



## Portland Area Mainline Needs Assessment

DRAFT

# Alternative 3 – Congestion Pricing

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### 3.1 Overview

Congestion pricing is an alternative where motorists are charged a premium to use a roadway during certain times of the day. The goal of congestion pricing is to encourage motorists to shift their travel away from peak travel times. In this alternative, congestion pricing will be evaluated to determine the following:

- The parameters and implications of congestion pricing on the toll rate structure of the Maine Turnpike;
- The impacts of congestion pricing on Turnpike traffic as well as on traffic on other roadways in the Portland area; and
- Potential legal or legislative roadblocks to implementation.

### 3.2 Key Assumptions

This alternative involves an examination of existing congestion pricing programs and an evaluation of how congestion pricing could be implemented within the current tolling structure. Descriptions of the key assumptions and methods follow.

#### 3.2.1 Congestion Pricing Nationally

A sample of congestion pricing systems throughout the nation was examined. These systems fall into two broad categories – conventional toll facilities like the Maine Turnpike, or managed lane facilities. Managed lane facilities only toll certain lanes or only toll the roadway during certain hours. Examples of conventional toll facilities that utilize congestion pricing are shown in Table 3-1. The summary focuses on customers that are equipped with a valid electronic toll transponder.

**Table 3-1: Examples of Congestion Pricing on Conventional Toll Facilities**

Facility	Peak Pricing Period	Peak vs. Off-Peak Differential
<b>Port Authority of New York and New Jersey</b>	6am-10am (weekday mornings) 4pm-8pm (weekday evenings) 11am-9pm (weekends)	19% increase for passenger cars
<b>New York State Thruway Authority</b>	7am-9am (Tappan Zee) 4pm-6pm (Spring Valley)	100% increase, applied only to commercial vehicles
<b>Chicago Skyway</b>	4am-8pm	40% increase, applied only to commercial vehicles
<b>The Toll Roads of Orange County</b>	7:30am-8:30am (SB) 5pm-6pm (NB)	10% to 29% increase, depending on location
<b>SR-520 Bridge (Seattle)</b>	7am-9am & 3pm-6pm (Weekdays) 11am-6pm (Weekends)	244% increase (weekdays) 112% increase (weekends)

### 3.2.2. Toll Rate Structures

The Maine Turnpike charges tolls on entry and generally does not track trips to the exit. In the AM peak hour, 43% of traffic in the study area originated from one of the interchanges within the study area. In the PM peak hour, the share rose to 50%. In other words, *only about half of the traffic on the Maine Turnpike in the study area originated at an interchange located within the study area.*

Therefore, to exact a noticeable change in peak hour traffic, a surcharge would need to be assessed system wide. Due to the nature of the toll rate structure, the surcharge would not be able to discriminate between vehicles that do or do not travel in the Portland area.

Any potential congestion pricing system for the Maine Turnpike should be modeled after the systems that have been implemented at other conventional facilities. A congestion pricing system intended to reduce congestion in the Greater Portland area would therefore follow these parameters:

- A peak hour surcharge of **50% for E-ZPass customers** would be applied. This is well-positioned inside the range of surcharges used at various conventional facilities today.
- On the Maine Turnpike, E-ZPass rates are (in some instances) capped by the cash rate in effect for the same movement. Therefore, it would be critical to increase cash rates as well so that they would not constrain the implementation of the E-ZPass peak-period surcharge.

### 3.2.3. PACTS Travel Demand Model Analysis

The Portland Area Comprehensive Transportation System (PACTS) regional travel demand model was run using the assumptions outline above regarding congestion pricing. The model provided information on travel on all the roadways in the study area using measures such as vehicle-miles traveled (VMT) and vehicle-hours traveled (VHT).

Based on the results of the travel demand model analysis, it was determined that approximately 250 vehicles would be removed from the Maine Turnpike in the peak direction in 2040 with the implementation of congestion pricing. While this is a sizeable reduction, it would not reduce traffic demand significantly enough to address the capacity demands identified in Alternative 1. It would also likely impact other off-Turnpike roadways, as vehicles that would choose not to pay the peak hour surcharge would seek alternate routes.

### 3.2.4. Legislation

There is a law in the State of Maine that prohibits a surcharge on tolls based on time of day. Therefore, an act of the State Legislature would be required to implement this alternative.

## 3.3 Capital and Operating Costs

The capital costs to implement a Congestion Pricing system on the Maine Turnpike was estimated to be approximately \$2.4 million in 2018 dollars. This estimate includes any required motorist information signage and hardware/software changes required to implement the system.

Annual operation and maintenance costs for the Congestion Pricing system on the Maine Turnpike was estimated to be approximately \$50,000 dollars. This increase assumes additional toll system support staff required as part of the Congestion Pricing system.

### 3.4 Findings

As noted above, while congestion pricing reduces traffic by approximately 250 vehicles, it does not reduce it enough to fully address future congestion between Exits 44 and 53 ( $v/c=1.3$ ). Additionally, this alternative is currently not allowed by law, and it would require an act of the State Legislature in order to be implemented. This alternative would also create social justice issues with higher tolls being charged during peak times of the day.

This alternative was evaluated against several Measures of Effectiveness (MOEs) which are summarized in the Alternatives Evaluation Matrix, dated April 12, 2018. The key findings from that matrix for this alternative are as follows:

#### 3.4.1. Key Benefits

The key benefits of Alternative 3 – Congestion Pricing are the following:

- Anticipated crash rate reduction of 5.1% on the Maine Turnpike;
- An expected reduction of approximately 257 vehicles during the peak hour;
- No additional wetland impacts;
- Additional revenue to the Maine Turnpike Authority would be produced; and
- This alternative has a viable funding source.

#### 3.4.2. Key Impacts

The key impacts and challenges of Alternative 3 – Congestion Pricing are the following:

- Limited relief to Maine Turnpike capacity constraint (Year 2040  $v/c = 1.30$ );
- 9.2 mile Increase in miles of roadway near or over capacity off-Turnpike due to vehicles diverting from Maine Turnpike with Congestion Pricing surcharge;
- 0.7% increase in regional vehicle hours traveled (VHT);
- Obstacles to implementation include State of Maine law that prohibits a surcharge on tolls based on time of day;
- Timeframe to implement is unknown due to the Maine State law; and
- Has a Benefit/Cost ratio of -103.2.