



1218 3rd Ave, Suite 1100
Seattle, Washington 98101
tel: 206 336-4900
fax: 206 223-2340

November 14, 2013

Craig Stone
Assistant Secretary, Toll Division
WSDOT
401 2nd Ave S #300
Seattle, WA 98104

Kris Strickler
CRC Project Director
ODOT
700 Washington St, Suite 300
Vancouver, WA 98660

Subject: CRC Traffic and Gross Revenue Forecasts – Budget Proviso and Refresh

Dear Mr. Stone and Mr. Strickler:

During the summer of 2013 CDM Smith developed traffic and toll revenue forecasts as part of the Columbia River Crossing (CRC) project. Work by CDM Smith was documented in our July 2013 Budget Proviso report prepared for the Washington State Department of Transportation (WSDOT) to address legislative questions related to toll rates, diversion and revenue sources, and in a September 2013 “Refresh” report completed for the Oregon Department of Transportation (ODOT) to provide a preliminary estimate of capital funding capacity from toll revenues. Due to the lack of expenditure authority from the Washington Legislature for CRC in the 13-15 biennium, WSDOT was compelled to terminate its work on the project effective July 1st, 2013. As WSDOT efforts ceased, it was subsequently decided that ODOT would complete certain work products, including the investment grade analysis.

The purpose of this letter is to explain the similarities and differences between the findings presented in the Budget Proviso and the Refresh reports. While the reports had different purposes (as described above), the scenarios studied in each were analyzed using the same methodology. Additionally, the reports both analyzed two scenarios that are the same: scenario A in the Refresh report is the same as scenario 1 in the Budget Proviso report; similarly, scenario B in the Refresh report is the same as scenario 2 in the Budget Proviso report. Results presented in each report for these scenarios describe different aspects of these scenarios. For example, the diversion results discussed in the Budget Proviso report are the same diversion results for Scenarios A and B in the Refresh report. The Refresh report funding capacity estimates for Scenarios A and B include this same diversion.





Mr. Stone and Mr. Strickler
November 14, 2013
Page 2

This letter successively reviews the following elements of the two efforts: purposes; general project assumptions; scenarios studied; and modeling approach.

Purposes

The Budget Proviso analysis was performed to provide information to WSDOT for their response to specific toll policy questions per direction of the Washington State Legislature (ESHB 2190, Section 305.18).

The budget proviso directed that the analysis must include a review of the following variables:

- Exemptions from tolls for vehicles with two or more occupants
- A variable toll where the tolls vary by time of day and day of the week
- A frequency-based toll rate for the facility.

The analysis also had to assess the following:

- The impact that light rail service in the corridor will have on estimated toll revenues
- The level of diversion from the Interstate 5 corridor and the impact on estimated toll revenues
- The estimated toll revenues from vehicle trips originating within the region and outside the region by vehicle type

The purpose of the September 2013 Refresh report was to provide an update on the preliminary traffic and toll revenue estimates that had been initially documented by CDM Smith in February 2013. The initial preliminary estimates established a range of possible toll revenue that could be obtained by tolling the I-5 bridge; the Refresh analysis was primarily intended to narrow the range of the initial forecast by using an enhanced analytical process informed by data collection incorporated in the estimating process subsequent to the February preliminary estimates.

General Project Assumptions

The CRC project elements incorporated in all Budget Proviso and Refresh scenarios except Refresh Scenario F are consistent with what is described as the Locally Preferred Alternative (LPA) with highway phasing in the project, as presented in the Final Environmental Impact Statement (Chapter 2, Description of Alternatives). Refresh Scenario F does not include improvements north of Highway 14 in Washington State but otherwise uses the same configuration as the other scenarios.

The toll implementation phasing is common to all analysis scenarios. Tolling is assumed to begin on July 1, 2015 (pre-completion), continue during and after construction; post completion toll rates are assumed to begin on July 1, 2021. The light rail extension is assumed to open on September 1,



Mr. Stone and Mr. Strickler
November 14, 2013
Page 3

2019. All other project elements of the LPA with highway phasing are assumed to be opened along with the new replacement bridges on January 1, 2021.

An overview of the phasing assumptions is:

- Pre-completion Phase 1 - the current bridge is tolled beginning in FY2016 while the new bridge is being constructed
- Pre-completion Phase 2 - all traffic is shifted to the new southbound bridge structure and continues to be tolled
- Post-completion - both new bridge spans are substantially complete and traffic is tolled and routed on them per the final project configuration

Scenarios Studied

The Budget Proviso report and the Refresh report both contain a high and low scenario; these scenarios are identical in both studies. The high and low scenarios were defined to provide an upper and lower bound of potential revenue. In the Budget Proviso report the High and Low scenarios are termed 1 and 2 in the Refresh report these same scenarios are termed A and B.

Each report contains additional scenarios unique to that report and its purpose. Other scenarios studied in the Budget Proviso report were considered to address the policy questions identified by the Washington State Legislature:

- Budget Proviso Scenarios 3 and 4, for the High and Low cases respectively, assume the project is built and no tolls are imposed. These scenarios help address the questions related to traffic diversion due to tolling, and the impact on transit ridership. Note that these no toll scenarios were developed for comparison purposes only; they do not reflect a viable approach to project delivery as tolling is a necessary funding source.
- Budget Proviso Scenarios 5 and 6, for the High and Low cases respectively, help address the questions related to toll exemptions for vehicles with two or more occupants.
- Budget Proviso Scenarios 7 and 8 for the High and Low cases respectively, were developed to assess the revenue impact of discount toll rates for frequent users.

In the Refresh report, traffic and revenue were estimated for six scenarios. In addition to the "High" and "Low" scenarios (identical to the Budget Proviso "High" and "Low" scenarios), four mid-range scenarios were considered in the Refresh report.



Mr. Stone and Mr. Strickler
 November 14, 2013
 Page 4

Parameters affecting the amount of toll revenue that could be obtained were varied between the Refresh report scenarios. The parameters varied were socioeconomic growth assumptions, toll rates, electronic toll collection participation, value of time, vehicle operating cost, effect of tolls on trip suppression, trip distribution and ramp up factors. The parameters for the Budget Proviso and Refresh scenarios are summarized respectively in Tables 1 and 2.

Table 1: Budget Proviso – Summary of Scenario Parameters

Parameter	High Revenue Scenarios (1-5-7)	Low Revenue Scenarios (2-6-8)
Socioeconomic Forecasts	ECONW High Forecast	ECONW Low Forecast
Precompletion Toll Rates	Precompletion peak passenger car account toll \$2.50 in FY 2016\$	Precompletion peak passenger car account toll \$2.50 in FY 2016\$
Post Completion Toll Rates	Option B (post completion peak passenger car account toll \$4.34 in FY 2022\$)	Option A (post completion peak passenger car account toll \$3.62 in FY 2022\$)
Toll Rate Inflation	2.5% annual inflation to FY 2022. No inflation after FY 2022.	2.5% annual inflation to FY 2022. No inflation after FY 2022.
Good To Go! Market Share	70% in FY 2016 75% in FY 2020 77% in FY 2022 85% in FY 2036	50% in FY 2016 58% in FY 2020 62% in FY 2022 75% in FY 2036
Value of Time (FY 2011 dollars)	Peak passenger car \$17.84 per hour	Peak passenger car \$12.28 per hour
Vehicle Operating Cost (FY 2011 dollars)	Passenger car \$0.20 per mile	Passenger car \$0.18 per mile
Trip Pattern Changes	Low amount of downward adjustment	High amount of downward adjustment
Ramp-Up	FY 2016: -3% FY 2017: -1% FY 2022: -5% FY 2023: -3%	FY 2016: -5% FY 2017: -3% FY 2018: -1% FY 2022: -5% FY 2023: -3%



Mr. Stone and Mr. Strickler
November 14, 2013
Page 5

Table 2: Refresh – Summary of Scenario Parameters

Parameter	Scenario A	Scenario B	Scenario C	Scenario D	Scenario E	Scenario F
Socioeconomic Forecasts	ECONW High Forecast	ECONW Low Forecast	ECONW High Forecast	ECONW Low Forecast	ECONW High Forecast	Medium Level Forecast
Pre-completion Toll Rates	Pre-completion peak passenger car account toll \$2.50 in FY2016 \$	Pre-completion peak passenger car account toll \$2.50 in FY2016 \$	Pre-completion peak passenger car account toll \$2.50 in FY2016 \$	Pre-completion peak passenger car account toll \$2.50 in FY2016 \$	Pre-completion peak passenger car account toll \$2.50 in FY2016 \$	Pre-completion peak passenger car account toll \$2.50 in FY2016 \$
Post-completion Toll Rates	Option B (post-completion peak passenger car account toll \$4.34 in FY2022 \$)	Option A (post-completion peak passenger car account toll \$3.62 in FY2022 \$)	Option A (post-completion peak passenger car account toll \$3.62 in FY2022 \$)	Option A (post-completion peak passenger car account toll \$3.62 in FY2022 \$)	Option A (post-completion peak passenger car account toll \$3.62 in FY2022 \$)	Option A (post-completion peak passenger car account toll \$3.62 in FY2022 \$)
Toll Rate Inflation	2.5% annual inflation to FY 2022. No inflation after FY 2022	2.5% annual inflation to FY 2022. No inflation after FY 2022	2.5% annual inflation to FY 2022. No inflation after FY 2022	2.5% annual inflation to FY 2022. No inflation after FY 2022	2.5% annual inflation to FY 2022. No inflation after FY 2022	2.5% annual inflation to FY 2022. No inflation after FY 2022
Good To Go! Market Share	70% FY 2016 58% FY 2020 77% FY 2022 85% FY 2036	50% FY 2016 58% FY 2020 62% FY 2022 75% FY 2036	50% FY 2016 58% FY 2020 62% FY 2022 75% FY 2036	70% FY 2016 75% FY 2020 77% FY 2022 85% FY 2036	70% FY 2016 75% FY 2020 77% FY 2022 85% FY 2036	50% FY 2016 58% FY 2020 62% FY 2022 75% FY 2036
Value of Time (FY 2011 \$)	Peak passenger car \$ 17.84 per hour	Peak passenger car \$ 12.28 per hour	Peak passenger car \$ 14.13 per hour	Peak passenger car \$ 17.84 per hour	Peak passenger car \$ 17.84 per hour	Peak passenger car: \$ 12.28 per hour (pre-completion) \$ 14.13 per hour (post-completion)
Vehicle Operating Cost (FY 2011 \$)	Passenger car \$0.20 per mile	Passenger car \$0.18 per mile	Passenger car \$0.18 per mile	Passenger car \$0.20 per mile	Passenger car \$0.20 per mile	Passenger car \$0.18 per mile
Trip Pattern Changes	Low amount of downward adjustment	High amount of downward adjustment	Moderate amount of downward adjustment	Low amount of downward adjustment	Low amount of downward adjustment	High amount of downward adjustment (pre-completion period) Moderate amount of downward adjustment (post-completion period)
Ramp-Up	FY 2016: -3% FY 2017: -1%	FY 2016: -5% FY 2017: -3% FY 2018: -1% FY 2022: -5% FY 2023: -3%	FY 2016: -5% FY 2017: -3% FY 2018: -1% FY 2022: -5% FY 2023: -3%	FY 2016: -3% FY 2017: -1%	FY 2016: -3% FY 2017: -1% FY 2022: -5% FY 2023: -3%	FY 2016: -5% FY 2017: -3% FY 2018: -1% FY 2022: -5% FY 2023: -3%



Mr. Stone and Mr. Strickler
November 14, 2013
Page 6

Modeling Approach

Both the Budget Proviso and Refresh reports are based on analysis performed using CDM Smith's Stage 2 toll model. Stage 2 indicates that refined socio-economic forecasts and truck forecasts, as well as new traffic counts and origin-destination survey results had been incorporated in the model. However, the Stage 2 model did not fully meet the standard required of investment grade estimates (referred to as Stage 3 model). The investment grade estimates to be produced later this year by CDM Smith will be based on the Stage 3 model.

As described, both reports are based upon two common scenarios, with consistent data sets and outcomes, including diversion estimates. We hope you find this letter clarifies the relationship between the Budget Proviso and Refresh traffic and revenue estimation work we performed for the Columbia River Crossing project.

Sincerely,

A handwritten signature in black ink that reads "Eugene Ryan". The signature is fluid and cursive.

Eugene Ryan
Project Manager
CDM Smith