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Ref: **Sketch Level T&R Forecast**

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Project

Stantec is under contract to the Port of Hood River to complete a sketch-level Traffic and Revenue (T&R) Analysis for the Hood River-White Salmon Interstate Bridge (the “Bridge”). Our analysis forecasts T&R for a 32-year period from FY2019 through FY2050. T&R forecasts have been developed for the following five scenarios:

Table 1: Basic Assumptions for the Scenarios Analyzed

Scenario	Assumption
1	No replacement Bridge; toll collection continues using cash and BreezeBy; no toll rate modifications.
2	A replacement Bridge opens in FY2025; toll collection continues using cash and BreezeBy; no toll rate modifications.
3	A replacement Bridge opens in FY2025; All Electronic Toll Collection (AET) starts in FY2025; image-based toll rate will be equal to the cash rate; no toll rate modifications.
4	A replacement Bridge opens in FY2025; All Electronic Toll Collection (AET) starts in FY2025; image-based toll rate will be equal to the cash rate; a 100 percent toll increase is applied upon replacement Bridge opening in FY2025.
5	A replacement Bridge opens in FY2025; All Electronic Toll Collection (AET) starts in FY2025; image-based toll rate will be equal to the cash rate; a 100 percent toll increase is applied upon replacement Bridge opening in FY2025; an inflation of 2 percent per year is applied to all forecast years after FY2025.

The Hood River – White Salmon Bridge

The Bridge is a vital Columbia River crossing connecting Hood River, Oregon with the communities of White Salmon and Bingen in Washington State. The Bridge connects I-84 in Oregon with SR-14 in Washington and is approximately one mile long with narrow 9-foot 4-inch travel lanes. The Bridge has a Total Gross Weight Limit of 80,000 lbs., and a single axle limit of 20,000 lbs. Tolls are

collected in both directions at a toll plaza located on the south side (Oregon) of the Bridge. Tolls may be paid by either cash or BreezeBy, which is a transponder-based toll collection method that does not require interaction with toll collection staff and is provided for in BreezeBy-only toll lanes on the right side of the toll plaza. Figure 1 shows the Bridge's location.

Figure 1 – Aerial Image of Hood River Bridge



Regional Bridge Crossings

For our toll traffic modeling and T&R analyses, we took into consideration two other neighboring bridges that cross the Columbia River and also connect I-84 in Oregon with SR-14 in Washington. All three bridges are shown in Figure 2. The Bridge of the Gods, located about 22 miles to the west of the Bridge, is also a toll bridge and currently only accepts cash at the same rate as the Bridge. The Dalles Bridge, located 24 miles to the east of the Bridge, is a toll-free bridge.

Figure 2 – Hood River Bridge and Neighboring Bridges



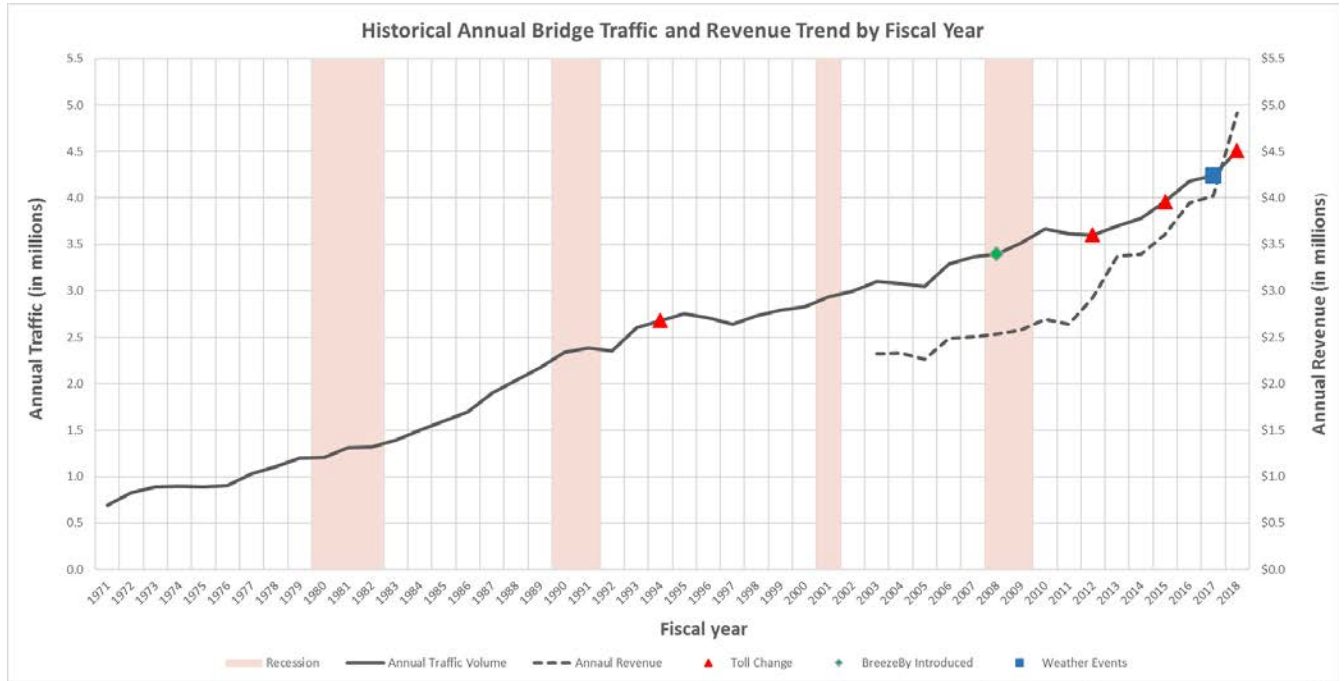
Data Collection and Analyses

Data were collected and analyzed for the purposes of this study, and included historical Bridge traffic and revenues, existing traffic in the project corridor, travel times, and heavy-truck and passenger car observations.

Historical Bridge Traffic

Figure 3 shows the historical total traffic for the Hood River Bridge. For the past 50 years, traffic has overall grown steadily. As can be seen in the graphic, there have been periods of decline during the recessions of 1980-82, 1990-91, 2001 and 2008-09.

Figure 3 – Historic Annual Bridge Traffic and Revenue by Fiscal Year



Existing Traffic in the Project Corridor

The traffic data for this study was collected from publicly available Oregon and Washington state DOT's GIS databases. The data collected included the Average Annual Daily Traffic (AADT) mainly on the three bridges – Bridge of the Gods, Hood River Bridge and The Dalles Bridge, that was required to develop the base year model. In addition, AADT counts were also collected for a few key locations along the Columbia River to evaluate the base model for reasonableness. Figure 4 summarizes the available traffic volume data.

Figure 5 – Truck Traffic Observation Locations, November 14, 2018



Location 1 in Bingen, WA is the site of a plywood manufacturing facility that had significant heavy, logging truck traffic going in and out of the facility. We completed some route tracing and estimated that majority of these trucks arrived from SR 142 in Lyle and, therefore, would not be considered a market for the replacement Bridge for this sketch-level analysis. At Locations 1 and 2, there was some heavy-truck traffic in the east-west direction, which may be traveling to and from the Dallas Bridge and, therefore, could be considered truck traffic that could potentially shift to the replacement Bridge.

At Locations 3 and 4, there was some truck activity utilizing the Dalles Bridge. Based on the observations and the estimated travel times of differing routes, it is expected that there may be some additional heavy-truck traffic that could utilize the replacement Bridge instead of the Dalles Bridge. It is our understanding that some of the heavy-truck traffic are seasonal and may be related to the specific products being produced in the industrial facilities on both sides. An analysis of the seasonal movements is outside of the scope for this effort.

In-field Observations of Passenger Car Traffic

Field observations by Stantec staff suggest that a substantial portion of the total Bridge passenger car traffic is “local” to the Bridge and exhibits characteristics of commuter traffic. Traffic is also

seasonal, with higher volumes of cash-paying traffic occurring during the summer months. Much of that additional summer cash-paying traffic could be considered less-frequent than the BreezeBy traffic. This less-frequent travel was taken into consideration in our AET analysis.

Traffic and Revenue Analysis Models

Baseline Model

Stantec adopted a static spreadsheet-based approach to model the traffic behavior of the study area, which included the Hood River Bridge and its competing bridges, the Bridge of the Gods and the Dalles Bridge. The study area was divided into six major zones that represented the areas on either side of the river most accessible/served by each bridge, as shown in Figure 6. The traffic travelling between the zones was modeled based on the parameters of travel time, distance and toll cost in each direction. The average distance and travel time between each pair of zones was determined from Google Maps, measured between common decision points within each zone.

Additionally, annual average daily traffic (AADT) data was collected from ODOT and WSDOT's GIS databases at key locations along the Columbia River to support our base year modeling effort. For each origin-destination zone pair, the percentage of total traffic that could use each of the three available bridge options was determined based on the route-choice parameters. We performed an iterative network balancing process to assign trips to the various OD pairs. The network was considered balanced when the modeled results matched well the existing traffic counts for each bridge, as well as at key points on I-84 and SR 14.

Figure 6 – Modeled Traffic Analysis Origin and Destination Travel Zones



Toll Rate Modification Diversion

Were the toll rate for the Bridge to increase, most Bridge customers are expected to continue using the Bridge, based on historical data. However, a small portion of customers may shift to an alternate route in response to any toll rate increase. For this study, Stantec assumed an elasticity factor of -7.4 percent; that is, the Bridge would lose approximately 7.4 percent of its traffic if the toll rate were to be increased by 100 percent. This elasticity assumption is consistent with those adopted for other comparable toll bridge studies conducted by Stantec in different parts of the country with similar project corridors and travel characteristics.

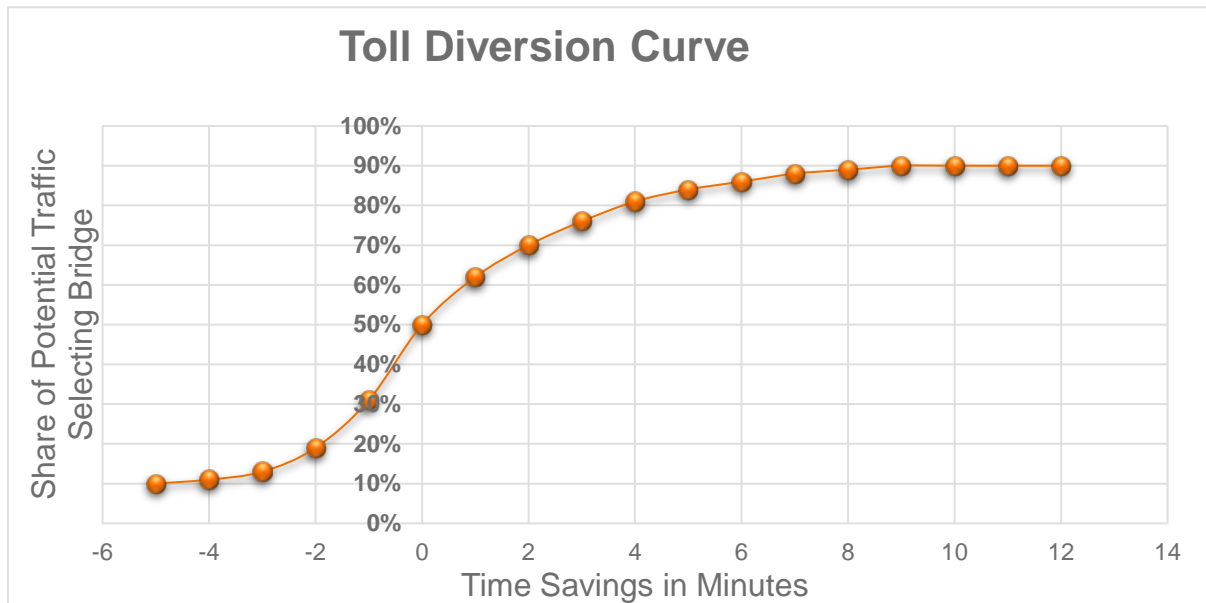
Replacement Bridge Capacity Improvement

The replacement Bridge is expected to provide safety and travel time improvements for traffic utilizing the replacement Bridge. Wider travel lanes and shoulders as well as improvements at each terminus will reduce the total travel time for any trip on the replacement Bridge. These improvements are expected to induce additional traffic to the Bridge.

Using our baseline traffic model and our experience with other crossings, we developed a toll diversion curve that would adjust traffic based on the anticipated savings in travel time. As shown in Figure 7, the horizontal axis reflects the time savings using the Bridge and the vertical axis indicates the share of the potential trips to the Bridge that would choose the Bridge. As an example, for 5 minutes (x-axis) in time savings at the current toll rate, our model assigns approximately 82 percent (y-axis) of all potential trips to the Bridge.

Experience also indicates that for any toll facility, there would be a segment of the potential customers that would *never* select the toll facility, and another segment that would *always* select the toll facility. In each case, based on our experience, we assumed 10 percent of total potential trips in each of these categories.

Figure 7 – Toll Diversion Curve



Traffic and Revenue Forecasts

This section discusses the traffic and revenue forecasts developed for the five scenarios (see Table 1 for details). For each of these scenarios:

- the percentage share of passenger cars and trucks remains unchanged over the forecast period
- the percent share of passenger cars and trucks that pay by BreezeBy is assumed to grow gradually over the forecast period
- the Bridge's annual traffic growth rate of 2.5 percent per year for the first few forecast years is calculated as the compounded annual growth rate for the prior fifteen-year period between FY2003 and FY2018
- the Bridge's annual traffic growth is then assumed to slow down over the course of the forecast period, stabilizing at 1 percent per year beginning in 2034 and continuing through to 2050
- for scenarios with AET, only the additional operations and maintenance costs incurred due to change in toll collection method are included in the forecasts

It should be noted that each of the scenarios modeled in this study is intended to demonstrate the impact of a stand-alone change caused by re-construction, AET, toll-rate modification, and potential toll policy to the traffic and revenue of the Bridge. The sketch-level modeling approach used for this study produces a reasonable estimate of T&R based on some generalized assumptions. A more

detailed data collection effort and policy specific analyses should be included as part of subsequent studies if debt financing continues to be an option for this project.

Scenario 1 – “As-is”, No-Build Scenario

The no-build scenario assumes the existing Bridge conditions continue through to the end of the forecast period:

- No replacement Bridge,
- toll collection continues using cash and BreezeBy, and
- no toll rate modifications.

Table 2 shows the traffic and revenue forecasts for Scenario 1. It may be seen that the annual traffic is forecasted to grow from approximately 4.6 million in FY2019 to 7.0 million in FY 2050, while the revenues are forecasted to increase from approximately \$6.4 million to \$9.0 million.

Table 2: Annual Traffic and Revenue Forecast, Scenario 1, 2015 – 2050

Traffic and Revenue Forecast - No Build										
Fiscal Year	Traffic Share		BreezeBy Share		Average Toll	YoY Growth	Annual Traffic (in millions)	Annual Revenue (in millions)	Net Change in O&M (in millions)	Adjusted Annual Revenue (in millions)
	Car	Truck	Car	Truck						
2015					\$0.91		4.0	\$3.6	\$ -	\$3.6
2016					\$0.94	5.57%	4.2	\$4.0	\$ -	\$4.0
2017					\$0.95	1.50%	4.2	\$4.0	\$ -	\$4.0
2018					\$1.09	6.10%	4.5	\$4.9	\$ -	\$4.9
2019	97.5%	2.5%	75.0%	80.0%	\$1.39	2.50%	4.6	\$6.4	\$ -	\$6.4
2020	97.5%	2.5%	75.5%	80.5%	\$1.38	2.50%	4.7	\$6.5	\$ -	\$6.5
2021	97.5%	2.5%	75.9%	80.9%	\$1.38	2.50%	4.8	\$6.7	\$ -	\$6.7
2022	97.5%	2.5%	76.4%	81.4%	\$1.37	2.50%	5.0	\$6.8	\$ -	\$6.8
2023	97.5%	2.5%	76.8%	81.8%	\$1.37	2.25%	5.1	\$7.0	\$ -	\$7.0
2024	97.5%	2.5%	77.3%	82.3%	\$1.37	2.00%	5.2	\$7.1	\$ -	\$7.1
2025	97.5%	2.5%	77.7%	82.7%	\$1.36	1.75%	5.3	\$7.2	\$ -	\$7.2
2026	97.5%	2.5%	78.2%	83.2%	\$1.36	1.75%	5.4	\$7.3	\$ -	\$7.3
2027	97.5%	2.5%	78.6%	83.6%	\$1.35	1.75%	5.5	\$7.4	\$ -	\$7.4
2028	97.5%	2.5%	79.1%	84.1%	\$1.35	1.50%	5.5	\$7.5	\$ -	\$7.5
2029	97.5%	2.5%	79.5%	84.5%	\$1.34	1.25%	5.6	\$7.5	\$ -	\$7.5
2030	97.5%	2.5%	80.0%	85.0%	\$1.34	1.25%	5.7	\$7.6	\$ -	\$7.6
2031	97.5%	2.5%	80.3%	85.3%	\$1.33	1.25%	5.8	\$7.7	\$ -	\$7.7
2032	97.5%	2.5%	80.5%	85.5%	\$1.33	1.25%	5.8	\$7.8	\$ -	\$7.8
2033	97.5%	2.5%	80.8%	85.8%	\$1.33	1.25%	5.9	\$7.8	\$ -	\$7.8
2034	97.5%	2.5%	81.0%	86.0%	\$1.33	1.00%	6.0	\$7.9	\$ -	\$7.9
2035	97.5%	2.5%	81.3%	86.3%	\$1.32	1.00%	6.0	\$8.0	\$ -	\$8.0
2036	97.5%	2.5%	81.5%	86.5%	\$1.32	1.00%	6.1	\$8.0	\$ -	\$8.0
2037	97.5%	2.5%	81.8%	86.8%	\$1.32	1.00%	6.1	\$8.1	\$ -	\$8.1
2038	97.5%	2.5%	82.0%	87.0%	\$1.32	1.00%	6.2	\$8.2	\$ -	\$8.2
2039	97.5%	2.5%	82.3%	87.3%	\$1.31	1.00%	6.3	\$8.2	\$ -	\$8.2
2040	97.5%	2.5%	82.5%	87.5%	\$1.31	1.00%	6.3	\$8.3	\$ -	\$8.3
2041	97.5%	2.5%	82.8%	87.8%	\$1.31	1.00%	6.4	\$8.3	\$ -	\$8.3
2042	97.5%	2.5%	83.0%	88.0%	\$1.31	1.00%	6.4	\$8.4	\$ -	\$8.4
2043	97.5%	2.5%	83.3%	88.3%	\$1.30	1.00%	6.5	\$8.5	\$ -	\$8.5
2044	97.5%	2.5%	83.5%	88.5%	\$1.30	1.00%	6.6	\$8.6	\$ -	\$8.6
2045	97.5%	2.5%	83.8%	88.8%	\$1.30	1.00%	6.6	\$8.6	\$ -	\$8.6
2046	97.5%	2.5%	84.0%	89.0%	\$1.29	1.00%	6.7	\$8.7	\$ -	\$8.7
2047	97.5%	2.5%	84.3%	89.3%	\$1.29	1.00%	6.8	\$8.8	\$ -	\$8.8
2048	97.5%	2.5%	84.5%	89.5%	\$1.29	1.00%	6.8	\$8.8	\$ -	\$8.8
2049	97.5%	2.5%	84.8%	89.8%	\$1.29	1.00%	6.9	\$8.9	\$ -	\$8.9
2050	97.5%	2.5%	85.0%	90.0%	\$1.28	1.00%	7.0	\$9.0	\$ -	\$9.0

observed annual growth

Scenario 2 – Replacement Bridge Opens 2025, no AET

Scenario 2 assumes:

- A replacement Bridge opens in FY2025,
- toll collection continues using cash and BreezeBy, and
- no toll rate modifications.

Scenario 2 assumes the replacement Bridge is open in FY2025, but toll collection continues by cash and BreezeBy payment methods. Toll rates remain unchanged from FY2019 through FY2050. Table 3 shows the traffic and revenue forecast for Scenario 2. The annual traffic is forecasted to continue to grow gradually from FY2019 through FY2024. When the replacement Bridge opens in FY2025, the annual traffic increases in one year by approximately 600,000 vehicles annually over prior year in response to the higher capacity and travel speed on the replacement Bridge. A corresponding increase in revenue is also forecast in FY2025 over the previous year.

Table 3: Annual Traffic and Revenue Forecast, Scenario 2, 2015 – 2050

Traffic and Revenue Forecast - New Bridge Open without AET										
Fiscal Year	Traffic Share		BreezeBy Share		Average Toll	YoY Growth	Annual Traffic (in millions)	Annual Revenue (in millions)	Net Change in O&M (in millions)	Adjusted Annual Revenue (in millions)
	Car	Truck	Car	Truck						
2015					\$0.91		4.0	\$3.6	\$ -	\$3.6
2016					\$0.94	5.57%	4.2	\$4.0	\$ -	\$4.0
2017					\$0.95	1.50%	4.2	\$4.0	\$ -	\$4.0
2018					\$1.09	6.10%	4.5	\$4.9	\$ -	\$4.9
2019	97.5%	2.5%	75.0%	80.0%	\$1.39	2.50%	4.6	\$6.4	\$ -	\$6.4
2020	97.5%	2.5%	75.5%	80.5%	\$1.38	2.50%	4.7	\$6.5	\$ -	\$6.5
2021	97.5%	2.5%	75.9%	80.9%	\$1.38	2.50%	4.8	\$6.7	\$ -	\$6.7
2022	97.5%	2.5%	76.4%	81.4%	\$1.37	2.50%	5.0	\$6.8	\$ -	\$6.8
2023	97.5%	2.5%	76.8%	81.8%	\$1.37	2.25%	5.1	\$7.0	\$ -	\$7.0
2024	97.5%	2.5%	77.3%	82.3%	\$1.37	2.00%	5.2	\$7.1	\$ -	\$7.1
2025	97.5%	2.5%	77.7%	82.7%	\$1.36	1.75%	5.8	\$7.9	\$ -	\$7.9
2026	97.5%	2.5%	78.2%	83.2%	\$1.36	1.75%	5.9	\$8.0	\$ -	\$8.0
2027	97.5%	2.5%	78.6%	83.6%	\$1.35	1.75%	6.0	\$8.1	\$ -	\$8.1
2028	97.5%	2.5%	79.1%	84.1%	\$1.35	1.50%	6.1	\$8.2	\$ -	\$8.2
2029	97.5%	2.5%	79.5%	84.5%	\$1.34	1.25%	6.2	\$8.3	\$ -	\$8.3
2030	97.5%	2.5%	80.0%	85.0%	\$1.34	1.25%	6.3	\$8.4	\$ -	\$8.4
2031	97.5%	2.5%	80.3%	85.3%	\$1.33	1.25%	6.3	\$8.5	\$ -	\$8.5
2032	97.5%	2.5%	80.5%	85.5%	\$1.33	1.25%	6.4	\$8.5	\$ -	\$8.5
2033	97.5%	2.5%	80.8%	85.8%	\$1.33	1.25%	6.5	\$8.6	\$ -	\$8.6
2034	97.5%	2.5%	81.0%	86.0%	\$1.33	1.00%	6.6	\$8.7	\$ -	\$8.7
2035	97.5%	2.5%	81.3%	86.3%	\$1.32	1.00%	6.6	\$8.8	\$ -	\$8.8
2036	97.5%	2.5%	81.5%	86.5%	\$1.32	1.00%	6.7	\$8.8	\$ -	\$8.8
2037	97.5%	2.5%	81.8%	86.8%	\$1.32	1.00%	6.8	\$8.9	\$ -	\$8.9
2038	97.5%	2.5%	82.0%	87.0%	\$1.32	1.00%	6.8	\$9.0	\$ -	\$9.0
2039	97.5%	2.5%	82.3%	87.3%	\$1.31	1.00%	6.9	\$9.1	\$ -	\$9.1
2040	97.5%	2.5%	82.5%	87.5%	\$1.31	1.00%	7.0	\$9.1	\$ -	\$9.1
2041	97.5%	2.5%	82.8%	87.8%	\$1.31	1.00%	7.0	\$9.2	\$ -	\$9.2
2042	97.5%	2.5%	83.0%	88.0%	\$1.31	1.00%	7.1	\$9.3	\$ -	\$9.3
2043	97.5%	2.5%	83.3%	88.3%	\$1.30	1.00%	7.2	\$9.3	\$ -	\$9.3
2044	97.5%	2.5%	83.5%	88.5%	\$1.30	1.00%	7.2	\$9.4	\$ -	\$9.4
2045	97.5%	2.5%	83.8%	88.8%	\$1.30	1.00%	7.3	\$9.5	\$ -	\$9.5
2046	97.5%	2.5%	84.0%	89.0%	\$1.29	1.00%	7.4	\$9.6	\$ -	\$9.6
2047	97.5%	2.5%	84.3%	89.3%	\$1.29	1.00%	7.5	\$9.6	\$ -	\$9.6
2048	97.5%	2.5%	84.5%	89.5%	\$1.29	1.00%	7.5	\$9.7	\$ -	\$9.7
2049	97.5%	2.5%	84.8%	89.8%	\$1.29	1.00%	7.6	\$9.8	\$ -	\$9.8
2050	97.5%	2.5%	85.0%	90.0%	\$1.28	1.00%	7.7	\$9.9	\$ -	\$9.9

observed annual growth

Incremental AET Impacts on Toll Collection Costs

For Scenarios 3 and 4, wherein All Electronic Tolling (AET) is assumed to be in place with the opening of the replacement Bridge in FY2025, Stantec estimated the incremental impacts of AET on the toll collection costs for the Bridge that include back office video toll processing costs, invoice mailing costs, credit card fees, staffing adjustments and software maintenance costs, postage, and banking fees. Table 4 shows the incremental costs incurred in a single year under Scenarios 3, 4 and 5 when the bridge opens in FY2025.

Using toll collection cost assumptions based on industry standards and our traffic and revenue forecasts, we have estimated that AET will have a net incremental impact on toll collection costs of approximately \$325,000 in FY2025 under Scenario 3 and approximately \$323,000 under Scenario 4 and Scenario 5 conditions. The costs for each year of the forecast term are included with T&R forecasts of Scenarios 3 and 4. Our toll collection cost estimates are based on the following general assumptions:

- Annual cost escalation of 2.0 percent
- No incremental BreezeBy costs due to AET
- Manual image review processing costs of \$0.20 per image set
- Video toll invoice handling and mailing cost of \$1.00 per notice
- Average of 3.5 video toll transactions per notice
- Out-of-state DMV Cost of \$0.90 per lookup (assume no cost for OR and WA DMV lookups)
- Credit card processing fees of 3.0 percent
- 33 percent of all images will be manually reviewed
- 50 percent of video toll customers will be from regions other than OR and WA
- Net total toll collection staff reduction of 6 FTEs (assume 1 additional FTE needed after 15 years of AET operation)
- Incremental annual toll collection software maintenance costs of \$25,000 (\$ FY2019)
- Unable to properly send an invoice to 18 percent of video customers (due to non-usable images, business rules out, invalid DMV records, bad addresses)
- Unable to collect video toll payments from 25 percent of notices issued (after 3 rounds of invoicing)
- Unable to collect video toll payments from 40 percent of all video toll transactions

Table 4: Estimates of Incremental AET Toll Collection Costs, Scenarios 3, 4 and 5

Scenario	Incremental AET Tolling O&M Cost Estimates							
	Fiscal Year	Image Review	DMV Lookup	Invoice Mailing	Credit Card Processing	Staffing Adjustment	Software Maintenance	Total
Scenario 3	2025	\$53,000	\$103,000	\$422,000	\$49,600	-\$331,000	\$28,000	\$325,000
Scenario 4	2025	\$49,000	\$95,000	\$390,000	\$91,900	-\$331,000	\$28,000	\$323,000
Scenario 5	2025	\$49,000	\$95,000	\$390,000	\$91,900	-\$331,000	\$28,000	\$323,000

Scenario 3 - Replacement Bridge Opens 2025, Plus AET

Scenario 3 assumes:

- A replacement Bridge opens in FY2025,
- All Electronic Toll Collection (AET) starts in FY2025,
- image-based toll rate will be equal to the cash rate, and
- no toll rate modifications.

Scenario 3 assumes that the replacement Bridge is opened in FY2025 while transitioning to an All Electronic Tolling system. This scenario does not assume any toll increases over the forecast period. The T&R forecast is shown in Table 5. Like Scenario 2, the annual traffic grows significantly in FY2025 in response to the time-savings offered by the replacement Bridge.

However, the revenue drops over the prior year by approximately \$0.3 million. This loss in revenue is because when toll-collection shifts to the AET method, revenue may not be collected from a portion of non-transponder customers due to various reasons, including failure to read images, unregistered vehicles, invalid address, etc. This study assumes that only about 60 percent of the total video transactions are actually collectable; this causes an estimated drop in the revenue from video-based customers. Additionally, moving to an AET system would incur additional operation and maintenance costs as described in the previous section. The adjusted annual revenues in Table 5 show the net revenue forecasted for Scenario 3.

Table 5: Annual Traffic and Revenue Forecast, Scenario 3, 2015 – 2050

Traffic and Revenue Forecast - New Bridge Opening with AET										
Fiscal Year	Traffic Share		BreezeBy Share		Average Toll	YoY Growth	Annual Traffic (in millions)	Annual Revenue (in millions)	Net Change in O&M (in millions)	Adjusted Annual Revenue (in millions)
	Car	Truck	Car	Truck						
2015					\$0.91		4.0	\$3.6		\$3.6
2016					\$0.94	5.57%	4.2	\$4.0		\$4.0
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2018					\$1.09	6.10%	4.5	\$4.9		\$4.9
2019	97.5%	2.5%	75.0%	80.0%	\$1.39	2.50%	4.6	\$6.4	\$0.0	\$6.4
2020	97.5%	2.5%	75.5%	80.5%	\$1.38	2.50%	4.7	\$6.5	\$0.0	\$6.5
2021	97.5%	2.5%	75.9%	80.9%	\$1.38	2.50%	4.8	\$6.7	\$0.0	\$6.7
2022	97.5%	2.5%	76.4%	81.4%	\$1.37	2.50%	5.0	\$6.8	\$0.0	\$6.8
2023	97.5%	2.5%	76.8%	81.8%	\$1.37	2.25%	5.1	\$7.0	\$0.0	\$7.0
2024	97.5%	2.5%	77.3%	82.3%	\$1.37	2.00%	5.2	\$7.1	\$0.0	\$7.1
2025	97.5%	2.5%	77.7%	82.7%	\$1.17	1.75%	5.8	\$6.8	-\$0.3	\$6.5
2026	97.5%	2.5%	78.2%	83.2%	\$1.17	1.75%	5.9	\$6.9	-\$0.3	\$6.6
2027	97.5%	2.5%	78.6%	83.6%	\$1.17	1.75%	6.0	\$7.0	-\$0.3	\$6.7
2028	97.5%	2.5%	79.1%	84.1%	\$1.17	1.50%	6.1	\$7.1	-\$0.3	\$6.8
2029	97.5%	2.5%	79.5%	84.5%	\$1.17	1.25%	6.2	\$7.2	-\$0.3	\$6.9
2030	97.5%	2.5%	80.0%	85.0%	\$1.17	1.25%	6.3	\$7.3	-\$0.3	\$7.0
2031	97.5%	2.5%	80.3%	85.3%	\$1.17	1.25%	6.3	\$7.4	-\$0.3	\$7.1
2032	97.5%	2.5%	80.5%	85.5%	\$1.17	1.25%	6.4	\$7.5	-\$0.3	\$7.2
2033	97.5%	2.5%	80.8%	85.8%	\$1.17	1.25%	6.5	\$7.6	-\$0.3	\$7.3
2034	97.5%	2.5%	81.0%	86.0%	\$1.16	1.00%	6.6	\$7.6	-\$0.4	\$7.2
2035	97.5%	2.5%	81.3%	86.3%	\$1.16	1.00%	6.6	\$7.7	-\$0.4	\$7.3
2036	97.5%	2.5%	81.5%	86.5%	\$1.16	1.00%	6.7	\$7.8	-\$0.4	\$7.4
2037	97.5%	2.5%	81.8%	86.8%	\$1.16	1.00%	6.8	\$7.9	-\$0.4	\$7.5
2038	97.5%	2.5%	82.0%	87.0%	\$1.16	1.00%	6.8	\$7.9	-\$0.4	\$7.5
2039	97.5%	2.5%	82.3%	87.3%	\$1.16	1.00%	6.9	\$8.0	-\$0.4	\$7.6
2040	97.5%	2.5%	82.5%	87.5%	\$1.16	1.00%	7.0	\$8.1	-\$0.4	\$7.7
2041	97.5%	2.5%	82.8%	87.8%	\$1.16	1.00%	7.0	\$8.2	-\$0.4	\$7.8
2042	97.5%	2.5%	83.0%	88.0%	\$1.16	1.00%	7.1	\$8.2	-\$0.4	\$7.8
2043	97.5%	2.5%	83.3%	88.3%	\$1.16	1.00%	7.2	\$8.3	-\$0.5	\$7.8
2044	97.5%	2.5%	83.5%	88.5%	\$1.16	1.00%	7.2	\$8.4	-\$0.5	\$7.9
2045	97.5%	2.5%	83.8%	88.8%	\$1.16	1.00%	7.3	\$8.5	-\$0.5	\$8.0
2046	97.5%	2.5%	84.0%	89.0%	\$1.16	1.00%	7.4	\$8.6	-\$0.5	\$8.1
2047	97.5%	2.5%	84.3%	89.3%	\$1.16	1.00%	7.5	\$8.7	-\$0.5	\$8.2
2048	97.5%	2.5%	84.5%	89.5%	\$1.16	1.00%	7.5	\$8.7	-\$0.5	\$8.2
2049	97.5%	2.5%	84.8%	89.8%	\$1.16	1.00%	7.6	\$8.8	-\$0.5	\$8.3
2050	97.5%	2.5%	85.0%	90.0%	\$1.16	1.00%	7.7	\$8.9	-\$0.5	\$8.4

observed annual growth

Scenario 4 - Replacement Bridge Opens 2025, Plus AET and 100 Percent Toll Increase

Scenario 4 assumes:

- A replacement Bridge opens in FY2025,
- All Electronic Toll Collection (AET) starts in FY2025,
- image-based toll rate will be equal to the cash rate, and
- a 100 percent toll increase is applied upon replacement Bridge opening in FY2025.

Like Scenario 3, Scenario 4 assumes that the replacement Bridge is opened in FY2025 while transitioning to an All Electronic Tolling system. Scenario 4, however, assumes a 100 percent toll increase applied uniformly across all payment and vehicle types upon replacement Bridge opening in FY2025. The T&R forecast for Scenario 4 is shown in Table 6. While the time savings offered by the replacement Bridge would attract traffic in FY2025, the increased toll rates would cause some traffic loss. The combined effect of the replacement Bridge opening and the toll rate increase is an increase in traffic by approximately 200,000 vehicles annually (as compared to the 600,000 increase of Scenario 3).

The resulting revenues, however, are forecast to nearly double over the prior year, increasing from approximately \$7.1 million in FY2024 to \$12.6 million when the replacement Bridge opens. The significant increase in revenue is a direct result of increased traffic due to time savings coupled with the higher toll rate. Similar to Scenario 3, the introduction of an AET collection system results in additional O&M costs. The adjusted annual revenues in Table 6 show the net revenue forecasted for Scenario 4.

Scenario 5 - Replacement Bridge Opens 2025, Plus AET, 100 Percent Toll Increase and Inflation

Scenario 5 assumes:

- A replacement Bridge opens in FY2025,
- All Electronic Toll Collection (AET) starts in FY2025,
- image-based toll rate will be equal to the cash rate,
- a 100 percent toll increase is applied upon replacement Bridge opening in FY2025, and
- an annual inflation rate of 2 percent beginning FY2026.

Like Scenario 4, Scenario 5 assumes that the replacement Bridge is opened in FY2025 while the toll collection system transitions to AET. It also assumes a 100 percent toll increase for all payment types and vehicle types using the new Bridge upon opening in FY2025. In addition, Scenario 5 assumes a 2 percent annual inflation rate after the bridge opening year FY2025. It is assumed that toll rates increase by 2 percent each year after the Bridge opens. Table 7 presents the T&R forecast for Scenario 5.

Table 6: Annual Traffic and Revenue Forecast, Scenario 4, 2015 – 2050

Traffic and Revenue Forecast - New Bridge Opening with AET and Toll Increase										
Fiscal Year	Traffic Share		BreezeBy Share		Average Toll	YoY Growth	Annual Traffic (in millions)	Annual Revenue (in millions)	Net Change in O&M (in millions)	Adjusted Annual Revenue (in millions)
	Car	Truck	Car	Truck						
2015					\$0.91		4.0	\$3.6		\$3.6
2016					\$0.94	5.57%	4.2	\$4.0		\$4.0
2017					\$0.95	1.50%	4.2	\$4.0		\$4.0
2018					\$1.09	6.10%	4.5	\$4.9		\$4.9
2019	97.5%	2.5%	75.0%	80.0%	\$1.39	2.50%	4.6	\$6.4	\$0.0	\$6.4
2020	97.5%	2.5%	75.5%	80.5%	\$1.38	2.50%	4.7	\$6.5	\$0.0	\$6.5
2021	97.5%	2.5%	75.9%	80.9%	\$1.38	2.50%	4.8	\$6.7	\$0.0	\$6.7
2022	97.5%	2.5%	76.4%	81.4%	\$1.37	2.50%	5.0	\$6.8	\$0.0	\$6.8
2023	97.5%	2.5%	76.8%	81.8%	\$1.37	2.25%	5.1	\$7.0	\$0.0	\$7.0
2024	97.5%	2.5%	77.3%	82.3%	\$1.37	2.00%	5.2	\$7.1	\$0.0	\$7.1
2025	97.5%	2.5%	77.7%	82.7%	\$2.34	1.75%	5.4	\$12.6	-\$0.3	\$12.3
2026	97.5%	2.5%	78.2%	83.2%	\$2.34	1.75%	5.5	\$12.8	-\$0.3	\$12.5
2027	97.5%	2.5%	78.6%	83.6%	\$2.34	1.75%	5.6	\$13.0	-\$0.3	\$12.7
2028	97.5%	2.5%	79.1%	84.1%	\$2.34	1.50%	5.7	\$13.2	-\$0.3	\$12.9
2029	97.5%	2.5%	79.5%	84.5%	\$2.33	1.25%	5.7	\$13.4	-\$0.3	\$13.1
2030	97.5%	2.5%	80.0%	85.0%	\$2.33	1.25%	5.8	\$13.5	-\$0.3	\$13.2
2031	97.5%	2.5%	80.3%	85.3%	\$2.33	1.25%	5.9	\$13.7	-\$0.3	\$13.4
2032	97.5%	2.5%	80.5%	85.5%	\$2.33	1.25%	5.9	\$13.9	-\$0.3	\$13.6
2033	97.5%	2.5%	80.8%	85.8%	\$2.33	1.25%	6.0	\$14.0	-\$0.3	\$13.7
2034	97.5%	2.5%	81.0%	86.0%	\$2.33	1.00%	6.1	\$14.2	-\$0.3	\$13.9
2035	97.5%	2.5%	81.3%	86.3%	\$2.33	1.00%	6.1	\$14.3	-\$0.3	\$14.0
2036	97.5%	2.5%	81.5%	86.5%	\$2.33	1.00%	6.2	\$14.4	-\$0.3	\$14.1
2037	97.5%	2.5%	81.8%	86.8%	\$2.33	1.00%	6.3	\$14.6	-\$0.3	\$14.3
2038	97.5%	2.5%	82.0%	87.0%	\$2.33	1.00%	6.3	\$14.7	-\$0.4	\$14.3
2039	97.5%	2.5%	82.3%	87.3%	\$2.33	1.00%	6.4	\$14.8	-\$0.4	\$14.4
2040	97.5%	2.5%	82.5%	87.5%	\$2.32	1.00%	6.4	\$15.0	-\$0.4	\$14.6
2041	97.5%	2.5%	82.8%	87.8%	\$2.32	1.00%	6.5	\$15.1	-\$0.4	\$14.7
2042	97.5%	2.5%	83.0%	88.0%	\$2.32	1.00%	6.6	\$15.3	-\$0.4	\$14.9
2043	97.5%	2.5%	83.3%	88.3%	\$2.32	1.00%	6.6	\$15.4	-\$0.4	\$15.0
2044	97.5%	2.5%	83.5%	88.5%	\$2.32	1.00%	6.7	\$15.6	-\$0.4	\$15.2
2045	97.5%	2.5%	83.8%	88.8%	\$2.32	1.00%	6.8	\$15.7	-\$0.4	\$15.3
2046	97.5%	2.5%	84.0%	89.0%	\$2.32	1.00%	6.8	\$15.9	-\$0.4	\$15.5
2047	97.5%	2.5%	84.3%	89.3%	\$2.32	1.00%	6.9	\$16.0	-\$0.5	\$15.5
2048	97.5%	2.5%	84.5%	89.5%	\$2.32	1.00%	7.0	\$16.2	-\$0.5	\$15.7
2049	97.5%	2.5%	84.8%	89.8%	\$2.32	1.00%	7.1	\$16.3	-\$0.5	\$15.8
2050	97.5%	2.5%	85.0%	90.0%	\$2.32	1.00%	7.1	\$16.5	-\$0.5	\$16.0

observed annual growth

Table 7: Annual Traffic and Revenue Forecast, Scenario 5, 2015 – 2050

Traffic and Revenue Forecast - New Bridge Opening with AET, Toll Increase and Inflation										
Fiscal Year	Traffic Share		BreezeBy Share		Average Toll	YoY Growth	Annual Traffic (in millions)	Annual Revenue (in millions)	Net Change in O&M (in millions)	Adjusted Annual Revenue (in millions)
	Car	Truck	Car	Truck						
2015					\$0.00		4.0	\$3.6		\$3.6
2016					\$0.00	0.00%	4.2	\$4.0		\$4.0
2017					\$0.00	0.00%	4.2	\$4.0		\$4.0
2018					\$1.09	6.10%	4.5	\$4.9		\$4.9
2019	97.5%	2.5%	75.0%	80.0%	\$1.39	2.50%	4.6	\$6.4	\$0.0	\$6.4
2020	97.5%	2.5%	75.5%	80.5%	\$1.38	2.50%	4.7	\$6.5	\$0.0	\$6.5
2021	97.5%	2.5%	75.9%	80.9%	\$1.38	2.50%	4.8	\$6.7	\$0.0	\$6.7
2022	97.5%	2.5%	76.4%	81.4%	\$1.37	2.50%	5.0	\$6.8	\$0.0	\$6.8
2023	97.5%	2.5%	76.8%	81.8%	\$1.37	2.25%	5.1	\$7.0	\$0.0	\$7.0
2024	97.5%	2.5%	77.3%	82.3%	\$1.37	2.00%	5.2	\$7.1	\$0.0	\$7.1
2025	97.5%	2.5%	77.7%	82.7%	\$2.34	1.75%	5.4	\$12.6	-\$0.3	\$12.3
2026	97.5%	2.5%	78.2%	83.2%	\$2.39	1.75%	5.5	\$13.0	-\$0.3	\$12.7
2027	97.5%	2.5%	78.6%	83.6%	\$2.43	1.75%	5.6	\$13.5	-\$0.3	\$13.2
2028	97.5%	2.5%	79.1%	84.1%	\$2.48	1.50%	5.6	\$14.0	-\$0.3	\$13.7
2029	97.5%	2.5%	79.5%	84.5%	\$2.53	1.25%	5.7	\$14.4	-\$0.3	\$14.1
2030	97.5%	2.5%	80.0%	85.0%	\$2.58	1.25%	5.8	\$14.8	-\$0.3	\$14.5
2031	97.5%	2.5%	80.3%	85.3%	\$2.63	1.25%	5.8	\$15.3	-\$0.3	\$15.0
2032	97.5%	2.5%	80.5%	85.5%	\$2.68	1.25%	5.9	\$15.7	-\$0.3	\$15.4
2033	97.5%	2.5%	80.8%	85.8%	\$2.73	1.25%	5.9	\$16.2	-\$0.3	\$15.9
2034	97.5%	2.5%	81.0%	86.0%	\$2.78	1.00%	6.0	\$16.7	-\$0.3	\$16.4
2035	97.5%	2.5%	81.3%	86.3%	\$2.84	1.00%	6.0	\$17.2	-\$0.4	\$16.8
2036	97.5%	2.5%	81.5%	86.5%	\$2.89	1.00%	6.1	\$17.6	-\$0.4	\$17.2
2037	97.5%	2.5%	81.8%	86.8%	\$2.95	1.00%	6.1	\$18.1	-\$0.4	\$17.7
2038	97.5%	2.5%	82.0%	87.0%	\$3.01	1.00%	6.2	\$18.7	-\$0.4	\$18.3
2039	97.5%	2.5%	82.3%	87.3%	\$3.07	1.00%	6.3	\$19.2	-\$0.4	\$18.8
2040	97.5%	2.5%	82.5%	87.5%	\$3.13	1.00%	6.3	\$19.7	-\$0.4	\$19.3
2041	97.5%	2.5%	82.8%	87.8%	\$3.19	1.00%	6.4	\$20.3	-\$0.4	\$19.9
2042	97.5%	2.5%	83.0%	88.0%	\$3.25	1.00%	6.4	\$20.9	-\$0.4	\$20.5
2043	97.5%	2.5%	83.3%	88.3%	\$3.32	1.00%	6.5	\$21.5	-\$0.5	\$21.0
2044	97.5%	2.5%	83.5%	88.5%	\$3.38	1.00%	6.5	\$22.1	-\$0.5	\$21.6
2045	97.5%	2.5%	83.8%	88.8%	\$3.45	1.00%	6.6	\$22.7	-\$0.5	\$22.2
2046	97.5%	2.5%	84.0%	89.0%	\$3.51	1.00%	6.6	\$23.3	-\$0.5	\$22.8
2047	97.5%	2.5%	84.3%	89.3%	\$3.58	1.00%	6.7	\$24.0	-\$0.5	\$23.5
2048	97.5%	2.5%	84.5%	89.5%	\$3.65	1.00%	6.7	\$24.7	-\$0.5	\$24.2
2049	97.5%	2.5%	84.8%	89.8%	\$3.73	1.00%	6.8	\$25.4	-\$0.5	\$24.9
2050	97.5%	2.5%	85.0%	90.0%	\$3.80	1.00%	6.9	\$26.1	-\$0.5	\$25.6

observed annual growth

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Similar to Scenario 4, the combined effect of increased time-savings and toll-hike in the Bridge opening year is an increase in annual traffic by approximately 200,000 vehicles in FY2025. However, the annual traffic growth after FY2025 decreases in response to the inflation which effectively increases the toll rate by 2 percent every year. As result, the annual traffic grows from 5.4 million in FY2025 to 6.9 million in FY2050 in Scenario 5, compared to 7.1 million in FY 2050 in Scenario 4.

The revenue is estimated to nearly double upon Bridge opening in FY2025, increasing from \$7.1 million in FY2024 to approximately \$12.6 million in FY2025. However, with an inflation rate of 2 percent per year applied, the annual revenue is estimated to grow significantly through the remaining forecast term, growing from \$12.6 million in FY2025 to approximately \$26.1 million in FY2050. The O&M costs associated with the AET collection system also increase. The net revenue generated under Scenario 4 is shown as the adjusted annual revenue in Table 7.

Summary of All Five Scenarios

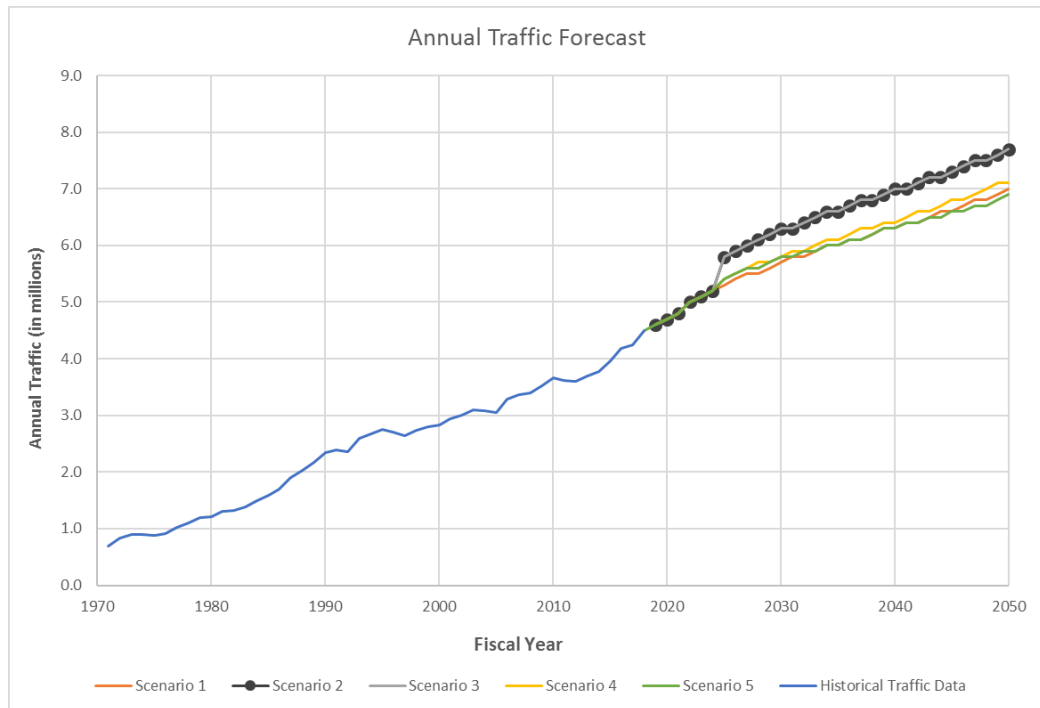


Figure 8 and

Figure 9 show a summary of the historical and forecasted traffic and revenue for all five scenarios.

Figure 8 shows the historical trend of Bridge traffic between FY1971 and FY2018, followed by Stantec’s forecast for FY2019 through FY2050. It can be seen that Stantec’s projected growth rate is consistent with the average historical traffic growth on the Bridge.

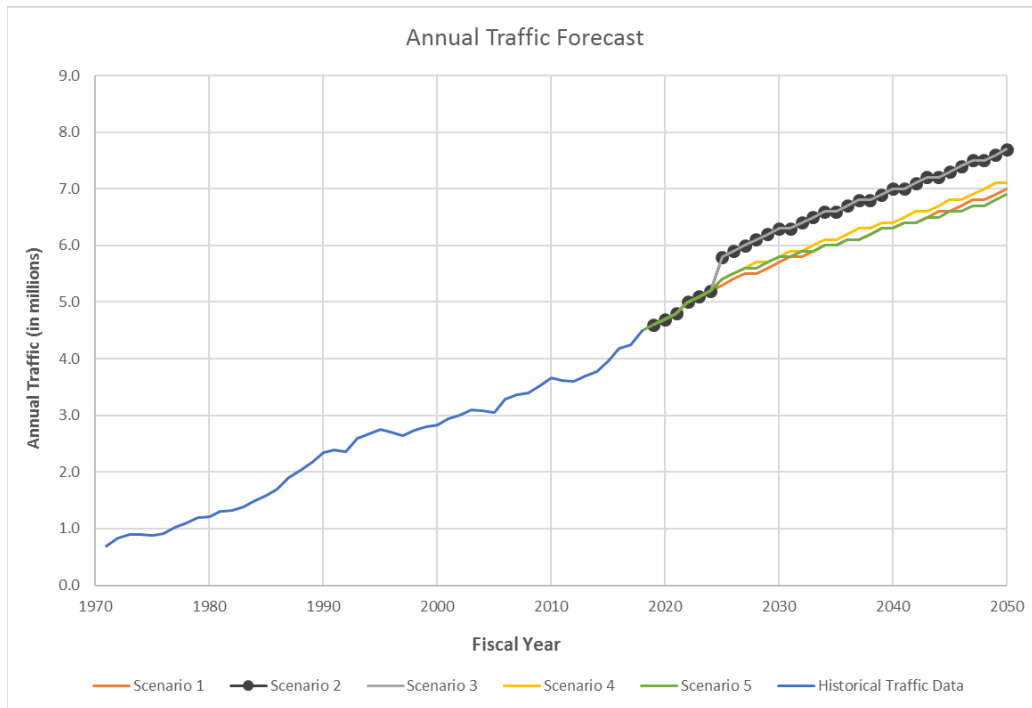


Figure 9 shows a summary of the toll revenue generated by the Bridge. The historical data from FY2003 through FY2018 indicates a generally modest growth in revenue. A growth in revenue is observed after FY2010 as a result of multiple toll rate increases. The sharp increase in revenue in FY2018 is due to a significant toll rate increase introduced in February 2018. Beginning FY2019, Stantec’s revenue forecast is based on the existing toll rates for all Scenarios except for Scenarios 4 and 5, wherein a toll rate increase is assumed for FY2025.

Figure 8 – Annual Historical and Forecasted Toll Traffic, All Scenarios, 1971 – 2050

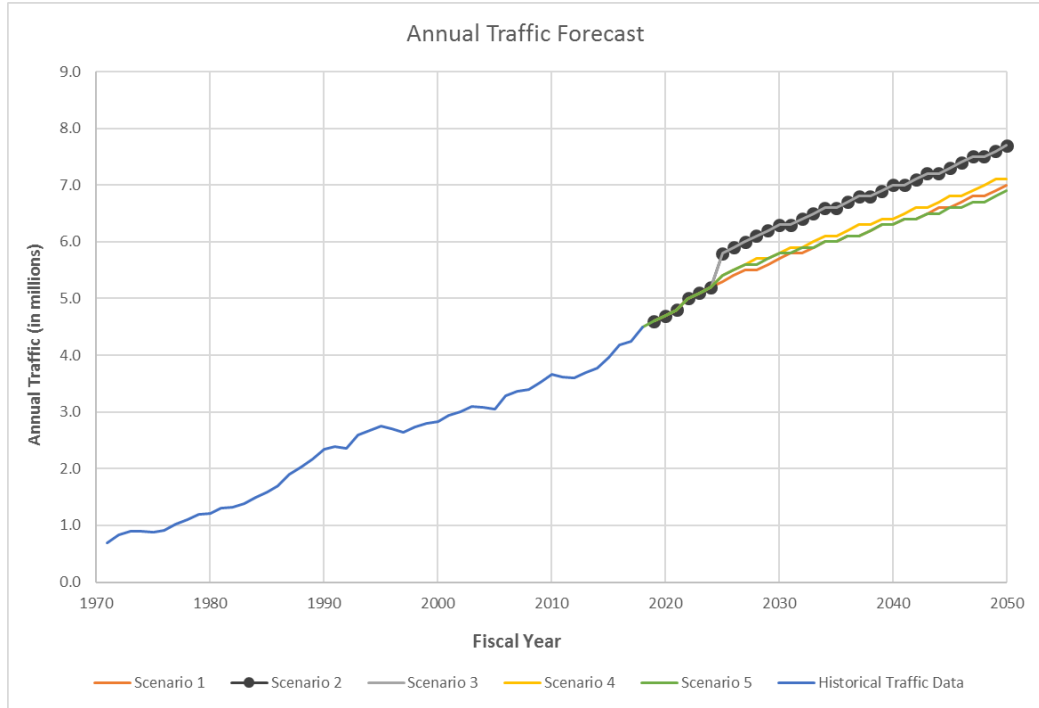
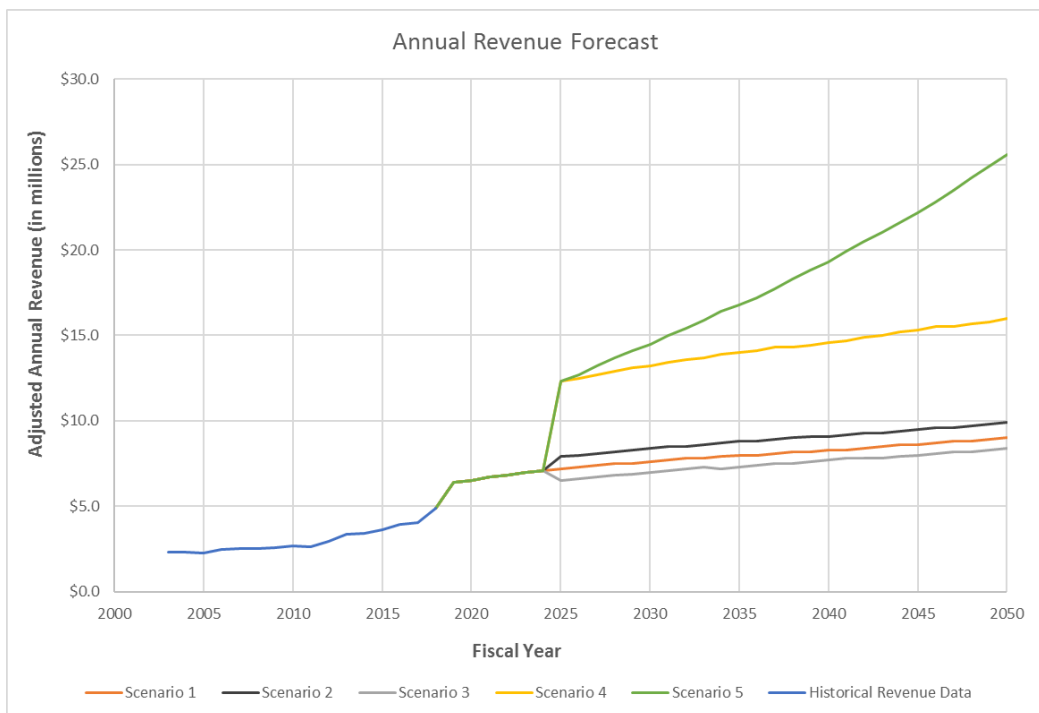


Figure 9 – Annual Historical and Forecasted Toll Revenues, All Scenarios, 2003 – 2050



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Closing

Our forecasts have been prepared in accordance with accepted industry-wide practice, and it is Stantec's opinion that the traffic and gross and net toll revenue estimates provided herein are reasonable and that the assumptions underlying the study provide a reasonable basis for the analysis. However, any financial projection is subject to uncertainties. Inevitably, some assumptions used to develop the projections will not be realized, and unanticipated events and circumstances may occur. There are likely to be differences between the projections and actual results, and those differences may be material. Because of these uncertainties, Stantec makes no guaranty or warranty with respect to the projections in this Study.

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