Columbia River CROSSING

Memorandum

February 28, 2013

TO: Oregon Legislators and Transportation Commissioners

FROM: Kris Strickler, Oregon Project Director, Columbia River Crossing Project

SUBJECT: Preliminary Toll Funds Estimate Update

Please find attached the I-5 Replacement Bridge project's analysis on the amount of potential capital construction funding from tolls and the preliminary toll range estimates. The materials include the preliminary gross toll estimate report from CDM Smith and the toll funding capacity analysis from the Public Resources Advisory Group (PRAG), outlining the findings of the most recent preliminary gross toll revenue analysis, and subsequent preliminary toll funding capacity analysis. Expected in January, the preliminary toll capacity range estimate was delayed while additional traffic modeling runs were prepared to validate and create a more direct correlation between the preliminary results and the most recent finance plan assumptions and to ensure the reliability of the results.

Background

In July 2011, after completing a review of the CRC's financial plan and some of its major assumptions, the Oregon Treasurer's Office provided a report to Oregon's governor and legislative leadership. The report validated much of the project's work and made tangible recommendations to reduce and manage financial risk. The review found that the depth and length of the current economic recession may have reduced long-term job growth projections and thus reduced expected traffic volumes. The Oregon Treasurer's Office recommended that CRC should use "low" traffic estimates to respond to the recession and that toll bonding assumptions should assume toll rates would not escalate over time. CRC recalibrated the financial plan to accommodate these recommendations.

Reflecting the Treasurer's Office recommendations and direction from the governor and legislative leadership, CRC accelerated its plans for the Investment Grade Analysis, which would typically occur and conclude approximately six months prior to toll bond issuance. CRC worked with the Treasurer's Office and the ODOT Chief Financial Officer, in cooperation with their counterparts in Washington, to develop a scope of work and a Request for Proposals (RFP). The RFP for consultant services was circulated in June 2012, and CDM Smith was hired in September to deliver the following work:

- Develop and validate a preliminary range of toll revenue and capacity (January 2013)
- Conduct a travel pattern and user stated preference survey (October 2012 – March 2013)
- Prepare a traffic and revenue report (June 2013)
- Prepare a preliminary investment grade analysis report (December 2013)

The focus of the initial CDM Smith work was to develop a reasonable bracket for the low end

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and the high end of the possible contribution of toll revenues for capital construction for which they were confident the investment grade forecast would fall within. Four tolling scenarios were considered. To be conservative for financial planning purposes, the highest revenue-producing scenario was not included in the updated revenue range. These updated findings reflect a toll funding capacity range of $1.07 to $1.75 billion, compared to the previous estimate of $900 million to $1.3 billion. The difference in this range of funding capacity in comparison to the one used previously is due to the following:

- The current range of toll capacity considered a range of current population and employment forecasts (the official 2012 Metro forecasts and a lower growth scenario prepared by Moody's), while the previous toll capacity reflected a pre-recession Metro forecast that was downwardly adjusted based on conservative assumptions.
- The current toll capacity analysis is based on updated models calibrated by a 2011 travel behavior study and travel cost factors and includes refined toll algorithms from CDM Smith, while the previous toll capacity was based on travel demand models calibrated by a 1994 travel survey and factors.
- The current range of toll capacity assumes current financing structures and assumptions, where the previous toll capacity range reflected more conservative assumptions regarding financing structures and factors.

As part of the ongoing traffic and revenue work, this range will continue to be further refined and updated.

The work scheduled for this June will be based on a more refined traffic model and will be used to inform deliberations on the toll policy and toll rates for the CRC project. The December work will document results from the traffic and revenue model and investment grade analysis, and will continue to inform financing work moving forward. This will be investment grade quality work and will be used to support updated assumptions as we move closer to issuing bonds. This funding capacity update is the first step toward satisfying the investment grade analysis required in HB 2800.

Next Steps

The consultant will prepare a traffic and revenue study by July 1, 2013, including an assessment of stated preference and user conditions. Specifically, the report will consider:

- Toll exemptions for vehicles with two more occupants
- Tolls that vary by time of day and day of the week
- Frequency-based tolls
- Impact of light rail on toll revenue
- Level of I-5 corridor diversion and toll revenue impacts
- Estimated toll revenue from trips originating within and outside the region by vehicle type

By the end of 2013, additional detail will be available and the toll range will be further refined and narrowed.

cc Document Control

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MEMORANDUM

DATE: February 25, 2013

TO: Matthew Garrett, Director, Oregon Department of Transportation

FROM: Les Brodie, CFO, Oregon Department of Transportation

SUBJECT: Preliminary Columbia River Crossing Project Toll Funding Capacity Analysis

As requested by the Oregon Legislative Oversight Committee for the Columbia River Crossing (CRC) Project, an analysis was undertaken as part of the on-going investment-grade traffic and toll revenue study to re-examine the preliminary range of capital funding estimates from tolling the CRC Project bridges. The attached memoranda report the results of this updated analysis and were prepared by:

- CDM Smith, the consulting firm preparing the investment-grade traffic and toll revenue study; and
- Public Resources Advisory Group (PRAG), the financial advisor to ODOT

Based on the updated analysis, the range of toll revenue funding capacity is reasonably estimated to support between $1.07 and $1.75 billion in capital funding for the CRC Project (see attached memoranda for details). A scenario testing the impact of a higher toll rate schedule yielded an even higher amount of capital funding; however that scenario is not incorporated in our estimated range. This estimated range is part of a continuing traffic and toll revenue study that will produce a more refined analysis by July 1, 2013 and an investment-grade analysis in late 2013.

Background

The Department and the Office of the State Treasurer (OST) in its 2011 presentation to the Governor have previously reported that between $900 million and $1.3 billion in capital funding could be reasonably anticipated from toll revenues. Testimony was provided by others in various forums asserting that the underlying traffic modeling and the socio-economic forecasts used to justify these results were outdated and the range of toll funding capacity was overstated. Elected leadership and other policy makers requested additional validation of the projected toll funding capacity range for the CRC Project. This current analysis directly responds to those requests and uses: (a) updated transportation modeling that incorporates the more recent 2011 Metro Travel Behavior Study for the Portland/Vancouver metro region; and (b) updated socio-economic forecasts reflecting the impact of the recent recession.

Traffic and Toll Revenue Estimates

Based on the updated model and data, CDM Smith prepared preliminary traffic and gross toll revenue forecasts for four scenarios that vary by socio-economic forecast, toll rate schedule, and other factors affecting traffic volumes on the CRC Project. These estimates are a first step in the on-going preparation of the investment-grade traffic and revenue analysis. Two of the scenarios (Scenarios 2 and 3) are based on the recently approved official Metro socio-economic forecasts for the Portland/Vancouver metro region and the assumed toll rate schedule in the most recent project finance plan. These scenarios directly test the toll funding assumptions used in the most recent project funding plan. Scenario 1 uses the same toll rate schedule as Scenarios 2 and 3

(although the pay-by-mail surcharge slightly differs), but tests the impact of lower socio-economic forecasts on project funding capacity. Scenario 4 uses the Metro socio-economic forecasts, but tests the sensitivity of capital funding to a higher toll rate schedule.

CDM Smith's forecasts of gross toll revenues for each of these scenarios were converted by Parsons Brinckerhoff to net revenues available for capital funding by deducting preliminary estimates of expenditures for tolling operations, facility operations, credit card charges, uncollectables, repair and replacement, and the creation of several reserves for bonding and operations purposes.

Funding Capacity Analysis

Based on the projected net toll revenues for each of the four scenarios, PRAG estimated the amount of toll funding available for project capital expenses. PRAG developed two financing scenarios for each traffic and toll revenue scenario: (a) a structure using a TIFIA[1] loan from USDOT and with a lesser amount of toll bonds, and (b) a structure using only state-backed toll bonds. The assumptions underlying the financing scenarios are detailed in the attached PRAG memorandum. In both financing scenarios, additional capital funding capacity is derived on a pay-go basis from net toll revenues from pre-completion tolling. The resulting total funding capacity represents a combination of bond and/or loan proceeds plus pay-go capital funding. The capital funding capacity estimates are net of all issuance costs, capitalized interest, reserves, and operating expenses.

Conclusions

The current estimates indicate the capital funding capacity from tolls is higher than previously reported to the Legislative Oversight Committee. As previously explained to the Committee, those earlier estimates were intended to be based on conservative assumptions in recognition of the need for updated socio-economic forecasts and transportation models. Over the past year those updates have been made, and the current range of capital funding capacity reflects those updates.

Scenario 1, which exhibits a capital funding capacity of about $1.1 to $1.2 billion, as detailed in the PRAG memorandum, is based on an employment forecast well below the official Metro forecast for the region. Scenarios 2 and 3, which exhibit a combined range of $1.2 to $1.7 billion, are based on the official Metro socio-economic forecasts and identical toll rate schedules, but different assumptions regarding the travelers' sensitivity to travel costs and their willingness to divert trips to alternative destinations, paths, or modes. The assumed financing structure underlies these ranges; the TIFIA structure adds about $130-$200 million in capital funding capacity compared to the toll bond-only scenario. Scenario 4 illustrates that additional funding capacity is possible with higher toll rates but we do not propose that Scenario 4 be used for reporting a reasonable range of possible capital funding.

This preliminary analysis is intended to provide a guide regarding the potential available range of toll funding capacity. It should be noted that this analysis is a preliminary step in the on-going development of the investment-grade traffic and toll revenue study and report. As part of the on-going study there will be additional model refinement and further sensitivity and scenario testing. Further updates will be provided to both Washington's and Oregon's legislatures and policy makers prior to the end of fiscal year 2013 and periodically thereafter. The final investment-grade traffic and toll revenue study will be prepared prior to the issuance of any toll-backed debt in accordance with the CRC finance plan.

Enclosures

[1] The Transportation Infrastructure Finance and Innovation Act (TIFIA) provides Federal credit assistance for eligible surface transportation projects.

Memorandum

To: *Les Brodie; CFO, Oregon Department of Transportation*

From: *Eugene Ryan*

Date: *February 22, 2013*

Subject: *Columbia River Crossing Preliminary Toll Revenue Estimates*

CDM Smith was retained to develop traffic and toll revenue estimates for the Columbia River Crossing (CRC) project. As part of an on-going effort to prepare investment-grade estimates, CDM Smith was charged with preparing a Stage 1 range of traffic and revenue estimates. This memorandum summarizes the results of this Stage 1work. A refined "Stage 2" range of traffic and toll revenue estimates will be prepared in June 2013 based on additional data currently being collected; leading to an investment-grade ("Stage 3") analysis by late 2013.

The Stage 1 range of traffic and toll revenue estimates is based on:

- A preliminary updated tolling model based on Metro's newly developed (2010/11) travel demand model and CDM Smith's tolling algorithms;
- Available traffic counts and other data; and
- A range of recently completed socio-economic forecasts by Metro and Moody's.

Scenarios Used for Stage 1 Traffic and Toll Revenue Forecast

To prepare the Stage 1 range of traffic and toll revenue forecasts, CDM Smith identified four scenarios to test. All of the scenarios have two stages of tolling:

- A 'pre-completion' stage of tolling, during which the existing bridge is tolled while the new bridge is constructed. All of the scenarios use the same toll rate schedule during the early-year stage.

- A 'post-completion' stage of tolling, which is assumed to begin FY 2022 when the new I-5 bridges are fully open for operations.

Scenarios were created to establish the reasonable range of anticipated revenues. The following summarizes the Stage 1 Scenarios:

- Scenario 1- This scenario represents a reasonable lower bound on what revenue could be expected from tolling the I-5 bridges. It uses an economic forecast reflecting a pessimistic

economic recovery outlook that includes the assumption of no travel growth between now and 2015. The travel demand model assumes parameter values in which travelers are more sensitive to travel costs, and are more willing to divert trips to avoid tolls. These factors are intended to produce the lowest reasonable level of toll bridge usage. Scenario 1 is based on the "Added Price Point" toll rate schedule, documented in the CRC Project Final Environmental Impact Statement (FEIS), for pre-completion tolling. For financial analysis purposes, the toll rate is assumed to not escalate after FY 2022 and the surcharge after FY2036.

- Scenario 2- This scenario uses the official Metro population and employment forecasts for the Portland metropolitan region. The Metro forecast exhibits higher population and employment growth than the forecast used in Scenario 1. Model parameters values are taken at levels that will produce toll usage at the lower end of the reasonable range but not as low as Scenario 1. Scenario 2 assumes approximately the same toll rates as Scenario 1 but the surcharge does not escalate after FY2022.

- Scenario 3- This scenario uses the same socio-economic forecasts and toll rate schedule as Scenario 2, but employs travel model values that assume that travelers are not as sensitive to travel costs as in Scenario 2.

- Scenario 4 – This scenario assumes a higher post-completion toll rate than used in the other three scenarios. The toll rates in Scenario 4 were chosen based on what was deemed reasonable but there was no attempt to develop or use revenue maximizing toll rates. Scenario 4 uses the same socio-economic forecast and travel demand values as Scenario 3, but assumes toll rates based on the "1.5 X Base" toll rate schedule (as documented in the FEIS) in lieu of the toll rate schedule used in Scenarios 1-3. For financial analysis purposes, the toll rate is assumed to not escalate after FY 2022 and the surcharge after FY2036.

The scenarios are described more fully in our report "Columbia River Crossing Traffic and Revenue Study, Preliminary Gross Toll Revenue Estimates, February 22, 2013." That report also gives the traffic and revenue estimates for each of the scenarios for all years from FY2016 to FY2060.

None of these four scenarios nor most importantly the mid-point or average constitutes a base case scenario. Rather the scenarios were determined for the sole purpose of preparing a reasonable Stage 1 range of traffic and toll revenue forecasts.

Stage 1 Traffic and Toll Revenue Results

Figure 1 below shows by year the toll transactions for the four scenarios. Initial transactions estimates start at about 20 to 30 million transactions annually in FY2016 increasing to 45 to 60 million transactions by FY2060. Transactions rise modestly in the pre-completion tolling period (FY2016 through FY2021) then increase when the new bridge is assumed to be fully open, eventually flattening out in the outer years.

Figure 1. Annual Transactions

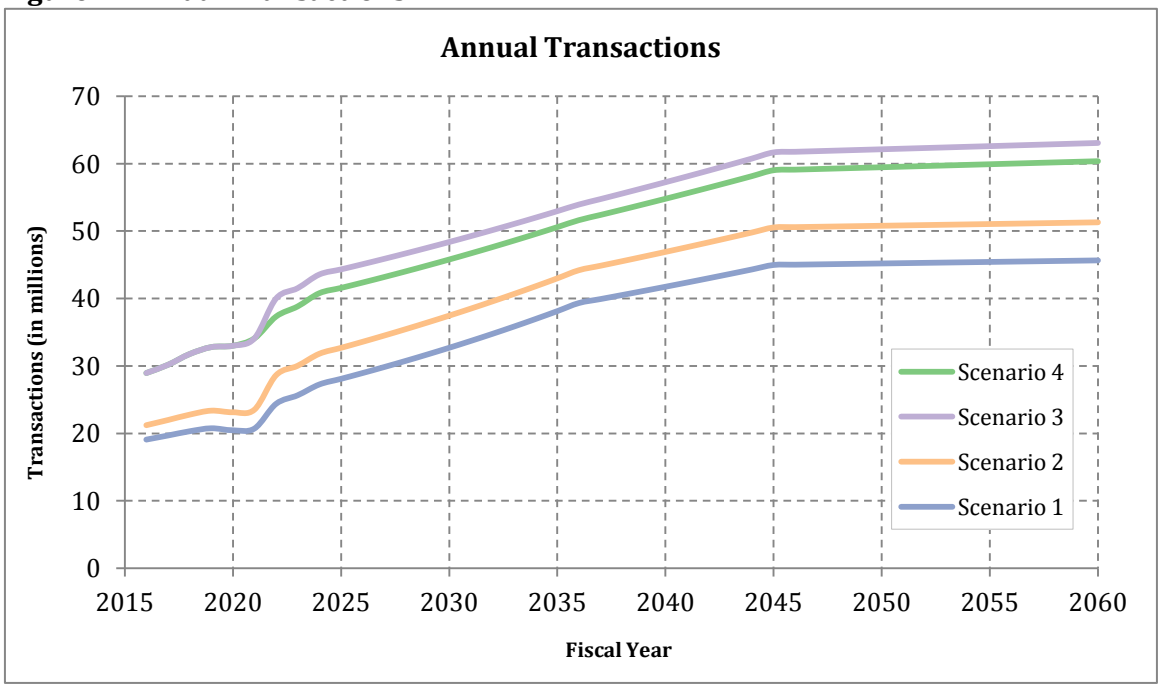
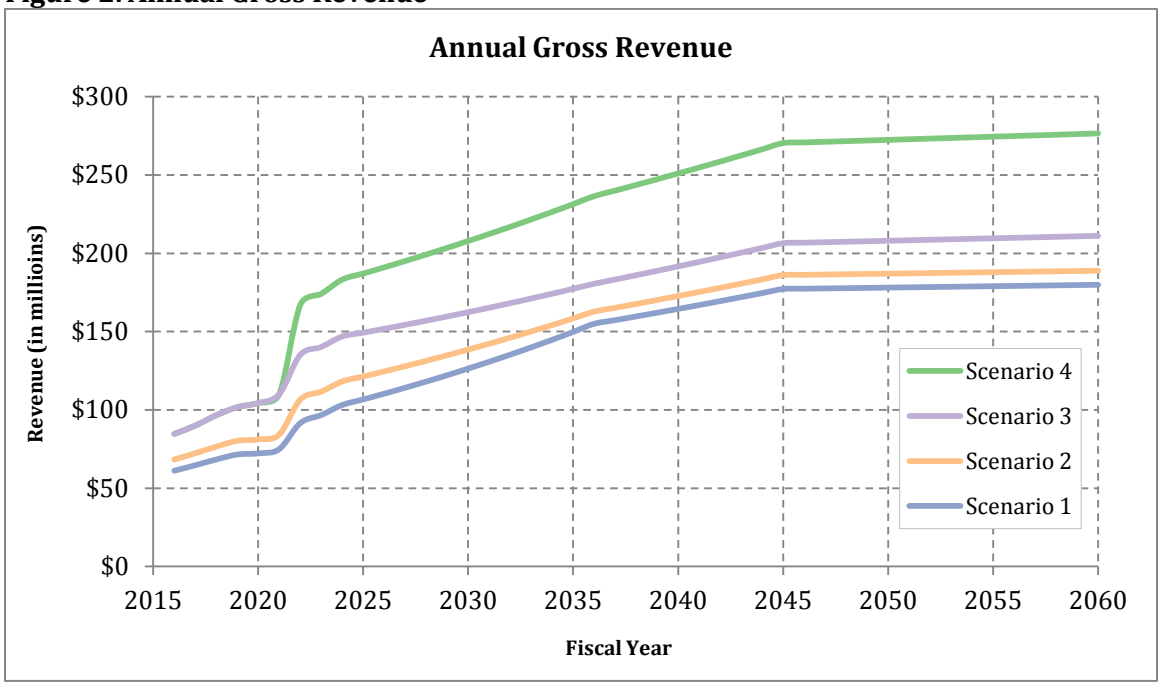


Figure 2 below shows by year the gross revenue estimates for the two scenarios. Initial revenue estimates, in year of collection dollars, start at about $61M to $85M annually in FY2016 increasing to $180M to $277M by FY2060. Revenue rises modestly in the pre-completion tolling period (FY2016 through FY2021) then increases when the new bridge is assumed to be fully open and toll rates are adjusted to post-completion rate schedules in FY2022. Eventually revenue flattens out after FY2045.

Figure 2. Annual Gross Revenue



Stage 1 Range of the Capital Funding Capacity from Tolls

The Stage 1 gross toll revenues described above were used to estimate the capital funding capacity from tolls in two steps:

- The Stage 1 range of gross toll revenues prepared by CDM Smith was converted to net toll revenues available for project capital funding by Parson Brinckerhoff (PB). The net revenues account for the use of toll revenues to pay such expenses as toll operations, facility operations and maintenance, tolling and facility replacement and rehabilitation costs, and credit costs. The net revenues also account for transfers to several reserve accounts for bonding purposes and the efficient operations of the facility.

- The net revenues prepared by PB were provided to the Public Resources Advisory Group (PRAG), a financial advisory firm, which prepared alternative borrowing structures, estimated borrowing capacity based on those structures, estimated additional toll revenues available for capital construction on a pay-go basis, and prepared a range of potential capital funding available from toll revenues. The details of this work are explained in a PRAG memorandum dated February 24, 2013.

Table 1 summarizes the capital funding capacity estimates prepared by PRAG for Scenarios 1-4, which serve as the basis for Stage 1 range.

Table 1. Range of Capital Funding Capacity from Tolls

	State-Backed Toll Bonds	TIFIA Loan and Toll Revenue Bonds
Scenario 1	$1.07	$1.21
Scenario 2	$1.18	$1.36
Scenario 3	$1.55	$1.75
Scenario 4	$1.92	$2.07

Source: PRAG February 2013

Based on these results, the reasonable range of capital funding capacity from tolls for the CRC Project is estimated to be between $1.07 billion and $2.07 billion. The 2011 Oregon State Treasurer's review reported a capital funding capacity of $900 million to $1.3 billion . Thus the low end of the current forecast range falls $170 million above the prior low end and the high end of the current forecast range exceeds the prior high end by approximately $770 million. If Scenario 4 which has a higher toll rate structure is excluded, the top of the range is $1.75 billion which is $450 million above the top of the prior range.

As indicated earlier in this memorandum, this is the Stage 1 range of traffic and revenue estimates. CDM Smith is currently engaged in additional data collection and further model development that will lead to a refined Stage 2 range of traffic and revenue estimates in June 2013. The Stage 3 investment-grade estimates, which will be used for actual financing purposes, are scheduled to be complete by the end of 2013.

Columbia River Crossing Traffic and Revenue Study

Preliminary Gross Toll Revenue Estimates

February 22, 2013
CDM Smith

Introduction

As part of the Columbia River Crossing Traffic and Revenue Study being conducted by CDM Smith, preliminary traffic and toll revenue estimates have been developed. The purpose of these preliminary estimates is to establish a range of possible toll revenue that could be obtained by tolling the Interstate 5 bridge over the Columbia River between Portland, Oregon and Vancouver, Washington.

Traffic and revenue were estimated for four scenarios. All scenarios assume the same physical configuration and staging of the project. Parameters affecting the amount of toll revenue that could be obtained were varied between the 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 choice of auto versus transit, and ramp up assumptions. The assumptions for the scenarios are summarized in Table 1 and discussed in more detail later in the report.

Investment grade estimates are scheduled to be produced later this year as part of the overall traffic and revenue study CDM Smith is conducting. The process to produce investment grade estimates includes data collection and toll model refinements. The data collection phase of the study is going on now. When completed that data will be used to refine the modeling process to meet the standard required of investment grade estimates. The model currently is not at the investment grade level. The parameters used in these scenarios were chosen with the goal that the eventual investment grade revenue results would fall within the range established by these scenarios. The model parameters chosen for these preliminary estimates are based on available local data and factors and CDM Smith's national experience with toll facilities.

It needs to be emphasized that none of these scenarios nor most importantly the mid-point or average of them constitute a base case scenario. Previous revenue estimates for the project made by others provided a base case and had low and high scenario deviations. However, it is extremely important to keep in mind that this is absolutely not the situation with the estimates presented here.

The remainder of this report describes the assumptions for this analysis including the varying assumptions for each of the scenarios and presents the results. The revenue estimates are provided for all years between fiscal year 2016 and 2060. The revenue estimated is "expected revenue." The definition of "expected revenue" is the revenue obtained if all vehicles pay exactly the prescribed toll based on vehicle class, time of day, and payment method. It does not take into account any leakage.

Table 1: Model Assumptions

Assumption Type	Scenario 1	Scenario 2
Socioeconomic Forecasts	No Growth to FY 2016, then Moody's Alternative Low Forecast	Metro adopted LRTP forecast
Toll Rates	Option A (post completion peak passenger car toll $3.62)	Option A (post completion peak passenger car toll $3.62)
Surcharge	Inflation to FY 2036, no inflation after FY 2036	Inflation to FY 2022, no inflation after FY 2022
ETC Penetration	Model input 50% FY 2016	Model input 50% FY 2016
Value of Time	Peak passenger car $12.00 per hour (FY 2011 dollars)	Peak passenger car $14.00 per hour (FY 2011 dollars)
Vehicle Operating Cost	Passenger car $0.18 per mile (FY 2011 dollars)	Passenger car $0.18 per mile (FY 2011 dollars)
Trip Pattern Changes	High amount of downward adjustment	Moderate amount of downward adjustment
Ramp Up	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%
Assumption Type	**Scenario 3**	**Scenario 4**
Socioeconomic Forecasts	Metro adopted LRTP forecast	Metro adopted LRTP forecast
Toll Rates	Option A (post completion peak passenger car toll $3.62)	Option B (post completion peak passenger car toll $4.34)
Surcharge	Inflation to FY 2022, no inflation after FY 2022	Inflation to FY 2036, no inflation after FY 2036
ETC Penetration	Model input 70% FY 2016	Model input 70% FY 2016
Value of Time	Peak passenger car $18.00 per hour (FY 2011 dollars)	Peak passenger car $18.00 per hour (FY 2011 dollars)
Vehicle Operating Cost	Passenger car $0.20 per mile (FY 2011 dollars)	Passenger car $0.20 per mile (FY 2011 dollars)
Trip Pattern Changes	Very low amount of downward adjustment	Very low amount of downward adjustment
Ramp Up	FY 2016: -3% FY 2017: -1% FY 2022: -5% FY 2023: -3%	FY 2016: -3% FY 2017: -1% FY 2022: -5% FY 2023: -3%

Project Assumptions

All the assumptions stated in this section are common to all the scenarios.

July 1, 2015, the beginning of fiscal year 2016, is assumed to be the date that tolling begins on the existing I-5 bridge. All vehicles crossing over the bridge are assumed to be tolled. Tolling is assumed to be all-electronic, with no option to pay using cash at traditional toll booths. Two payment methods, account based and non-account based, will be assumed for the analysis. Account based payments are assumed to pay using a transponder. Non-account based tolls, referred to as "Pay-by-Plate," are charged by identifying a vehicle's owner using the vehicle's license plate and sending the owner a bill. A surcharge is assumed to be added onto the base transponder toll rate for the "Pay-by-Plate" tolling method. The surcharge accounts for the additional processing fees associated with this type of transaction.

The physical project is as described in Chapter 2 "Description of Alternatives" from the project's Final Environmental Impact Statement. The Locally Preferred Alternative (LPA) with highway phasing Option A is assumed for the analysis. The LPA with highway phasing project assumptions relevant to the traffic and revenue study include:

- The new I-5 Bridge over the Columbia River north of Hayden Island, improvements to five interchanges on I-5 north and south of the bridge, and related enhancements to the local street network.
- Extension of light rail from the Expo Center in Portland to Clark College in Vancouver and associated transit infrastructure improvements.
- A toll on motorists using the current river crossing continuing through an interim bridge configuration and continuing on the new bridge. (For purposes of this analysis, tolling on the existing bridge is assumed to begin July 1, 2015.)

An overview of the phasing assumptions for the main I-5 Bridge span north of Hayden Island is listed in Table 2. The tolling locations, which will be coded directly into the model network, are assumed to be on all lanes of this main bridge span. The light rail extension will be assumed to open on September 1, 2019.

Table 2: Phasing Assumptions for the Main I-5 Bridge Span (Statistics are per Direction)

Date	Description	Through Lanes	Add-Drop Lanes	Lane (ft)	Inside Shldr (ft)	Outside Shldr (ft)
FY 2016 (Jul 1, 2015)	Pre-completion tolling Phase 1 (existing I-5 Bridge)	3	0	11	minimal	minimal
FY 2019 (Jul 1, 2018)	Pre-completion tolling Phase 2 (new SB Bridge structure)	3	0	11	minimal	8
FY 2022 (Jul 1, 2021)	Post-completion tolling (full project)	3	2	12	12	14

The Final EIS also analyzed a Locally Preferred Alternative that did not include highway phasing. This concept includes three additional project elements shown on page 2-5 of the Final EIS. These three elements are the only differences between the LPA and the LPA with highway phasing. For the purposes of these traffic and toll revenue estimates, the LPA with highway phasing is assumed which does not include these additional project elements. All other project elements in Chapter 2 of the Final EIS document pertaining to LPA Option A will be assumed to be opened along with the full bridge on July 1, 2021.

It is assumed that the number of existing mainline I-5 lanes as well as the existing interchange movements on the five interchanges being improved will all be maintained throughout the duration of the project construction.

Scenario Assumptions

Socioeconomic Forecasts

Two socioeconomic forecasts were used. The more pessimistic socioeconomic forecast assumed no growth in households and employment out to FY2016. Post FY2016 the growth rates from Moody's low growth alternative forecast were used. The more optimistic socioeconomic forecast was based on the current Metro forecast adjusted for Clark County. The household and employment forecasts are depicted in Figures 1 and 2 respectively.

Figure 1: Regional Household Forecasts 2010 - 2040

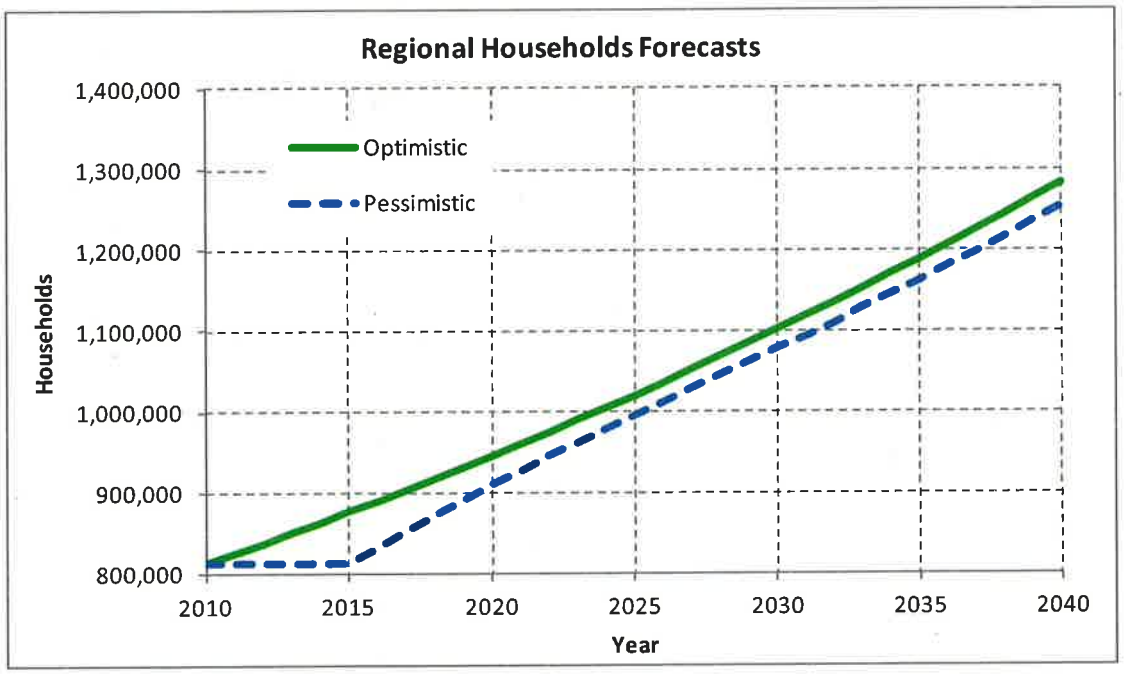
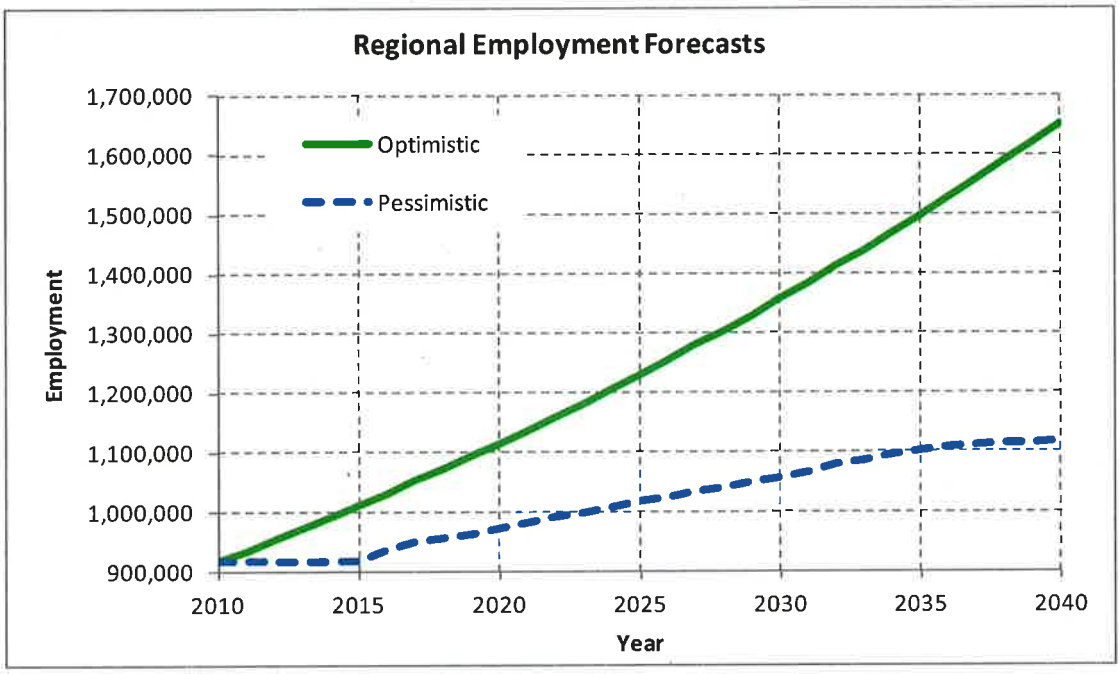


Figure 2: Regional Employment Forecasts 2010 - 2040



Toll Rates

Two basic toll rate schedules were used; Option A (Added Price Point Toll Schedule) and Option B (1.5x Base Toll Schedule). The weekday 2-axle vehicle toll transponder rates for each option are listed in Table 3 and Table 4. Scenario 1 used Option A toll rates. Scenarios 2 and 3 used Option A toll rates but the surcharge was not inflated and remained at $1.77 from FY2022 and thereafter. Scenario 4 used the Option B toll rates. Several important notes relating to the timing and size of the toll increases are:

- The fiscal year starts on July 1st of the previous calendar year
- The surcharge is applied to the pay-by-plate payment method
- The pre-completion construction phase is assumed to last between 7/1/2015 and 6/30/2021
- Tolls in the pre-completion phase are the same among all four scenarios and are assumed to rise annually at the rate of inflation (assumed to be 2.5 percent)
- For Scenarios 1 and 4 only, the surcharge is assumed to continue to rise annually at the rate of inflation after full project implementation on 7/1/2021; up to FY2036 and then no surcharge increase through FY2060
- Tolls for 3-4 axle and 5 or more axle vehicles are 2 times and 4 times the 2-axle rate, respectively. Surcharges are the same as for passenger cars.

- On weekends and certain holidays the overnight (8pm-5am) toll rate is the same as weekdays but the daytime (5am-8pm) rate is assumed to be the same as the weekday 5-6am and 7-8pm rate
- The tolls listed are assumed to apply to all vehicles regardless of the occupancy (including both HOVs and SOVs)

Table 3: Weekday 2-Axle Toll Option A (Year of Collection Dollars)

Fiscal Year	5-6am	6-7am	7-9am	9-10am	10am-3pm	3-4pm	4-6pm	6-7pm	7-8pm	8pm-5am	Sur-charge*
Precompletion											
2016	$1.87	$2.50	$2.50	$2.50	$1.87	$2.50	$2.50	$2.50	$1.87	-	$1.52
2017	$1.92	$2.56	$2.56	$2.56	$1.92	$2.56	$2.56	$2.56	$1.92	-	$1.56
2018	$1.97	$2.62	$2.62	$2.62	$1.97	$2.62	$2.62	$2.62	$1.97	-	$1.60
2019	$2.02	$2.69	$2.69	$2.69	$2.02	$2.69	$2.69	$2.69	$2.02	-	$1.64
2020	$2.07	$2.76	$2.76	$2.76	$2.07	$2.76	$2.76	$2.76	$2.07	-	$1.68
2021	$2.12	$2.83	$2.83	$2.83	$2.12	$2.83	$2.83	$2.83	$2.12	-	$1.72
Post Completion											
2022	$2.17	$2.90	$3.62	$2.90	$2.53	$2.90	$3.62	$2.90	$2.17	$1.45	$1.77
2023	$2.17	$2.90	$3.62	$2.90	$2.53	$2.90	$3.62	$2.90	$2.17	$1.45	$1.81
2024	$2.17	$2.90	$3.62	$2.90	$2.53	$2.90	$3.62	$2.90	$2.17	$1.45	$1.86
2025	$2.17	$2.90	$3.62	$2.90	$2.53	$2.90	$3.62	$2.90	$2.17	$1.45	$1.90
2026	$2.17	$2.90	$3.62	$2.90	$2.53	$2.90	$3.62	$2.90	$2.17	$1.45	$1.95
2027	$2.17	$2.90	$3.62	$2.90	$2.53	$2.90	$3.62	$2.90	$2.17	$1.45	$2.00
2028	$2.17	$2.90	$3.62	$2.90	$2.53	$2.90	$3.62	$2.90	$2.17	$1.45	$2.05
2029	$2.17	$2.90	$3.62	$2.90	$2.53	$2.90	$3.62	$2.90	$2.17	$1.45	$2.10
2030	$2.17	$2.90	$3.62	$2.90	$2.53	$2.90	$3.62	$2.90	$2.17	$1.45	$2.15
2031	$2.17	$2.90	$3.62	$2.90	$2.53	$2.90	$3.62	$2.90	$2.17	$1.45	$2.21
2032	$2.17	$2.90	$3.62	$2.90	$2.53	$2.90	$3.62	$2.90	$2.17	$1.45	$2.26
2033	$2.17	$2.90	$3.62	$2.90	$2.53	$2.90	$3.62	$2.90	$2.17	$1.45	$2.32
2034	$2.17	$2.90	$3.62	$2.90	$2.53	$2.90	$3.62	$2.90	$2.17	$1.45	$2.38
2035	$2.17	$2.90	$3.62	$2.90	$2.53	$2.90	$3.62	$2.90	$2.17	$1.45	$2.44
2036 - 2060	$2.17	$2.90	$3.62	$2.90	$2.53	$2.90	$3.62	$2.90	$2.17	$1.45	$2.50

* For Scenario 1, the surcharge is inflated as shown. For Scenarios 2 and 3, the surcharge is not inflated from FY 2022 forward, and thus the surchage is $1.77 from FY2022 through 2060.

Table 4: Weekday 2-Axle Toll Option B (Year of Collection Dollars)

Fiscal Year	5-6am	6-7am	7-9am	9-10am	10am-3pm	3-4pm	4-6pm	6-7pm	7-8pm	8pm-5am	Sur-charge*
Precompletion											
2016	$1.87	$2.50	$2.50	$2.50	$1.87	$2.50	$2.50	$2.50	$1.87	-	$1.52
2017	$1.92	$2.56	$2.56	$2.56	$1.92	$2.56	$2.56	$2.56	$1.92	-	$1.56
2018	$1.97	$2.62	$2.62	$2.62	$1.97	$2.62	$2.62	$2.62	$1.97	-	$1.60
2019	$2.02	$2.69	$2.69	$2.69	$2.02	$2.69	$2.69	$2.69	$2.02	-	$1.64
2020	$2.07	$2.76	$2.76	$2.76	$2.07	$2.76	$2.76	$2.76	$2.07	-	$1.68
2021	$2.12	$2.83	$2.83	$2.83	$2.12	$2.83	$2.83	$2.83	$2.12	-	$1.72
Post Completion											
2022	$3.26	$4.34	$4.34	$4.34	$3.26	$4.34	$4.34	$4.34	$3.26	$2.17	$1.77
2023	$3.26	$4.34	$4.34	$4.34	$3.26	$4.34	$4.34	$4.34	$3.26	$2.17	$1.81
2024	$3.26	$4.34	$4.34	$4.34	$3.26	$4.34	$4.34	$4.34	$3.26	$2.17	$1.86
2025	$3.26	$4.34	$4.34	$4.34	$3.26	$4.34	$4.34	$4.34	$3.26	$2.17	$1.90
2026	$3.26	$4.34	$4.34	$4.34	$3.26	$4.34	$4.34	$4.34	$3.26	$2.17	$1.95
2027	$3.26	$4.34	$4.34	$4.34	$3.26	$4.34	$4.34	$4.34	$3.26	$2.17	$2.00
2028	$3.26	$4.34	$4.34	$4.34	$3.26	$4.34	$4.34	$4.34	$3.26	$2.17	$2.05
2029	$3.26	$4.34	$4.34	$4.34	$3.26	$4.34	$4.34	$4.34	$3.26	$2.17	$2.10
2030	$3.26	$4.34	$4.34	$4.34	$3.26	$4.34	$4.34	$4.34	$3.26	$2.17	$2.15
2031	$3.26	$4.34	$4.34	$4.34	$3.26	$4.34	$4.34	$4.34	$3.26	$2.17	$2.21
2032	$3.26	$4.34	$4.34	$4.34	$3.26	$4.34	$4.34	$4.34	$3.26	$2.17	$2.26
2033	$3.26	$4.34	$4.34	$4.34	$3.26	$4.34	$4.34	$4.34	$3.26	$2.17	$2.32
2034	$3.26	$4.34	$4.34	$4.34	$3.26	$4.34	$4.34	$4.34	$3.26	$2.17	$2.38
2035	$3.26	$4.34	$4.34	$4.34	$3.26	$4.34	$4.34	$4.34	$3.26	$2.17	$2.44
2036 - 2060	$3.26	$4.34	$4.34	$4.34	$3.26	$4.34	$4.34	$4.34	$3.26	$2.17	$2.50

* For Scenario 4, the surcharge is inflated as shown.

Electronic Toll Collection (ETC) Penetration

As noted above, the two payment methods were assumed to be transponder (Account Based) and "Pay-by-Plate" (Non Account Based). Scenarios 1 and 2 used a low penetration rate of transponders and Scenarios 3 and 4 used a higher penetration rate. In the opening year of FY2016, the portion of possible transponder users was assumed to be 50 percent for the low penetration rate case and 70 percent for the high penetration rate case. The assumptions for the model years for the two cases are shown in Table 5. Note these percentages represent the input percentages. The resulting amount of transponder users are a slightly higher percentage than the inputted percentages because proportionately more of the lower toll rate (i.e. Account Based) users tend to use the toll facility.

Table 5: ETC penetration input values for weekdays

Fiscal Year	ETC % High Penetration used in Scenarios 3 and 4	ETC % Low Penetration used in Scenarios 1 and 2
2016	70.0	50.0
2020	74.8	54.8
2022	77.2	57.2
2036	85.0	65.0

Value of Time (VOT)

A basic VOT computation was performed by using regional 2010 data for the number of persons per household, the number of hours that they worked, and the median household income. The assumption behind the methodology was that an average value of time can be estimated from the median income and the total hours worked. The total household hours included all hours from all workers within a household and were used to develop the hours per year worked by an average household worker. VOT was determined by using the income and hours information for passenger cars. A perceived weighting was used to adjust for peak and off-peak. The VOT for trucks was based on a statistical analysis of various parameters including the type and value of cargo, and driver wages. The resulting VOT values were compared against their counterparts from similar areas for a general consistency. A reasonable range of values was determined. The values of time for the various cases are shown in Table 6. These values in FY 2011 dollars were adjusted for future years based on an assumed annual rate of inflation of 2.5 percent.

Table 6: Value of Time (FY2011 $/hr)

	Peak Auto	Off-Peak Auto	Truck
Scenario 1	$12.00	$10.80	$30.00
Scenario 2	$14.00	$12.60	$35.00
Scenarios 3 and 4	$18.00	$15.00	$45.00

Vehicle Operating Cost (VOC)

Vehicle operating cost was determined by the consideration of major elements of cost including fuel price, maintenance, and tires for various types of vehicles. The sources of information used in this analysis included the US Energy Information Administration (USEIA), American Automobile Association (AAA), and National Highway Traffic and Safety Administration (NHTSA). Separate VOC analysis was conducted for passenger cars and trucks.

The general methodology included the determination of average weighted gasoline consumption per mile with a consideration of proportion of sedans and SUV/pickup trucks in the fleet of passenger vehicles. Average cost of maintenance and tires was also obtained and added to the fuel price. All costs were determined at a per mile basis. Additional elements for trucks included the cost of trailer lease and driver wages. Table 7 provides a summary of the VOC used in the current study:

Table 7: Vehicle Operating Cost (FY2011 $/mile)

	Peak Auto	Off-Peak Auto	Truck
Scenarios 1 and 2	$0.18	$0.50	$0.70
Scenarios 3 and 4	$0.20	$0.65	$0.80

Effect of Tolls on Trip Pattern Changes

It is expected tolling the I-5 bridge can affect trip patterns in the region. Trips that crossed the river for a particular purpose may be changed to avoid the toll by choosing a destination such that a river crossing is not needed or the trip is simply not made. Trips may also shift mode to transit to avoid the toll. Note the category of trip pattern change discussed in this section does not include highway route changes where the same origin and destination are maintained. That trip diversion is dealt with separately using the CDM Smith diversion modeling process.

The Metro model steps of trip distribution and mode split were used to estimate these changes by including the toll as part of the calculation process. As the effect of tolls on certain trip pattern changes are expected to be higher over time, the effect was phased in over the years. A range of possible effects were considered from a negligible impact of trip pattern change in response to tolls to a significant adjustment of trip pattern changes. These effects translate into reducing the number of vehicular river crossings when the bridge is tolled compared to when it is not tolled.

Ramp Up

Ramp up is applied to traffic and revenue forecasts to account for potential users adjusting to a new situation. The ramp up percentage reduces the traffic and revenue estimate by the ramp up percentage for the year applied. Ramp up was used on the results for the first three years of tolling FY2016 to FY2018 for Scenarios 1 and 2. A lower amount of ramp up and only for the first two years of tolling was used for Scenarios 3 and 4. For all the scenarios ramp up was also applied to FY2022 and FY2023 to reflect the substantial change in I-5 capacity and toll rate with the opening of the completed bridge. The entire set of ramp up numbers used is shown in Table 8.

Table 8 Ramp Up

	Scenarios 1 and 2	Scenarios 3 and 4
Ramp Up	FY 2016: -5% FY 2017: -3% FY 2018: -1% FY 2022: -5% FY 2023: -3%	FY 2016: -3% FY 2017: -1% FY 2022: -5% FY 2023: -3%

Traffic and Gross Toll Revenue Results

Traffic and gross toll revenue estimates were made using the four step travel demand modeling process. The steps of trip generation, trip distribution, and mode split used modified versions of the Metro modeling process. The trip assignment step which includes route diversion used the CDM Smith toll diversion model process. The model was run for all the scenarios for the model years of FY2016, FY2020, FY2022, and FY2036. Results for intermediate years were determined by interpolation of the model year results. For years beyond FY2036 results were developed by assumed growth results informed by model year results.

Table 9 provides the transaction and revenue results for FY2016 through FY2060 for the scenarios. The revenue results are expected revenue that assumes all vehicles pay the proscribed toll rate and leakage is not included. The transaction and revenue results are plotted on Figures 3 and 4 respectively.

Table 9: Annual Toll Traffic and Gross Revenue (Millions)

	Traffic (millioins)				Revenue (millions year of collection dollars)			
Fiscal Year	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 1	Scenario 2	Scenario 3	Scenario 4
2016	19.093	21.220	28.945	28.946	61.150	68.250	84.657	84.650
2017	19.699	21.986	30.162	30.162	64.620	72.243	89.953	89.950
2018	20.326	22.781	31.760	31.761	68.320	76.480	96.594	96.590
2019	20.769	23.375	32.791	32.791	71.510	80.175	101.712	101.710
2020	20.473	23.138	32.990	32.989	72.220	81.085	104.372	104.380
2021	20.732	23.528	34.094	34.094	74.930	84.247	110.033	110.030
2022	24.391	28.630	40.005	37.326	91.540	106.514	135.099	167.040
2023	25.660	30.032	41.546	38.829	96.680	111.640	140.169	174.120
2024	27.259	31.810	43.568	40.788	103.090	118.151	146.860	183.250
2025	28.092	32.683	44.324	41.566	106.640	121.300	149.279	187.100
2026	28.952	33.582	45.098	42.365	110.300	124.541	151.761	191.050
2027	29.840	34.508	45.891	43.185	114.100	127.878	154.310	195.100
2028	30.759	35.462	46.703	44.028	118.030	131.313	156.926	199.260
2029	31.709	36.444	47.535	44.892	122.100	134.850	159.612	203.510
2030	32.690	37.456	48.387	45.779	126.320	138.492	162.368	207.880
2031	33.706	38.497	49.259	46.690	130.680	142.242	165.198	212.360
2032	34.754	39.570	50.153	47.625	135.190	146.103	168.102	216.960
2033	35.839	40.675	51.069	48.584	139.870	150.080	171.083	221.670
2034	36.961	41.813	52.006	49.569	144.710	154.176	174.143	226.500
2035	38.121	42.985	52.966	50.580	149.720	158.394	177.283	231.460
2036	39.321	44.193	53.950	51.617	154.910	162.739	180.506	236.540
2037	39.910	44.856	54.759	52.392	157.230	165.180	183.214	240.090
2038	40.509	45.528	55.581	53.177	159.590	167.658	185.962	243.690
2039	41.117	46.211	56.414	53.976	161.980	170.173	188.751	247.350
2040	41.733	46.904	57.261	54.785	164.410	172.725	191.583	251.060
2041	42.359	47.608	58.119	55.606	166.880	175.316	194.456	254.820
2042	42.995	48.322	58.991	56.441	169.380	177.946	197.373	258.640
2043	43.640	49.047	59.876	57.287	171.920	180.615	200.334	262.530
2044	44.295	49.783	60.774	58.147	174.500	183.324	203.339	266.470
2045	44.959	50.529	61.686	59.019	177.110	186.074	206.389	270.460
2046	45.003	50.580	61.778	59.108	177.300	186.260	206.698	270.870
2047	45.049	50.631	61.871	59.196	177.470	186.447	207.008	271.270
2048	45.094	50.681	61.964	59.285	177.650	186.633	207.319	271.680
2049	45.139	50.732	62.057	59.374	177.820	186.820	207.630	272.090
2050	45.184	50.783	62.150	59.463	178.010	187.007	207.941	272.490
2051	45.229	50.833	62.243	59.552	178.180	187.194	208.253	272.900
2052	45.275	50.884	62.336	59.642	178.360	187.381	208.566	273.320
2053	45.320	50.935	62.430	59.731	178.530	187.568	208.879	273.720
2054	45.365	50.986	62.524	59.821	178.720	187.756	209.192	274.130
2055	45.410	51.037	62.617	59.910	178.900	187.943	209.506	274.550
2056	45.456	51.088	62.711	60.001	179.070	188.131	209.820	274.960
2057	45.501	51.139	62.805	60.090	179.250	188.320	210.135	275.370
2058	45.547	51.190	62.900	60.181	179.440	188.508	210.450	275.780
2059	45.592	51.241	62.994	60.271	179.610	188.696	210.766	276.200
2060	45.638	51.293	63.088	60.361	179.790	188.885	211.082	276.610

Figure 3: Annual Toll Traffic

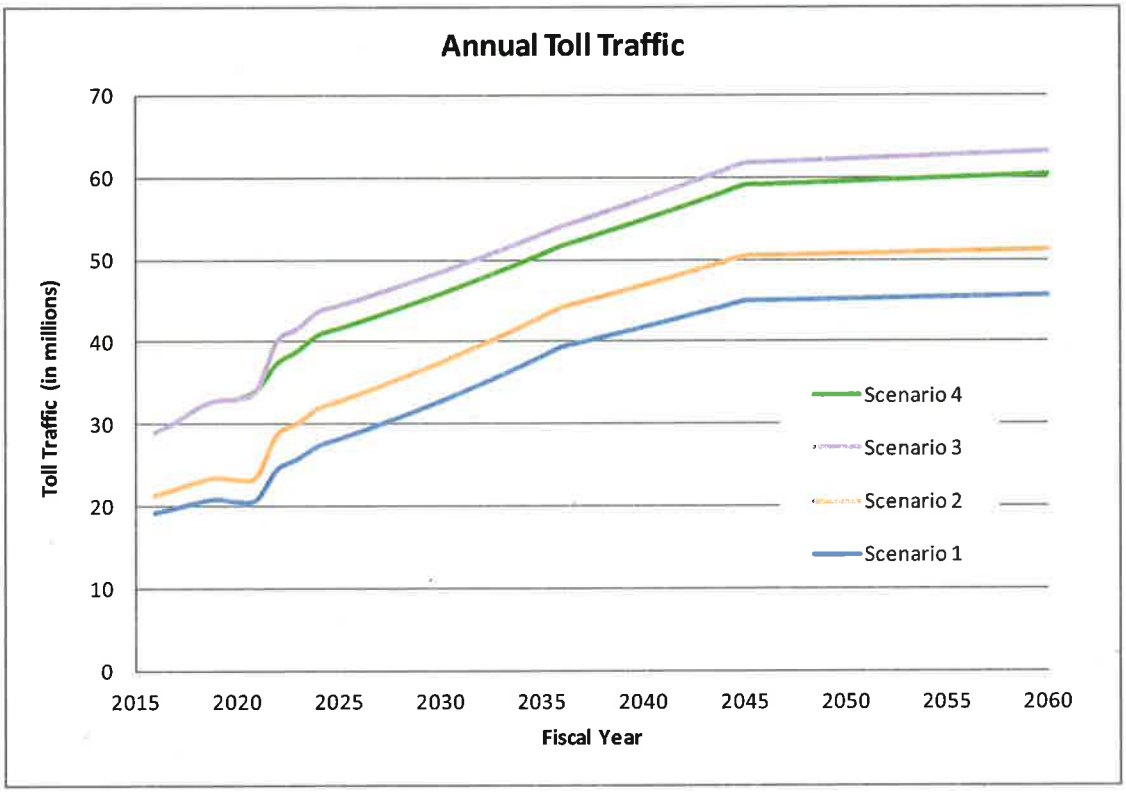
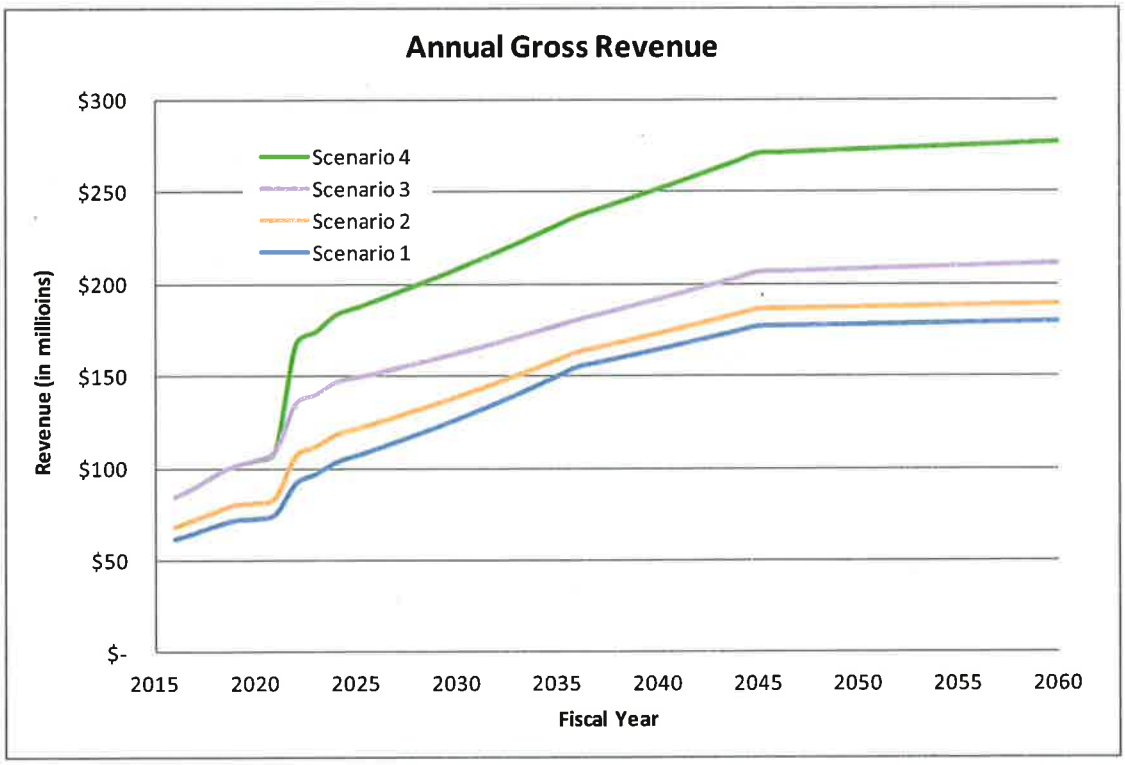


Figure 4: Annual Gross Revenue



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PUBLIC RESOURCES ADVISORY GROUP

MEMORANDUM TO: Les S. Brodie, Oregon Department of Transportation ("ODOT")
Lee A. Helgerson, ODOT
Laura Lockwood-McCall, Oregon State Treasury ("OST", and together with ODOT, the "State")

FROM: Public Resources Advisory Group ("PRAG")

SUBJECT: Columbia River Crossing – Range of Estimated Project Funding Capacity of Net Toll Revenues Based on Updated Traffic and Revenue Projections

DATE: February 24, 2013

SUMMARY OF RESULTS

This memorandum is prepared in response to ODOT's request that PRAG prepare an updated analysis to estimate the range of project funding capacity provided by tolling the Columbia River Crossing (CRC) Project bridges. This analysis is based on the preliminary traffic and revenue estimates prepared by CDM Smith and presented in its report titled "Columbia River Crossing Traffic and Revenue Study, Preliminary Gross Toll Revenue Estimates, February 22, 2013" (the CDM Smith Study). For each of the four traffic and revenue scenarios described in the CDM Smith Study, PRAG modeled the estimated funding capacity based on two sample bonding scenarios, namely (1) 100% State-backed (GO) Toll Revenue Bonds, and (2) up to a $1 billion TIFIA loan combined with stand-alone toll revenue bonds. In estimating the total project funding available from tolls, we include both the net bond proceeds that can be generated from the projected net toll revenues as preliminarily provided by Parsons Brinckerhoff (PB) on February 22, 2013, as well as the projected net toll revenues available during the pre-completion period (i.e., that period between when tolling commences and when both bridges are fully operational) to fund project costs on a pay as you go (PAYGO) basis. Based on these data sources and the other assumptions described below, our analysis indicates the following levels of capital funding capacity for each of the scenarios:

Estimated Project Funding Based on Updated Traffic and Revenue Projections

Amounts in $Millions	Principal Amount						Non-Project Uses of Proceeds				PAYGO From Pre-Completion Tolling	Net Project Funding Available
	Standalone Senior		State-Backed		TIFIA Loan	Total	COI	Cap-I	Reserve	Total		
	CIBs	CABs	CIBs	CABs								
Scenario 1												
GO	-	-	955.7	16.2	-	971.9	6.9	118.3	-	125.2	226.4	1,073.1
TRB & TIFIA	-	43.9	-	-	940.8	984.7	1.1	-	4.4	5.5	226.4	1,205.6
Scenario 2												
GO	-	-	1,075.3	-	-	1,075.3	7.5	139.8	-	147.3	254.9	1,182.9
TRB & TIFIA	95.9	25.3	-		1,000.0	1,121.2	3.0	5.8	12.1	20.9	254.9	1,355.2
Scenario 3												
GO	-	-	1,408.6	-	-	1,408.6	9.9	211.3	-	221.1	363.9	1,551.3
TRB & TIFIA	501.3	1.9	-		1,000.0	1,503.2	12.6	55.6	50.3	118.5	363.9	1,748.6
Scenario 4												
GO	-	-	1,957.0	-	-	1,957.0	13.7	382.8	-	396.5	355.8	1,916.3
TRB & TIFIA	907.5	66.3	-	-	1,000.0	1,973.8	24.3	136.6	96.8	257.7	355.8	2,071.9

INFORMATION SOURCES AND MAJOR ASSUMPTIONS

The following is a description of the data sources and major assumptions employed by PRAG to calculate the above range of estimated project funding potential. The amount of net bond proceeds that can be generated by projected net toll revenues will ultimately depend on the results actually achieved – i.e., the final projections of traffic and gross toll revenue and net toll revenue, the timing of bonding, types of debt utilized, interest rates, coverage, and debt amortization. We believe the assumptions detailed below are reasonable under current market conditions, but actual results will vary from those presented herein. These estimates are preliminary and part of an ongoing and increasingly refined analysis of toll funding capacity, leading to the final investment grade traffic and revenue analysis required just prior to issuing debt secured by net toll revenues.

- ***Gross Toll Revenue*** – PRAG's analysis was based on Scenarios 1-4 described in the CDM Smith Study. The scenarios vary by a number of parameters, including socioeconomic forecasts utilized, toll rates in the post-completion period, value of time, escalation of the pay by mail surcharge, ETC penetration, ramp-up adjustments, among other factors. These Stage 1 projections will be updated in a refinement study to be prepared by July 1, 2013 and finalized in an investment grade study to be completed by late 2013. We should also note that all scenarios in the CDM Smith Study assume no additional increases to the basic toll rate after FY2022, when the new facility is projected to be open. (Scenarios 1 and 4 do assume the pay by mail surcharge increases at the rate of inflation through 2036, but the basic toll rate remains unchanged after FY2022.) This is intended to provide for a more conservative estimate of project funding capacity, which does not rely on on-going future toll rate increases. This same approach was also assumed in the modeling PRAG completed at the request of ODOT and OST as part of the OST's July 20, 2011 presentation to Governor Kitzhaber (the 2011 PRAG Analysis.)

- ***Net Toll Revenue*** – All toll-backed bonds and TIFIA loans are assumed to be paid after the funding of Operating and Maintenance (O&M) expenses and both tolling and facility Repair and Replacement (R&R) reserve deposits. This is a conservative assumption that mirrors the assumptions used for the 2011 PRAG Analysis. As a practical matter, the legal structure for the toll-backed bonds (including TIFIA) to be issued in the future likely will involve a pledge of net toll revenues that deducts only O&M costs and not R&R reserve deposits (which would be paid after debt service). This approach is consistent with the debt structure used for Washington's SR 520 project. However, we also assume that deposits to the R&R reserve are deducted to provide a more conservative range of estimated funding potential as well as to be more consistent with the assumptions used in the 2011 PRAG Analysis.

  All preliminary estimates of net toll revenues were prepared by PB, based on the preliminary traffic and gross toll revenue estimates detailed in the CDM Smith Study.

- ***Project Sources and Uses*** – To estimate the required timing of toll-backed bond issuances, PRAG obtained data from the CRC project staff that included estimated project funding needs and projected non-toll funding sources. Project costs were based on the cost refinement study conducted by CRC project staff in November 2012.

- ***Bond Structuring Assumptions*** – Provided below is a discussion of the major structuring assumptions of the analysis, which are detailed in Exhibit 1. We point out several factors that have changed since the 2011 PRAG Analysis, namely:

  - ***Interest rates*** – Since bonding is now closer than it was in 2011, and the interest rate assumptions used in 2011 were materially higher than then-current market rates, we have reduced our interest rate assumptions by applying an interest rate spread to estimated current market rates for each of the credit structures contemplated. Since there has been more volatility in tax-exempt rates than in taxable rates in recent years, particularly for lower-rated credits such as would be expected for stand-alone toll revenue bonds, we assume an interest rate spread over current market rates of approximately 1.0% (100 bps) for TIFIA (which is based on the 30-year U.S. Treasury yield),

1.5% (150 bps) over current rates for State GO-backed bonds, and 2.0% (200 bps) for stand-alone toll revenue bonds.

Please note that the actual interest rates achieved on toll-backed borrowing (whether TIFIA, State GO-backed bonds or stand-alone toll revenue bonds) will impact the amount of project funding available from the net toll revenue stream. Higher interest rates than assumed in our analysis will result in lower project funding, while lower interest rates would produce higher project funding.

- ***Coverage*** – In the 2011 PRAG Analysis, we assumed TIFIA debt service coverage at 1.10x. However, based on the experience of Washington with the SR 520 TIFIA loan, and consistent with the assumption used in the CRC's August 2012 Annual Section 5309 New Starts Report to the Federal Transit Administration, we have increased that debt service coverage factor to 1.15x. Similarly, we have increased our debt service coverage factor for the State GO-backed toll revenue bonds to 1.30x from the 1.25x assumption in the 2011 PRAG Analysis.

- ***Pre-Completion Tolling*** – In the 2011 PRAG Analysis, we did not assume any pre-completion tolls. For this analysis, we assume that revenues from pre-completion tolls will be used to pay O&M, and fund deposits to an O&M reserve, R&R reserve, and a rate stabilization fund during the pre-completion period, all as calculated by PB. Excess net toll revenues available after funding these costs in each fiscal year are assumed to be available in the following fiscal year to fund project costs on a PAYGO basis. These amounts are summarized in the results table above as "PAYGO from Pre-Completion Tolling."

- ***Debt Service Structure –*** In all cases, we structure the bond debt service to match the shape of the net toll revenue stream. As stated above, the traffic and revenue projections in the CDM Smith Study assume no additional increases to the basic toll rate after FY2022 when the facility is complete (although both Scenario 1 and Scenario 4 assume the pay by mail surcharge continues to grow with inflation.) Both net toll revenue and debt service increase only with forecast increases in traffic. This produces a modestly increasing debt service structure, with compound average growth rates of between approximately 1.3% per year and 1.9% per year during the years when the bulk of the debt is amortizing, depending on the scenario analyzed. The debt structures for the eight scenarios analyzed are depicted graphically in Exhibit 2.

CONCLUSION

Based on the updated analysis, and assuming the net revenue projections for Scenarios 1-3, the toll revenue funding capacity is reasonably estimated to range between $1.07 billion and $1.75 billion in capital funding for the CRC Project. A scenario testing the impact of a higher toll rate (Scenario 4) yielded an even higher amount of capital funding; however, that scenario is not incorporated in the estimated range. It should be emphasized that these results are based on preliminary Stage 1 projections which will be updated in a refinement study to be prepared by July 1, 2013 and finalized in an investment grade traffic and revenue study to be completed by CDM Smith in late 2013, along with a final net toll revenue report to be completed by PB. Further, these preliminary projections are based on a number of assumptions, including factors related to toll policy (toll rates and surcharge rates) that will be subject to future decisions of Oregon and Washington policy makers.

Public Resources Advisory Group

Exhibit 1 – Overview of Major Assumptions

Debt Vehicle	Standalone Toll Revenue Bonds (TRBs)	State GO-Backed Toll Revenue Bonds	TIFIA Loan
Credit Structure	Secured by Net Toll Revenues (net of O&M and R&R)	Secured by Net Toll Revenues, plus State backstop of revenues and/or GO pledge	Secured by Net Toll Revenues
Amortization	Max 40 years	Max 30 years	35 years from project completion
Minimum Debt Service Coverage	2.00x Senior; 1.50x Junior	1.30x (*note: FEIS assumed 1.25x*)	1.15x (*FEIS assumed 1.10x*)
Interest Rates (reduced from prior analysis)	~200 bps over current rates: Current Interest Bonds: 6.00% (Senior) / 7.00% (Junior) Capital Appreciation Bonds: 7.25% (Senior)	~150 bps over current rates: Current Interest Bonds: 4.50% Capital Appreciation Bonds: 5.75%	~100 bps over current 30Yr UST: 4.25%
Debt Service Structure	Proportional to Net Toll Revenues	Proportional to Net Toll Revenues	Proportional to Net Toll Revenues
Use of Pre-Completion Tolls	Fund O&M Reserve, R&R Reserve, and Revenue Stabilization Fund first; use excess to pay Project Costs.	Fund O&M Reserve, R&R Reserve, and Revenue Stabilization Fund first; use excess to pay Project Costs.	Fund O&M Reserve, R&R Reserve, and Revenue Stabilization Fund first; use excess to pay Project Costs.
Debt Service Reserve Fund	Funded at lesser of Maximum Annual Debt Service, 10% of par, and 125% average annual debt service	n/a	n/a
Bond-Related Expenses (COI)	2.5%	Current Interest Bonds: 0.7% Capital Appreciation Bonds: 1.2%	n/a (paid from revenue, not included in loan sizing)

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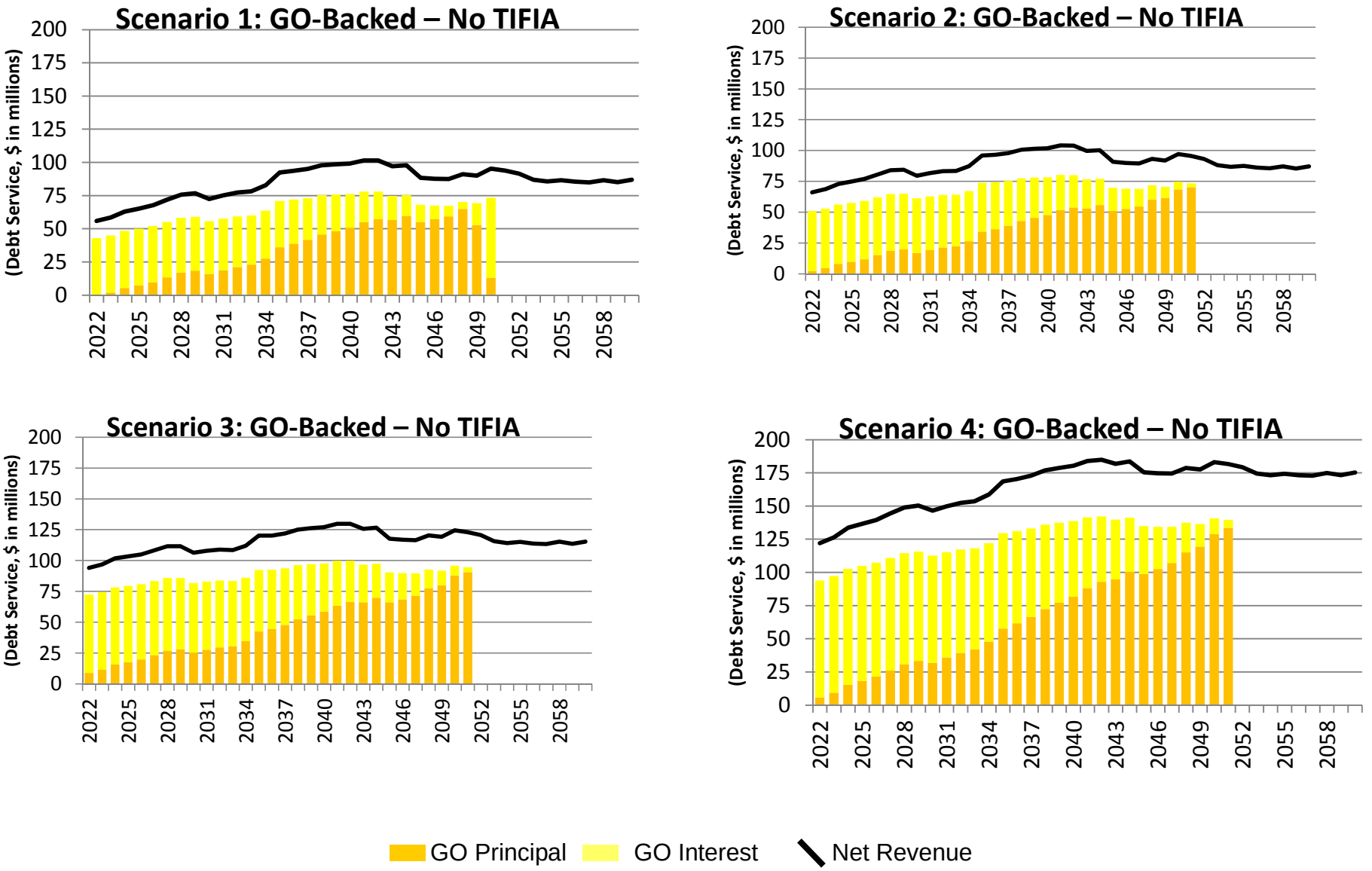
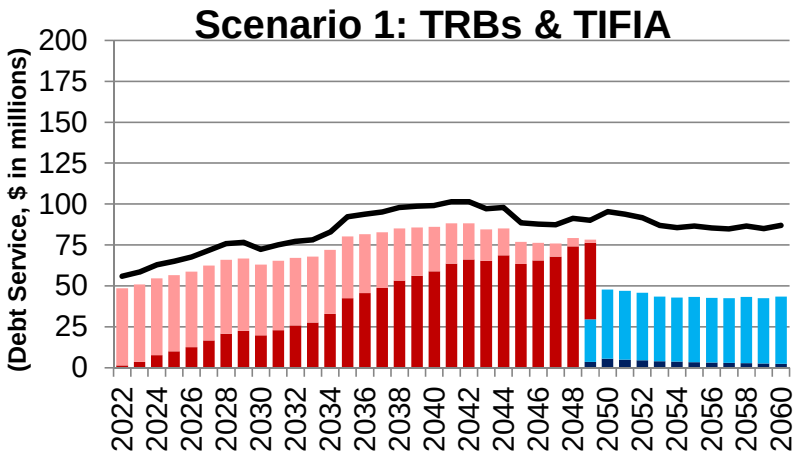
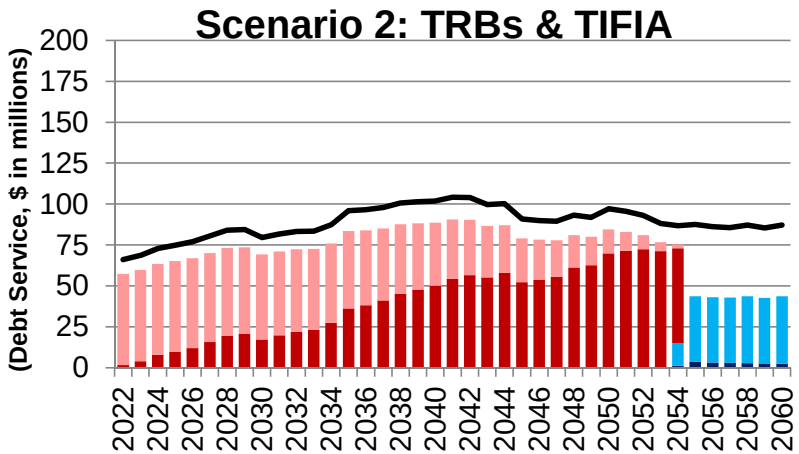
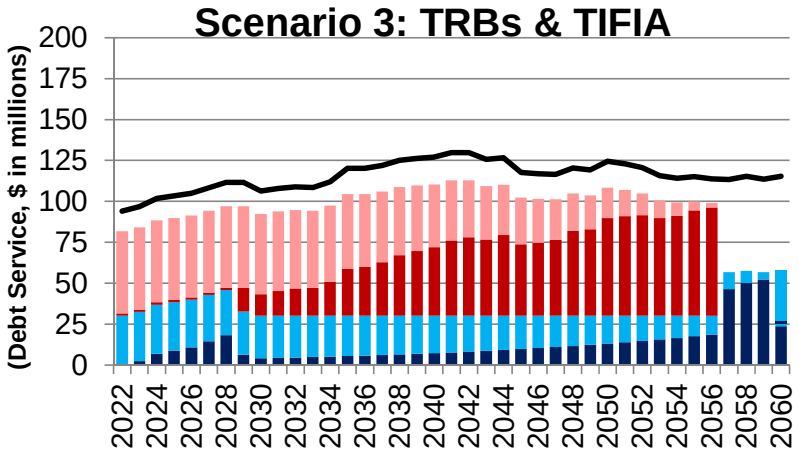
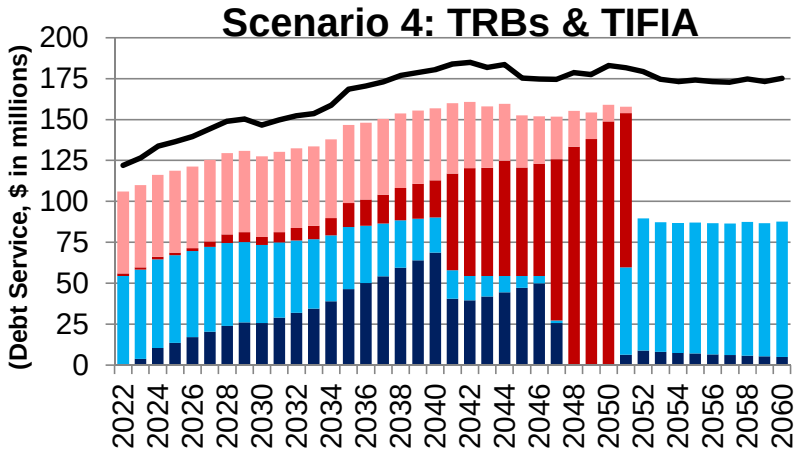
Exhibit 2 – Net Toll Revenues and Debt Service

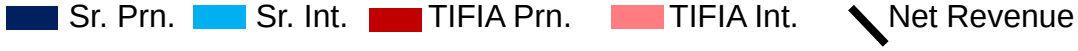



Scenario 1: TRBs & TIFIA
(Debt Service, $ in millions)
200
175
150
125
100
75
50
25
0
2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046 2048 2050 2052 2054 2056 2058 2060


Scenario 2: TRBs & TIFIA
(Debt Service, $ in millions)
200
175
150
125
100
75
50
25
0
2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046 2048 2050 2052 2054 2056 2058 2060


Scenario 3: TRBs & TIFIA
(Debt Service, $ in millions)
200
175
150
125
100
75
50
25
0
2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046 2048 2050 2052 2054 2056 2058 2060


Scenario 4: TRBs & TIFIA
(Debt Service, $ in millions)
200
175
150
125
100
75
50
25
0
2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046 2048 2050 2052 2054 2056 2058 2060


Sr. Prn.
Sr. Int.
TIFIA Prn.
TIFIA Int.
Net Revenue