

Memo



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Note: The five-ramp toll assumption is based on an earlier version of the project proposal that included a second phase of toll ramp implementation. The final report only analyzes the effects of tolling for the three ramps proposed for initial implementation, which was the proposal put forward by the project sponsors for consideration. [May 2011]

To: Carl Springer
DKS
From: G. Nielsten, S. Abendschein
Stantec
File: Oregon Congestion Pricing
Date: November 23, 2010

Reference: SR 217 Capital Costs (CAPX) and Operating Costs (OPX)

Introduction

The purpose of this analysis is to provide a very preliminary estimate of the capital costs and operating and maintenance costs for the SR 217 Project.

The Project

The SR 217 Project would implement an “all electronic toll—transponder only” collection points on Wilshire Boulevard southbound ingress, Walker Road ingress ramps, and Denny Road ingress ramp, with future tolls on Pacific Highway and SW 72nd Street **(there would be no toll charges for trucks)**.

Three sets of potential toll rates were selected for review:

Low Tolls: \$0.25 in peak hours and \$0.15 in non-peak hours

Base Tolls: \$0.50 in peak hours and \$0.25 in non-peak hours

High Tolls: \$2.00 in peak hours and \$1.00 in non-peak hours

It is assumed at this point that these tolls would be in place without increases for the life of the project.

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Based upon our preliminary view of the traffic and revenue potential for this project, we estimate the following for year 2012:

2012 ALL RAMPS

Year 2012

| Toll Scenario | Ave Weekday | | Annual Revenues |
|---------------|-------------|---------|-----------------|
| | Vehicles | Revenue | |
| Low Toll | 9,149 | \$1,708 | \$512,360 |
| Base Toll | 5,505 | \$1,130 | \$563,822 |
| High Toll | 1,325 | \$1,855 | \$556,426 |

This indicates a range of potential annual traffic of 400,000 vehicles (High Toll) to 2,750,000 vehicles (Low Toll). As the METRO Model does not account for vehicles which would be not allowed onto the project because they do not have transponders, we have reduced the number of vehicles and associated revenue by 20%; this would mean the range of traffic would be 320,000 vehicles for the High Tolls and 2,200,000 for the Low Tolls. Similarly, revenues would be reduced by 20% so that The Low Tolls would be \$410,000 and the High Tolls would be \$440,000.

Capital Costs (CAPX)

Tolling implementation costs can vary widely depending upon the hardware and software specifications of the system to be installed, and this variability is heightened by the extremely low projected use of the facility.

Roadway implementation costs include the construction of toll point infrastructure (plazas and overhead gantries), the installation of electronic equipment and communication systems.

Back office implementation costs includes installing hardware and software for transaction processing, accounts management, traffic monitoring, billing, violations and information storage as well as office space for associated staff. Customer service channels will also be required including website design and kiosks as appropriate. Transponders will have to be provided to users. All of these issues will be a function of

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the toll policy, business rules, and violation processing procedures, none of which have been explored to any degree of specificity at this point.

We have reviewed costs estimated at other facilities and attempted to downsize the estimates to match an expected very modest SR 217 facility. Our early estimates for these costs are as follows:

| | | | | | |
|--|--------------|------------|---------|---------------|---------------------|
| Mobilization, PM,CPM | Lump Sum | \$ 150,000 | 1 | | \$ 150,000 |
| Gantry | Linear Foot | \$ 5,000 | 20 feet | 100000 | |
| Double gantries | Sets | | 5 | | \$ 1,000,000 |
| Electrical | Lump Sum | \$ 100,000 | 3 | | \$ 300,000 |
| Communications | Lump Sum | \$ 100,000 | 3 | | \$ 300,000 |
| Civil | Lump Sum | \$ 300,000 | 3 | | \$ 900,000 |
| | | | | | <u>\$ 2,650,000</u> |
| Contingency | 10% of costs | | | | \$ 265,000 |
| | | | | | <u>\$ 2,915,000</u> |
| Toll Collection System Price | | | | | |
| Mobilization, PM,CPM | Lump Sum | \$ 150,000 | 1 | | \$ 150,000 |
| System Software | Lump Sum | \$ 350,000 | 1 | | \$ 350,000 |
| Workstations | unit | \$ 5,000 | 0 | | \$ - |
| System hardware | Lump Sum | \$ 50,000 | 3 | | \$ 150,000 |
| | | | | | <u>\$ 650,000</u> |
| Stop in Center Items | | | | | |
| Workstations for Video | Unit | \$ 2,000 | 0 | | \$ - |
| Stop In Work stations | Unit | \$ 18,000 | 0 | | \$ - |
| Printers/Scanners | Unit | \$ 3,000 | 0 | | \$ - |
| | | | | | <u>\$ -</u> |
| Training and Documentation | Lump Sum | \$ 50,000 | 1 | | \$ 50,000 |
| Marketing | Lump Sum | \$ 50,000 | 1 | | \$ 50,000 |
| Transponders | Per unit | \$ 10 | 50000 | | \$ 500,000 |
| | | | | | SUM OF ABOVE |
| | | | | | \$ 4,165,000 |
| | | | | Contingencies | 20% |
| | | | | | \$ 400,000 |
| Total Construction and System Development Costs | | | | | \$ 4,565,000 |

Note these estimates assume a five tolling points with a double gantry 20 feet wide over a single lane roadway; they also assume a modest pull off area near the gantry for maintenance but no reconstruction of the roadway except during installation of the gantry.

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Operations Costs (OPX)

The unit costs below cover transaction processing, account management and customer service costs as well as the cost of transponder issuance. These costs are net of any fees recoverable from customers such as monthly account fees and low usage charges. Credit card merchant fees are levied in addition to the variable costs are assumed to constitute 2% of revenues.

Violations processing is considered to be a separate function due to its separate nature and direct customer interface. For the purposes of this analysis, any fines, administrative fees, and recovered tolls are assumed to be sufficient to offset the majority of non-revenue transactions as well as the cost of violation enforcement.

We assume that only 80% of all potential users will have transponders, and therefore reduced the demand by 20%. The METRO model has no way to account for this restriction in use. We have undertaken a likely frequency of use analysis to estimate the number of accounts and transponders needed.

| Frequency | Low Tolls | | 9149 Total users | | 9149 AADT | | Annual Users for one trip | |
|-----------|-----------|--------------|------------------|-------|-----------|------------------|---------------------------------------|--|
| | Percent | Share | | Video | | Weekly Expansion | ETC | |
| 4+/week | 40% | 98% | 39% | 2% | 0.8 | 1 | 3586 | |
| 2-3/week | 25% | 85% | 21% | 15% | 3.75 | 3 | 5832 | |
| 1/week | 15% | 77% | 12% | 23% | 3.45 | 7 | 7397 | |
| 1-3/month | 10% | 60% | 6% | 40% | 4 | 15 | 8234 | |
| <1/month | 10% | 20% | 2% | 80% | 8 | 100 | 18298 | |
| | 100% | 1% | 80% | 99% | 20 | | 43348 | |
| | | Annual Users | 2195760 | | 548940 | | | |
| | | | | | | | assuming 2 transponders per household | |
| | | | | | | need | 86,696 transponders | |

In the case of the “Low” toll scheme, there would be a need for 90,000 transponders. For the “High” toll scenario, there would be the need for 10,000 transponders. We used 50,000 transponders as an average in the CAPX costs.

There is large variability in the operating costs per toll scheme because some of the costs are lump sum, some are transaction based and some are revenue based. Using the “Low Toll” and “High Toll” as a likely range of operating costs, the following table presents the range of possible future operating costs for the SR 217 Project.

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| LOW TOLLS | | | | |
|---------------------------------|----------------|------------------------|---------|-----------------|
| Software/ Equipment Maintenance | | % of Cap toll collecti | 10% | \$ 65,000 |
| ETC Trip Processing | 2195760 | Transaction | \$ 0.25 | \$ 548,940 |
| Video Trip Processing | 0 | Transactions | \$ 1.00 | \$ - |
| Credit card fees | \$ 410,000 | Revenues | 2% | <u>\$ 8,200</u> |
| | Gross Revenues | Total | | \$ 622,140 |
| BASE TOLLS | | | | |
| Software/ Equipment Maintenance | | % of Cap costs | 10% | \$ 65,000 |
| ETC Trip Processing | 1321200 | Transaction | \$ 0.25 | \$ 330,300 |
| Video Trip Processing | 0 | Transactions | \$ 1.00 | \$ - |
| Credit card fees | \$ 450,000 | Revenues | 2% | \$ 9,000 |
| | Gross Revenues | Total | | \$ 404,300 |
| HIGH TOLLS | | | | |
| Software/ Equipment Maintenance | | % of Cap costs | 10% | \$ 65,000 |
| ETC Trip Processing | 318000 | Transaction | \$ 0.25 | \$ 79,500 |
| Video Trip Processing | 0 | Transactions | \$ 1.00 | \$ - |
| Credit card fees | \$ 440,000 | Revenues | 2% | \$ 8,800 |
| | Gross Revenues | Total | | \$ 153,300 |

As shown above, the Low Tolls scenario is expected to generate some \$410,000 in gross revenues in 2012 with operating costs of \$622,000, for a net revenue loss of about (\$212,000) annually. The Base Tolls scheme would generate annual revenues of \$450,000, with operating costs of \$404,000, for net revenues of about \$46,000 annually. The High Tolls scheme would generate annual revenues of \$440,000, with operating costs of \$153,000, for net revenue of about \$287,000 annually.