



Portland Metro Area Value Pricing Feasibility Analysis

DRAFT Initial Value Pricing Concepts

SUBJECT: Summary of Initial Value Pricing Concepts for Preliminary Analysis

DATE: December 6, 2017

FROM: WSP Project Team

The purpose of this brief memorandum is to provide a description of value pricing concepts along the I-5 and I-205 corridors in the Portland metro area that will be advanced for analysis to learn more information, including evaluation of traffic, constructability, and other factors. **These concepts do not represent proposals or recommendations – they are for testing and learning about potential effects of value pricing applications.**

The initial concepts are consistent with legislative direction and are “bookend” concepts. They are intended to demonstrate the full spectrum of benefits and impacts and serve as a launching point for technical analysis and public discussion. Though one of these concepts could end up as all or part of the Policy Advisory Committee (PAC) recommendation or in the Oregon Transportation Commission (OTC) report to the Federal Highway Administration (FHWA), project staff expects to refine the concepts (looking at segments, etc.) after reviewing the preliminary analysis with the PAC and the public.

1. BASELINE (YEAR 2027)

The baseline concept does not implement a pricing or tolling system on either I-5 or I-205. The baseline conditions reflect growth forecasts and projects identified in the Portland Metro's Regional Transportation Plan (RTP). The projects include those identified in the financially constrained project list through year 2027 for consistency with the regional plan.¹ The list includes over 700 regional multimodal transportation investments that were submitted by transportation agencies in the region and have been approved by Metro Council. It is a representative concept to present the effects of not tolling I-5 and I-205 and will be used for comparative purposes.

2. PRICED ROADWAY

This concept converts all general purpose lanes to congestion-priced lanes, usable by the payment of a variably priced fee (which changes to prevent congestion within the priced lanes). This strategy does not affect the overall corridor footprint, but some technology installations would be required to properly assess and collect toll payments.

¹ Oregon Metro. 2018 Regional Transportation Plan. <https://www.oregonmetro.gov/public-projects/2018-regional-transportation-plan/call-projects>



Potential benefits

- Reduces congestion for all travelers on the roadway
- Highest potential improvement in travel time reliability and efficiency for all users
- Higher person and vehicular throughput during peak periods
- Minimizes construction requirements

Potential implementation issues

- Public acceptance can be a challenge when converting un-tolled to priced freeways
- Requires federal (USDOT) concurrence to convert existing lanes
- Still constrained by geometric and other bottlenecks which reduce overall pricing effectiveness
- May create incentive for diversion to unpriced corridors

Relevant examples of priced roadways

- Many toll road facilities throughout the U.S. price all lanes; most are legacy toll roads in the Northeast, California, and/or Texas
- SR-520 in Seattle converted a previously toll-free freeway to a variably-priced roadway to reduce congestion and generate funds to construct a new bridge across Lake Washington



SR-520 in Seattle: Conversion of previous general purpose roadway to full-time priced roadway to fund newly constructed bridge and related infrastructure

3. PRICED LANE

The priced lane concept involves dedicating lanes for use by any combination of passenger vehicles (single or high occupancy), buses, trucks, or any other vehicle meeting eligibility requirements and willing to pay the prevailing fee. Priced lanes are adjacent to general purpose lanes, and offer a choice to travelers for either 1) paying a fee and using the priced lane for better travel times, or, 2) to avoid payment by using the general purpose lanes or another route.

Priced lanes may be created through reallocation of existing lanes or shoulders in either full- or part-time applications or through highway widening or restriping. Access control is often accomplished by physically separating a priced lane from other facilities via barrier, such as concrete barriers or plastic delineators, or using painted buffers to signal separation from other adjacent lanes.



Priced lanes: convert one existing general purpose lane

This priced lane concept describes where the existing leftmost general purpose lane (closest to the median barrier) is converted to a priced lane. Providing a recommended buffer often requires restriping and accommodation within existing shoulders. This concept does not provide any new capacity.

Potential benefits

- Highest potential improvement in travel time reliability and efficiency for express lane users
- Higher person and vehicular throughput during peak periods

Potential implementation issues

- Loss of vehicle carrying capacity may worsen the onset of peak conditions
- Public acceptance can be a challenge with conversion of existing lanes
- Only permissible with USDOT concurrence, like pricing all lanes
- Not feasible in segments with only 2 lanes of travel in each direction
- Oregon restrictions prohibit large trucks in the left lane

Priced lanes: construct a new priced lane

This priced lane concept describes an instance where a new priced lane is provided through construction or restriping, potentially using existing shoulder space to accommodate the new lane. The capacity is typically implemented on the leftmost side of each direction (closest to the median barrier).

Potential benefits

- Highest potential improvement in travel time reliability and efficiency for express lane users; potentially more limited improvement for general purpose lane users
- Higher person and vehicular throughput during peak periods
- New capacity can be priced under Federal law

Implementation issues

- Public acceptance of new capacity requires concurrence with long range transportation planning
- Segments with geometric constraints may require costly and impactful reconstruction efforts (may be cost prohibitive)
- Oregon restrictions prohibit large trucks in the left lane

Relevant examples of priced lanes

There are over 45 operational priced lanes in the U.S.

- Some were created from highway widening



- Some priced lanes were created using existing shoulder space (I-35W in Minneapolis, I-25 in Denver) or combination widening / shoulder (I-95 in Miami, I-10 in Los Angeles)
- Only one existing general purpose lane conversion to priced lanes (a 1 mile segment of I-35E near St. Paul, Minnesota).

4. INITIAL ANALYSIS

In addition to the concepts described above – Baseline, Priced Roadway, and two Priced Lane strategies – combination concepts will also be examined using the regional model to help inform understanding about the potential range of impacts and benefits. **These concepts do not represent proposals or recommendations – they are for testing and learning about potential effects of value pricing applications.** The following concepts are depicted on Figure 1, and described as:

- Baseline: no tolls on any lanes or roadways
- Priced Roadway: toll all lanes on I-5 and I-205
- Priced Lane Convert: convert one existing general purpose lane on I-5 and I-205 to a priced lane each travel direction
- Priced Lane Construct: construct a new priced lane on I-5 and I-205 in each travel direction
- Combination: Baseline on I-5 with Priced Lane Construct on I-205
- Combination: Priced Roadway on I-5 with Baseline on I-205
- Combination: Priced Lane Convert on I-5 with Priced Roadway on I-205
- Combination: Priced Lane Convert on I-5 with Priced Lane Construct on I-205

These concepts were developed to portray the broadest range of potential value pricing application in the Portland metro area to set a foundation for technical concept evaluation and conversation with the public. The concept evaluation stage will provide additional information that will help determine what pricing applications work best and where. At the next PAC meeting in February, the PAC will use findings from the evaluation and public input on these concepts to identify a set of concepts for further consideration. These future concepts may include some of the initial concepts or new combinations, but will also consider pricing treatments on specific segments of the freeways. A second round of technical evaluation and public engagement will be conducted using this refined set of concepts.

After the evaluation stage, the PAC will develop a recommendation to the OTC regarding value pricing type, location, and potential mitigation opportunities to consider further. The OTC will then develop a report for submittal to FHWA by December 2018. After the FHWA submittal, next steps will be determined with FHWA and depend on the type of value pricing concept(s) selected to move forward. After 2018 we expect that ODOT would conduct additional public outreach and environmental analysis under the National Environmental Policy Act and prepare documentation required as part of the FHWA systems engineering process for developing traffic management and toll systems. Some proposals also require approval by the U.S.



Secretary of Transportation before Oregon would have permission to deploy value pricing on I-5 and I-205. This post-feasibility analysis process could take from 1-5 years or more.

Figure 1. Initial Value Pricing Concepts for Preliminary Analysis

