investment — on a toll road is proportional to the amount of traffic on the road. This is of particular concern for ODOT. Policy makers must avoid unintentionally promoting development to encourage more traffic and associated revenues. The Oregon Transportation Commission has adopted access management and interchange management policies associated with controlling development to ensure that the addition of capacity doesn't create, in turn, the need for more capacity. It will be necessary to ensure that these two potentially conflicting goals are clearly addressed as part of any financial feasibility analysis and subsequent concession agreements.

### 5.3 Implementation

Once the planning is complete, implementation decisions must be made regarding the type of toll facility, toll rate structure, and the delivery method (AVI, transponder, license plate reader, etc.), as well as operational decisions including Customer Service Center operations and violation processing.

## 6.0 Federal Tolling Programs

The new Federal Transportation Bill (SAFETEA-LU) continues and expands the importance of tolling for all state Departments of Transportation, as summarized below. These programs provide the capability to not only add new tolled capacity but also, under certain provisions, to toll existing capacity and enable corridor tolling approaches.

**HOT Lanes:** Regarding High Occupancy Toll lanes, specific provisions were added to Section 1121, HOV Facilities, providing for DOTs to allow vehicles not otherwise eligible to use the HOV lane provided they pay a toll. There are provisions that there must be an established program that includes policies and procedures to “(i) manage the demand to use the facility by varying the toll amount that is charged; and (ii) enforce violations of use of the facility.”

**Value Pricing:** The Value Pricing Pilot Program is continued, including the Express Lane Demonstration Program. That program covers existing toll facilities, HOV lanes, and any facility modified or constructed to create additional tolled lane capacity including a facility constructed by a private entity or using private funds.

This Demonstration Program is to cover 15 demonstration projects from federal fiscal year 2005 through 2009 to permit the collection of a toll from motor vehicles on facilities, including the Interstate System, for the following purposes:

- to manage high levels of congestion;
- to reduce emissions in a nonattainment area or maintenance area; or
- to finance the expansion of a highway, for the purpose of reducing traffic congestion, by constructing 1 or more additional lanes on the Interstate System.

**Interstate Toll Pilot:** The Interstate System Construction Toll Pilot Program is continued that permits a State or an interstate compact of States to collect tolls on a highway, bridge, or tunnel on the Interstate System for the purpose of constructing Interstate highways for a maximum of 3 facilities nationwide.

## 7.0 Organizational Framework

### 7.1 Framework

First and foremost, it is necessary to assure that the tolling entity has the necessary statutory authority to undertake all actions necessary to deliver successful projects. Key aspects of this include:

- Authority to collect tolls and fees and retain those funds for benefit of the projects and the agency;
- Necessary project delivery authority;
- Responsibility to set toll rates and the toll rate setting process; and
- Authority to enforce violations for failure to pay a toll, including issuing citations based on electronic enforcement mechanisms and associated sanctions if citations are not paid.

### 7.2 Organizational Roles and Responsibilities

A policy-making entity is needed for setting polices and toll rates. In the case of ODOT, this is expected to be the Oregon Transportation Commission. Within the organization itself it is necessary to have a dedicated group responsible for creating, monitoring and enforcing necessary toll contracts, polices and procedures. It is important within a DOT to determine how responsibilities for toll projects will be divided between the DOT and the toll organization. These decisions should be addressed as part of negotiations on concession agreements.

## 8.0 Public Acceptance

The consideration of tolling within a community will be met with mixed reactions. States have a wide range of experience dealing with toll introduction, implementation, and ongoing image management. Listed below are potential issues facing public acceptance of tolling along with proactive or mitigating actions.

**Clear Definition of Goals:** A clearly defined purpose for why tolling is being considered is essential. This should include an understanding of legislative authority provided to the tolling entity. Too often, the general public views tolling simply as a revenue generating option for a specific roadway. Tolling, however, provides many different goals including traffic management, air quality mitigation and commuting options. A more comprehensive understanding of tolling often brings better results in public consideration. Communicating the goals with elected officials and other stakeholders may also serve to broaden support.



**Open and Early Communication with Stakeholders:** It is essential to keep communication with stakeholders (local elected officials, impacted communities, regional planning commissions, etc.) open and flowing throughout the consideration of toll road projects. Stakeholders should understand the process for consideration of a toll road, the criteria for evaluation, decision points and key players, and the timeline for implementation, as well as how and when stakeholders fit into the process. Maintaining open and ongoing communication is invaluable toward building both understanding and support for the goals to be accomplished through tolling.

**Use of Advisory Committees:** Creating an Advisory Committee comprised of key stakeholders, planning partners, impacted communities and citizen representatives, can facilitate working through issues prior to implementation as well as integrating the project into existing regional and statewide planning processes. The group need not be exclusively made up of decision makers, as an "Advisory" Committee does not make decisions but rather provides valuable feedback and input to the sponsoring entity, and acts as a sounding board for new opportunities presented through tolling.

**Sharing Analysis Documents:** Public agencies are subject to open records laws and are required to provide documents to the public as requested (with specific exceptions). Under public-private partnerships, some information provided by potential private partners can be exempted. Traffic and revenue studies and specific corridor analyses for a potential toll road can provide valuable information to the decision-making process. This information, however, can be very dynamic in that the assumptions and numbers can change frequently. Simply releasing this information can result in misinformed opinions. The intent should not be to withhold documents but to manage the release of information and communicate the broader intent of the information and its role in the decision making process.

**Engage the Media:** Proactively engaging the media in an understanding of tolling is energy well spent. The agency is advised to create media packets with supporting materials, brief reporters on technology applications, describe feasibility studies and analysis processes, develop op-ed pieces or feature articles, discuss other state's experiences, etc. Any method that can be used to proactively inform the media of a potential toll road application will create an educational advantage for the sponsoring entity.

**Public Relations Outreach:** The introduction of tolling necessitates extensive communication and oftentimes in subtle ways. The sponsoring entity is advised to utilize its public information officers or hire public relations consultants to inform the driving public about new toll facilities, toll technology applications, ease of use, locations to purchase toll tags, toll rates, convenience and time savings, user choices, etc. This communication can help the driver feel more at ease with new toll roads.



# Metro sign-in sheet

Please be aware that all information submitted here will become public record, per state law, and will be made available to those who request it.

**METRO**  
PEOPLE PLACES  
OPEN SPACES

Event JPACT Finance Location Metro Regional Center - 370a/b

Date October 27, 2005 Time 7:30 a.m.

NAME	AFFILIATION
Andy Coty	metro
Lynn Peterson	Clack Co Cites
Dennis Mubihill	Washco
Katley Busse	Wash. Co.
James Whitty	ODOT
Eric Keenemer	CLACKAMAS Co
John Gillam	City of Portland
Red Park	Metro Council
Rox Burholder	" "
Jim Bernward	Milwaukie
MATT GARRETT	ODOT
Jason Tell	ODOT
OLIVIA CLARK	TRIMET
FRED HANSEN	TRIMET
Robin McArthur	metro
Lynn Bailey	ODOT
Fred Eberle	ODOT
Bridget Wieghart	ODOT