

Memo



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File:	Oregon Congestion Pricing	Date:	November 23, 2010

**Reference: Cornelius Pass Project
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 Cornelius Pass Project

The Project

The Cornelius Pass Project would implement an “all electronic toll -- transponder only” collection point on Cornelius Pass immediately south of US 30 for passenger vehicles **(there would be no toll charges for trucks)**.

Four sets of potential toll rates were selected for review:

Low Tolls: \$1.00 in peak hours and \$0.50 in non-peak hours.

Low/Base: \$1.50 in peak hours and \$0.75 in non-peak hours.

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

High Tolls: \$4.00 in peak hours and \$2.00 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:

Toll Scenario	Ave Weekday		Annual Revenues
	Vehicles	Revenue	
Low Toll	4,032	\$2,538	\$761,508
Low/Base Toll	2,761	\$2,515	\$867,768
Base Toll	2,403	\$3,033	\$909,979
High Toll	916	\$2,312	\$693,604

This indicates a range of potential annual traffic of 275,000 vehicles (High Toll) to 1,225,000 vehicles (Low Toll). As the METRO Model does not account for vehicles which would not be 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 220,000 vehicles for the High Tolls and 980,000 for the Low Tolls. Similarly, revenues would be reduced by 20% so that the Low Tolls would be \$608,000 and the High Tolls would be \$554,000.

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 Cornelius Pass facility. Our early estimates for these costs are as follows:

Construction Costs		Unit				
Mobilization, PM,CPM	Lump Sum	\$	150,000	1		\$ 150,000
Gantry	Linear Foot	\$	5,000	30 feet	150000	
Double gantries						\$ 300,000
Electrical	Lump Sum	\$	100,000	1		\$ 100,000
Communications	Lump Sum	\$	100,000	1		\$ 100,000
Civil	Lump Sum	\$	300,000	1		\$ 300,000
						\$ 950,000
Contingency	10% of costs					\$ 95,000
						\$ 1,045,000
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	1		\$ 50,000
						\$ 550,000
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		\$ -
						\$ -
Training and Documentation	Lump Sum	\$	50,000	1		\$ 50,000
Marketing	Lump Sum	\$	50,000	1		\$ 50,000
Transponders	Per unit	\$	10	20000		\$ 200,000
						SUM OF ABOVE
						\$ 1,895,000
						Contingencies
						20%
						\$ 400,000
Total Construction and System Development Costs						\$ 2,295,000

Note these estimates assume a single tolling point with a double gantry 30 feet wide over a two 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.

Low Tolls		4000 Total AADT		Annual Users for one trip	
Frequency	Percent	Share		Weekly Expansion	
4+/week	40%	98%	39%	1	1568
2-3/week	25%	85%	21%	3	2550
1/week	15%	77%	12%	7	3234
1-3/month	10%	60%	6%	15	3600
<1/month	10%	20%	2%	100	8000
	100%	1%	80%		18952
Annual Users			9600	assuming 2 transponders per household	
				need	40,000 transponders

In the case of the “Low” toll scheme, there would be a need for 40,000 transponders. For the “High” toll scenario, there would be the need for 10,000 transponders. We used 20,000 transponders as an average in the CAPX costs.

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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 Cornelius Pass Project.

LOW TOLLS

Software/ Equipment Maintenance		% of Cap toll collection costs	10%	\$	55,000
ETC Trip Processing	960000	Transaction	\$ 0.25	\$	240,000
Video Trip Processing	0	Transactions	\$ 1.00	\$	-
Credit card fees	\$ 608,000	Revenues	2%	\$	<u>12,160</u>
	Gross Revenues	Total		\$	307,160

HIGH TOLLS

Software/ Equipment Maintenance		% of Cap costs	10%	\$	55,000
ETC Trip Processing	240000	Transaction	\$ 0.25	\$	60,000
Video Trip Processing	0	Transactions	\$ 1.00	\$	-
Credit card fees	\$ 552,000	Revenues	2%	\$	11,040
	Gross Revenues	Total		\$	126,040

As shown above, the Low Tolls scenario is expected to generate some \$608,000 in gross revenues in 2012 with operating costs of \$307,000, for net revenue of about \$301,000 annually. The High Tolls scheme would generate annual revenue of \$550,000, with operating costs of \$126,000, for a net revenue of about \$424,000 annually