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**SUBJECT:** SR 99/Alaskan Way Viaduct Scenario F Tolling Analysis –  
Summary of Findings and Assumptions

***PRELIMINARY DRAFT FOR INTERNAL DISCUSSION***

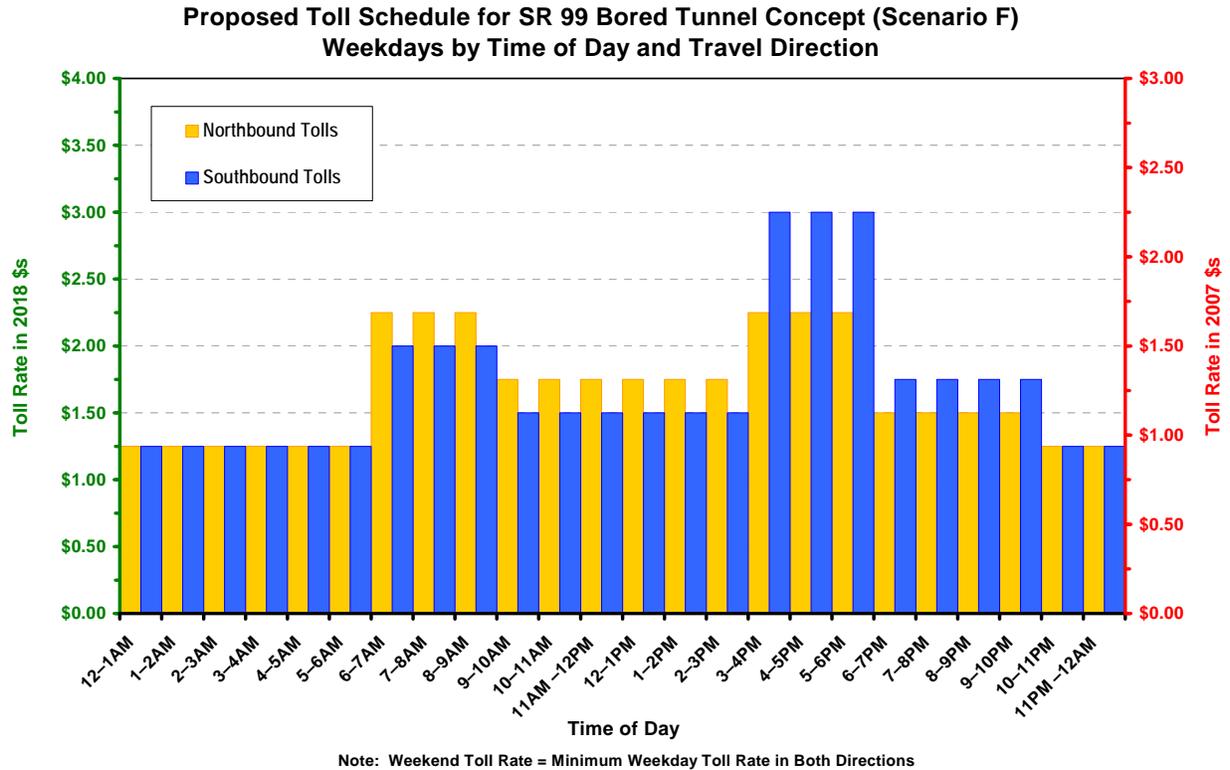
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This memorandum summarizes the general background assumptions and preliminary findings related to a preliminary toll analysis of the SR 99 twin bored tunnel concept (Scenario F) for the Alaskan Way Viaduct & Seawall Replacement Project. The intent of this memo is to provide a high-level synopsis of the diagnostic tests and analysis inputs that were used to arrive at the bored tunnel concept toll revenue projections. Further analysis of the tolling and financial capacity for this specific concept/configuration is warranted to address potential gaps in this work and to provide greater detail for decision making.

A summary of findings is presented below. Brief descriptions of the background assumptions are summarized in three categories. The general physical and operational features of concept as well as the basic tolling assumptions are provided first. These are followed by the estimated traffic and toll revenue projections based on the analysis results and outputs. Finally, the financial analysis assumptions are provided.

## **PRELIMINARY FINDINGS**

- Tolling the Scenario F bored tunnel concept is expected to produce a net toll revenue stream that would support \$410 million in project funding spread over FY 2014 through FY 2018.
- Tolling during construction could add another \$140 million in pay-as-you-go project funding, bringing the total funding contribution of tolls to \$550 million.
- Financing assumptions replicate those employed by the Office of the State Treasurer for the 2008 SR 520 financial analysis.
- Further refinement to the travel demand modeling process, input assumptions, project cost and funding cash flow estimates, and the resulting financial analysis is warranted, and will likely change these initial results somewhat.
- The travel demand modeling using available tools continue to suggest that trips using SR 99 corridor have a number of alternatives available, which limits the level to which tolls can be set. The tolls tested in this analysis – and shown in the following figure – were intended to emphasize revenue collection in the initial years of operations.



**GENERAL ASSUMPTIONS — SCENARIO F (BORED TUNNEL CONCEPT)**

- Four (4) lane facility with two (2) lanes in each direction.
- Tunnel reflects full WSDOT design standards (shoulders, lane widths, etc).
- Only through trips using the tunnel facility are captured for tolling purposes.
- Operating vehicle speeds for the tunnel facility are assumed to be 55 mph.
- Capital costs for the bored tunnel are estimated at \$2.5B, with an additional \$1 B for other elements (seawall replacement, surface streets, viaduct removal, etc.) bringing the total to \$3.5B for the Central Waterfront project.

**TOLL TRAFFIC AND REVENUE ASSUMPTIONS AND RESULTS**

- Tolling is fully electronic (no toll booths) with a pay-by-plate option for those vehicles without transponders.
- Tolls apply to only tunnel users and are collected at the north and south tunnel entrance points (i.e. one NB collection point and one SB collection point).
- The transponder market share is assumed to begin at 88% in the first year of tolling operations, and increase by 3% annually thereafter, reaching a maximum share of 98%.

- Trucks pay more than cars — Heavy trucks (a very small percentage of traffic stream) pay 4 times the standard toll rate and medium trucks pay 2 times more.
- Toll rates vary by time-of-day and direction of travel within a range of \$1.25 to \$3.00 one-way, expressed in year of opening 2018 dollars. On weekends, the minimum toll of \$1.25 would prevail all day.
- The toll range expressed in 2007 dollars is \$0.94 to \$2.25.
- Tolls are assumed to increase annually to keep pace with projected inflation, assumed at 2.5% per year.
- Toll traffic and revenue projections were estimated for two scenarios, which differ by the beginning year of tolling operations:
  - Scenario 1 — Only toll the new tunnel facility when completed, beginning in FY 2019 (7/1/2018); and
  - Scenario 2 — Toll the existing facility beginning in mid-FY 2011 (1/1/2011) during construction, and continue tolling the new facility in FY 2019.
- Toll traffic volumes during construction were not specifically modeled; rather, the tunnel traffic projections were extrapolated back to 2011 assuming that the same through trips would be tolled on the existing facility.
- The tunnel would serve approximately 80-85% of the trips that would use the existing viaduct (short trips to/from mid-town are not served by the limited access tunnel).
- Daily traffic toll volumes at the tunnel year-of-opening (FY 2019) are estimated at 61,000 vehicles (of which about 2,000 are trucks).
- Daily traffic volumes for year 2030 under a tolled scenario are estimated at 72,000 vehicles (of which about 2,800 are trucks).
- The above daily toll traffic volumes reflect toll diversion rates in the range of 40% initially and 35% by 2030. Diverted trips include people who shift their route, change their destination, change their trip frequency or switch to transit to avoid the tunnel toll.
- Total daily traffic demand in the tunnel facility may reach the facility's capacity by the end of the 30-year financing period (2049) under these assumptions. However, if that were to occur, peak period toll rates could be increased to effectively manage traffic within capacity, and under such conditions, revenue would also increase.
- An additional administrative fee or toll surcharge is collected for pay-by-plate transactions to cover the additional costs of collecting, processing and/or billing travelers without vehicle transponders.
- Uncollectible accounts and credit card fees are assumed to total 5% of annual gross revenue as a revenue deduction.

- Tunnel facility operating and maintenance (O&M) costs are estimated to be \$6.3 million in the year of opening (FY 2019), escalating at 2.5% per year. Operations and maintenance costs include those associated with routine facility upkeep, such as lighting replacement, roadway maintenance, ventilation and back office facility operations. A 20% contingency is also included in this preliminary estimate.
- Toll collection O&M costs are estimated to be approximately \$6.5 million in FY 2019, and include fixed and variable components. The variable costs associated with tolling are those costs of collection and processing that are dependent on the number of toll transactions whereas the fixed costs include customer service, back office administrative functions, and tolling equipment upkeep.
- Toll collection equipment capital costs were not estimated for this analysis, but would represent a small increase to the project cost.
- Net revenues, which determine the level of funding that tolls support, are calculated by deducting variable and fixed costs associated with tolling and facility O&M from gross revenues:
  - Gross Revenue
  - (plus) Surcharge Revenue
  - (less) Uncollectible Accounts / Credit Card Fees
  - (less) Toll Collection Operating & Maintenance Costs
  - (less) Facility Operating & Maintenance Costs
  - = Net Toll Revenue Available for Debt Service

## FINANCIAL ANALYSIS ASSUMPTIONS AND RESULTS

- Debt issuance assumptions for this analysis are consistent with those used by the Office of the State Treasurer for the 2008 SR 520 Financial Plan, and include:
  - 30-year General Obligation/Motor Vehicle Fuel Tax Bonds (GO/MVFT)
  - Bonding Period: Fiscal Year 2019-48
  - Interest Rate: 6.0 % on Current Interest Bonds (CIBs); 6.5% on Capital Appreciation Bonds (CABs)
  - Minimum Debt Service Coverage Ratio: 1.25x
  - Cost of Issuance: 0.20% of par amount
  - Underwriters Fee: 0.50% of the par amount of CIBs and 1.00% of the par amount of CABs
  - Toll revenues from tolling during construction are assumed to be used toward construction needs on a pay-as-you-go basis.
- Scenario 1 Results (tolling begins FY 2019):

- Total Bonding Capacity: Approximately \$450 million, with \$410 million net to the project after paying capitalized interest.
- CIBs are issued against the minimum level of post-completion net toll revenues subject to the coverage requirement to support fixed debt service; the incremental growth in revenue over time is used to support the debt service for serial CABs.
- Scenario 2 Results (tolling begins mid-FY 2011):
  - Tolling during construction adds another \$140 million in pay-as-you-go project funding, for a total contribution of about \$550 million from tolls.