

# Portland Metro Region Tolling Options Conceptual Analysis

	<b>Congestion/Reliability</b> Extent to which project and tolling will improve reliability and reduce congestion	<b>Traffic Diversion</b> Extent to which traffic would divert to other facilities	<b>Revenue Potential</b> Extent to which tolling will generate significant net revenue	<b>Federal Approval</b> Extent to which tolling is allowed under federal law or pilot programs
<b>I-5 or I-205 HOT Lanes</b> Existing general purpose lanes on all or portions of I-5 and/or I-205 would be converted to managed/priced HOT lanes	<b>Poor</b>	<b>Good</b>	<b>Poor</b>	<b>Poor</b>
	Converting an existing general purpose lane to a priced HOT lane is not likely to relieve congestion. Reliability would increase for users of the HOT lane but could decrease for users of the remaining general purpose lanes.	Voluntary HOT lanes are unlikely to cause any significant diversion to other facilities. However, diversion could occur if the general purpose lanes become more congested due to creating a HOT lane.	HOT lanes may cover their cost of operations but would be unlikely to generate significant net toll revenue.	Tolling the Interstate is not allowed under 23 USC 129 if it reduces the number of free lanes. This may be allowed under the VPPP, but to date this program has not been used for this purpose. Public acceptance could be a challenge.
<b>I-205: Abernethy Bridge Toll</b> Toll all lanes of I-205 at Abernethy Bridge to pay for all or a portion of widening from Stafford Road to Abernethy	<b>Good</b>	<b>Moderate</b>	<b>Good</b>	<b>Good</b>
	I-205 Stafford to Abernethy widening will improve the congestion bottleneck, and tolling will further reduce traffic volumes to allow significant congestion relief.	Some through traffic would divert to I-5. Some shorter trips on I-205 would use other river crossings, including the Sellwood Bridge and OR 43 arch bridge in downtown Oregon City.	Traffic volumes are significant and could raise significant revenue even at a relatively low toll rate, dependent on diversion levels.	Tolling a reconstructed bridge is allowable under 23 USC 129, and surplus revenue from tolling a bridge can pay for widening on the remainder of the corridor.
<b>I-205 HOT Lanes</b> New managed/priced HOT lanes would be built on I-205 between Stafford Road and OR 99E using legislative allocation	<b>Moderate</b>	<b>Good</b>	<b>Poor</b>	<b>Good</b>
	I-205 Stafford to Abernethy widening will address the congestion bottleneck. With limited congestion and a relatively short distance, HOT lanes may or may not be heavily used.	Voluntary HOT lanes are unlikely to cause any significant diversion to other facilities.	HOT lanes may cover their cost of operations but are unlikely to pay for any substantial portion of the widening project.	New lanes on the Interstate can be tolled as managed lanes under 23 USC 129.

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<b>I-5 Rose Quarter Toll</b> Toll all lanes of I-5 at the Rose Quarter to pay for all or a portion of widening the freeway	<b>Good</b> I-5 Rose Quarter widening will improve the congestion bottleneck, and tolling will further reduce traffic volumes to allow significant congestion relief.	<b>Poor</b> Tolling I-5 only in this location would lead trips to divert to I-405, I-205, OR 99E, and numerous other routes, which could cause significant traffic congestion. Diversion to I-405 could be mitigated by tolling from north of the I-5/I-405 merge to south of the I-5 Marquam Bridge, if FHWA approves.	<b>Good</b> Traffic volumes are significant and could raise significant revenue even at a relatively low toll rate, dependent on diversion levels.	<b>Poor</b> Tolling all lanes of an Interstate to pay for widening is not allowed under federal law; only bridges or additional lanes can be tolled. This may be allowed under the ISRRPP or VPPP, but to date neither pilot program has been used for a similar tolling application.
<b>I-5 Rose Quarter HOT Lanes</b> New managed/priced HOT lanes would be built on I-5 through Rose Quarter using legislative allocation	<b>Moderate</b> Short HOT lane would limit use because drivers would not be willing to pay for limited travel time gains, leaving more people in the general purpose lanes. Congestion relief could be less than construction of new free lane, though reliability would increase for HOT lane users.	<b>Good</b> Voluntary HOT lanes are unlikely to cause any significant diversion to other facilities.	<b>Poor</b> Short HOT lane would limit revenue because drivers would not be willing to pay for limited travel time gains.	<b>Moderate</b> Federal law prohibits reducing “the number of toll-free non-HOV lanes, excluding auxiliary lanes”. Because ODOT will only be adding an auxiliary lane, conversion of a lane to a HOT lane would reduce the number of toll-free non-HOV through lanes.

# Federal Tolling and Congestion Pricing Opportunities and Limitations

Title 23 of the United States Code Section 301 (“Freedom from tolls”) prohibits the imposition of tolls on any facility using federal funds unless the facility qualifies under one of a handful of exemptions.

## General Toll Authorities

**Section 129** of Title 23 allows for certain toll financed projects such as new highways, new lanes on existing highways so long as the number of toll-free lanes is not reduced, and reconstruction of bridges or tunnels, among others. Restrictions on tolling are particularly tight on the Interstate system; for example, tolling cannot be used to pay to reconstruct the Interstate if it causes the number of non-high occupancy vehicle (HOV) free lanes to be reduced.

**Section 166** of Title 23 grants public agencies the authority to impose tolls on existing HOV lanes both on and off the Interstate System. These converted lanes are commonly referred to as high occupancy toll (HOT) lanes.

The chart below shows the allowance for tolling on the Interstate and non-Interstate, and the text of Section 129(a)(1) and Section 166(b)(4) is included at the end of this document.

## Toll Applications Allowed Under 23 USC Sections 129 & 166

	Interstate	Non-Interstate
New road construction	●	●
Bridge replacement/ reconstruction	●	●
Building new lanes	Number of toll-free non-HOV lanes can't be reduced	Number of toll-free lanes can't be reduced
Reconstruction of an existing road	Number of toll-free non-HOV lanes can't be reduced	●
HOV lane conversion to high occupancy toll (HOT) lane	●	●

● = allowed under Section 129/166

## Tolling Pilot Programs

FHWA has two pilot authorities that provide limited authority to approve tolling or congestion pricing, a type of tolling designed to reduce traffic by charging a fee to road users during rush hours. ODOT has entered discussions with FHWA on applying for authority to toll or use congestion pricing under these pilot programs and will be analyzing opportunities to use these authorities or the general tolling authority under Section 129.

The ***Interstate System Reconstruction and Rehabilitation Pilot Program***, authorized by Congress in 1998 under Section 1216(b) of the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) and amended by the Fixing America's Surface Transportation (FAST) Act of 2015, permits up to three existing Interstate facilities to be tolled to fund needed reconstruction or rehabilitation on Interstate corridors that could not otherwise be adequately maintained or functionally improved without the collection of tolls. The ISRRPP program is focused on reconstruction or rehabilitation rather than expansion of highways. Toll revenue must be used on the authorized corridor. Each of the three facilities must be in different states. In order to receive tolling authority under the program, project sponsors are required to have their program application approved by FHWA, complete environmental analysis, and execute a tolling agreement within a three-year timeframe. Two of the three slots in this program just opened up, and an application request for these slots is expected from FHWA soon.

The ***Value Pricing Pilot Program*** was established by Congress to demonstrate whether and to what extent roadway congestion may be reduced through application of congestion pricing strategies. Under the program FHWA can provide tolling authority to state, regional or local governments to implement congestion pricing applications. For example, VPPP authority allowed Washington to toll the existing SR 520 bridge while the new toll bridge was under construction.

## Congestion Pricing Applications

Federal tolling statutes apply where congestion pricing involves implementing a toll on roads. There are a number of congestion pricing applications that have been used around the world.

***Managed lanes (HOT and express lanes)***: The most common congestion pricing application in the United States is priced "managed lanes." These include high-occupancy toll (HOT) lanes that allow low-occupancy vehicles to use an HOV lane in exchange for paying a toll. Many managed lanes use dynamic pricing that increases the toll as demand increases in order to ensure reliable travel.

Under federal law that prevents reducing the number of toll-free lanes, implementing express toll lanes requires converting existing HOV lanes or building new lanes and then tolling them. However, tolls typically do not cover the full cost of express lane construction; WSDOT's I-405 Express Toll Lane project was paid for with general revenues, with tolls paying for the cost of operating the toll system and

contributing to additional improvements on the corridor. LA's I-10 and I-110 express toll lanes have yet to produce enough surplus toll revenue to pay for the deployment of tolling infrastructure, much less the initial construction of the actual lane.

Given that Oregon has only one short section of HOV lane on I-5 northbound in Portland, HOV to HOT lane conversion is not likely a tool that will be used extensively in the Portland metro region. What's more, the cost of building new lanes is often prohibitive in dense urban environments with significant right of way constraints. It's also important to note that managed lanes improve traffic flow and reliability for those using them, but building a new tolled lane may or may not improve overall traffic flow compared to building a new free lane.

**Peak period pricing:** Another approach to congestion pricing involves varying point tolls on a particular facility by time of day, with higher tolls during specific peak hours. This was proposed on the I-5 Columbia River Crossing project to manage congestion and raise revenue.

**Cordon and area pricing:** When city centers are the predominantly congested area in a metro region, cordon pricing, in which motorists are charged a fee when they drive into a congested area, may be effective. These systems can be found in Singapore, Stockholm, and central London. Despite attempts by San Francisco and New York, no U.S. city has implemented cordon pricing, as federal toll restrictions make it difficult to toll all routes entering a central business district. Area pricing is implemented to charge higher prices across all roads in an entire metropolitan area in order to encourage transit use and shift trips to off-peak hours. However, this is difficult given the need to toll or price literally every road. Cordon and area pricing have the virtue of reducing traffic diversion compared to point tolls on individual roadways, as all routes into or through an area are priced.

**Road usage charging:** Road usage charging systems, like OReGO, that charge people by the mile can be used for area or cordon pricing by charging higher rates for travel during rush hour in congested areas. ODOT is beginning to explore this opportunity.

## **Tolling and Congestion Pricing Opportunities in the Portland Metro Region**

ODOT is exploring various potential opportunities for using tolling and congestion pricing in the areas identified by the Joint Committee. Below are early preliminary analyses of tolling options for each corridor/project based on review of federal law and discussions with FHWA. ODOT will be retaining expert consultants to do further in-depth analysis to inform decisions to toll or price these corridors.

### **I-205 Stafford Road to Abernethy Bridge**

ODOT may have a number of options for using tolling/pricing on this section of freeway.

- The Section 129 authority to toll reconstructed bridges should allow for tolling the Abernethy Bridge, and any excess revenue after paying for bridge reconstruction could be applied to widening the remainder of the corridor.
- The Legislature could also fund adding a lane in each direction through this section and then build the new lanes as tolled HOT lanes, but this would likely not contribute significant revenue.
- ISRRPP authority may be used to expand this corridor (though the program may be more focused on reconstruction and rehabilitation than expansion). This authority may allow ODOT to toll a longer section of I-205 than just the project area. However, ISRRPP authority will only be granted if tolling is the only way to pay for the improvements.
- VPPP authority might be granted for tolling/congestion pricing on I-205. However, to date FHWA has not used VPPP to approve permanent, long-distance congestion pricing.

Before implementing tolling, ODOT would need to examine a number of factors, including public acceptance, revenue potential, equity across geographic and income groups, and potential diversion to ensure that tolling the Abernethy Bridge wouldn't cause traffic impacts on other parts of the system, such as I-5, OR 43 and OR 99E. Exploring tolling will add complexity to the federal environmental review process that is currently underway and add time to delivery.

#### **I-5 Rose Quarter**

Options for tolling the Rose Quarter are likely more limited.

- It's not clear if general tolling authority would allow for new lanes built with funding provided by the Legislature to be tolled as HOT lanes. The new lanes will be auxiliary lanes between interchanges rather than full through lanes. 23 USC 129 (a)(1)(C) prohibits reducing "the number of toll-free non-HOV lanes, excluding auxiliary lanes". Currently, this section of freeway includes two toll-free non-HOV lanes, excluding auxiliary lanes; after construction of a new auxiliary lane, the number of toll-free non-HOV lanes, excluding auxiliary lanes will still be two—so implementing a HOT lane would reduce that to one and run afoul of the federal provision.
- ISRRPP authority may be used to expand the project area, though the program is more focused on reconstruction and rehabilitation than freeway expansion. This authority may allow ODOT to toll a longer section of I-5 than just a point toll in the Rose Quarter. However, ISRRPP authority will only be granted if tolling is the only way to pay for the improvements.
- VPPP authority might be granted for tolling/congestion pricing through the Rose Quarter. However, to date FHWA has not used VPPP to approve permanent, long-distance congestion pricing.

Before implementing tolling, ODOT would need to examine a number of factors, including public acceptance, revenue potential, equity across geographic and income groups, and potential diversion to ensure that tolling I-5 wouldn't cause traffic impacts on other parts of the system, such as I-405, OR99E, I-84, I-205, and local streets. Exploring tolling will add complexity to the federal environmental review process that is currently underway and add time to delivery.

## **Congestion pricing on I-5 from Willamette River to Columbia River or I-205 from I-5 to the Columbia River**

Congestion pricing on these lengthy sections of freeway could be challenging given federal restrictions. ODOT needs to better understand legislative goals for congestion pricing on these routes in order to better analyze options.

- The Legislature could fund widening of these roads (where space is available and right of way is not prohibitively costly) and then build the new lanes as HOT lanes. Because of the prohibition on reducing the number of free through lanes on the Interstate, only new lanes could be priced, so widening of these roads would have to be extended much further than currently anticipated.
- ISRRPP authority might be used for congestion pricing on lengthy sections of freeway. However, congestion pricing is focused on traffic management, while this pilot program is focused on reconstruction and rehabilitation, so FHWA may not approve an application focused on congestion pricing.
- Value Pricing Pilot Program authority could be secured for corridor-level congestion pricing. However, to date FHWA has not used VPPP to approve permanent, long-distance congestion pricing.

## **Road Usage Charging for Congestion Pricing**

In the long term, Oregon's road usage charge system, OReGO, could be adapted to allow for variable pricing of roads into or through any particular geographic area. For example, all travelers on any road in the Portland metro region—or perhaps just within the central business district or freeways—could be charged a higher rate to travel during congested periods; this could be offset by lower rates to travel at non-congested times. As a non-toll system, congestion pricing using OReGO would likely not be subject to federal restrictions on tolling.

ODOT intends to apply for a federal grant this year to develop a congestion pricing pilot within OReGO to test this approach. While adapting the system for congestion pricing should be relatively easy, public adoption for road user charging for congestion pricing remains a challenge, particularly because it would likely require widespread deployment of GPS or telematics in vehicles.

## **Federal Tolling Statutes**

23 USC 301 and 23 USC 129 and 166 outline the primary tolling limitations and opportunities.

### **23 U.S. Code § 301 - Freedom from tolls**

Except as provided in section 129 of this title with respect to certain toll bridges and toll tunnels, all highways constructed under the provisions of this title shall be free from tolls of all kinds.

### **23 U.S. Code § 129(a)(1)- Toll roads, bridges, tunnels, and ferries**

(a) Basic Program.—

- (1) Authorization for federal participation.—Subject to the provisions of this section, Federal participation shall be permitted on the same basis and in the same manner as construction of toll-free highways is permitted under this chapter in the—
- (A) initial construction of a toll highway, bridge, or tunnel or approach to the highway, bridge, or tunnel;
  - (B) initial construction of 1 or more lanes or other improvements that increase capacity of a highway, bridge, or tunnel (other than a highway on the Interstate System) and conversion of that highway, bridge, or tunnel to a tolled facility, if the number of toll-free lanes, excluding auxiliary lanes, after the construction is not less than the number of toll-free lanes, excluding auxiliary lanes, before the construction;
  - (C) initial construction of 1 or more lanes or other improvements that increase the capacity of a highway, bridge, or tunnel on the Interstate System and conversion of that highway, bridge, or tunnel to a tolled facility, if the number of toll-free non-HOV lanes, excluding auxiliary lanes, after such construction is not less than the number of toll-free non-HOV lanes, excluding auxiliary lanes, before such construction;
  - (D) reconstruction, resurfacing, restoration, rehabilitation, or replacement of a toll highway, bridge, or tunnel or approach to the highway, bridge, or tunnel;
  - (E) reconstruction or replacement of a toll-free bridge or tunnel and conversion of the bridge or tunnel to a toll facility;
  - (F) reconstruction of a toll-free Federal-aid highway (other than a highway on the Interstate System) and conversion of the highway to a toll facility;
  - (G) reconstruction, restoration, or rehabilitation of a highway on the Interstate System if the number of toll-free non-HOV lanes, excluding auxiliary lanes, after reconstruction, restoration, or rehabilitation is not less than the number of toll-free non-HOV lanes, excluding auxiliary lanes, before reconstruction, restoration, or rehabilitation;
  - (H) conversion of a high occupancy vehicle lane on a highway, bridge, or tunnel to a toll facility; and
  - (I) preliminary studies to determine the feasibility of a toll facility for which Federal participation is authorized under this paragraph.

**23 U.S. Code § 166(b)(4) - HOV Facilities**

- (4) High occupancy toll vehicles.—The public authority may allow vehicles not otherwise exempt pursuant to this subsection to use the HOV facility if the operators of the vehicles pay a toll charged by the authority for use of the facility and the authority—
- (A) establishes a program that addresses how motorists can enroll and participate in the toll program;
  - (B) develops, manages, and maintains a system that will automatically collect the toll; and
  - (C) establishes policies and procedures to—
    - (i) manage the demand to use the facility by varying the toll amount that is charged;
    - (ii) enforce violations of use of the facility; and
    - (iii) ensure that over-the-road buses serving the public are provided access to the facility under the same rates, terms, and conditions as public transportation buses.