

Columbia River Crossing Project

Traffic and Tolling Analysis Summary

Don Wagner

Southwest Regional Administrator

Doug Ficco

Project Co-Director

Gerry Nielsten

Principal, Vollmer Associates LLP

Douglas B. MacDonald

Secretary of Transportation

Paula Hammond

Chief of Staff

Olympia, Washington

April 20, 2005



Vollmer Associates LLP

- Gerry Nielsten, Principal, New York City
- Vollmer one of few firms recognized by bonding companies for performing investment grade tolling analysis in the United States
- Phase II analysis for CRC is “less than investment grade”

CRC Tolling Study Scope of Work

- Review Traffic Analysis
- Identify and prepare tolling model
- Identify toll rate structure and collection options, including Electronic Toll Collection (ETC)
- Evaluate toll alternatives and provide traffic and revenue

Basic Elements of a Tolling Study

- Regional model basis for traffic without tolls
- Toll model predicts new traffic with tolls
 - Assumptions made on percentages of HOV and trucks.
 - Assumptions include toll rates for different users and percentage using ETC
- Toll model predicts toll revenues

CRC Tolling Assumptions

- Feasibility analysis assumes:
 - If only I-5 is tolled, tolls would be collected in both directions for all vehicles crossing on I-5
 - If both I-5 and I-205 are tolled, tolls would be collected in one direction on all vehicles crossing the Columbia River

What Tolling Options Were Studied?

- Analyzed the possibility of several toll options:
 - Uniform toll rates for SOV, HOV, trucks with and without time of day differentials
 - Vehicle class tolling differentials with and without time of day differentials
 - Loyalty, HOV and ETC discounts
 - Toll escalation rates

Possible Toll Rate Policies

- Passenger Cars
 - Vehicle occupancy
 - Frequent user discount
 - ETC discount
 - Time of day variations
 - Toll escalation

- Commercial Vehicles
 - Vehicle classification
 - Frequent user discount
 - ETC discount
 - Time of day variations
 - Toll escalation

Vehicle Class Rate Differentials

- Commercial vehicles
 - Larger vehicles pay higher tolls
- Differentials based on
 - Visual
 - Weight
 - Axle

Class 1 (calculate toll) - Passenger car, taxi, ambulance, motorcycle, hearse - Light truck or van, 2 axles, 4 tires - Tractor, 2 axles - Motor home or recreational vehicle, 2 axles, 4 tires Class 4 (calculate toll) - Pickup truck, 2 axles, 6 tires - Truck or motor home, 2 axles, 6 tires - Bus, 2 axles, 4 tires - Car, motor home or truck, 4 tires, with 2 axle trailer Class 6 (calculate toll) - Tractor trailer, 3 axles - Auto transporter, 3 axles - Car, motor home or truck, 4 tires, with 3 axle trailer - Tractor-mobile home comb. with 4 axles - Truck or motor home 2 axles, 6 tires with 2 axle trailer - Bus with 3 axles - Tractor, 3 axles, with single saddle mount Class 8 (calculate toll) - Truck, 3 axles - Tractor, 2 axles, with 1 axle mobile home - Motor home, 3 axles - Motor home on truck, 2 axles, 6 tires with 1 axle trailer Racing Shells: Define appropriate classification here.	Class 2 (calculate toll) - Car, motor home or truck, 4 tires, with 1 axle trailer - Tractor, 3 or more axles Class 3 (calculate toll) Tandems see below* - Tractor Trailer with 5 or more axles, with 53 ft. trailer (Pay 2 Class 3 tolls) Class 5 (calculate toll) - Tractor trailer with 5 or more axles - Stinger steered auto transporter 5 or more axles, greater than 65 but not exceeding 75 feet - Truck or tractor, 2 or more axles, with triple saddle mount Class 7 (calculate toll) Tandems see below* - Tractor trailer, 4 axles - Auto transporter, 4 axles - Stinger steered auto transporter 4 or more axles, not to exceed 65 feet - Tractor-mobile home comb. with 5 or more axles - Motor home or truck, 2 axles, 6 tires with 3 or more axle trailer - Motor home or truck, 3 axles with 1 or more axle trailer - Truck or tractor, 3 axles, with double saddle mount - Truck, 3 axles, with single saddle mount Class 8 (continued) (calculate toll) - Bus, 2 axles, 6 tires - Truck or tractor, 2 axles, with single saddle mount *TANDER TRAILERS: Trailers over 20.5 feet are Class 7. Trailers 20.5 feet and under are Class 3. All Tandem Trailers will pay double the toll.
---	---

NYSTA Visual Classifications

Truck Tolls

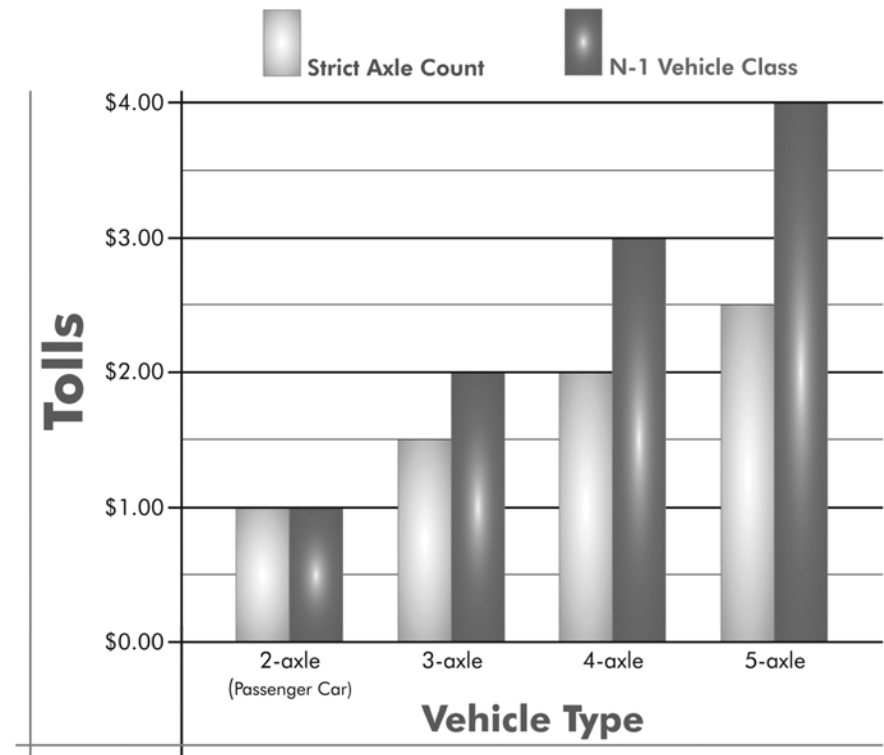
- How it might work - if the car toll is \$1.00 then the “per axle” toll is 50¢

Strict Axle Count

- Multiply number of axles times “**per axle**” toll.
- Example: 5 axle truck pays
 $5 \times 50¢ = \$2.50$

“Axles minus 1” (or “N-1”)

- Multiply one less than the number of axles times **full car toll**.
- Example: 5 axle truck pays
 $4 \times \$1.00 = \4.00



Possible truck tolling scenarios

Electronic Toll Collection (ETC)

- Several ETC Options Available
 - High speed collection
 - Toll plaza collection
 - License plate look-up with no transponder

- CRC Project Assumptions
 - ETC would be available with a mix of high speed and toll plaza collection
 - Transponders required for ETC
 - Manual toll collection would also be available for cash-paying customers

Discounts for ETC Customers

- Discounts encourage early ETC use
- Higher ETC market share increases the toll plaza throughput
 - High speed ETC = 2,000 vehicle per lane/hour
 - Toll plaza ETC = 1,200 vehicle per lane/hour
 - Manual collection = 200-400 vehicle per lane/hour depending on toll (full dollar amounts faster than odd coin amounts)
- CRC Project Assumptions
 - 15% car ETC discount
 - 15% truck ETC discount
 - 100% transit bus ETC discount
 - 50% HOV-3+ discount for ETC customers
- Alternative: No ETC Discounts

Toll Escalation Rates

- CRC evaluation assumed a 3% annual inflation rate with \$0.25 increments.

CRC Tolling Assumptions Summary

- Vehicle Classification
 - Truck rates are “axle minus 1” (N-1) times the passenger car toll
- Manual toll collection, as well as high speed and toll-booth ETC will be available
- ETC Discounts to encourage use
 - 15% car ETC discount
 - 15% truck ETC discount
 - 100% transit bus ETC discount
- 50% HOV-3+ discount applied to ETC customers
- 3% Annual inflation applied in \$0.25 increments

Tacoma Narrows Bridge Tolling Assumptions

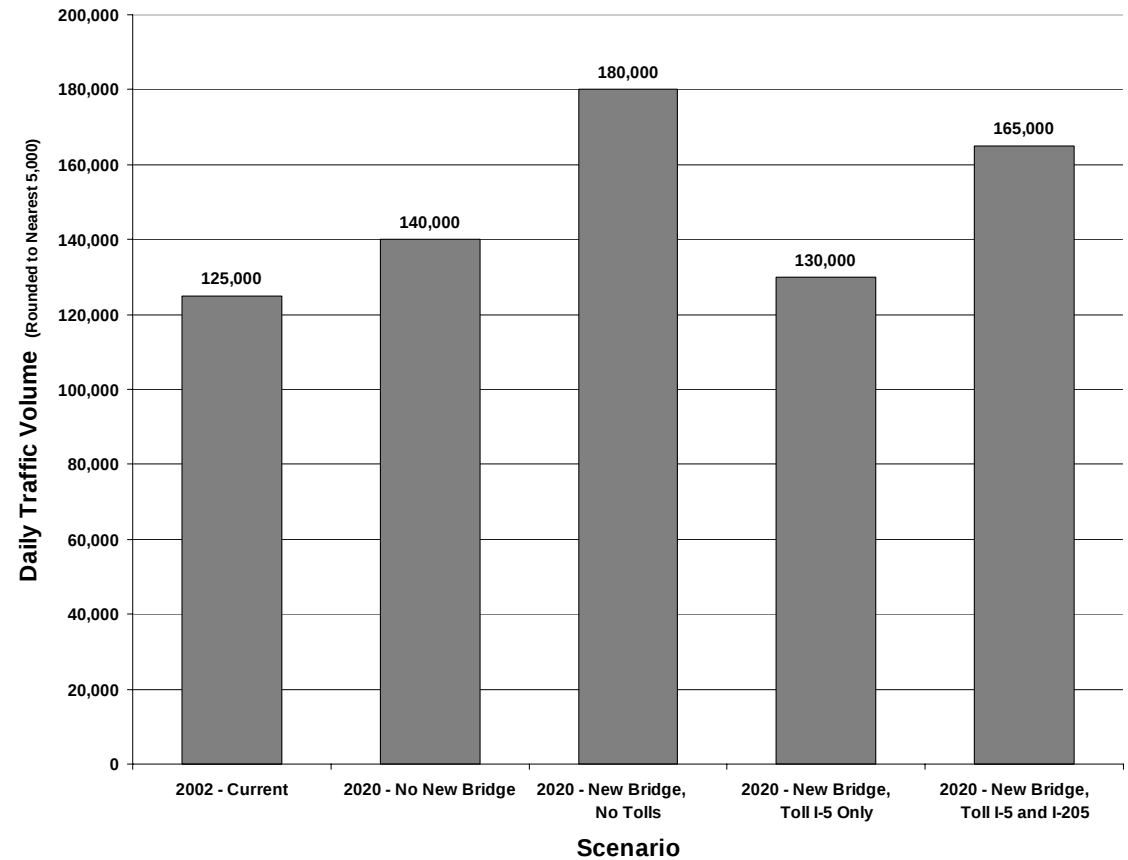
- Vehicle Classification
 - Per axle charge: At \$3.00 toll, each axle is charged \$1.50. A five-axle truck pays five times \$1.50 or \$7.50
- ETC and HOV Discounts to be studied
- Opening day \$3.00
 - Raise \$1.00 every four years to a maximum of \$6.00
 - Caveat: Law requires sufficient revenue to repay bonds – tolls may be adjusted to meet requirement
- ETC forecast share 55% opening day

Toll Revenues Using Tacoma Narrows Bridge Assumptions

- Revenues do not change very much
 - CRC assumptions yield lower revenues from ETC users because of discounts
 - CRC assumptions yield higher revenues from commercial vehicles because of higher rates

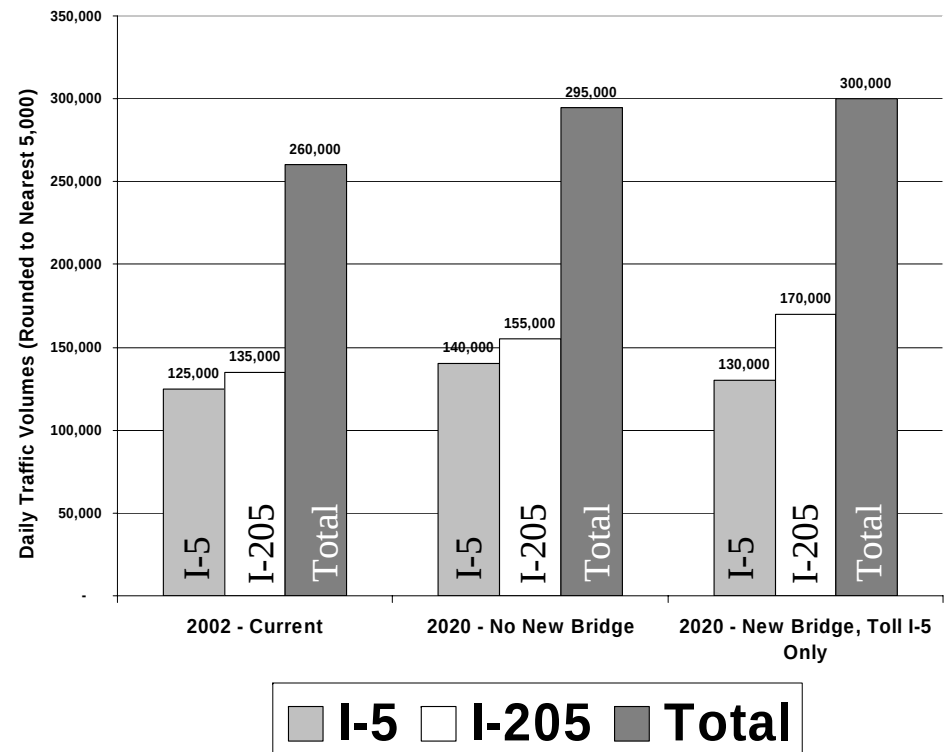
I-5 Traffic

- Daily Traffic Volumes for Possible Tolling Scenarios



Toll I-5 Only Scenario Traffic

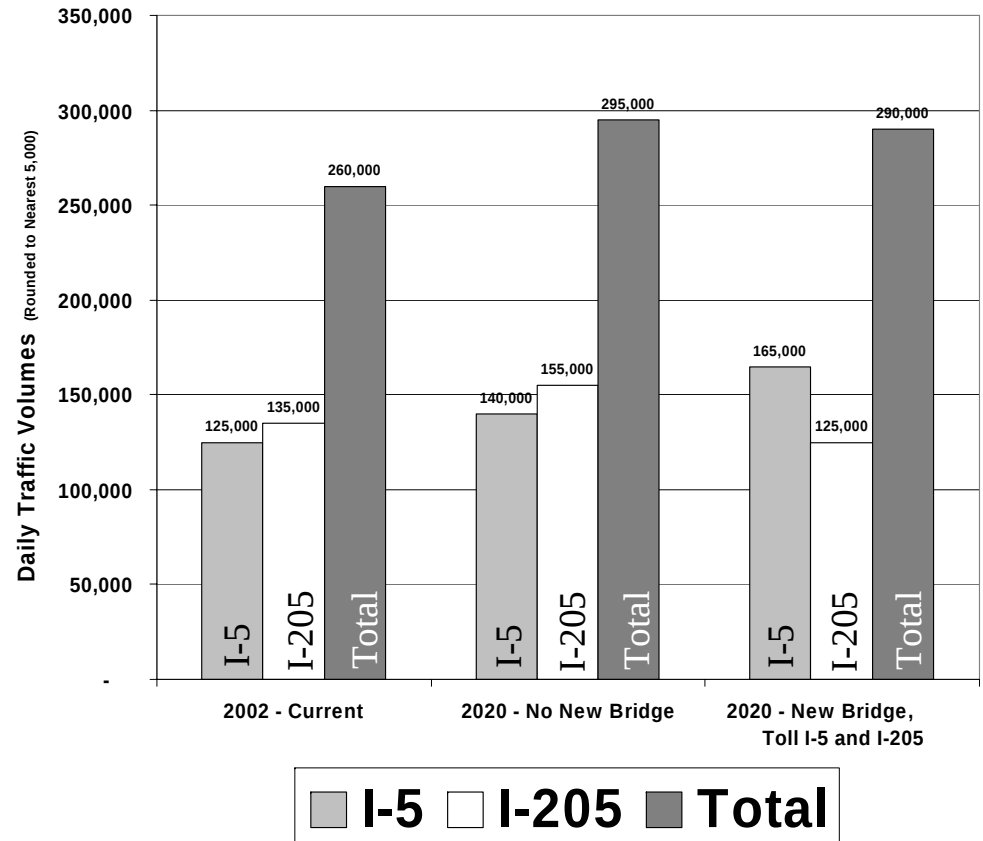
- Assumptions
 - Build New I-5 Bridge
 - Toll I-5 Bridge
 - I-205 Bridge stays toll free
- Results for I-5
 - Tolled traffic on I-5 is less than toll free traffic if the bridge had not been built
- Results for I-205
 - Toll-free traffic on I-205 is more than if the I-5 bridge were toll free and expanded



Daily Traffic Volumes for Tolling I-5 Only Scenario

Toll I-5 and I-205 Scenario Traffic

- Assumptions
 - Build New I-5 Bridge
 - Toll I-5 Bridge and I-205 Bridge
- Results for I-5
 - Tolled traffic on I-5 is more than toll free traffic if bridge had not been built
 - Tolled traffic on I-5 is less than toll free traffic
- Results for I-205
 - Toll traffic on I-205 is less than toll free traffic if the bridge had not been built
 - In 2020, tolled traffic on I-205 is less than toll free traffic today



Daily Traffic Volumes for Tolling I-5 and I-205 Scenario

CRC Projected Revenues

- Assumptions
 - Car toll in one direction is \$2.00 in 2004 dollars; therefore car toll is \$2.75 in 2013
 - Toll escalates in even 25¢ increments at 3% inflation rate

Annual Projected Revenues
(\$ Rounded)

	Toll I-5 Only <i>(Toll one bridge - northbound <u>AND</u> southbound)</i>	Toll I-5 & I-205 <i>(Toll two bridges - northbound <u>OR</u> southbound)</i>
2013	\$125 million	\$140 million
2020	\$150 million	\$170 million

Conclusion

From a revenue projection standpoint, tolling is a feasible option for further consideration in the environmental phase of this project.